FORT BEND SUBSIDENCE DISTRICT

2022 ANNUAL GROUNDWATER REPORT

Determination of Groundwater Withdrawal and Subsidence in Fort Bend County

by Robert Thompson & Ashley Greuter, P.G.

Fort Bend Subsidence District Report 2023-01

Fort Bend Subsidence District
Richmond, Texas
www.fbsubsidence.org

MICHAEL J. TURCO
GENERAL MANAGER

The Fort Bend Subsidence District (District) has been monitoring water use, groundwater levels, and subsidence in Fort Bend and adjacent counties since 1989. Subsidence, the lowering of land-surface elevation, is caused by the depressurization of our aquifers due to the widespread use of groundwater as a primary water source. The mission of the District is to cease ongoing subsidence and prevent the occurrence of future subsidence. As part of this effort, it is important for the District to provide consistent, high-quality information to the public regarding groundwater use, aquifer water levels, and subsidence.

The information contained within this report is the compilation of the largest multi-agency effort in the State of Texas that leverages the resources of both the Fort Bend and Harris-Galveston Subsidence Districts with the City of Houston, the Lone Star Groundwater Conservation District, the Brazoria County Groundwater Conservation District, and the United States Geological Survey. This year alone, local, county, regional, and federal partnerships will publish the 33rd volume of this important data compilation. This report is intended to exceed the requirements of section 8834.104 of the District's enabling legislation.

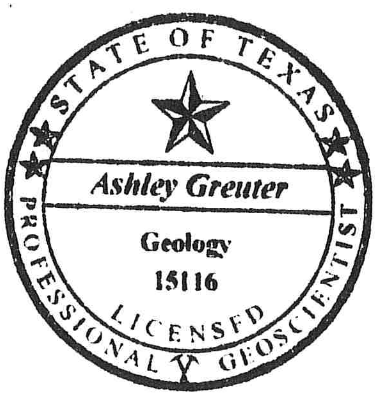
On behalf of the Board of Directors of the Fort Bend Subsidence District, I would like to thank you for your interest in the District. We look forward to continuing to provide timely, accurate, high-quality data and research to inform the District's Regulatory Planning and water planning throughout the region.

Sincerely,

Michael J. Turco
General Manager

Professional Geoscientist Seal

The contents of this report (including figures and tables) document the work of the following Licensed Professional Geoscientist:



Ashley Greuter, P.G. No. 15116

Ms. Greuter was responsible for working on all aspects of the subsidence section of the report including preparation of report figures, tables, and written text. The groundwater level data collection and interpretations were performed by the USGS and are included in the report for informational purposes. The subsidence data were processed and analyzed by Dr. Guoquan Wang at the University of Houston.

Ashley Greuter

Signature

05/24/2023

Date

Table of Contents

List of Tables

List of Figures

List of Appendices

Acknowledgements

The compilation of the data and analysis contained within this report would not be possible without the concerted effort of many that contributed to the 2022 Annual Groundwater Report. The authors would like to thank the staff of the Fort Bend Subsidence District for their diligent field work in collecting GPS and water use information; Brian Ladd (Fort Bend Subsidence District) for his processing and validation of water use data; Dr. Guoquan Wang (University of Houston) and his students for processing and archival of all of the raw GPS data; and the permittees, staff, and owners of the over 1,500 permitted wells in the District that submitted detailed water use information contained in this report.

BOARD OF DIRECTORS

Public Hearing Notice was posted on:	March 31, 2023
Draft Presentation Posted on District Website on:	April 26, 2023
Public Hearing held on:	April 27, 2023
Hearing Examiner:	Ms. Helen Truscott
Hearing Record held open for public comment until:	May 5, 2023
Approved by the Board of Directors:	tentative May 24, 2023

Conversions Factors and Datum

Multiply	By	To obtain
inch (in)	2.54	centimeter (cm)
foot (ft)	0.305	meter (m)
mile (mi)	1.609	kilometer (km)
square mile (mi^2)	2.590	square kilometer (km^2)
gallon (gal)	3.785	liter (L)
million gallons per day (MGD)	3785.41	cubic meter (m^3)
million gallons per day (MGD)	3.0688	acre-feet (acre-ft)

List of Acronyms

BCGCD	Brazoria County Groundwater Conservation District
CORS	Continuously operating reference station
GNSS	Global navigation satellite system
GPS	Global positioning system
GRP	Groundwater Reduction Plan
HGSD	Harris-Galveston Subsidence District
LSGCD	Lone Star Groundwater Conservation District
MGD	Million gallons per day
NGS	National Geodetic Survey
NOAA	National Oceanic and Atmospheric Administration
NWS	National Weather Service
PAM	Periodically measured station
POR	Period of record
TxDOT	Texas Department of Transportation
UH	University of Houston
USGS	United States Geological Survey

Executive Summary

Groundwater was the primary source of water for municipal, agricultural, and industrial users over the last century. The rapid increase in population in the 1950s due to the expansion of the industrial complex in the Houston Ship Channel area led to a dramatic increase in water demand and groundwater withdrawal. The reliance on groundwater and subsequent subsidence that was caused by its regional development resulted in the creation of the Harris-Galveston Subsidence District (HGSD) in 1975 and the Fort Bend Subsidence District (District) in 1989. The District's mission is to regulate the use of groundwater in Fort Bend County, to cease ongoing and prevent future subsidence that can lead to infrastructure damage and contribute to flooding.

This report comprises the 33rd Annual Groundwater Report for the District. Pursuant to District Resolution No. 2023-468 passed on February 22, 2023, the Board of Directors held a public hearing at 2:00 p.m. on April 27, 2023. This report provides an overview of the information presented during the Public Hearing, including climatic conditions, groundwater use, groundwater levels and measured subsidence within the District through December 31, 2022.

Climate

Annual variations in precipitation can significantly impact the total water demand in the District. Groundwater use patterns fluctuate during periods of climatic variation, which results in changes in aquifer water levels and potentially in subsidence rates. During periods of excessive rainfall, total water demand can decline; conversely, during periods of drought, water use can increase resulting in declining water levels in the aquifer and increased rates of subsidence. The 2022 calendar year started out below normal, and remained below normal for the rest of the year. There were periods for some rainfall in the spring, fall and the end of the year. Overall, rainfall totals in 2022 ended 20.3 inches below normal. In comparison, rainfall was 27.3 inches below normal during the 2011 drought.

Water Use

Since 1989, water users in the District have been working to change their source water from primarily groundwater to alternative sources of water that will not contribute to subsidence, like treated surface water. The percent of total water demand sourced from groundwater has dropped from about 60 percent in 1990 to about 48 percent in 2022. The three primary water uses in the District are public supply, industrial, and irrigation. Public supply groundwater use remains the largest single-use category at 74.8 million gallons per day (MGD), a 34 percent increase from 2021, and accounts for 83 percent of groundwater used in the District.

The District's Regulatory Plan requires permittees to convert to alternative water supplies to reduce their reliance on groundwater sources. The primary alternative

water supply used in our region is surface water sourced from three river basins, the Brazos River Basin, the San Jacinto River Basin and the Trinity River Basin. Total alternative water usage for 2022 was 95.6 MGD, with the Brazos River remaining the single largest source of alternative water, providing a total of 67.9 MGD in surface water supply. Groundwater remains the largest source of water supply within the District as a whole. The total water use for the District was determined to be 184.2 MGD in 2022, which is 32 percent higher than in 2021.

Groundwater Levels

Annually, since 1990, the United States Geological Survey (USGS) has measured the water level in hundreds of wells throughout the Houston region in cooperation with the District through a joint funding agreement along with additional cities, HGSD and groundwater conservation districts to monitor and provide reports on groundwater level altitude data for the Chicot and Evangeline aquifers (undifferentiated). Since aquifer water level is the best measure of the pressure in the aquifer, this information is also of vital importance to understanding the impact of changes in water use on subsidence.

The change in water level in the Chicot and Evangeline aquifers (undifferentiated) since 1990 shows the impact of District regulation on the aquifers. The area of rise with as much as 81 feet in the Chicot and Evangeline aquifers (undifferentiated) is a result of the reduction of groundwater use required by the District's Regulatory Plan. In northeastern Fort Bend County, water levels continue to be significantly lower than the historical benchmark, with declines of at least 160 feet in the Chicot and Evangeline aquifers (undifferentiated). These areas are growing rapidly and the conversion to alternative sources of water will not be completed in the District until 2027.

Subsidence

Since the mid-1990s, the District has been utilizing global positioning (GPS) stations to monitor the land surface elevation in the area. Working collaboratively with the University of Houston (UH) researchers, the monitoring network has grown to 230 GPS stations throughout the region that are operated by the District, the HGSD, the UH, the Lone Star Groundwater Conservation District (LSGCD), the Brazoria County Groundwater Conservation District (BCGCD), the City of Houston, the Texas Department of Transportation (TxDOT), and other local entities.

The average annual rate of movement is a useful measure to show the current activity at a GPS station. Subsidence rates greater than 2 centimeters (cm) per year were measured in northern Fort Bend County, near the boundary to the Harris and Waller County line, by Interstate 10. The southern portion of Regulatory A and all of Regulatory Area B show very little subsidence at under half a centimeter per year based on the subsidence rate averaged from 2018 to 2022.

Introduction

The Houston region has relied on groundwater as a primary source of water since the early 1900s. During and following the economic boom of the 1940s, rapid population expansion and increased water use resulted in potentiometric water level declines in the Chicot and Evangeline aquifer of 250 to 300 feet (76 and 91 meters) respectively from 1943 to 1977 (Gabrysch, 1982). The potentiometric surface is the level to which water rises in a well. In a confined aquifer, this surface is above the top of the aquifer unit; whereas, in an unconfined aquifer, it is the same as the water table.

The reliance on groundwater and subsequent subsidence that was caused by its regional development resulted in the creation of the Fort Bend Subsidence District (District) in 1989. The District's mission is to regulate the use of groundwater in Fort Bend County to cease ongoing and prevent future subsidence that can contribute to flooding and lead to infrastructure damage.

Purpose and Scope of Report

This document comprises the 33rd Annual Groundwater Report for the District. Pursuant to District Resolution No. 2023-468 passed on February 22, 2023, the Board of Directors held the Annual Groundwater Hearing beginning at 2:00 p.m. on April 27, 2023. The Public Hearing was held as an in-person meeting. The public hearing fulfills the requirements of Section 8834.104, Texas Special Districts Local Laws Code, which states that each year, the Board of Directors shall hold a public hearing for the purpose of taking testimony concerning the effects of groundwater withdrawals on the subsidence of land within the District for the preceding year.

Approximately 20 people attended the 2022 Groundwater Hearing including members of the United State Geological Survey (USGS) staff, along with members of the District's staff, two Board members, several interested parties and the public. Those giving testimony were Mr. Robert Thompson and Ms. Ashley Greuter of the District and Mr. Jason Ramage, Hydrologist, Gulf Coast Programs Office, Texas-Oklahoma Water Science Center, USGS, Department of the Interior. District staff submitted 13 exhibits including topics of precipitation, groundwater withdrawal, alternate-water usage, and subsidence measurements. Mr. Ramage presented 11 exhibits including topics of water level altitudes, water level changes, and aquifer compaction.

The record was left open until May 5, 2023. Ms. Truscott asked for additional testimony and questions at the end of the Public Hearing. No additional testimony or questions were provided.

This report provides an overview of the information presented during the Public Hearing, including climatic conditions, groundwater use, groundwater levels and measured subsidence within the District from January 1, 2022 through December 31,

2022. The **Appendix A** of this report includes the exhibits presented at the public hearing held on April 27, 2023.

Description of Study Area

The following section provides an overview of the study area, including the hydrogeology and the District's regulatory planning areas.

Hydrogeology

The Gulf Coast Aquifer exists as an accretionary wedge of unconsolidated sediments composed primarily of sand, silt, and clay. Indicative of a transgressive-regressive shoreline, the interbedded sands and clays are not horizontally or vertically continuous at larger than a local scale. From youngest to oldest, these hydrogeologic units include the Chicot, Evangeline, Burkeville Confining Unit, Jasper, and Catahoula Sandstone aquifers.

The two-primary water-bearing units located within the District include the Chicot and Evangeline aquifers. The Chicot and the Evangeline aquifers comprise the shallow system of aquifers. These aquifers are hydrologically connected, allowing for the free flow of water between the two units. The Chicot and Evangeline aquifers have been combined into an (undifferentiated) shallow aquifer system called the Chicot and Evangeline aquifers (undifferentiated) in this report (**Figure 1**).

The Jasper aquifer is the deepest of the three (3) primary water-bearing units and is isolated by the regionally persistent Burkeville confining unit. Currently, there is only one well completed in the Jasper aquifer, and has only been in use on a limited basis. In the region, the Catahoula Sandstone, deepest water-bearing unit in the Gulf Coast Aquifer system and the Burkeville confining unit are utilized as a groundwater supply in areas to the north and west of the District where these units may produce appreciable amounts of water.

Most of the subsidence that has occurred in the District can be sourced to clay compaction in the shallow water-bearing units associated with long-term water use and the decline in the potentiometric surface. Because of the significant amount of clay material in the primary water-bearing units of the aquifer, the risk of compaction is high in areas where the developed portions of the aquifers are within about 2000 feet of land surface (Yu, et al., 2014) under high stress from groundwater development, and have had sustained potentiometric water level declines.

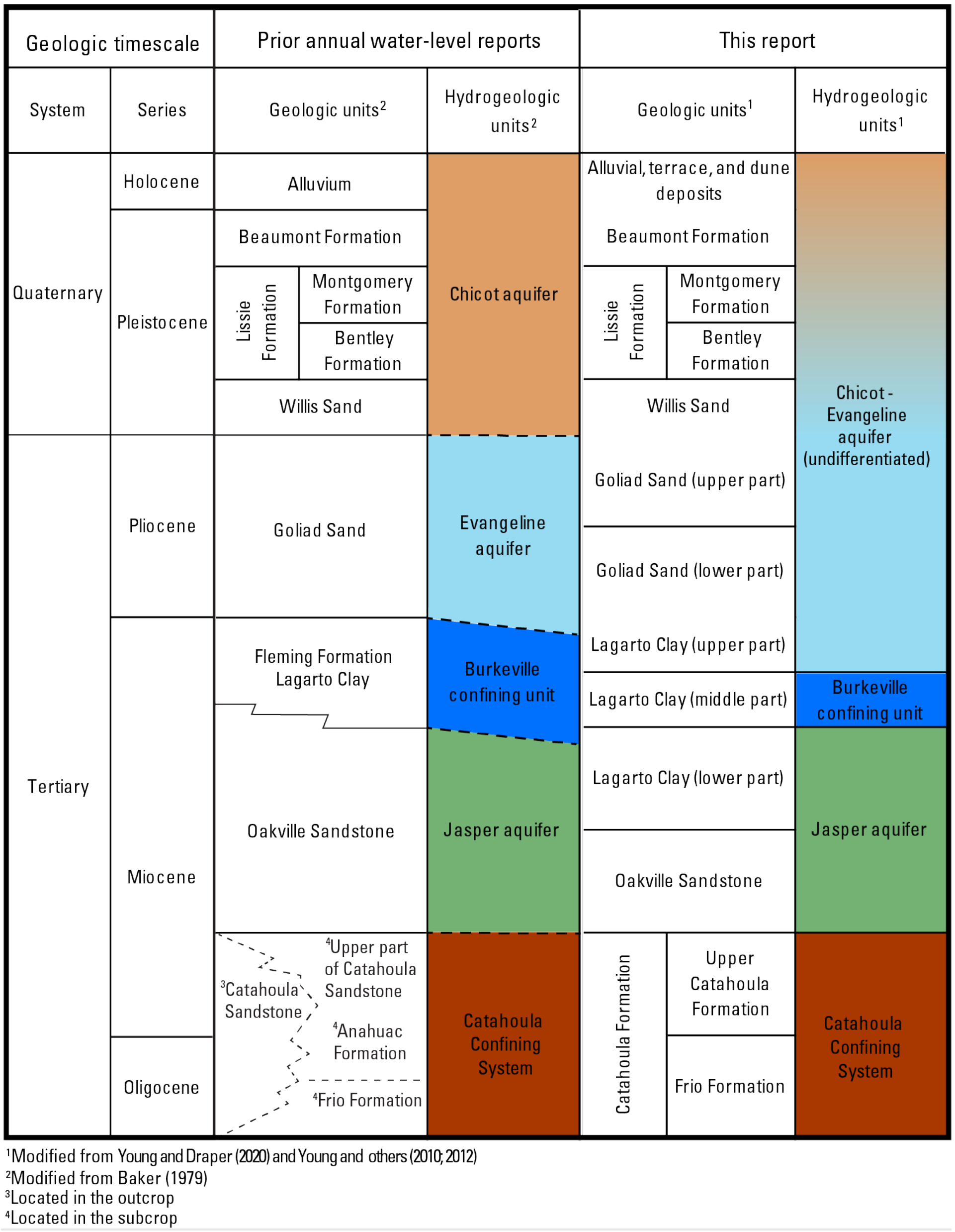


Figure 1. Updated stratigraphic column of the Gulf Coast Aquifer System in Fort Bend and adjacent counties, Texas (Ramage, et al., 2022).

Regulatory Planning

The District's Regulatory Plan was developed to reduce groundwater withdrawal to a level that ceases ongoing subsidence and prevents future subsidence within the District. The District utilizes a novel approach to regulating groundwater withdrawal to prevent subsidence by allowing a portion of the total water demand of a groundwater user to be sourced from groundwater. Total water demand is defined as the total amount of water used by an entity from all sources, including groundwater, treated surface water, reclaimed water, etc. The District adopted the most recent Regulatory Plan on January 23, 2013, and it was subsequently amended on June 22, 2022.

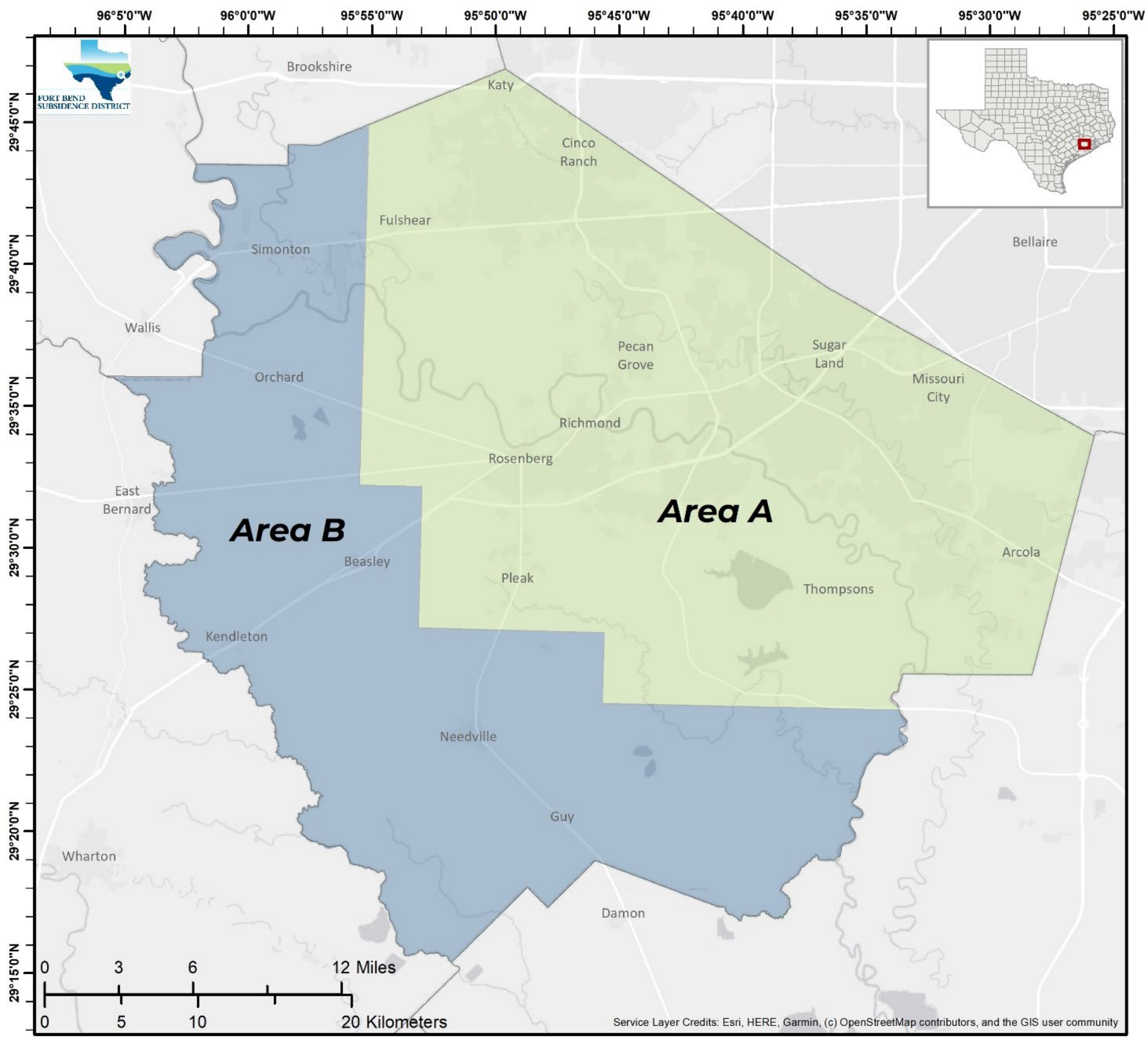


Figure 2. Location of the Fort Bend Subsidence District's Regulatory Areas.

The District has historically used regulatory areas to guide groundwater conversion deadlines and regulations. The 2013 Regulatory Plan has subdivided Fort Bend County into two regulatory areas (**Figure 2**). Regulatory Area A includes the northeastern portion of the county, including all of the major cities. Permittees in this area are required to have no more than 70 percent of their total water demand from groundwater sources. Reduction in groundwater use for Regulatory Area A began once the District adopted its Regulatory Plan in 2003. This area will not be fully converted until the next groundwater reduction in 2027. At that time, permittees will be required to reduce their groundwater pumpage by an additional 30 percent, bringing the area to 40 percent groundwater allowance of the total water demand. All other permittees in Regulatory Area A (i.e., those without a Groundwater Reduction Plan (GRP)) were required to reduce their groundwater withdrawals so that no more than 40 percent of their total water demand was sourced from groundwater, beginning in 2008 for those permitted for more than 10.0 MGY. And by 2013, for those without a GRP, less than 10.0 MGY and alternate water available.

Regulatory Area B covers primarily the southern and western portions of the county. Currently, there are no restrictions on groundwater pumpage in this area, except that water from Area B cannot be transferred to Area A, unless the permittee can demonstrate that the groundwater was withdrawn for use in a single or aggregate well system prior to September 24, 2003.

Surficial Hydrology

The District's regulatory plan requires permittees to convert to alternative water supplies in order to reduce their reliance on groundwater sources. The primary alternative water supplies used in our region is surface water sourced from three river basins: the Brazos River Basin, the San Jacinto River Basin and the Trinity River Basin (**Figure 3**)**.**

The Brazos River Basin is the second largest river basin in Texas, covering over 45,500 square miles (117,844 square kilometers), according to the Texas Water Development Board (TWDB). The headwaters of the Brazos River are located near the Texas-New Mexico border and the river travels over 800 miles (1,287 km) to discharge into the Gulf of Mexico near Freeport, Texas. The Brazos River Authority manages the eleven reservoirs within this basin, eight of which are owned by the Brazos River Authority and three are owned by the U. S. Army Corps of Engineers (Region H Water Planning Group, 2016).

The San Jacinto River Basin is the smallest river basin in Texas, covering almost 4,000 square miles (10,360 square kilometers) according to (TWDB 2021). Lake Conroe and Lake Houston are the two water supply reservoirs located within the San Jacinto River Basin. Lake Conroe is jointly owned by the City of Houston and the San Jacinto River Authority. The San Jacinto River Authority operates Lake Conroe and provides water supply to Harris and Montgomery Counties. Lake Houston is owned by the City of Houston and operated by the Coastal Water Authority.

The Trinity River Basin covers almost 18,000 square miles (46,620 square kilometers) with headwaters of the basin located in north central Texas (TWDB, 2021). The Trinity River flows through the Dallas-Fort Worth metroplex, traversing 550 miles (885 km) until the river discharges into Trinity Bay near Anahuac, Texas. There are numerous reservoirs located on the Trinity River which are owned and operated by several different agencies, including Lake Livingston which is owned and operated by Trinity River Authority.

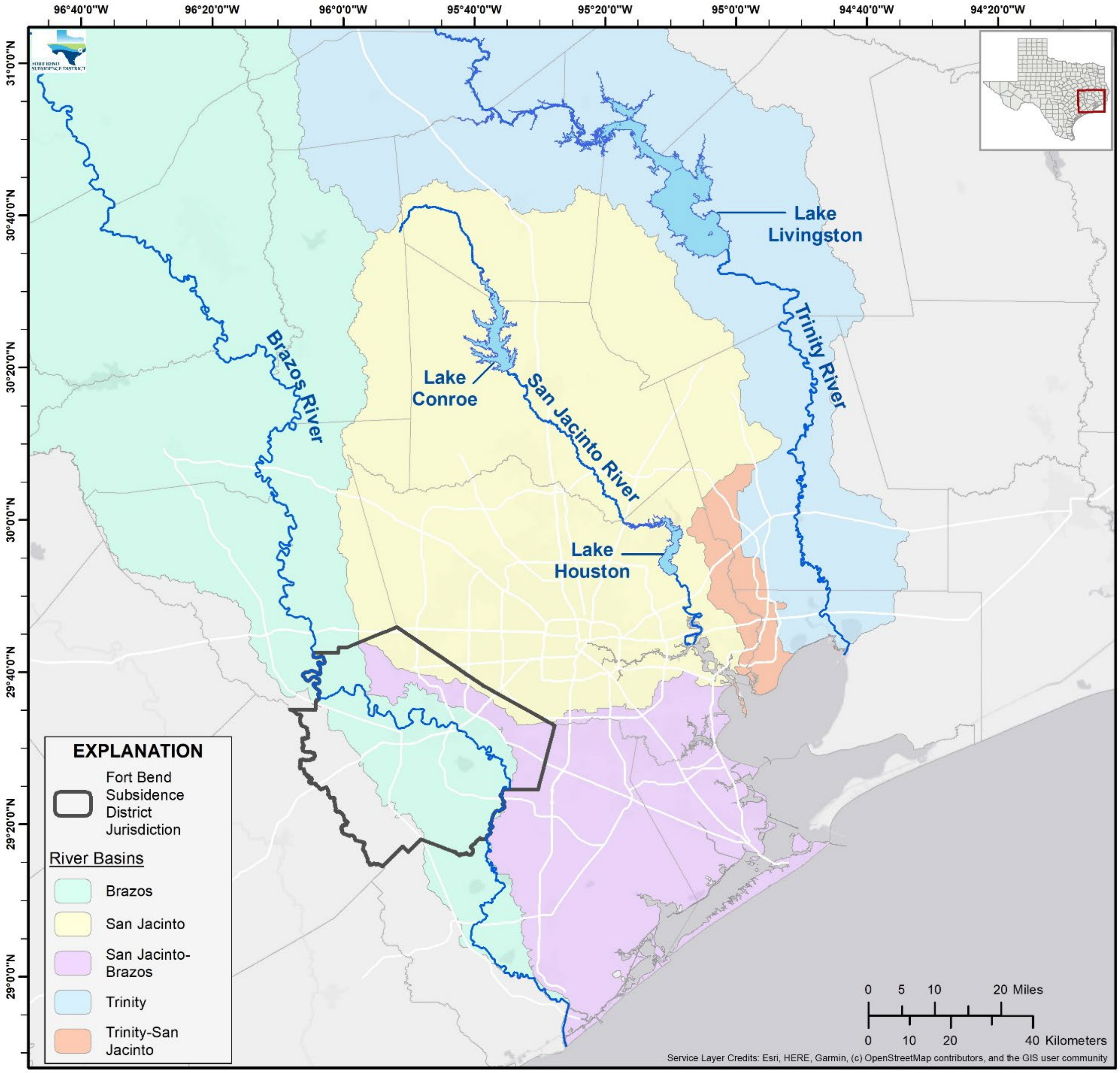


Figure 3: River basins that supply alternative water to Fort Bend and surrounding counties.

Alternative Source Waters

In the 1950s, the City of Houston along with other entities in the region began the development of several water supply reservoirs to provide water for the rapidly growing region within the Brazos, San Jacinto and Trinity River Basins. The water treatment plants served by these surface water sources are operated by the City of

Houston, City of Sugar Land, City of Missouri City, City of Richmond, the Gulf Coast Water Authority, the Brazosport Water Authority, and others.

To meet the Fort Bend Subsidence District's regulatory requirements to convert from groundwater to surface water, the City of Houston and four regional water authorities—the North Fort Bend Water Authority, North Harris County Regional Water Authority, Central Harris County Regional Water Authority, and West Harris County Regional Water Authority (collectively, the Water Authorities) began working together to implement a GRP for the planning, design, financing, and construction of several major infrastructure projects.

Three projects are underway to develop the necessary alternative water supply and distribution infrastructure to facilitate the District's future conversion requirements:

- Luce Bayou Interbasin Transfer will pump untreated surface water from the Trinity River through a series of canals and water pipelines along Luce Bayou to Lake Houston.
- Northeast Water Purification Plant Expansion will expand the existing surface water treatment plant located on Lake Houston from 80 MGD up to 320 MGD, in order to treat the raw surface water conveyed by the Luce Bayou Interbasin Transfer project.
- The Surface Water Supply Project will convey treated water from the expanded Northeast Water Purification Plant into western Harris County and northeastern Fort Bend County.

In addition to the three projects described above, the City of Houston and the Water Authorities are each designing and constructing their own distribution systems to convey the treated surface water to their customers. These interrelated regional projects are planned to be completed by 2025, just prior to when the next conversion requirements of the District go into effect in 2027. **Figure 4** shows the extent of these projects.

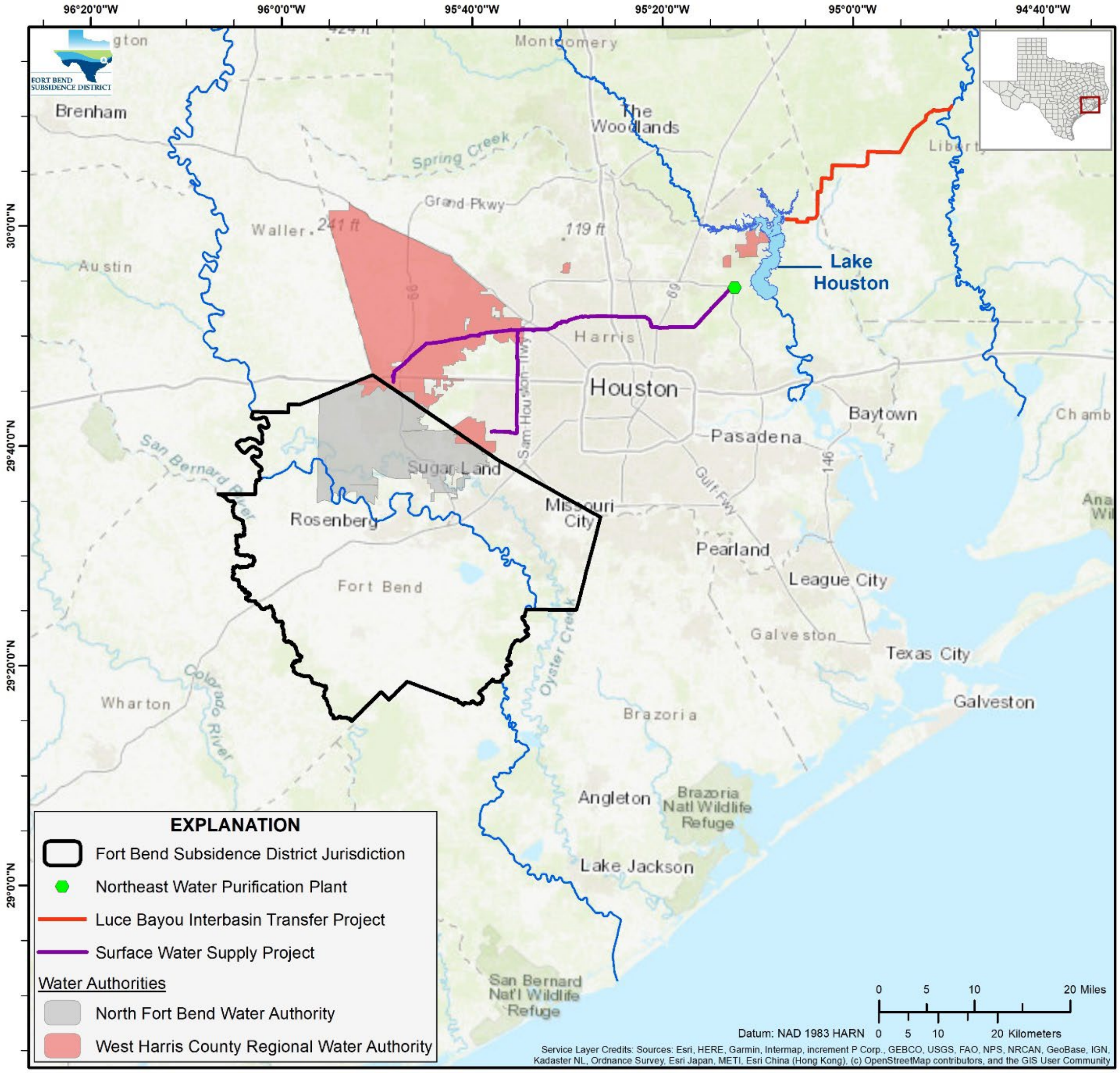


Figure 4: Alternative water supply and infrastructure distribution projects in Fort Bend County and the greater Houston region.

2022 Climate Summary

The District reviews local climatic data provided by the National Oceanic and Atmospheric Administration (NOAA) – National Weather Service (NWS) climate stations within and around the District (**Figure 5**). Variation in local precipitation, specifically deviation from historical normal, is important to the District because it has a direct impact on the magnitude of the total water demand of water users in the region and the availability of alternative water supplies. During periods of above normal precipitation in the region, total water demand remains typically near normal or below normal due to reduced municipal and agricultural water uses. Conversely, during periods of below normal precipitation, the total water demand of the region will typically increase due to increased water use. Additionally, during prolonged periods of below normal precipitation, natural limits on alternative supplies may require additional groundwater use – and subsequently result in additional lowering of groundwater aquifer levels, compaction of the aquifer materials, and subsidence observed at land surface. All stations reported rainfall below normal, for the year (**Figure 5**).

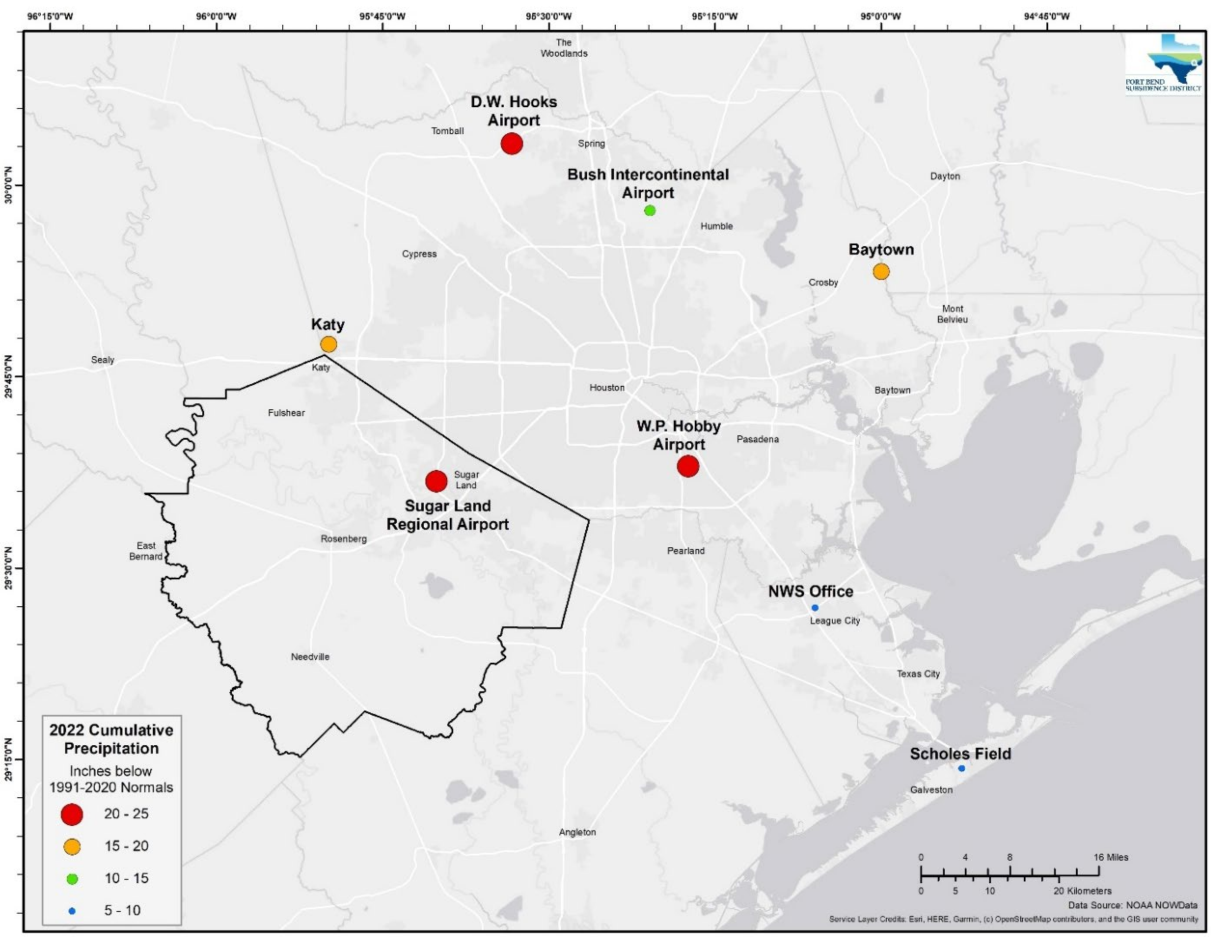


Figure 5. Location of National Oceanic and Atmospheric Administration (NOAA) National Weather Service (NWS) climate stations, in the greater Houston-Galveston region, Texas.

As shown in **Figure 6**, precipitation for the 2022 calendar year at the Sugar Land Regional Airport started below normal, and remained below normal for the rest of the year. There were periods for a few inches of rainfall in the spring, summer, and end of the year. Overall, rainfall totals in 2022 ended 20.3 inches below normal. In comparison, rainfall was 27.3 inches below normal during the 2011 drought.

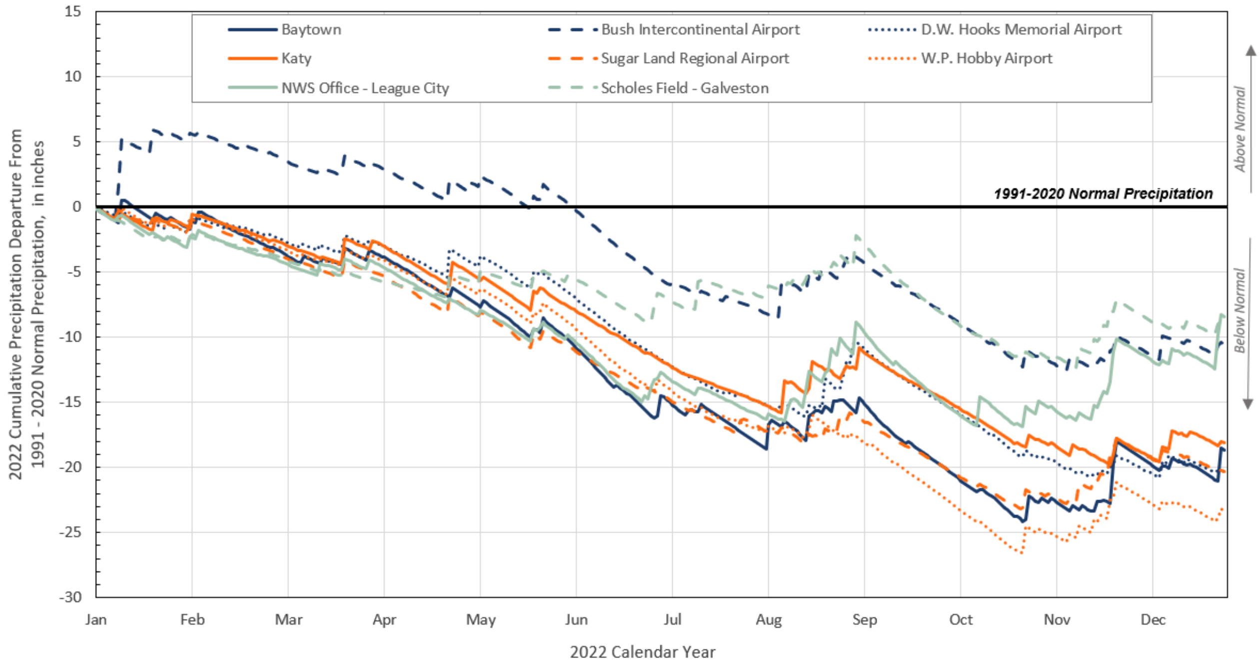


Figure 6. Cumulative precipitation, in inches, departure from 1991-2020 normal precipitation sourced from https://www.ncei.noaa.gov/data/normals-daily/1991-2020/access/) at selected NOAA-NWS Climate Stations in the greater Houston region. Individual climate station data are sourced from NOWData – NOAA Online Weather Data accessed via https://www.weather.gov/wrh/Climate?wfo=hgx.

The largest cumulative rainfall recorded at the selected NWS climate stations was 51.8 inches (131.5 cm) at League City which was 8.4 inches (21.4 cm) below the 1991-2020 normal annual precipitation. The City of Sugar Land Regional Airport cumulative rainfall recorded 29.4 inches (74.7 cm), which was 20.3 inches (51.6 cm) below normal. The year ended with William P. Hobby Airport having the greatest departure from normal at 23.3 inches (59.3 cm) below normal.

2022 Water Use

The District collects groundwater and alternative water supply use annually from our permittees and other suppliers in the area. This information provides an understanding of how much groundwater is being used within the District, how our permittees are using groundwater and a perspective on the conversion from groundwater to surface water for the regulatory areas.

In 2022, there were a total of 1,529 permitted wells in the District. As of April 2023, a total of 1,381 of these permittees had submitted their annual water use data for the District to compile and use in this report. The groundwater withdrawals associated with these missing reports was estimated based on permitted allocations to be 0.9 MGD which equates to one percent of the reported withdrawals. Approximately 148 wells did not report pumpage in 2022.

In addition to providing water use data for 2022, this report also provides updated groundwater withdrawal totals for the previously reported year of 2021. These changes are made during the normal permitting and reporting process as part of the exchange between the District and its permittees. The changes include updating estimated amounts with actual amounts, correction of data entry errors, and errors in the submitted data. There was an increase of 0.7 MGD from the previous 2021 figure.

The following sections provide a summary of the information presented at the Public Hearing held on April 27, 2023. The exhibits used to provide testimony during the hearing are included in **Appendix A – Exhibits Presented at Public Hearing held on April 27, 2023**.

Overall Water Use

The three primary water uses in the District are public supply, industrial, and irrigation. The total amount of groundwater withdrawal for 2022 is 88.6 MGD, a 32 percent increase from 2021 (**Table 1**), with public supply being reported to be 83 percent of the overall use. Groundwater withdrawals had increased slightly since the District's inception in 1989 (**Figure 7**) with a 42 percent increase from 62.6 MGD in 1990 to 88.6 MGD in 2022. However, the 2022 pumpage was significantly higher compared to recent years most likely attributed to the exceptional drought experienced in 2022. Groundwater use hasn't been this high since before the reductions in 2013-2014 as required by the District's Regulatory Plan. Patterns in groundwater use have shifted over time, resulting in reduced groundwater use for industrial and agricultural needs compared with the 1990s and 2000s.

Table 1. Summary of Reported Groundwater Use (in MGD) by Regulatory Area.

Water Use Category	Area A			Area B			Total		
	2021	2022	Change between 2021 and 2022	2021	2022	Change between 2021 and 2022	2021	2022	Change between 2021 and 2022
Public	54.0	72.3	34%	1.7	2.6	54%	55.7	74.8	34%
Industrial	3.9	2.7	-30%	0.1	0.0	-63%	4.0	2.8	-31%
All Irrigation	3.3	5.6	72%	4.5	5.4	21%	7.7	11.0	43%
Total	61.2	80.6	32%	6.2	8.0	29%	67.4	88.6	32%

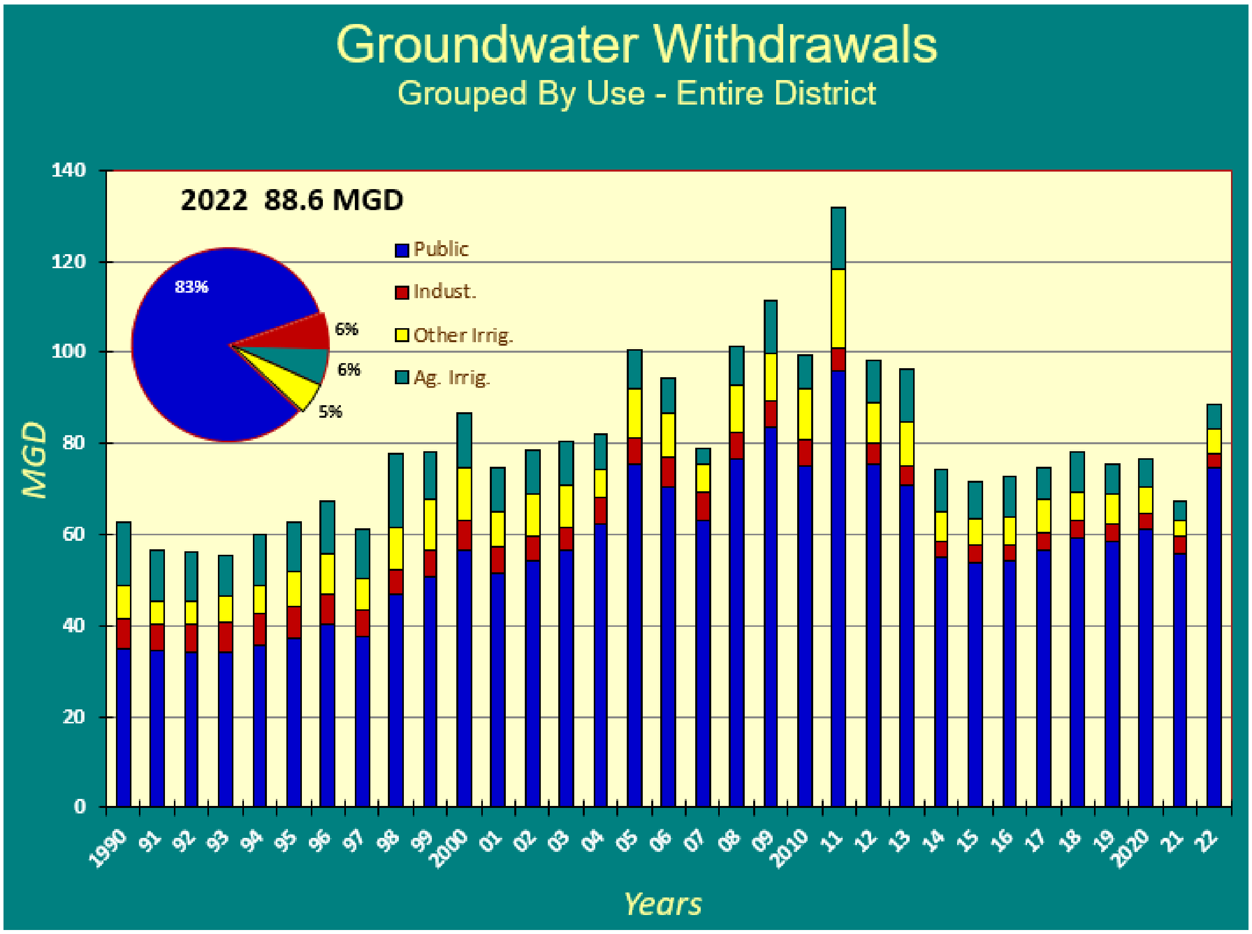


Figure 7: Groundwater withdrawals, in million gallons per day, by water use category from 1990 to 2022. The total groundwater used in the District was 88.6 MGD in 2022, with 83 percent of the use being public supply.

The District is divided into two regulatory areas that define how much groundwater may be utilized as a percentage of the total water demand (**Figure 2**). The groundwater withdrawals are grouped by regulatory area in **Figure 8**. This chart shows the impact of the District's Regulatory Plan, requiring conversion from groundwater to surface water over time and as a result the reduction in groundwater withdrawals in Regulatory Area A. Currently, wells located in Regulatory Area B have no restrictions on their permits.

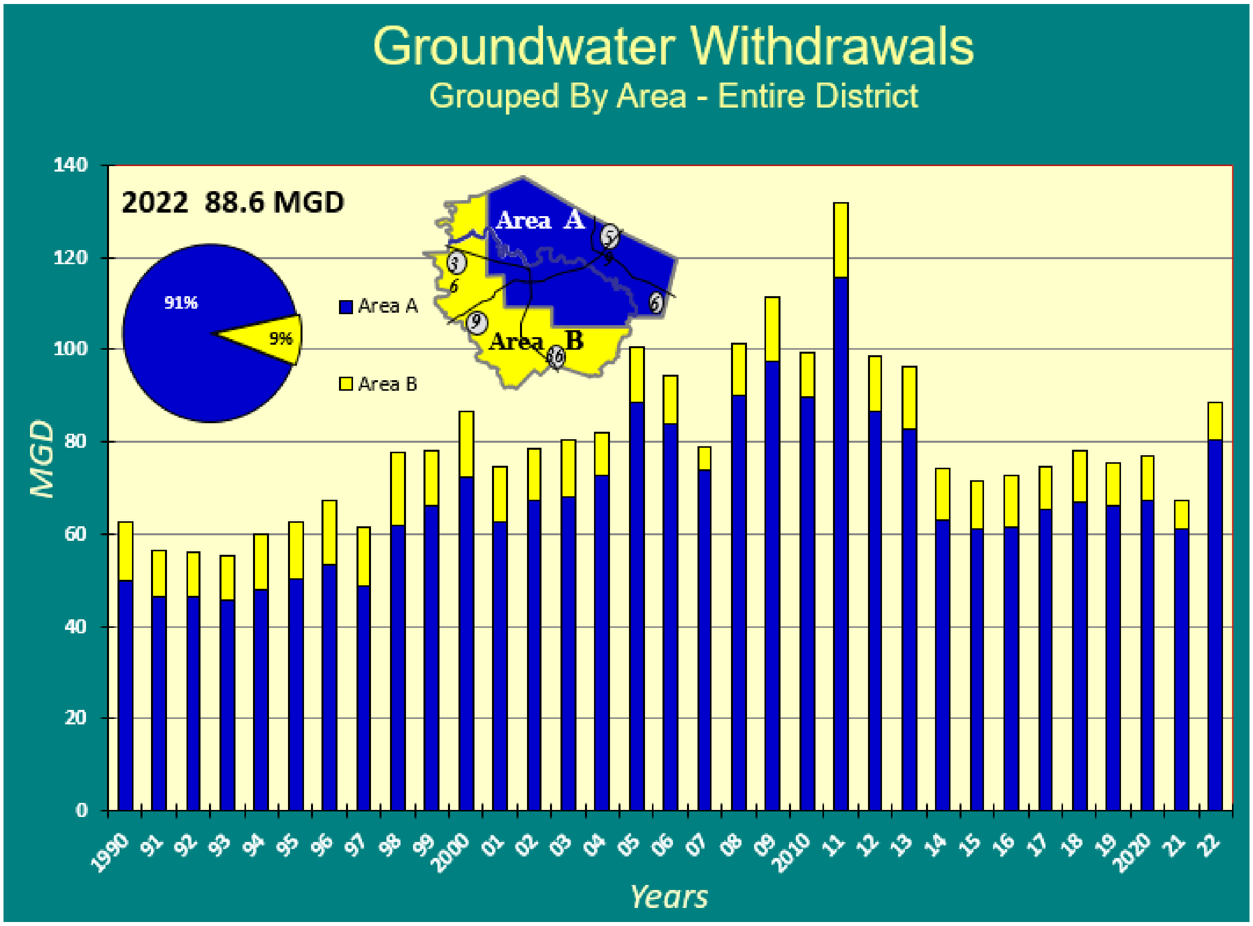


Figure 8: Groundwater withdrawals, in million gallons per day, by regulatory area from 1990 to 2022. In 2022, a total of 80.6 MGD of groundwater was used in Regulatory Area A, with 8.0 MGD used in Regulatory Area B.

Regulatory Area A

Regulatory Area A covers the northeastern portion of Fort Bend County. Cities and entities include Arcola, Cinco Ranch, Fulshear, Houston, Katy, Meadows Place, Missouri City, Pearland, Pleak, Richmond, Rosenberg, Sienna Plantation, Sugar Land, and Thompsons. This area began its conversion to alternate water sources back in 2011, when the North Fort Bend Water Authority began taking water from the City of Houston.

In 2022, total groundwater withdrawal in Regulatory Area A was 80.6 MGD, a 32 percent increase from the previous year (**Figure 9**). The majority of groundwater use in Regulatory Area A is associated with public supply use, which comprises over 88 percent of the use in the area. Industrial use is less than half of what it was in 1990, and it decreased by 30 percent in 2022. Irrigation use is typically correlated to climate and rainfall patterns. The amount of groundwater used for irrigation increased by 72 percent in 2022 to 5.6 MGD, but is much lower than the 17.0 MGD used during the 2011 drought.

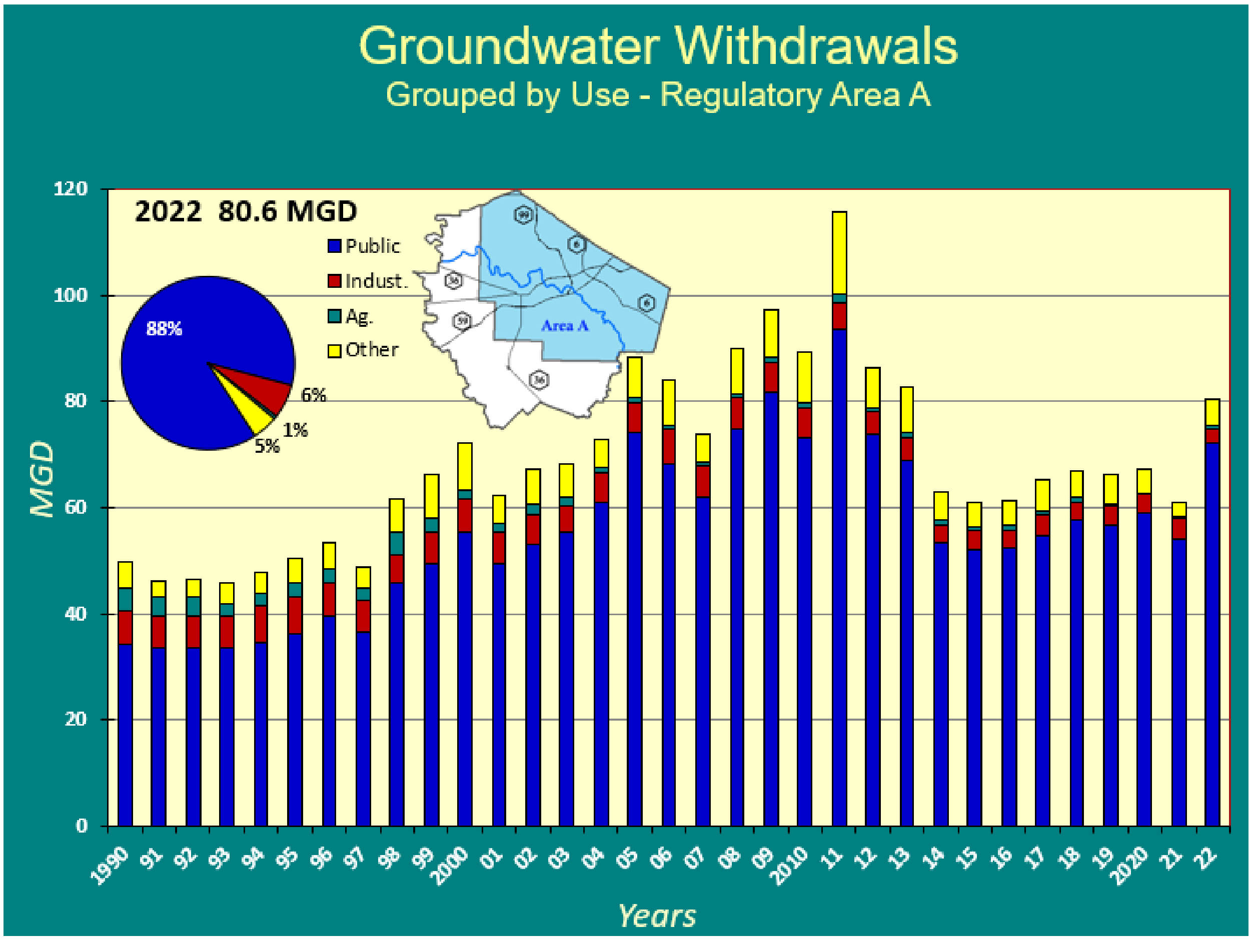


Figure 9: Groundwater withdrawals for Regulatory Area A, in million gallons per day, by water use category from 1990 to 2022. A total of 80.6 MGD of groundwater was used in Regulatory Area A in 2022, with 88% of the withdrawals being used for public supply.

Regulatory Area B

Regulatory Area B covers the western and southern areas of the District. Cities, villages and entities include Beasley, Fairchilds, Kendleton, Needville, Orchard, Simonton, and Weston Lakes.

Total groundwater withdrawal increased by 29 percent in Regulatory Area B from 6.2 MGD in 2021 to 8.0 MGD in 2022 with public supply and irrigation use accounting for the increase (**Figure 10**). Public supply groundwater use increased by 54 percent over 2021 to 2.6 MGD. Industrial groundwater usage decreased to 0.03 MGD and irrigation usage increased to 5.4 MGD, which represents a 21 percent increase in use. Groundwater withdrawals have generally decreased in Regulatory Area B since the 2011 drought.

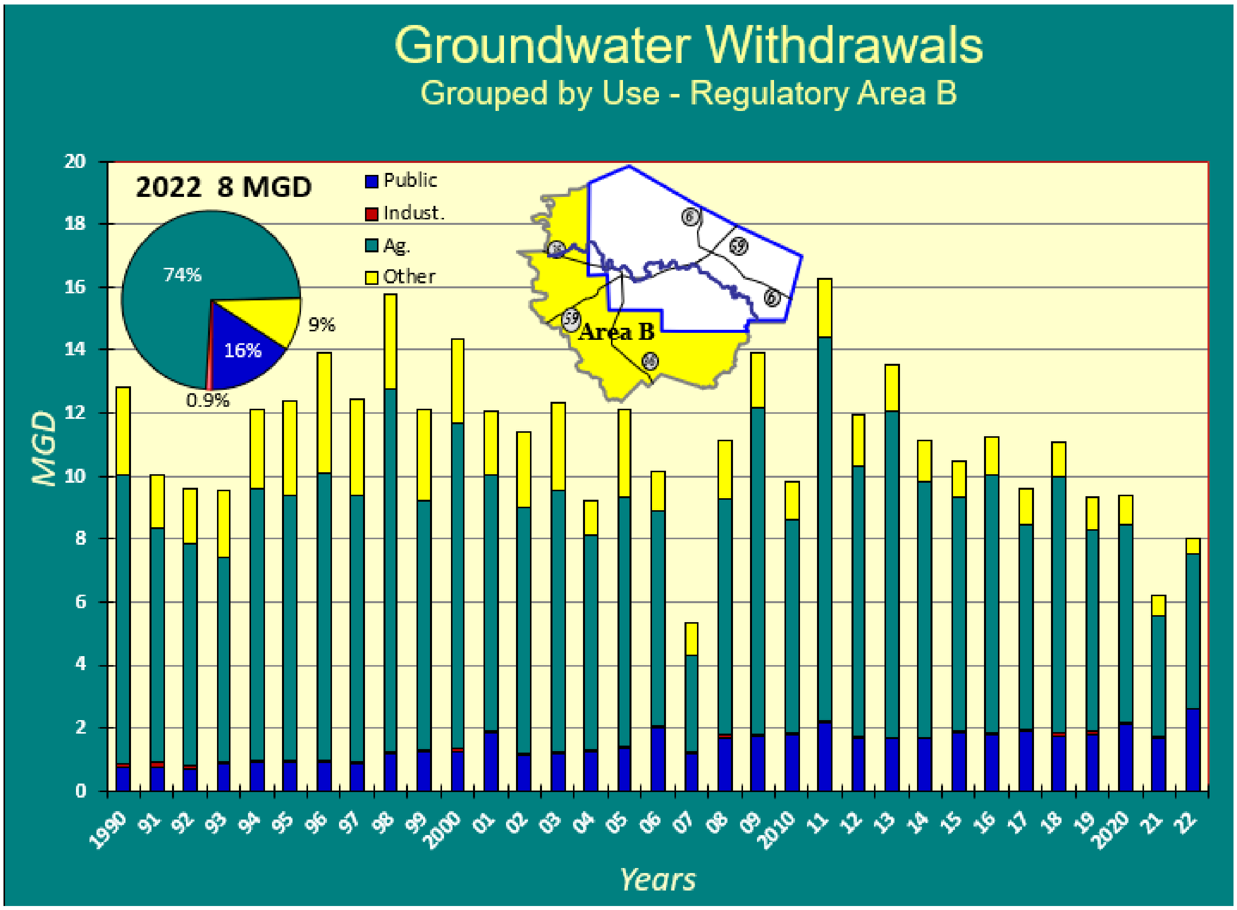


Figure 10: Groundwater withdrawals for Regulatory Area B, in million gallons per day, by water use category from 1990 to 2022. A total of 8.0 MGD of groundwater was used in Regulatory Area B in 2022, with 74% being used for agricultural purposes.

Alternative Water Supply and Total Water Use

The District's Regulatory Plan requires permittees to convert to alternative water supplies in order to reduce their reliance on groundwater sources. The primary alternative water supply used in our region is surface water sourced from three river basins: the Brazos River Basin, the San Jacinto River Basin and the Trinity River Basin (**Figure 3**). Alternative water use from these basins are provided in **Table 2**. The San Jacinto and Trinity River totals have been lumped together because it is not possible to get the exact number by basin.

Groundwater remains the largest source of water supply within the District as a whole. The Brazos River, as it has been since 1990, is still the single largest source of alternative water used within the District. Reclaimed water is also used as an alternative water supply, but to a much smaller degree. Compared with 2021, use of the Brazos River Basin supply was up by 27 percent, while reported reclaimed water use increased by 65 percent in 2022, although the amount of reclaimed water use is quite small overall.

Table 2. Summary of Reported Alternative Water Supply Use and Total Water Use (in MGD)

Source		2021	2022	Change between 2021 and 2022
Alternative Supplies	Brazos River Basin	53.3	67.9	27%
	San Jacinto/Trinity River Basin	15.4	20.5	33%
	Reuse	4.4	7.3	65%
	Alternative Supply Subtotal	73.1	95.6	31%
Groundwater		67.4	88.6	32%
Total Water Use		140.5	184.2	31%

Use of the Brazos River Basin supply has increased by 63 percent from 41.6 MGD in 1990 to 67.9 MGD in 2022 (**Figure 11**). The total water use for the District was determined to be 184.2 MGD in 2022, which is 31 percent higher than 2021.

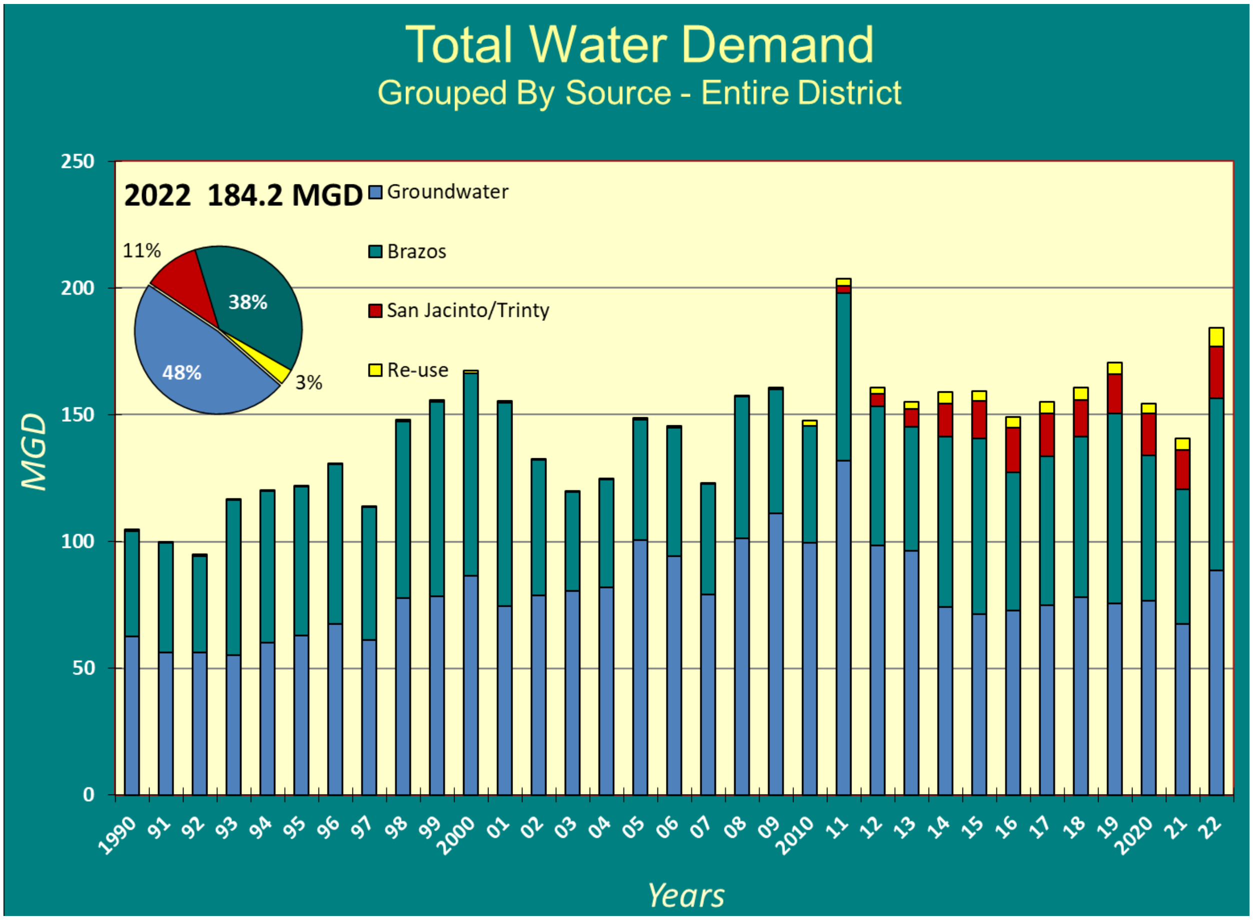


Figure 11: Total water use for the District, in million gallons per day, by source from 1990 to 2022. The total water use for the District in 2022 was 184.2 MGD. The 2022 total water demand is second only to the 2011 drought.

2022 Groundwater Level Summary

All groundwater used in the District is sourced from the Gulf Coast Aquifer System, which is composed of three-primary water-bearing units. The units most widely used in the District is the Chicot and Evangeline (undifferentiated) aquifer. The Chicot is the shallowest aquifer in the District which is hydrologically connected to the Evangeline aquifer immediately below. The Burkeville confining unit lies beneath the Chicot and Evangeline (undifferentiated) aquifers and isolates the third primary aquifer, the Jasper aquifer. The Jasper aquifer is not widely used in the District but is a primary source of water for other counties.

Annually, since 1977, the USGS has measured the water level in hundreds of wells throughout the Houston Region in cooperation with the Fort Bend Subsidence District through a joint funding agreement along with additional cities, HGSD and groundwater conservation districts to monitor and provide reports on groundwater level altitude data for the Chicot, Evangeline and Jasper aquifers. Since aquifer water level is the best measure of the pressure in the aquifer, this information is also of vital importance to understanding the impact of changes in water use on subsidence.

The 2022 potentiometric surface (i.e., the interpolated surface from water level data) from the Chicot and Evangeline aquifers (undifferentiated) show the areas of primary stress on the aquifer occurs in northeastern Fort Bend County (**Figure 12**). Generally, Regulatory Area A has seen a significant decline in the potentiometric water level of more than 150 feet in the Chicot and Evangeline aquifers (undifferentiated) in the Katy/Cinco Ranch area in 2022 (**Figure 13**). This area is growing rapidly and the conversion to alternative sources of water will not be completed in the District until 2027.

The information presented in this section are a summary of the provisional data presented at the Public Hearing held on April 27, 2023. The exhibits used to provide testimony during the hearing are included in **Appendix A – Exhibits Presented at Public Hearing held on April 27, 2023**. A USGS Scientific Investigation Report will be released later this year documenting the status of groundwater level altitudes and the long-term changes in the Chicot and Evangeline aquifers (undifferentiated).

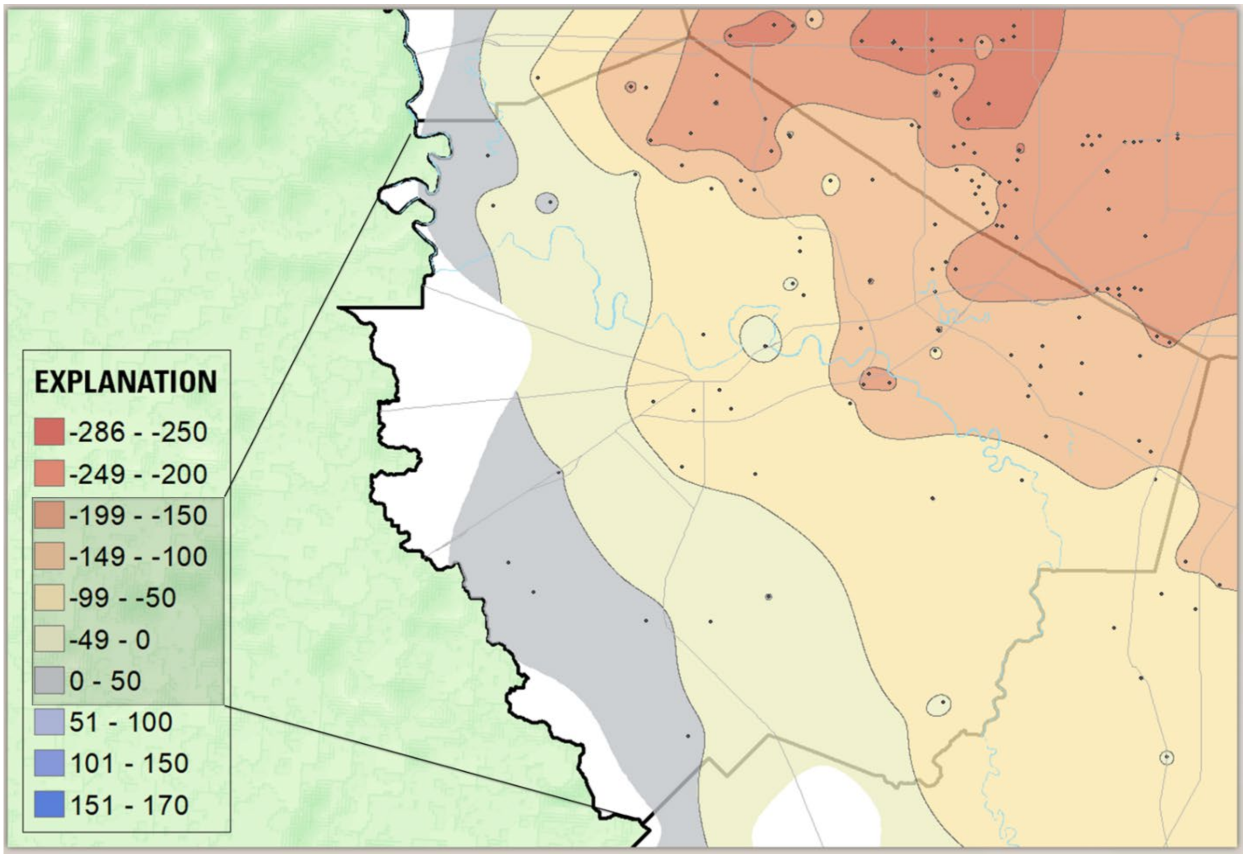


Figure 12: Altitude of the potentiometric surface determined from water levels measured in tightly cased wells screened in the Chicot and Evangeline aquifers (undifferentiated), Fort Bend County, Texas, 2023 (Source: USGS provisional data – preliminary and subject to change).

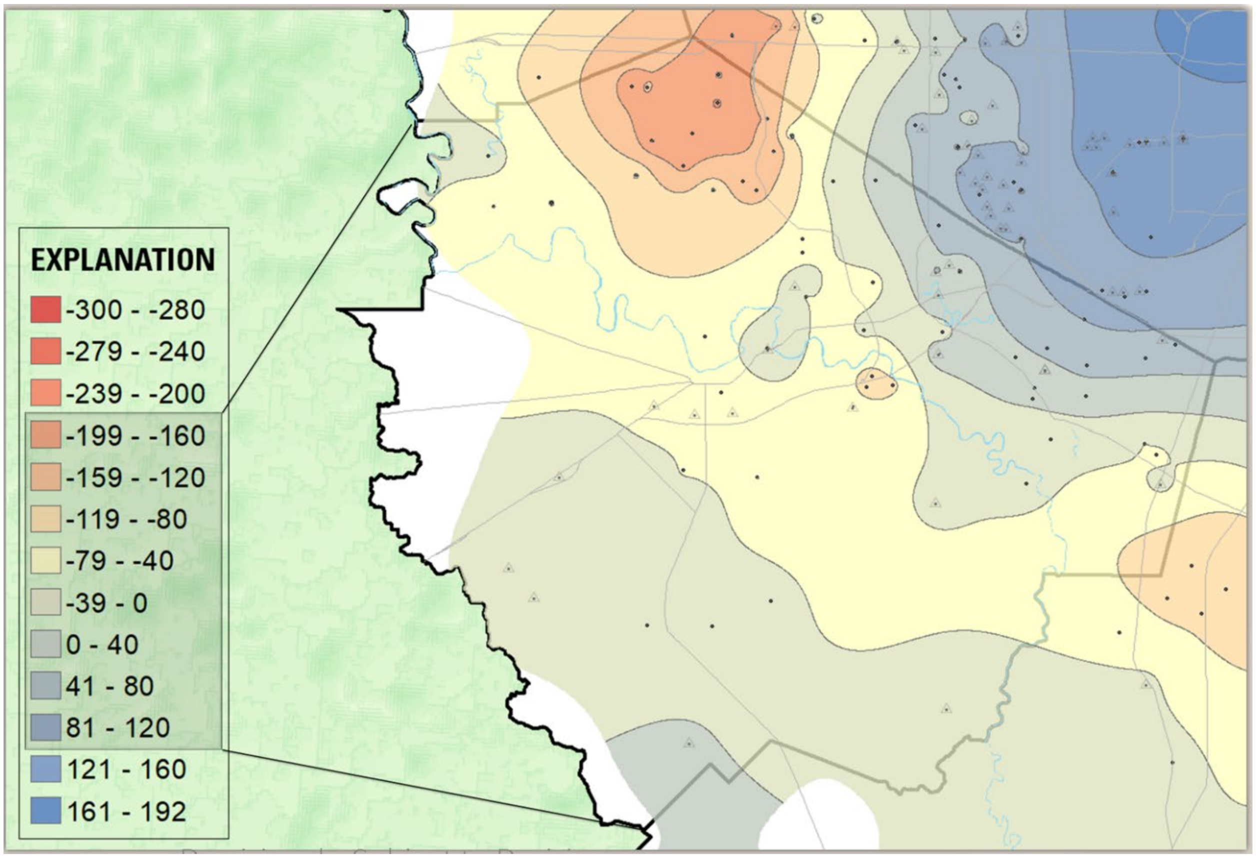


Figure 13: Potentiometric water level change at wells screened in the Chicot and Evangeline aquifers (undifferentiated), Fort Bend County, Texas, from 1990 to 2023 (Source: USGS provisional data – preliminary and subject to change).

Subsidence Trend Analysis

Subsidence is the lowering of land surface elevation. In the Houston-Galveston region, subsidence occurs from the compaction of clays due to groundwater withdrawal for municipal, industrial, and irrigation water supply. As the water level of the aquifer declines, fine-grained sediments, such as silt and clay, in the aquifer depressurize and compact. This compaction results in the lowering of overlying stratigraphic units and is observed at the land surface as subsidence.

Global positioning system (GPS) stations have been installed in various locations across southeast Texas in order to track subsidence since the 1990s. This GPS network consists of a collaboration between the District, HGSD, UH, TxDOT, LSGCD, BCGCD, and other agencies. The GPS network has grown to 230 stations throughout the region. Additional information on the GPS network is provided in **Appendix B – Subsidence Monitoring Network and Data** and **Appendix C – Period of Record Data.**

Satellite signals are collected every thirty seconds and averaged over 24 hours by global navigation satellite system (GNSS) antenna and receiver into one daily data file. Raw data files are processed by Dr. Guoquan Wang at the UH and are processed to a stable reference frame designated as Houston20 to remove natural movements such as plate tectonics (Agudelo, et al., 2020). Additional details on the GPS data processing methodology are provided in **Appendix B**.

The District uses these GPS data in two ways: 1) period of record and 2) as an average annual subsidence rate to understand subsidence trends within the GPS network. Additional information on the average annual subsidence rate and period of record data for each GPS station are provided in **Appendix C**.

Period of Record Data

The period of record includes GPS measurements of the ellipsoidal height that are collected over the lifespan of each GPS station. It is used to track the full history of the land-surface deformation and is represented as a vertical displacement time series. The vertical displacement is determined by the change in ellipsoidal height, which is the distance from a point on the earth's surface to the reference ellipsoid. The reference ellipsoid is a mathematical representation of the earth's surface as a smoothed ellipsoid. Although the ellipsoid height is not the same as elevation, or the orthometric height, research as shown that linear trends of vertical displacement at GPS stations over the same time interval were the same for both ellipsoidal and orthometric heights (Wang & Soler, 2014). Therefore, ellipsoidal heights are used to estimate vertical displacement of the land surface. Period of record plots give a historical context to understand local to regional subsidence trends. Period of record plots for each GPS station in the subsidence monitoring network are provided in **Appendix C**.

Average Annual Subsidence Rate

The average annual subsidence rate is a useful measure to show the recent change in land surface deformation at each GPS station. The subsidence rate, presented in this report, is determined by using linear regression (i.e., the statistically determined best fit straight line through a scatter plot of data points) of the last five years of data for GPS stations with at least three years of monitoring. **Figure 14** depicts the average annual subsidence rate from 2018 to 2022 for 32 GPS stations located in Fort Bend County as well as additional GPS stations in the subsidence monitoring network.

Regulatory Area A has the highest subsidence rates (greater than 2.0 centimeters per year) in the northern area of Fort Bend County near the county border between Waller and Harris. The southern areas of Regulatory Area A show very minor subsidence with subsidence rates below half a centimeter per year. Similarly, in Regulatory Area B, GPS stations measured very little subsidence with subsidence rates below half a centimeter per year. Based on the GPS data collected in Fort Bend County, subsidence is occurring in the northern portions of Regulatory Area A, as this area is still undergoing conversion to alternative water supplies and the population is growing.

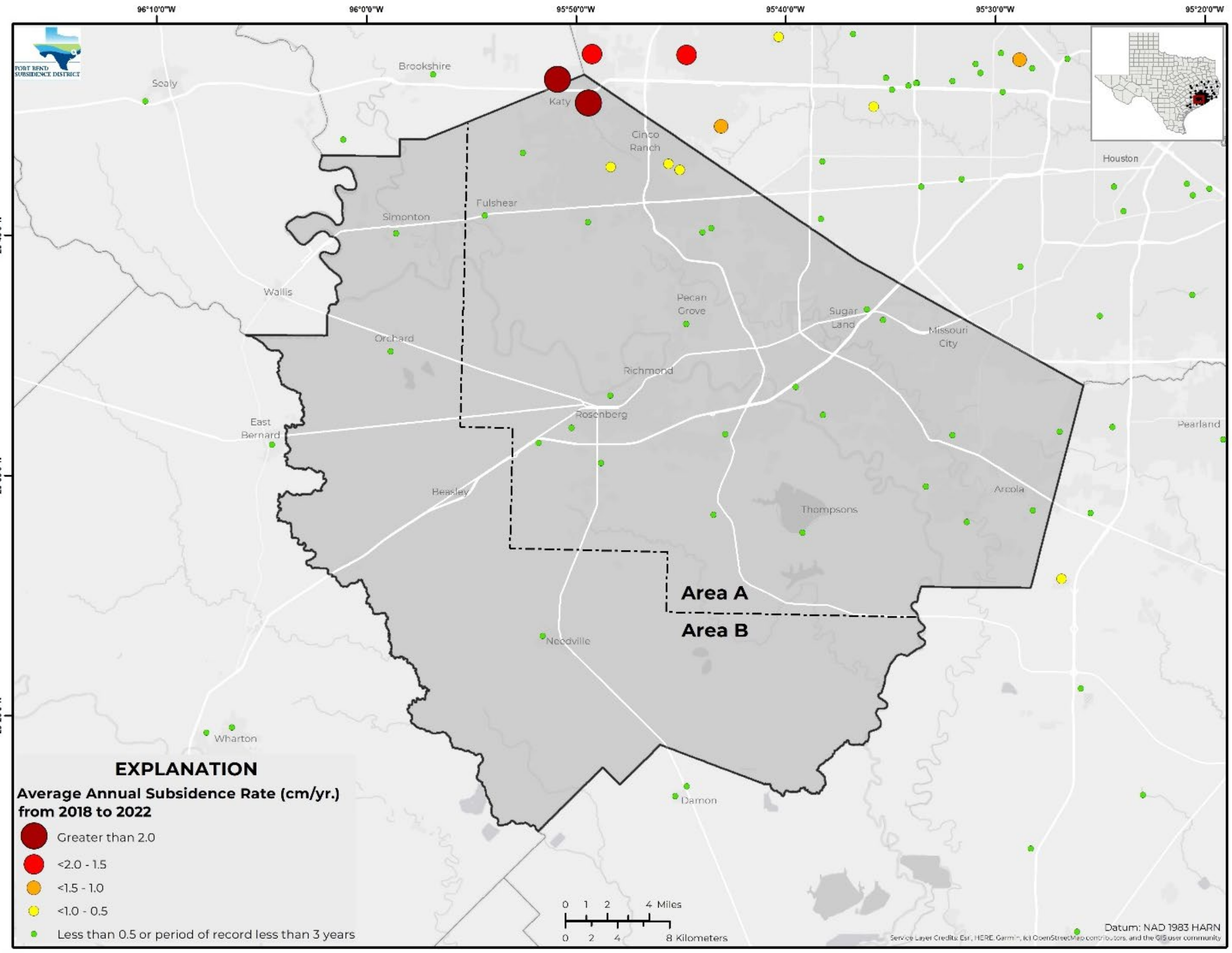


Figure 14: Annual subsidence rate, measured in centimeters per year, referenced to Houston20 and estimated from three or more years of GPS data collected from GPS stations in Fort Bend and surrounding counties, Texas, averaged from 2018 to 2022.

Regulatory Area A contains GPS station P004, located in Sugar Land, that has measured the greatest cumulative subsidence at 27.6 cm (10.8 in) in Fort Bend County. **Figure 15** includes the POR plot and five-year rate for P004 that shows a steep declining trend from 1994 to 2010, then a flattening from 2010 to 2016, and a gentle decline from 2016 to 2022.

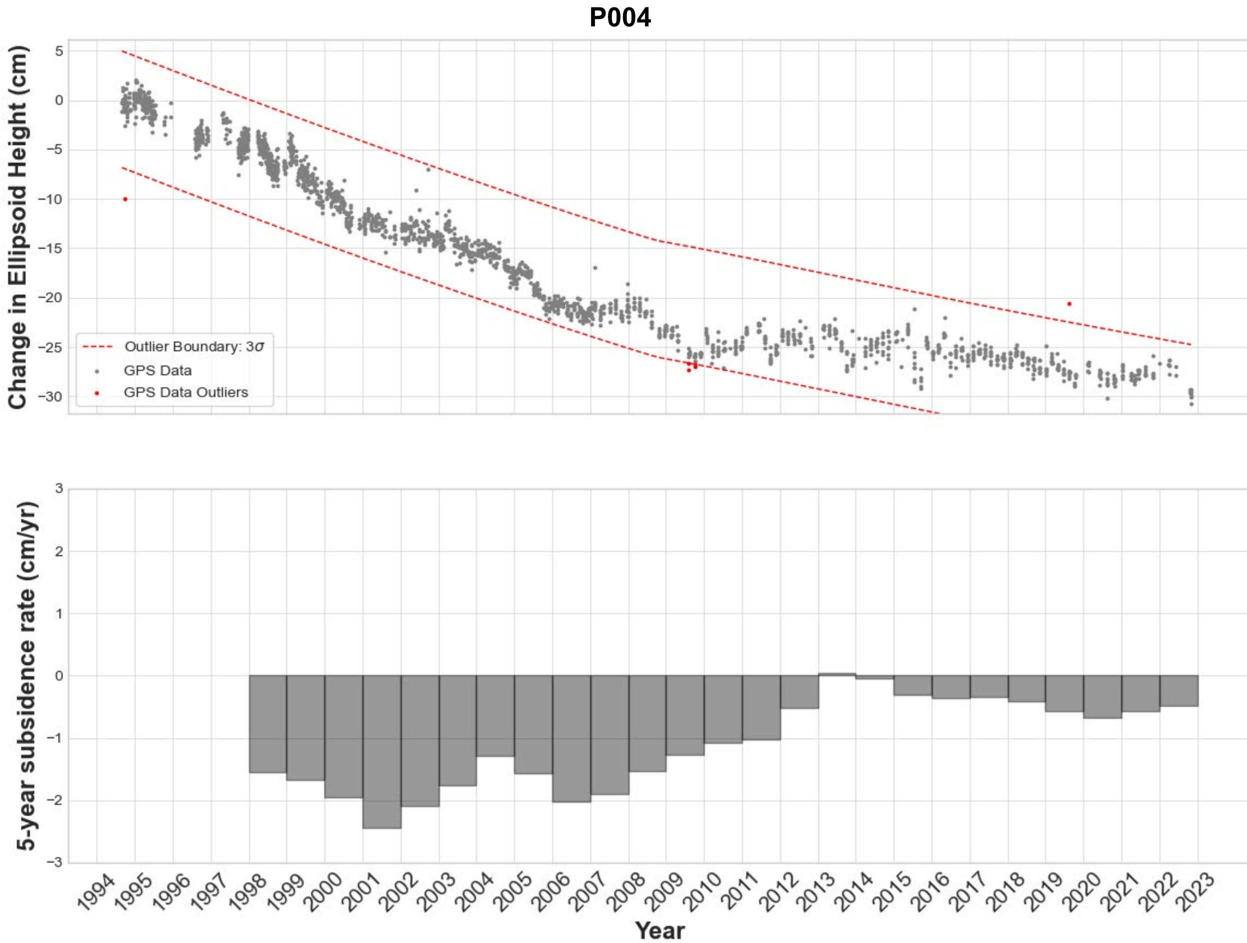


Figure 15: Period of record plot for P004 located in Sugar Land, Texas, 1994 to 2022. This station measured 27.6 cm of subsidence over 28 years and the annual subsidence rate is 0.49 cm per year. The location of P004 is northwest of the intersection between I-69 and Highway 90A. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

References

Agudelo, G. et al., 2020. *GPS Geodetic Infrastructure for Subsidence and Fault Monitoring in Houston, Texas, USA.* s.l.:Tenth International Symposium on Land Subsidence.

Gabrysch, R., 1982. *Ground-Water Withdrawals and Land-Surface Subsidence in the Houston-Galveston Region, Texas, 1906-80,* s.l.: U.S. Geological Survey.

Kasmarek, M. C., 2013. *Hydrogeology and Simulation of Groundwater Flow and Land-Surface Subsidence in the Northern Part of the Gulf Coast Aquifer System, Texas, 1891–2009.* s.l.:U.S. Geological Survey.

Ramage, J. K., Braun, C. L. & Ellis, J. H., 2022. *Treatment of the Chicot and Evangeline aquifers as a single hydrogeologic unit and use of geostatistical interpolation methods to develop gridded surfaces of water-level altitudes and water-level changes in the Chicot and Evangeline aquifers (undifferenti,* s.l.: U.S. Geological Survey Scientific Investigations Report 2022–5064, 51 p..

Wang, G. & Soler, T., 2014. Measuring land subsidence using GPS: Ellipsoid height versus orthometric height. *Journal of Surveying Engineering,* 141(2).

Yu, J., Wang, G., Kearns, T. J. & Yang, L., 2014. Is There Deep-Seated Subsidence in the Houston-Galveston Area?. *International Journal of Geophysics,* Volume 2014.

Appendix A – Exhibits Presented at Public Hearing held on April 27, 2023

2022 Annual Groundwater Report

Public Hearing
April 27, 2023

FORT BEND
SUBSIDENCE DISTRICT

Table of Contents

Location Map

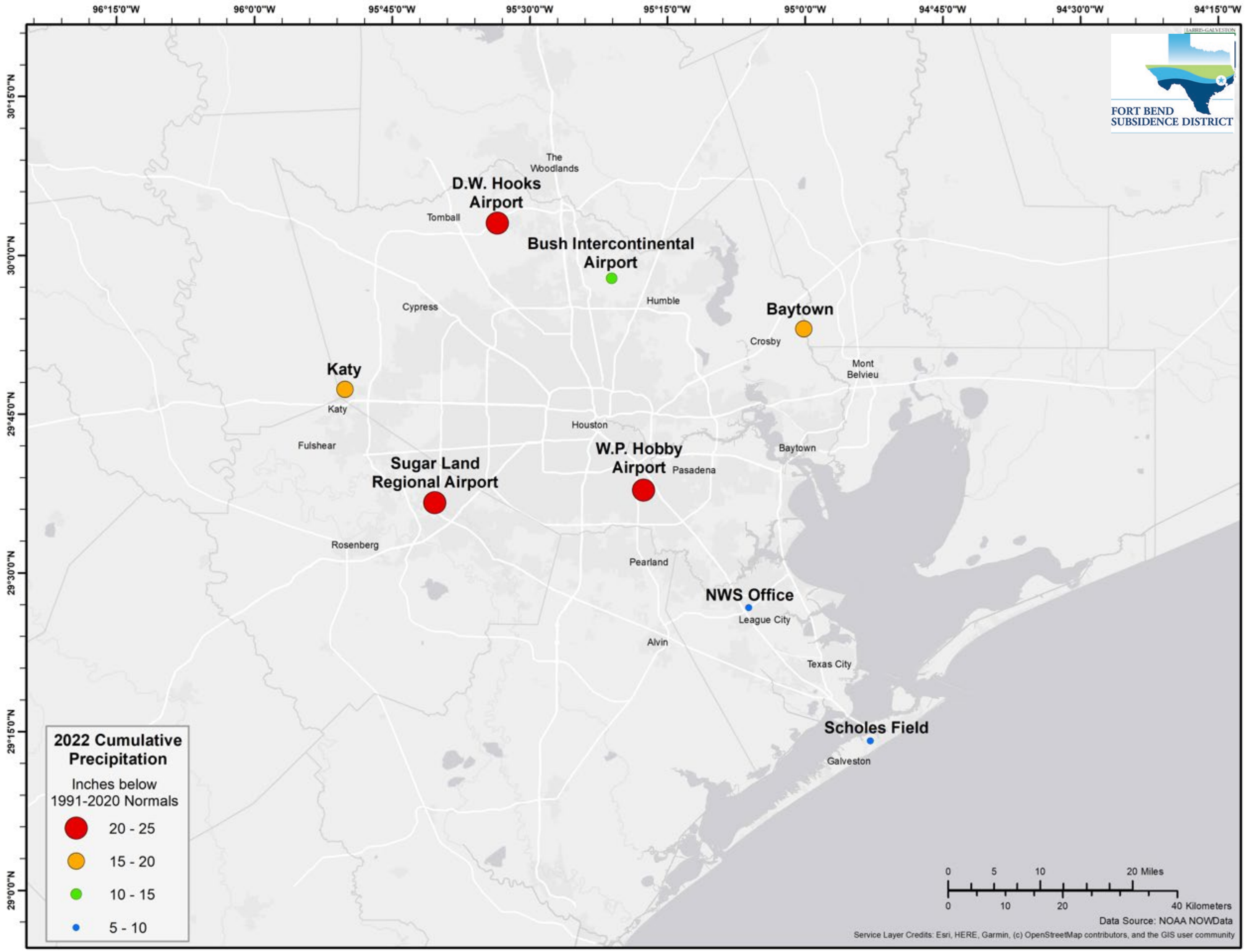


Exhibit 1

Weather

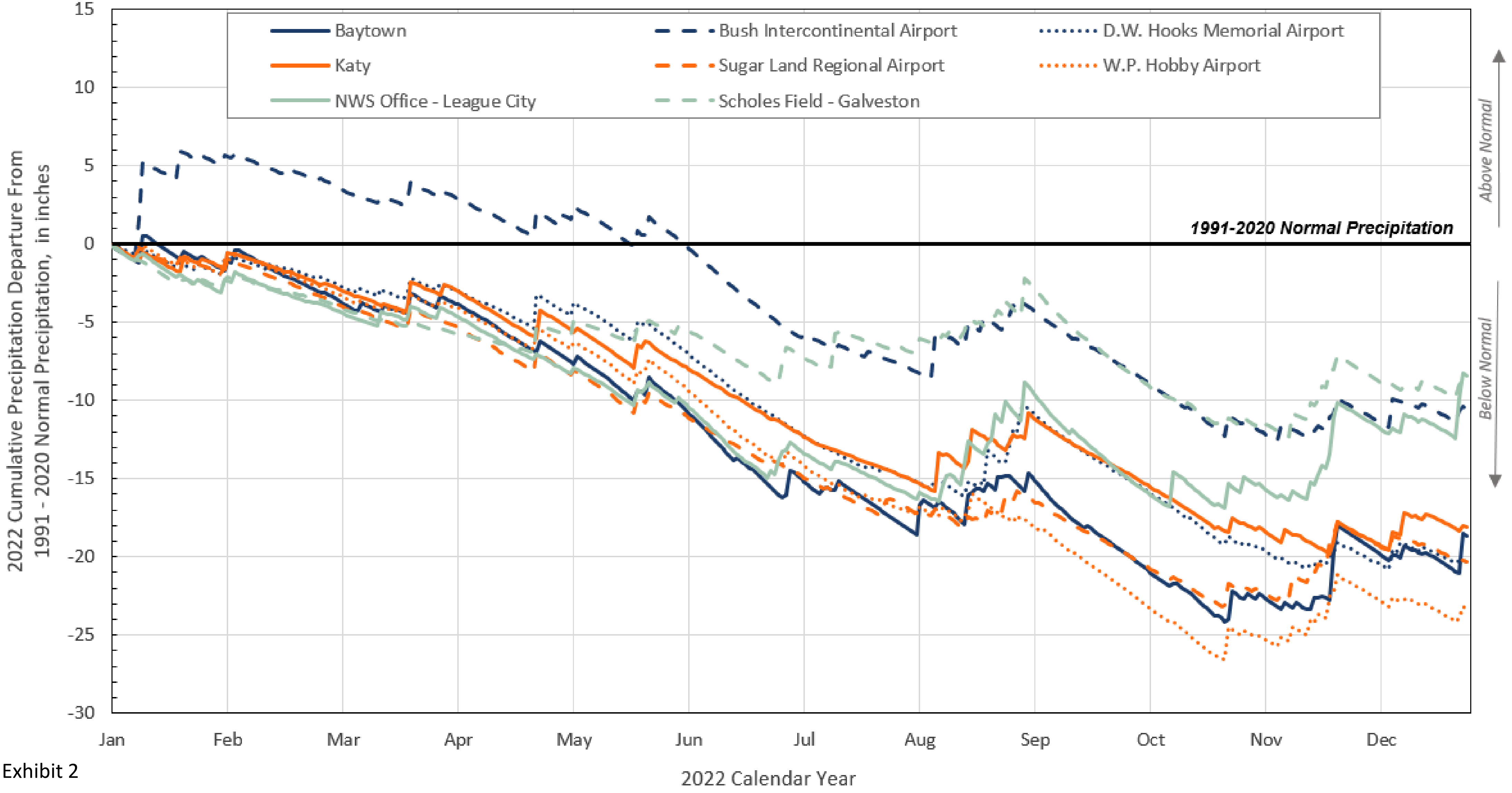


Exhibit 2

Table of Contents

Groundwater Withdrawals | Regulatory Area A

FORT BEND SUBSIDENCE DISTRICT

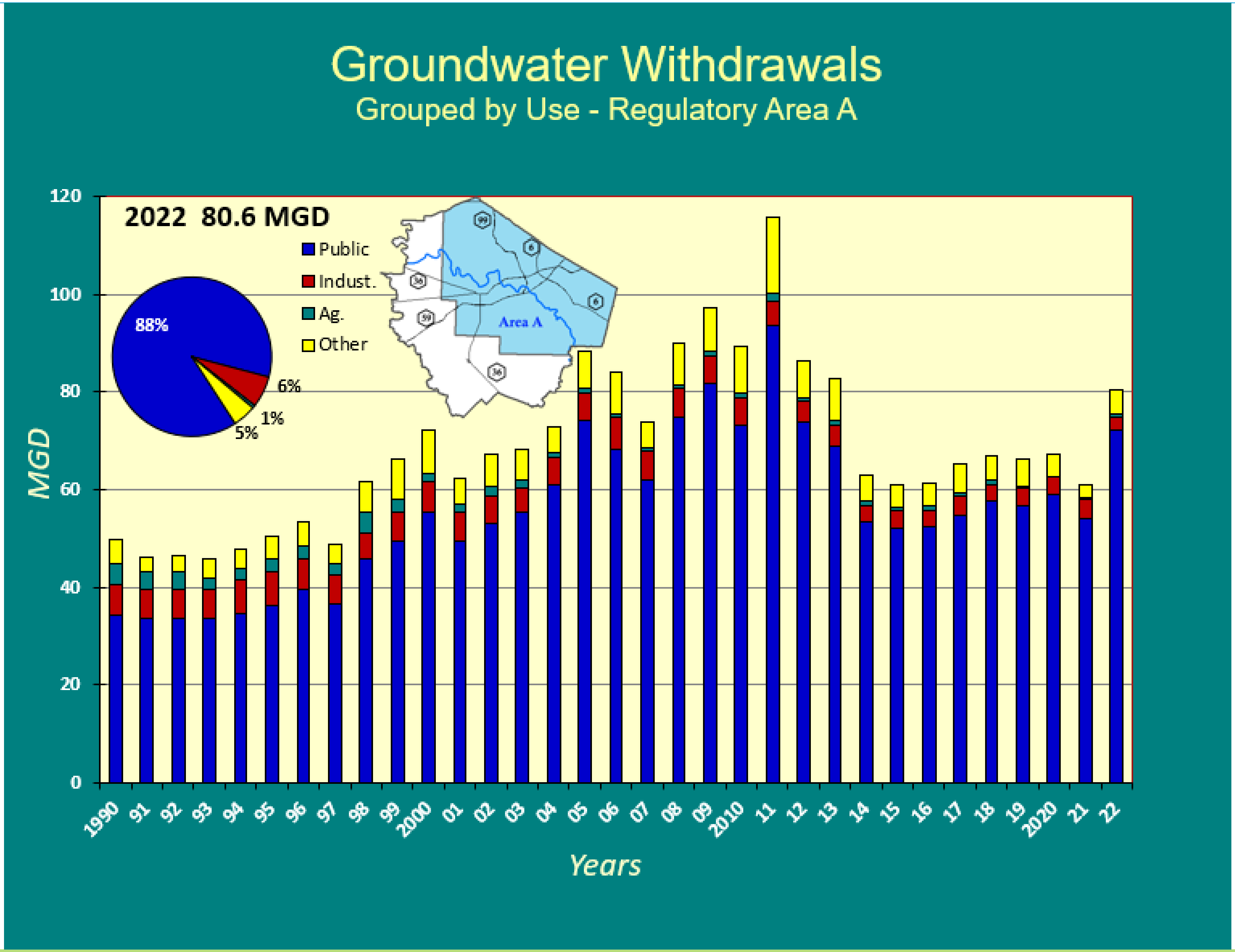


Exhibit 3

Groundwater Withdrawals | Regulatory Area B

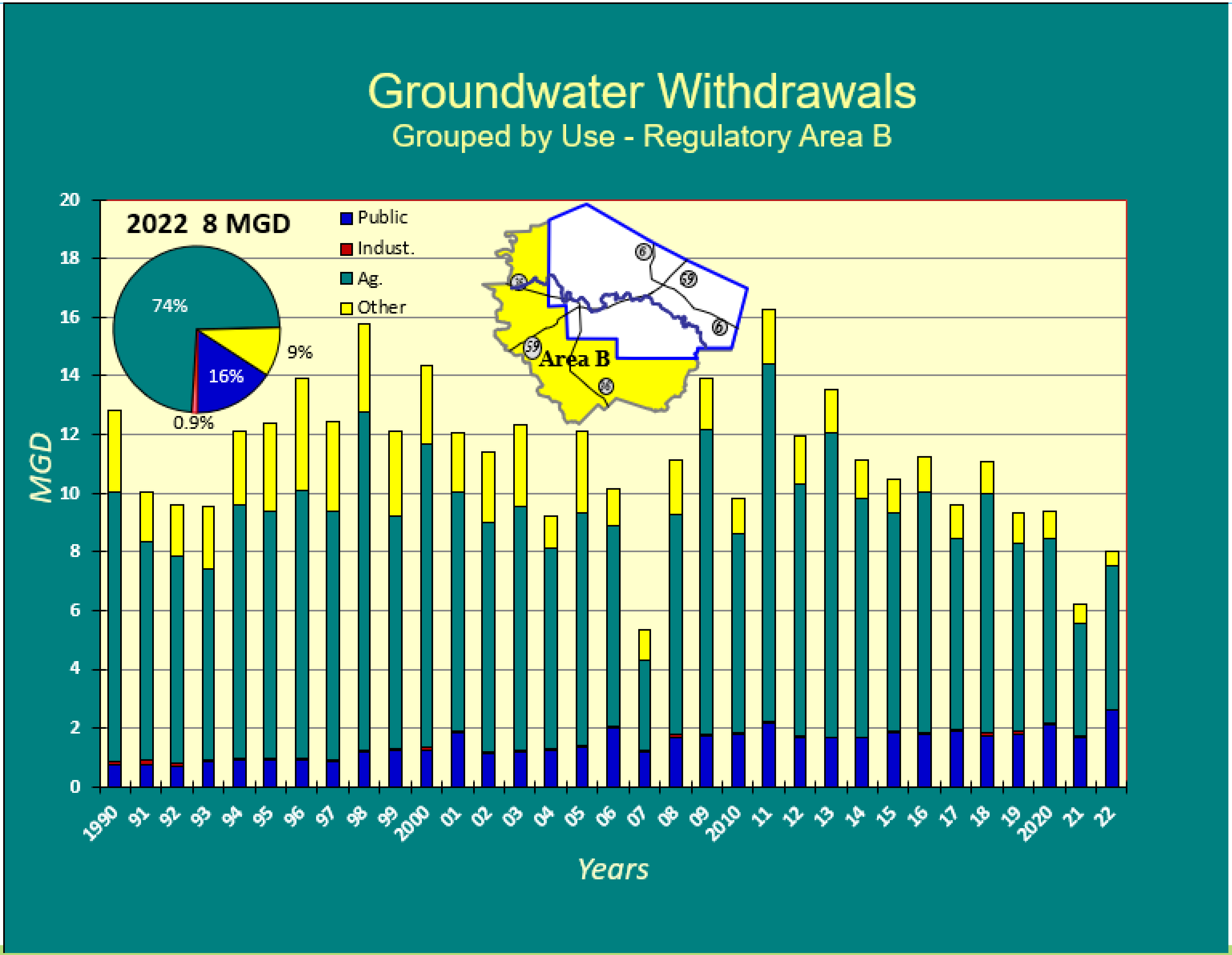


Exhibit 4

Groundwater Withdrawals | Entire District

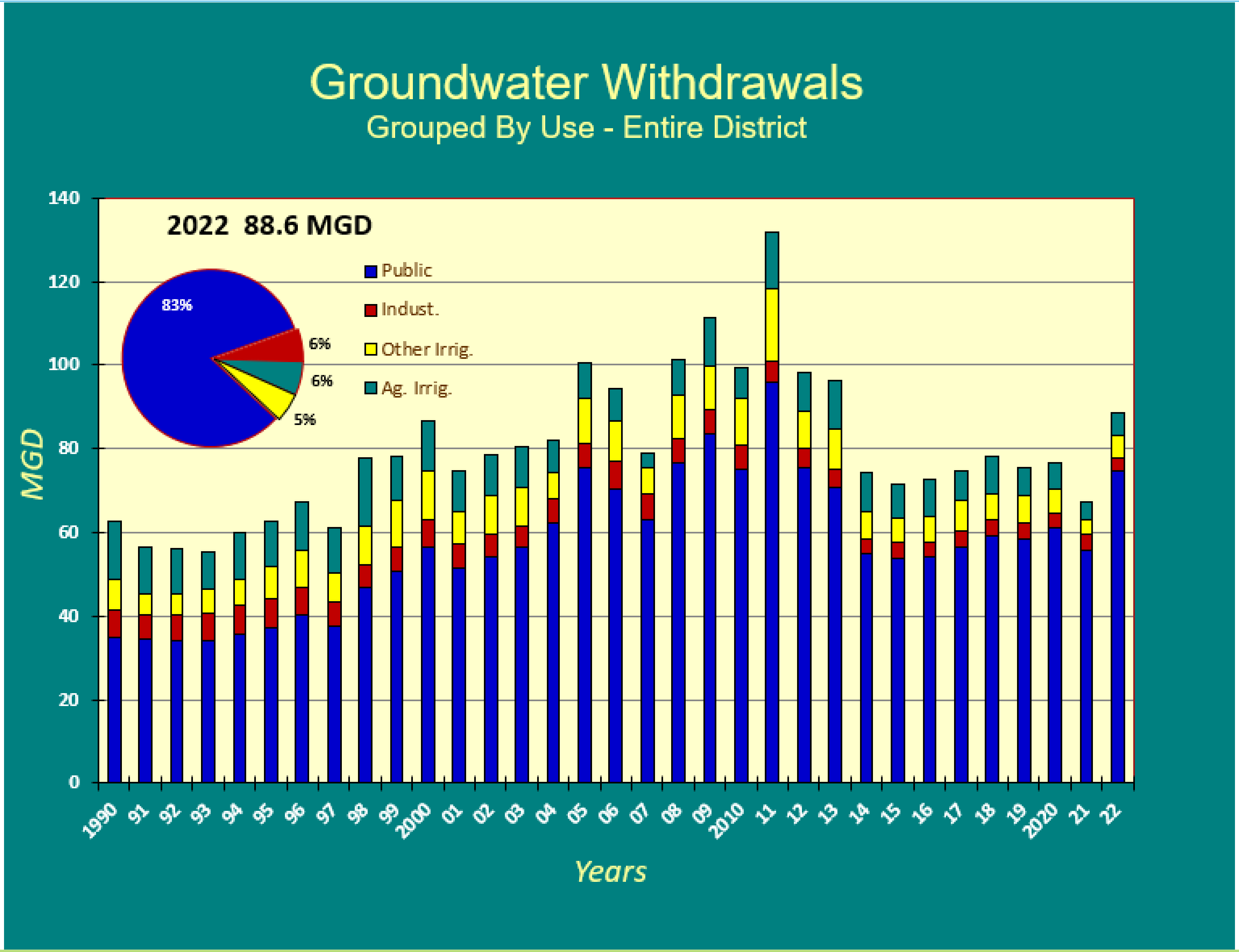


Exhibit 5

Groundwater Withdrawals | Entire District

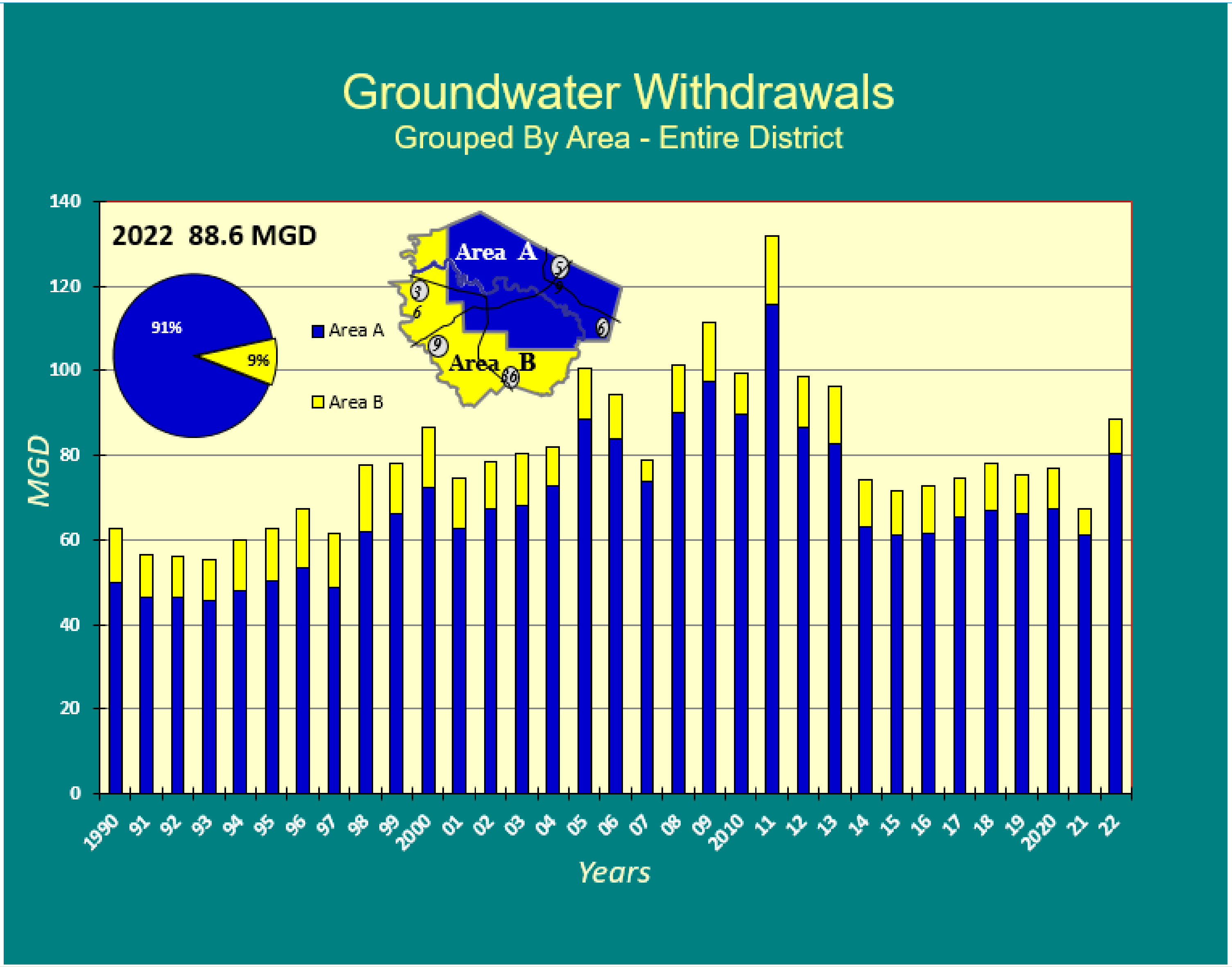


Exhibit 6

Surface & Re-Use Water Utilized | Entire District

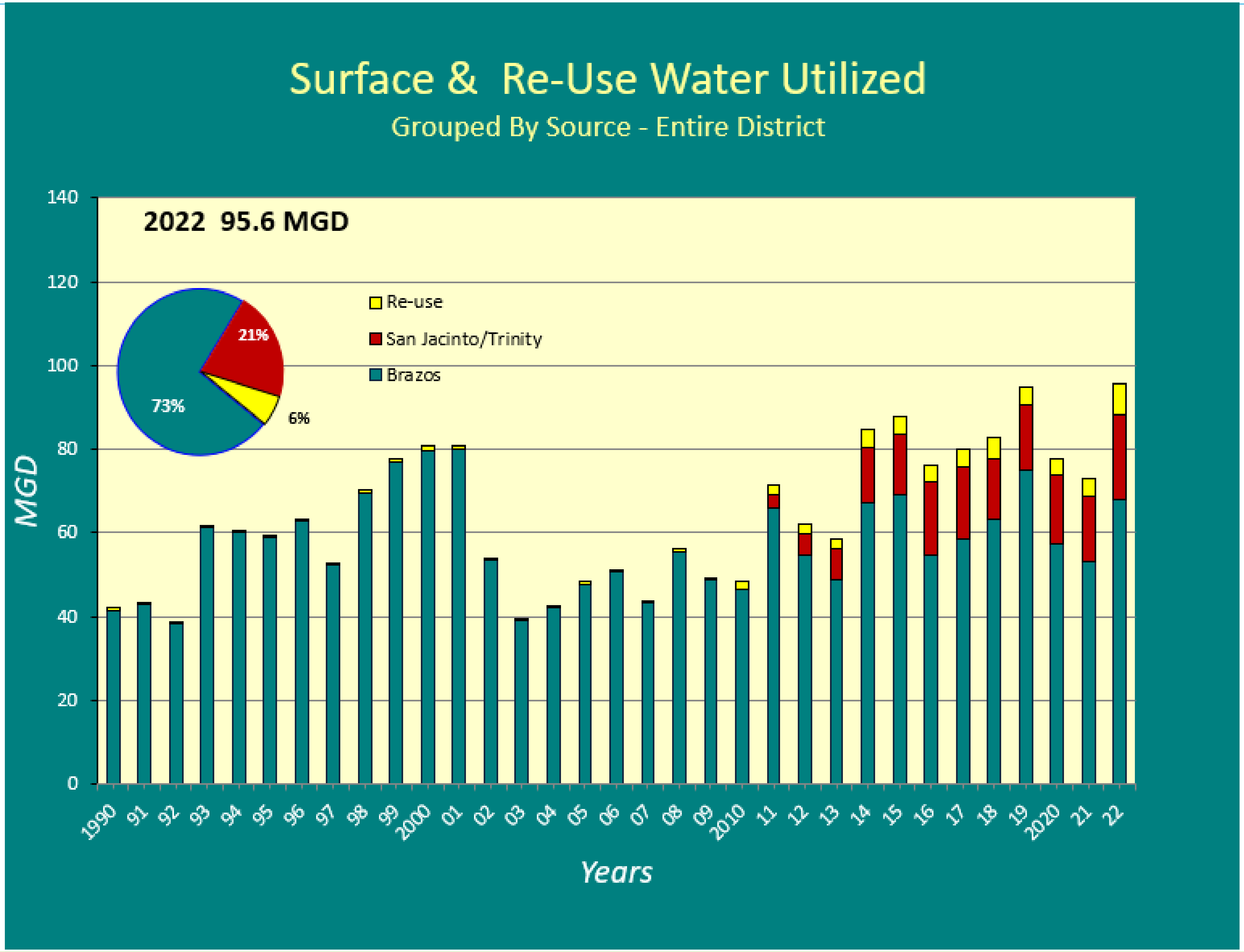
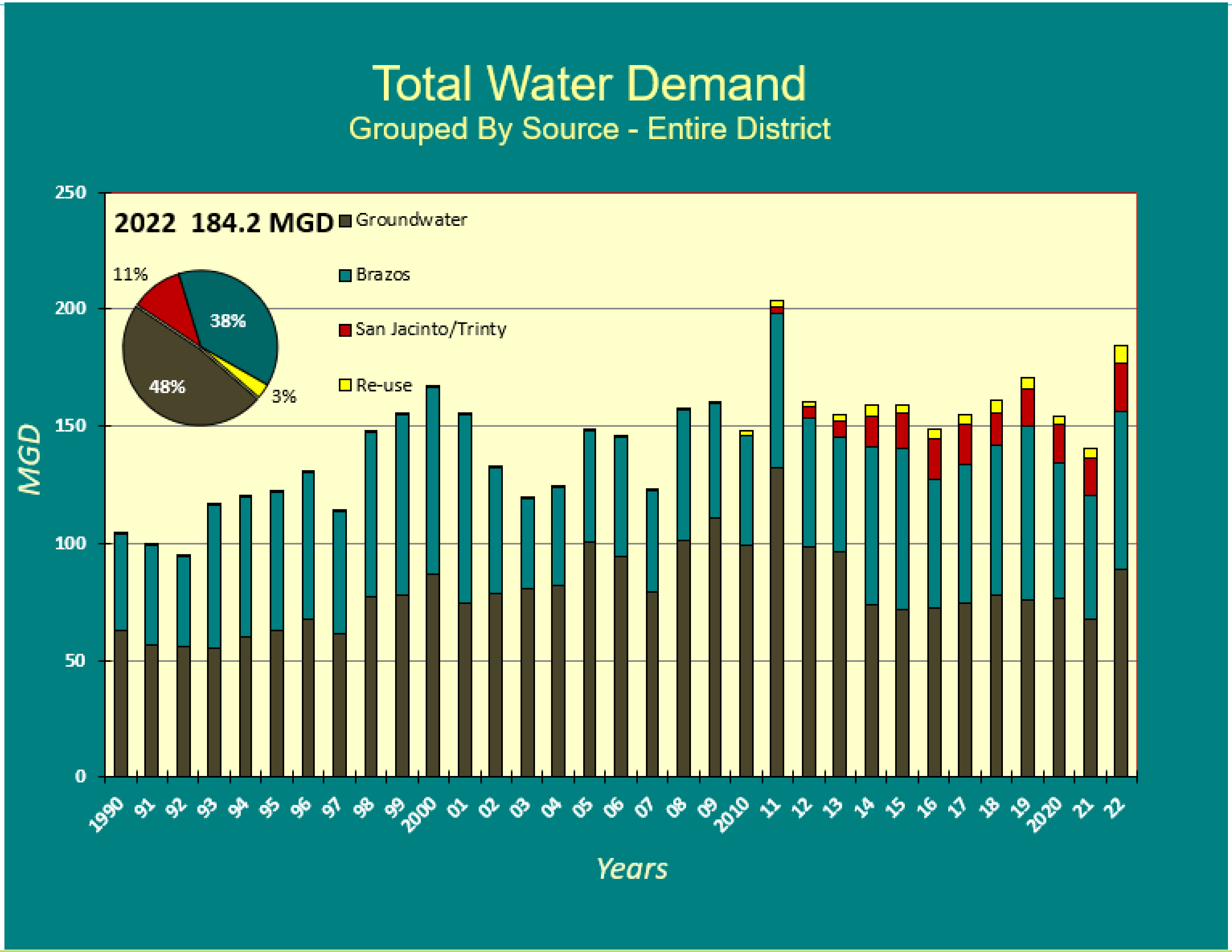


Exhibit 7

FORT BEND SUBSIDENCE DISTRICT

Total Water Demands | Grouped by Source – Entire District



FORT BEND SUBSIDENCE DISTRICT

Exhibit 8

Table of Contents

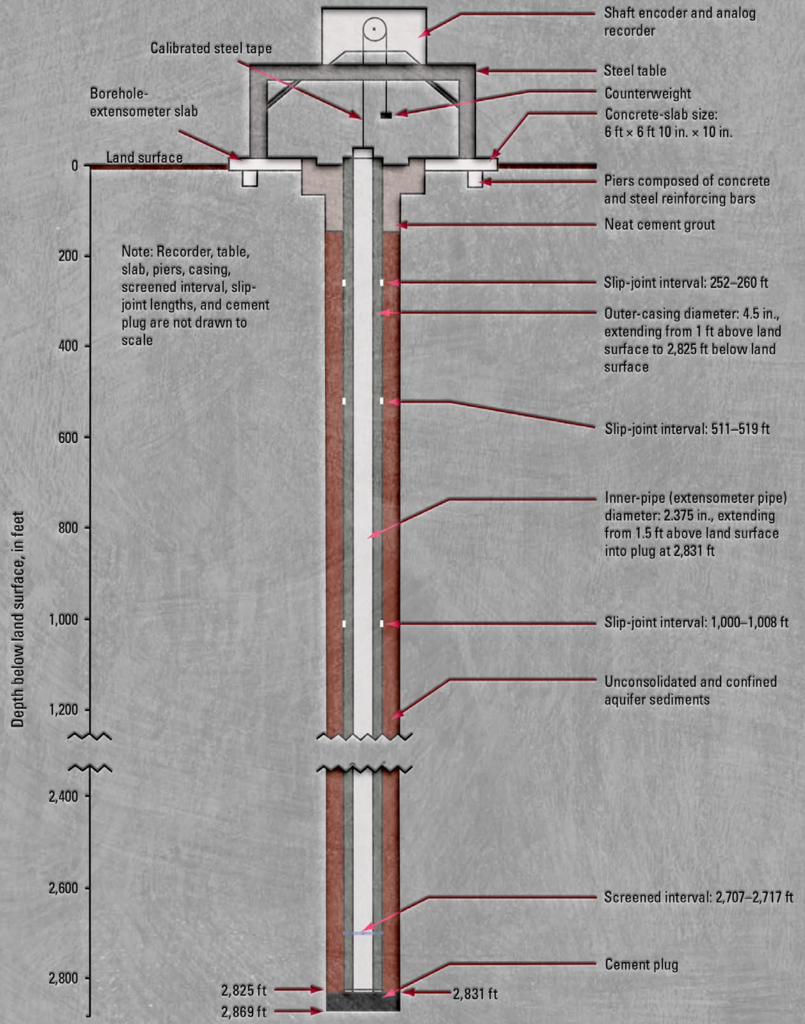


Diagram of a Borehole extensometer

Groundwater-level Altitudes, Long-Term Change & Compaction

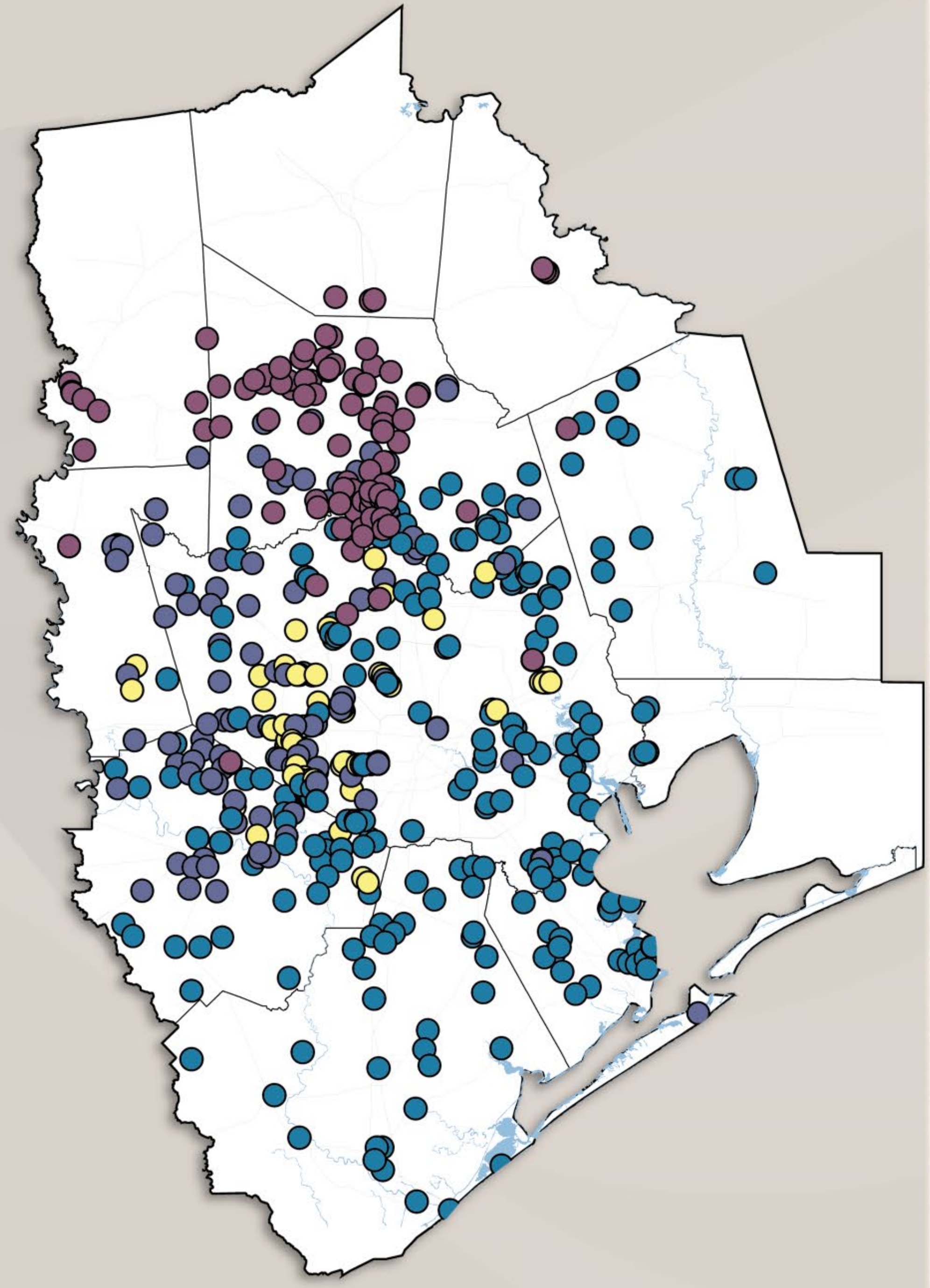
Chicot/Evangeline and Jasper aquifers

Research in cooperation with the Harris–Galveston & Fort Bend Subsidence Districts Brazoria Groundwater Conservation District, The City of Houston and Lone Star Groundwater Conservation District

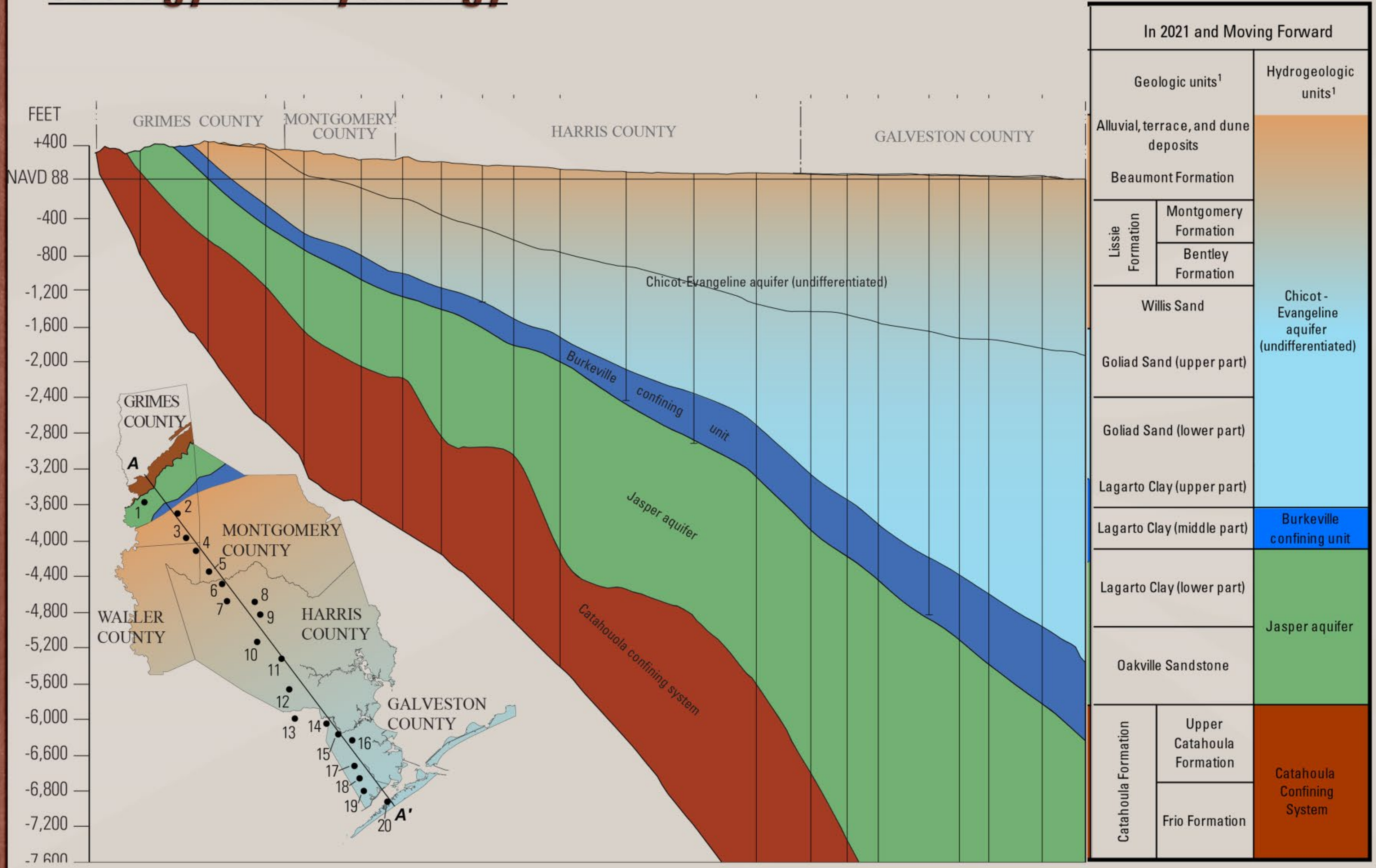
2023 Water-Level Map Series

- Chicot and Evangeline Aquifers (undifferentiated)
  - 2023 Water-Level Altitude
  - 2022 to 2023 Water-Level Change
  - 2018 to 2023 Water-Level Change
  - 1990 to 2023 Water-Level Change
  - 1977 to 2023 Water-Level Change

- Compaction 1973 to 2022
  - Compaction Data from 14 Extensometers



Geology and Hydrology

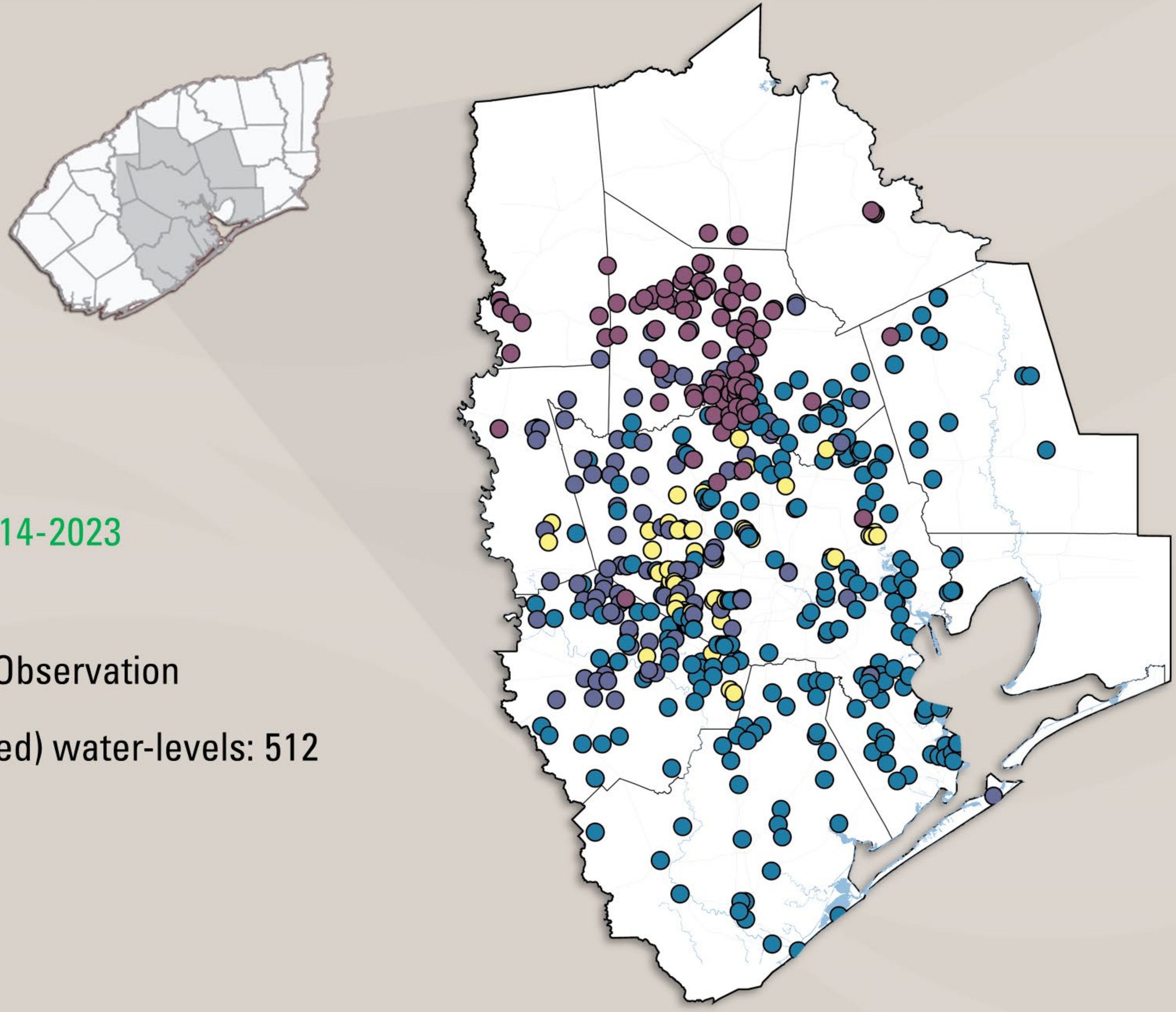


- Chicot and Evangeline aquifers (undifferentiated)
  - combined for annual regional-scale assessments
  - Updated aquifer tops and bases*
  - Chicot thickened across much of southeast Harris County
  - Distribution of Evangeline wells changed significantly

*Young, S.C., Kelley, V.A., Deeds, N., Hudson, C., Piemonti, D., Ewing, T.E., Banerji, D., Seifert, J., and Lyman, P., 2017

*Young, S.C., and Draper, C., 2020

Network



- Data collected across 11 counties
- Data collection from 12-09-2022 to 3-14-2023
- Well Types:
  - Public Supply, Irrigation, Industrial, Observation
- Chicot and Evangeline (undifferentiated) water-levels: 512
  - 74 in Fort Bend County

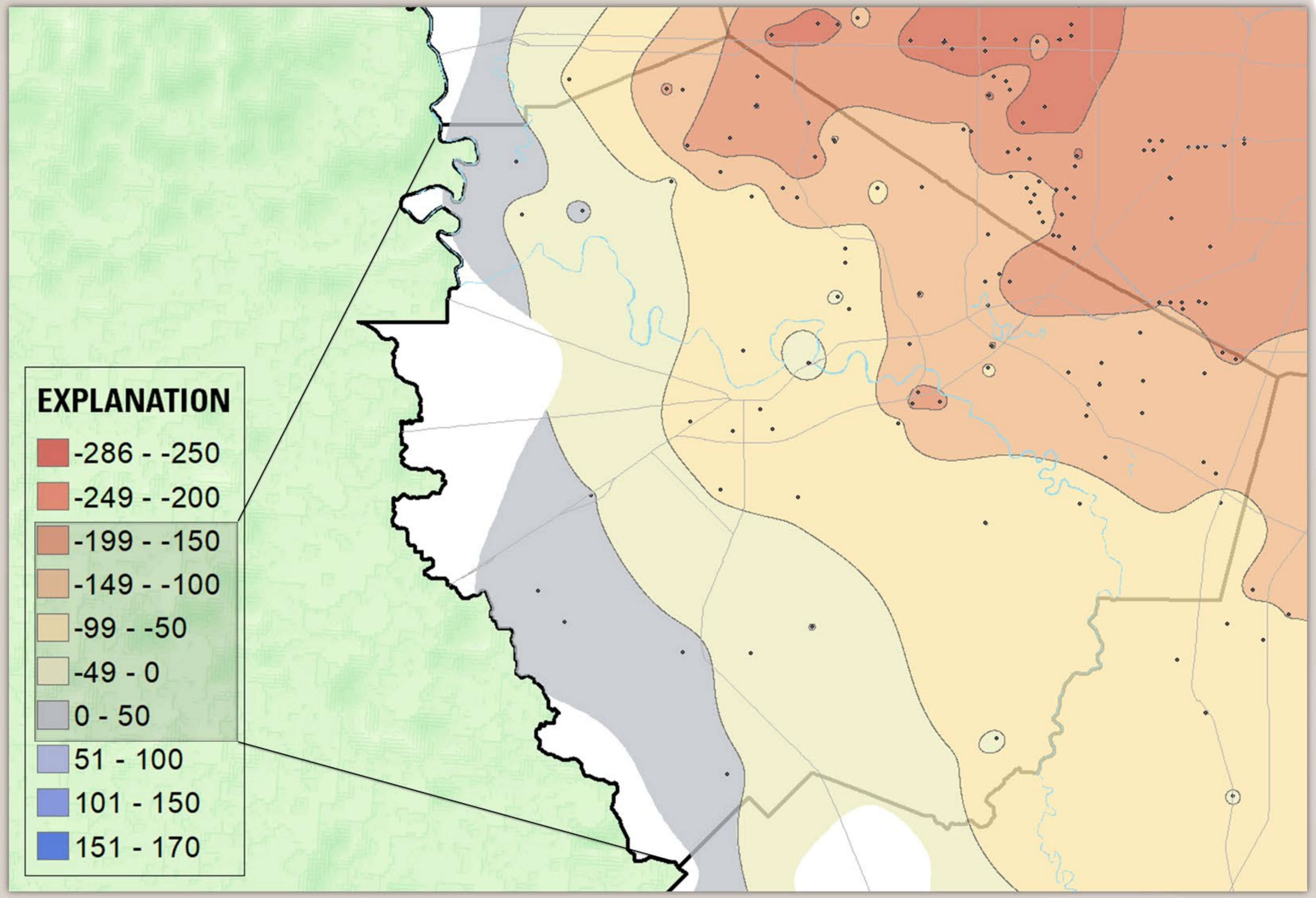
Water-Level Altitude

Chicot and Evangeline (undifferentiated)

Altitudes are referenced from NAVD 88

Lowest altitudes in northern and eastern portions of the county along the border with Harris County

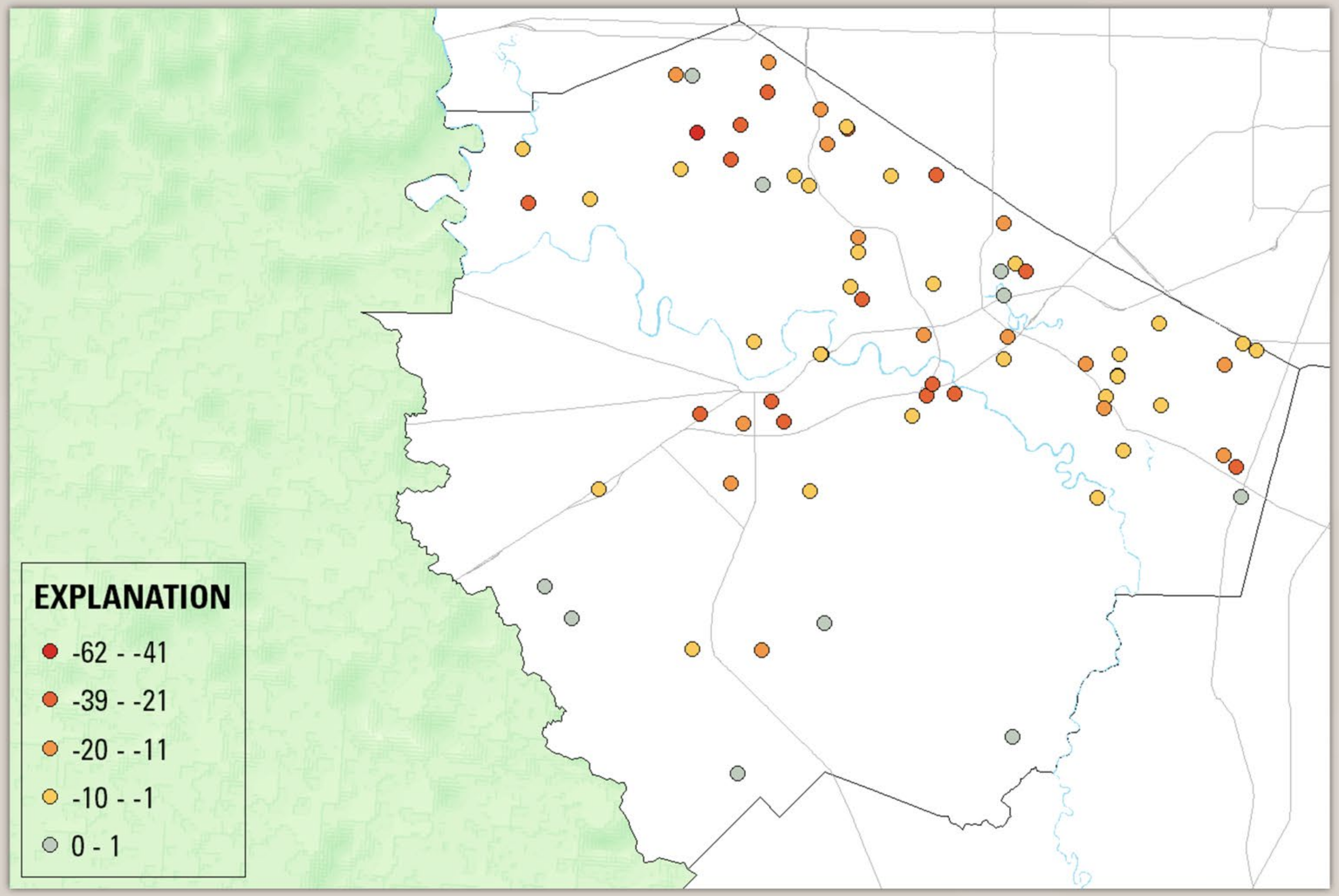
Highest altitudes in the western portions of the county



USGS
science for a changing world

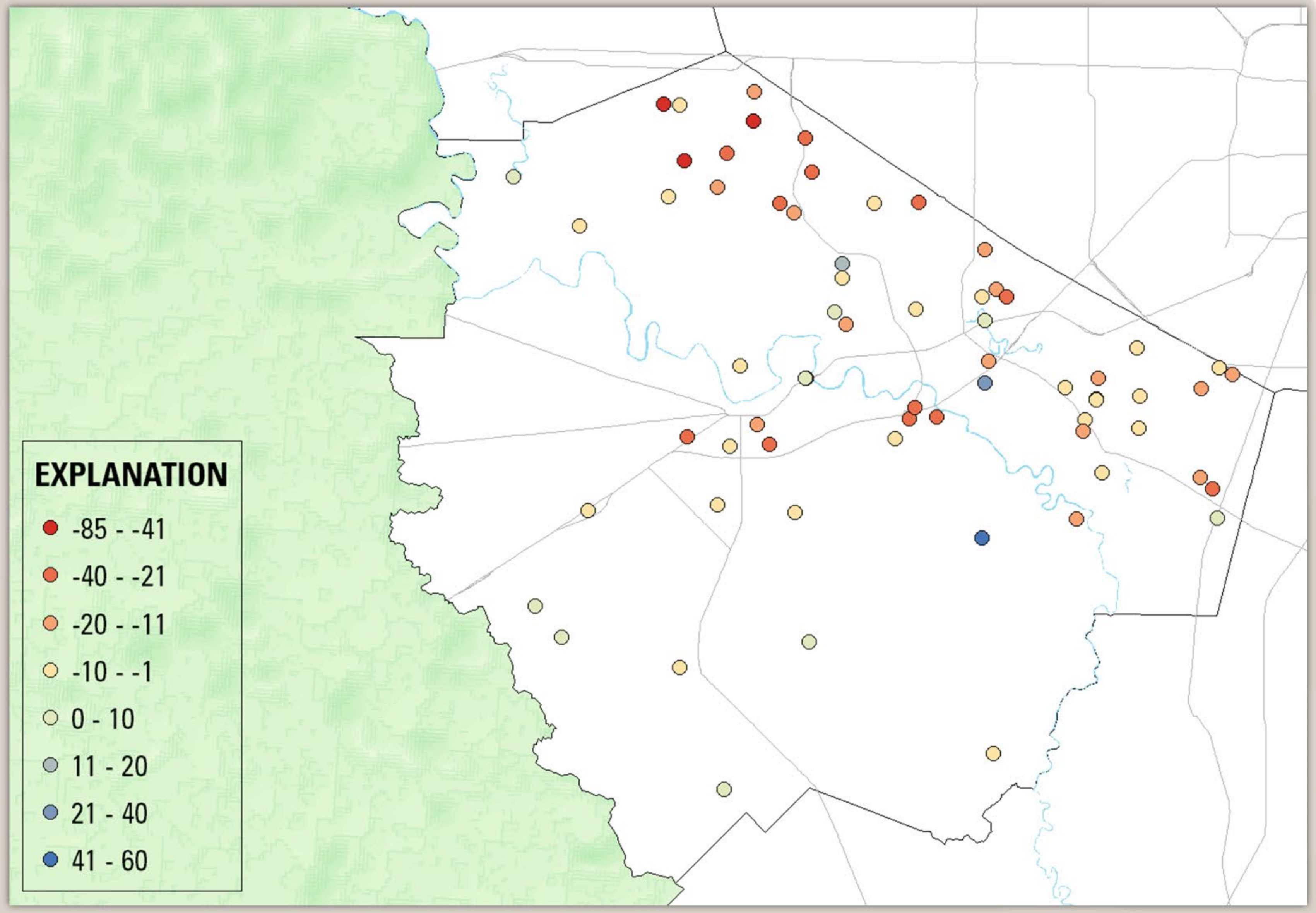
2022 to 2023 Water-Level Change

- 72 water-level pairs
  - Mostly declines
  - Largest declines (>30 ft):
    - Central Fort Bend County (1)
    - West-central Fort Bend County (2)
    - Northern Fort Bend County (2)



2018 to 2023 Water-Level Change

- 68 water-level pairs
  - Mostly declines
  - Largest declines (>40 ft):
    - Northern Fort Bend County
  - Largest rises (> 40 ft):
    - 1 in south-eastern Fort Bend County

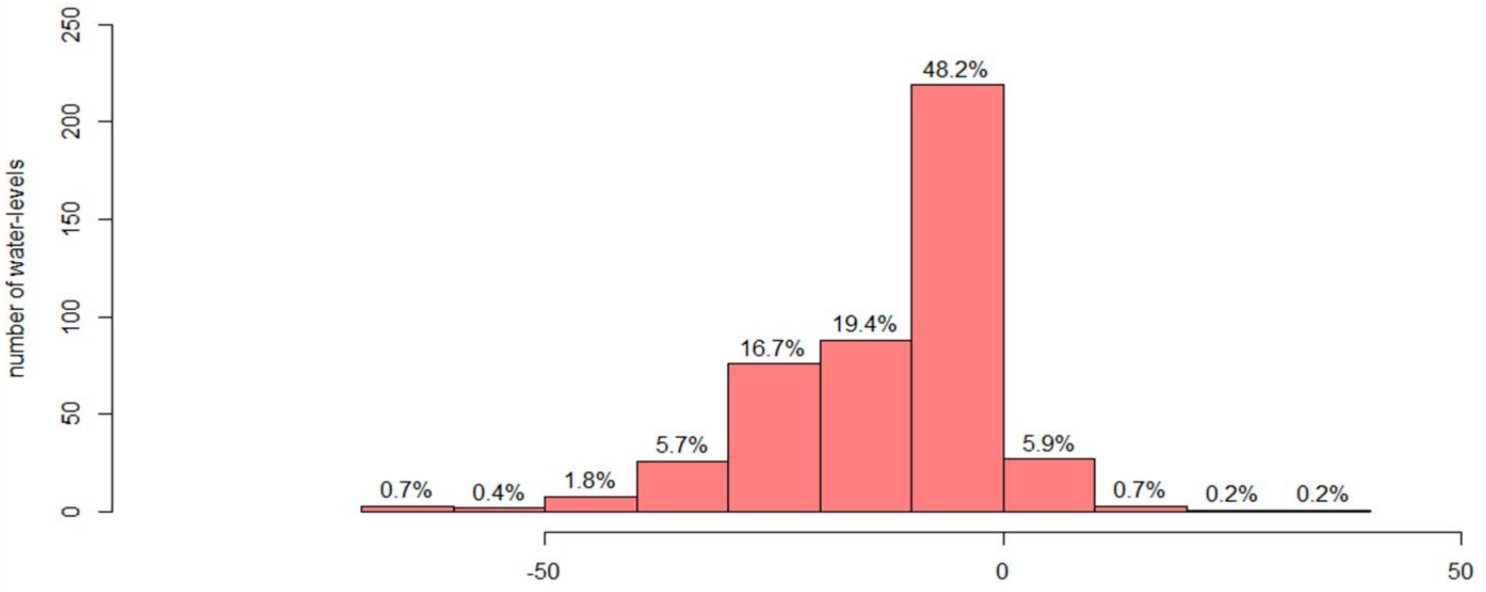


USGS
science for a changing world

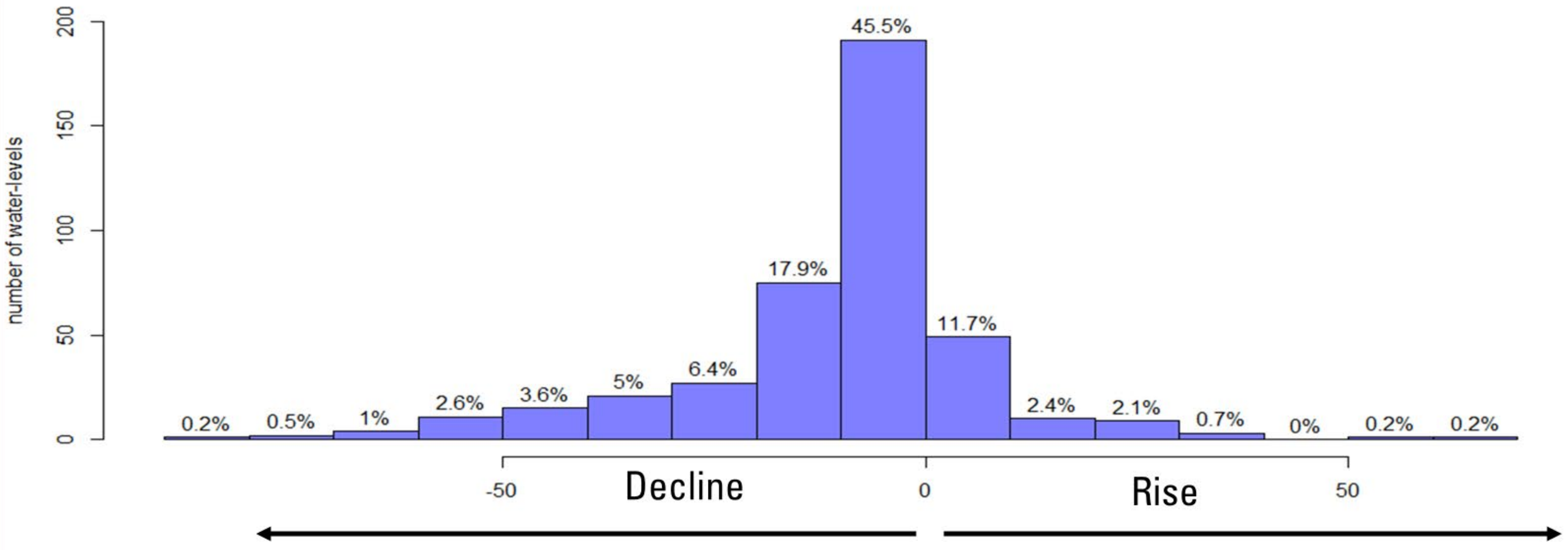
Change Comparison

Chicot and Evangeline (undifferentiated)

1 Year
2022 to 2023



5 Year
2018 to 2023

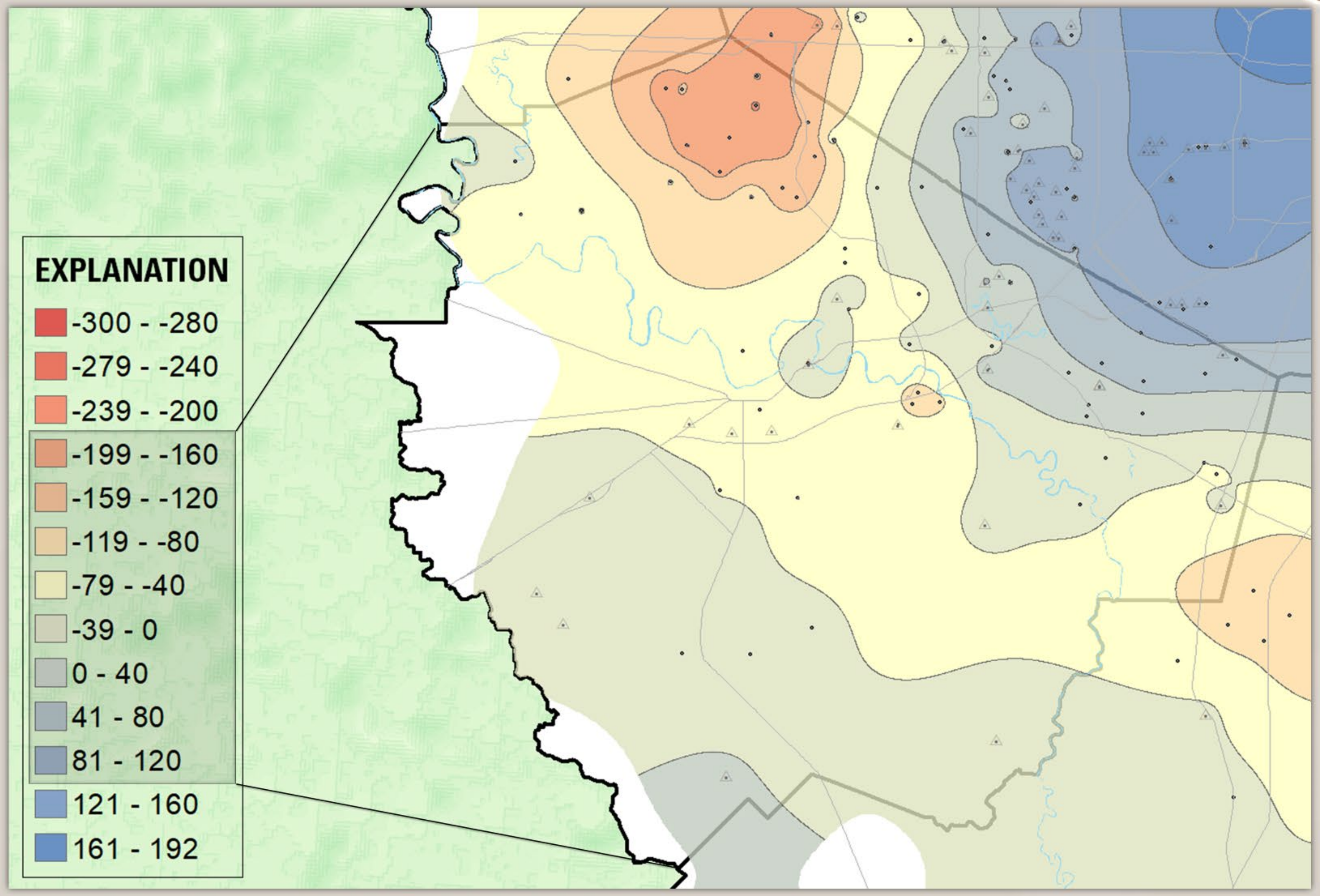


Long term change

Water level rises along the border with Harris County

Water-level declines across much of the county with larger declines

Chicot and Evangeline (undifferentiated) Water-Level Change 1990 to 2023



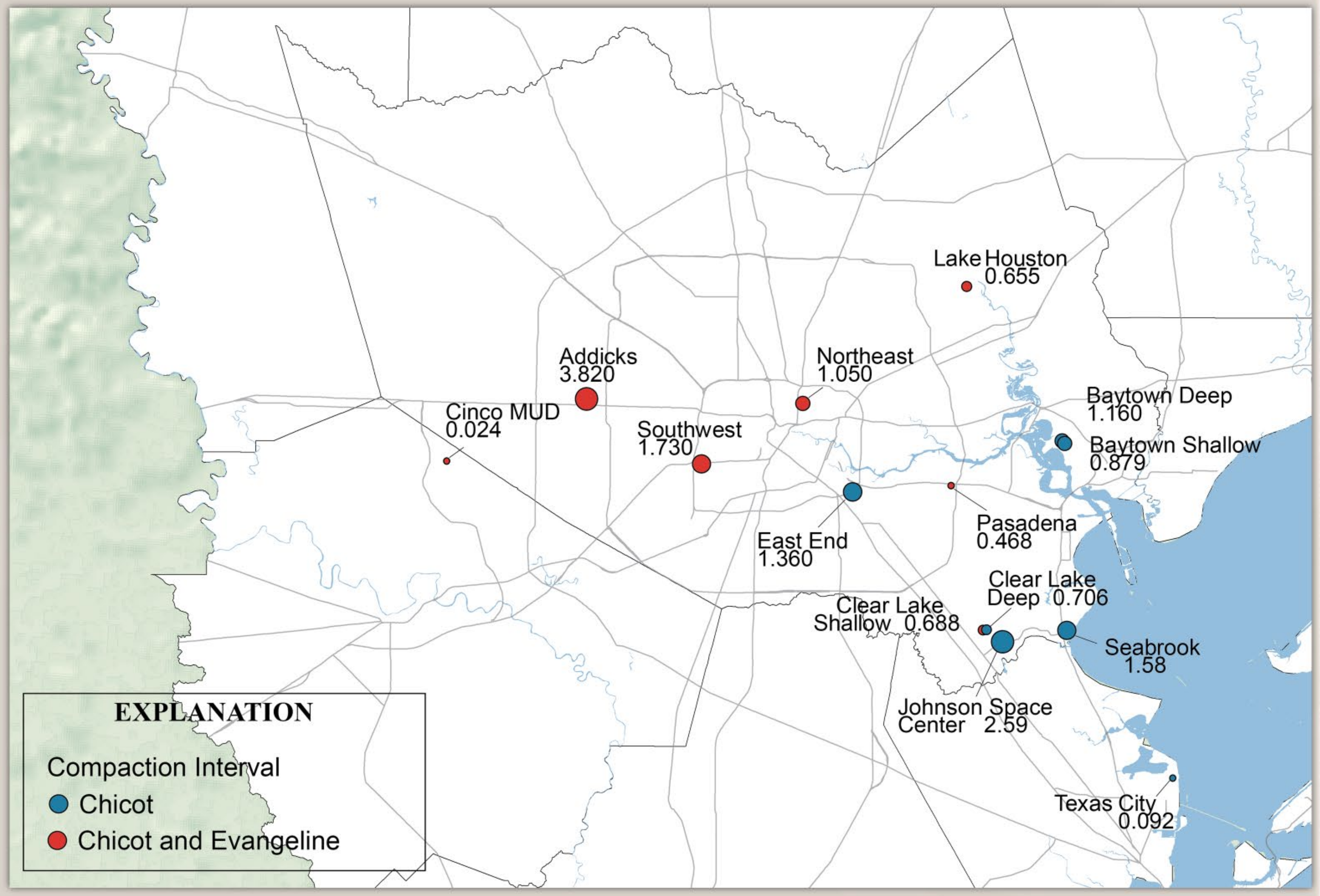
Compaction 1973 - 2022

Compaction Interval:
Chicot

1. 1973 | Baytown Shallow 0.879 ft.
2. 1973 | East End 1.360 ft.
3. 1973 | Johnson Space Center 2.590 ft.
4. 1973 | Seabrook 1.580 ft.
5. 1973 | Texas City 0.092 ft.
6. 1976 | Clear Lake Shallow 0.688 ft.

Compaction Interval:
Chicot and Evangeline

7. 1973 | Baytown Deep 1.160 ft.
8. 1974 | Addicks 3.820 ft.
9. 1974 | Pasadena 0.468 ft.
10. 1976 | Clear Lake Deep 0.706 ft.
11. 1980 | Lake Houston 0.655 ft.
12. 1980 | Northeast 1.050 ft.
13. 1980 | Southwest 1.730 ft.
14. 2017 | Cinco MUD 0.024 ft.



2022 Compaction Summary

- All sites recorded compaction for the period (no expansion)
- Compaction ranged from 0.001 ft to 0.050 ft

Compaction December 2021 to December 2022

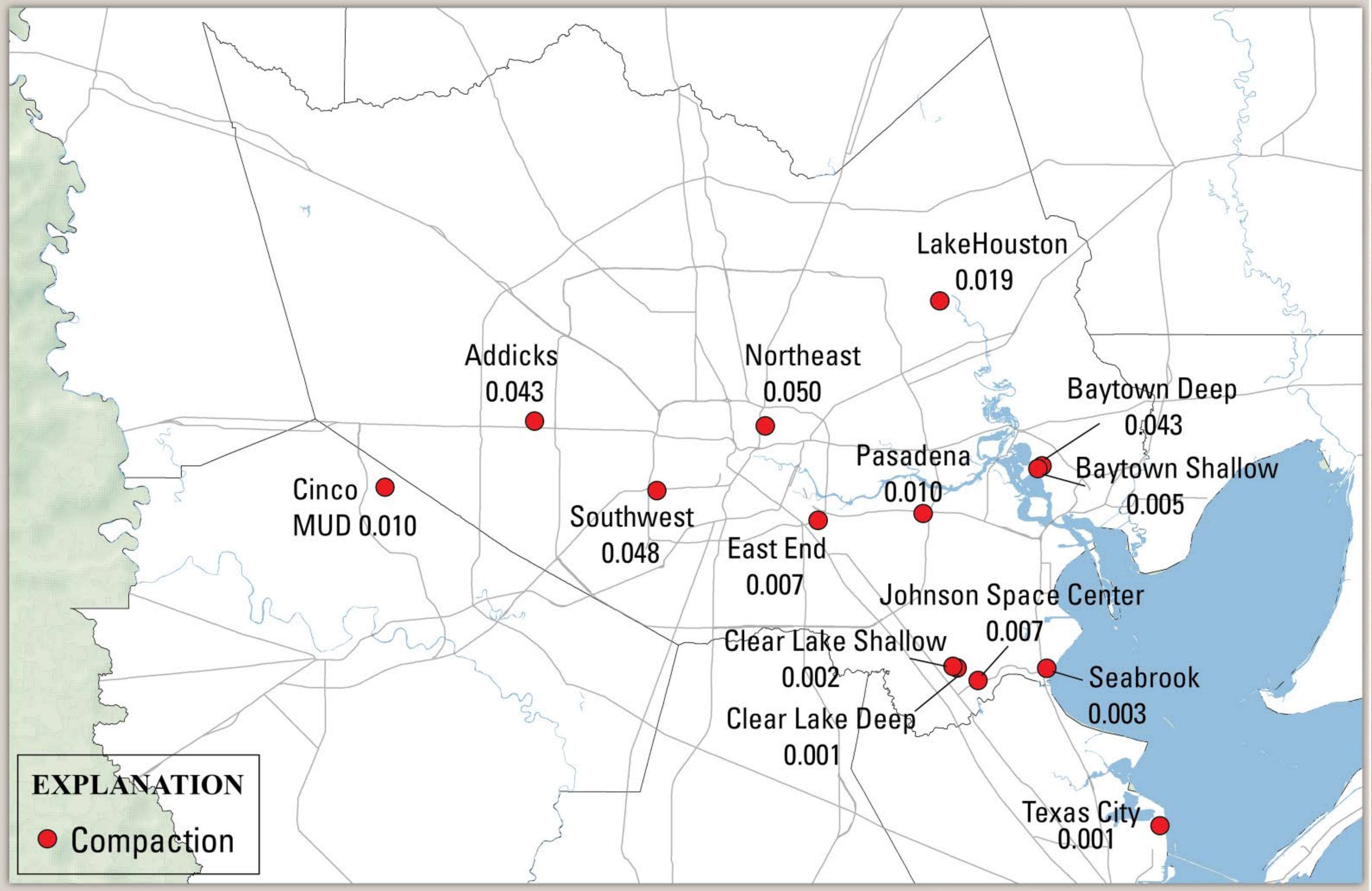


Table of Contents

GPS Station Operators

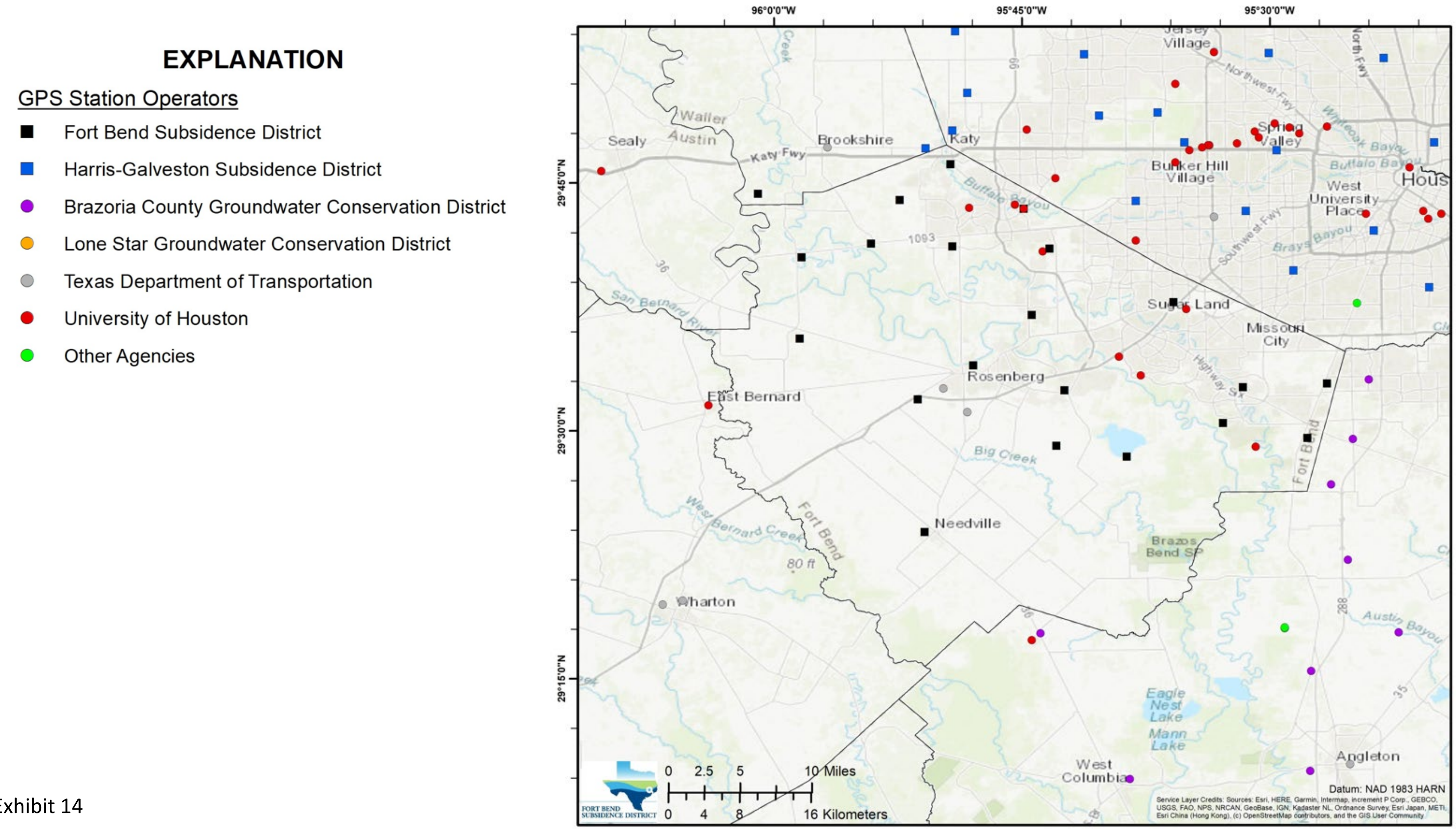


Exhibit 14

Subsidence Rates

FORT BEND SUBSIDENCE DISTRICT

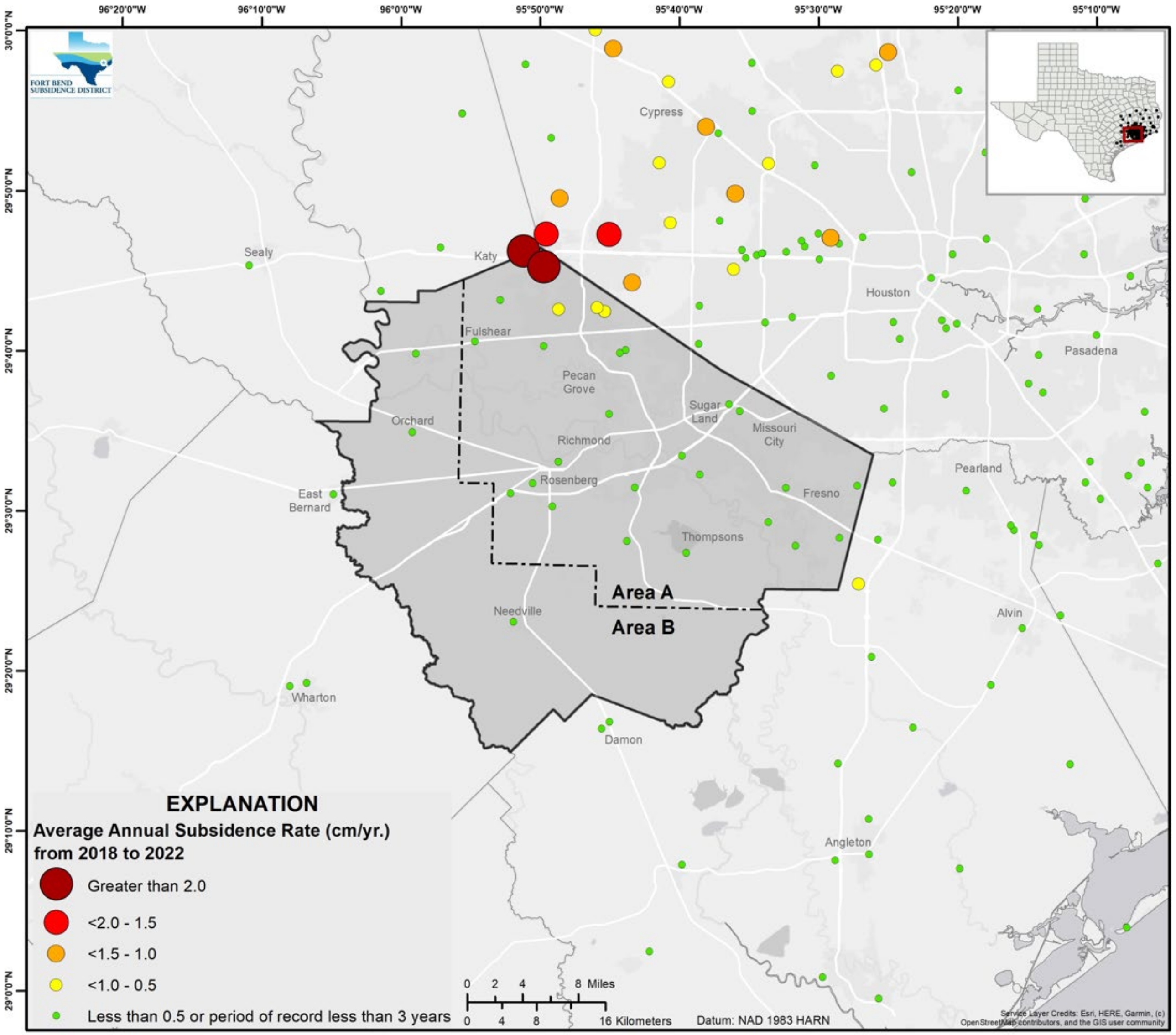


Exhibit 15

Period of Record Plot for P029 - Katy

- Processed GPS data (source: UH) over period of record.
- Processed GPS data (gray circles) located inside the outlier boundary (red dashed lines) are used when calculating subsidence rates.
- Processed GPS data identified as outliers (red circles) are not considered by the District when calculating subsidence rates and are shown for informational purposes only.

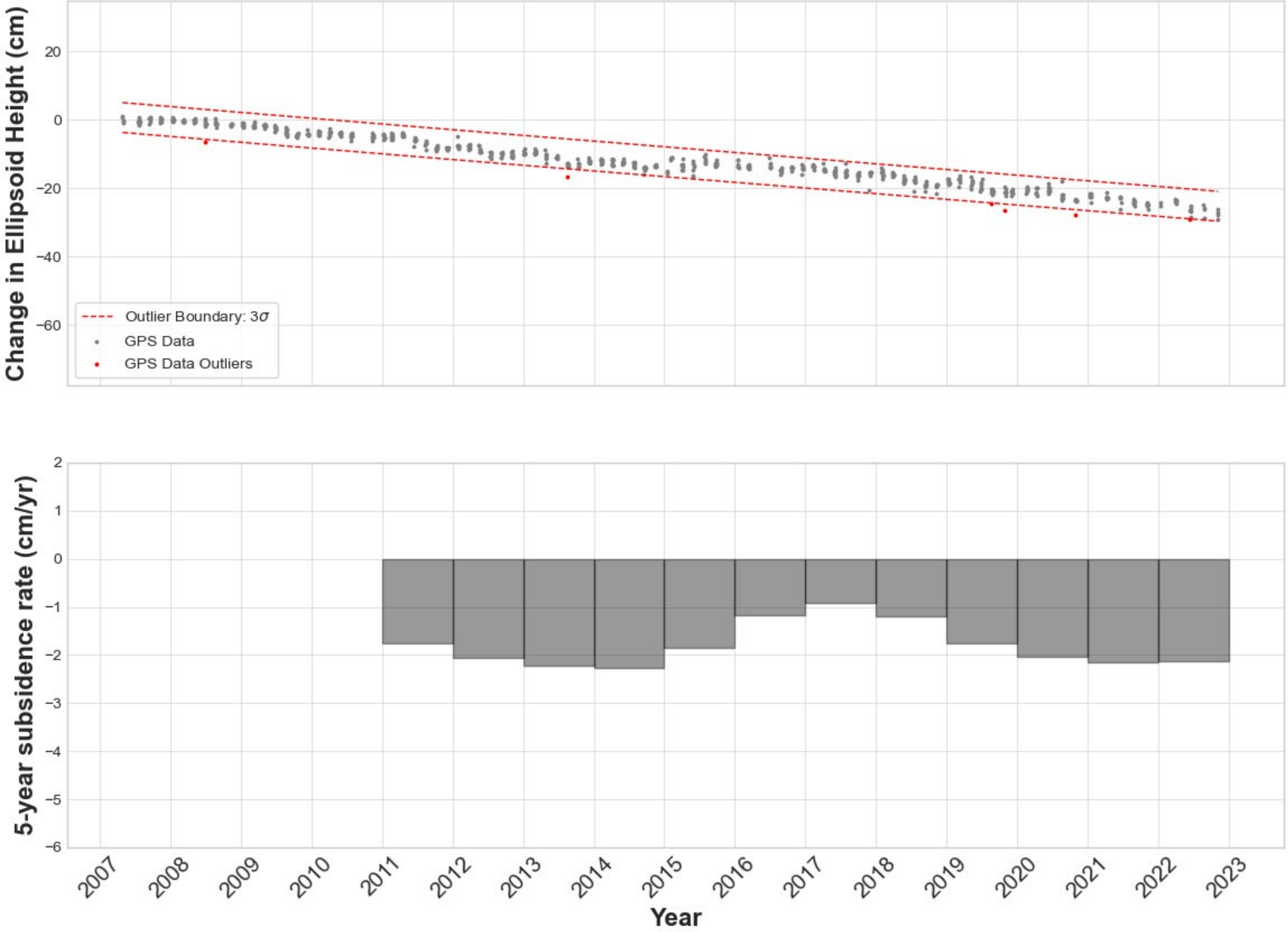


Exhibit 16

Period of Record Plot for P004 - Sugar Land

- Processed GPS data (source: UH) over period of record.
- Processed GPS data (gray circles) located inside the outlier boundary (red dashed lines) are used when calculating subsidence rates.
- Processed GPS data identified as outliers (red circles) are not considered by the District when calculating subsidence rates and are shown for informational purposes only.

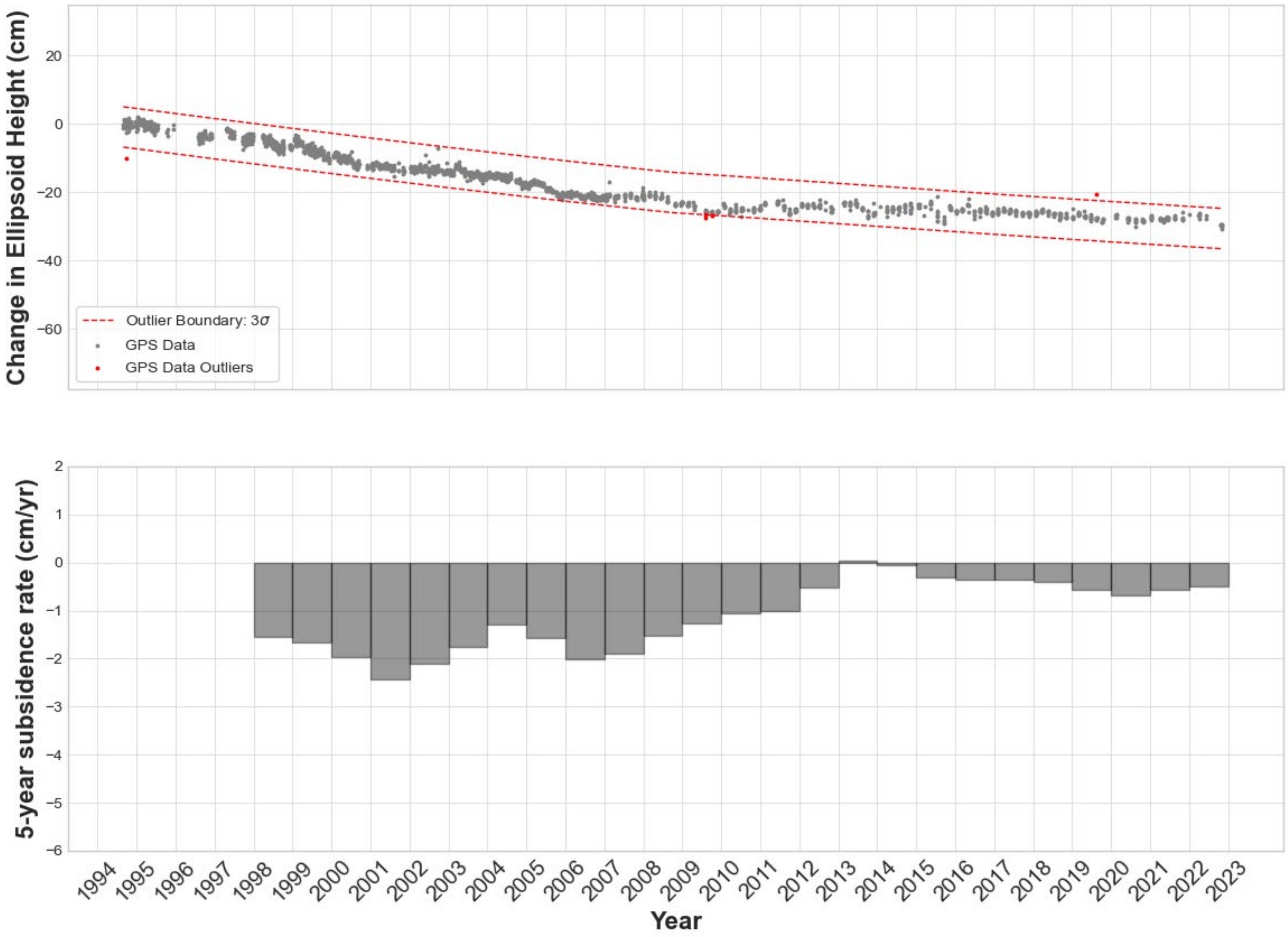


Exhibit 17

Period of Record Plot for P010 - Richmond

- Processed GPS data (source: UH) over period of record.
- Processed GPS data (gray circles) located inside the outlier boundary (red dashed lines) are used when calculating subsidence rates.
- Processed GPS data identified as outliers (red circles) are not considered by the District when calculating subsidence rates and are shown for informational purposes only.

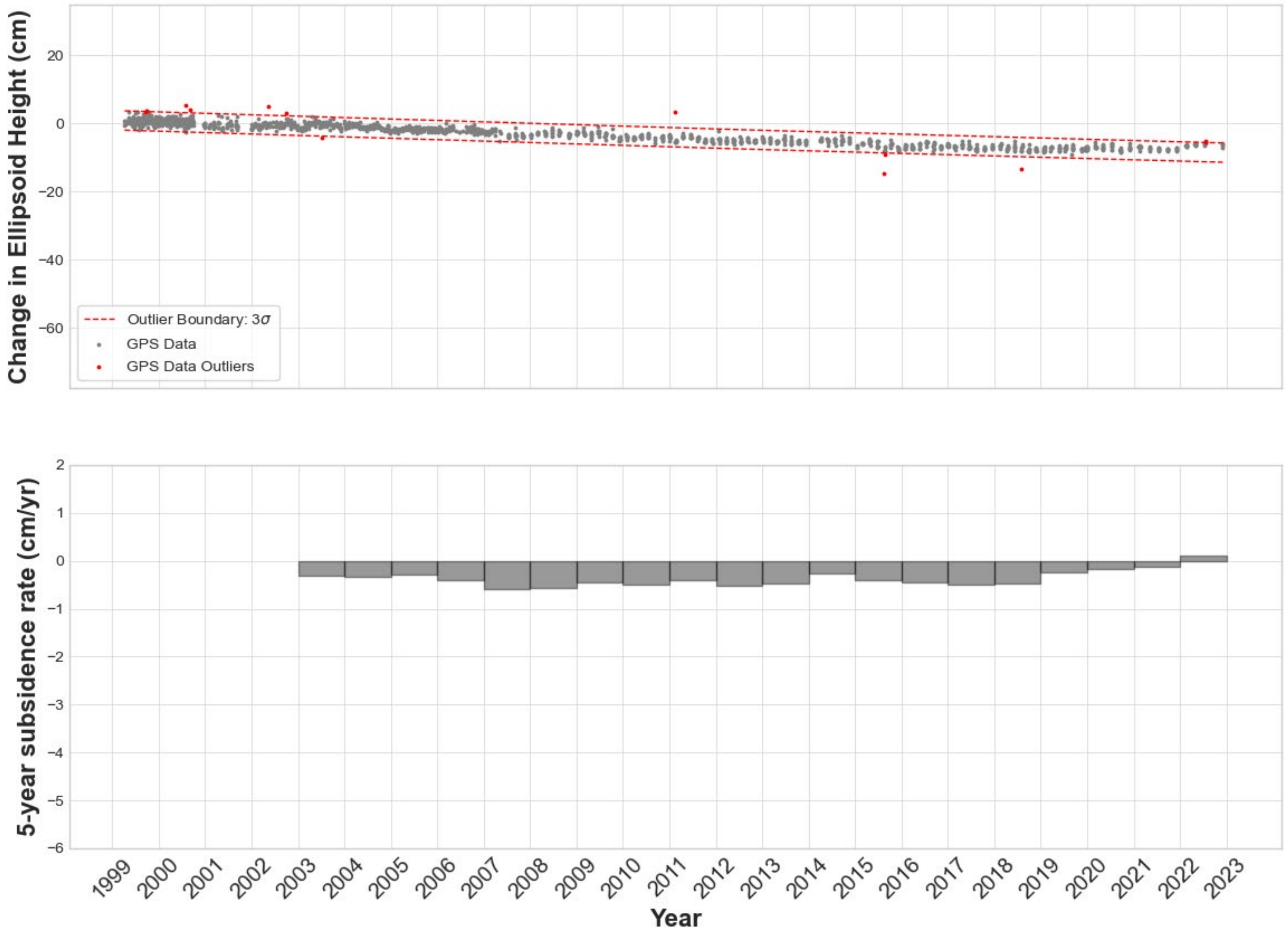


Exhibit 18

Thank you for attending the Public Hearing for FBSD's 2022 Annual Groundwater Report

- A draft copy of this presentation is available on the District's website (www.fbsubsidence.org).
- Record will be open until May 5, 2023. You may provide comments by sending an email to fbinfo@subsidence.org
- The 2022 Annual Groundwater Report will be presented to the Fort Bend Subsidence District Board of Directors on May 24, 2023.
- The 2022 Annual Groundwater Report will be posted on the District's website upon approval of the District's Board of Directors.

Contact Information

301 Jackson St. Ste 639

Richmond, TX 77469

Phone: 281-342-3273

fbinfo@subsidence.org

www.fbsubsidence.org

FORT BEND SUBSIDENCE DISTRICT

Appendix B – Subsidence Monitoring Network and Data

Table of Contents

List of Figures

Subsidence Monitoring Network

GPS Station Overview

The subsidence monitoring network comprises a collaboration of local, state, and federal agencies that operate and maintain global position system (GPS) stations in southeast Texas. In 2022, the Fort Bend Subsidence District (the District) and Harris-Galveston Subsidence District (HGSD) collected raw data from 230 GPS stations to assess and understand changes in the land-surface elevation in the region. The analysis of such data, including details on data processing and uncertainty, is provided in subsequent sections.

The District currently operates and maintains 21 GPS stations in Fort Bend County and one GPS station in southwestern Waller County. HGSD operates and maintains 73 GPS stations with 66 stations in Harris and Galveston counties and the remaining seven in adjacent counties. Surrounding groundwater conservation districts (GCDs) such as Brazoria County GCD and Lone Star GCD operate and maintain 15 and six (6) GPS stations, respectively. The University of Houston (UH) operates 66 GPS stations, and the Texas Department of Transportation (TXDOT) operates 46 GPS stations spread across southeast Texas. **Figure 1** includes the location and operators of GPS stations within the greater Houston-Galveston area.

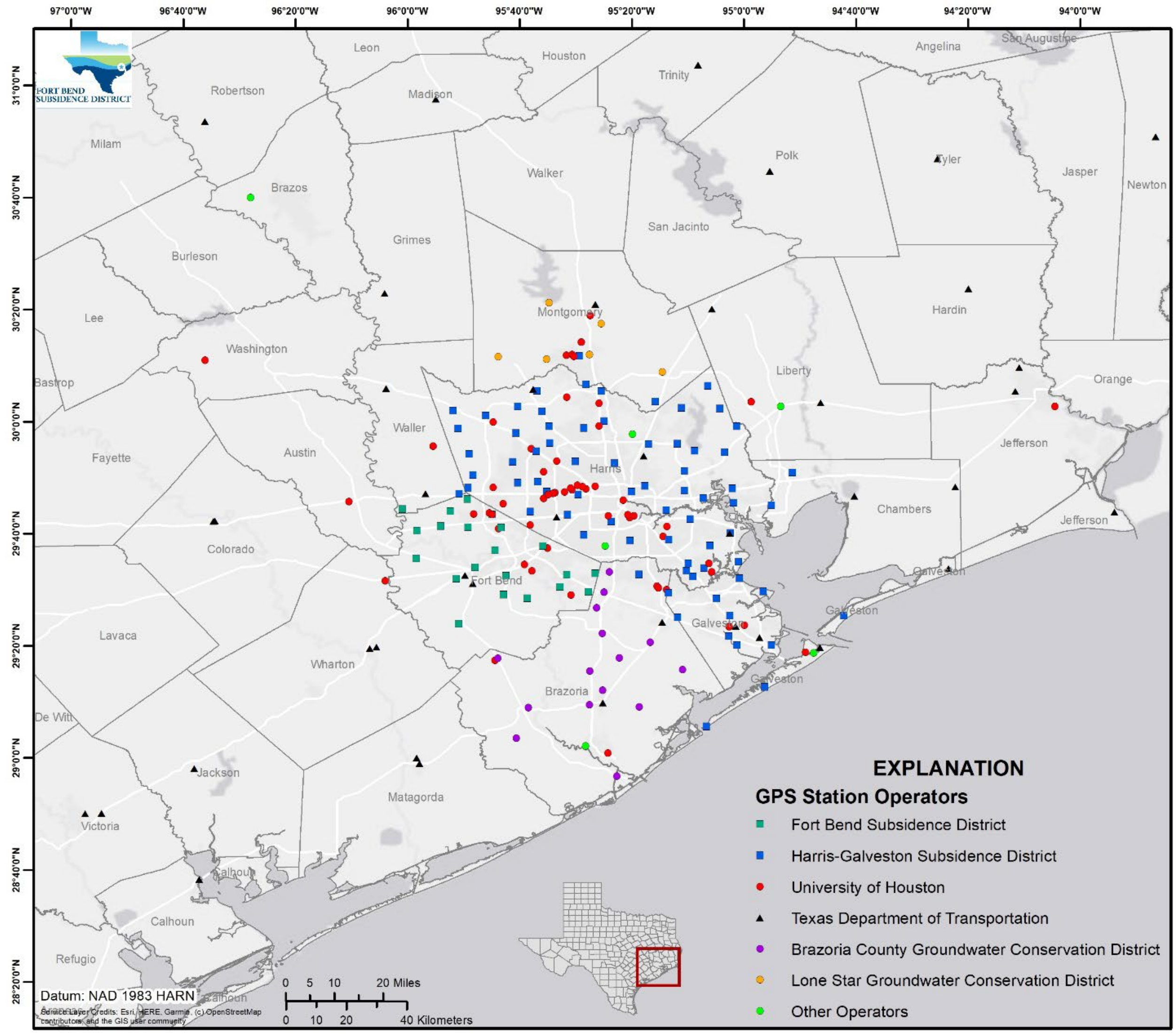


Figure 1: Location of GPS stations designated by operator in Southeast Texas region.

The GPS stations are constructed in different ways based on when they were installed and operator preferences. The main design of permanent GPS stations utilized by the District is a periodically measured (PAM) GPS station. Another type of permanent GPS station is a building mount, which is primarily used by UH.

The District designed a permanent GPS station in the mid-1990s to apply a consistent measurement method across multiple counties. This design is known as a PAM and is named after the original port-a-measure method utilized by the District when the GPS station was a survey benchmark disk and each location collected data periodically. The PAM design consists of a two-inch galvanized pipe drilled approximately 34 feet below ground surface and extends eight feet above the ground surface. The pipe is anchored in a concrete plug at the base and enclosed by centering bands and PVC pipe near the surface to reduce movement. The exposed pipe (i.e., the section of pipe that extends eight feet above the ground surface) is mounted with an antenna adapter to secure the global navigation satellite system (GNSS) antenna. A separate two-inch pipe is installed within a few feet from the antenna pipe to hold an enclosure box, which stores a battery and GNSS receiver, and a mounted solar panel. Both pipes are surrounded by four bollards and encased in a concrete slab for protection. **Figure 2** depicts a schematic of the District's PAM design.

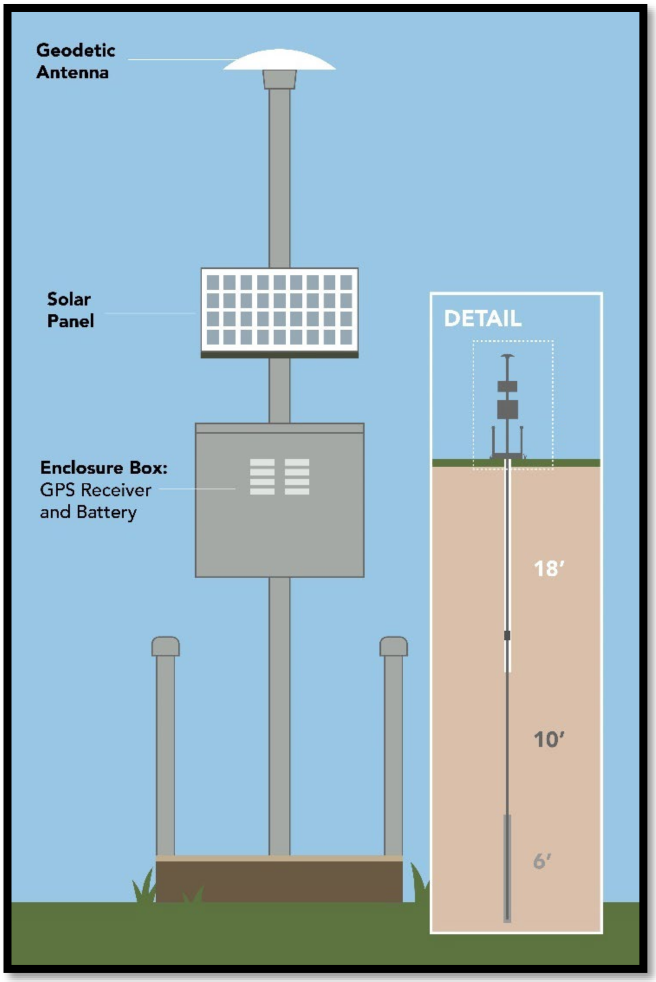


Figure 2: Schematic of the District's PAM design for a permanent GPS station. Note the schematic is not drawn to scale and is intended for visual purposes only. All numbers are provided in US standard measurement.

The building mount is another design for a GPS station. Building mounts have a GNSS antenna mounted on or near the roof. Buildings with deep foundations and clear sky views are optimal locations to measure land-surface elevation change and limit interference. This building mount design is used by UH throughout the greater Houston area.

Subsidence Monitoring Types

GPS data are collected at each GPS station every 30 seconds during the duration of monitoring, which varies from periodic to continuous. The District operates both periodic and continuous monitoring GPS stations. Other operators, such as UH and TXDOT, operate only continuous monitoring stations.

Periodic monitoring stations collect GPS data for approximately seven days every two months at the GPS station. These stations are constructed in the PAM design and use a Trimble GNSS antenna and receiver to gather land-surface movements in three directions from multiple constellations.

Continuous monitoring stations collect GPS data every day of the year and some are designated as continuously operating reference stations (CORS). CORS are designed in two ways: 1) the PAM design or 2) mounted on preexisting structures. The District operates one CORS (i.e., P096) that is constructed in the PAM design.

Subsidence Data

As of 2022, the District uses GPS data from 230 GPS stations spread across 20 counties in southeast Texas. The District collects GPS data from other agencies like HGSD, Brazoria County GCD, Lone Star GCD, and TxDOT as well as the UH to understand local to regional subsidence trends. Additional information for each individual station is included as a table within **Appendix C.**

The GPS data collected by the District measure the land surface as a three-component displacement time series involving the horizontal (East-West), vertical (North-South), and ellipsoidal height (up-down) components. GPS data are processed and converted to a stable reference frame called Houston20 to remove natural movements such as plate tectonics (Agudelo, et al., 2020). Additional methods of GPS data processing include the identification of outliers and estimations of site velocities and associated uncertainties.

Outliers are identified through a series of steps that include applying a locally weighted scatterplot smoothing (LOWESS) algorithm to obtain a time-series trend with two (2) iterations, removing the residual time-series trend, and estimating the median of absolute deviations (MAD) of the residual time-series (Wang, et al., 2022). The subsidence rate of a GPS station is estimated using the linear regression of the most recent five-year ellipsoidal height data (i.e., 2018-2022), at stations that have a minimum of three years of data. The root mean square (RMS) accuracy of the GPS data provided in this report is approximately 5-8 millimeters for the vertical direction or ellipsoidal height (Wang, et al., 2022).

The entire GPS dataset from all contributors is reprocessed every few years as improvements in positioning software, updates to global to regional reference frames, and other data processing analysis tools, such as orbital clock updates, are disseminated to users. Caution should be applied when attempting to mix or compare old GPS datasets with newer versions as GPS data processing is both a complex and a dynamic procedure.

Regulatory Area A

GPS stations have been operating since 1994 within Regulatory Area A to measure subsidence. Regulatory Area A has 29 GPS stations with a maximum subsidence rate of 2.13 cm (0.83 in) per year measured in the Katy area at GPS station P029 (**Figure 3**).

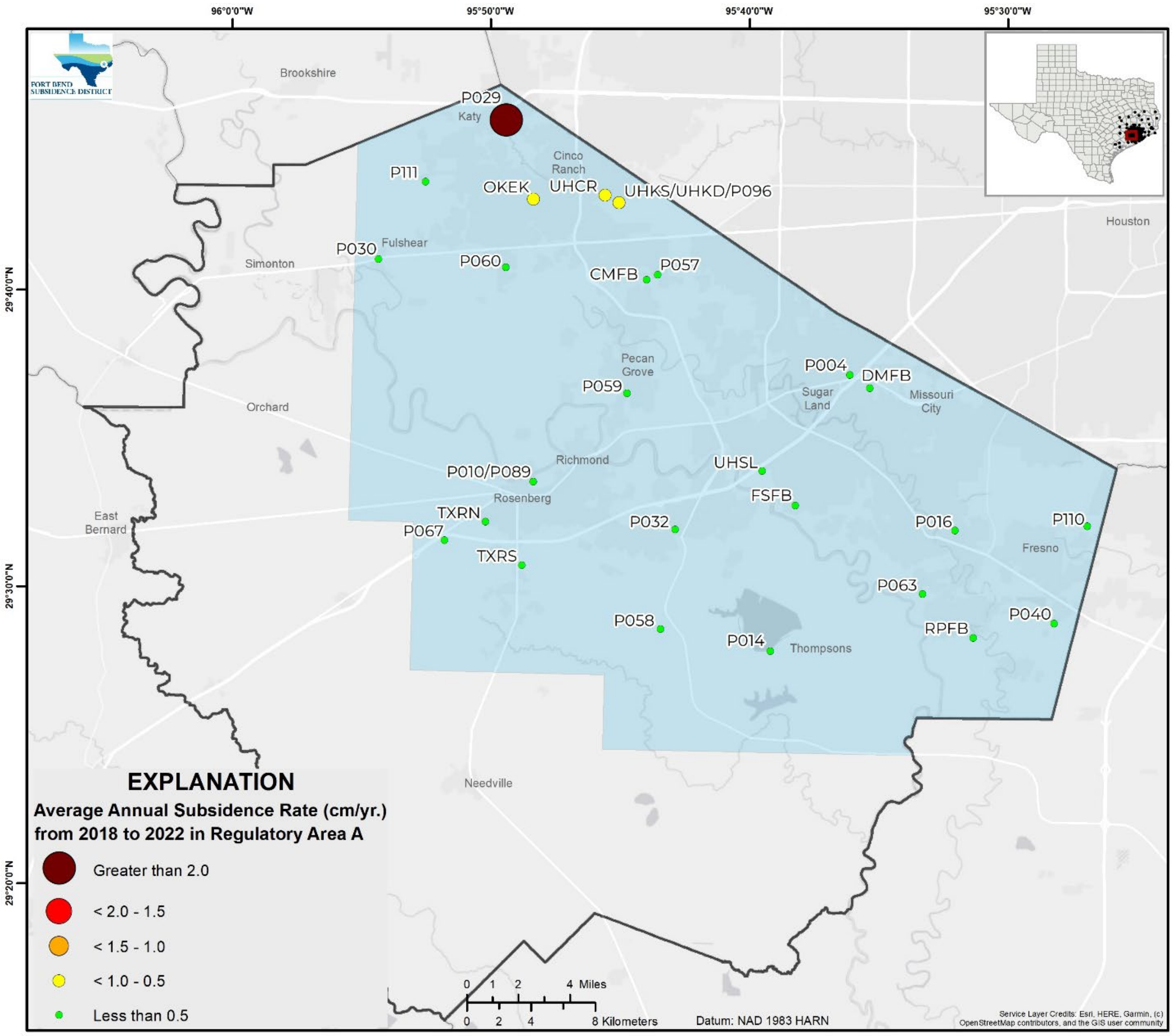


Figure 3: Annual subsidence rate, in cm/year, estimated from periodic and continuous GPS data measured from GPS stations within Regulatory Area A in Fort Bend County, Texas, 2018-2022.

As shown in **Figure 4**, P029 has experienced a subsidence rate greater than 1 cm (0.39 in) per year since monitoring began in 2007 and has measured total subsidence of 25.8 centimeters (10.2 inches) over the period of record.

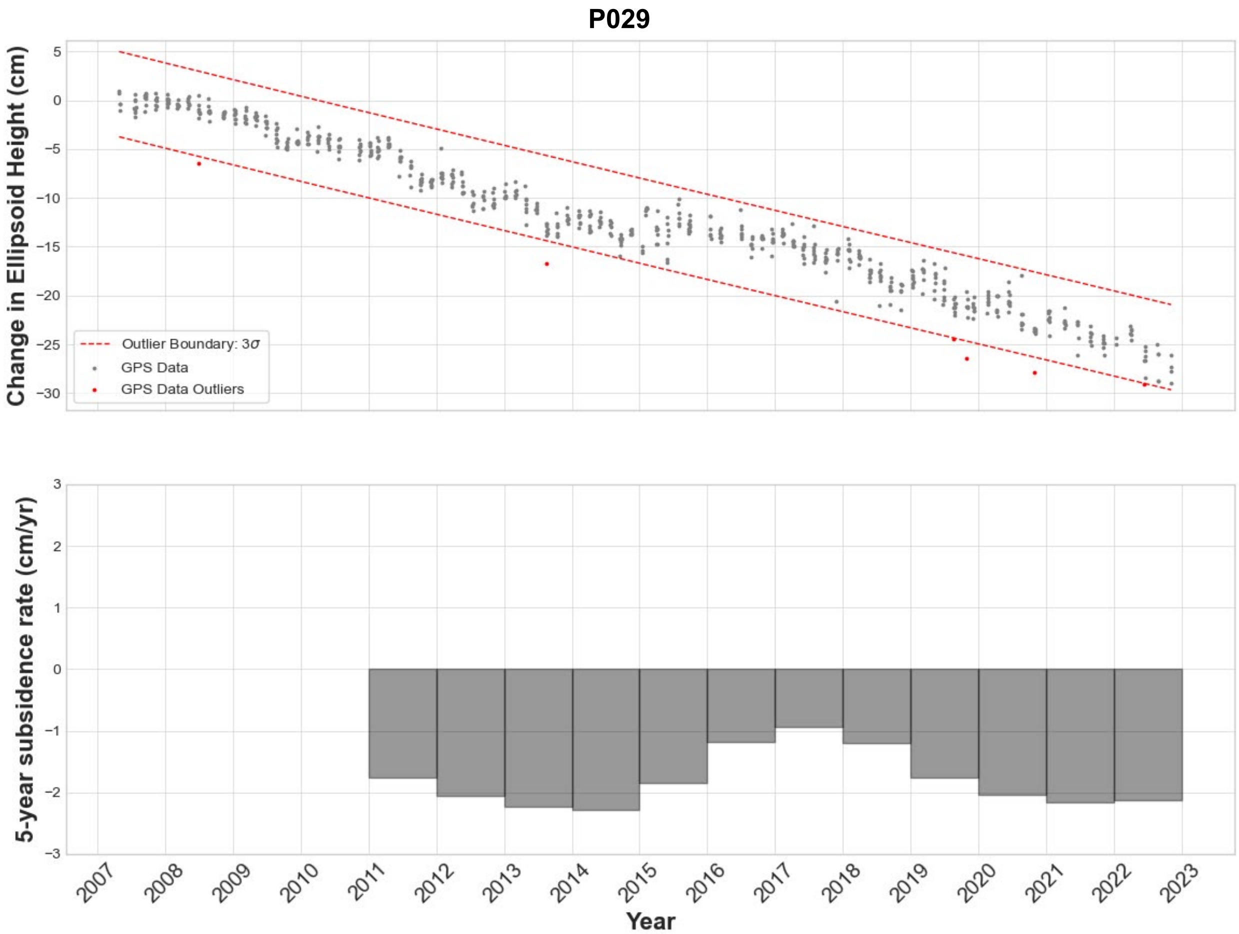


Figure 4: Period of record plot for P029 located in Katy, Texas, 2007 to 2022. This station measured 25.8 cm of subsidence over 15 years and the annual subsidence rate is 2.13 cm per year. The location of P029 is southwest of the intersection between I-10 and SH-99. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

Other stations in central Fort Bend County, such as Pecan Grove and Rosenberg, are relatively stable and show little subsidence with rates below half a centimeter per year. A representative sample time-series displacement plot and five-year subsidence rate graph for a GPS station in Regulatory Area A is P010. P010, which is located in Rosenberg south of the Brazos River and west of River Bend Park, shows a gradually stable trend with a recent rate of 0.11 cm per year of uplift and has measured approximately 6.8 cm (2.7 inches) of subsidence over 23 years (**Figure 4**).

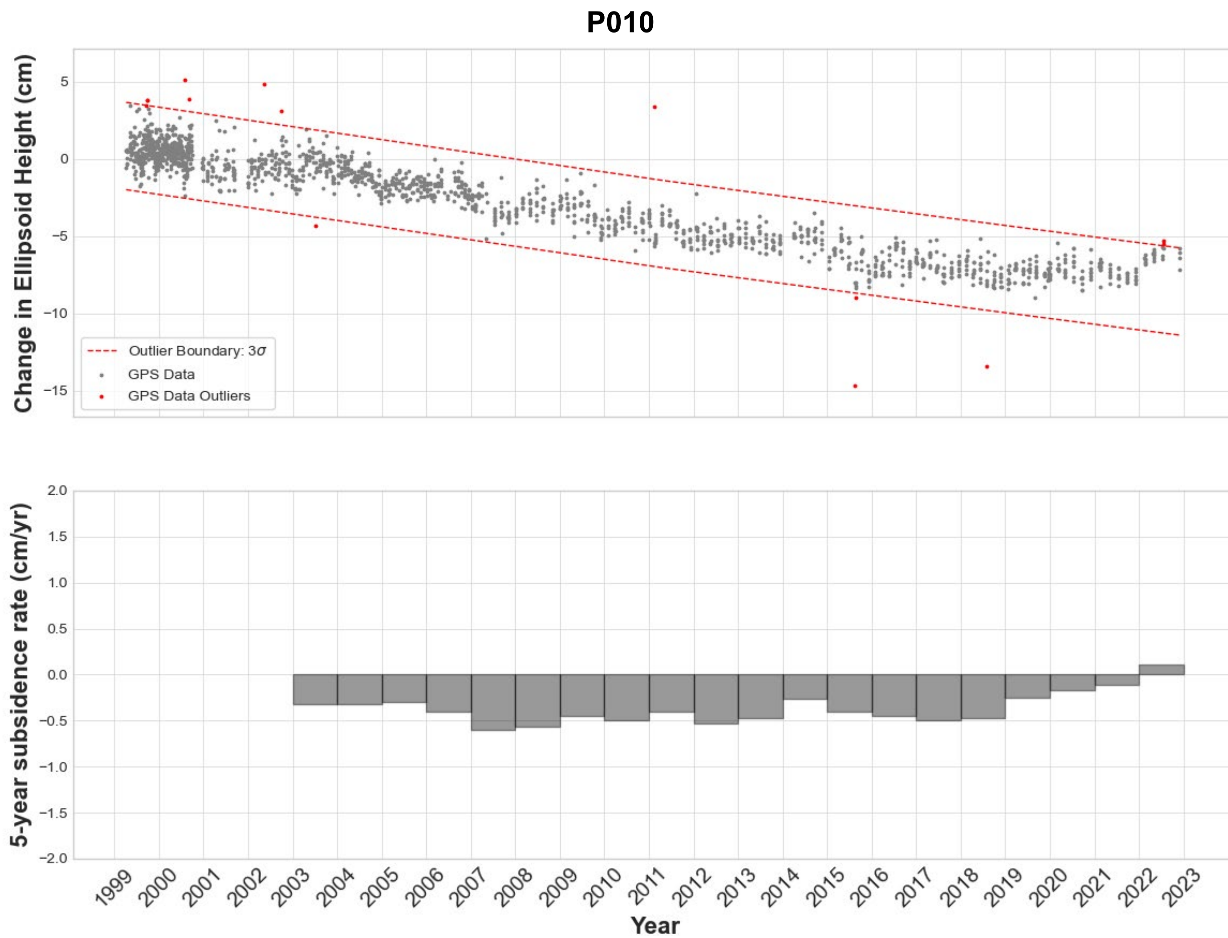


Figure 5: Period of record data for GPS station P010 located in Rosenberg, Texas, has been monitoring since 1999. This station measured 6.8 cm of subsidence over 23 years and the annual rate is 0.11 cm per year of uplift from 2018 to 2022. Processed GPS data (source: UH) over period of record. Processed data (grey circles) located inside the outlier boundary (red dashed lines) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are excluded from subsidence rate calculations and are shown for informational purposes only.

Regulatory Area B

Regulatory Area B has no groundwater withdrawal restrictions. GPS stations have been operating since 2007 within this area to measure subsidence. Regulatory Area B contains three (3) GPS stations, all of which have a subsidence rate less than half a centimeter per year. **Figure 6** displays the GPS stations in Regulatory Area B with labels identifying the name of each station.

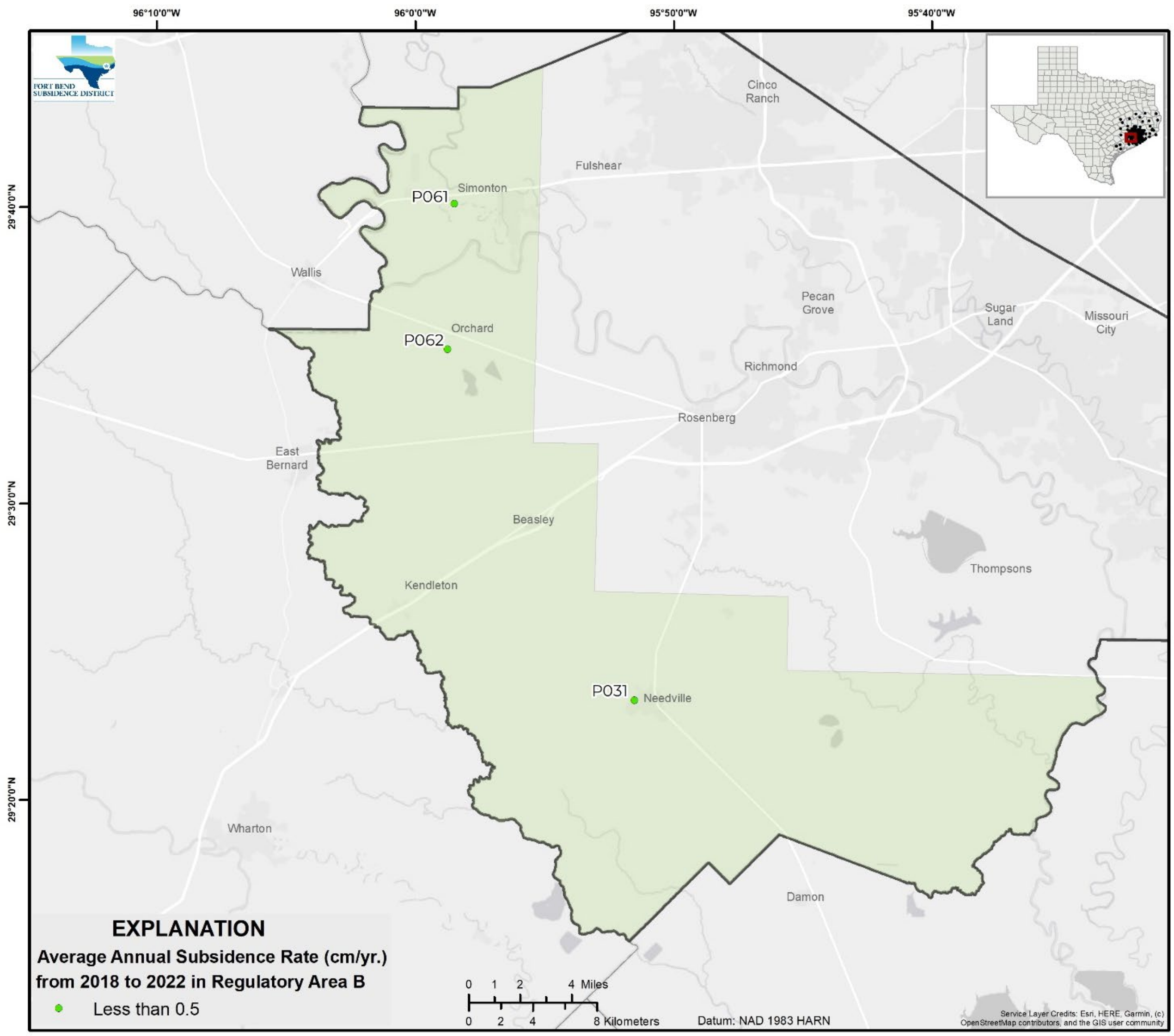


Figure 6: Average annual subsidence rate, in cm/year, estimated from periodic and continuous GPS data measured from GPS stations within Regulatory Area B in Fort Bend County, Texas, 2018-2022.

GPS station P062, located in Orchard, has measured 4.3 cm (1.7 in) of subsidence over 11 years. **Figure 7** contains the period of record plot for P062 that shows a subsidence rate of 0.30 cm per year from 2018 to 2022. P062 began monitoring in 2011 and has remained stable at under half a centimeter per year over the period of record as shown in the bar graph in **Figure 7**.

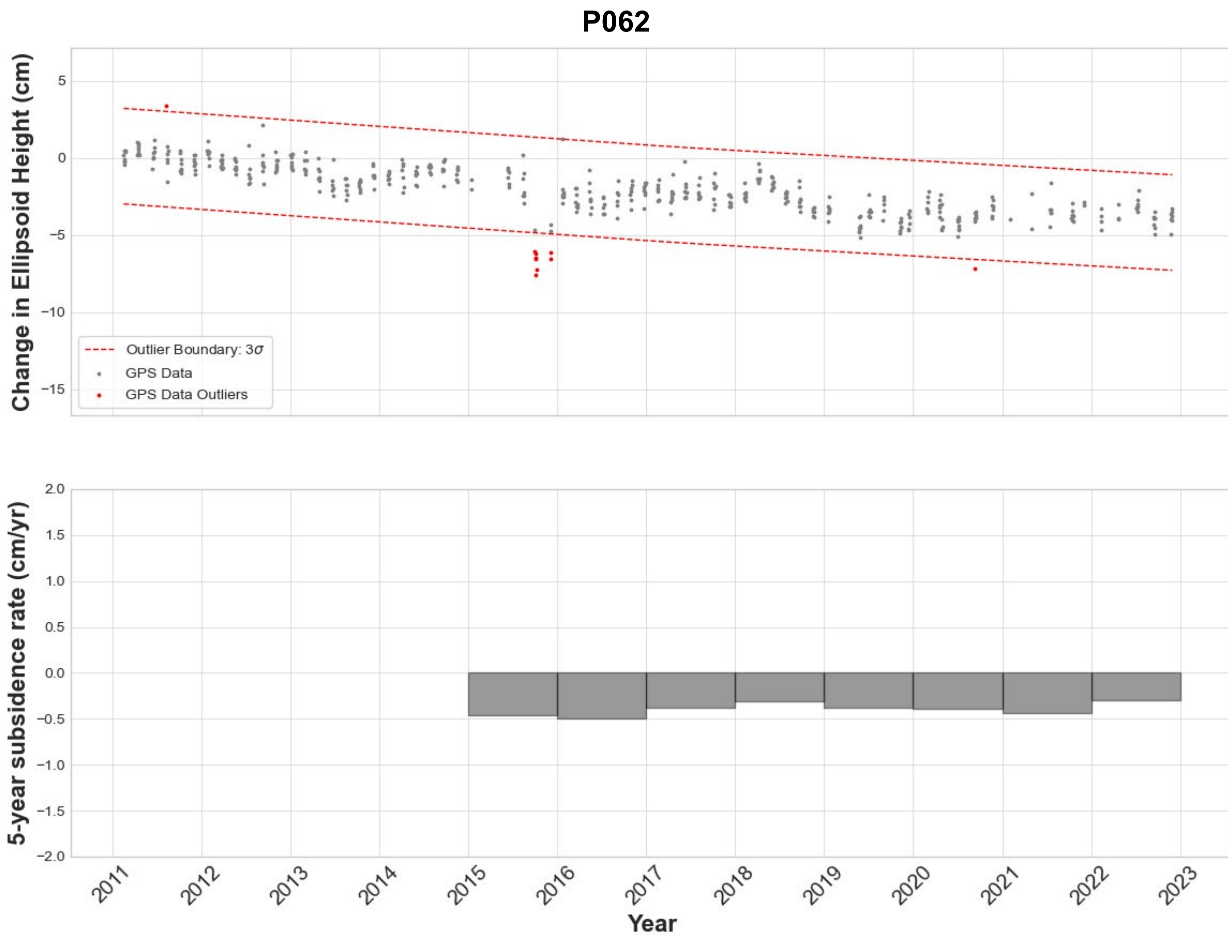


Figure 7: Period of record plot for GPS station P062 located in Orchard, Texas, from 2011 to 2022. This station measured 4.3 cm of subsidence over 11 years and the annual subsidence rate is 0.3 cm per year from 2018 to 2022. Processed GPS data (source: UH) over period of record. Processed data (grey circles) located inside the outlier boundary (red dashed lines) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are excluded from subsidence rate calculations and are shown for informational purposes only.

References

Agudelo, G. et al., 2020. *GPS Geodetic Infrastructure for Subsidence and Fault Monitoring in Houston, Texas, USA.* s.l.:Tenth International Symposium on Land Subsidence.

Wang, G., Greuter, A., Petersen, C. M. & Turco, M. J., 2022. Houston GNSS Network for Subsidence and Faulting Monitoring: Data Analysis Methods and Products. *Journal of Surveying Engineering.*

Appendix C – Period of Record Data

A comprehensive table is provided which includes the GPS station name, coordinates in decimal degrees, dates of operation, length of monitoring in decimal years, total vertical displacement over the period of record, and annual rate of change in ellipsoidal height from 2018 to 2022. A period of record plot and five-year rate bar graph are also included for each GPS station.

Site Name	Latitude (Decimal degrees)	Longitude (Decimal degrees)	Start of POR (Decimal year)	End of POR (Decimal Year)	Length of POR (Years)	Number of Samples (Days)	Total Vertical Displacement over POR (cm)	Annual Rate of Change in Ellipsoidal Height 2018-2022 (cm/yr.)
ADKS	-95.586	29.791	1993.520	2022.999	29.479	8799	-2.1	-0.08
ALEF	-95.635	29.692	2014.259	2023.036	8.778	3205	-5.3	-0.47
AULT	-95.745	29.998	2015.557	2023.036	7.480	2664	-7.8	-1.10
CFHS	-95.632	29.919	2015.595	2023.036	7.441	2662	-10.1	-1.17
CFJV	-95.556	29.882	2015.773	2023.036	7.263	2651	-6.5	-0.70
CMFB	-95.729	29.681	2014.409	2023.036	8.627	3117	-4.1	-0.43
COH2	-95.412	29.629	2009.005	2023.023	14.018	4440	-3.4	0.09
COH6	-95.185	30.040	2004.249	2022.950	18.701	3207	-9.4	-0.15
COTM	-94.998	29.394	2015.097	2023.036	7.940	2642	-1.4	-0.08
CSTE	-95.511	29.796	2015.387	2023.036	7.650	2792	-4.0	-0.21
DEN1	-95.258	29.510	2011.778	2022.877	11.099	3883	-2.2	-0.22
DEN2	-95.254	29.505	2011.778	2022.877	11.099	2686	-0.9	-0.07
DEN4	-95.230	29.500	2015.825	2022.675	6.850	1899	-0.6	-0.06
DISD	-95.740	29.289	2015.480	2023.036	7.556	2614	1.7	0.18
DMFB	-95.584	29.623	2014.771	2023.036	8.266	3018	-4.5	-0.32
DWI1	-95.404	29.014	2009.399	2023.036	13.637	4593	-1.6	0.04
FSFB	-95.630	29.556	2014.371	2023.036	8.665	3032	-1.4	-0.28
GSEC	-95.528	30.197	2015.756	2023.036	7.280	2477	-4.5	-0.79
HCC1	-95.561	29.788	2012.914	2023.036	10.122	3686	-6.3	-0.35
HCC2	-95.562	29.788	2013.139	2022.798	9.659	3051	-8.0	-0.39
HPEK	-95.716	29.755	2014.396	2022.486	8.090	1909	-10.3	-1.31
HSMN	-95.470	29.800	2013.298	2023.036	9.739	3551	-3.6	-0.12
JGS2	-94.891	30.045	2012.463	2023.036	10.574	3578	-1.7	0.09
KKES	-95.595	29.850	2015.598	2022.398	6.801	2353	-6.8	-1.08
KPCD	-95.924	29.926	2016.441	2022.428	5.988	2187	-1.9	-0.31
KPCS	-95.924	29.926	2016.441	2022.316	5.875	1846	-1.5	-0.35
LCBR	-96.602	30.182	2010.538	2023.036	12.498	2899	-0.8	0.03
LCI1	-95.442	29.807	2012.463	2021.892	9.429	3001	-2.9	-0.03
LGC1	-94.075	30.045	2013.531	2023.036	9.506	2973	-0.6	0.00
LKHU	-95.146	29.913	1993.517	2022.999	29.482	9822	5.0	0.05
MDWD	-95.595	29.771	2013.303	2023.036	9.733	3513	-6.9	-0.55
MEPD	-95.240	29.658	2014.040	2023.036	8.997	3197	1.5	0.19
MRHK	-95.745	29.804	2014.396	2023.036	8.641	3062	-14.8	-1.66
N301	-94.792	29.311	2018.530	2023.036	4.506	1552	-1.3	-0.08
NASA	-95.096	29.552	2014.201	2022.858	8.657	2948	-0.5	0.10
NBRY	-96.467	30.666	2012.463	2021.336	8.873	3149	-1.8	-0.22
NETP	-95.334	29.791	1993.517	2022.999	29.482	8412	0.1	-0.02
OKEK	-95.803	29.725	2014.576	2022.875	8.298	2964	-8.0	-0.94
P100	-95.198	29.934	2019.309	2022.969	3.660	236	-0.1	n/a
P101	-95.378	28.945	2019.714	2022.810	3.096	74	0.3	n/a
P102	-95.641	29.149	2019.641	2022.408	2.767	79	0.0	n/a
P103	-95.311	29.151	2019.714	2022.808	3.093	79	-1.3	n/a
P104	-95.421	29.370	2019.980	2022.129	2.148	41	-0.8	n/a
P105	-95.416	29.492	2019.657	2022.756	3.099	111	-2.1	n/a
P106	-95.400	29.552	2019.695	2022.756	3.060	112	-0.7	n/a
P107	-95.459	29.157	2019.616	2022.364	2.748	99	4.1	n/a
P108	-95.121	29.772	2021.244	2022.988	1.745	106	0.3	n/a
P109	-95.022	29.986	2021.148	2022.777	1.630	105	0.0	n/a

Site Name	Latitude (Decimal degrees)	Longitude (Decimal degrees)	Start of POR (Decimal year)	End of POR (Decimal Year)	Length of POR (Years)	Number of Samples (Days)	Total Vertical Displacement over POR (cm)	Annual Rate of Change in Ellipsoidal Height 2018-2022 (cm/yr.)
P110	-95.442	29.548	2021.192	2022.996	1.805	75	-3.4	n/a
P111	-95.873	29.733	2021.287	2022.871	1.583	63	-2.2	n/a
P112	-95.420	29.201	2022.361	2022.372	0.011	5	0.0	n/a
P000	-95.152	29.539	1996.003	2022.966	26.964	1704	-2.2	0.57
P001	-95.617	29.912	1994.164	2022.720	28.556	2183	-71.7	-0.20
P002	-95.416	30.001	1994.318	2022.909	28.591	2162	-65.2	-1.21
P003	-95.613	29.821	1994.328	2022.813	28.485	1727	-55.5	-0.22
P004	-95.597	29.630	1994.660	2022.832	28.172	2004	-27.6	-0.49
P005	-95.586	29.791	1996.698	2022.966	26.268	1734	-32.8	-0.18
P006	-95.672	29.818	2014.276	2022.657	8.380	408	-7.8	-0.65
P007	-95.577	29.936	1999.115	2022.432	23.318	1556	-57.2	0.30
P008	-95.476	29.980	1999.610	2022.909	23.298	1416	-41.7	-0.99
P009	-95.071	30.038	1999.345	2022.931	23.586	1481	-3.9	-0.19
P010	-95.799	29.566	1999.266	2022.914	23.649	1710	-6.8	0.11
P011	-95.865	30.032	1999.345	2022.909	23.564	1527	-8.8	0.05
P012	-95.263	30.060	2000.895	2022.547	21.652	1435	-12.1	-0.45
P013	-95.490	30.195	2000.914	2022.928	22.014	1348	-26.3	-0.94
P014	-95.644	29.474	2000.879	2022.969	22.090	1248	-4.8	0.24
P016	-95.527	29.544	2000.860	2022.432	21.573	1306	-4.9	0.14
P017	-95.615	30.091	2000.895	2022.890	21.995	1251	-36.3	-0.98
P018	-95.678	29.965	2000.862	2022.829	21.967	1235	-34.8	-0.83
P019	-95.805	29.841	2000.892	2022.988	22.096	1200	-21.9	-1.12
P020	-95.013	29.533	2002.044	2022.873	20.829	1254	1.3	0.30
P021	-95.312	29.545	2002.082	2022.939	20.857	1180	0.7	0.01
P022	-95.021	29.335	2002.041	2022.999	20.958	1201	-5.9	-0.17
P023	-94.918	29.335	2002.060	2022.999	20.939	1283	1.4	0.08
P024	-95.041	29.669	2002.118	2022.909	20.791	1240	5.7	0.11
P026	-94.938	29.210	2002.194	2022.901	20.706	2801	-0.5	-0.01
P027	-95.016	29.583	2002.367	2022.887	20.520	1217	-5.1	0.04
P028	-94.918	29.751	2002.194	2022.999	20.805	1203	1.3	0.05
P029	-95.822	29.769	2007.320	2022.849	15.528	693	-25.8	-2.13
P030	-95.902	29.689	2007.350	2022.873	15.523	689	-6.5	-0.32
P031	-95.848	29.398	2007.350	2022.972	15.622	695	3.3	0.24
P032	-95.707	29.541	2007.350	2022.950	15.600	703	-0.3	0.34
P033	-95.224	29.490	2006.323	2022.950	16.627	871	-1.1	-0.01
P034	-95.042	29.422	2010.356	2022.999	12.643	4433	-3.6	0.27
P035	-95.082	29.473	2006.621	2022.969	16.348	724	3.2	0.01
P036	-94.942	29.494	2006.966	2022.871	15.904	750	-1.7	1.10
P037	-95.101	29.631	2007.383	2022.892	15.509	607	3.0	0.43
P038	-95.223	29.649	2007.356	2022.928	15.572	795	3.3	0.03
P039	-95.339	29.645	2011.093	2022.931	11.838	586	-0.1	0.07
P040	-95.462	29.493	2007.353	2022.988	15.635	641	-8.8	-0.28
P041	-95.476	29.662	2007.337	2022.986	15.649	792	-8.3	-0.06
P042	-95.635	29.732	2007.334	2022.966	15.632	732	-9.0	0.08
P043	-95.111	29.093	2006.545	2022.999	16.454	2612	-0.8	-0.03
P044	-95.687	29.880	2007.320	2022.827	15.506	715	-17.3	-0.86
P045	-95.385	29.876	2007.331	2022.890	15.559	771	-4.8	-0.33
P046	-95.600	30.030	2007.323	2022.695	15.372	739	-22.0	-0.69

Site Name	Latitude (Decimal degrees)	Longitude (Decimal degrees)	Start of POR (Decimal year)	End of POR (Decimal Year)	Length of POR (Years)	Number of Samples (Days)	Total Vertical Displacement over POR (cm)	Annual Rate of Change in Ellipsoidal Height 2018-2022 (cm/yr.)
P047	-95.424	30.090	2007.339	2022.928	15.589	739	-27.5	-1.57
P048	-95.672	30.045	2007.320	2022.890	15.569	716	-16.1	-0.31
P049	-94.702	29.422	2006.279	2022.909	16.630	2241	-2.1	-0.12
P050	-94.856	29.848	2006.835	2022.999	16.164	809	-1.2	-0.01
P051	-95.284	29.933	2007.339	2022.964	15.624	756	-9.6	-0.37
P052	-95.177	29.852	2007.339	2022.988	15.649	745	-0.3	0.08
P053	-95.057	29.908	2007.339	2022.912	15.572	701	-3.8	0.21
P054	-95.034	29.801	2006.816	2022.892	16.077	805	-1.0	-0.06
P055	-95.177	29.794	2006.799	2022.999	16.200	776	3.0	0.08
P056	-95.817	29.903	2007.320	2022.920	15.600	647	-6.8	-0.16
P057	-95.722	29.684	2009.137	2022.835	13.698	585	-5.8	-0.13
P058	-95.715	29.485	2010.591	2022.950	12.359	558	-2.3	-0.06
P059	-95.740	29.617	2010.572	2022.931	12.359	557	-3.6	-0.09
P060	-95.820	29.686	2012.071	2022.854	10.783	445	-7.1	-0.45
P061	-95.972	29.675	2011.129	2022.892	11.764	544	-4.0	0.05
P062	-95.974	29.593	2011.129	2022.912	11.783	489	-4.3	-0.30
P063	-95.547	29.508	2011.432	2022.988	11.556	526	-1.2	0.45
P065	-95.107	30.106	2012.432	2022.931	10.498	501	-6.3	-0.61
P066	-95.767	30.017	2011.167	2022.723	11.556	549	-14.5	-0.97
P067	-95.855	29.532	2011.109	2022.912	11.802	520	-2.0	0.18
P068	-95.587	30.185	2011.799	2022.950	11.151	662	-11.8	-0.98
P069	-95.459	30.199	2011.747	2022.969	11.222	672	-13.1	-0.95
P070	-95.424	30.291	2011.761	2022.999	11.238	616	-5.3	-0.02
P071	-95.579	30.353	2011.780	2022.912	11.132	682	-5.3	-0.29
P072	-95.242	30.147	2011.994	2022.988	10.995	513	-9.4	-0.97
P073	-95.730	30.193	2012.052	2022.931	10.879	693	-9.0	-0.72
P074	-95.231	29.736	2011.972	2022.999	11.027	516	2.4	0.08
P075	-95.031	29.758	2012.432	2022.884	10.452	532	0.0	0.18
P076	-95.045	29.361	2012.643	2022.991	10.348	485	-5.2	-0.28
P077	-95.850	29.979	2013.197	2022.928	9.731	437	-2.1	-0.29
P078	-96.016	29.739	2014.331	2022.890	8.559	411	-3.3	-0.09
P079	-95.471	29.035	2014.827	2022.999	8.172	2246	-0.7	-0.14
P080	-95.165	29.578	2014.862	2022.999	8.137	2799	0.7	0.18
P081	-95.170	29.556	2014.854	2022.999	8.145	2769	-0.1	0.01
P082	-95.731	29.296	2016.109	2022.742	6.632	260	0.9	0.21
P083	-95.182	29.262	2016.014	2022.780	6.767	228	-0.9	0.21
P084	-95.370	29.297	2016.052	2022.698	6.646	296	3.7	0.89
P085	-95.278	29.343	2016.033	2022.799	6.767	258	-0.2	-0.15
P086	-95.458	29.258	2016.071	2022.520	6.449	239	1.5	0.61
P087	-95.677	29.058	2016.090	2022.717	6.627	252	-0.9	-0.13
P088	-95.438	29.446	2016.131	2022.925	6.794	255	-2.8	-0.50
P089	-95.799	29.566	2015.766	2022.931	7.164	314	-0.5	-0.01
P090	-95.160	29.710	2015.977	2022.912	6.934	443	2.4	0.05
P091	-95.493	29.783	2016.320	2022.947	6.627	435	-2.7	0.17
P092	-95.501	29.881	2016.320	2022.947	6.627	406	-4.3	-0.10
P093	-95.197	29.417	2017.238	2022.994	5.756	306	-1.6	0.88
P094	-95.524	29.722	2017.298	2022.986	5.687	366	-2.1	-0.09
P095	-95.294	29.808	2017.200	2022.890	5.690	382	0.0	0.20

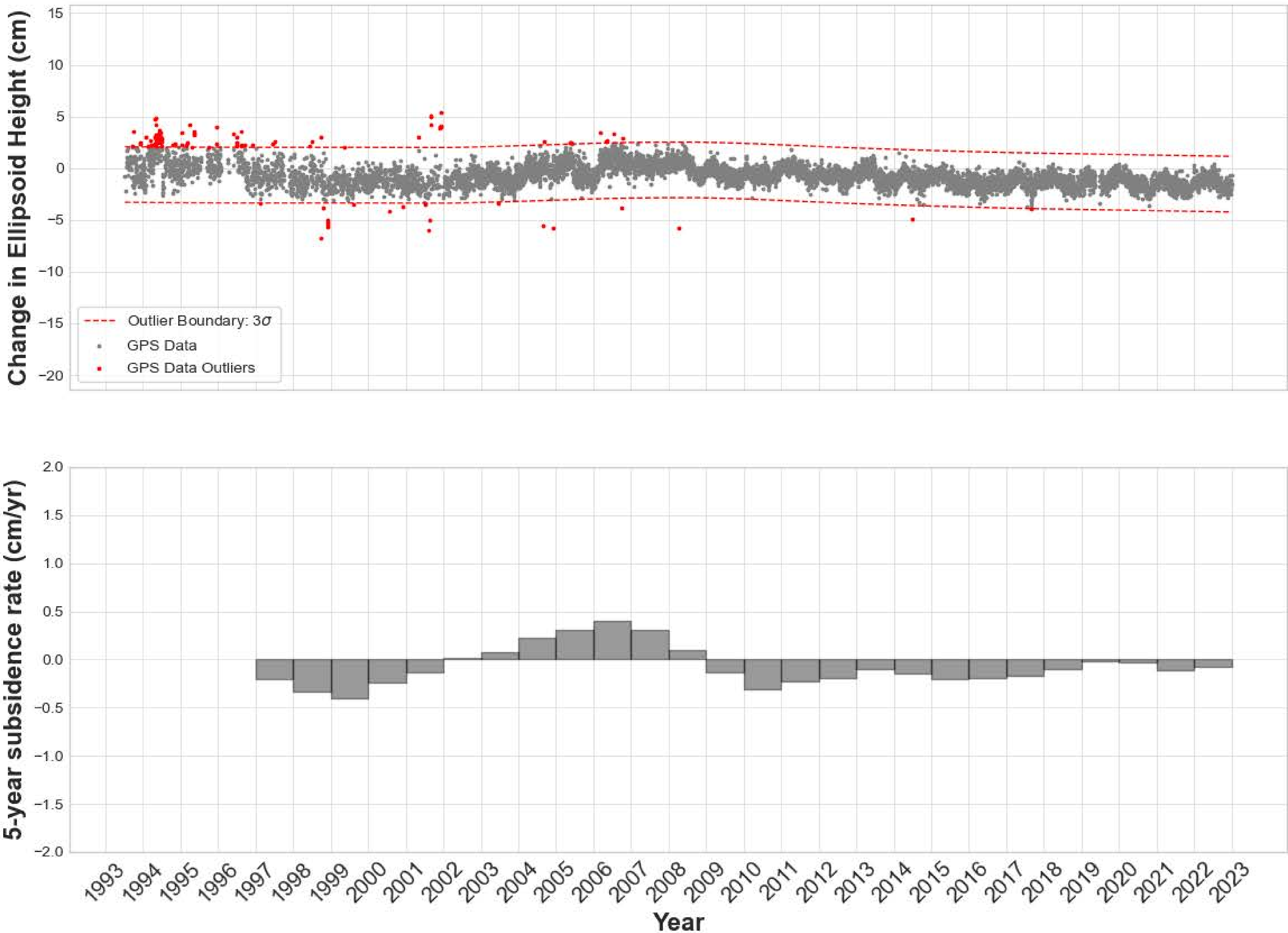
Site Name	Latitude (Decimal degrees)	Longitude (Decimal degrees)	Start of POR (Decimal year)	End of POR (Decimal Year)	Length of POR (Years)	Number of Samples (Days)	Total Vertical Displacement over POR (cm)	Annual Rate of Change in Ellipsoidal Height 2018-2022 (cm/yr.)
P096	-95.748	29.724	2017.553	2022.999	5.446	1844	-1.2	-0.83
P097	-95.847	29.785	2018.104	2022.999	4.895	304	-9.2	-2.00
P098	-95.820	29.803	2018.120	2022.772	4.652	290	-7.1	-1.89
P099	-95.579	29.986	2018.140	2022.693	4.553	287	-0.8	-0.47
PWES	-95.511	30.199	2015.220	2023.036	7.817	2855	-8.9	-1.17
RDCT	-95.495	29.810	2013.563	2023.036	9.473	3220	-3.1	-0.21
ROD1	-95.527	30.072	2007.003	2023.036	16.033	5532	-18.5	-0.88
RPFB	-95.514	29.484	2014.773	2023.036	8.263	3018	-0.6	-0.02
SESG	-95.430	29.987	2014.678	2023.036	8.359	3047	-7.9	-0.89
SHSG	-95.430	30.054	2014.721	2023.036	8.315	3036	-10.3	-1.32
SISD	-96.174	29.762	2015.176	2023.036	7.860	2781	-0.4	-0.04
SPBH	-95.515	29.802	2013.303	2023.036	9.733	3554	-4.9	-0.27
TDAM	-94.817	29.314	2013.435	2023.036	9.602	3275	-2.1	-0.05
THSU	-95.340	29.714	2012.953	2023.036	10.083	3391	0.3	0.17
TMCC	-95.395	29.702	2003.271	2022.901	19.630	4901	-1.6	0.10
TSFT	-95.480	29.806	2013.380	2023.036	9.656	3481	-11.3	-1.28
TXAC	-94.671	29.778	2011.124	2023.036	11.912	4292	2.5	0.37
TXAG	-95.419	29.164	2005.580	2020.558	14.979	5422	-1.7	-0.04
TXAV	-95.242	29.403	2017.147	2023.036	5.889	1691	-1.1	-0.20
TXB1	-94.181	30.161	2013.191	2023.036	9.845	3292	1.3	0.29
TXB2	-94.192	30.090	2012.463	2023.036	10.574	3514	-9.4	-0.26
TXBC	-95.972	29.000	2009.405	2023.036	13.632	4909	-2.3	-0.08
TXBH	-95.946	29.786	2017.150	2023.036	5.886	2067	-2.6	-0.37
TXC5	-96.573	29.704	2017.213	2023.036	5.823	2085	0.0	-0.03
TXCF	-96.573	29.704	2017.065	2023.036	5.971	2128	0.4	-0.03
TXCK	-95.436	31.323	2012.022	2023.036	11.014	3952	1.0	0.12
TXCM	-96.577	29.703	2010.437	2023.036	12.600	4561	-0.2	0.02
TXCN	-95.441	30.349	2005.580	2023.036	17.457	6345	-18.2	-0.65
TXCV	-95.094	30.335	2012.665	2021.468	8.802	2936	-3.6	-0.24
TXCY	-95.626	30.096	2017.391	2023.036	5.646	1894	-6.2	-1.08
TXED	-96.634	28.968	2009.429	2023.036	13.607	3324	0.1	0.10
TXEX	-95.119	29.564	2010.881	2022.980	12.099	3956	4.5	0.20
TXGA	-94.773	29.328	2005.580	2023.036	17.457	6164	-3.5	-0.18
TXGN	-95.136	31.061	2012.022	2023.036	11.014	3700	0.1	0.07
TXH1	-96.602	30.893	2013.191	2023.036	9.845	3287	0.3	0.15
TXH2	-94.391	29.563	2016.090	2023.036	6.946	2258	0.8	0.14
TXHE	-96.063	30.099	2005.580	2023.036	17.457	6341	-5.1	-0.01
TXHP	-93.865	31.334	2012.022	2023.036	11.014	3953	-1.6	0.32
TXHS	-95.556	29.716	2012.463	2021.092	8.630	2937	-4.9	-0.34
TXKO	-94.332	30.395	2011.770	2023.036	11.266	4065	0.4	0.16
TXLF	-94.718	31.356	2005.580	2023.036	17.457	6335	0.9	0.11
TXLI	-94.771	30.056	2005.580	2023.036	17.457	6296	1.3	0.17
TXLM	-95.024	29.392	2005.580	2023.036	17.457	6332	-4.7	-0.08
TXLQ	-94.953	29.358	2013.059	2023.036	9.977	3503	0.8	0.11
TXLV	-94.922	30.745	2011.778	2023.036	11.258	4084	-0.9	-0.03
TXMD	-95.915	30.960	2010.584	2023.036	12.452	4218	1.9	0.16
TXMG	-95.964	28.983	2013.309	2023.036	9.728	3156	-2.1	-0.11
TXNE	-93.775	30.848	2013.191	2023.036	9.845	3206	-0.4	0.12

Site Name	Latitude (Decimal degrees)	Longitude (Decimal degrees)	Start of POR (Decimal year)	End of POR (Decimal Year)	Length of POR (Years)	Number of Samples (Days)	Total Vertical Displacement over POR (cm)	Annual Rate of Change in Ellipsoidal Height 2018-2022 (cm/yr.)
TXNV	-96.067	30.382	2012.463	2023.036	10.574	3773	-2.5	-0.03
TXP5	-95.042	29.668	2019.181	2023.036	3.855	1270	1.0	n/a
TXPV	-96.619	28.638	2010.292	2023.036	12.745	4621	0.2	-0.05
TXRN	-95.829	29.543	2015.206	2023.036	7.830	2816	-0.5	0.02
TXRS	-95.805	29.519	2011.447	2021.711	10.264	3707	-2.9	-0.35
TXSP	-93.897	29.731	2016.454	2023.036	6.582	2126	1.1	0.13
TXTG	-95.297	29.898	2015.466	2023.036	7.570	2697	-2.0	-0.17
TXVA	-96.910	28.835	2005.092	2023.036	17.944	6373	1.8	-0.06
TXVC	-96.958	28.834	2015.310	2023.036	7.726	2777	0.7	0.22
TXWH	-96.112	29.325	2010.426	2023.036	12.611	4548	-0.9	0.33
TXWI	-94.371	29.806	2015.480	2023.036	7.556	2564	-0.8	-0.10
TXWN	-96.092	29.329	2015.003	2023.036	8.033	2874	0.5	0.03
TXWO	-94.424	30.782	2013.191	2023.036	9.845	3069	-1.0	0.07
UH01	-95.345	29.722	2012.745	2022.678	9.933	2900	0.9	0.19
UH02	-95.457	30.315	2015.003	2023.036	8.033	2763	-5.1	-0.75
UHC1	-95.044	29.390	2014.138	2023.036	8.898	3148	-1.4	-0.10
UHC2	-95.044	29.390	2014.138	2023.036	8.898	3150	-2.0	-0.13
UHC3	-95.044	29.390	2014.155	2023.036	8.882	3044	-3.2	-0.22
UHCL	-95.104	29.578	2014.242	2023.036	8.794	3004	0.8	0.15
UHCR	-95.757	29.728	2014.125	2022.606	8.482	3093	-8.6	-0.85
UHDT	-95.359	29.766	2013.563	2022.858	9.295	3395	-0.1	0.15
UHEB	-96.066	29.526	2014.595	2023.036	8.441	2782	-0.5	-0.01
UHEP	-95.327	29.719	2014.365	2022.872	8.506	3067	-0.8	0.16
UHF1	-95.483	30.236	2014.390	2022.486	8.096	2554	-6.4	-0.63
UHJF	-95.483	30.236	2014.393	2022.483	8.090	2338	-5.7	-0.65
UHKD	-95.748	29.724	2018.971	2022.590	3.619	1241	-2.5	-0.52
UHKS	-95.748	29.724	2018.412	2022.590	4.178	1524	-2.4	-0.37
UHL1	-94.978	30.058	2014.365	2021.142	6.776	2357	1.7	-0.11
UHRI	-95.403	29.719	2014.330	2023.036	8.706	3164	-1.9	0.11
UHSL	-95.652	29.575	2014.185	2022.601	8.416	2858	-2.0	-0.11
UHWL	-94.978	30.058	2014.357	2021.142	6.784	2105	-0.6	-0.13
UTEX	-95.568	29.786	2012.496	2022.801	10.305	3548	-6.9	-0.32
WCHT	-95.581	29.783	2013.295	2023.036	9.741	3445	-8.2	-0.36
WDVW	-95.533	29.790	2013.320	2022.949	9.629	3452	-5.9	-0.30
WEPD	-95.229	29.688	2014.075	2023.036	8.961	3186	1.9	0.21
WHCR	-95.505	30.194	2014.779	2023.036	8.257	3013	-5.2	-0.87
YORS	-95.469	30.110	2020.827	2022.909	2.082	760	-4.3	n/a
ZHU1	-95.331	29.962	2003.042	2023.036	19.995	6943	-16.3	-0.49

Notes:

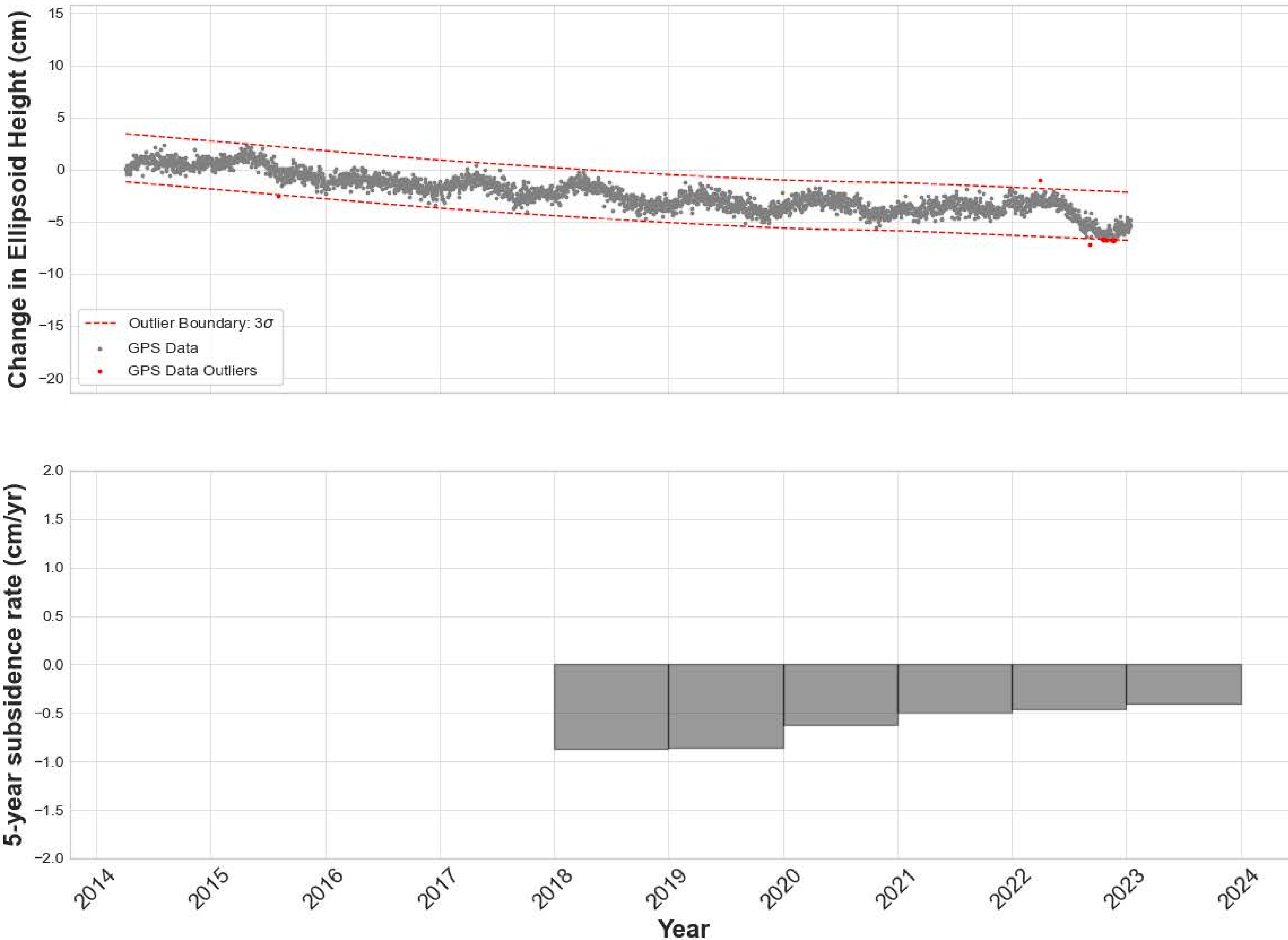
n/a: rate of change in ellipsoidal height not calculated.

ADKS



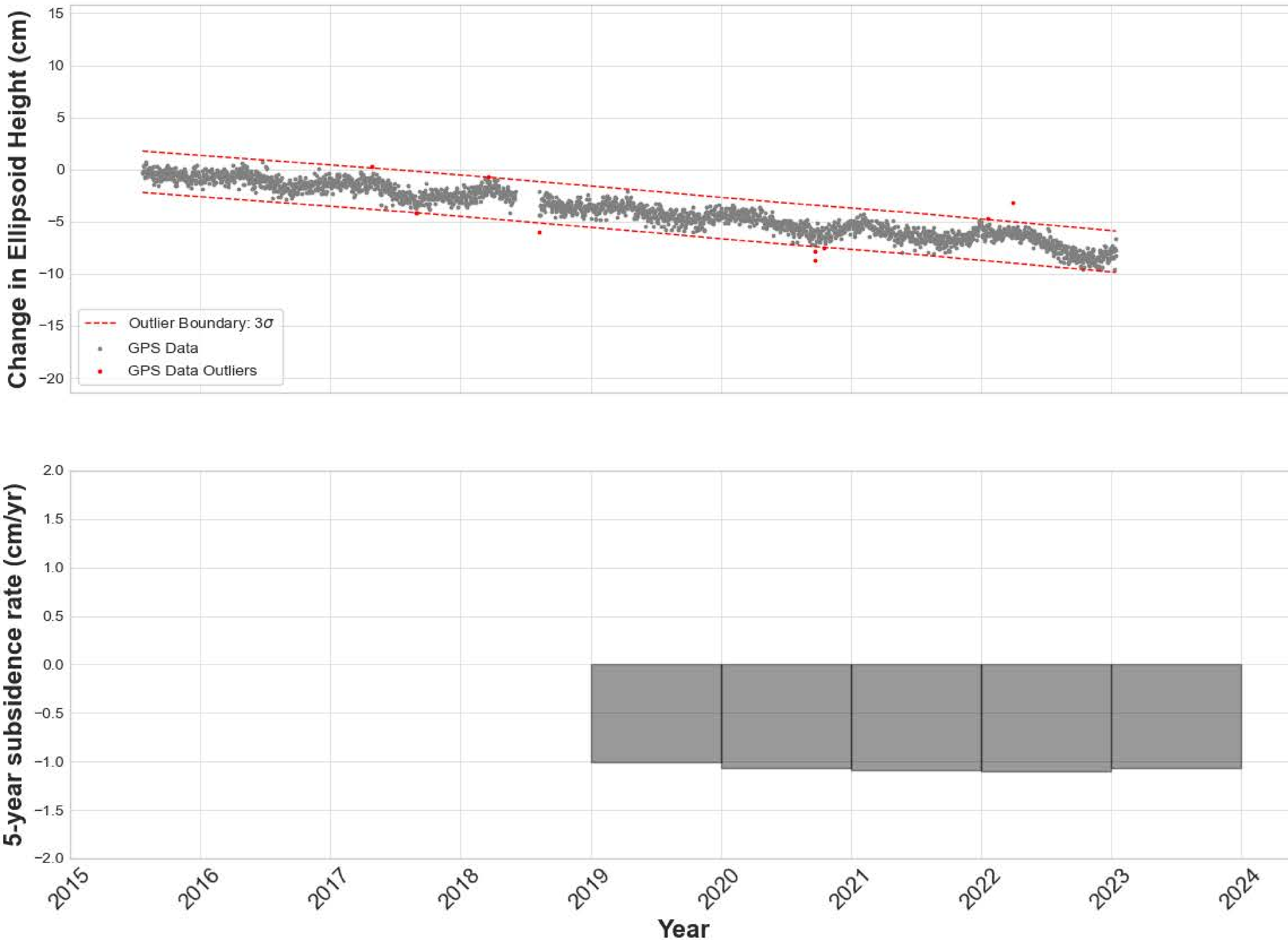
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

ALEF



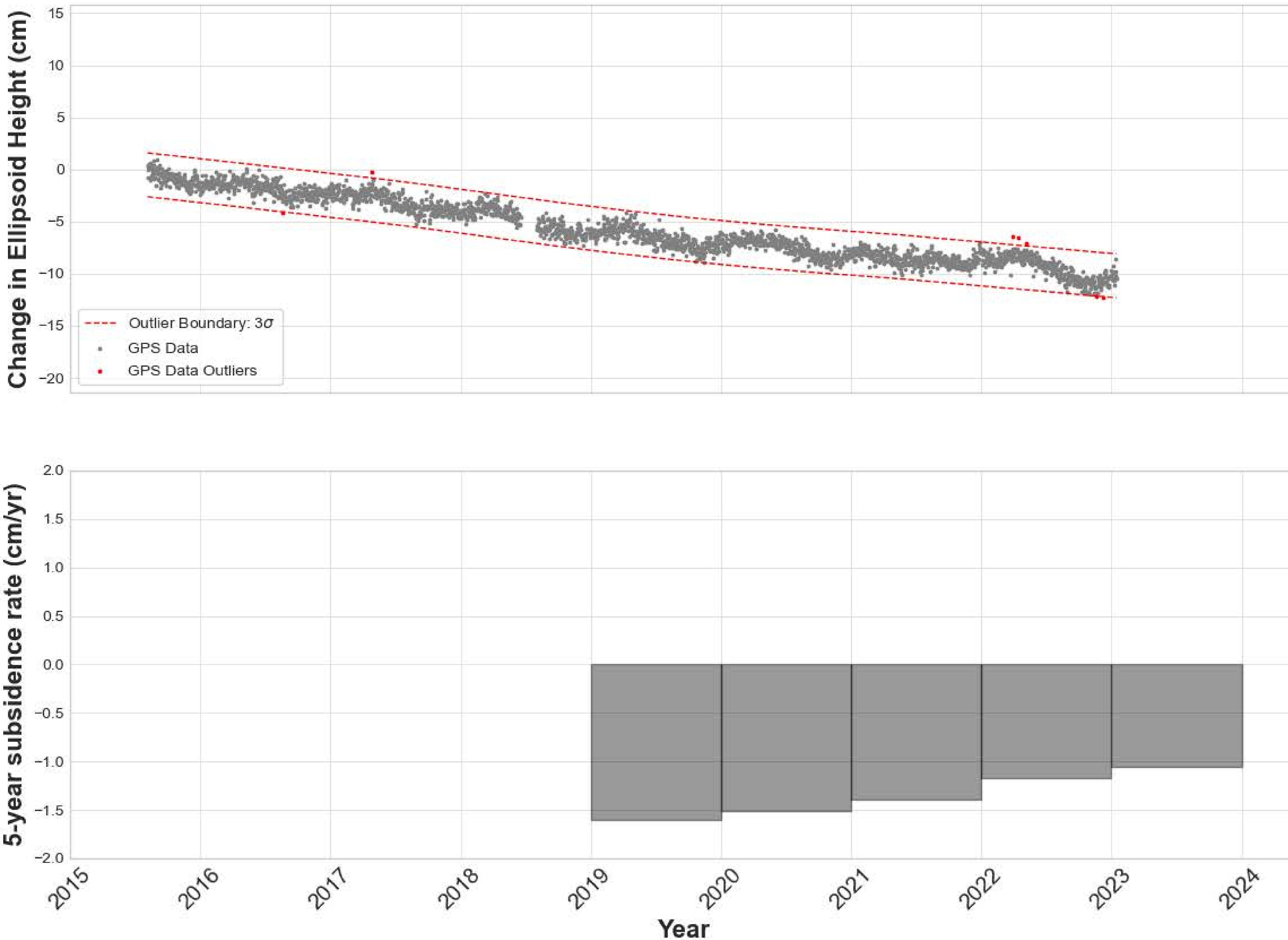
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

AULT



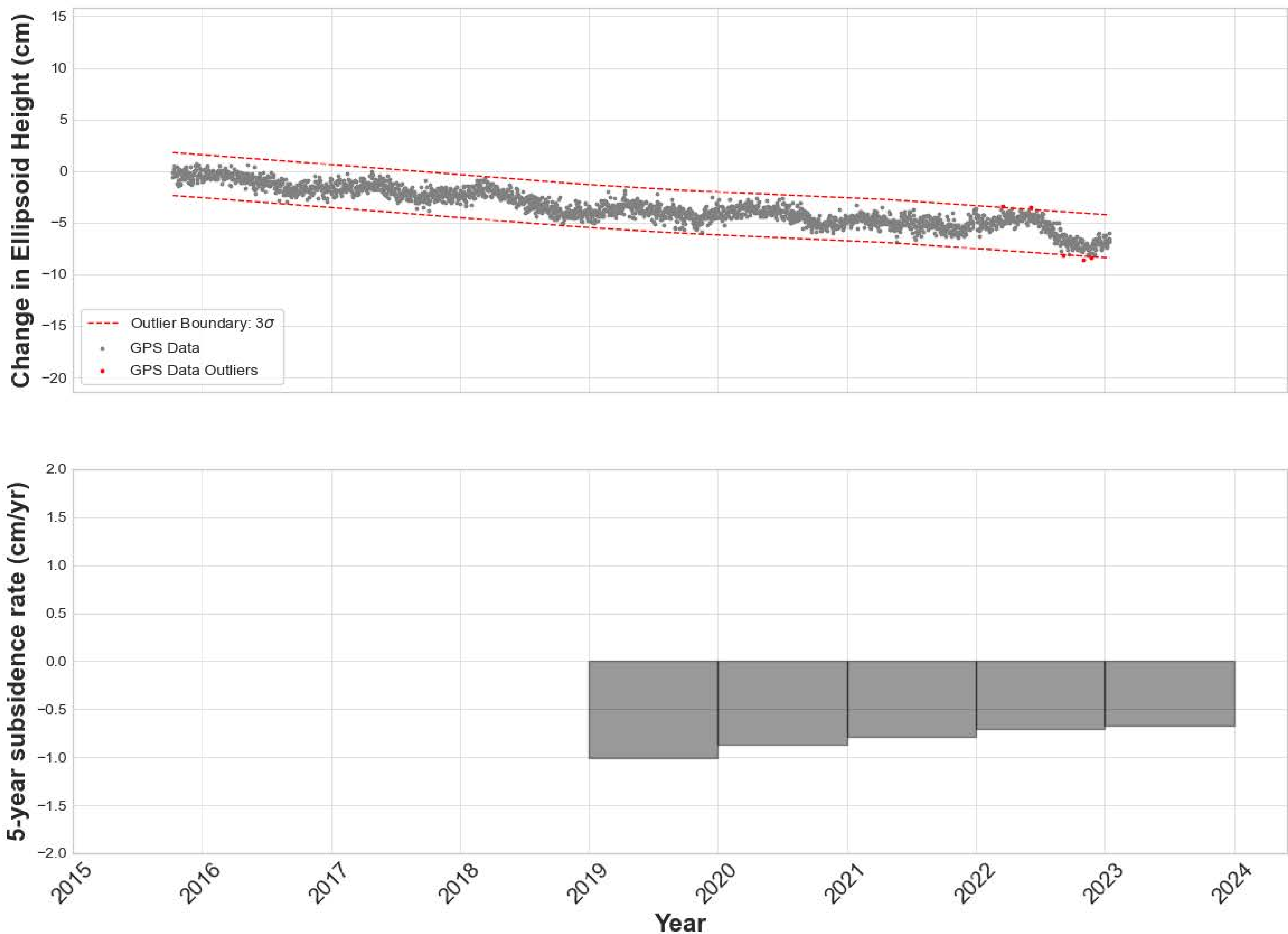
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

CFHS



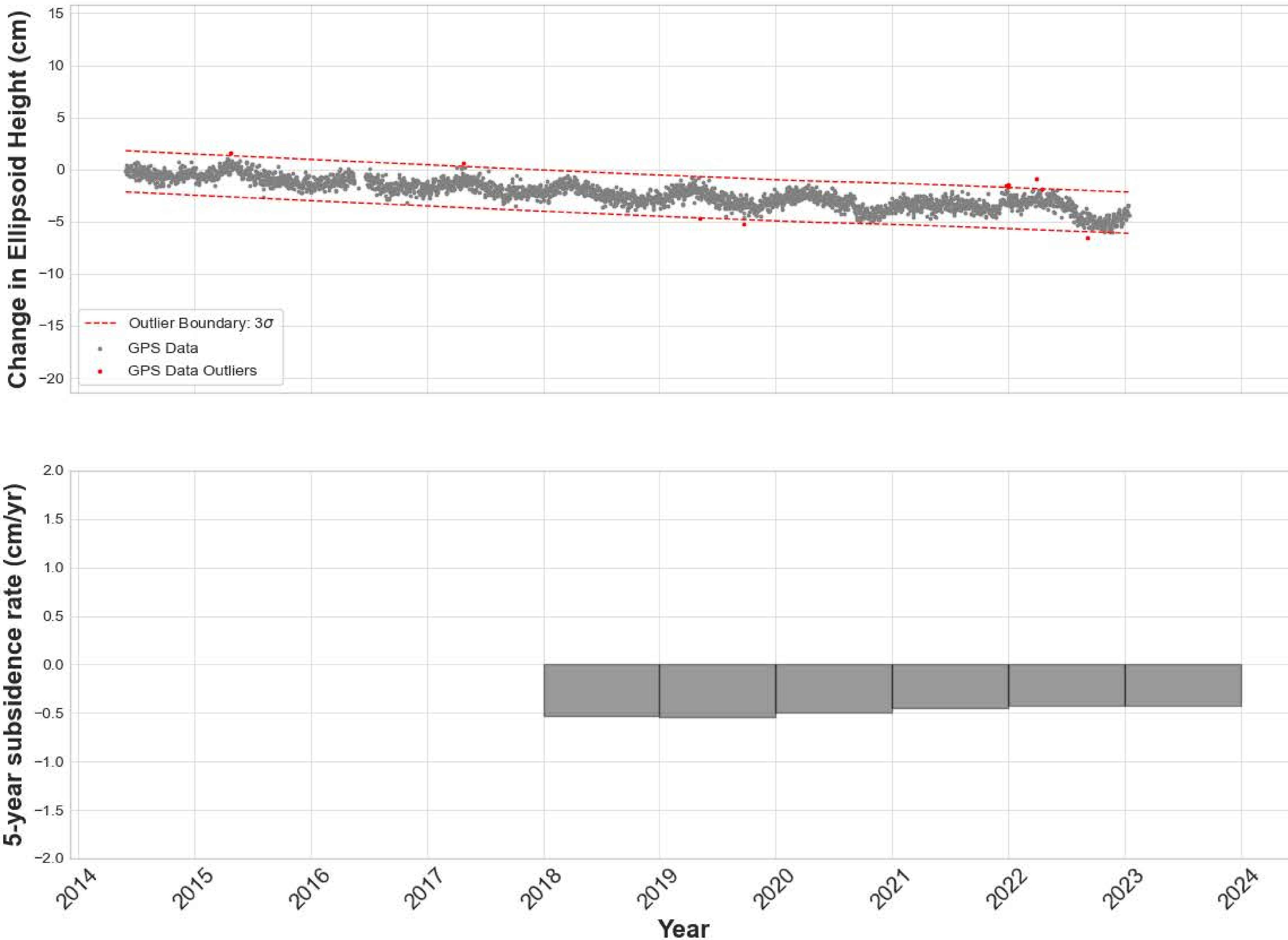
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

CFJV



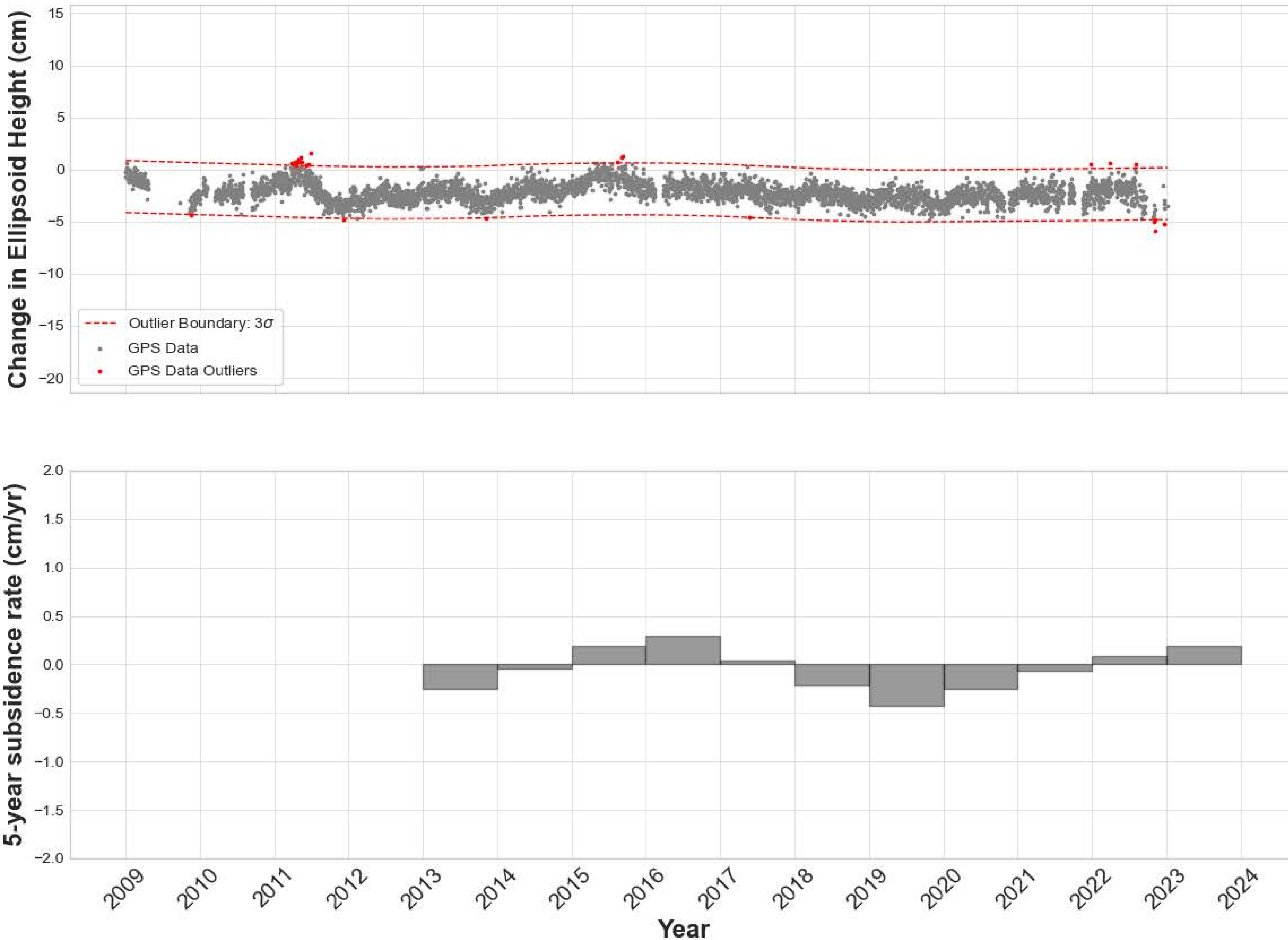
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

CMFB



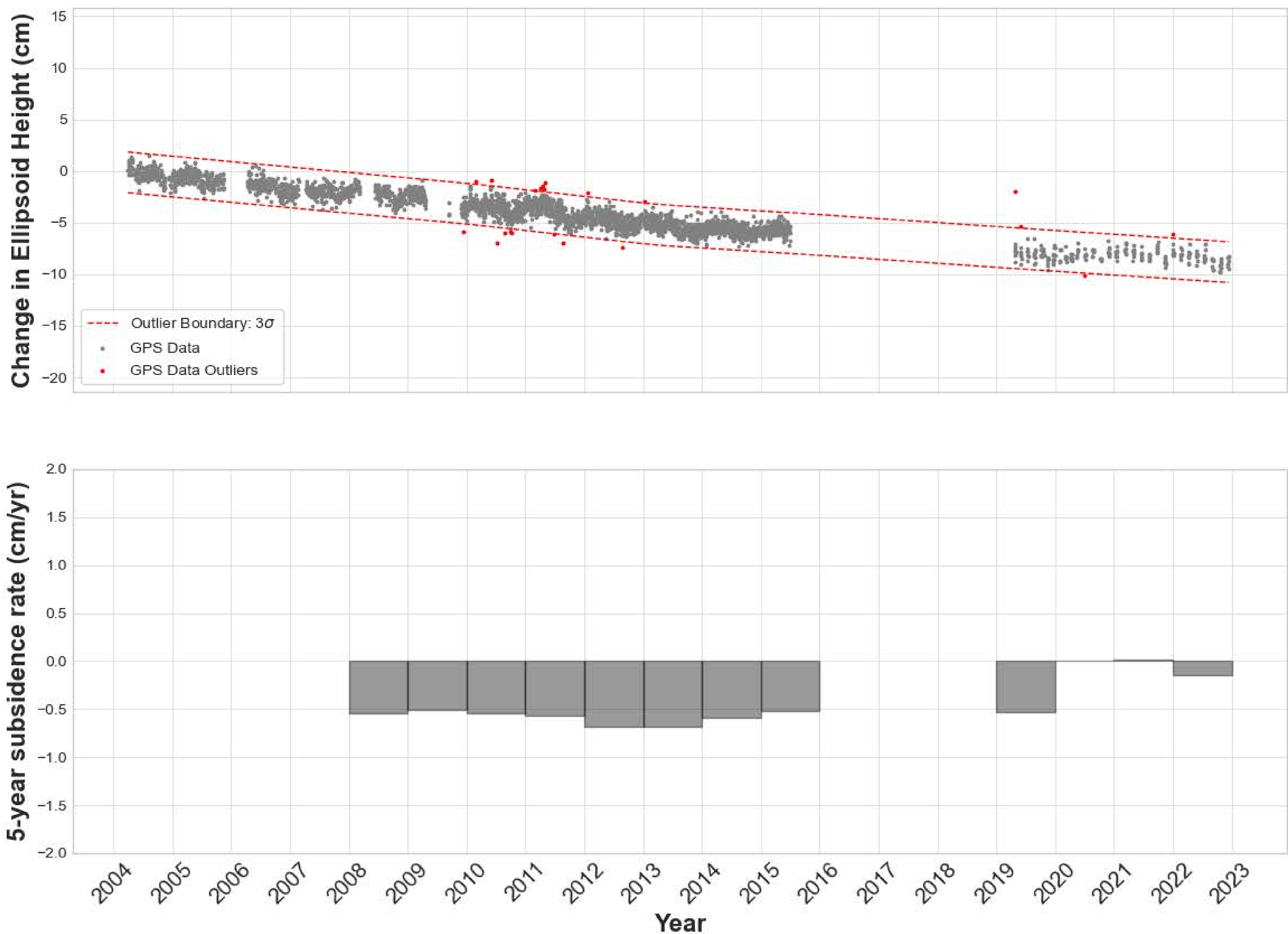
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

COH2



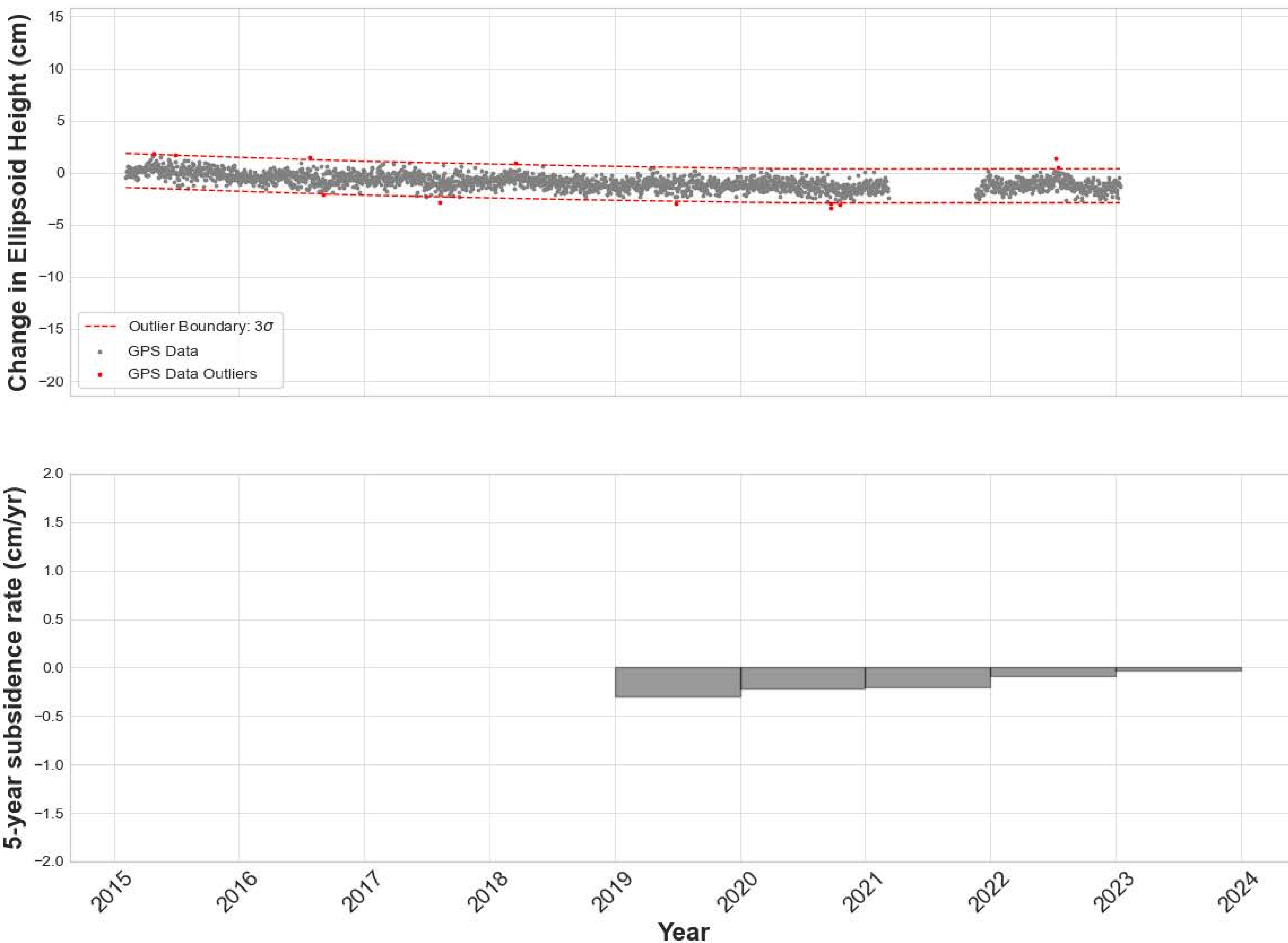
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

COH6



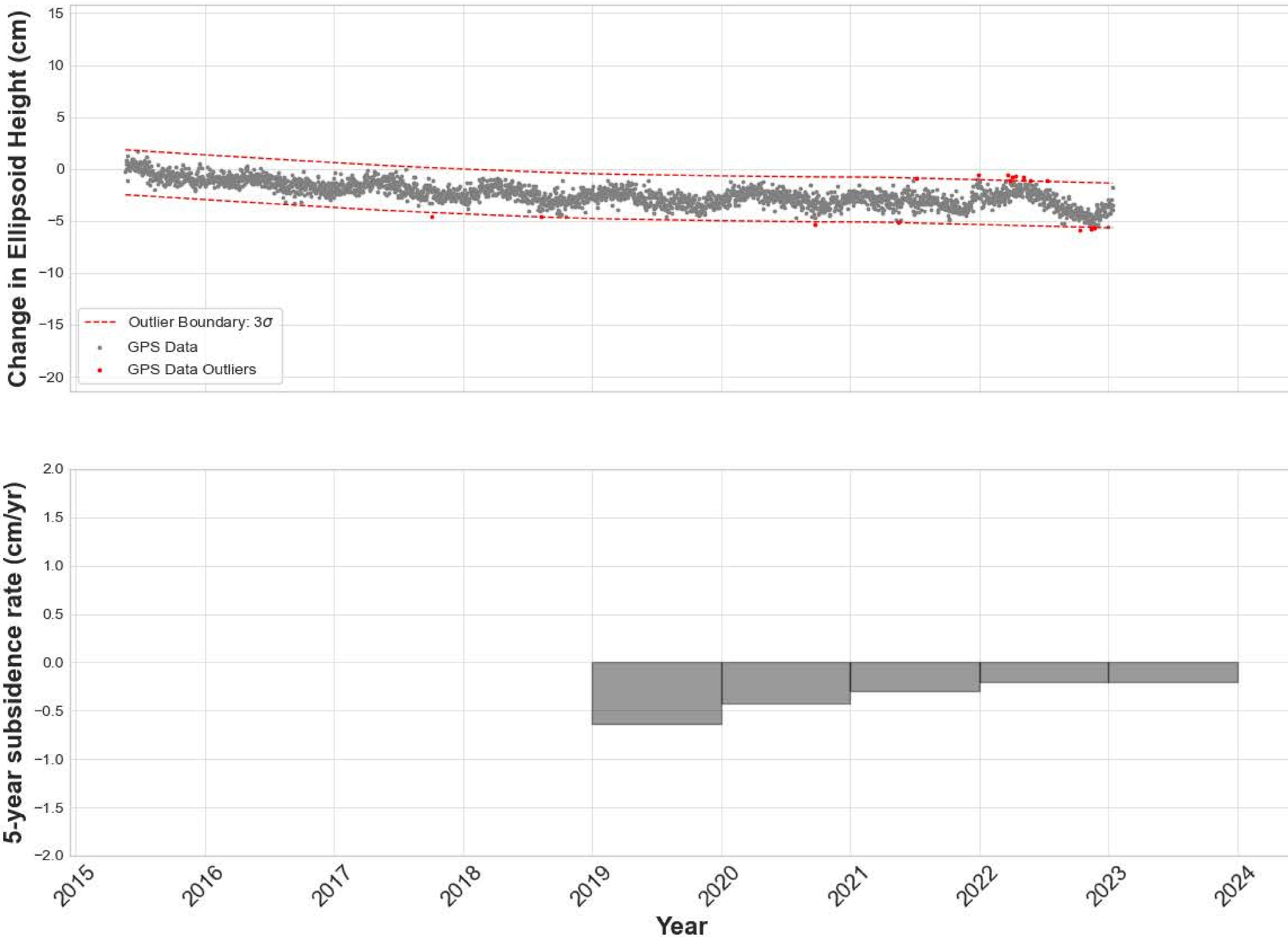
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

COTM



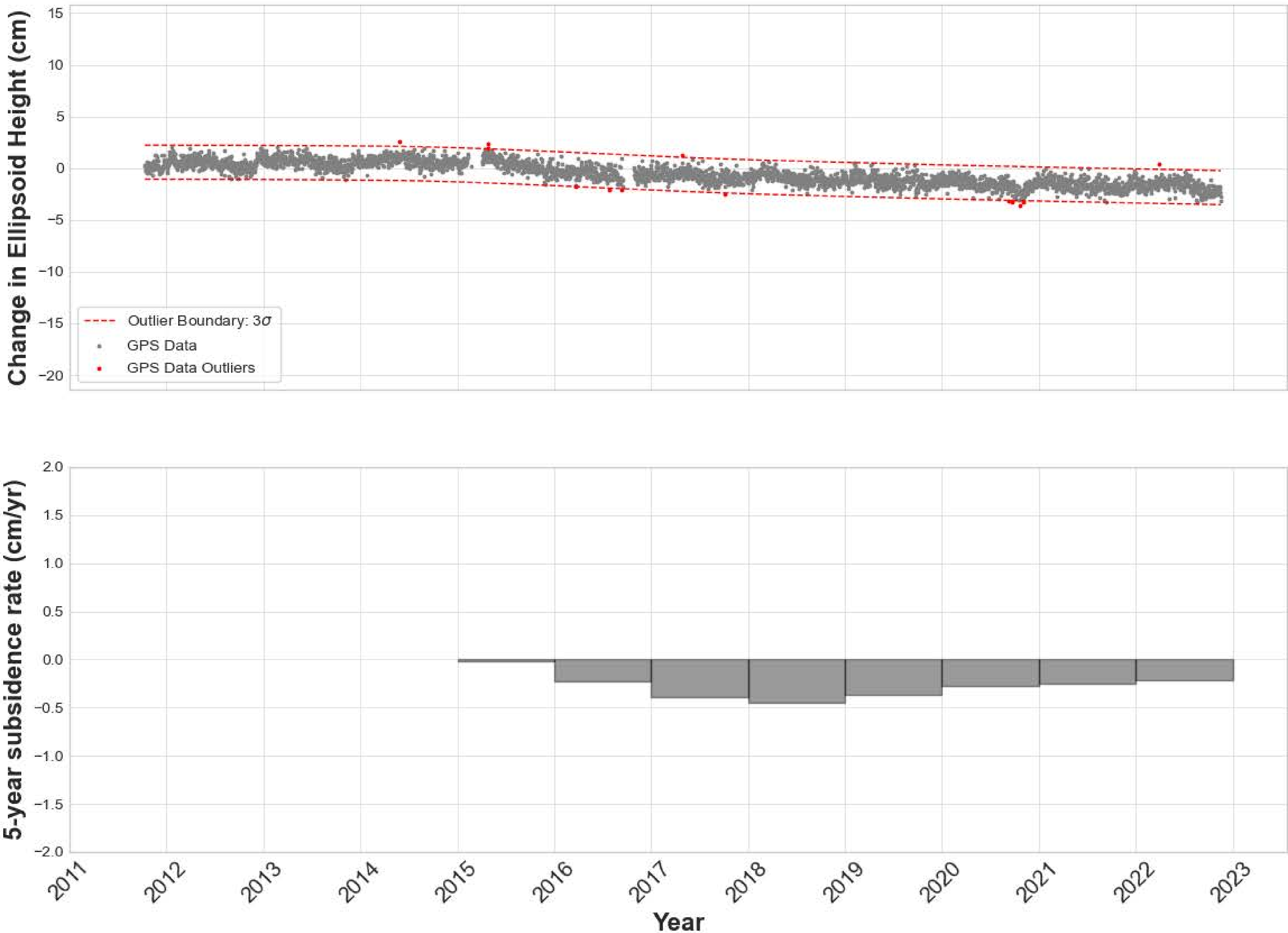
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

CSTE



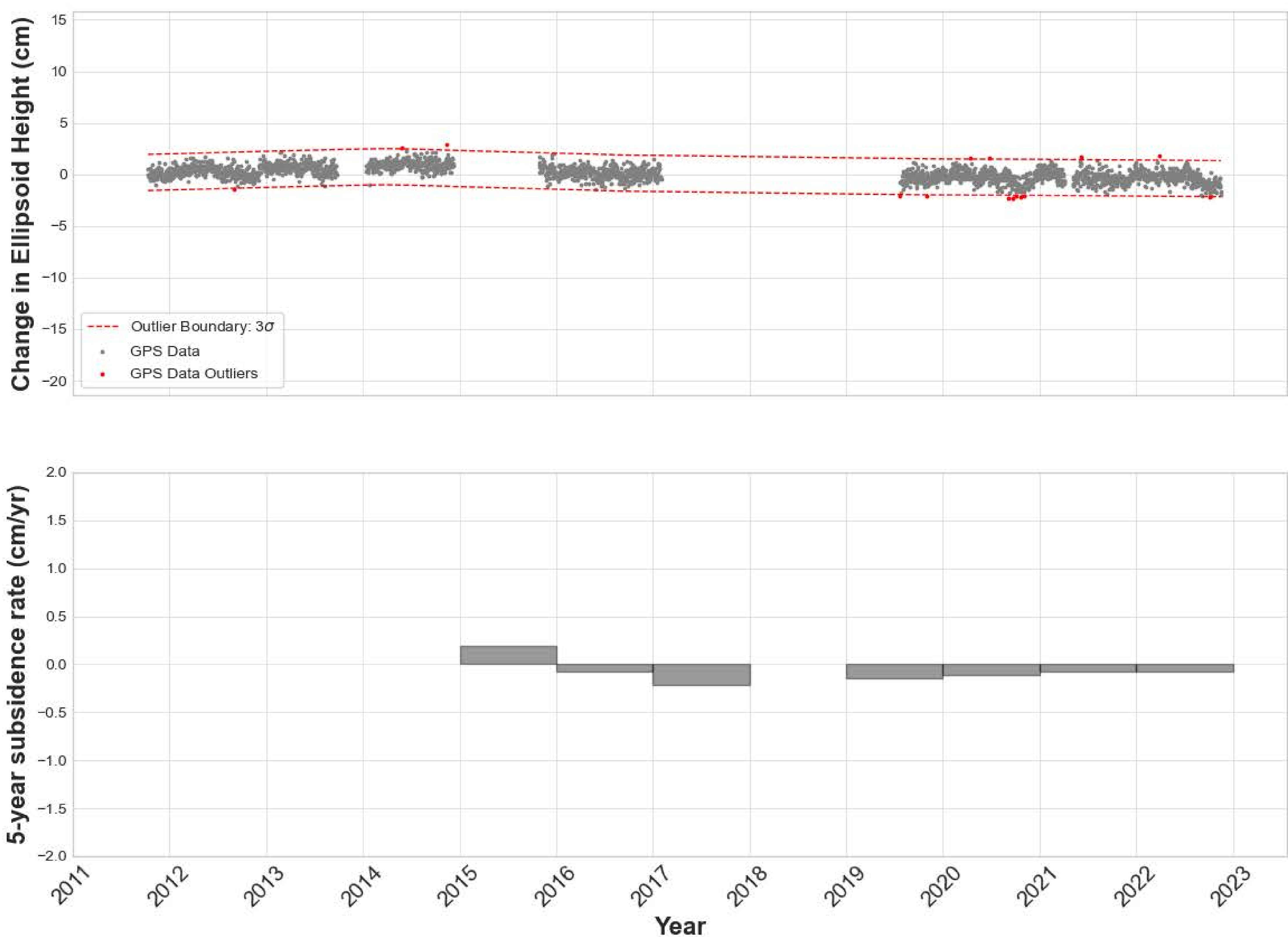
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

DEN1



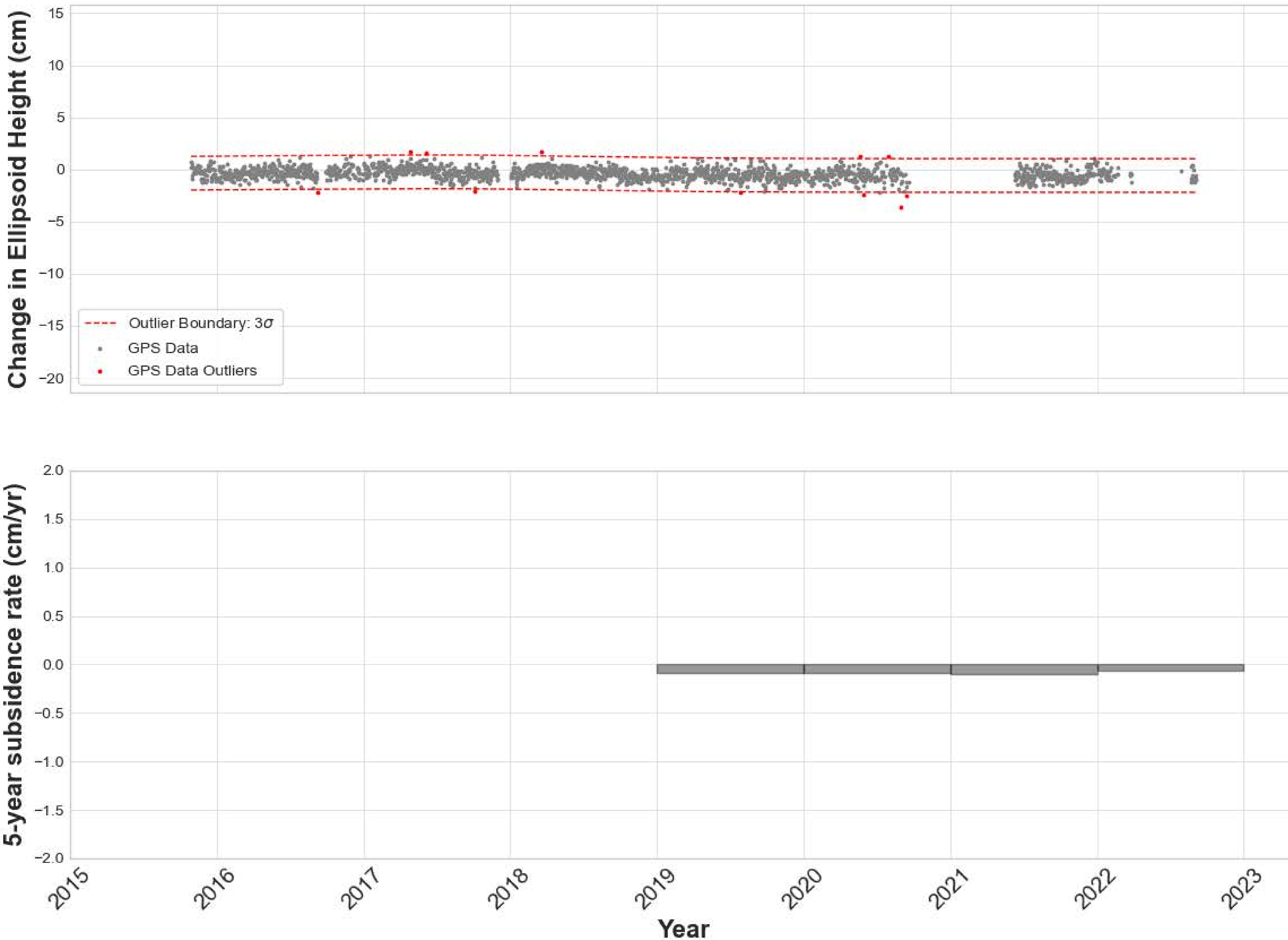
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

DEN2



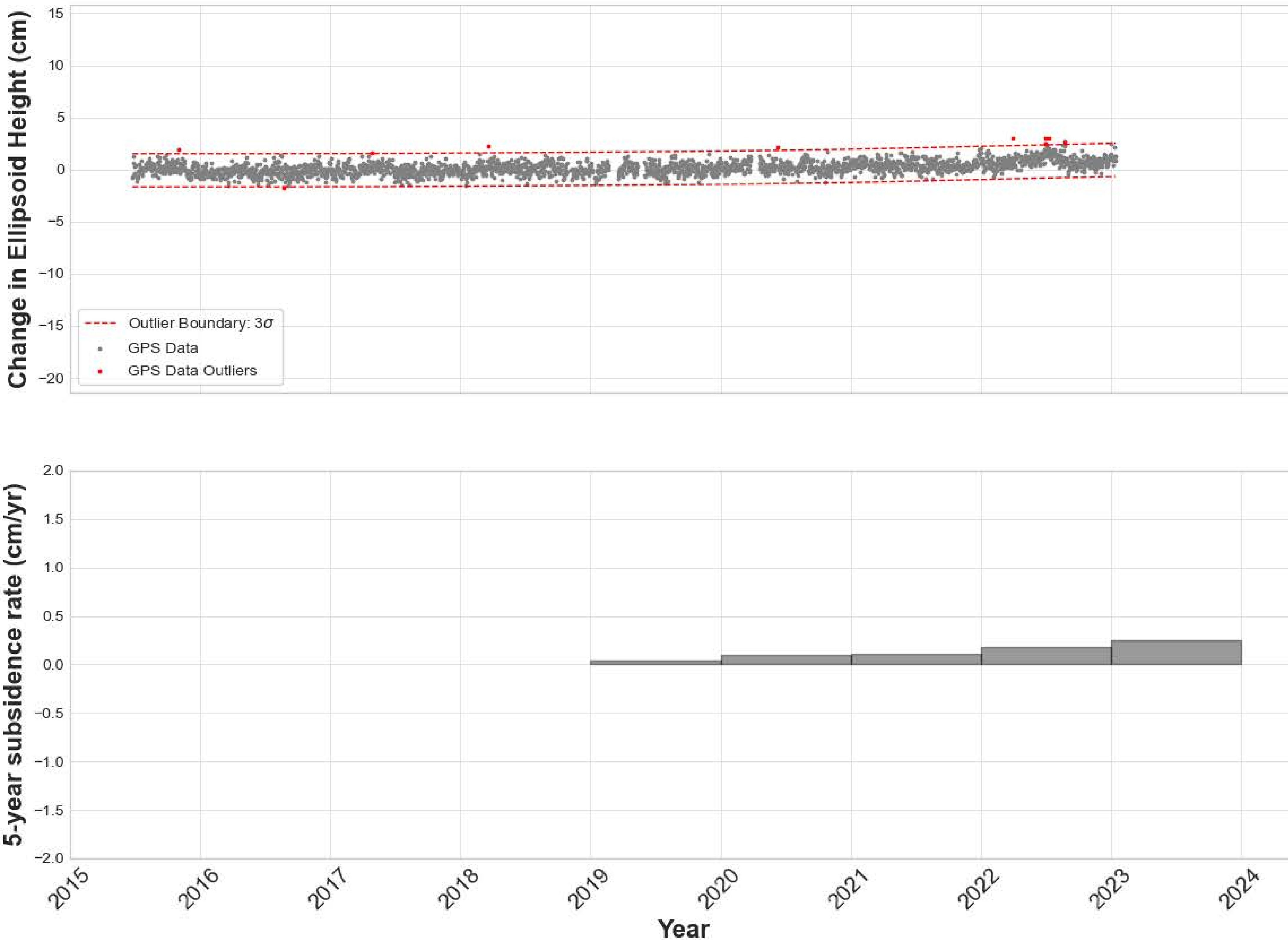
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

DEN4



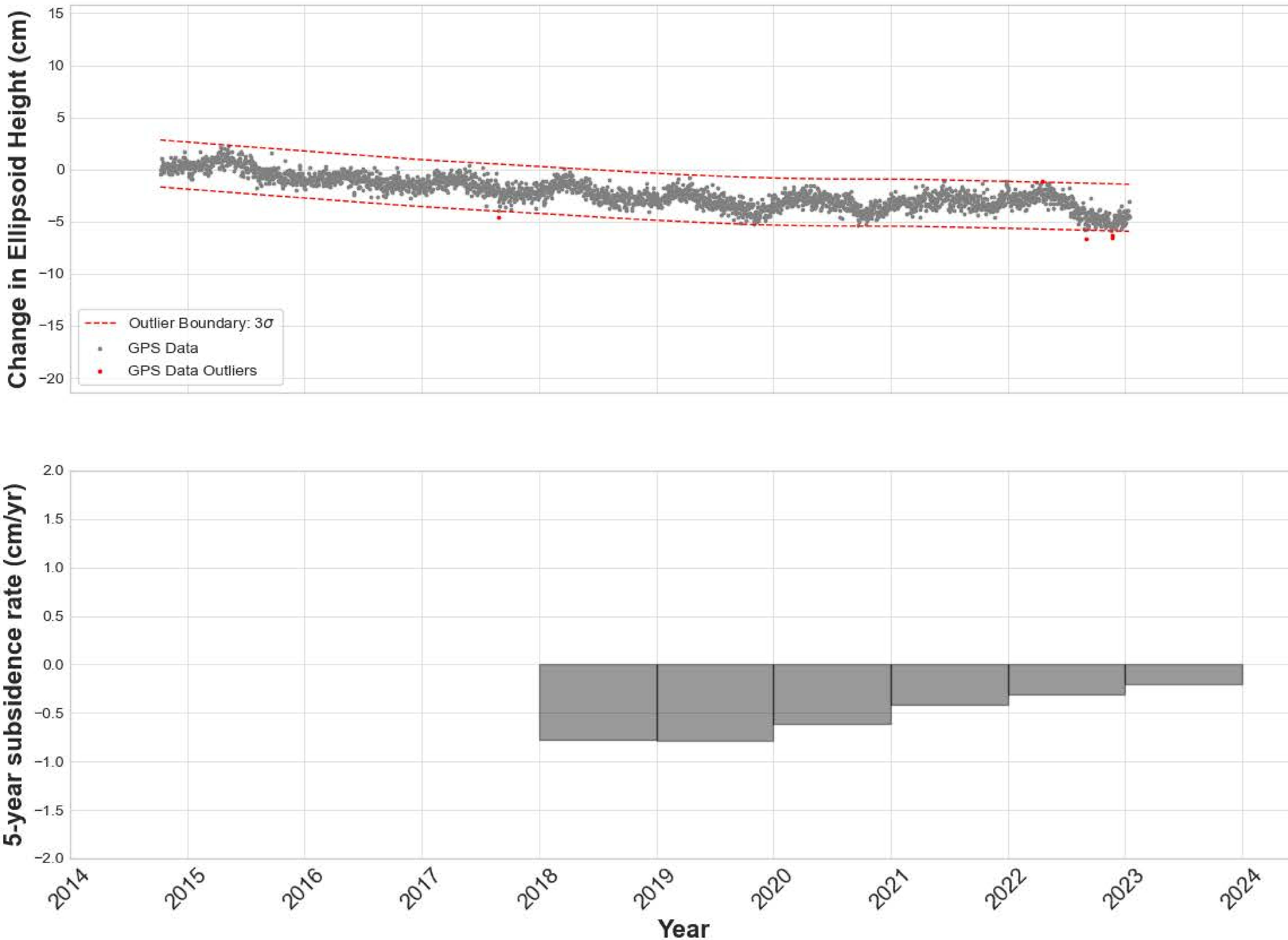
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

DISD



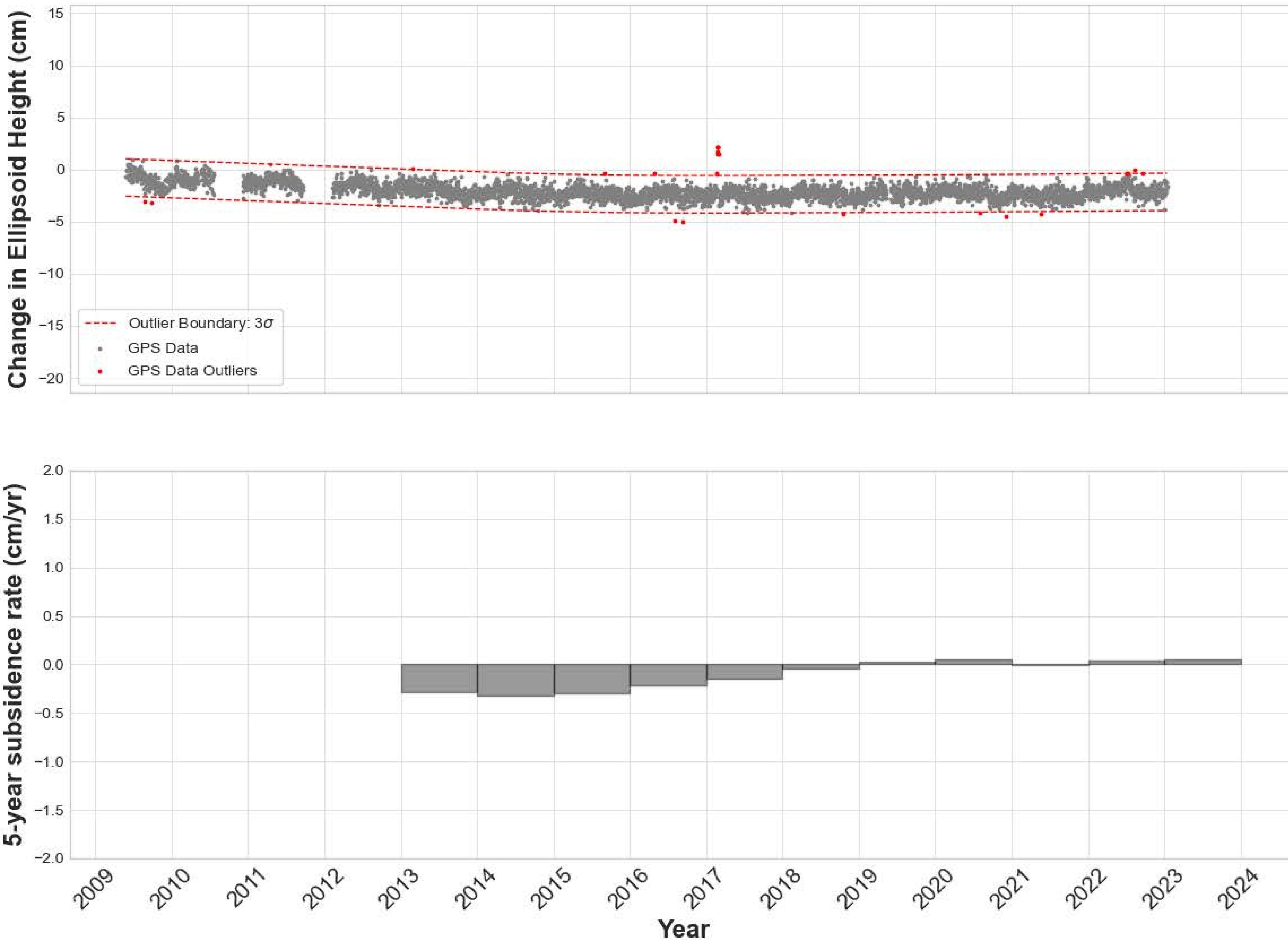
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

DMFB



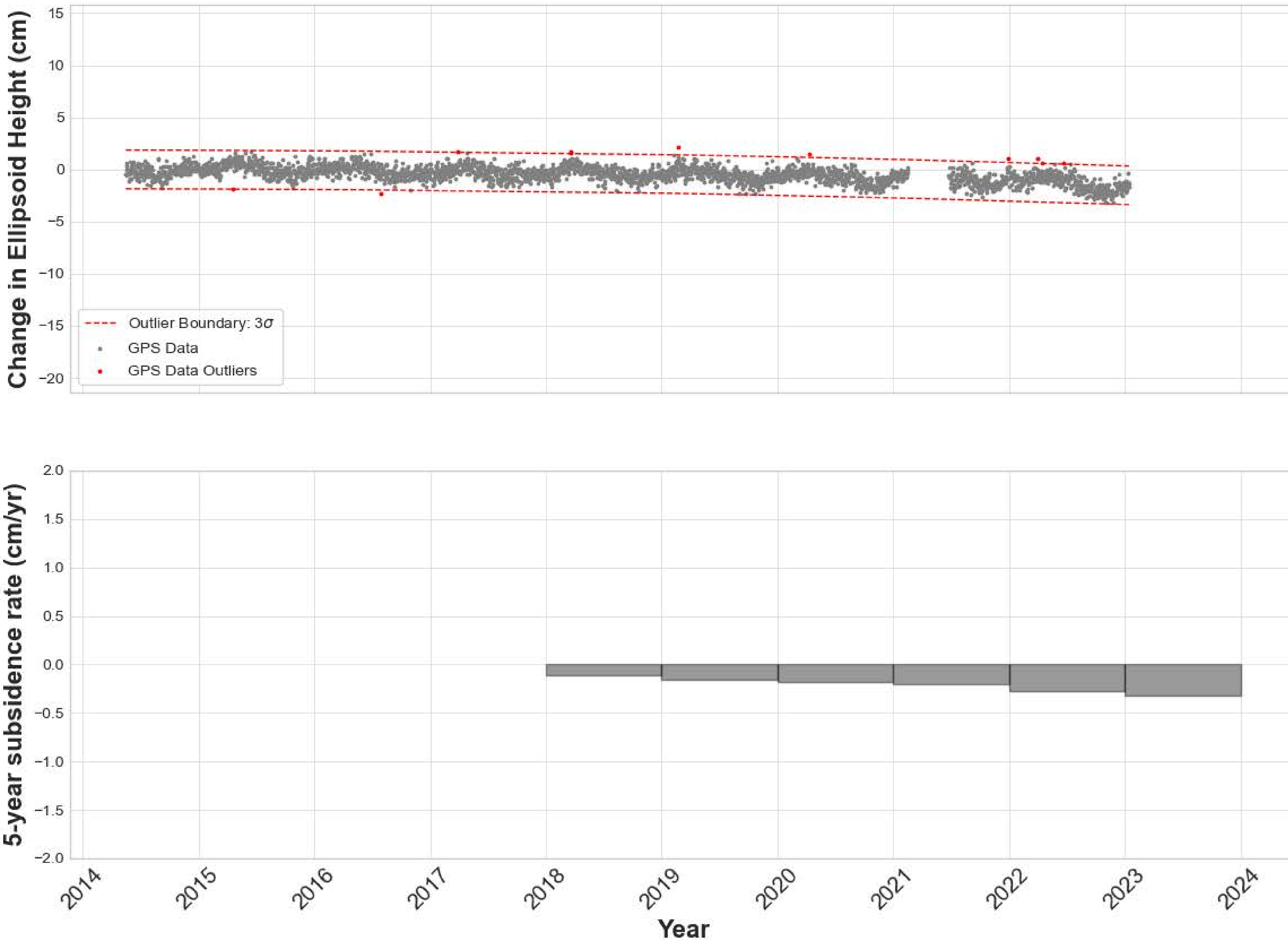
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

DWI1



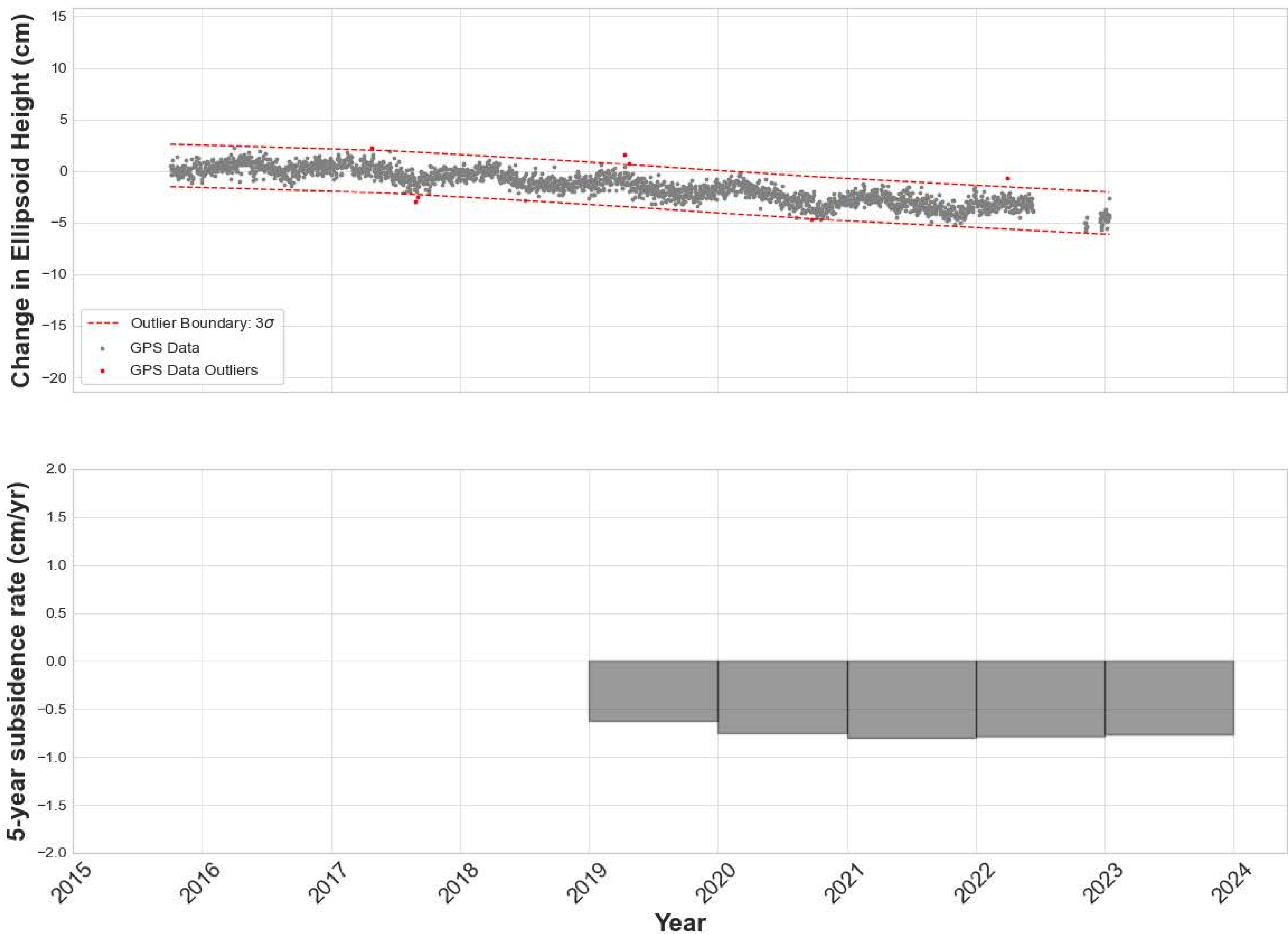
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

FSFB



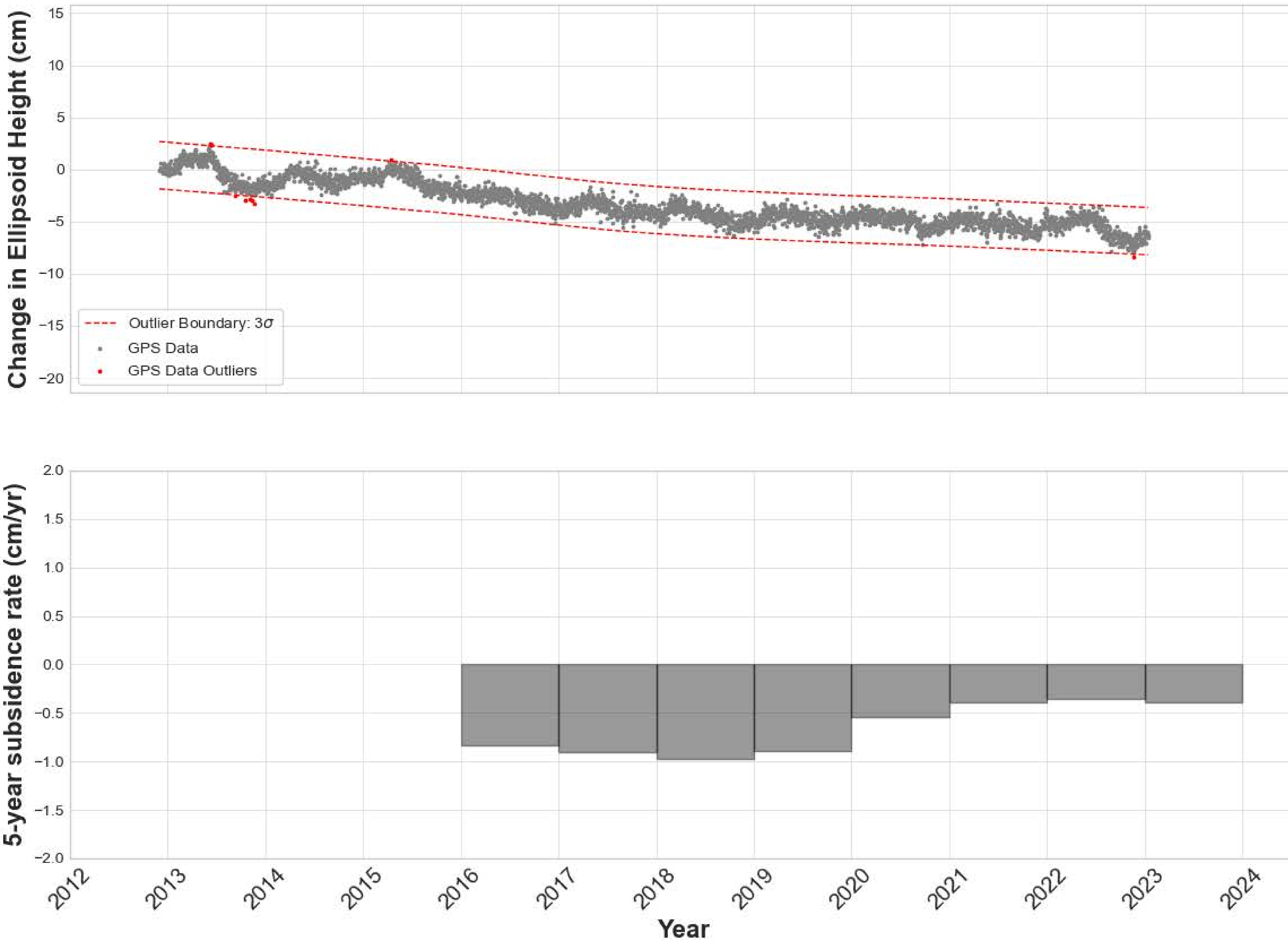
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

GSEC



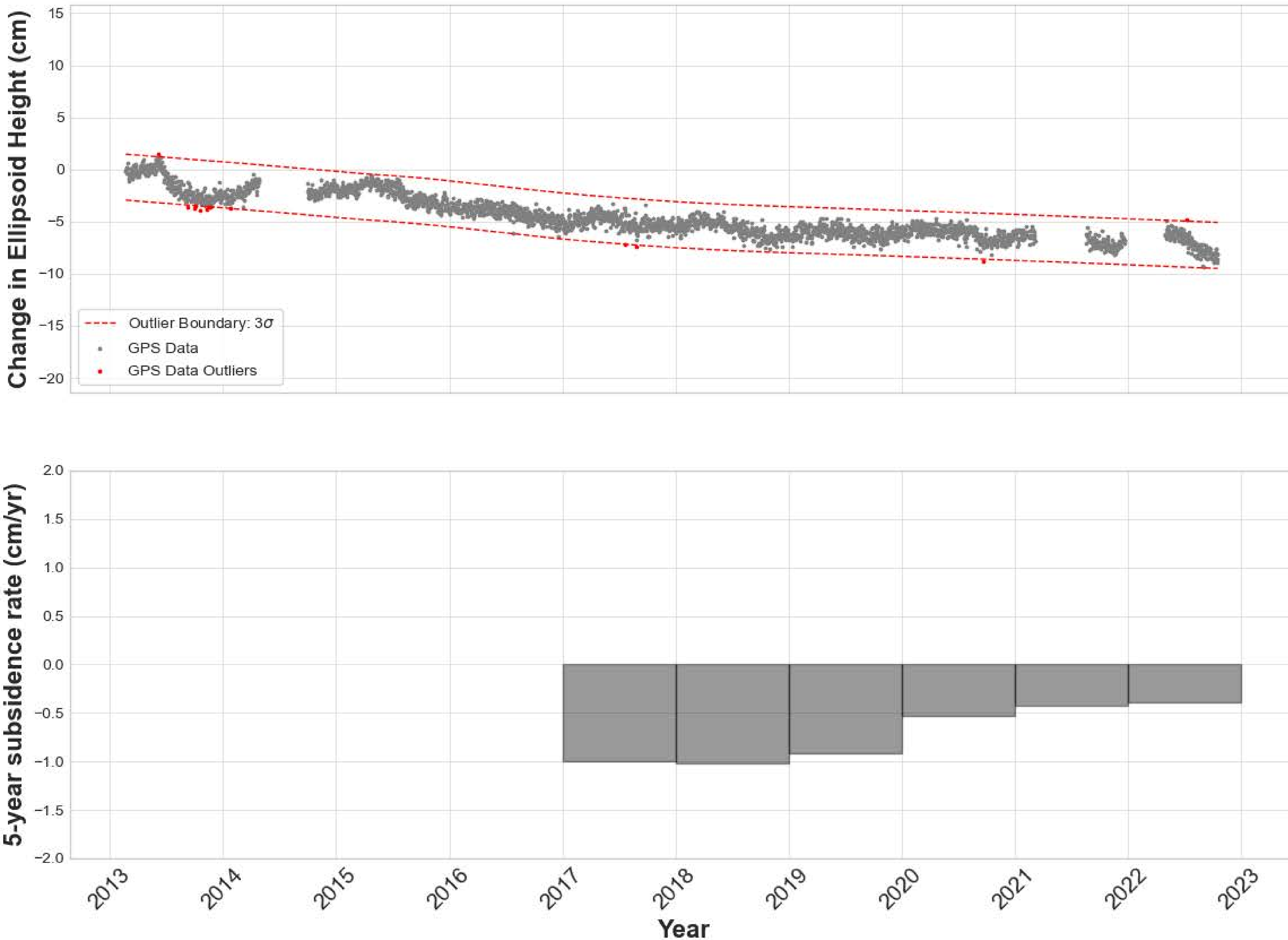
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

HCC1



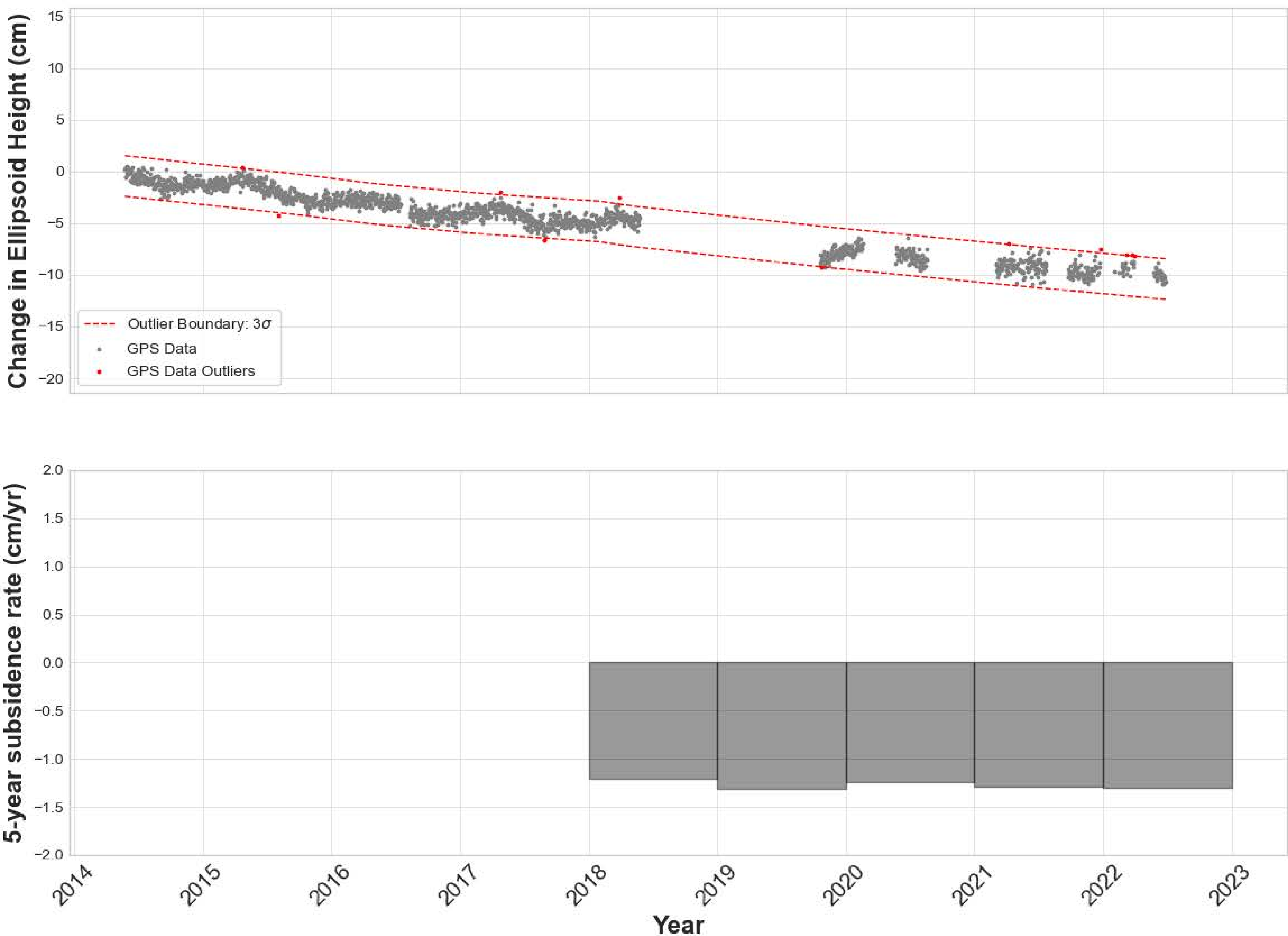
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

HCC2



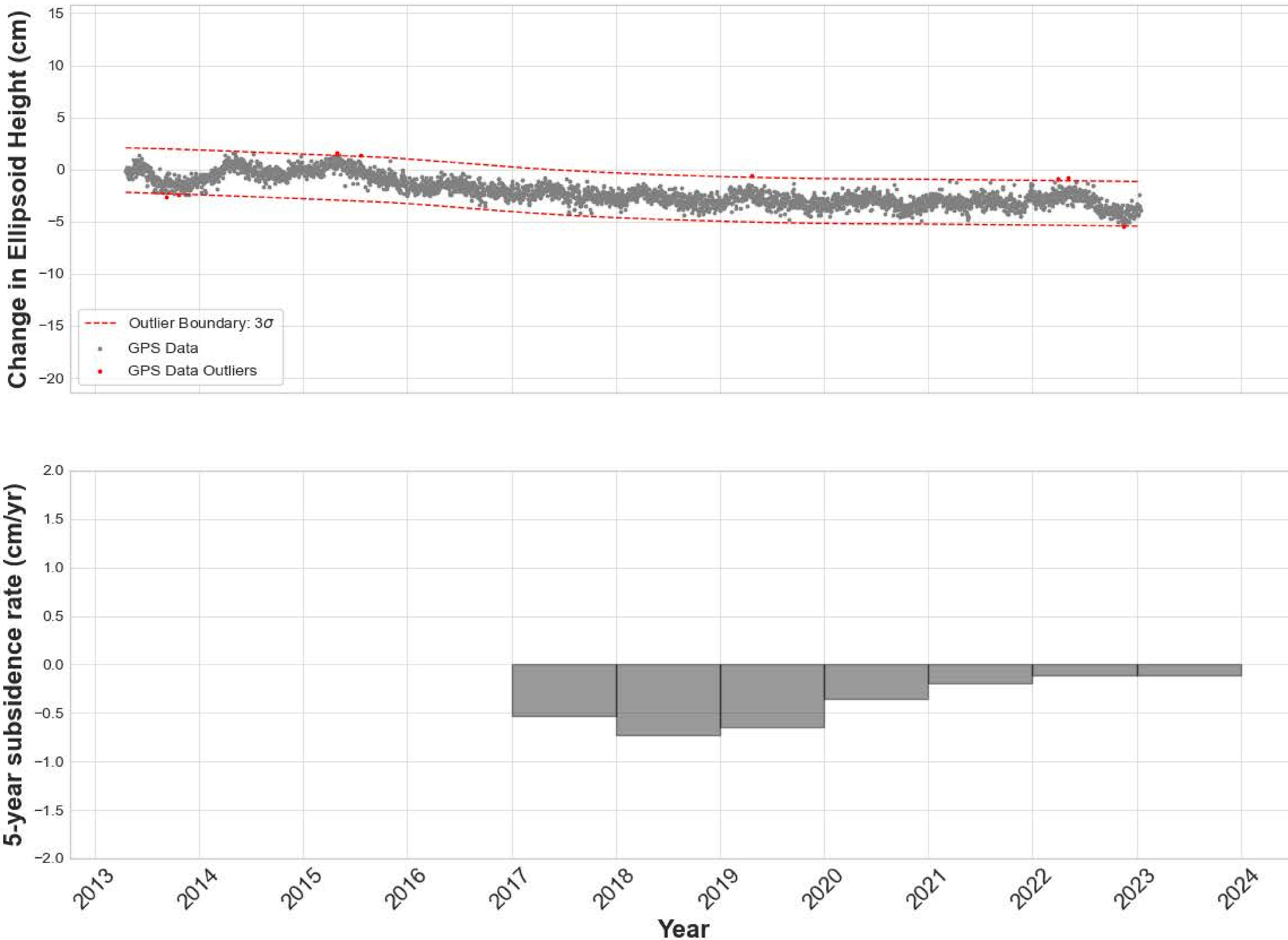
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

HPEK



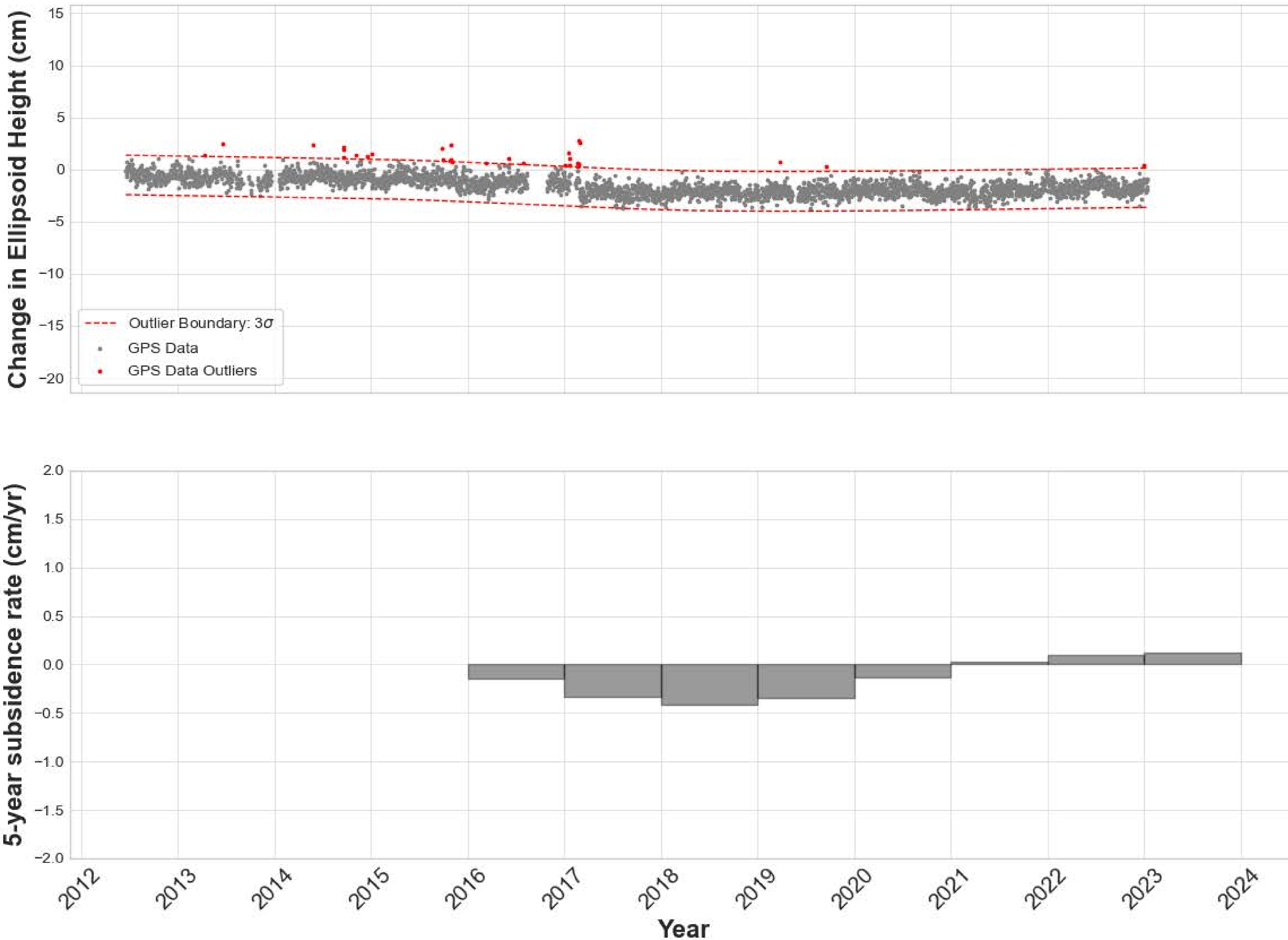
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

HSMN



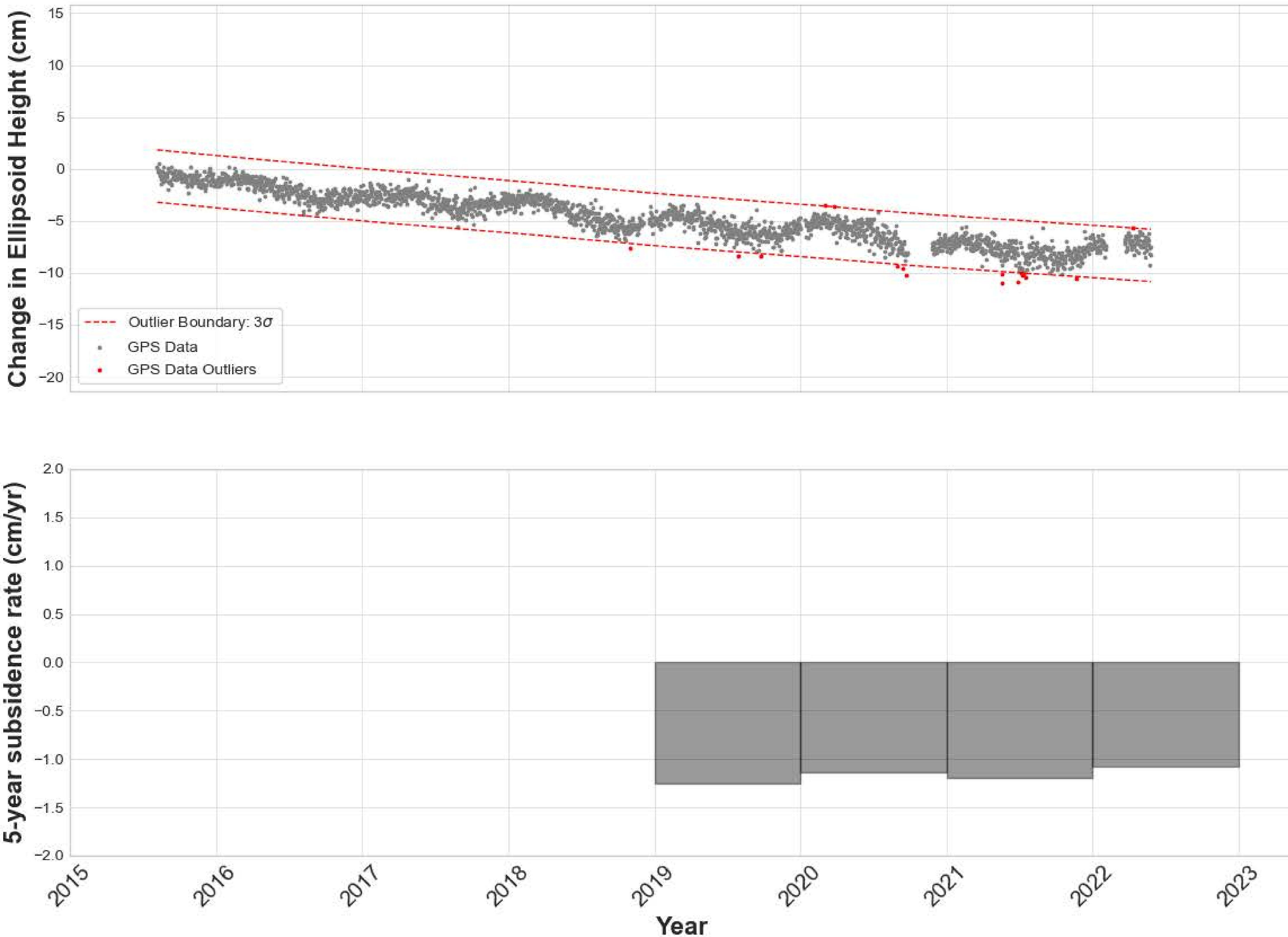
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

JGS2



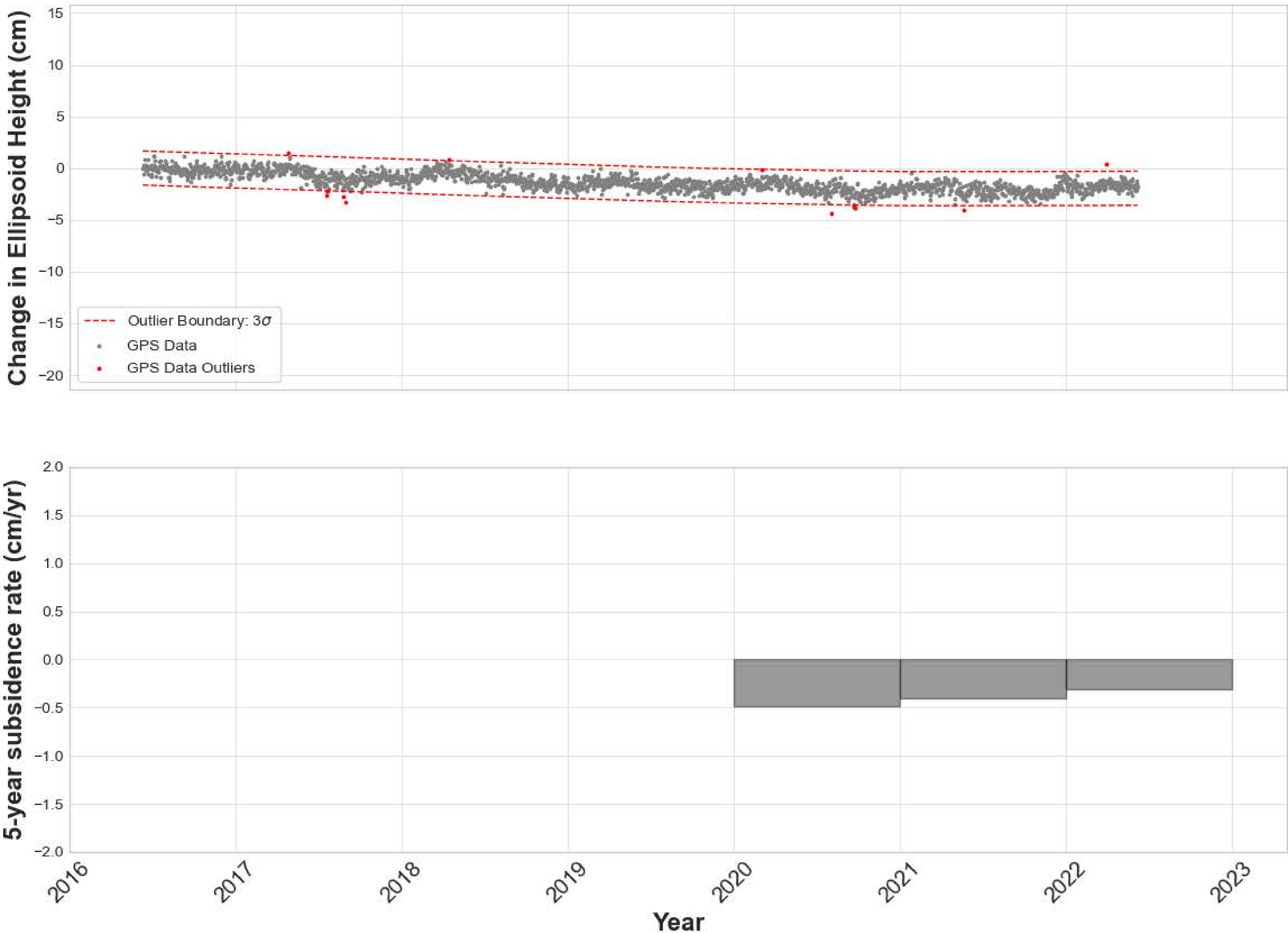
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

KKES



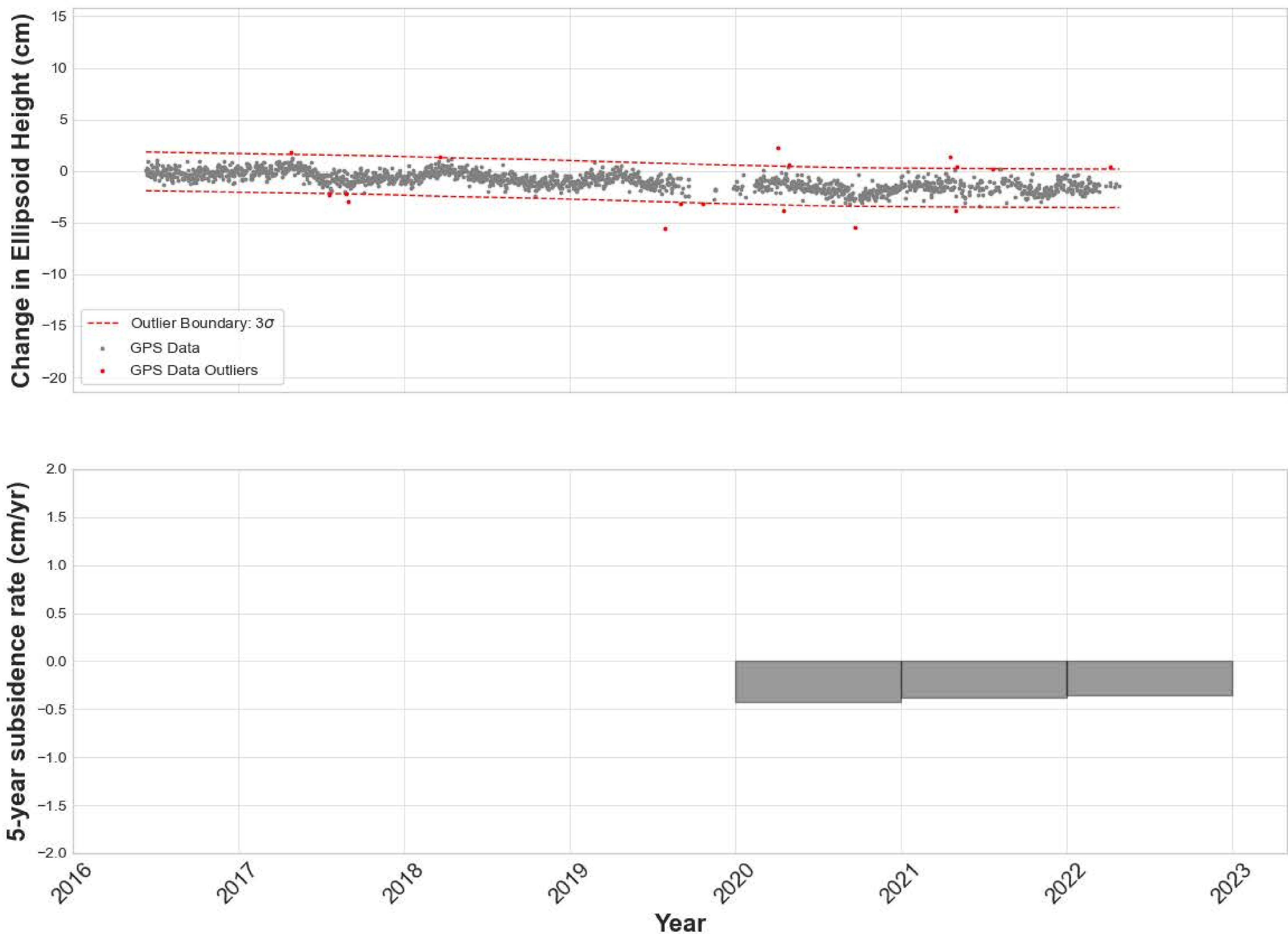
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

KPCD



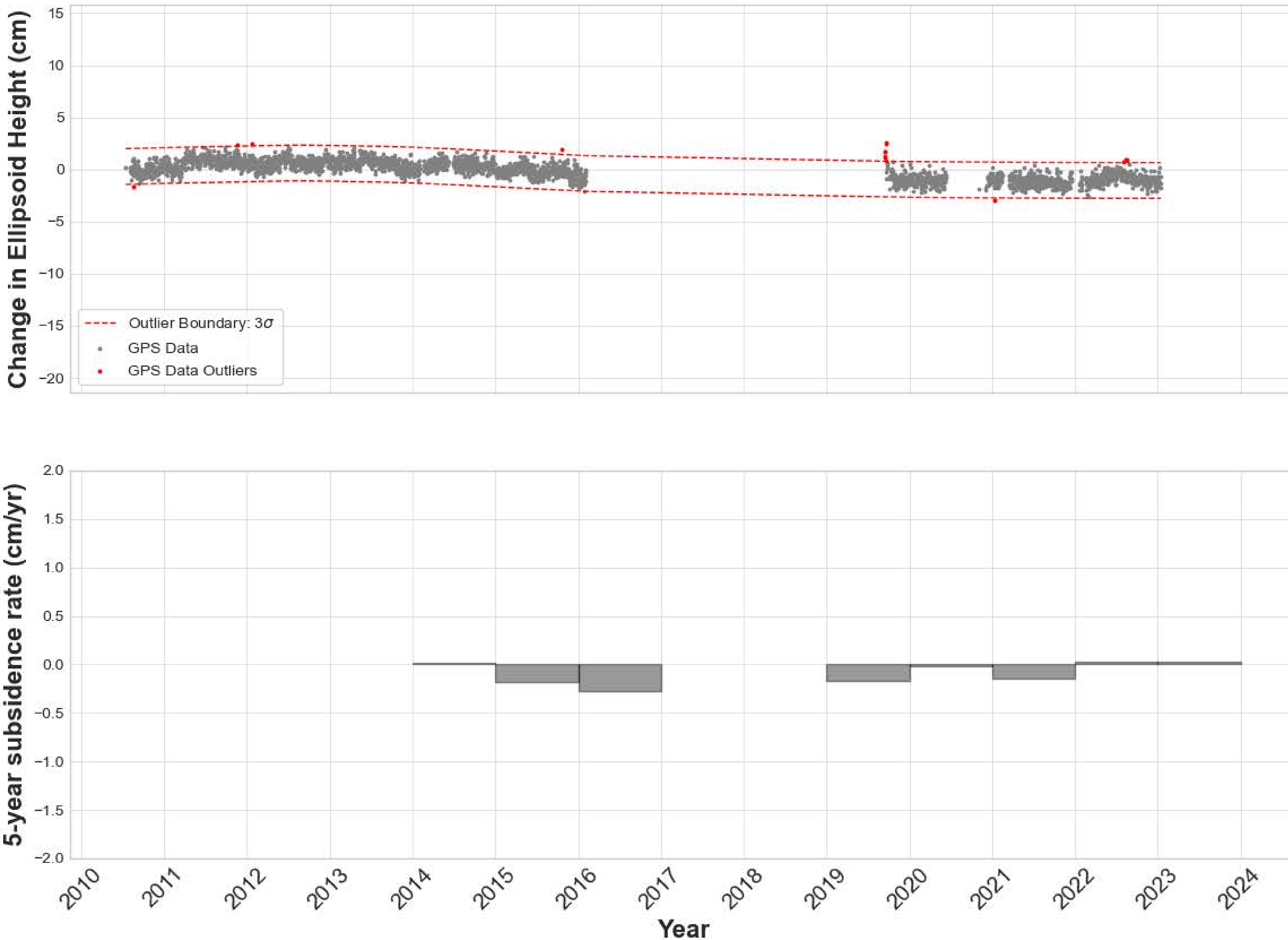
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

KPCS



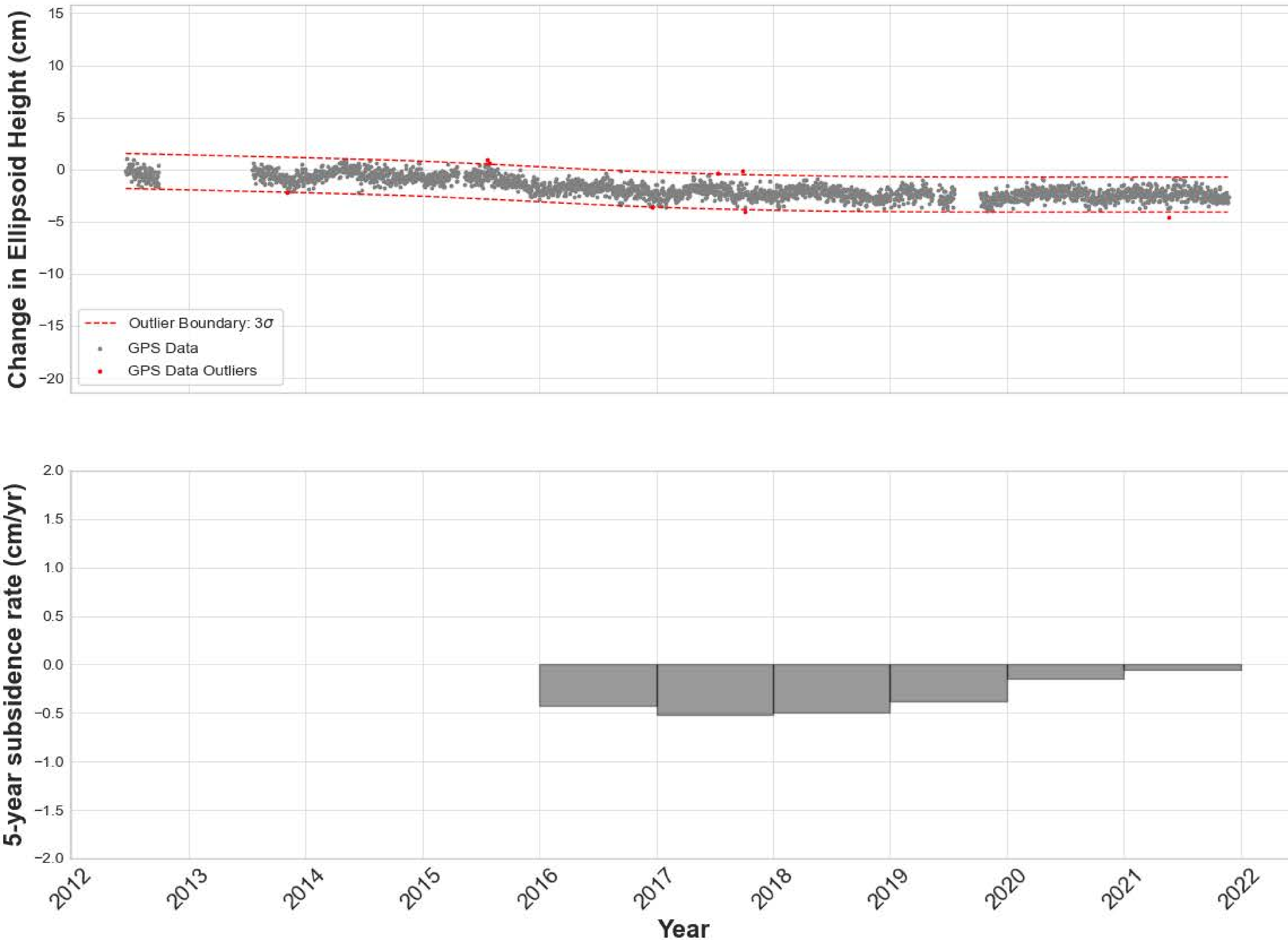
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

LCBR



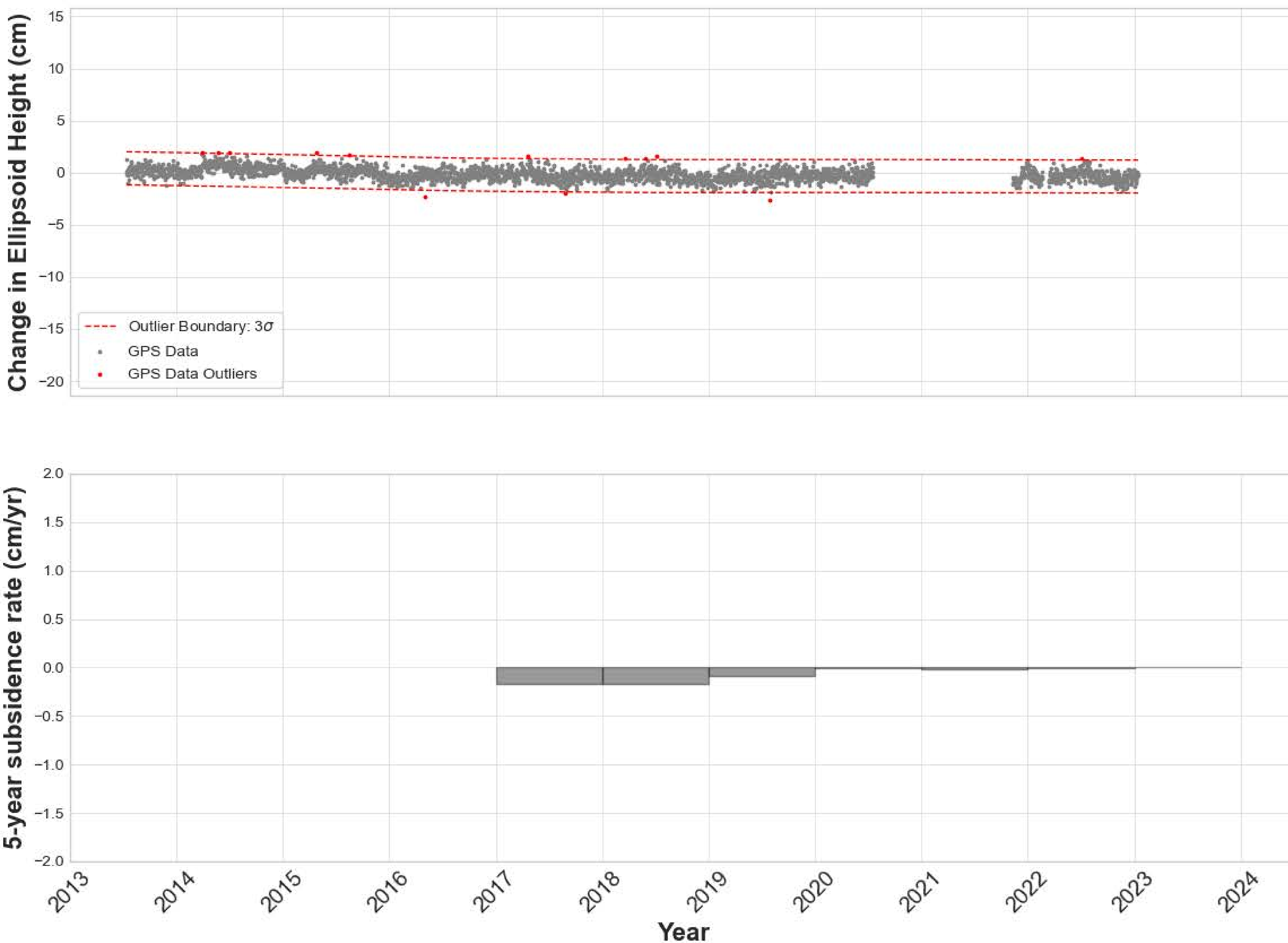
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

LCI1



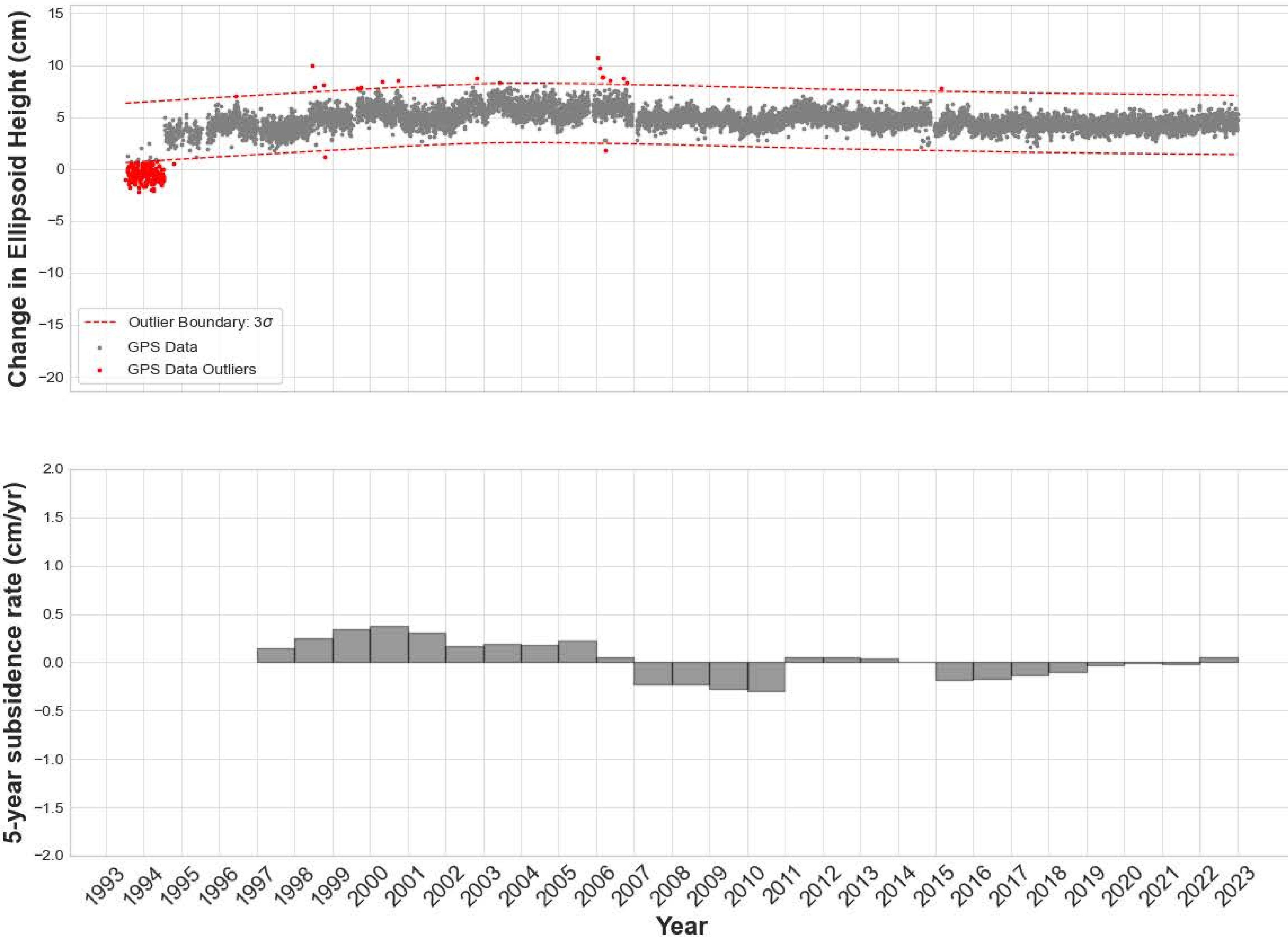
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

LGC1



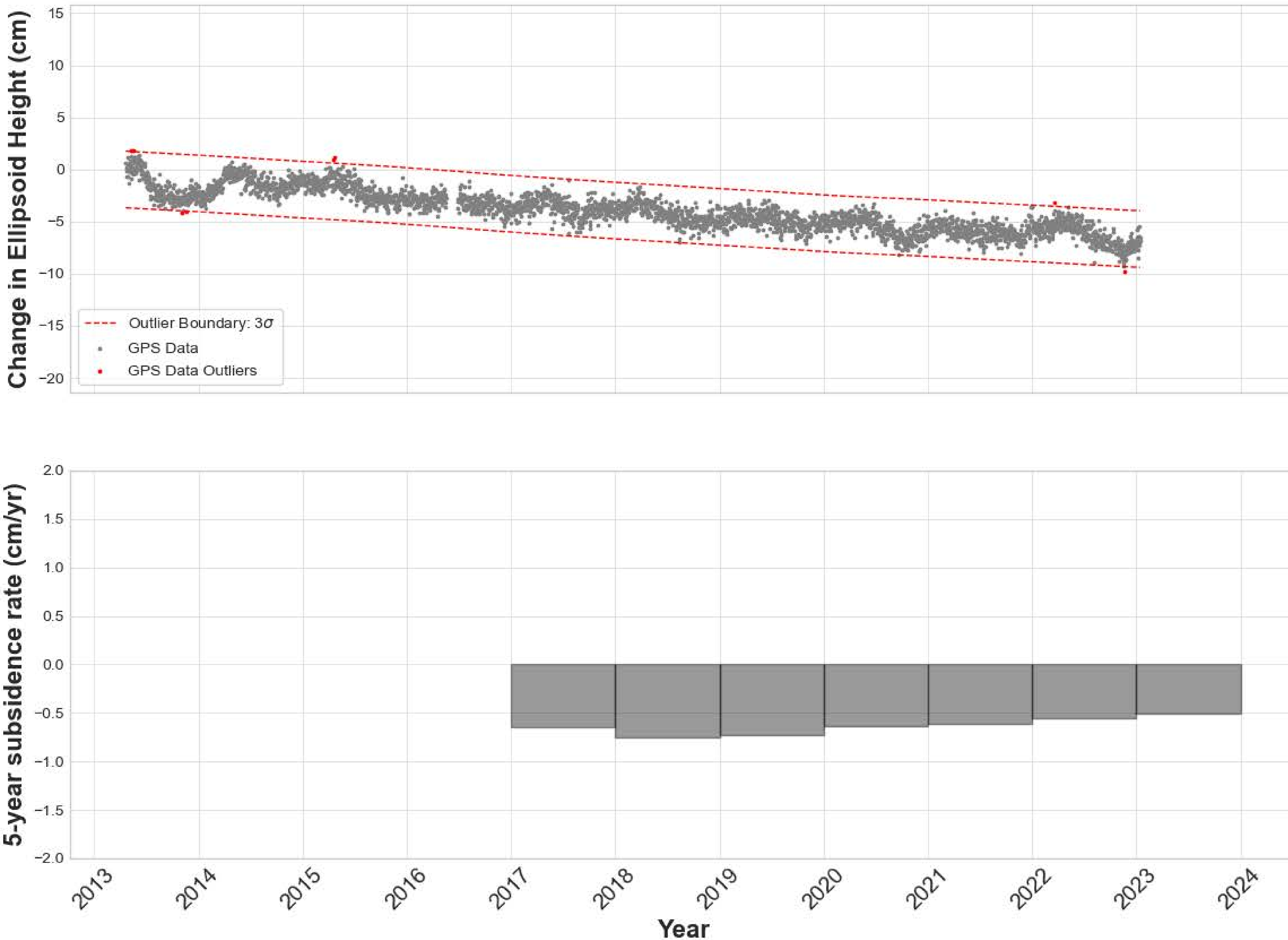
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

LKHU



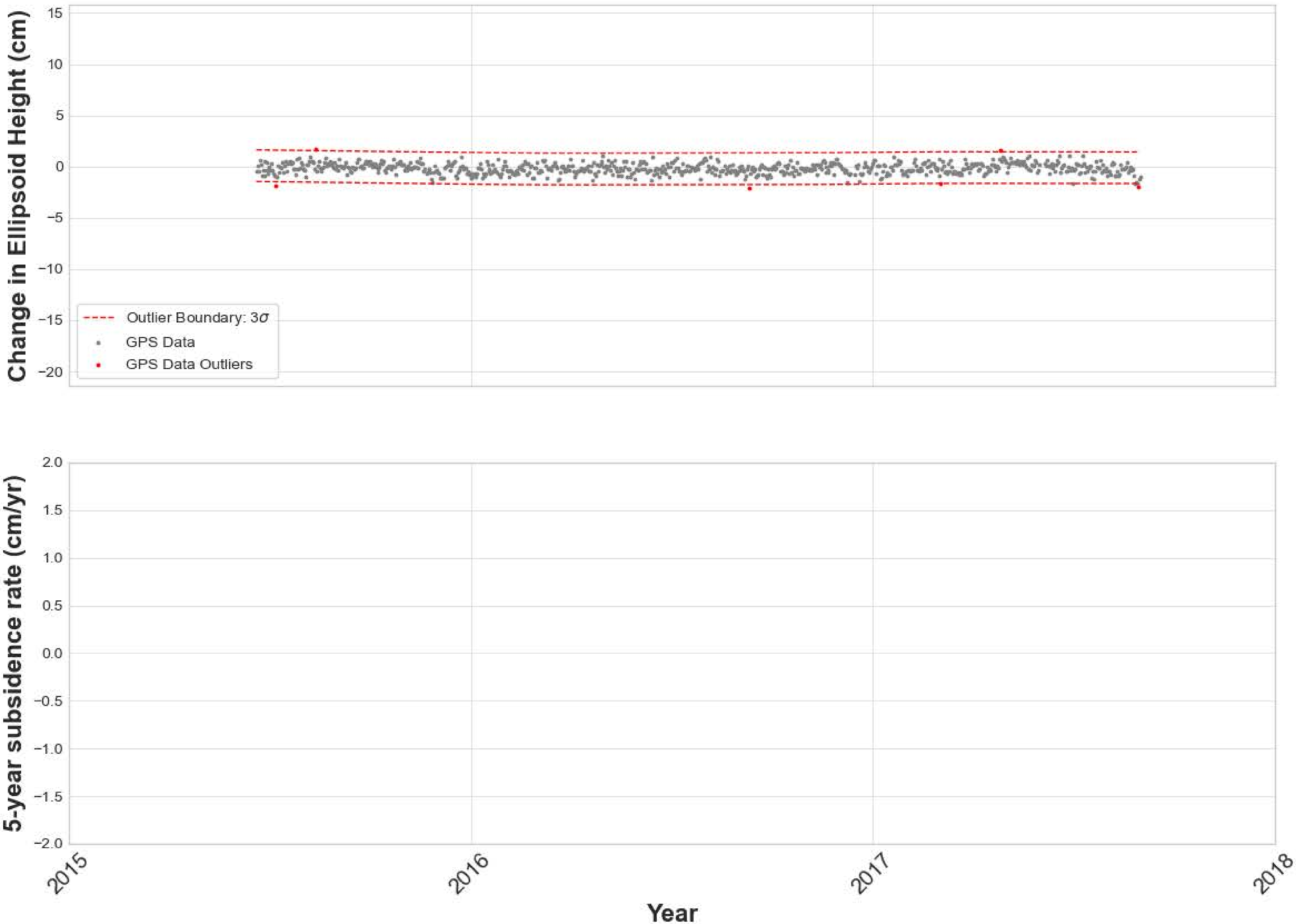
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

MDWD



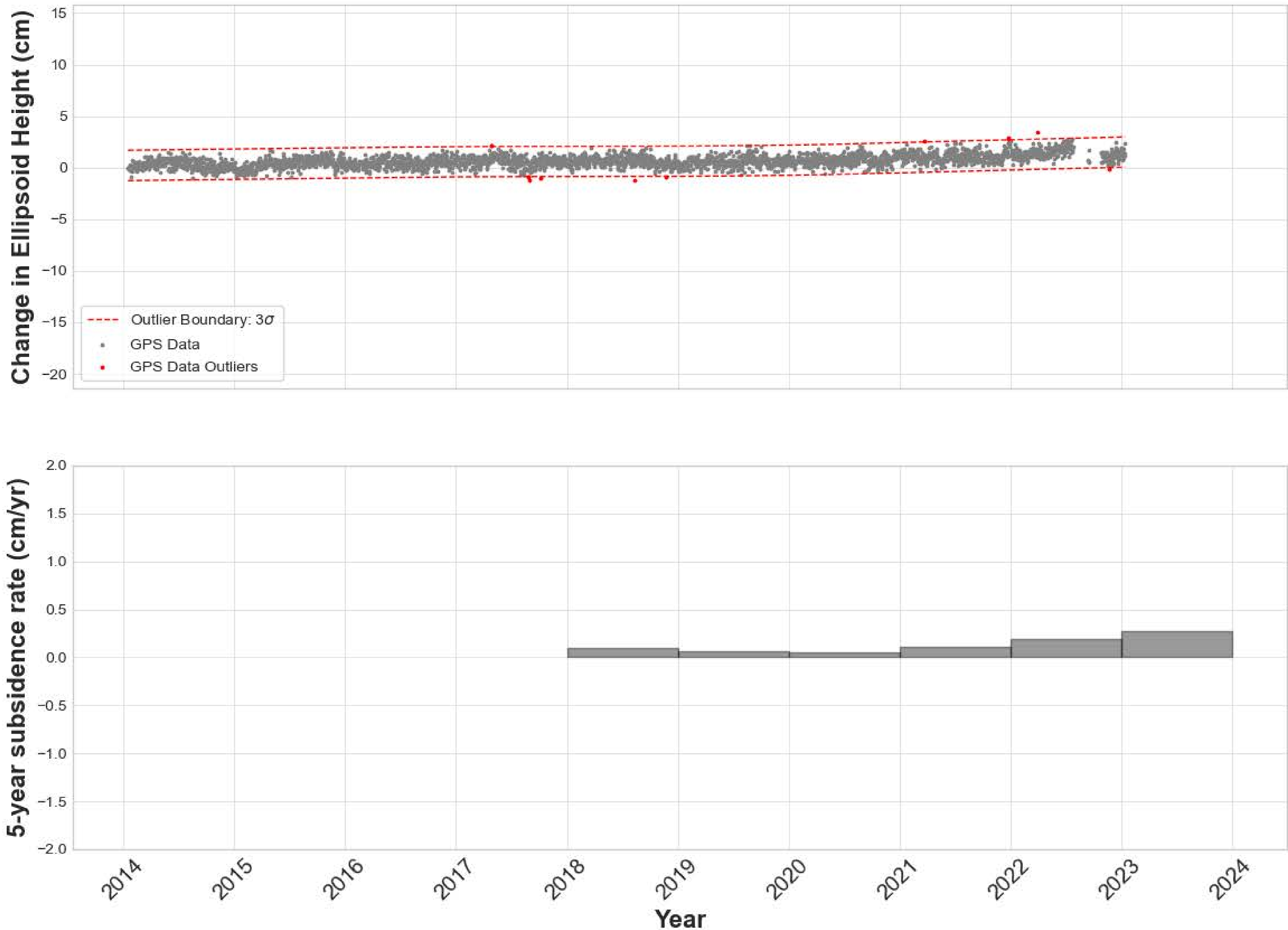
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

ME01



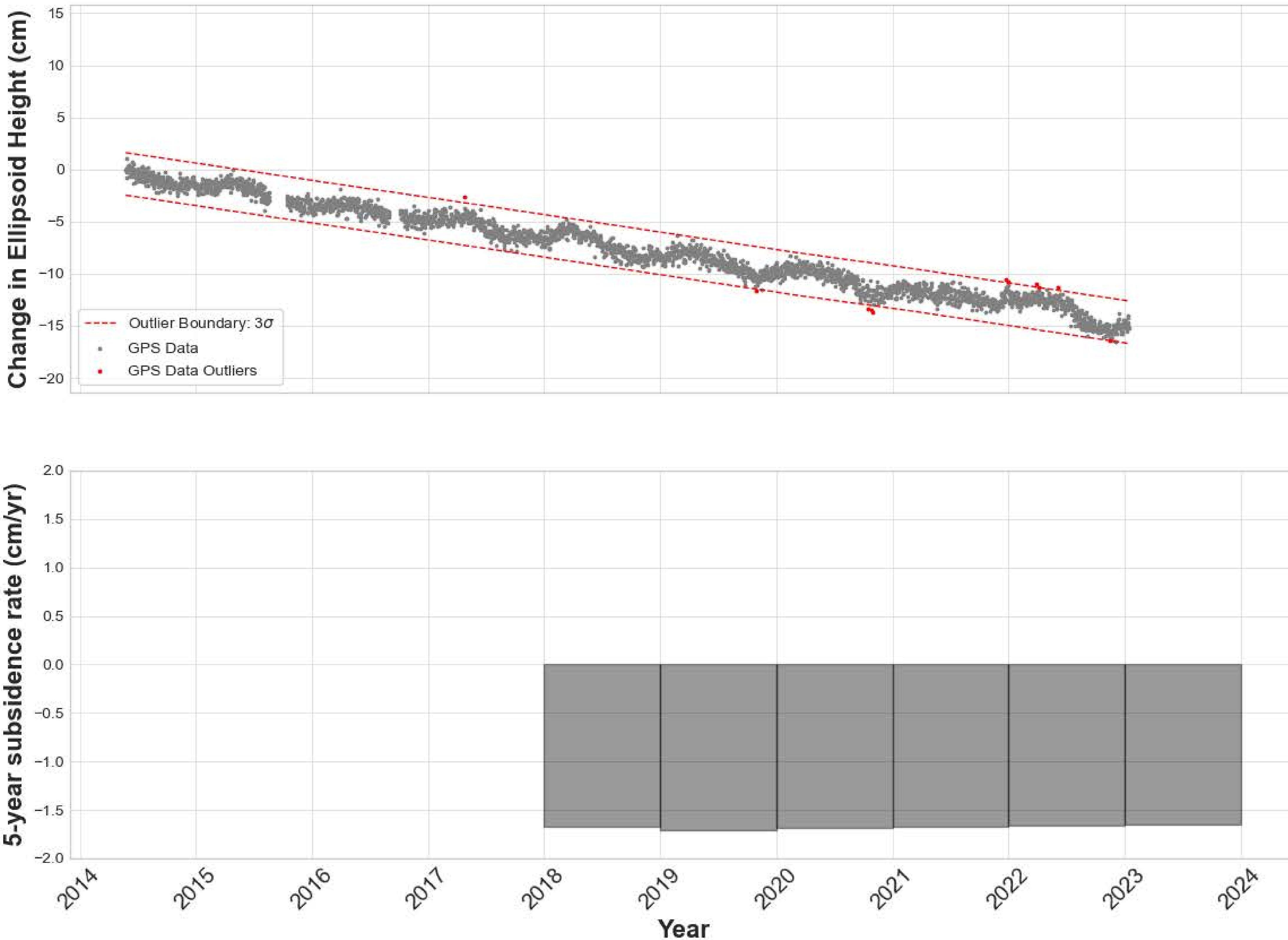
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

MEPD



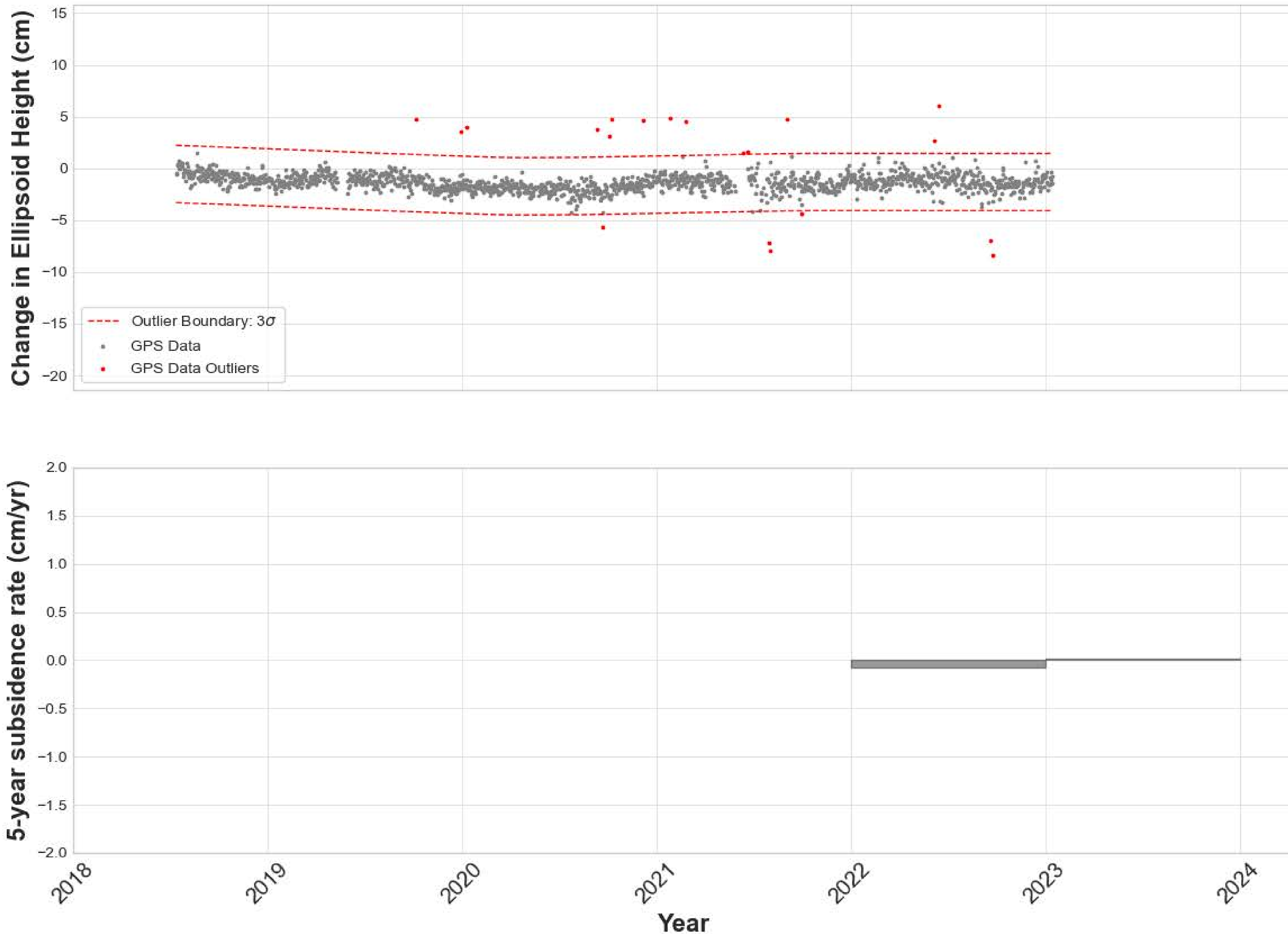
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

MRHK



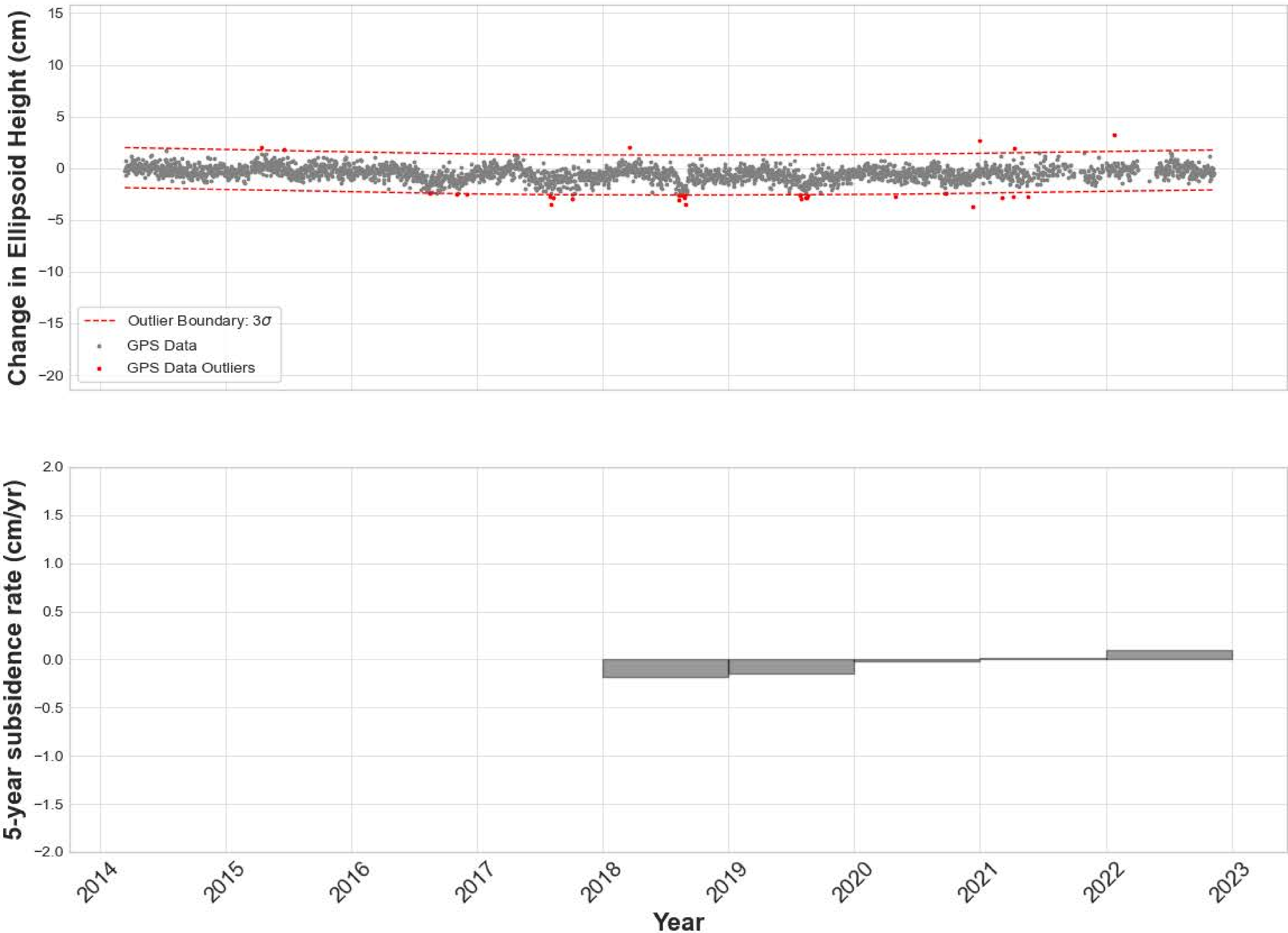
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

N301



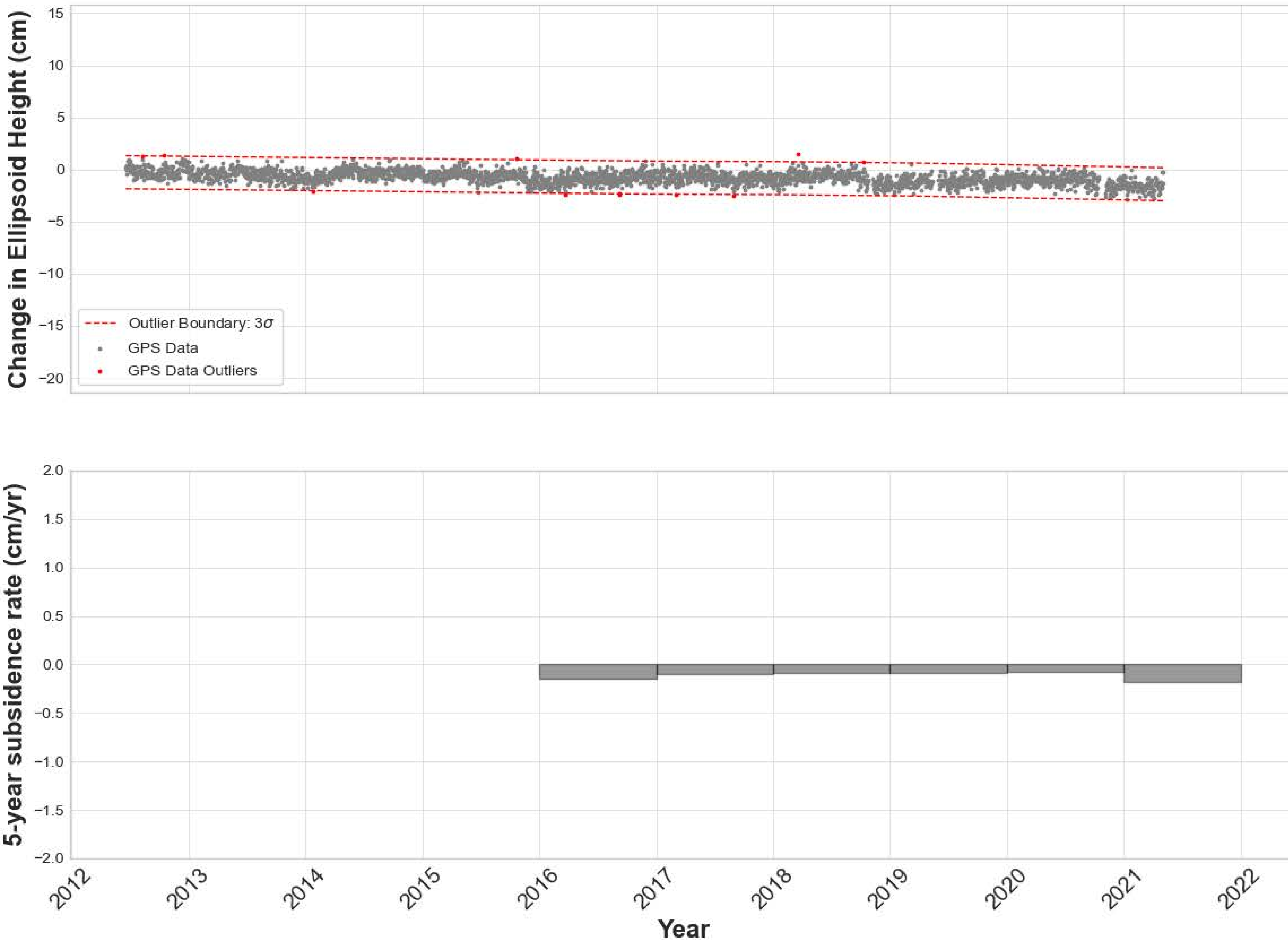
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

NASA



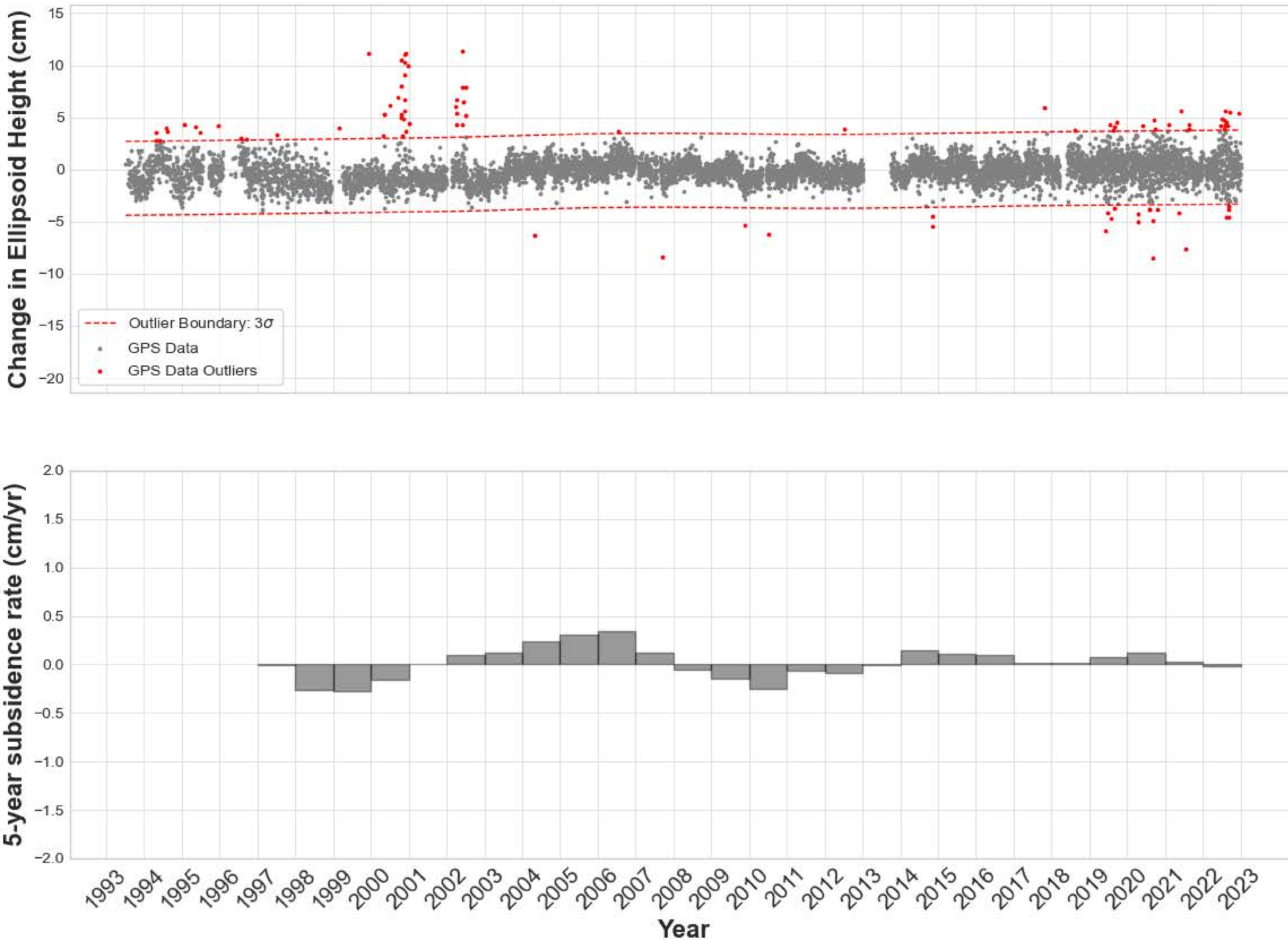
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

NBRY



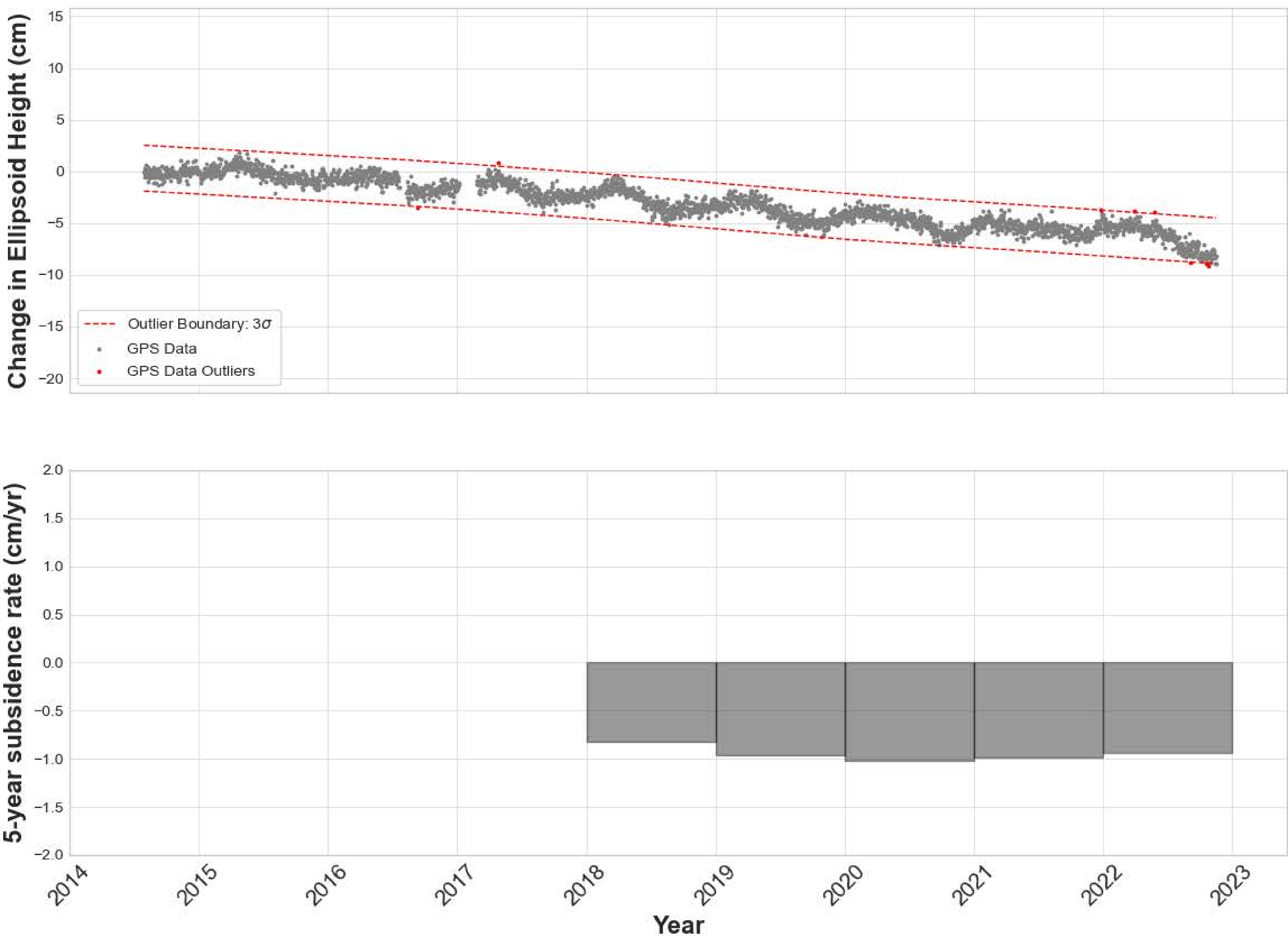
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

NETP



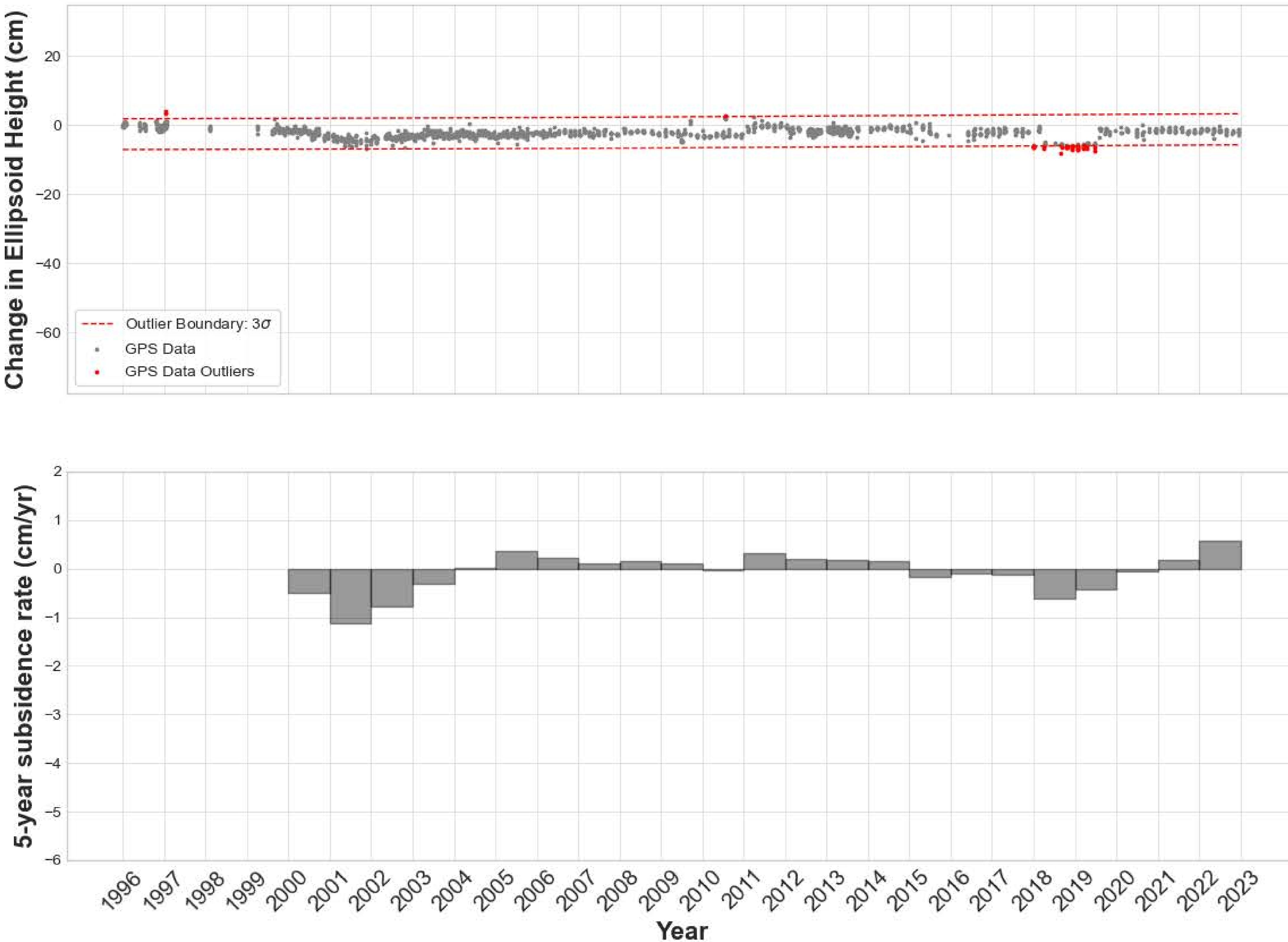
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

OKEK



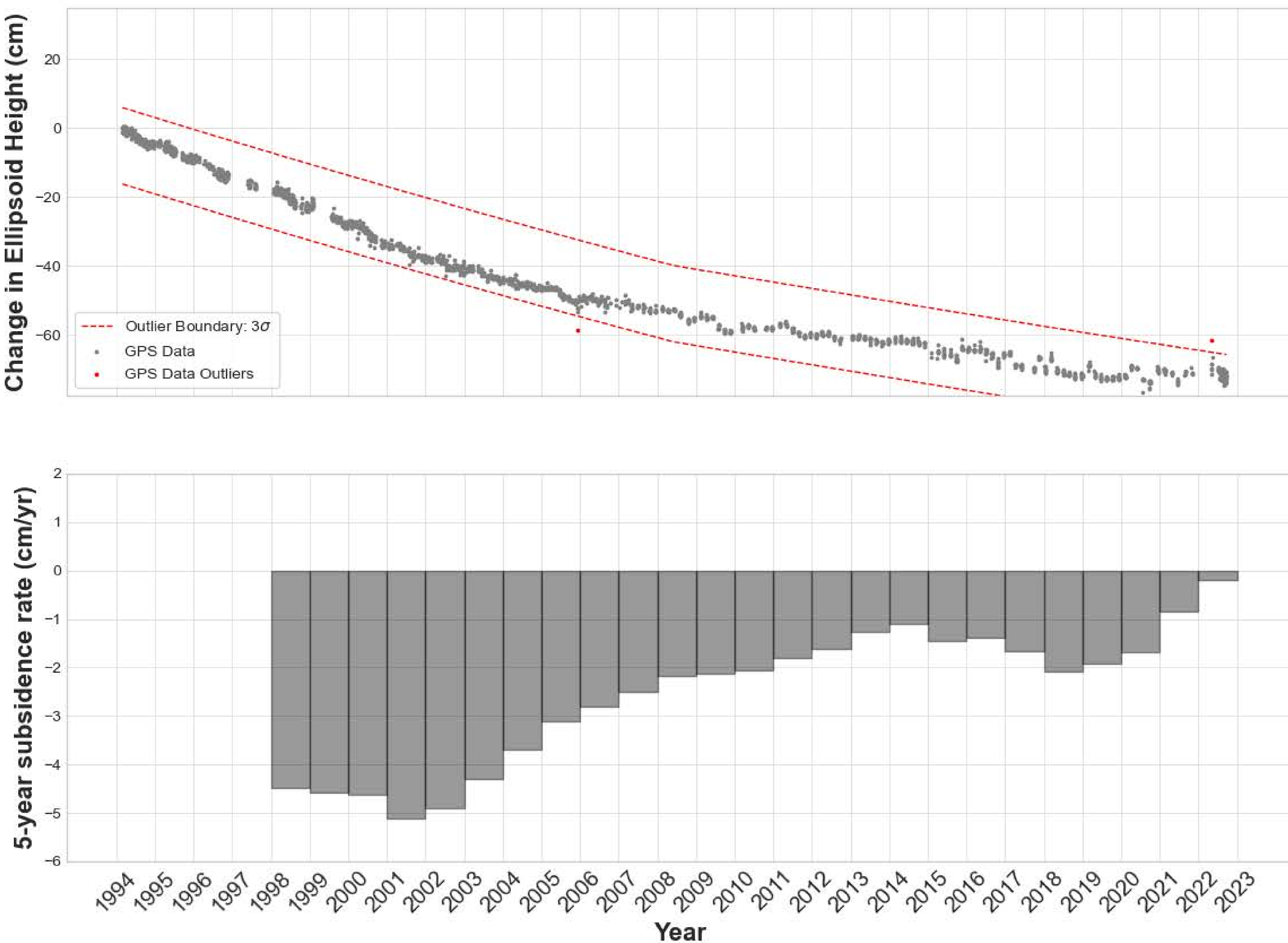
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P000



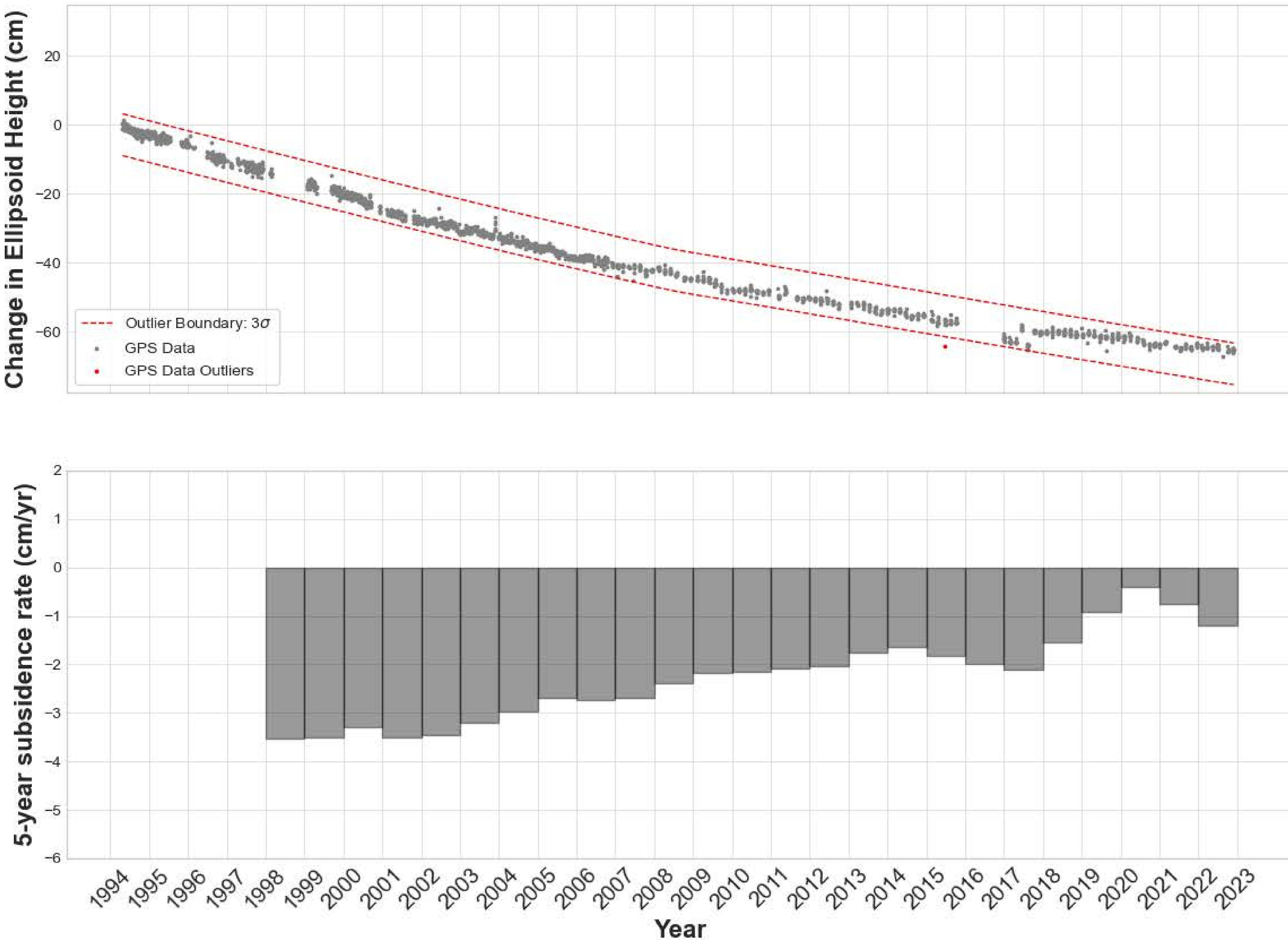
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P001



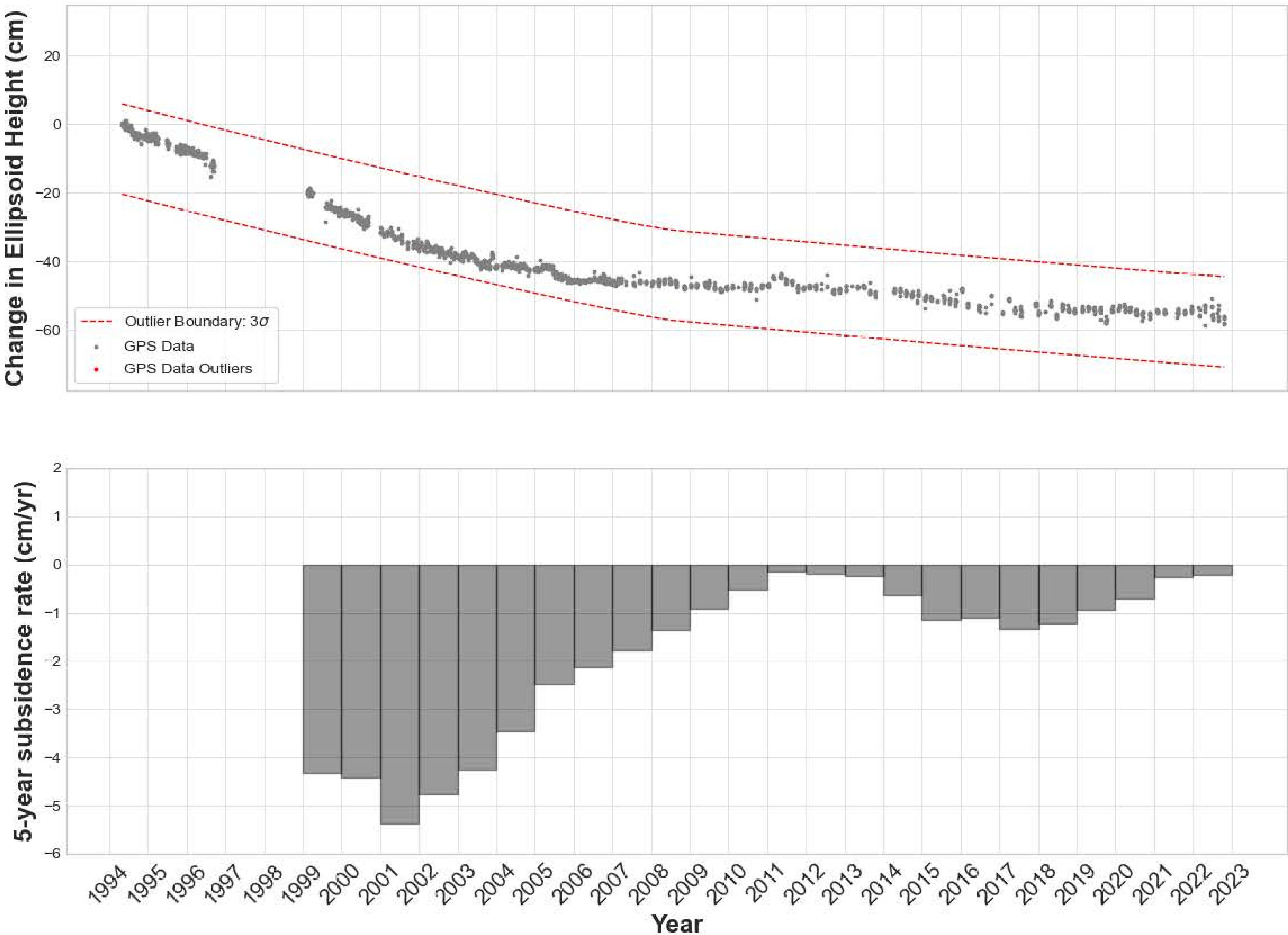
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P002



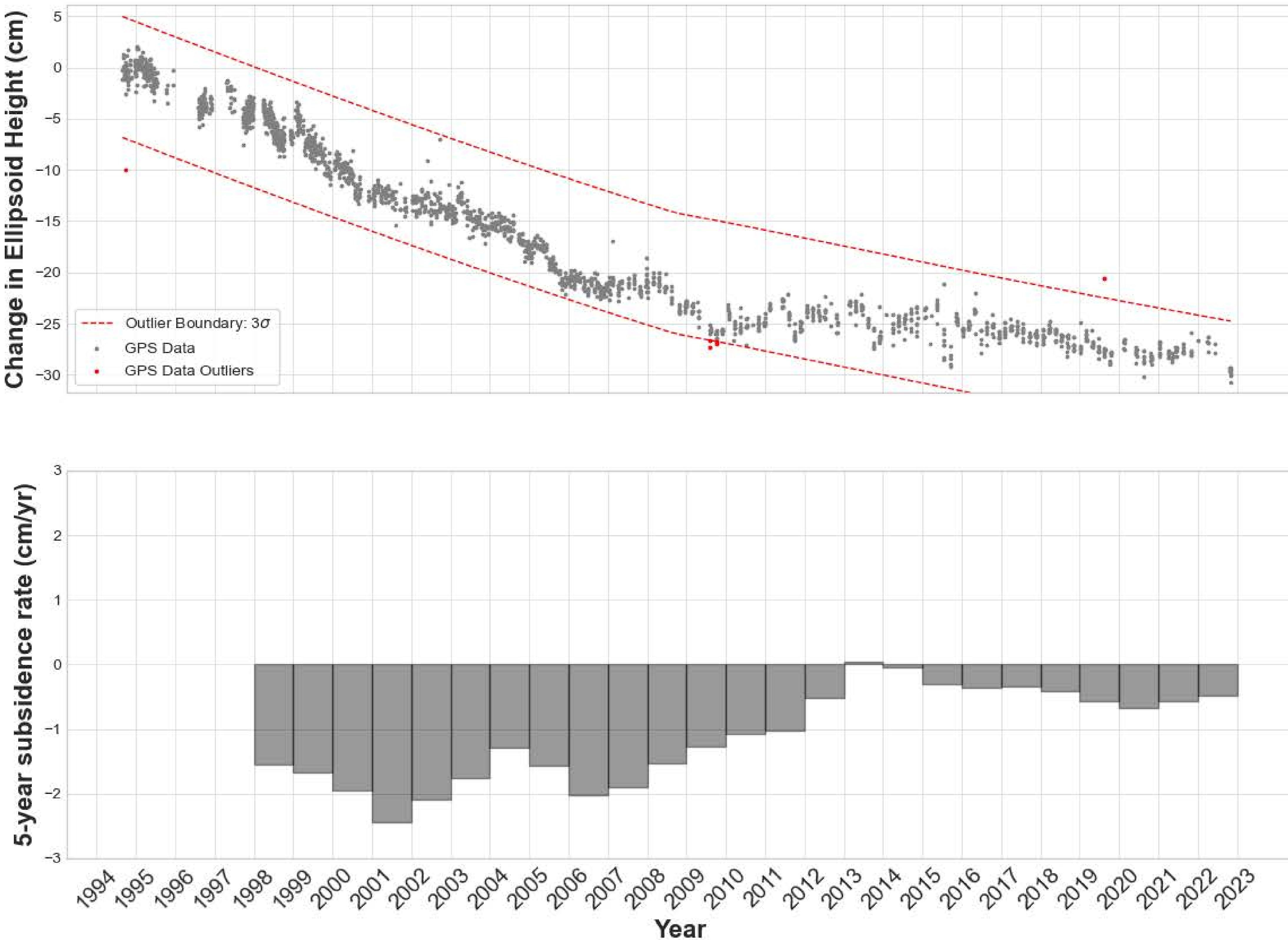
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P003



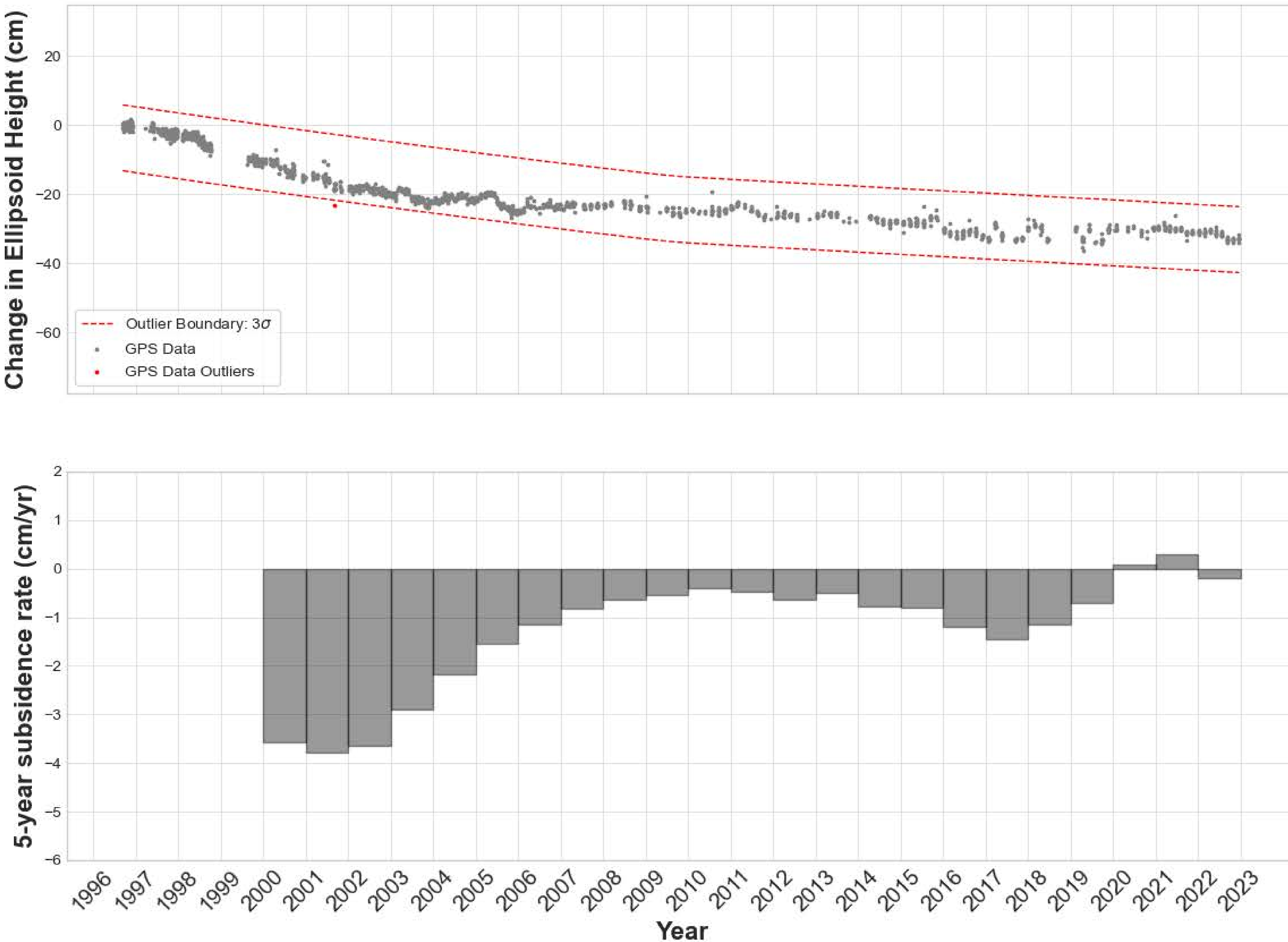
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P004



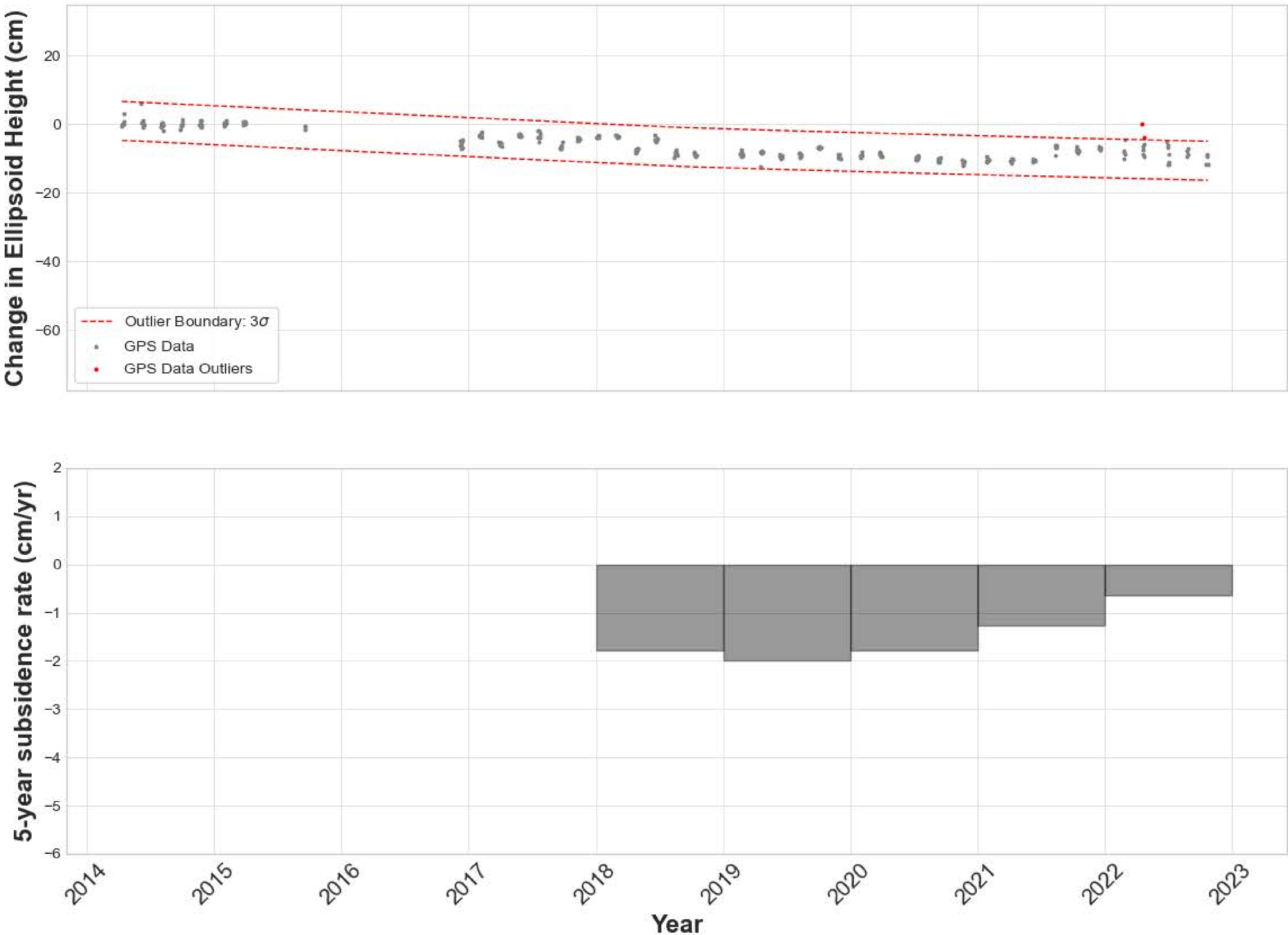
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P005



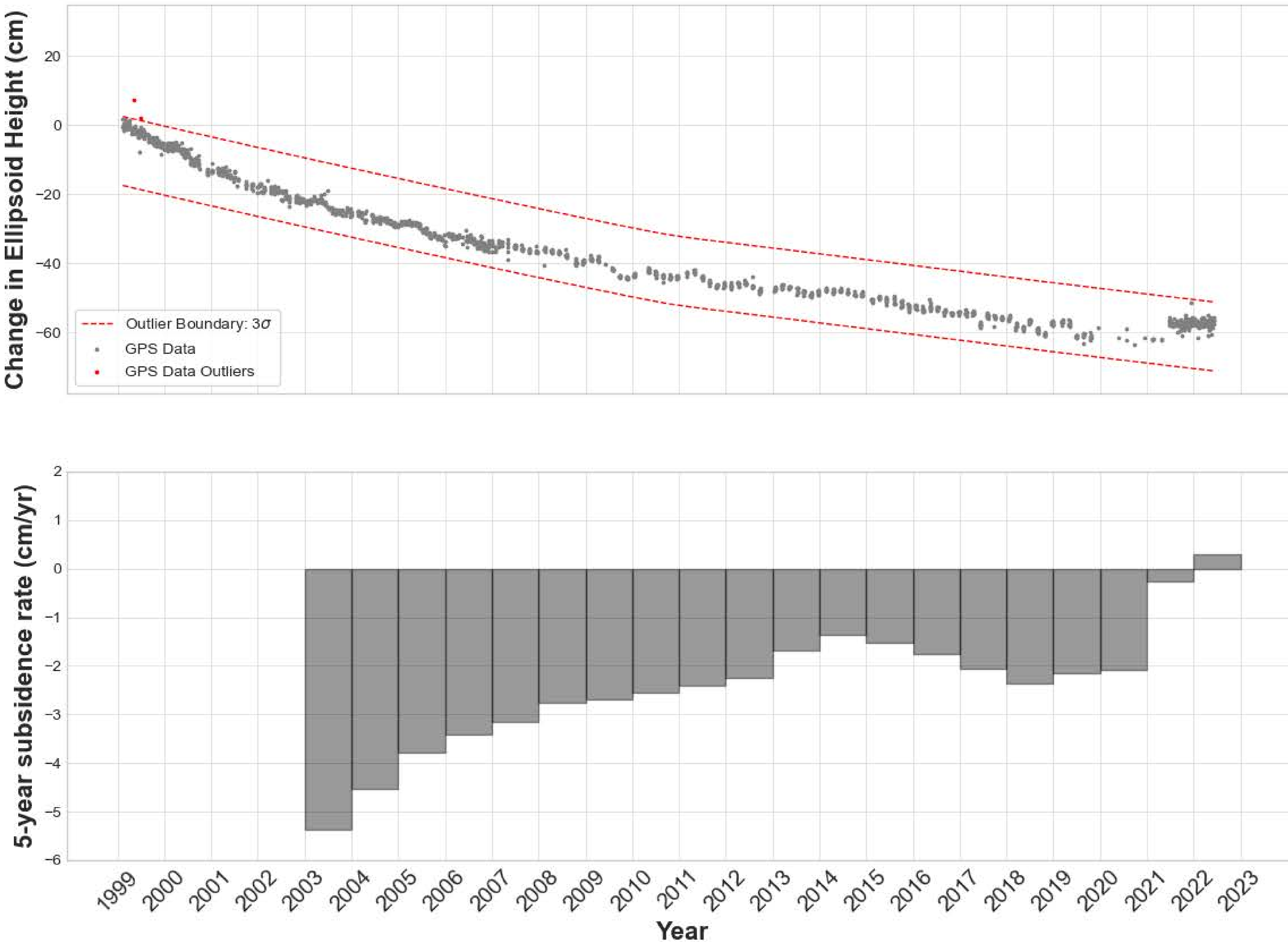
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P006



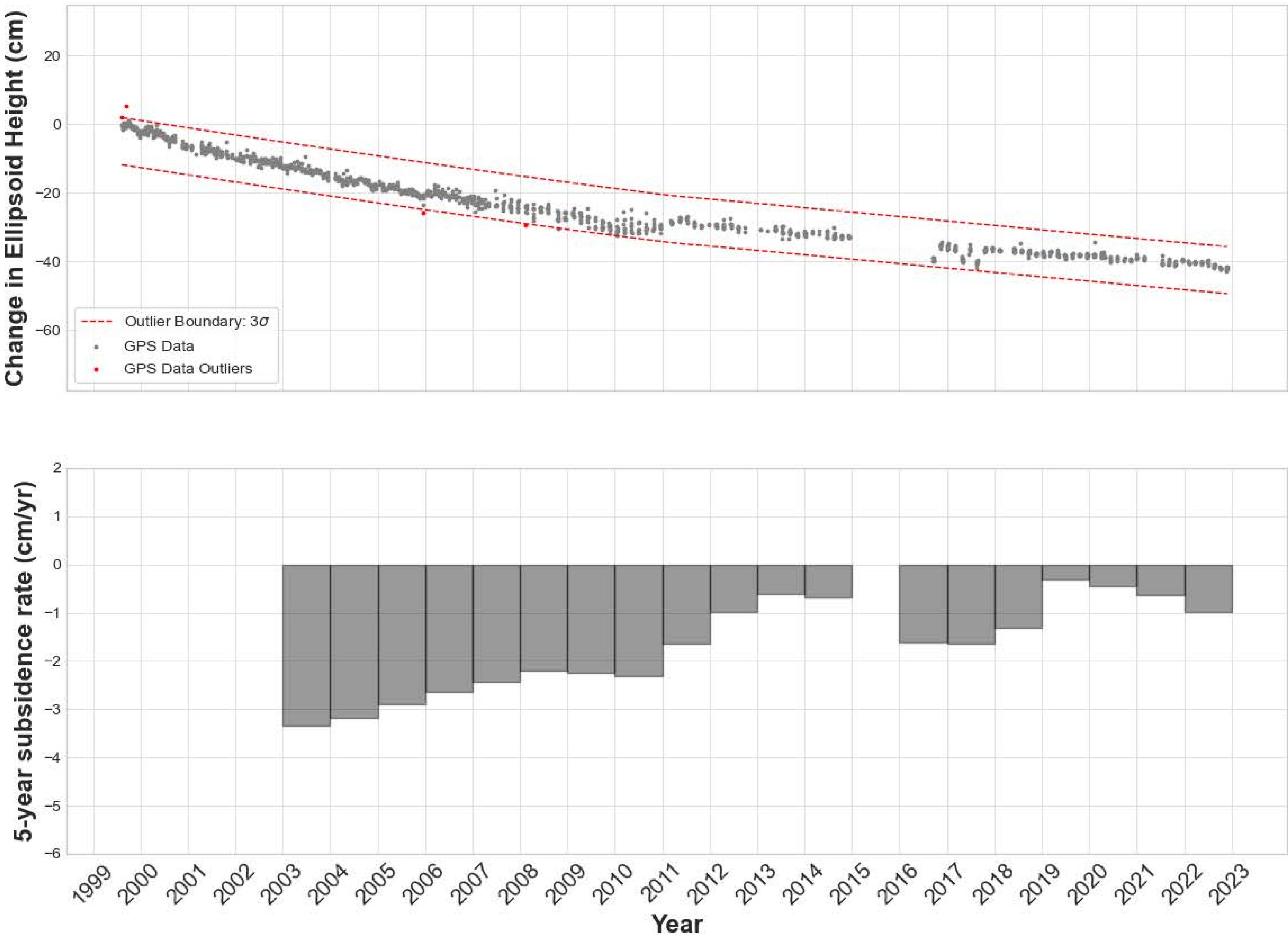
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P007



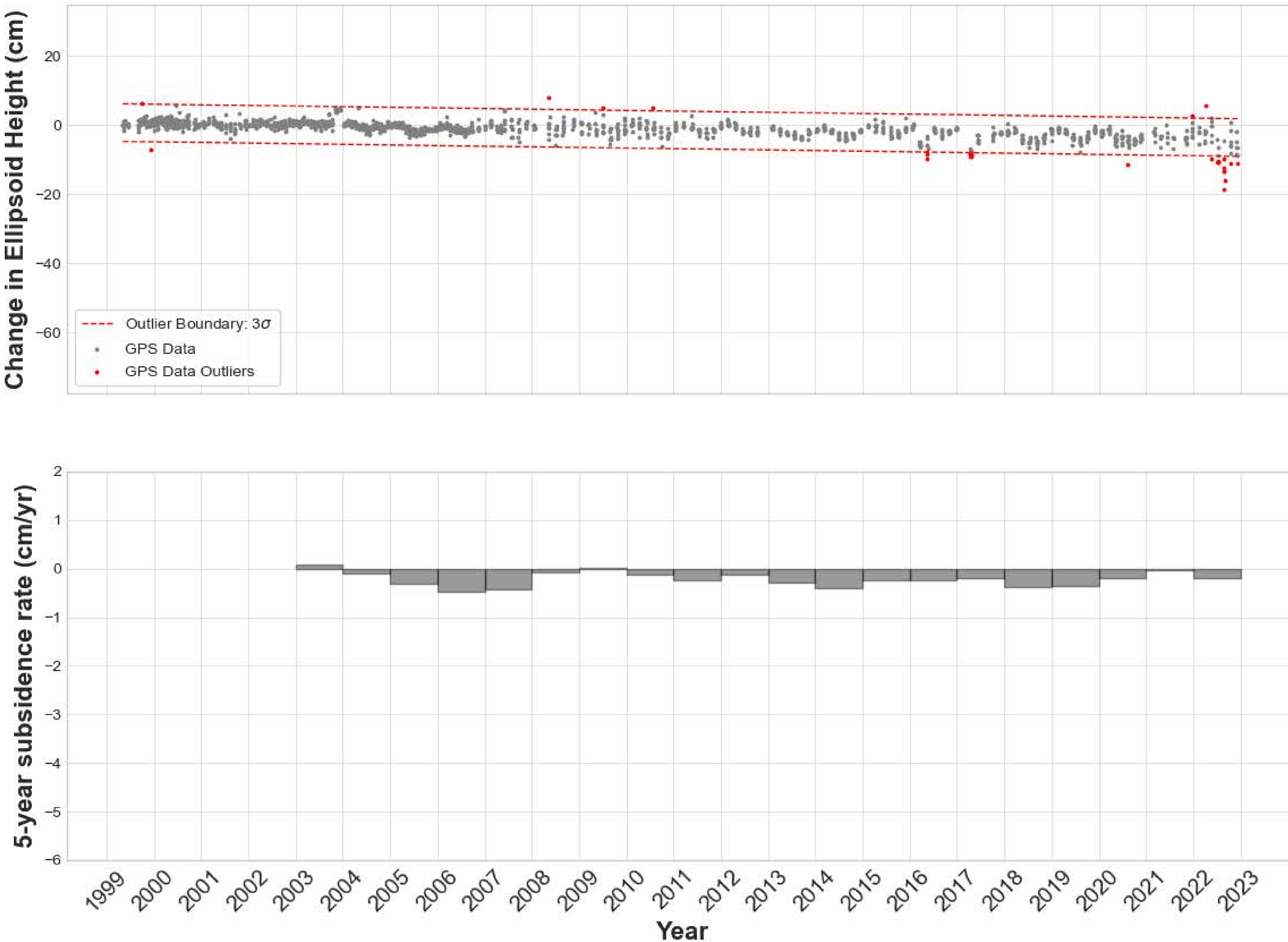
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P008



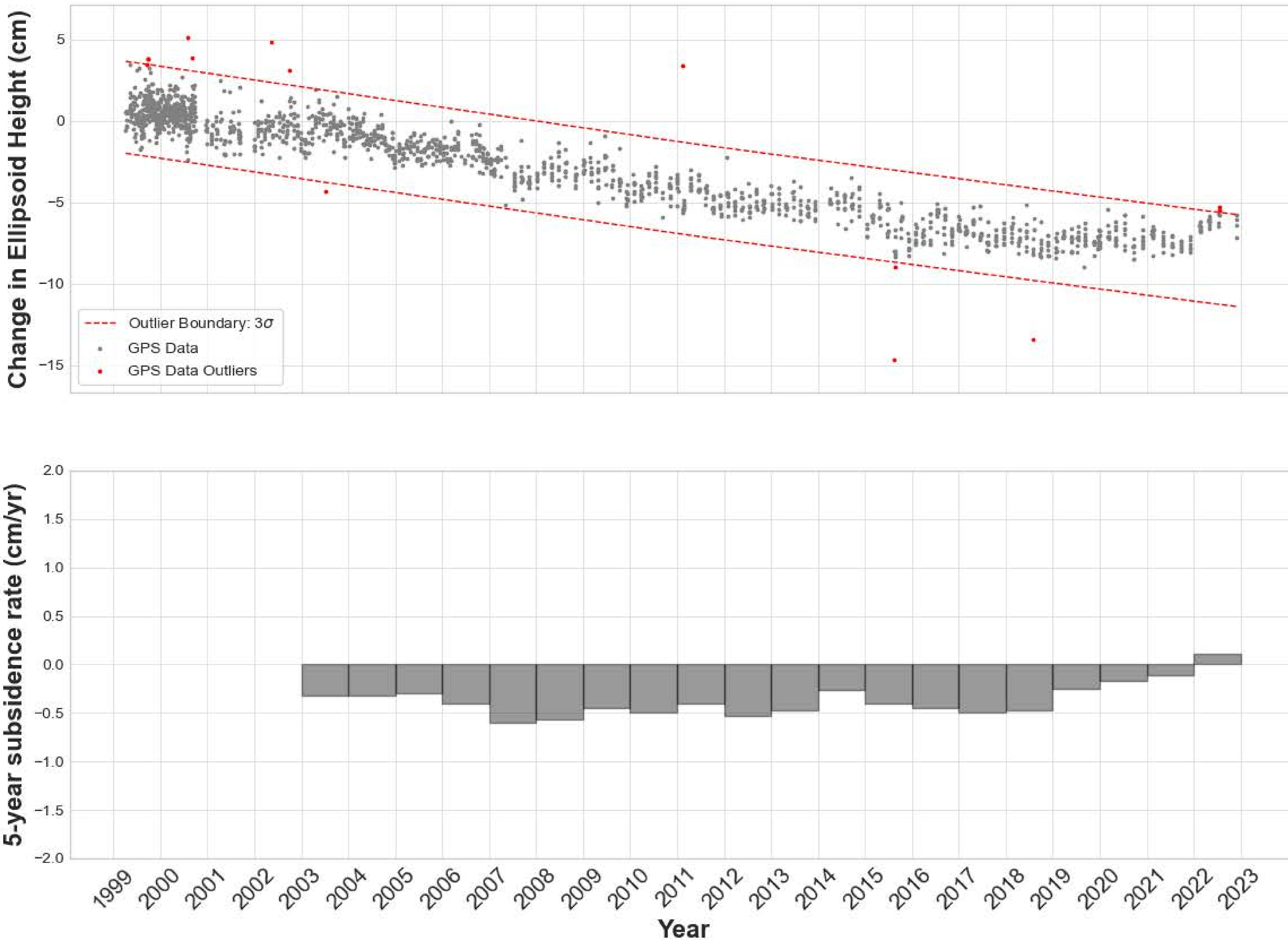
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P009



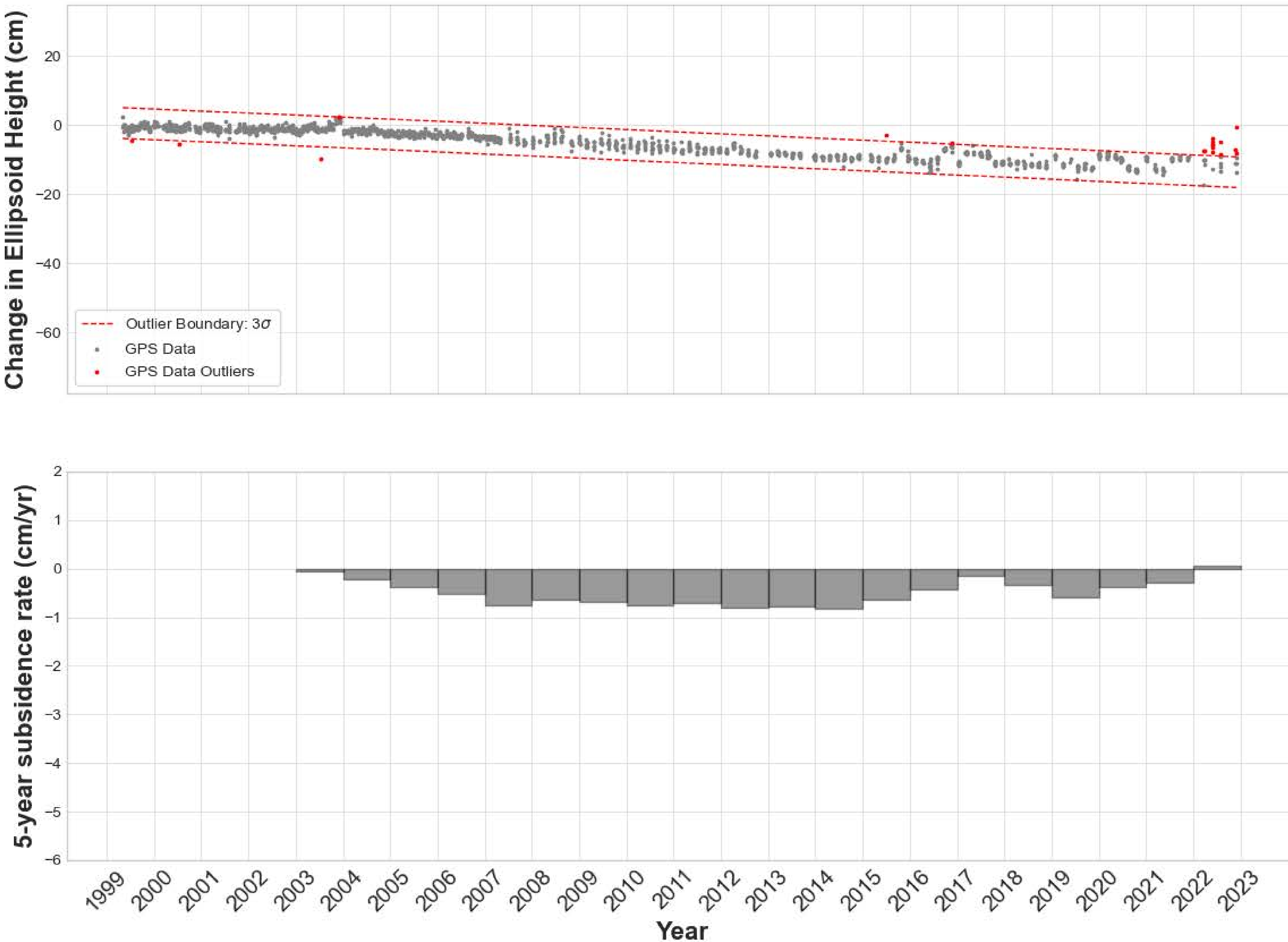
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P010



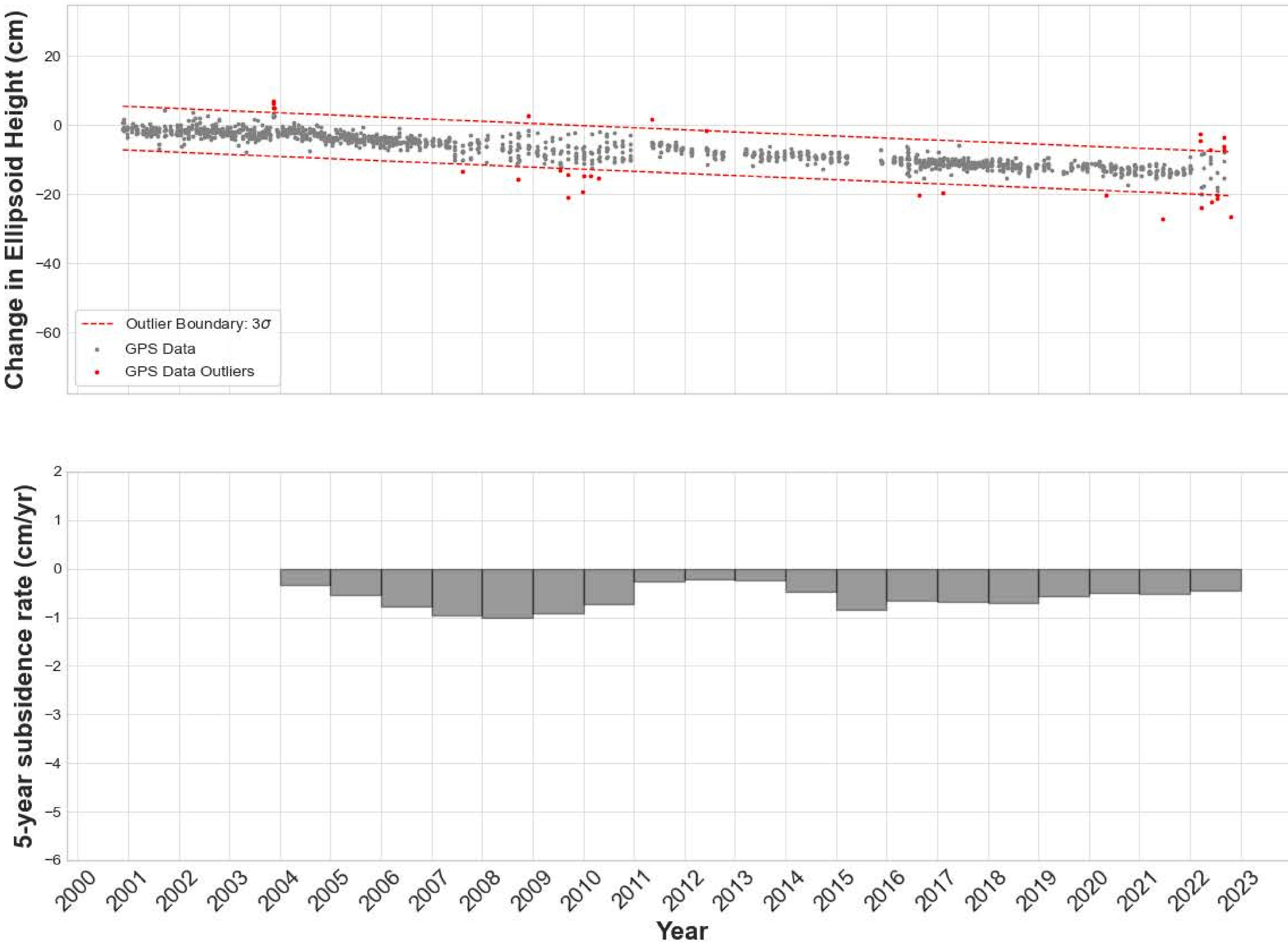
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P011



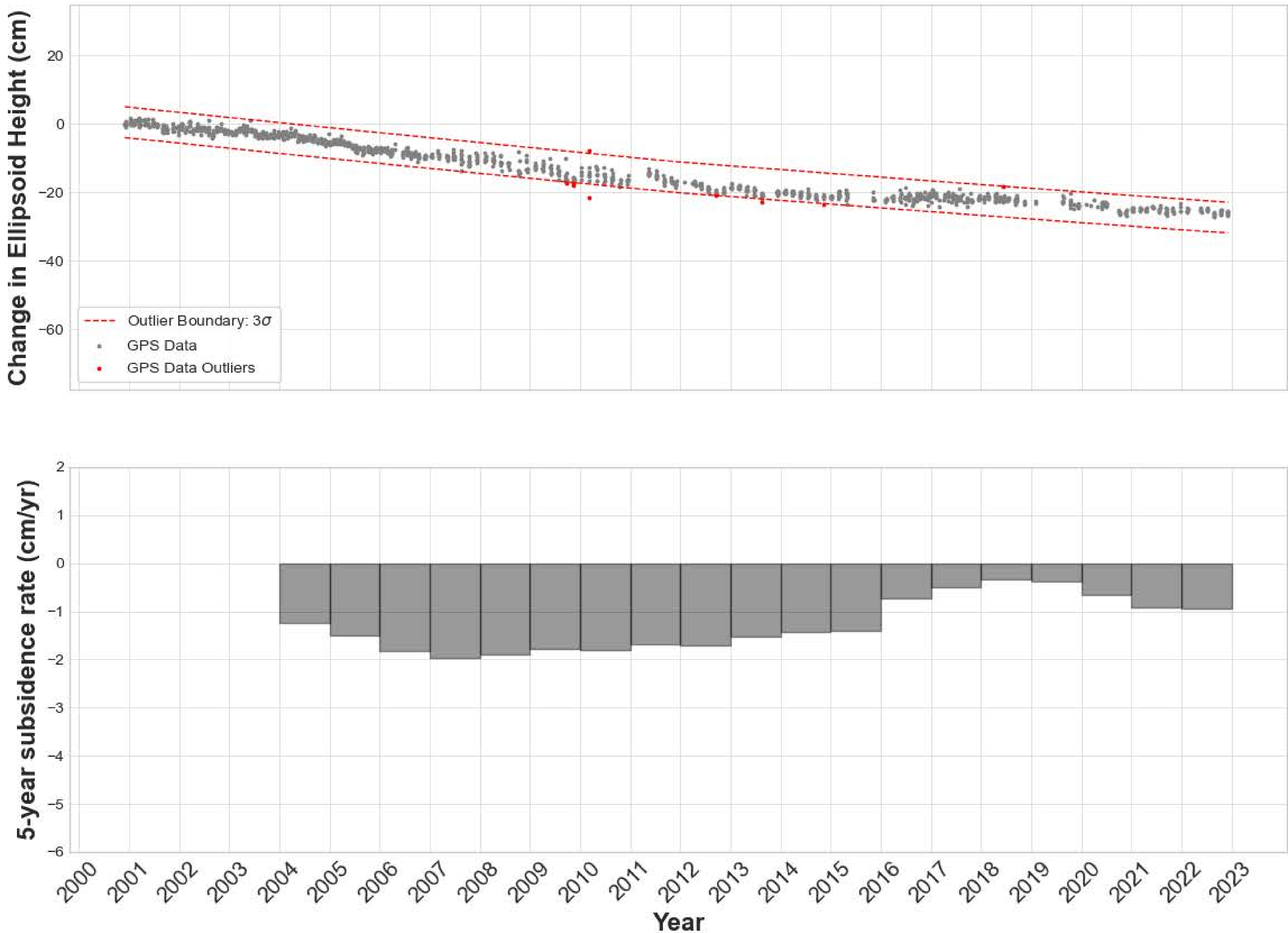
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P012



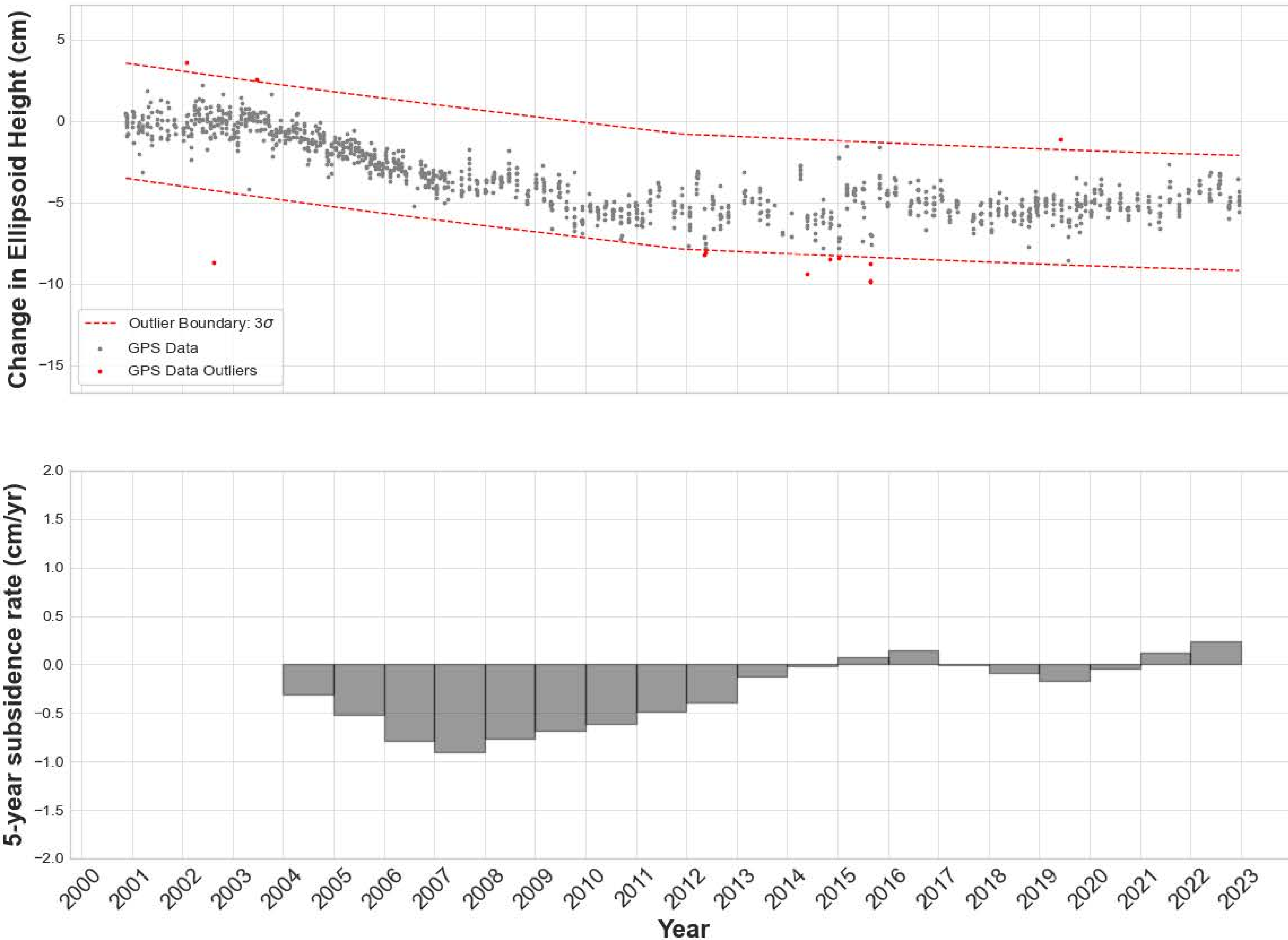
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P013



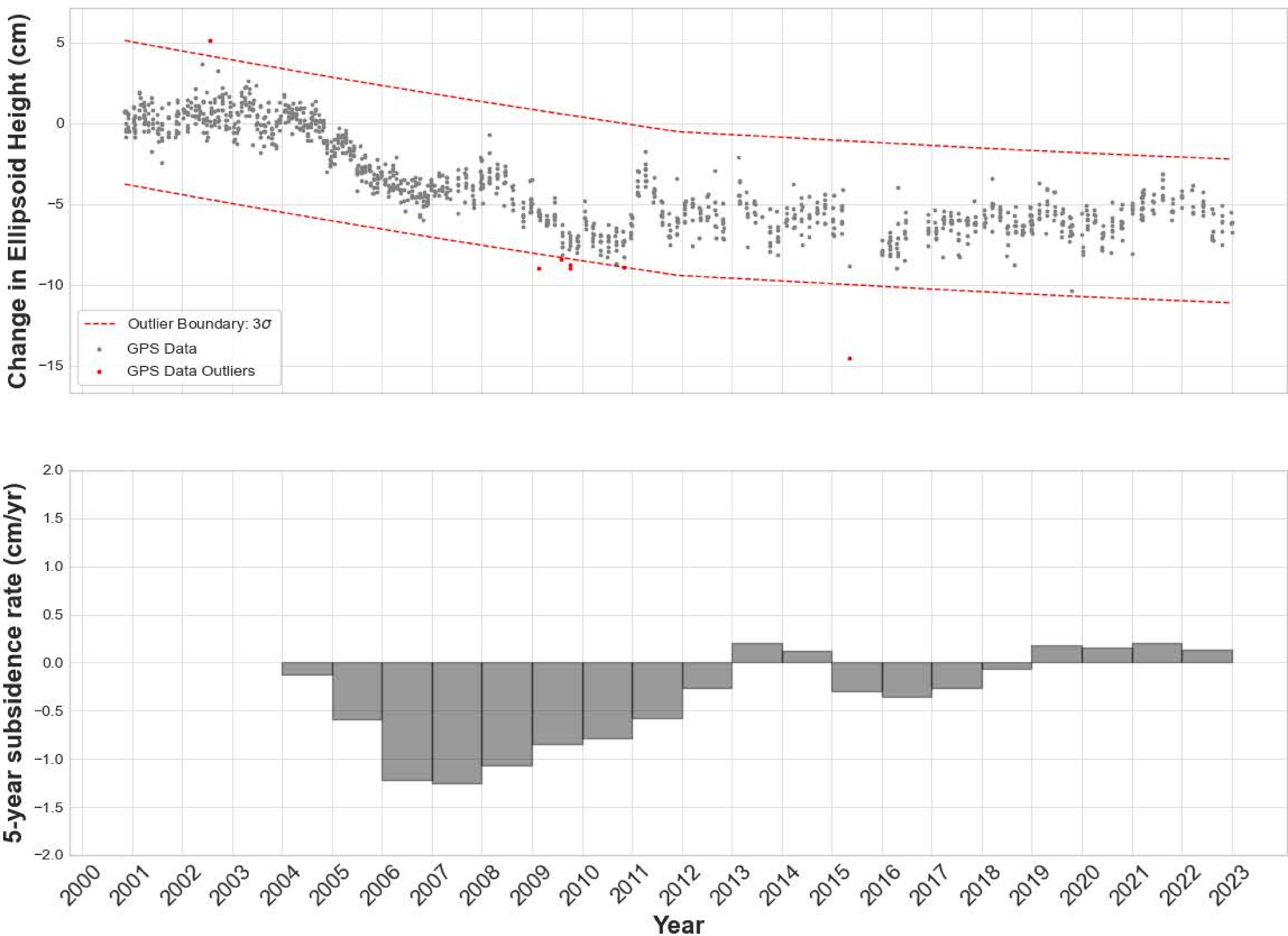
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P014



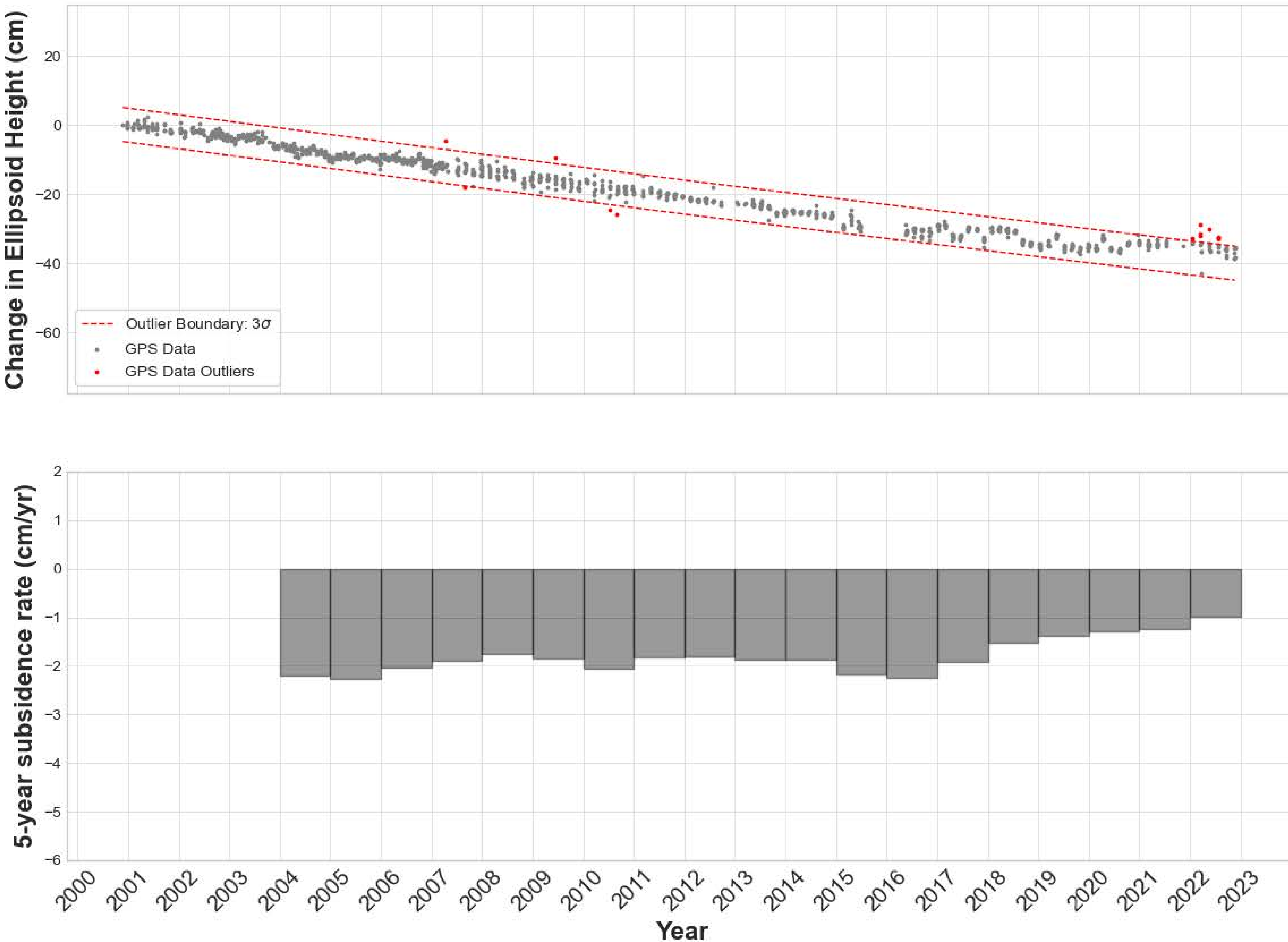
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P016



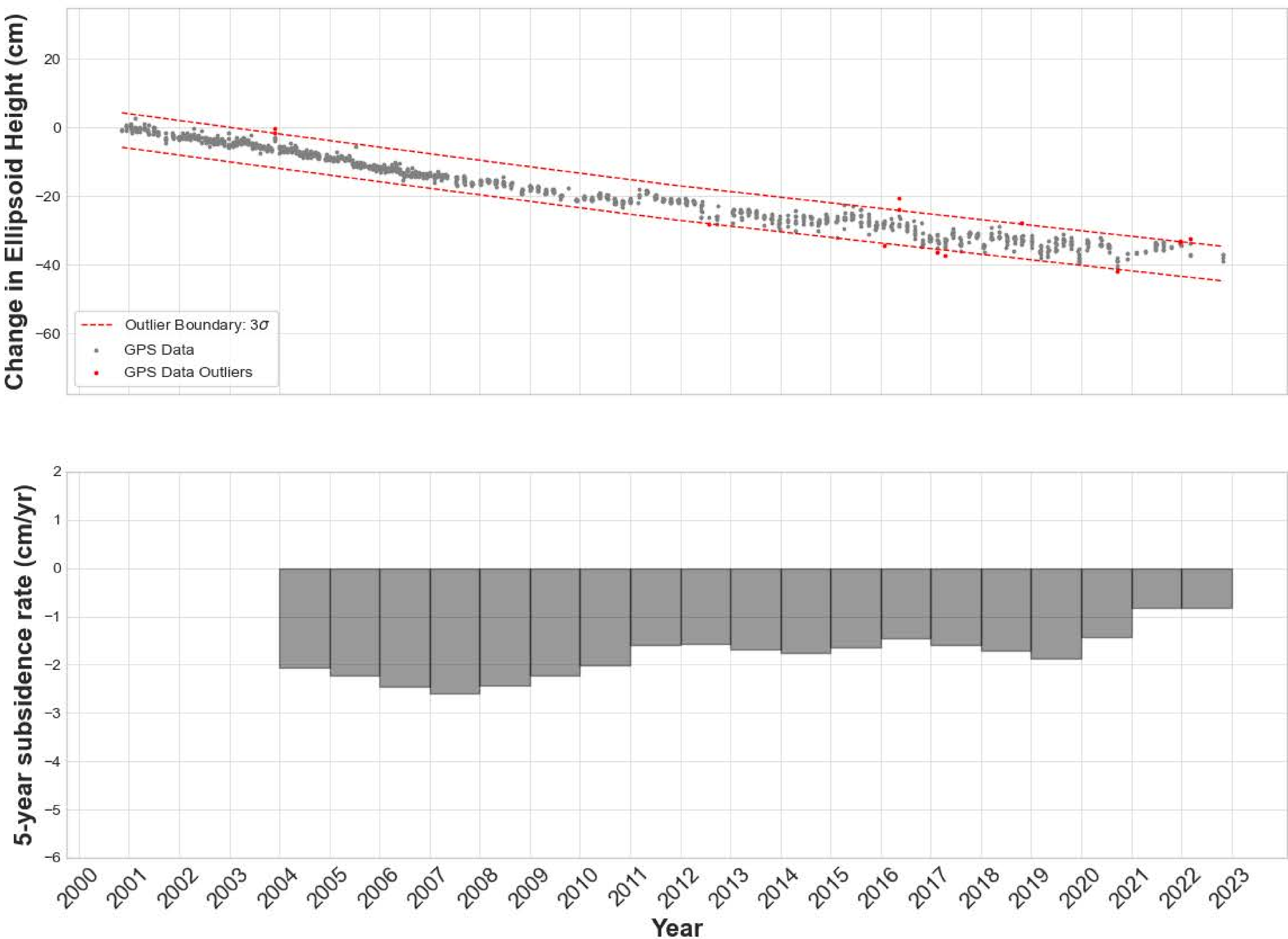
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P017



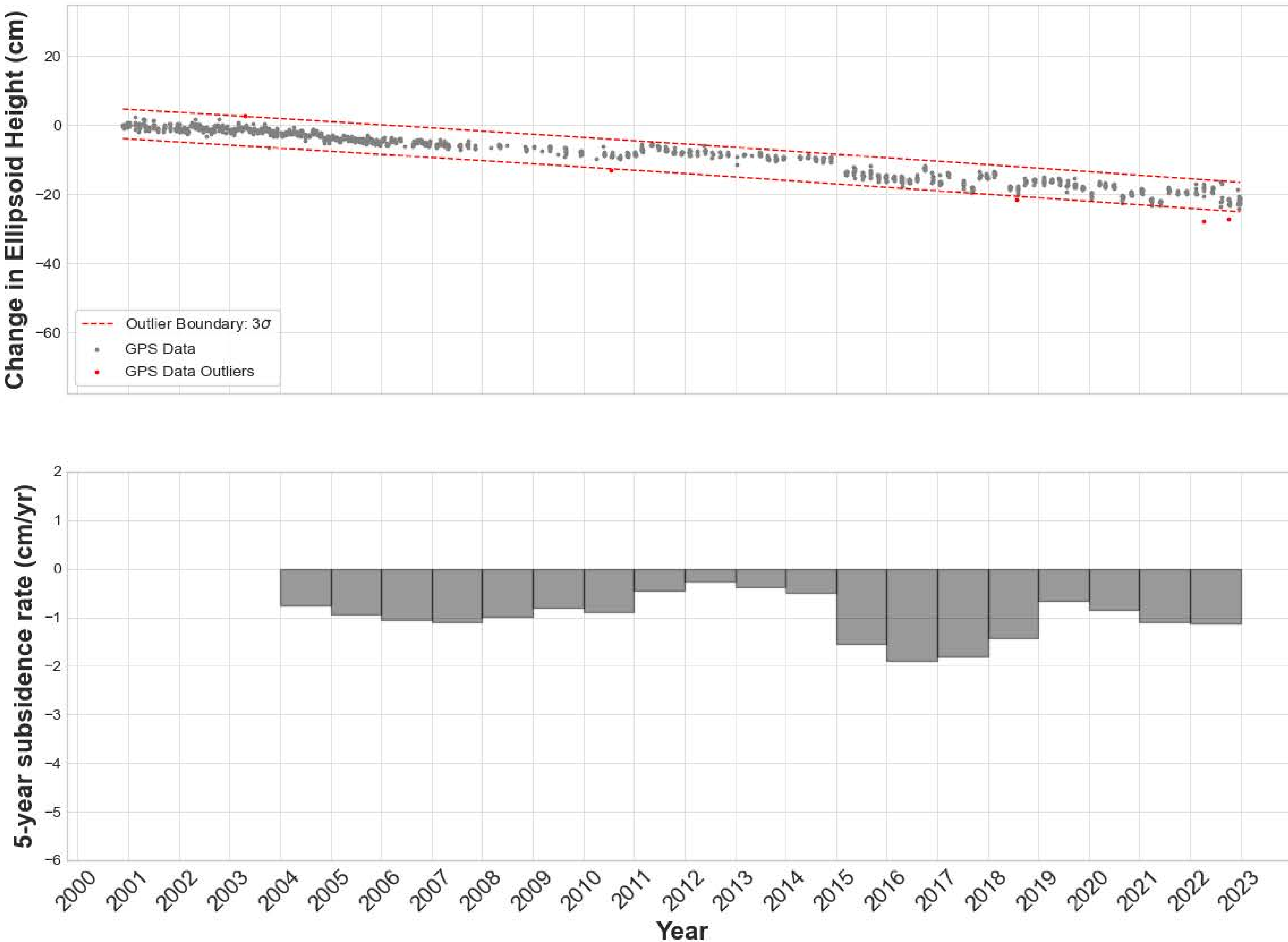
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P018



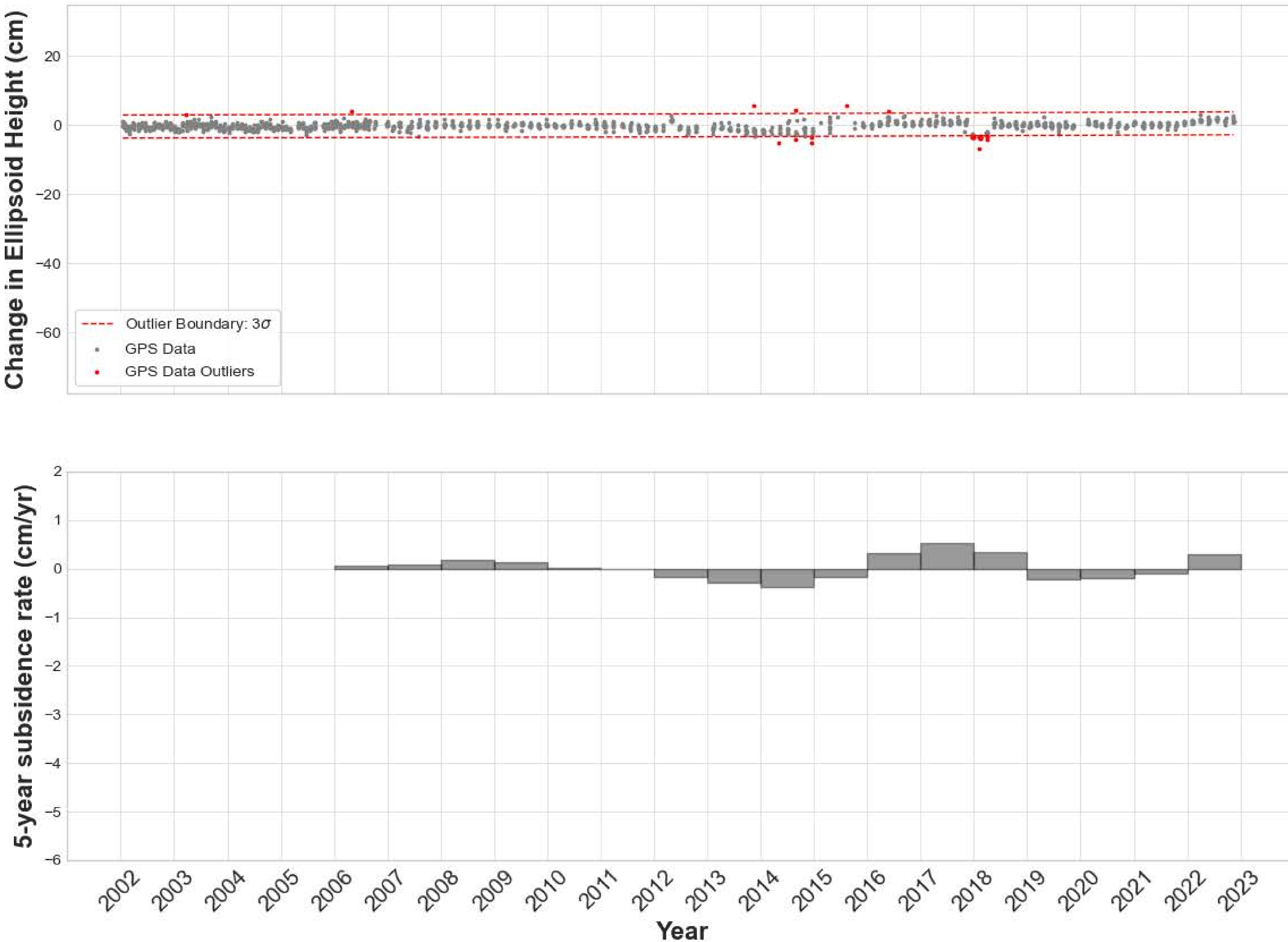
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P019



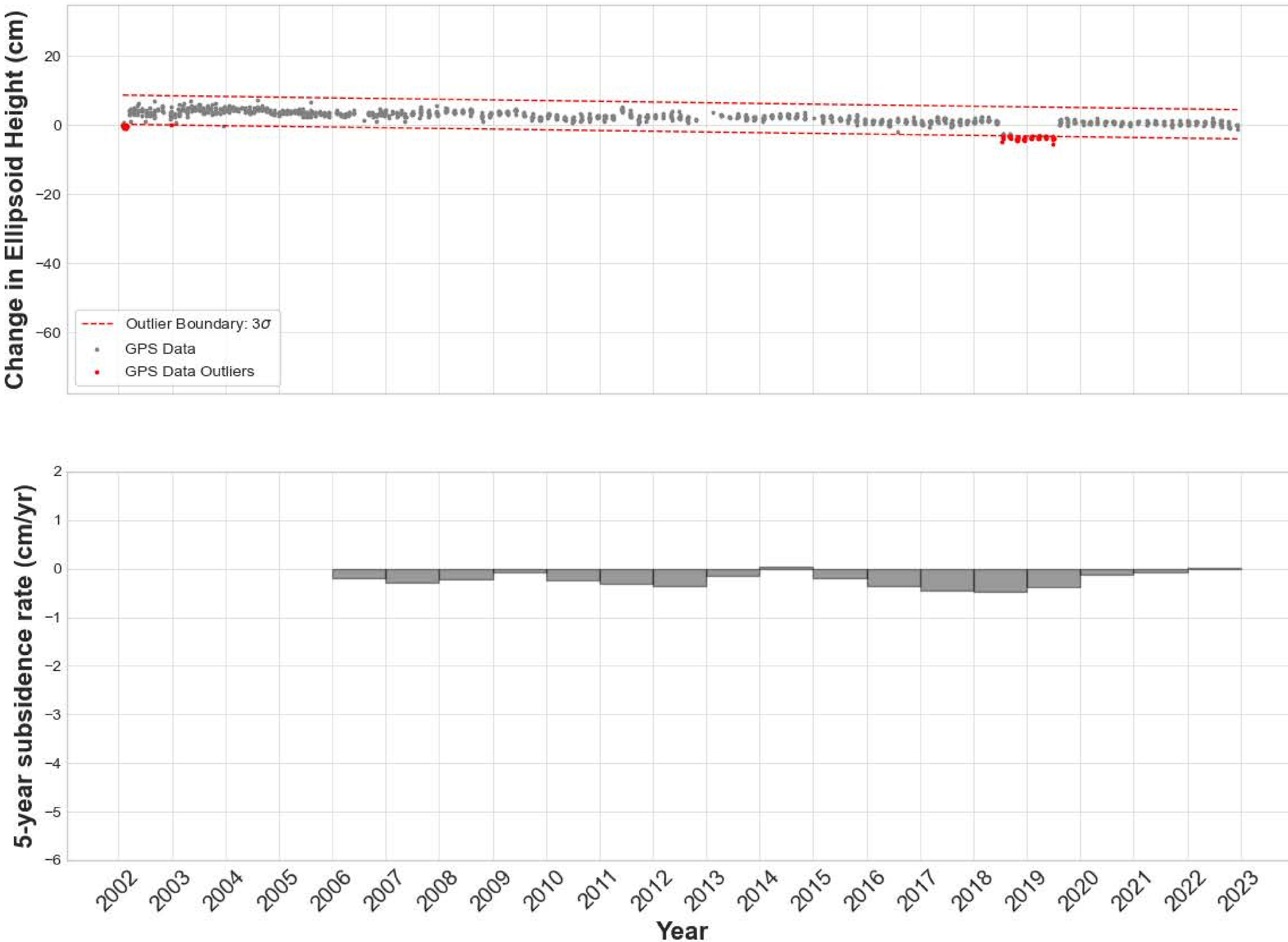
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P020



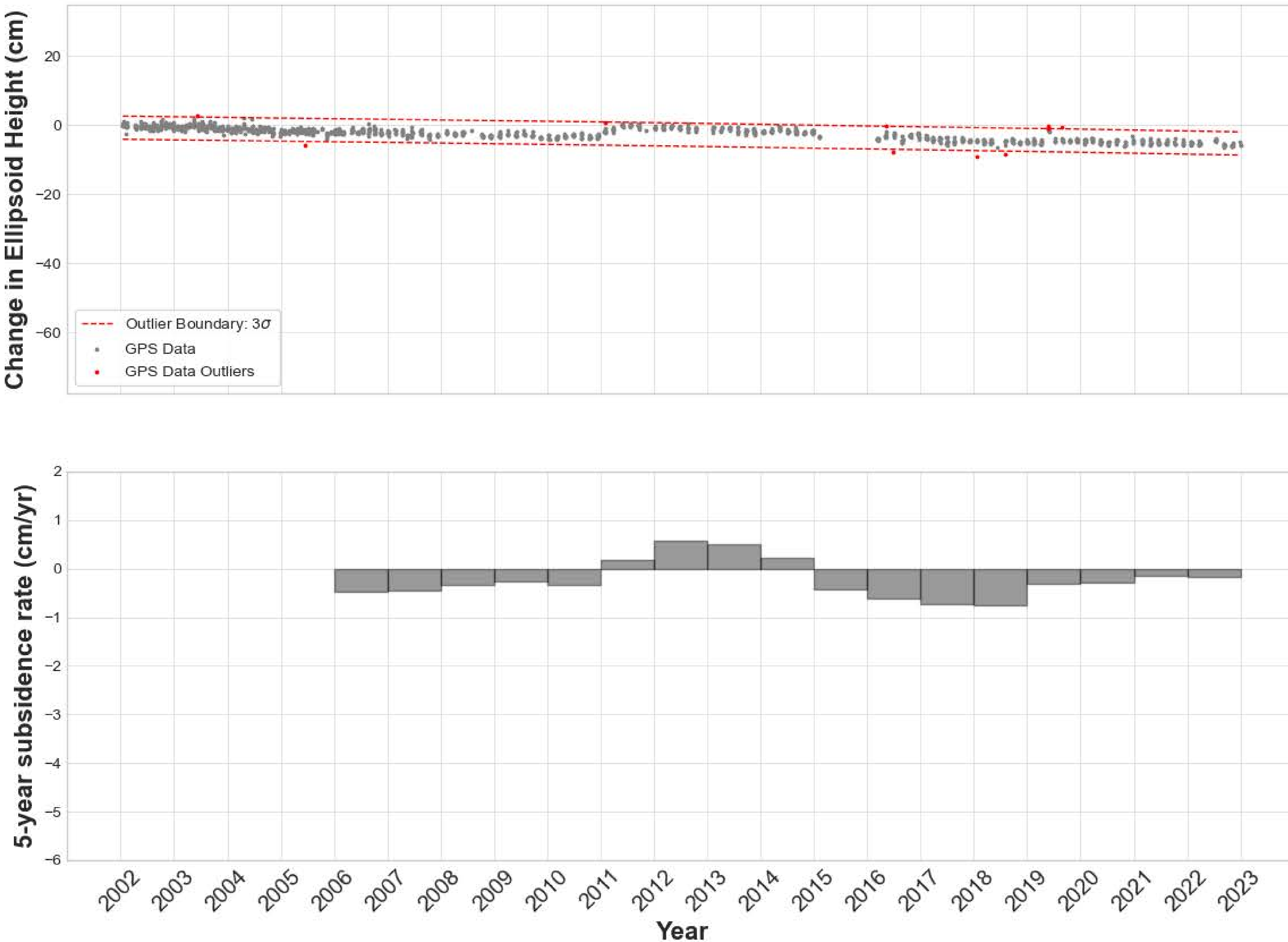
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P021



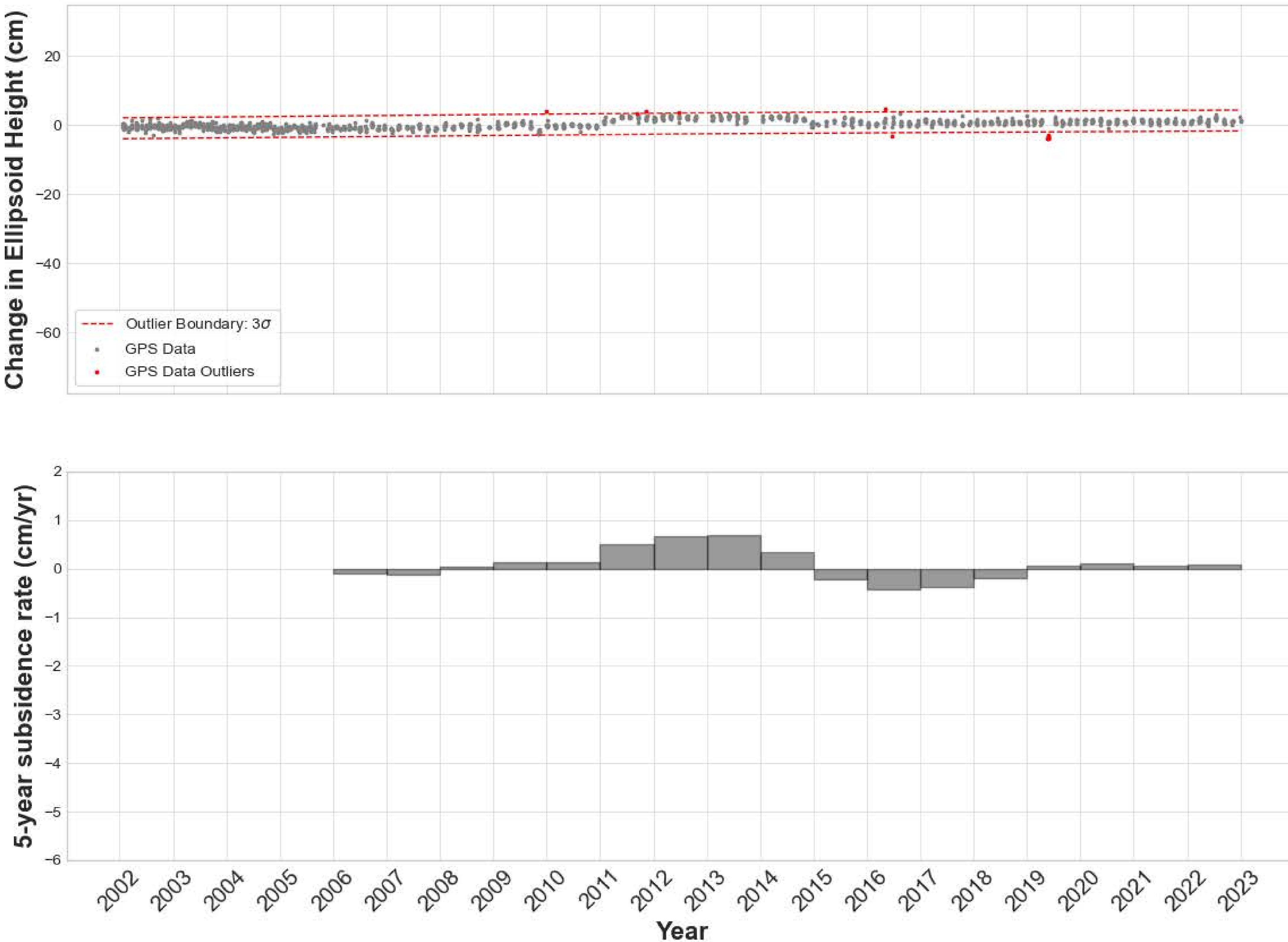
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P022



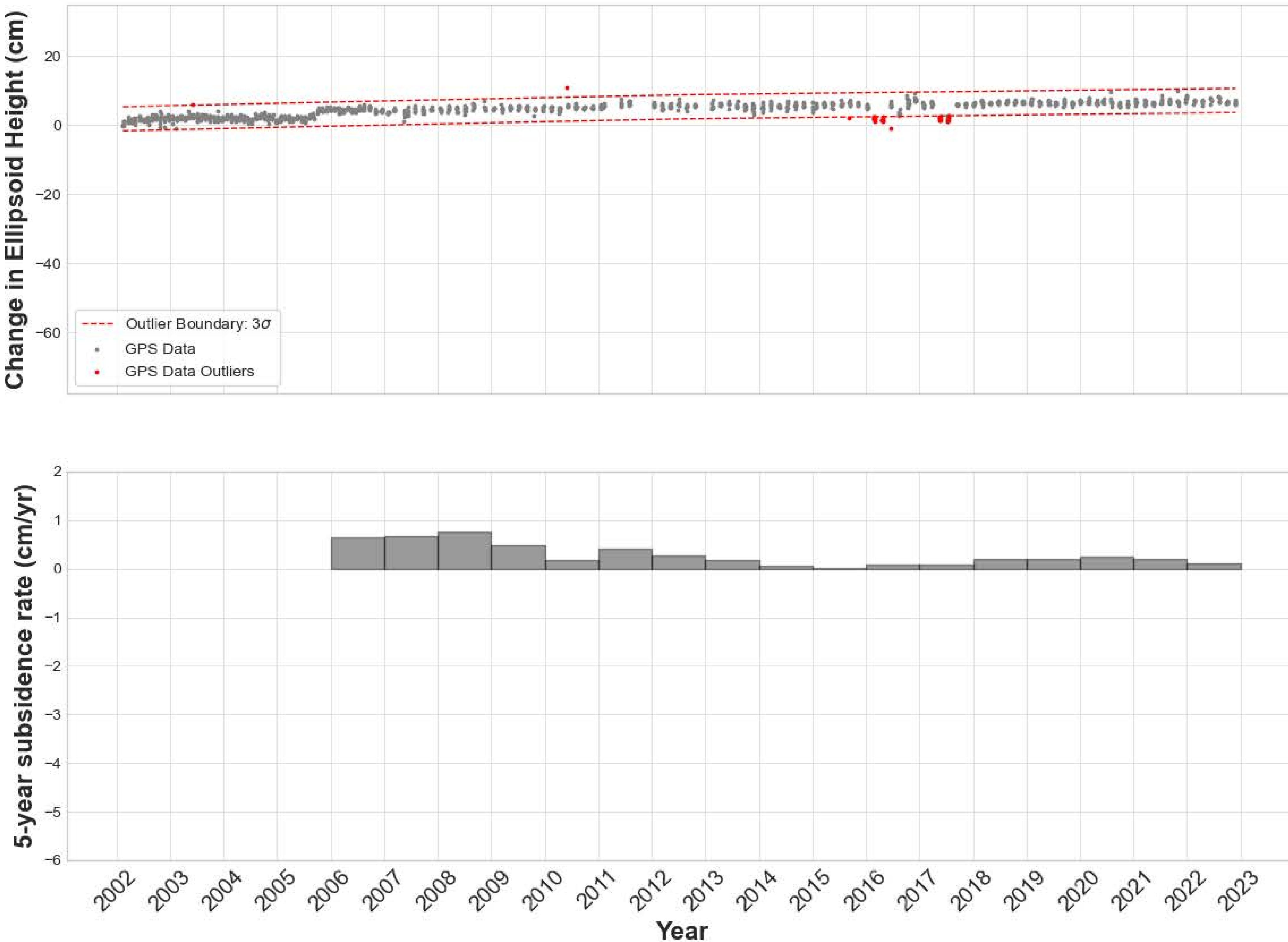
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P023



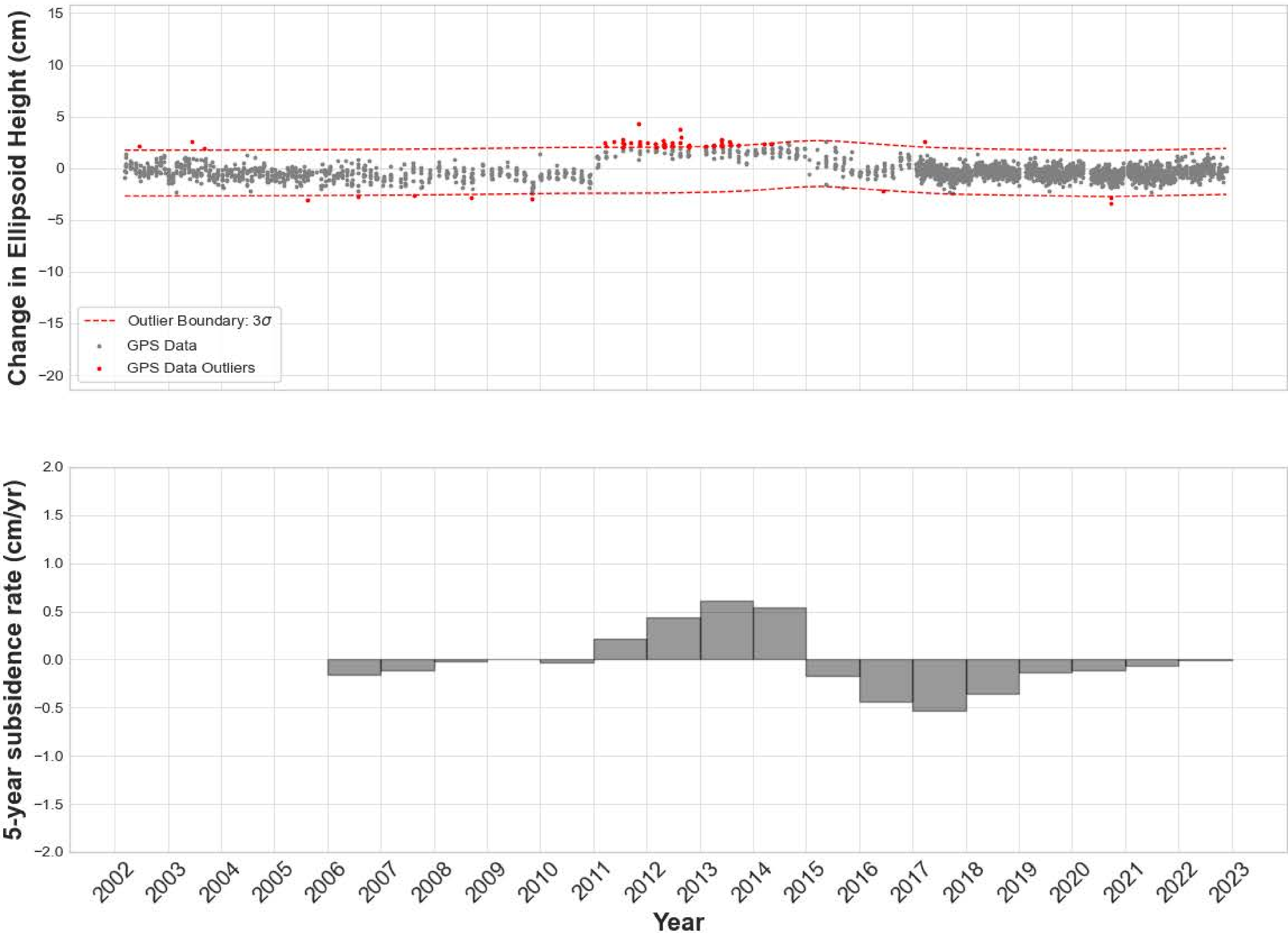
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P024



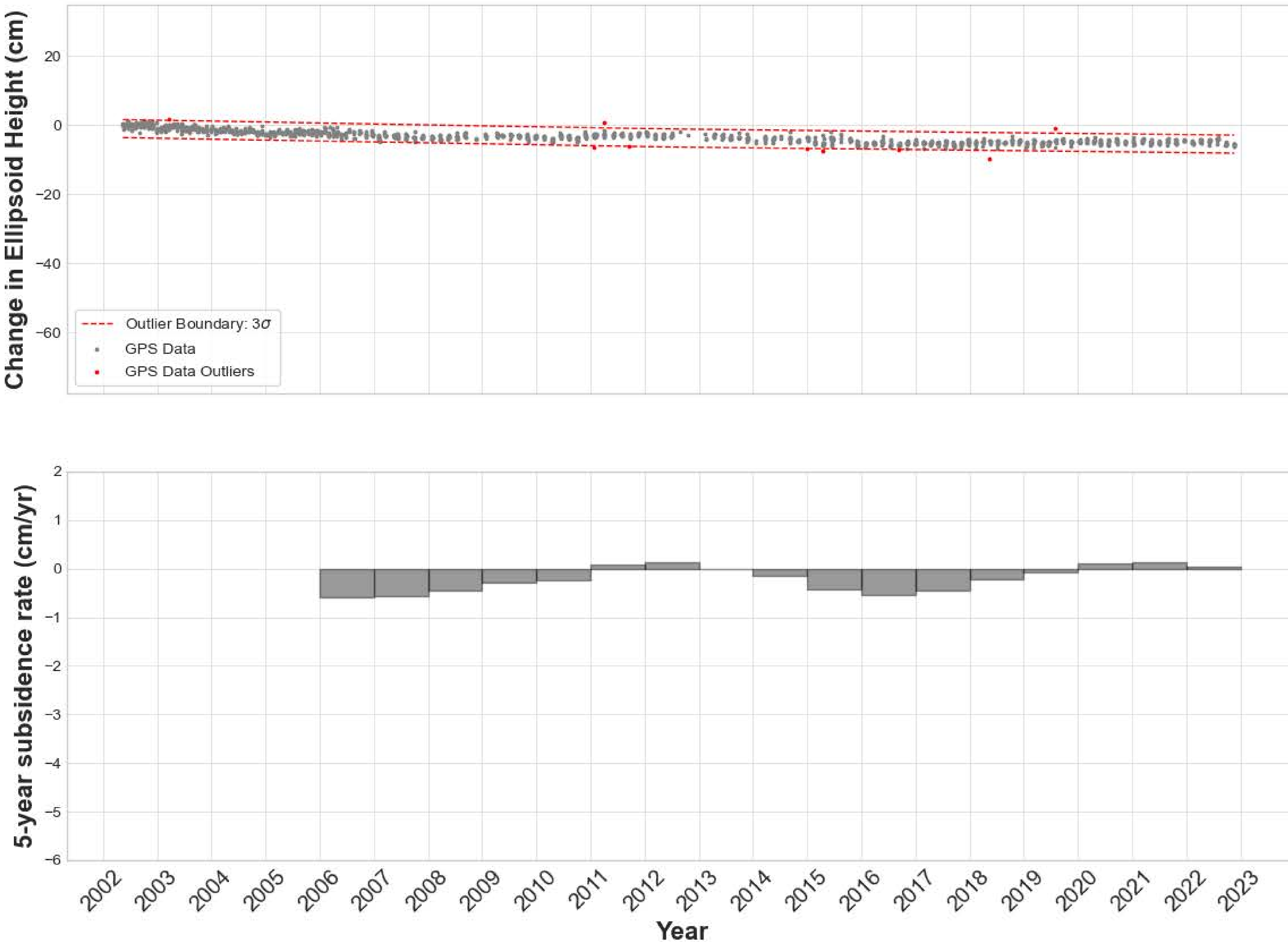
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P026



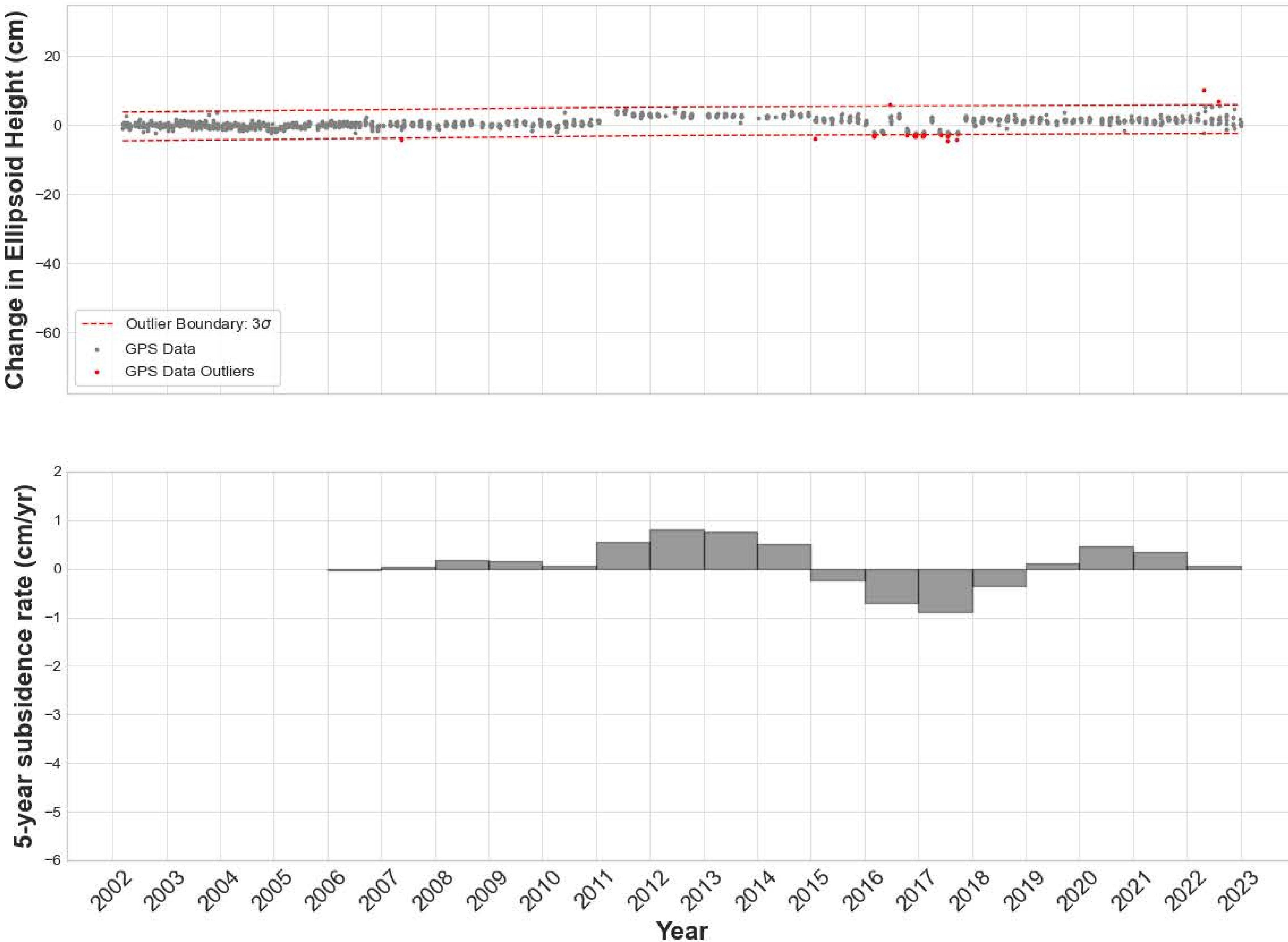
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P027



Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P028

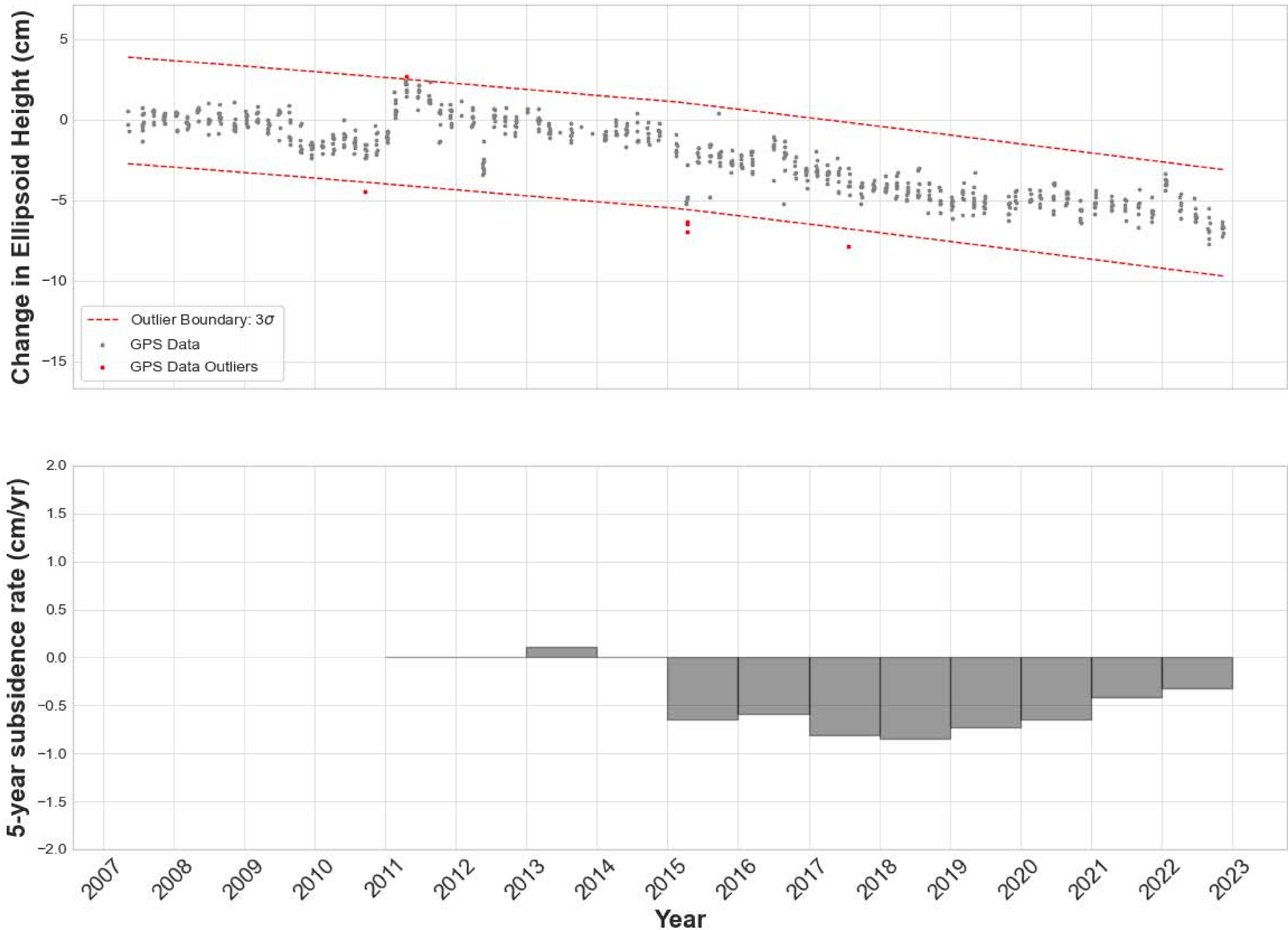


Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P029

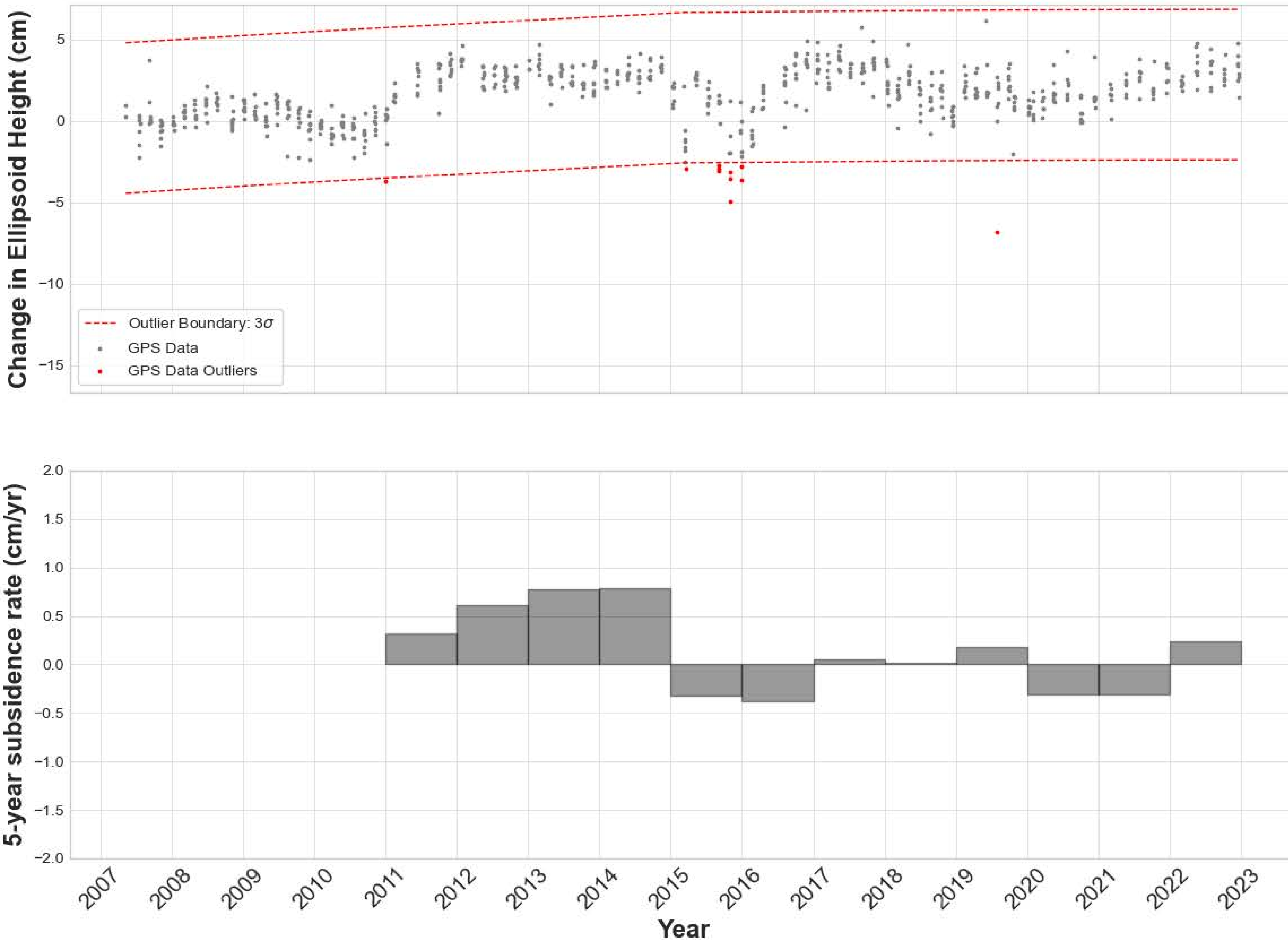
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P030



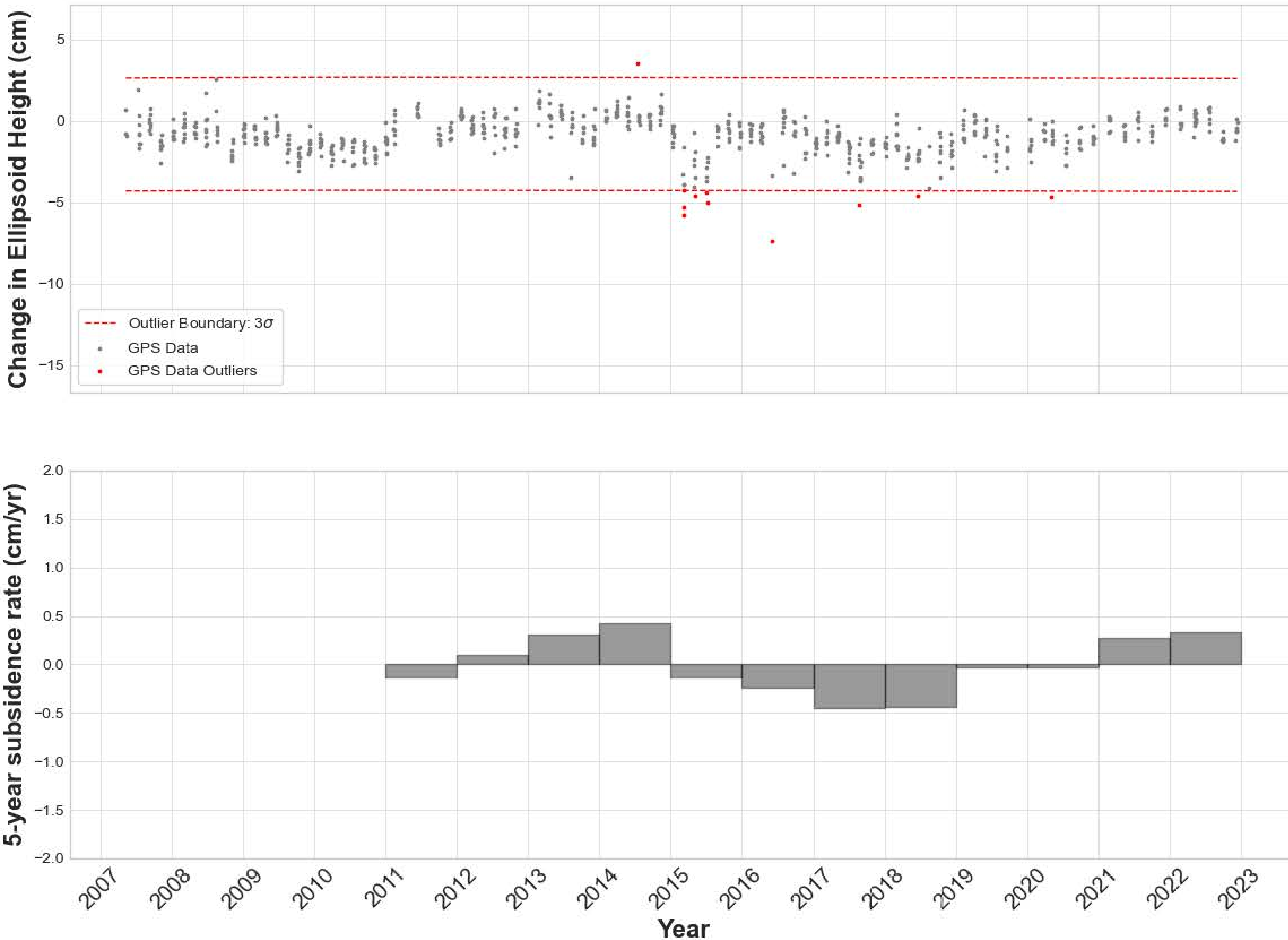
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P031



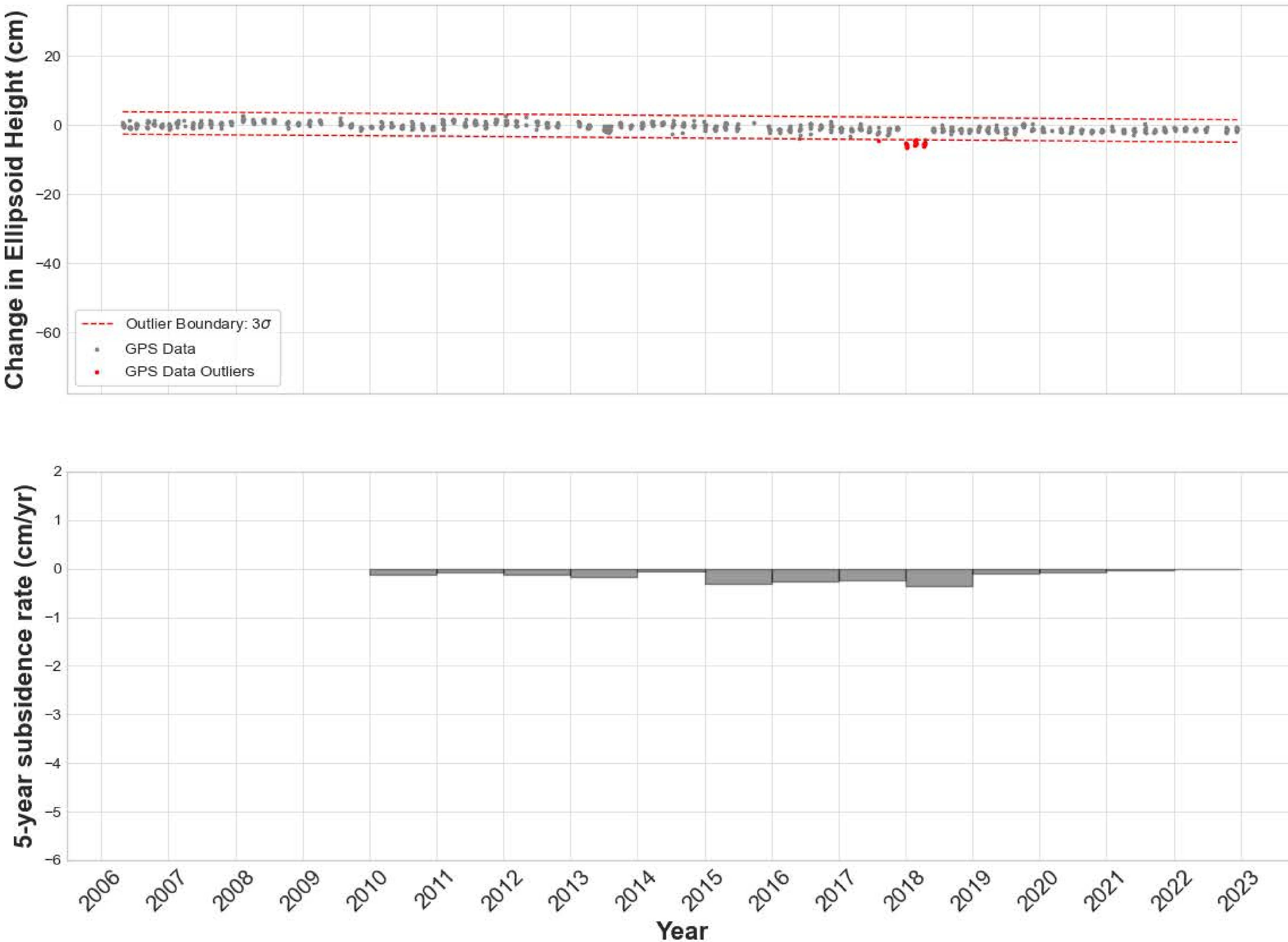
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P032



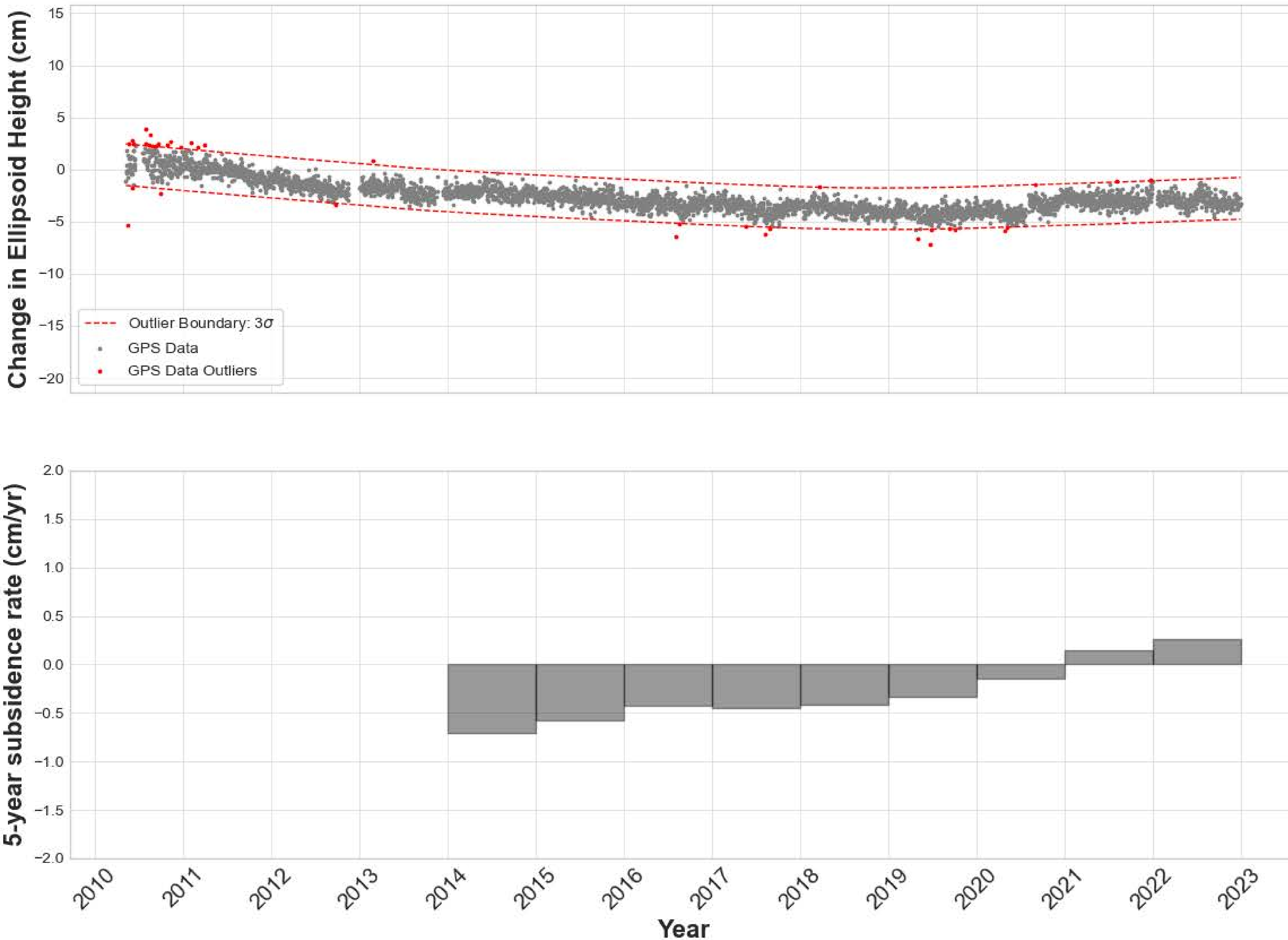
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P033



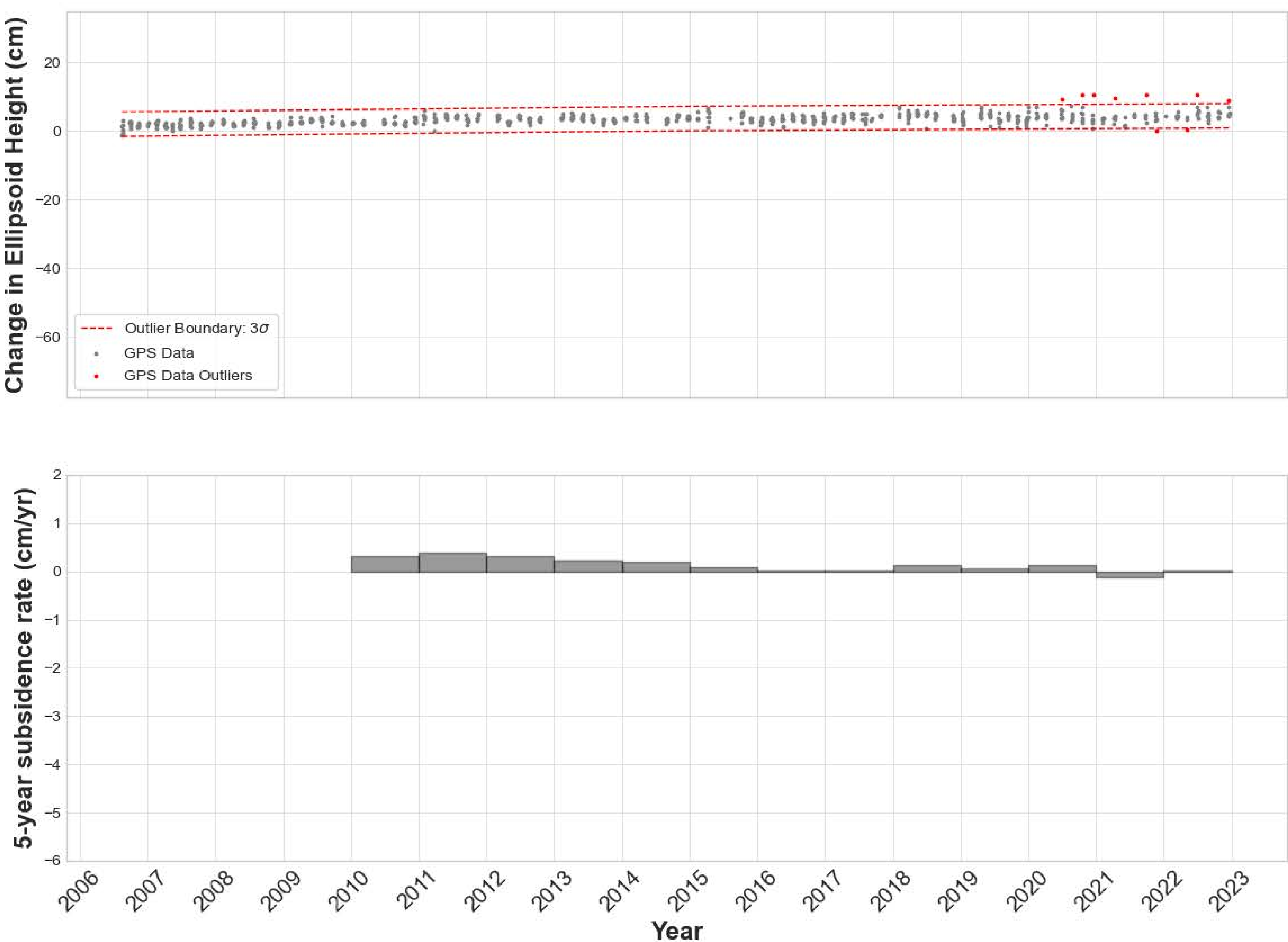
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P034



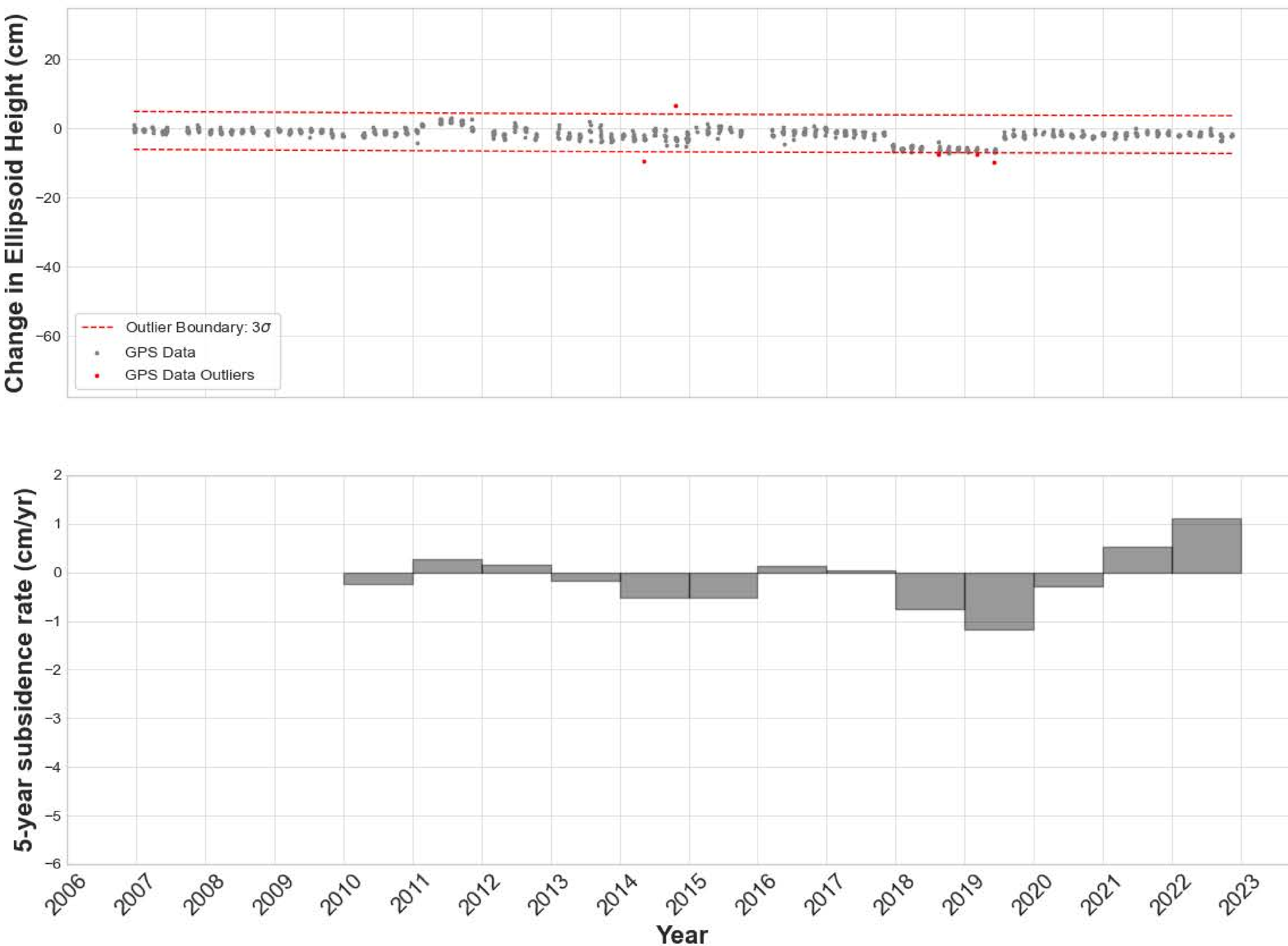
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P035



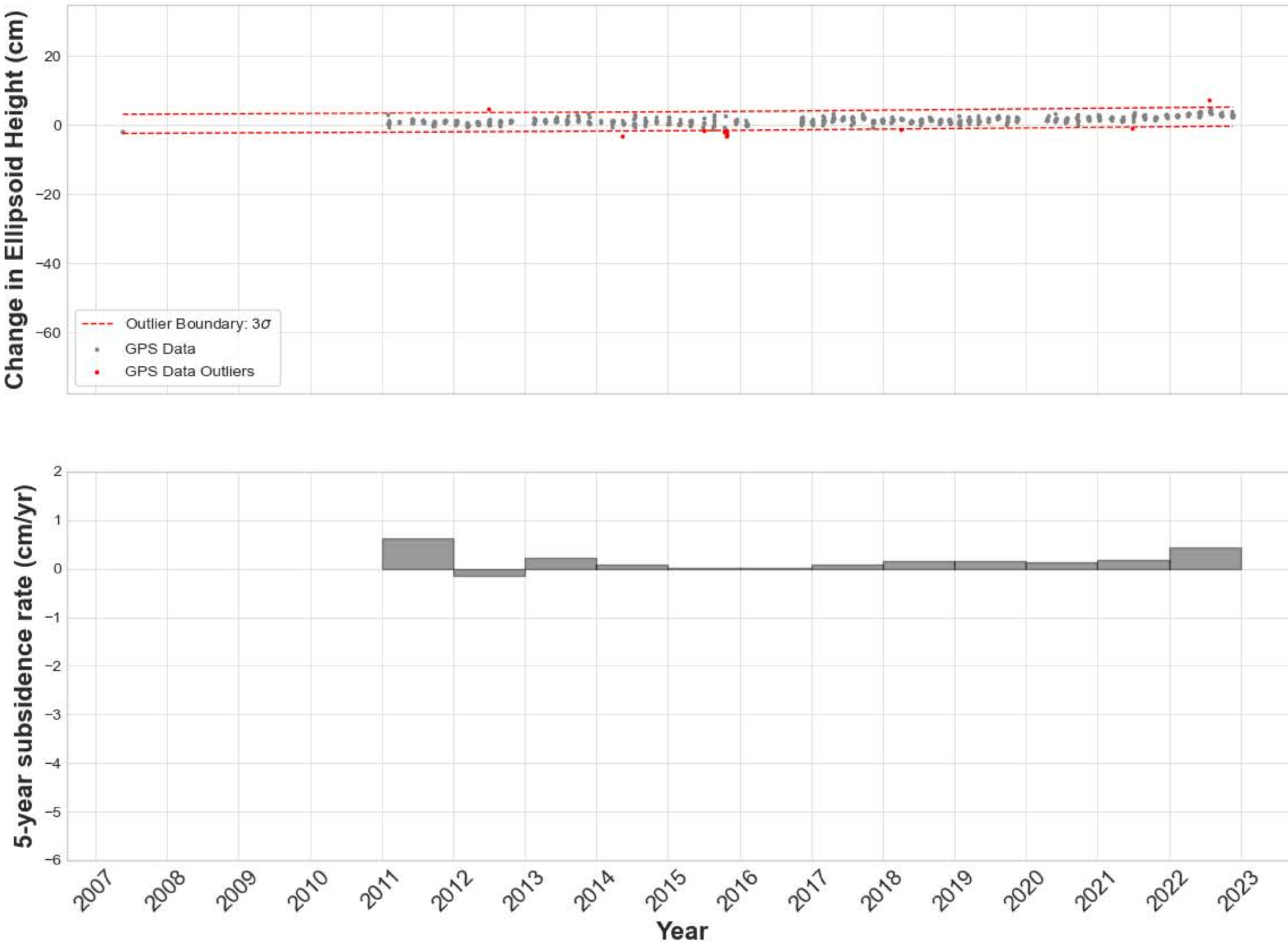
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P036



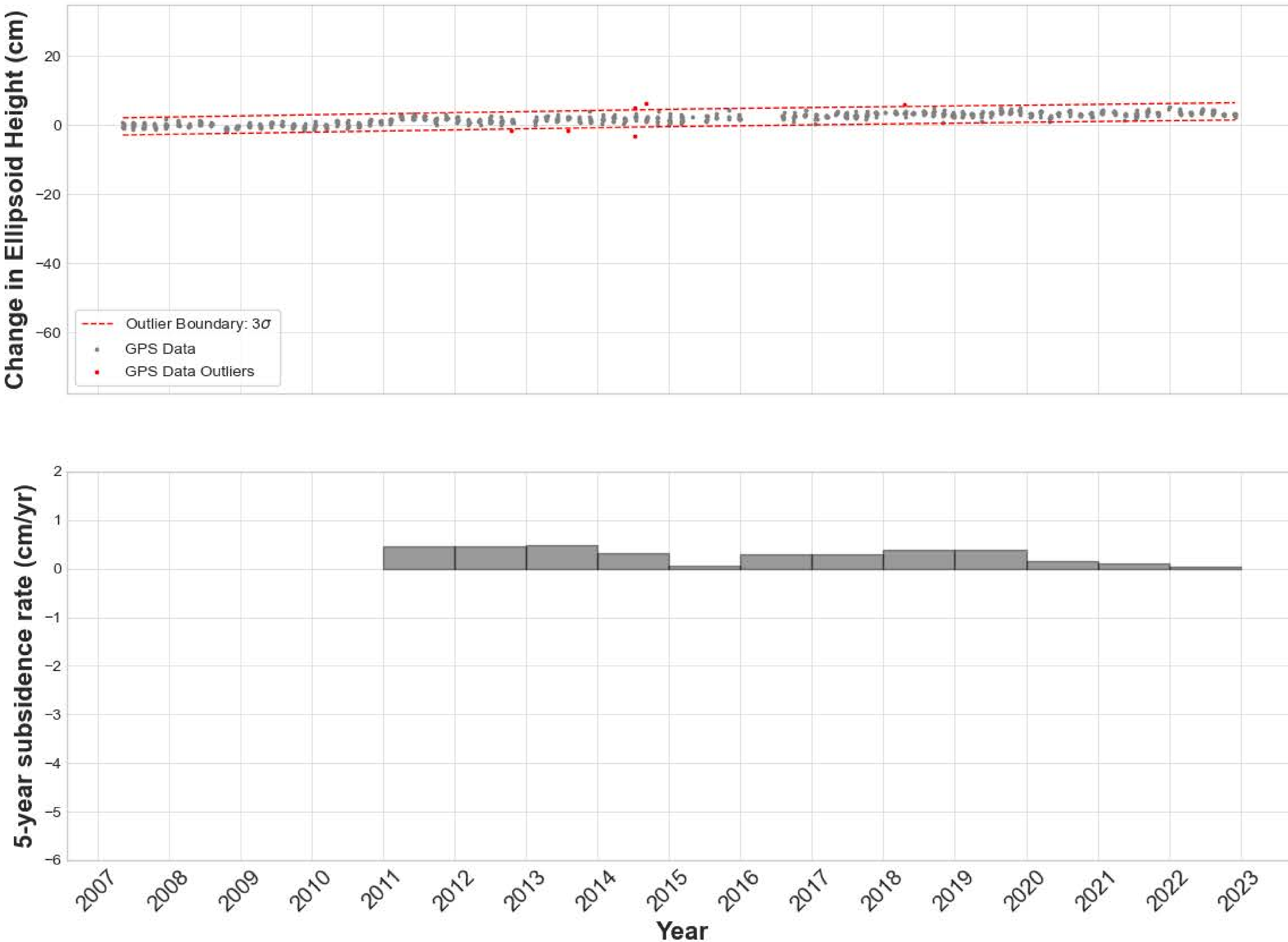
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P037



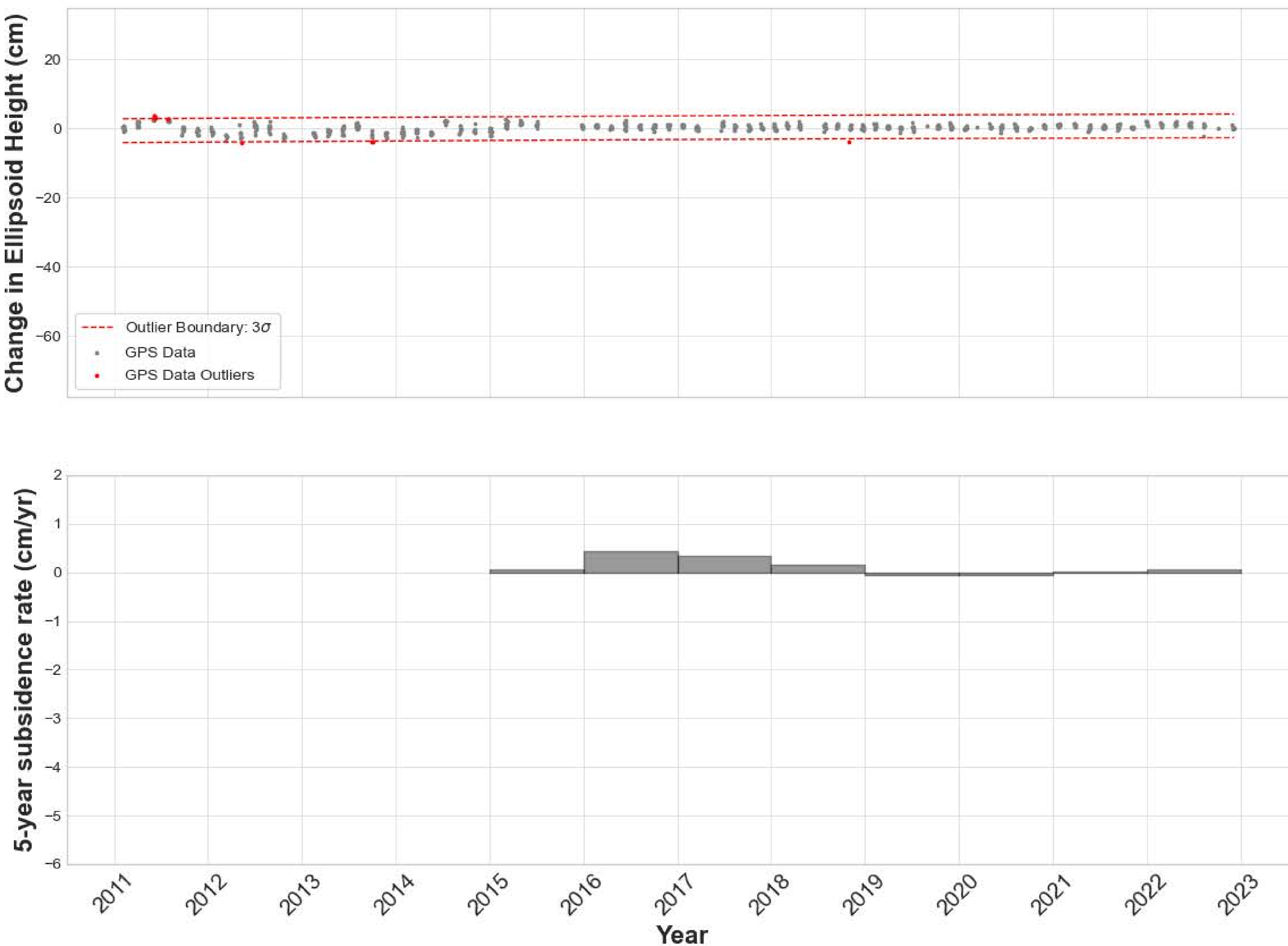
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P038



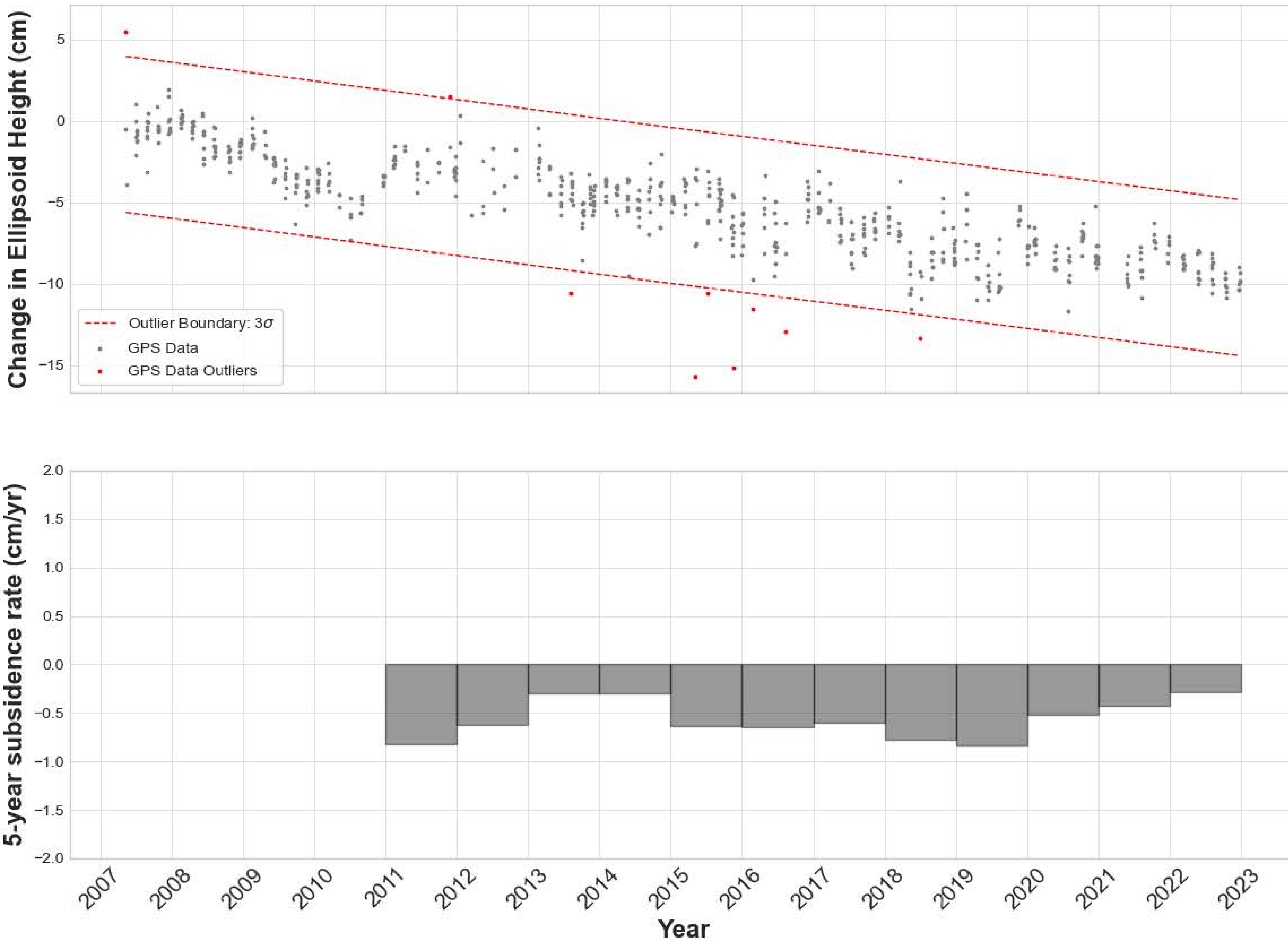
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P039



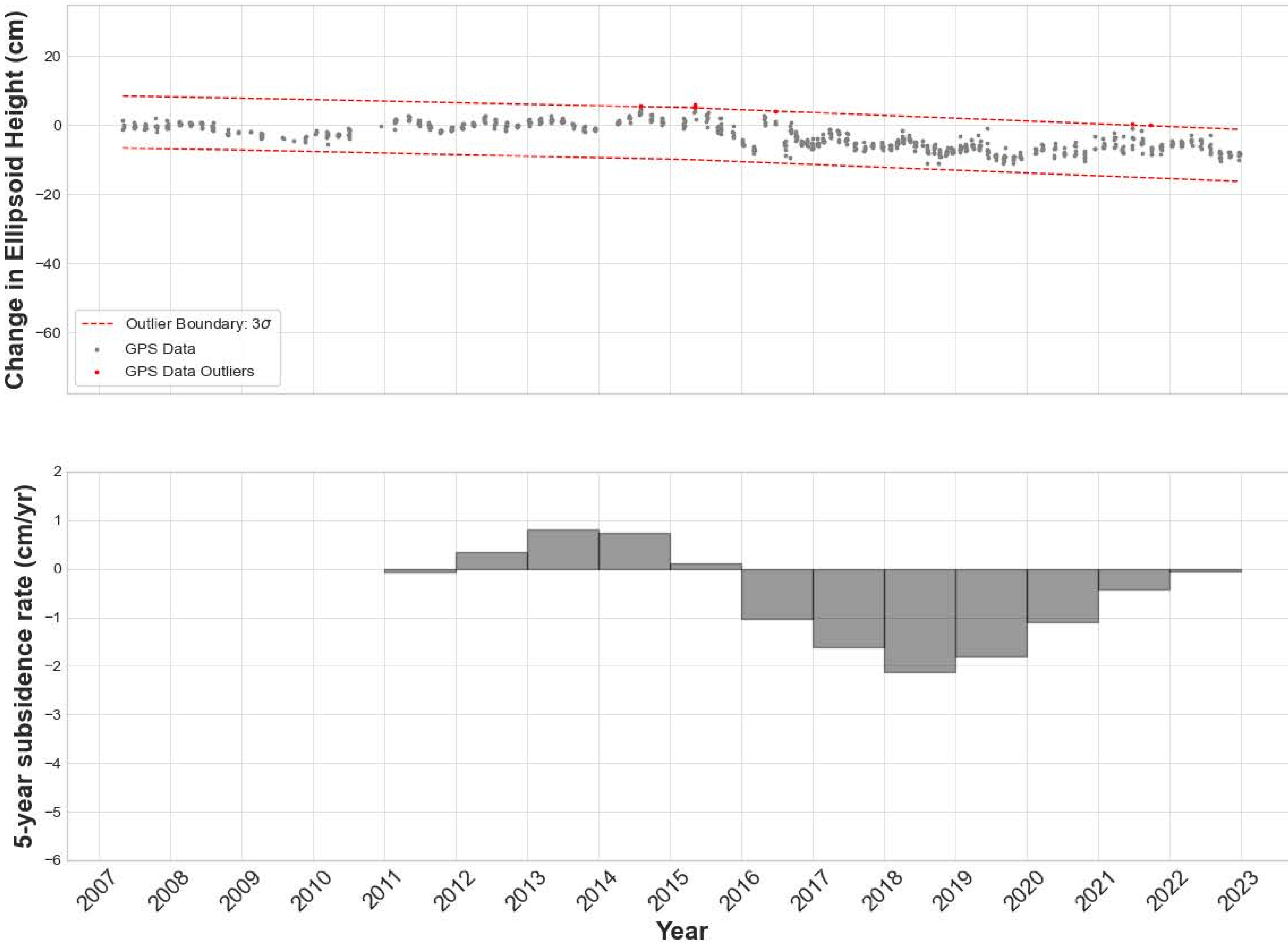
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P040



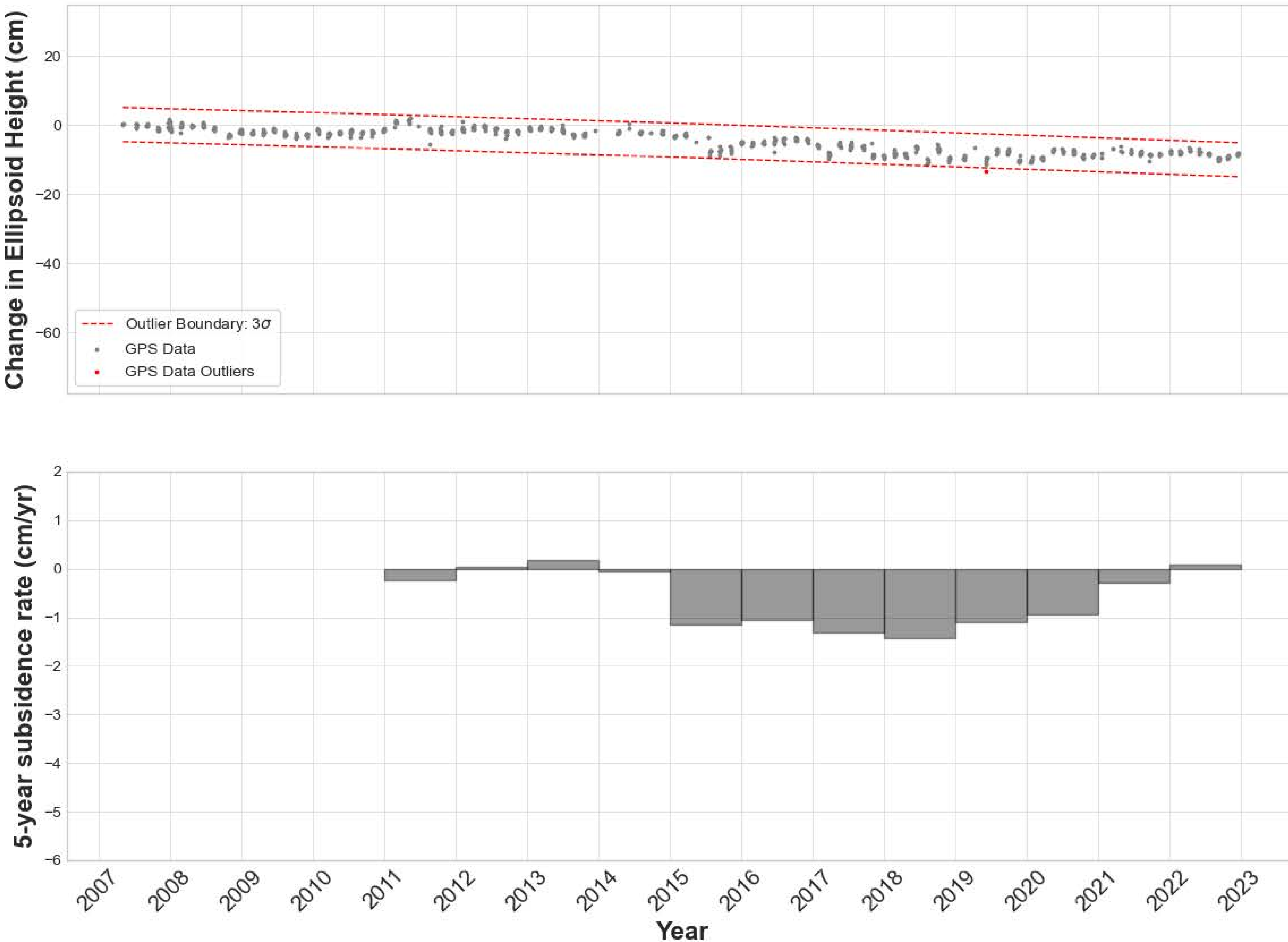
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P041



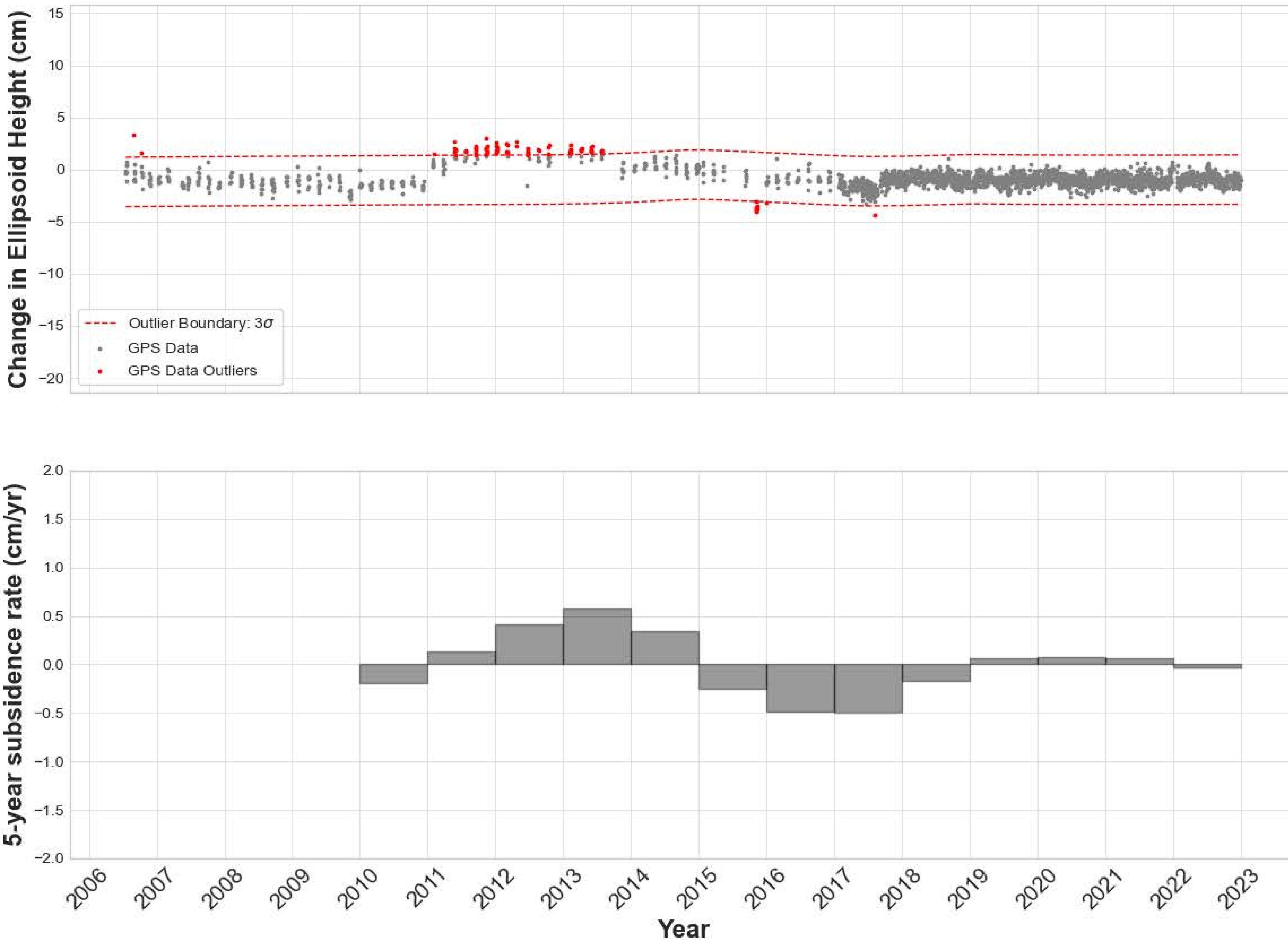
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P042



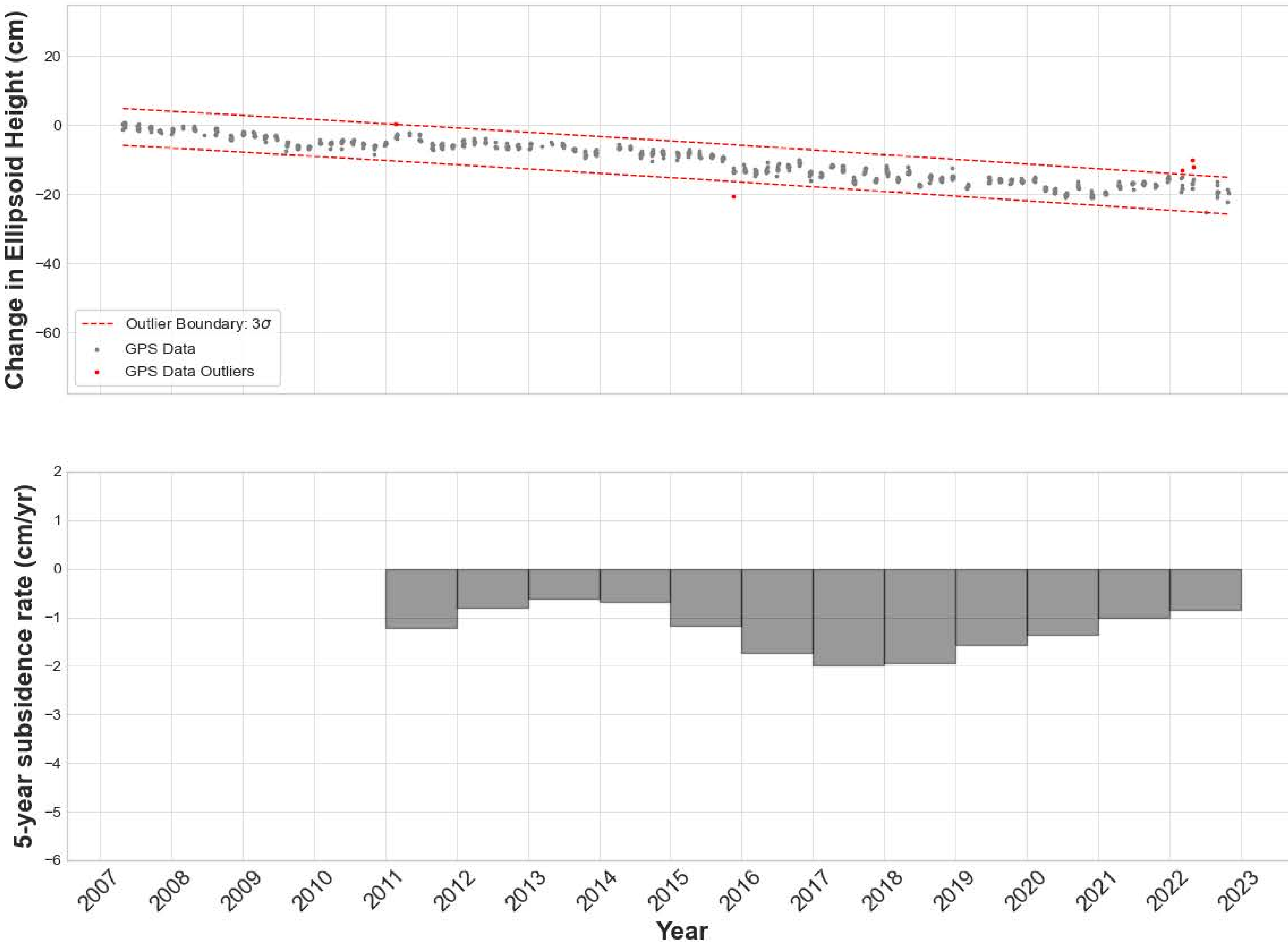
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P043



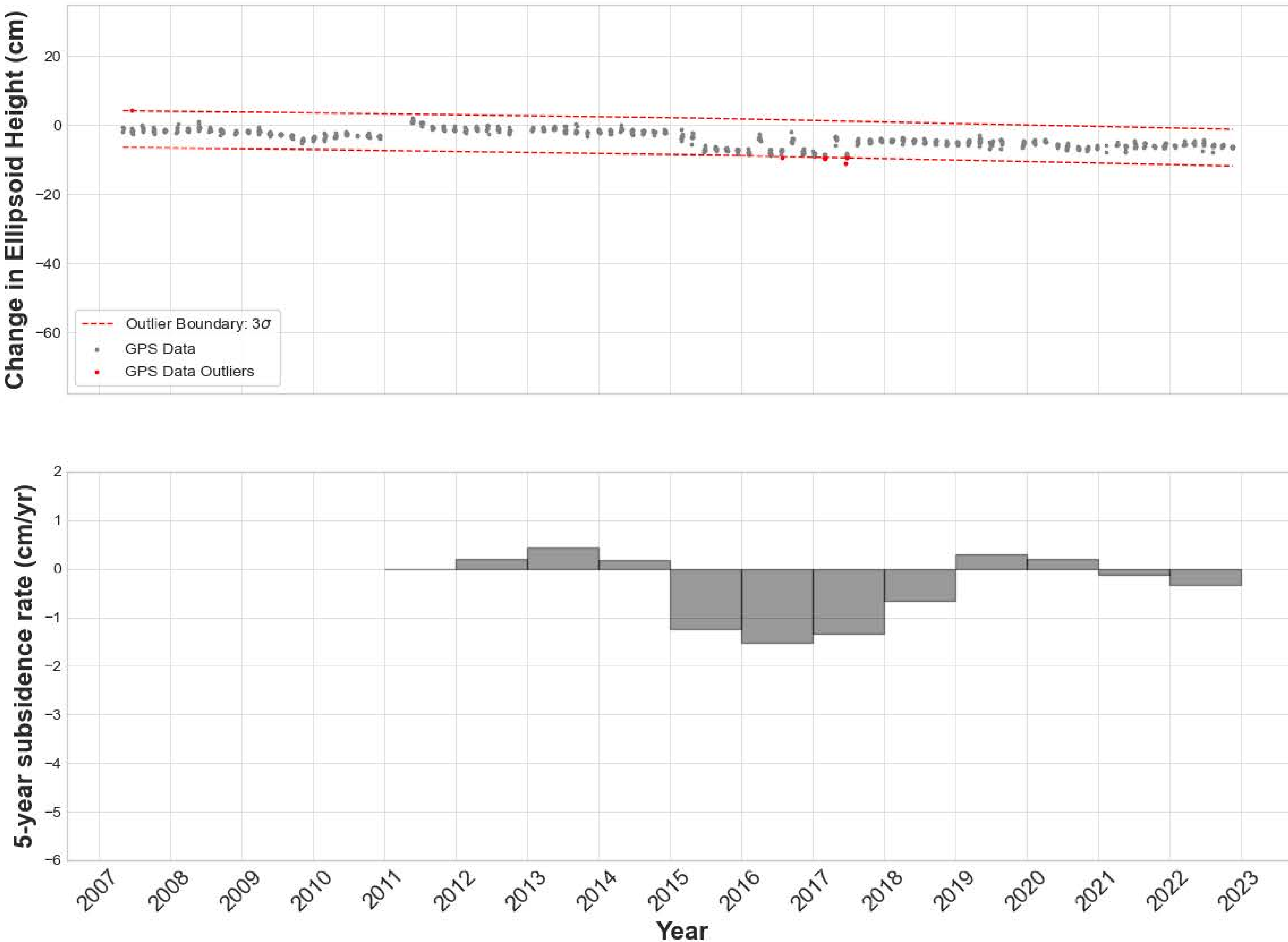
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P044



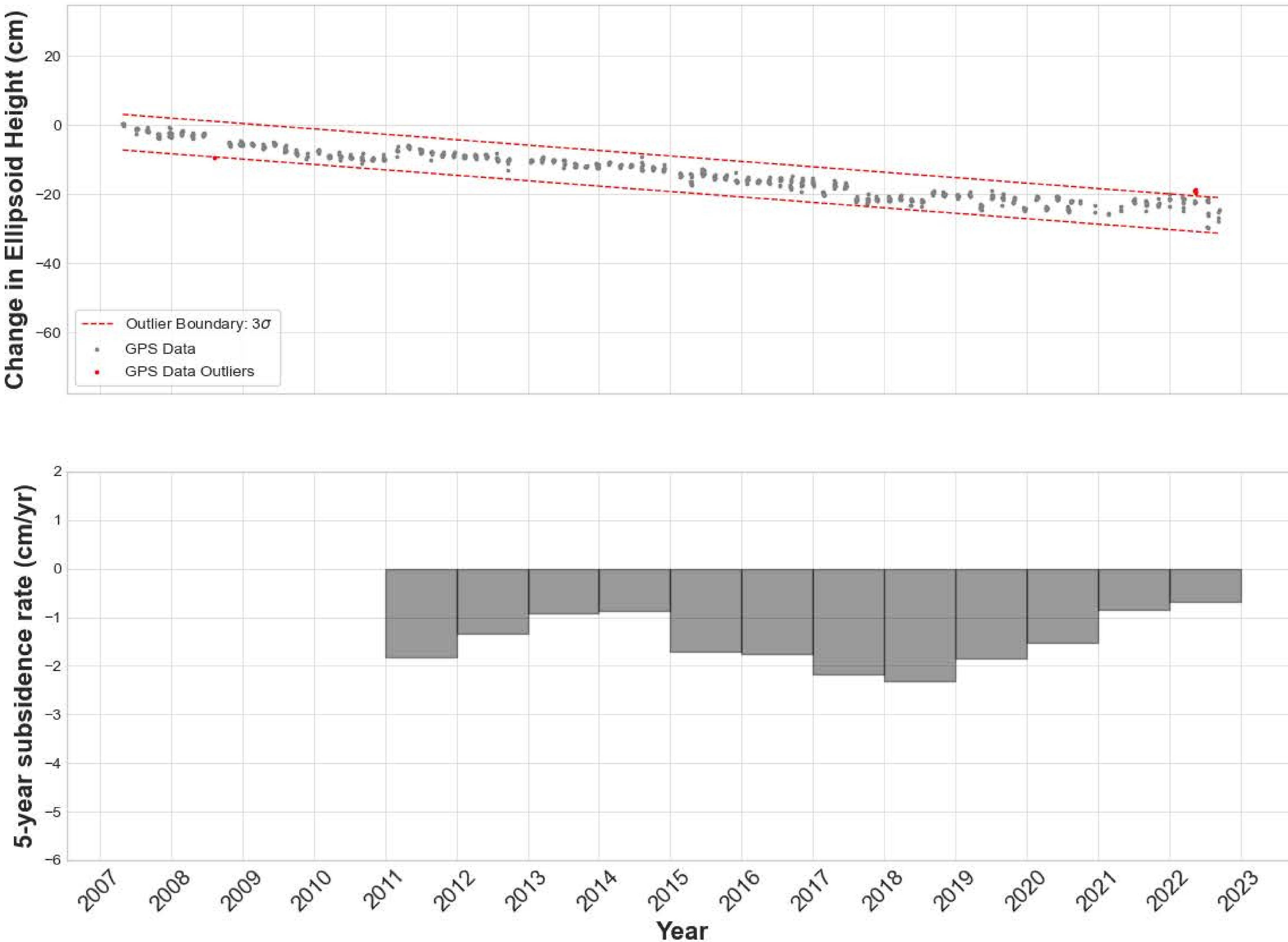
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P045



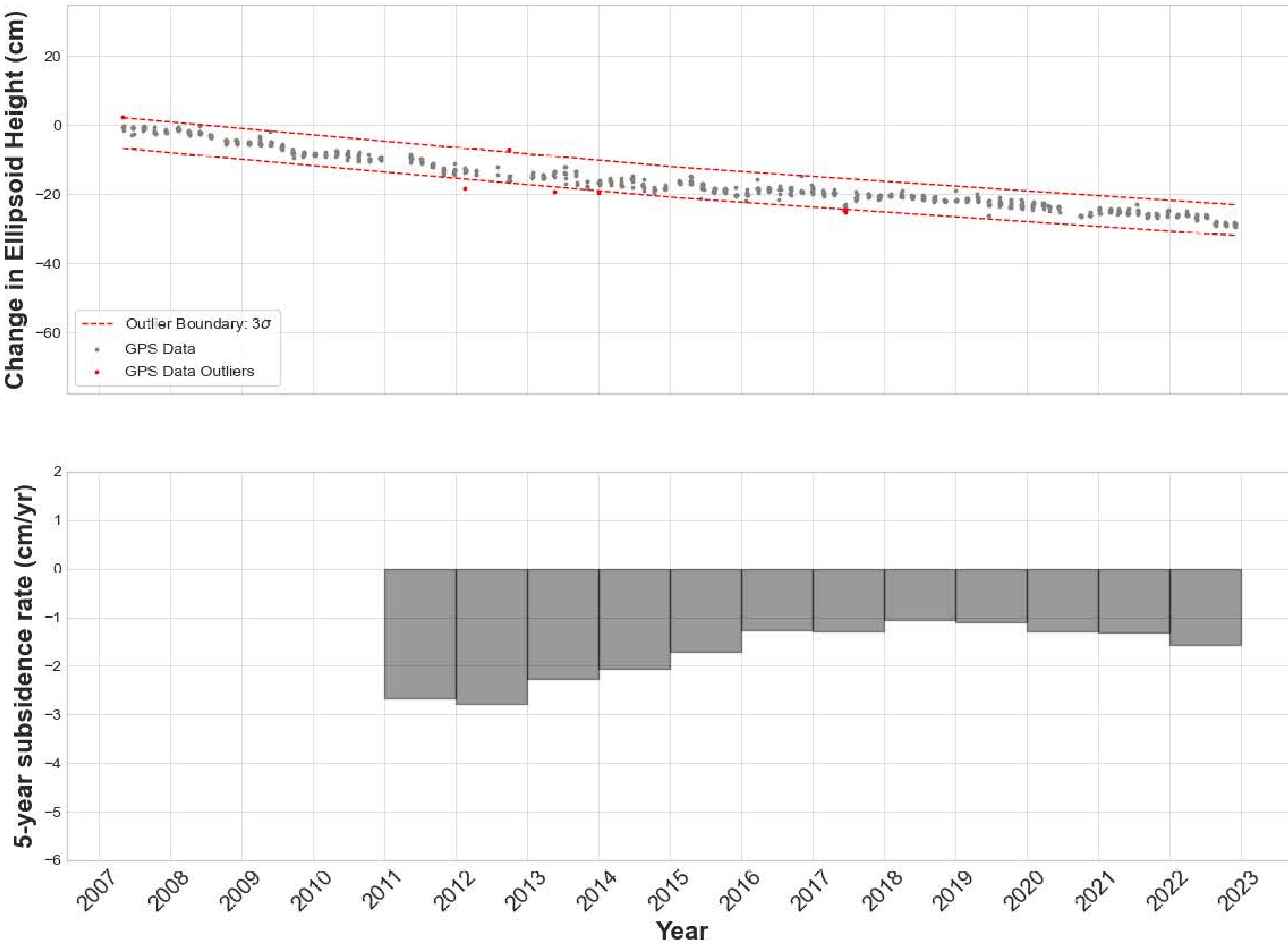
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P046



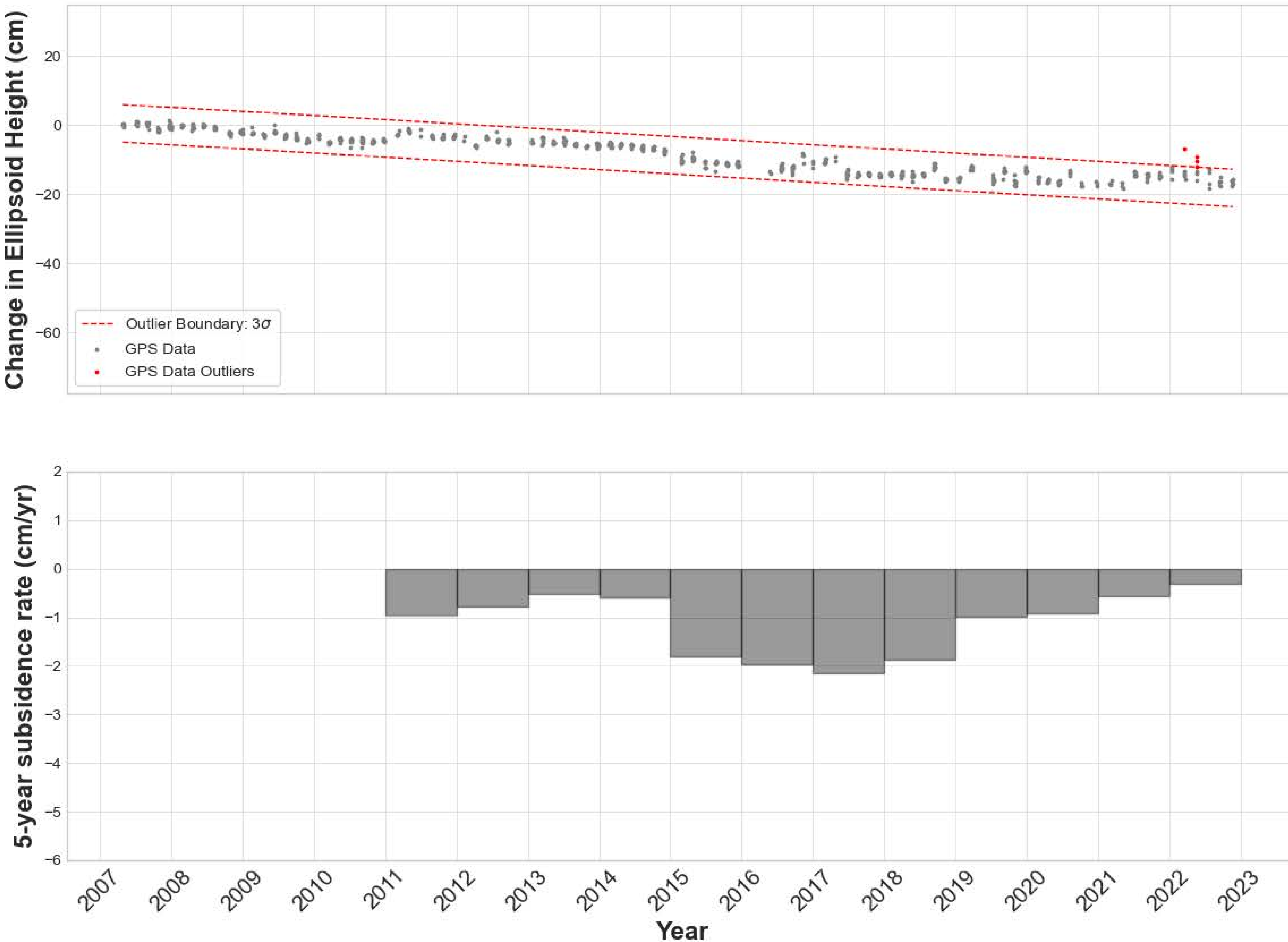
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P047



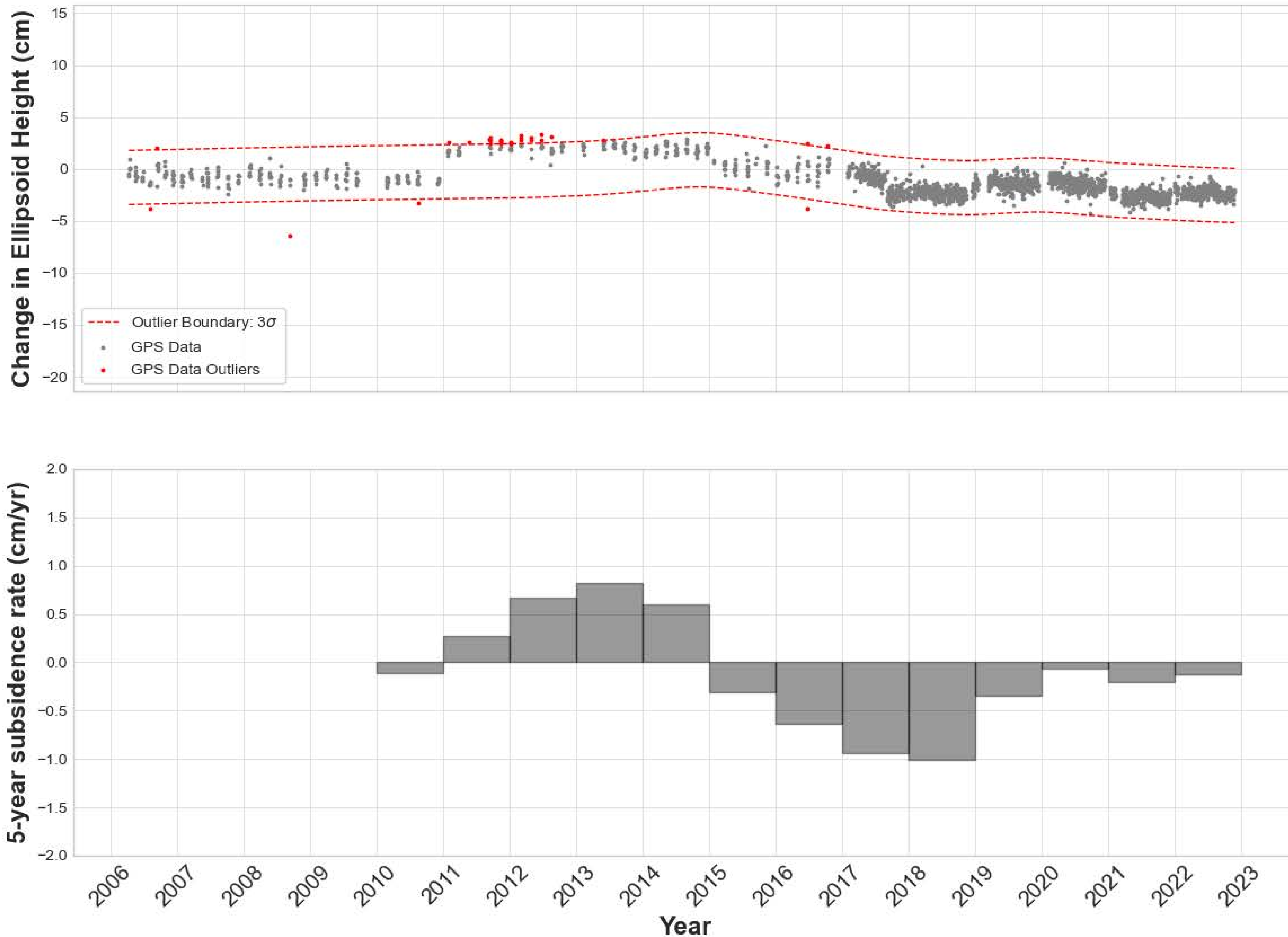
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P048



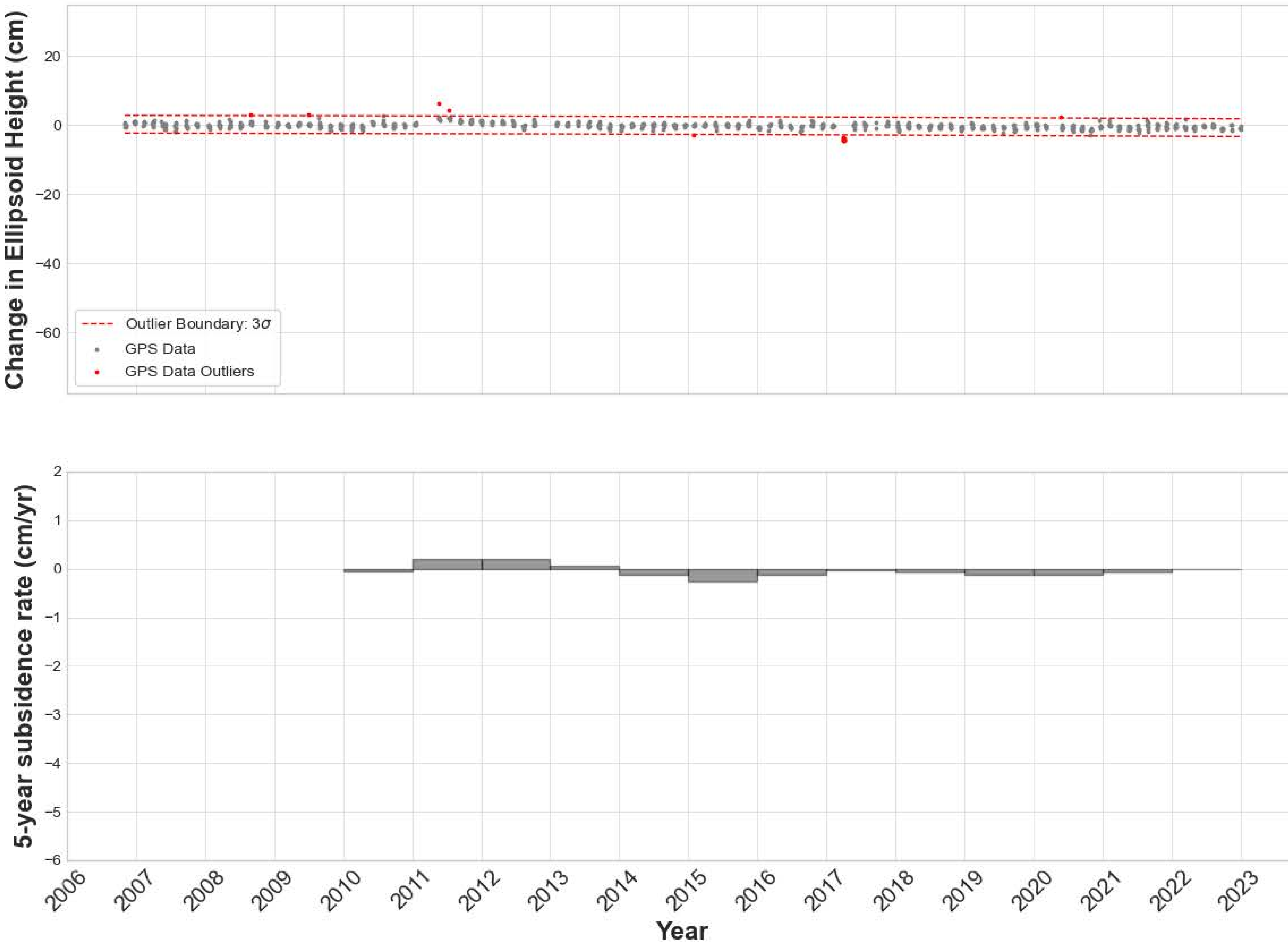
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P049



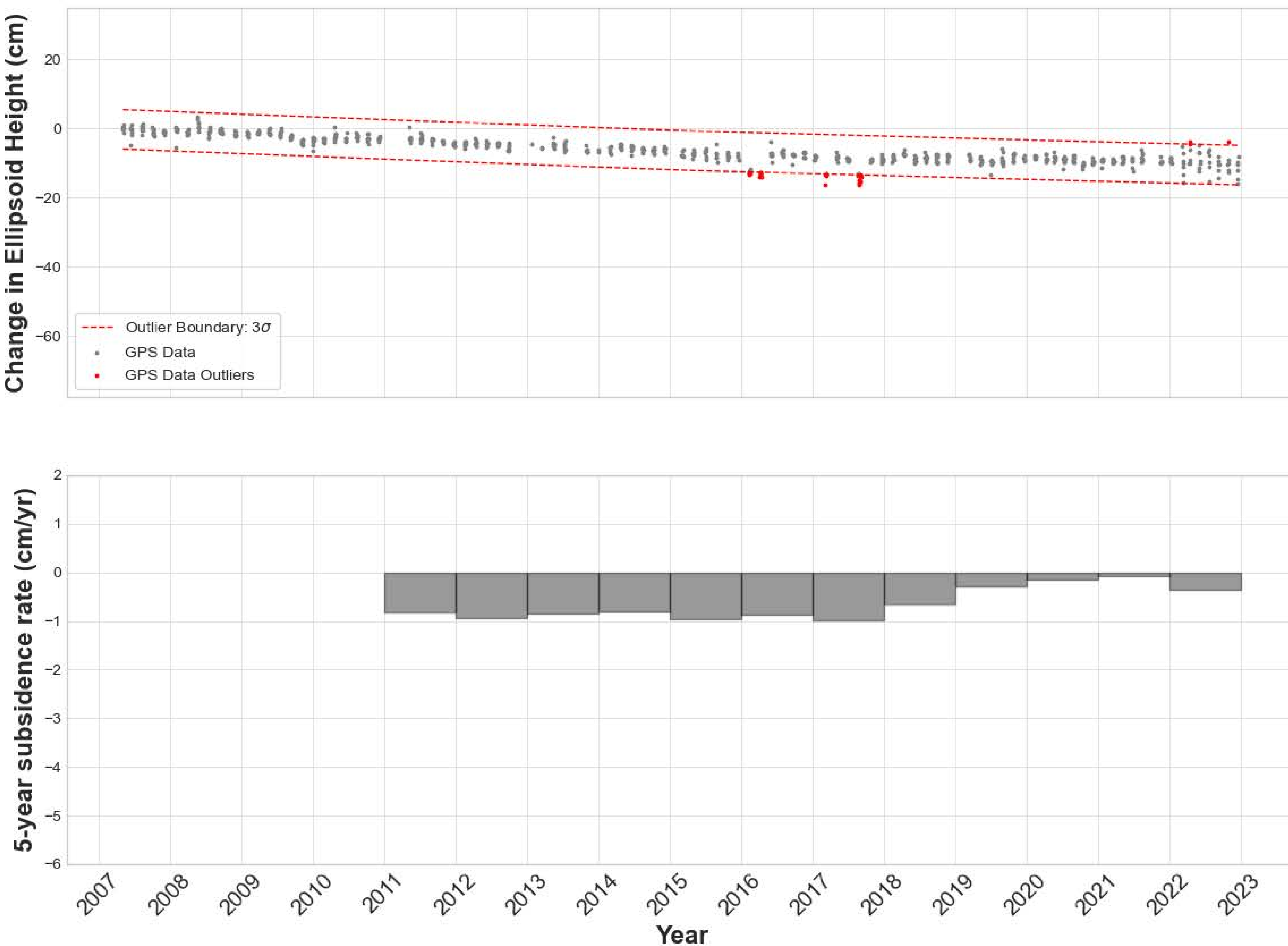
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P050



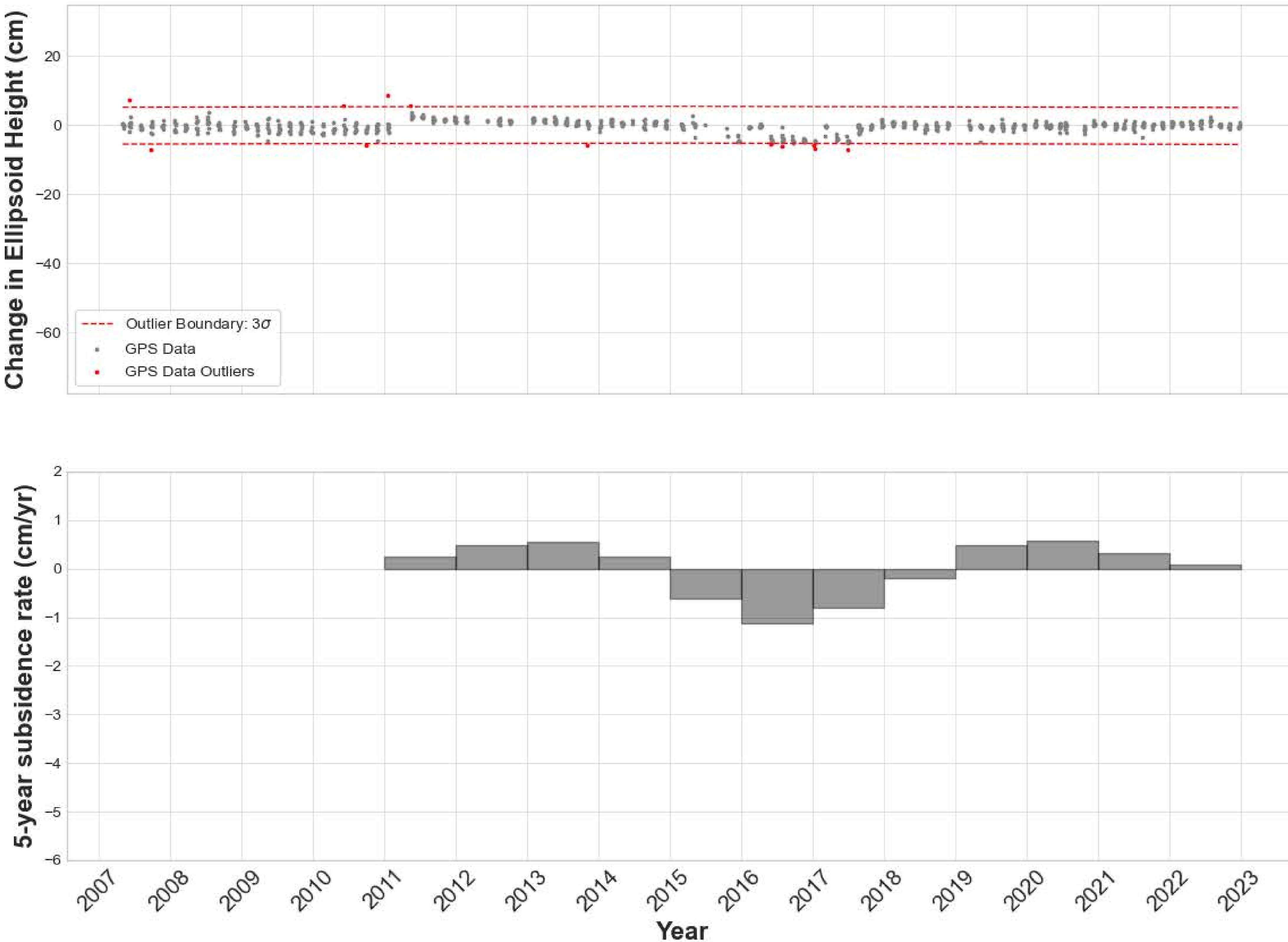
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P051



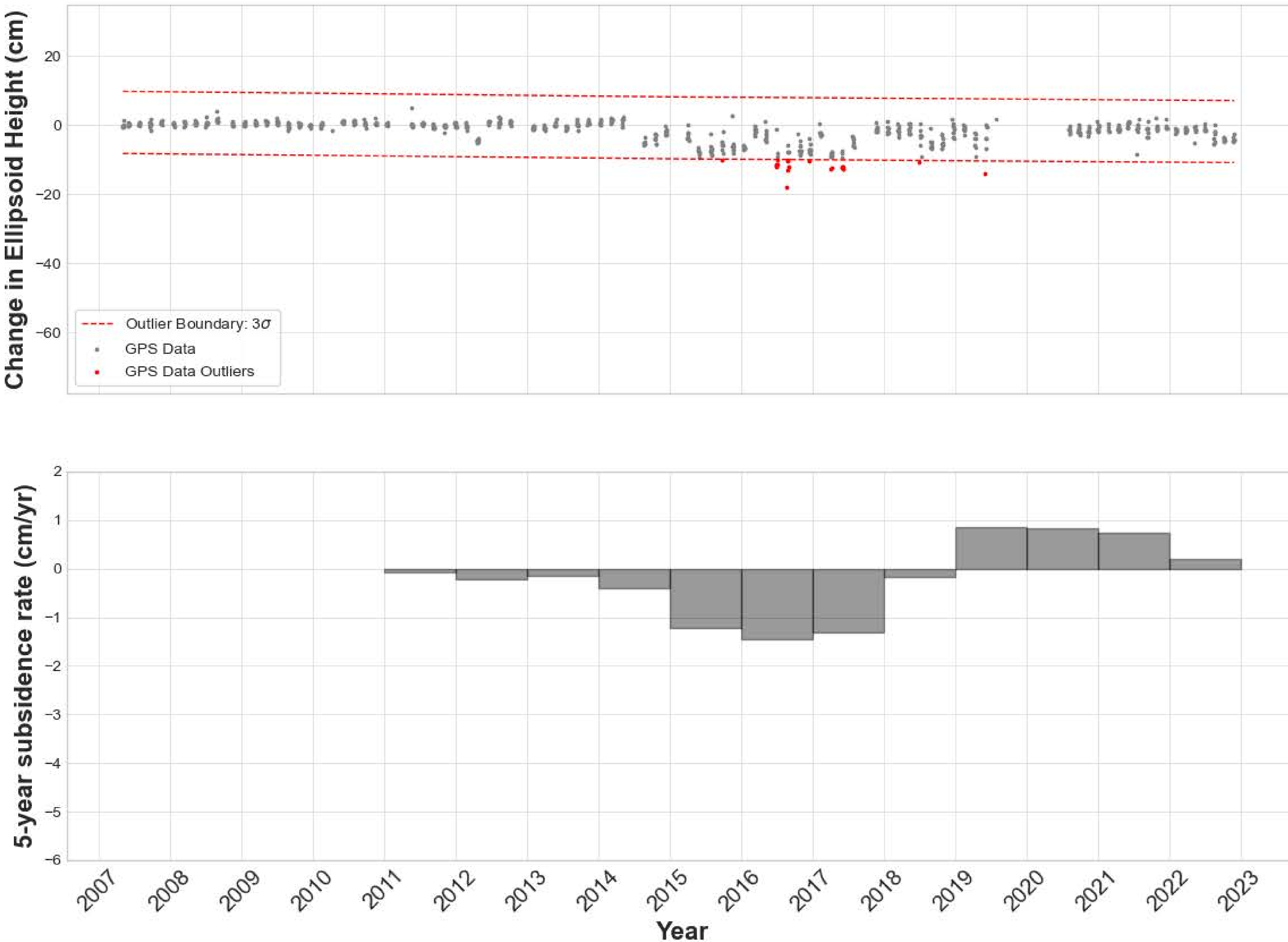
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P052



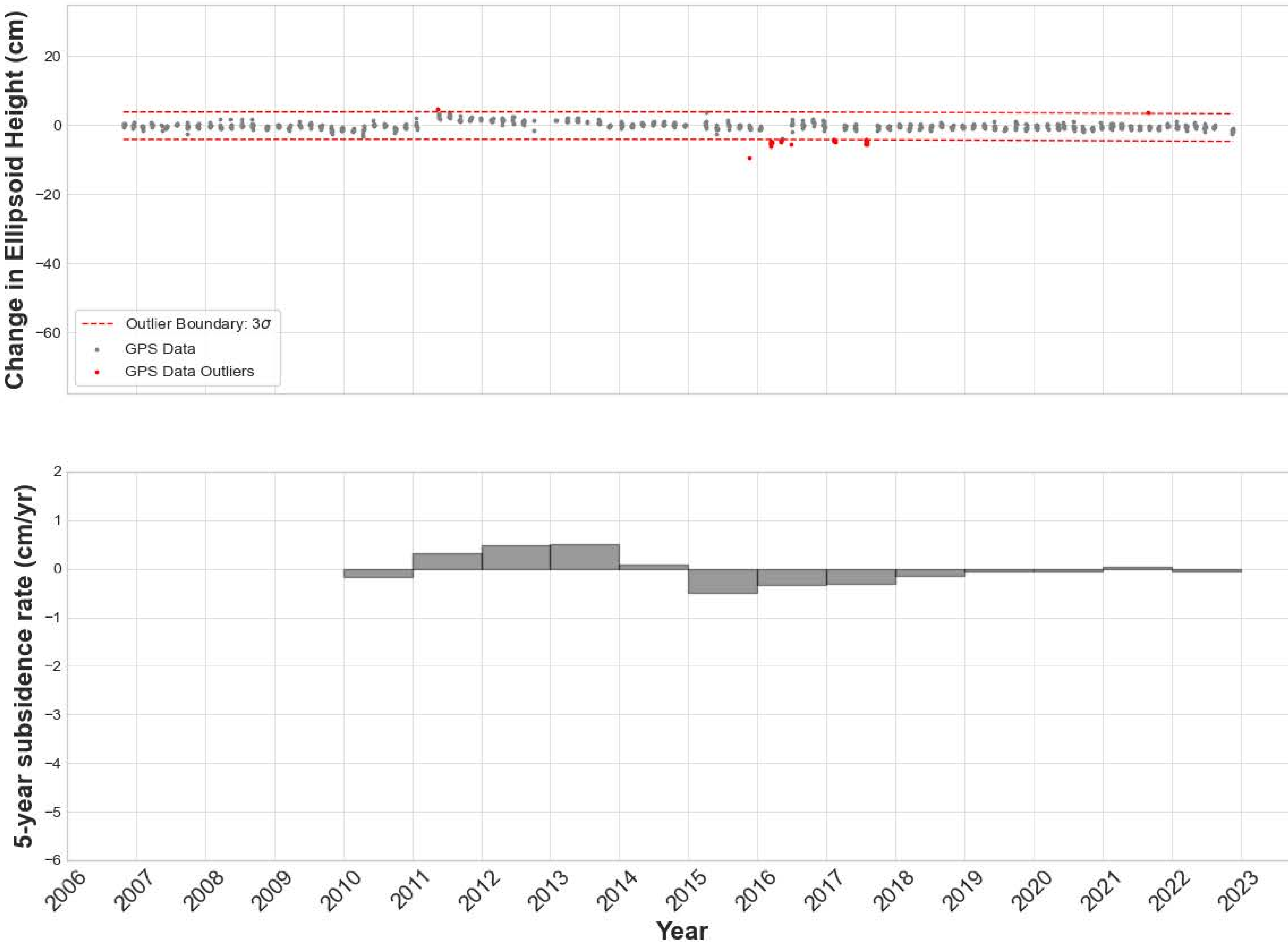
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P053



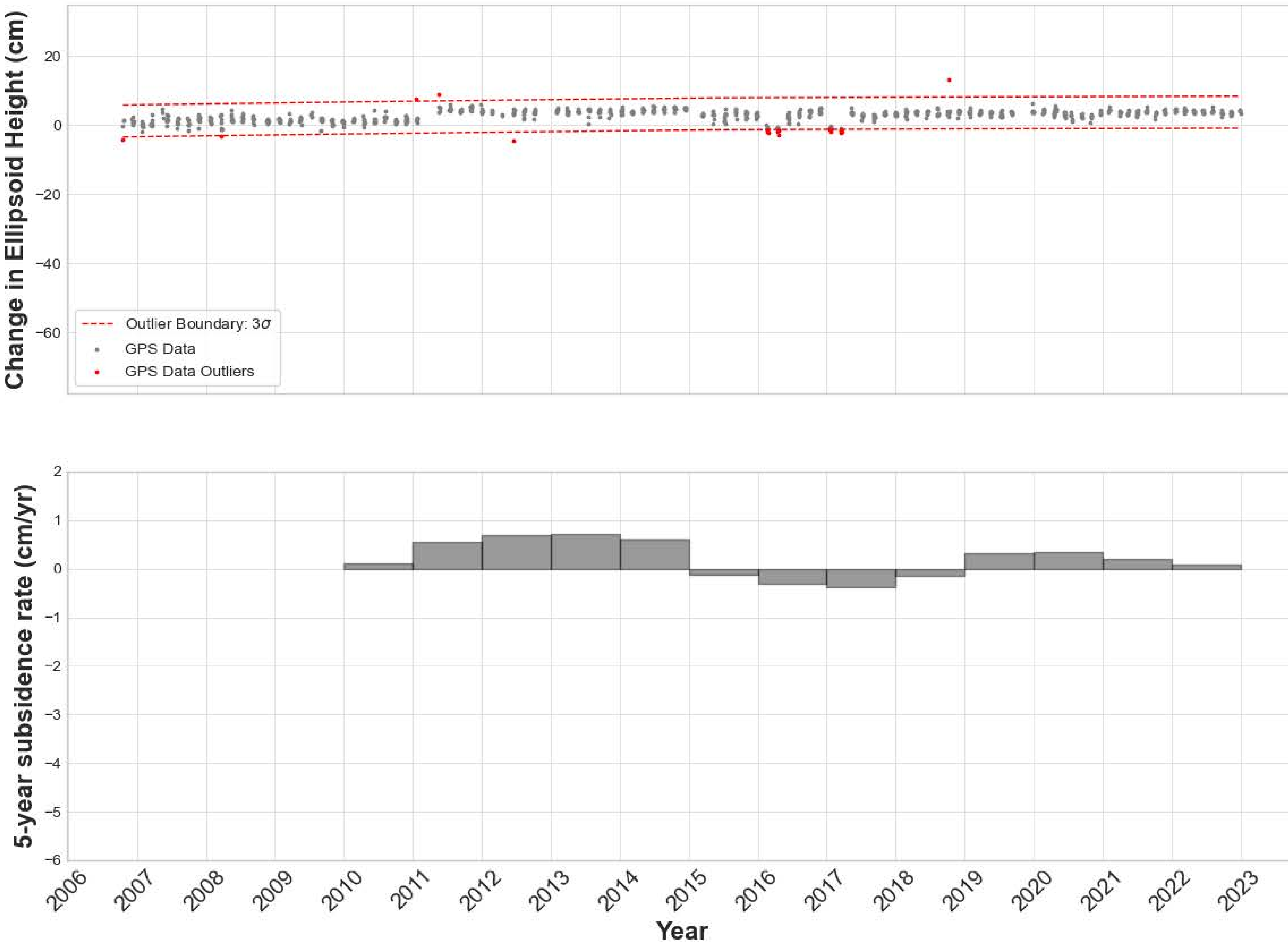
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P054



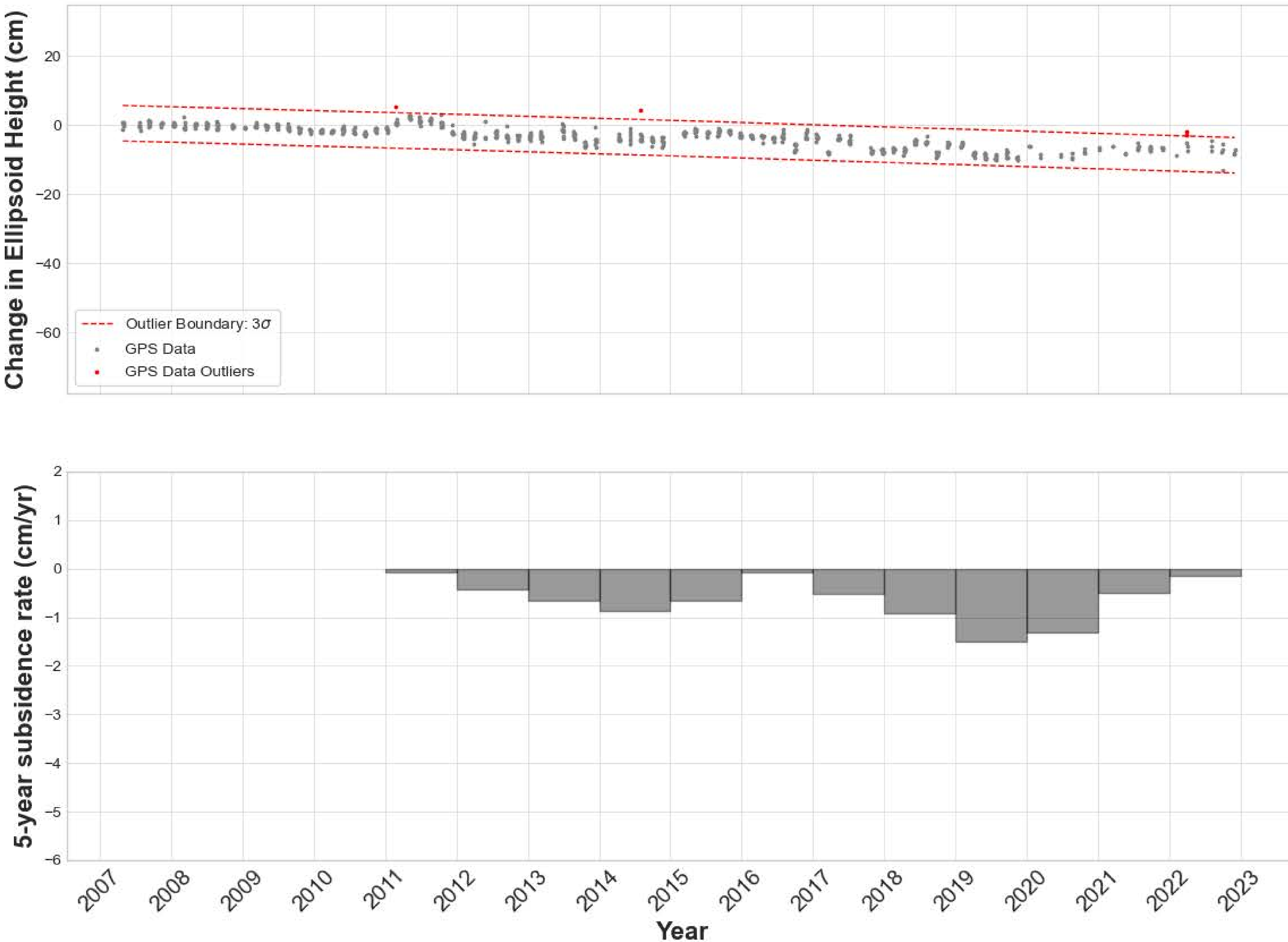
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P055



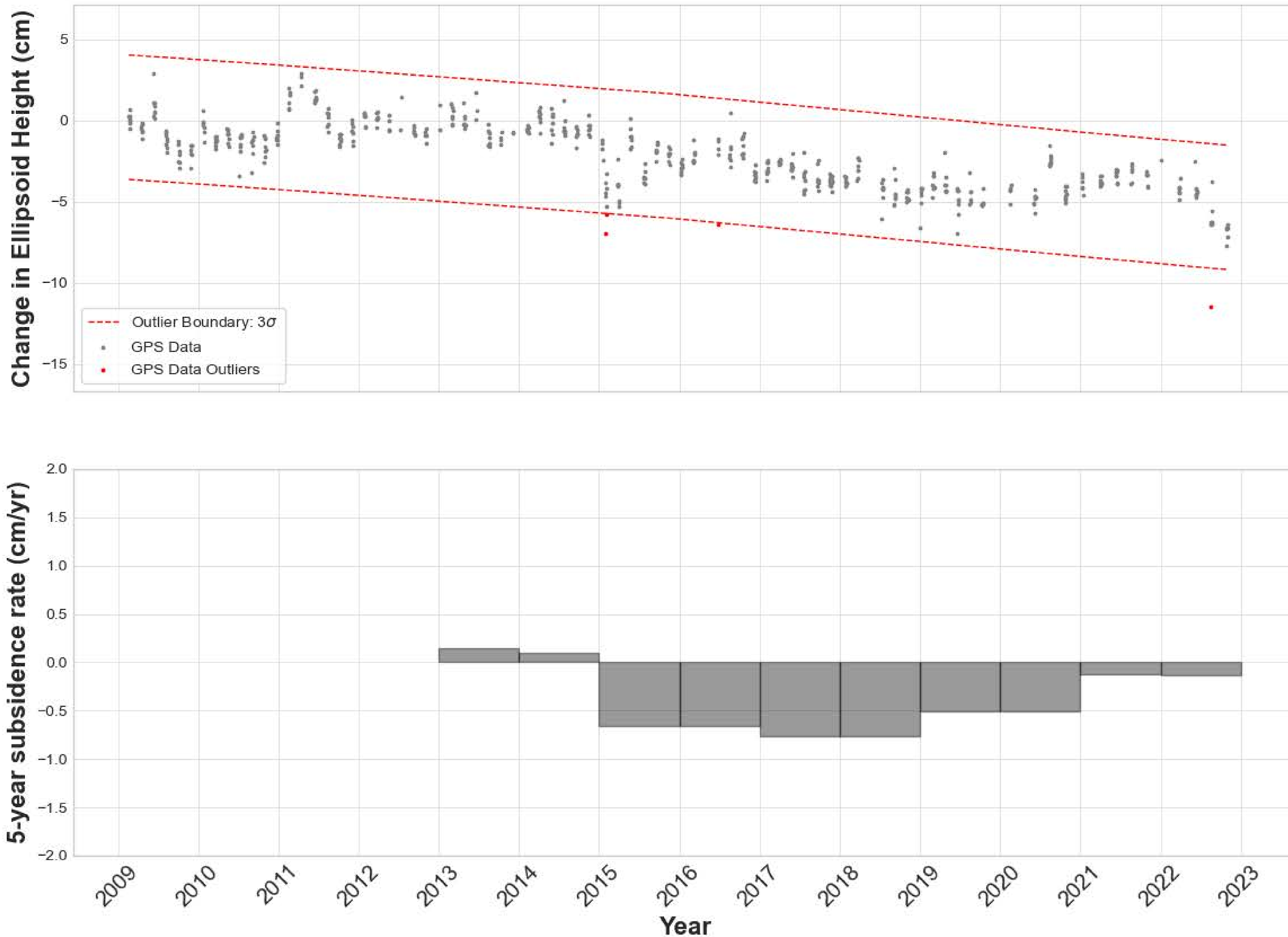
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P056



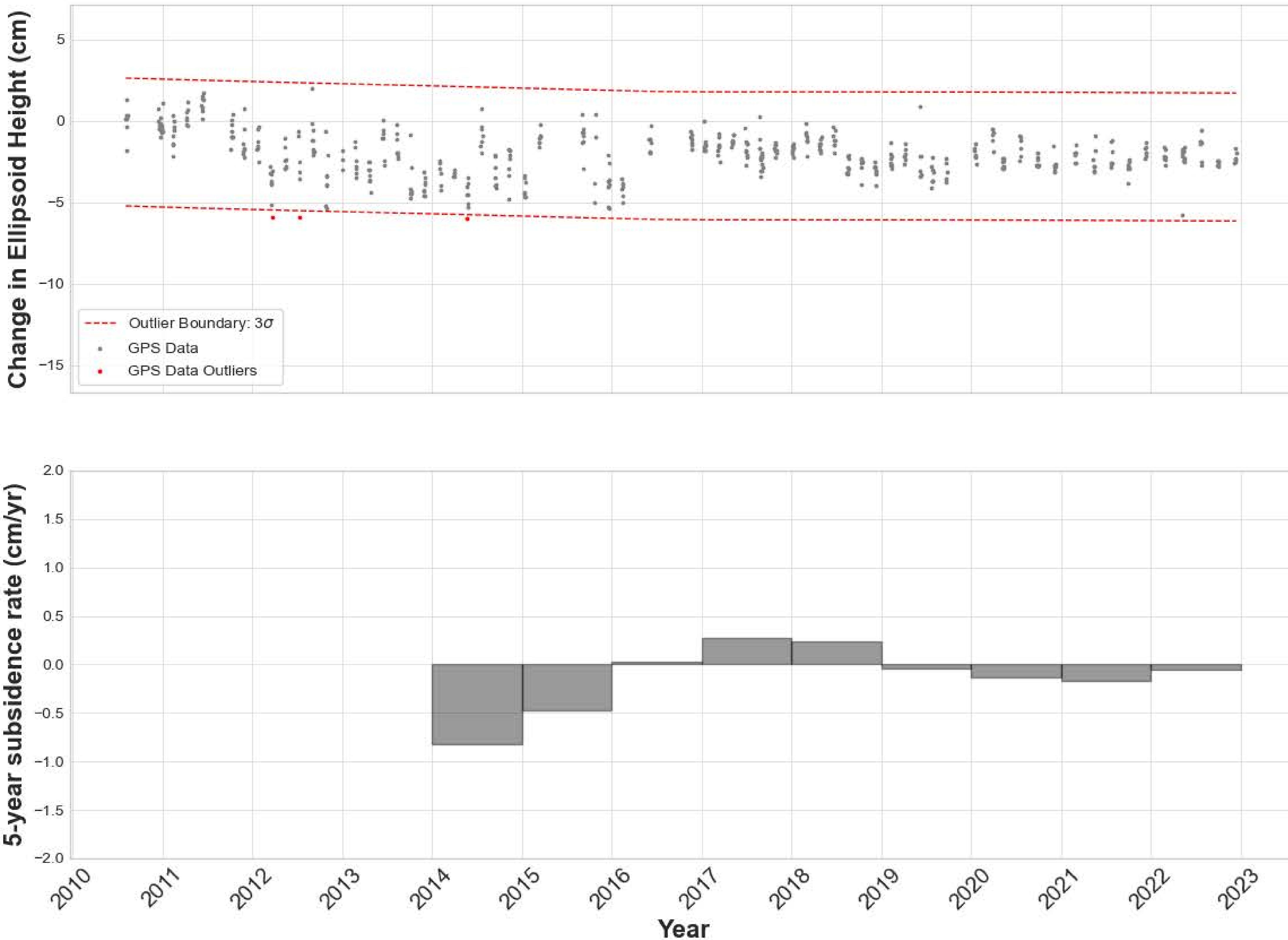
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P057



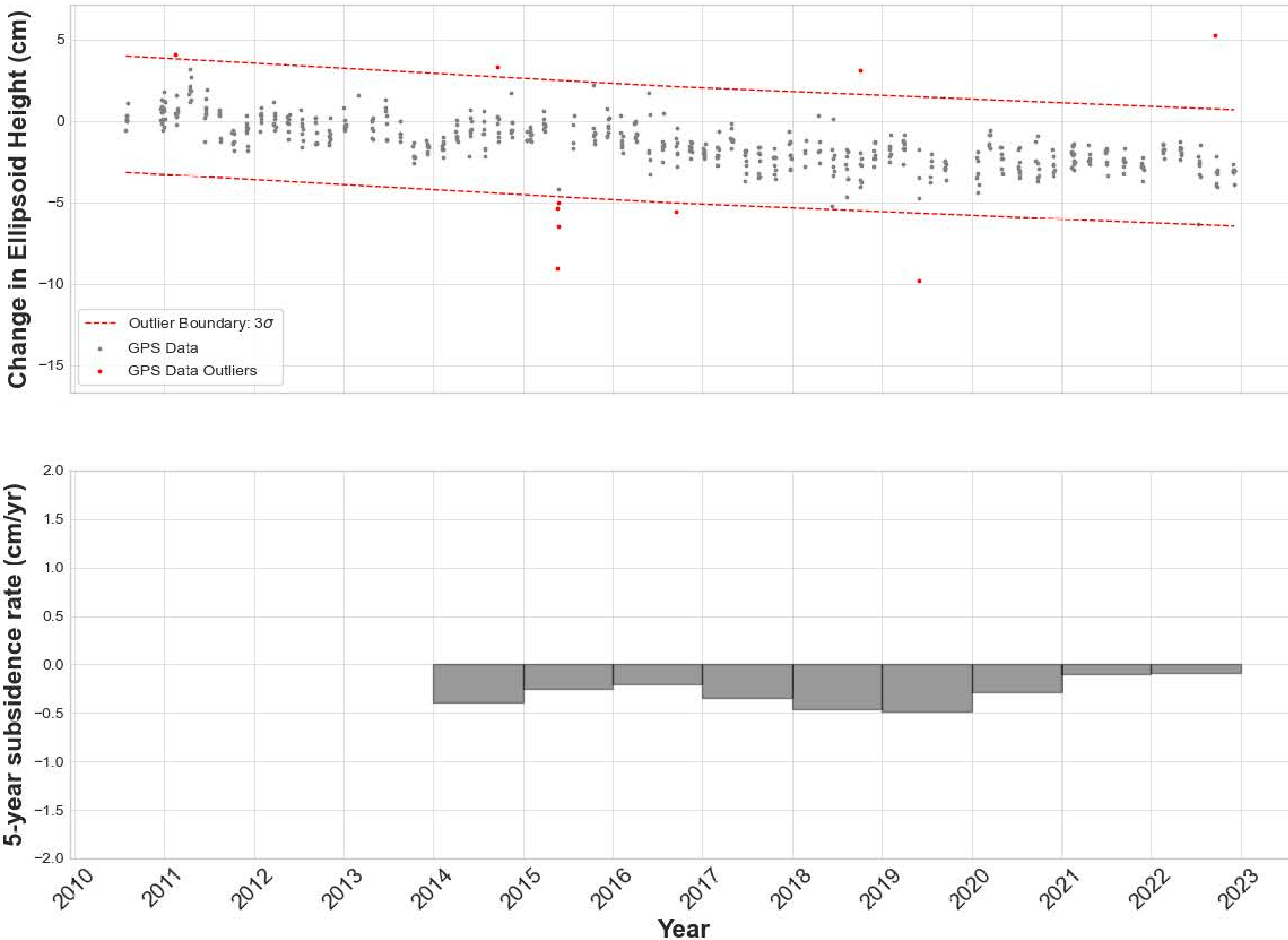
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P058



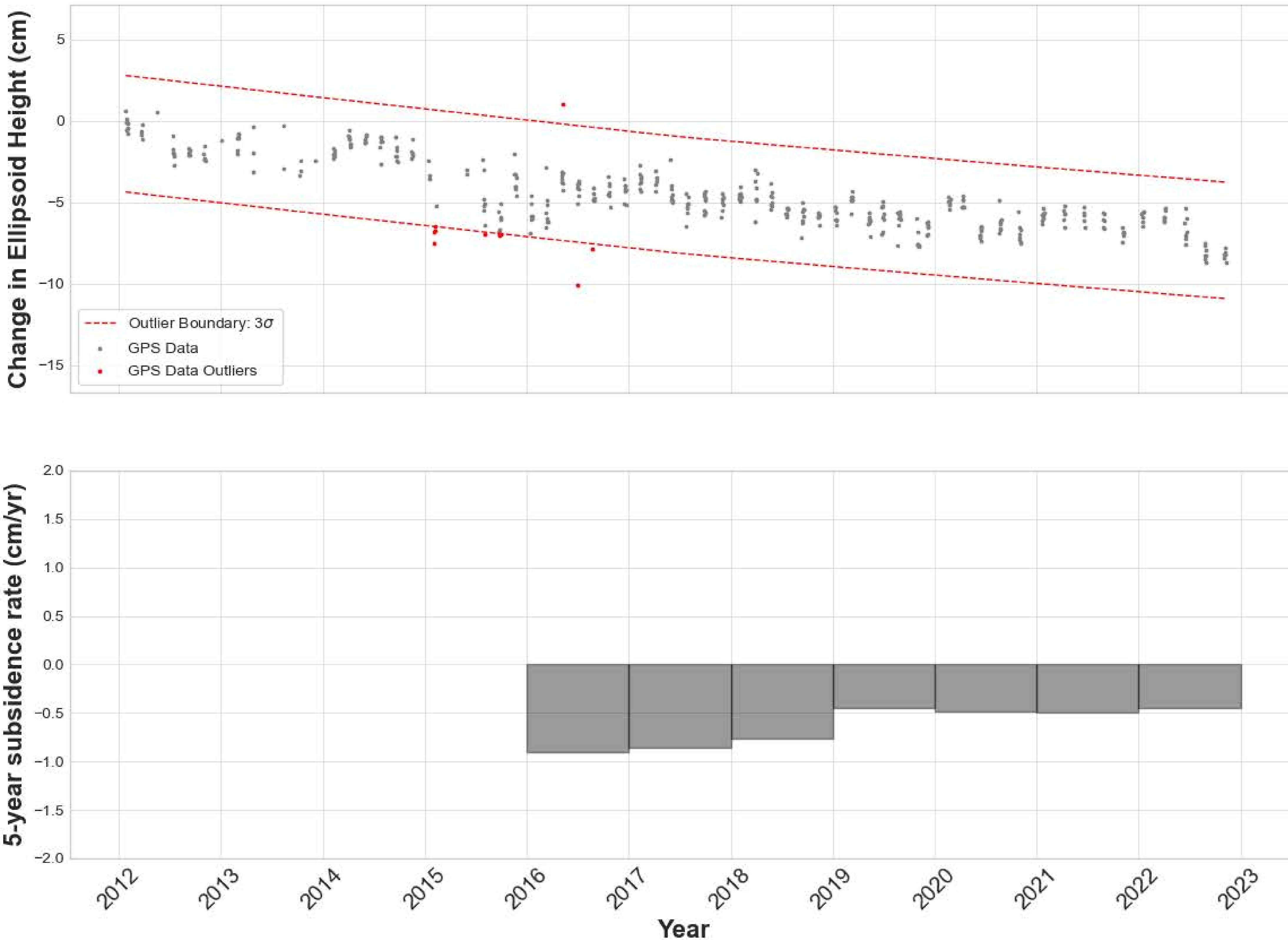
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P059



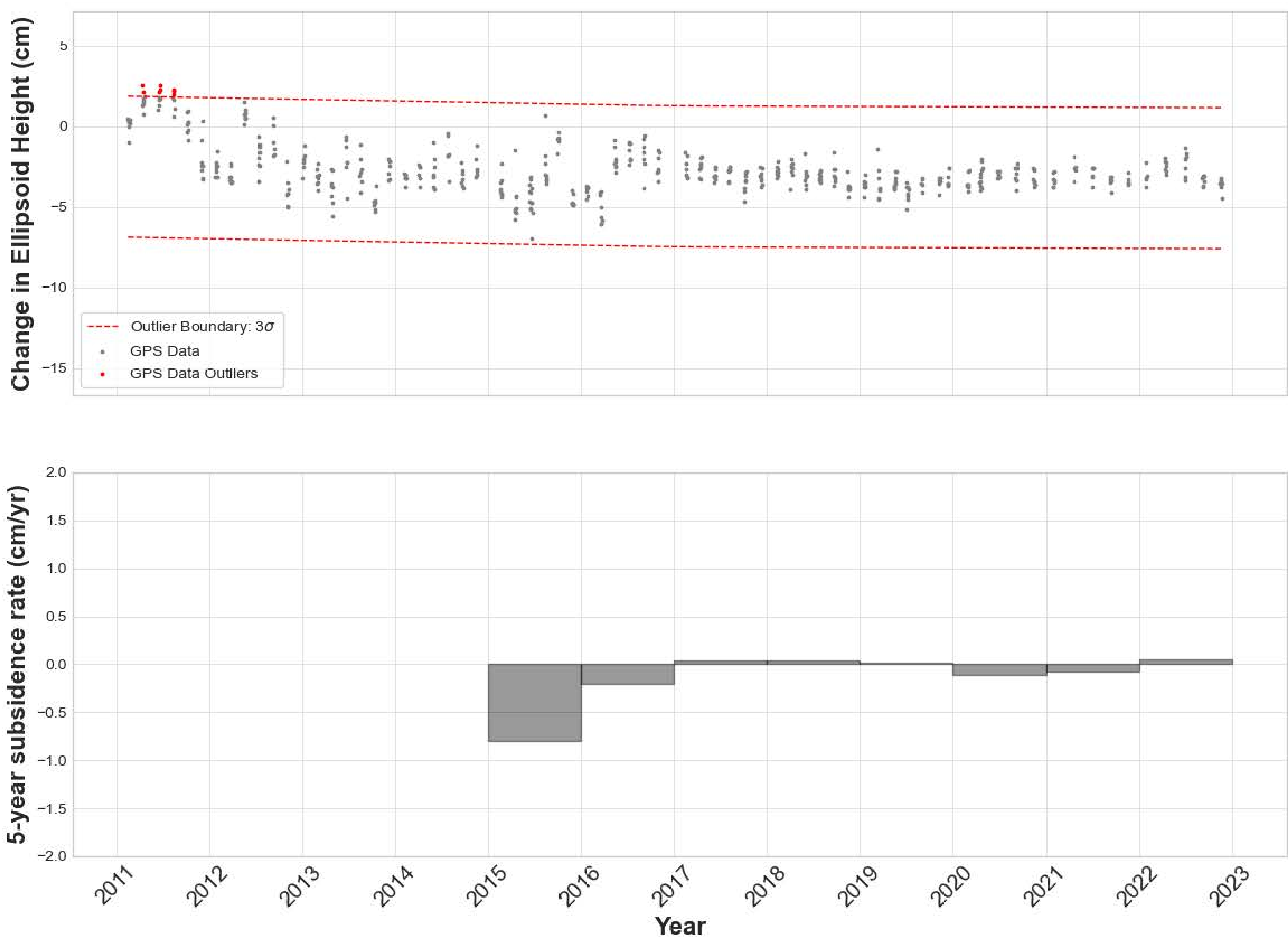
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P060



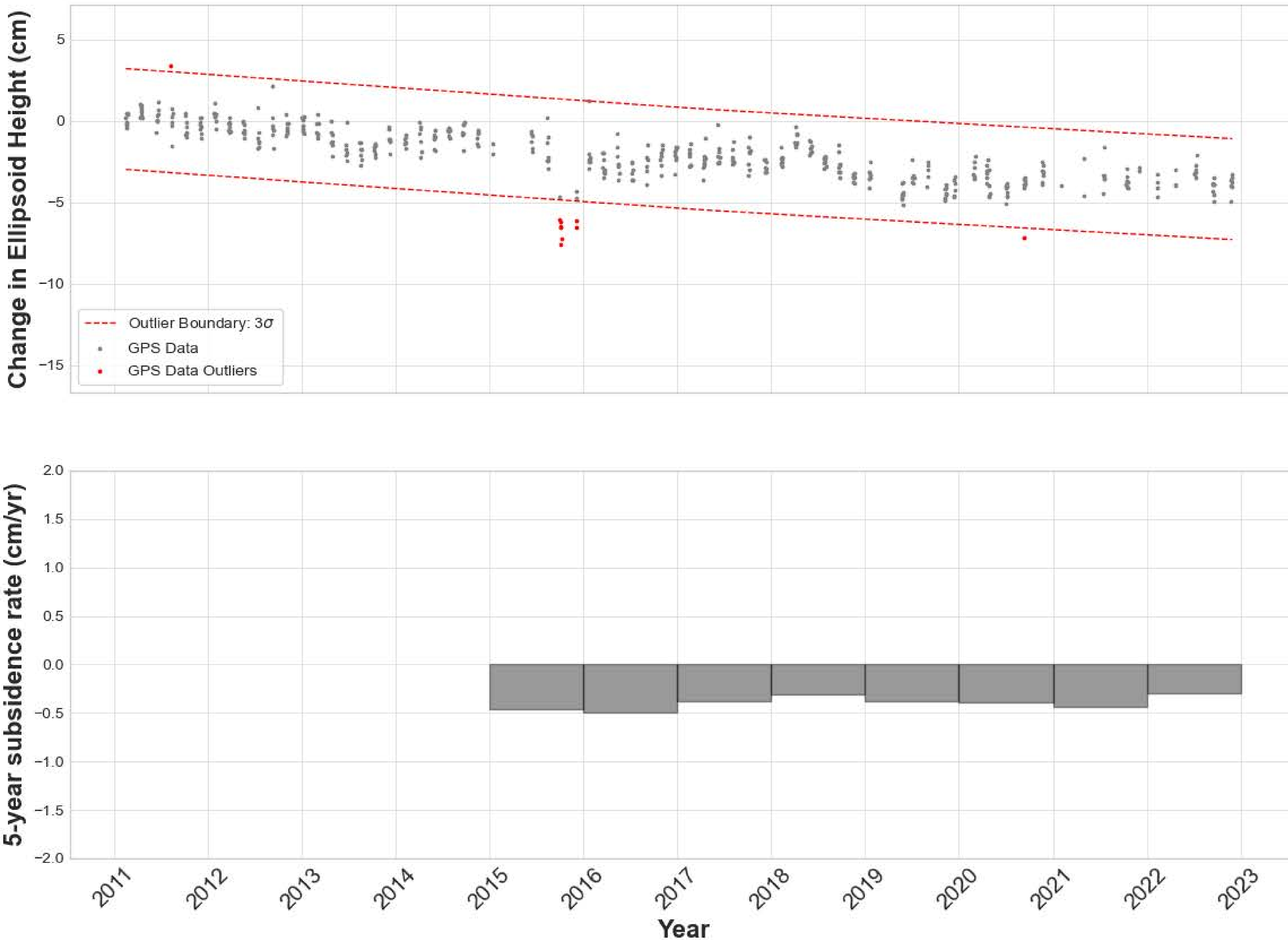
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P061



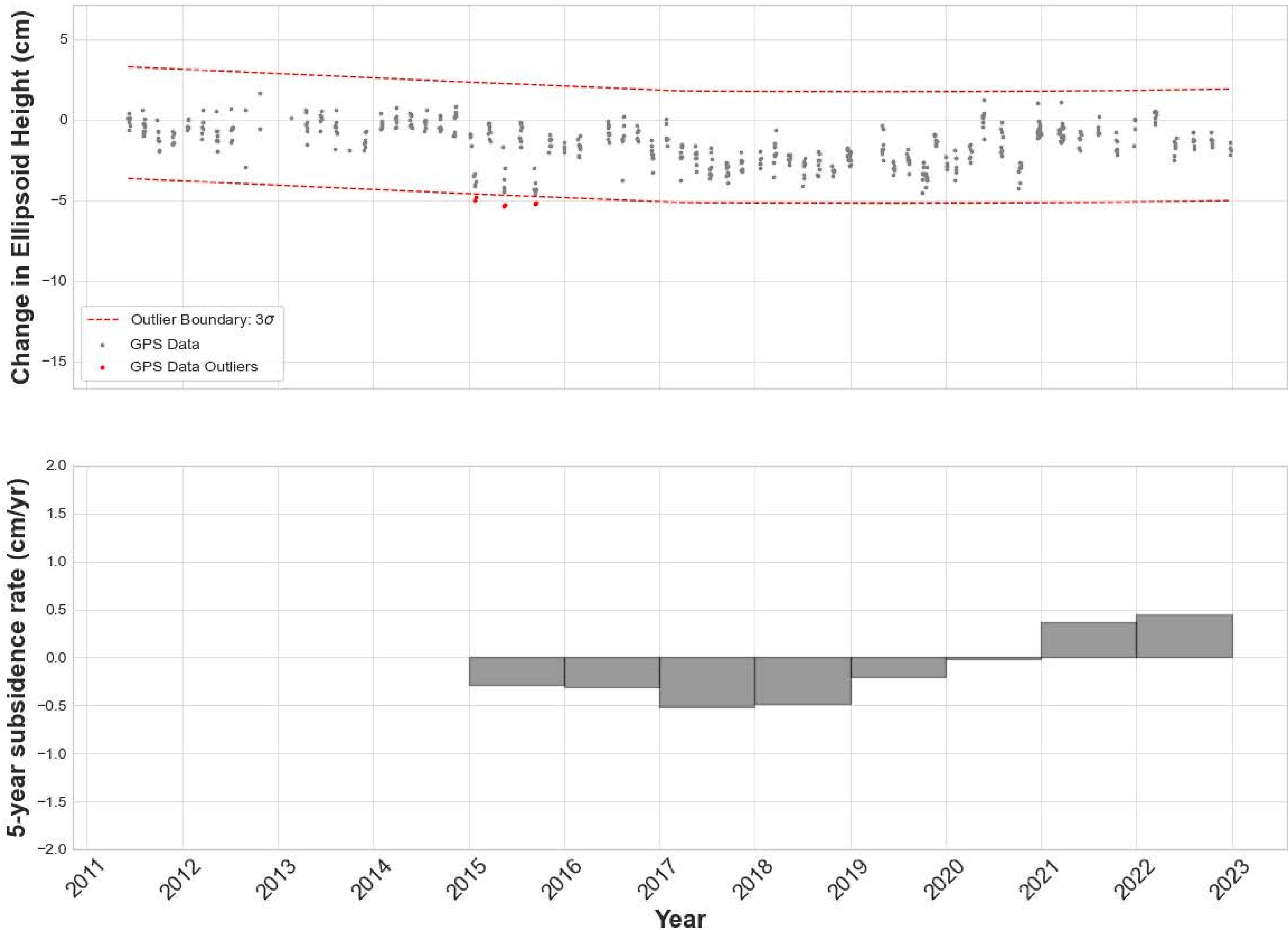
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P062



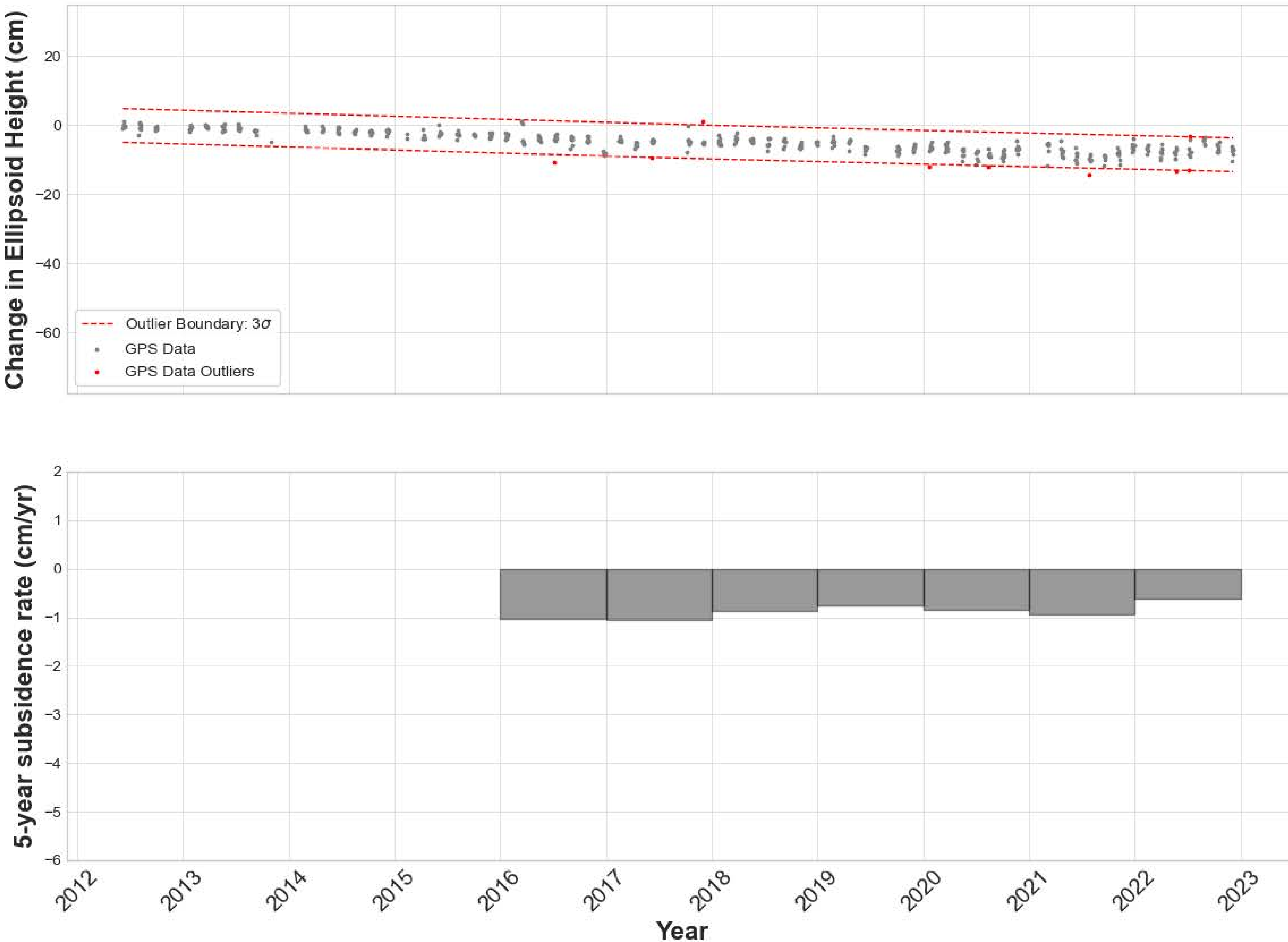
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P063



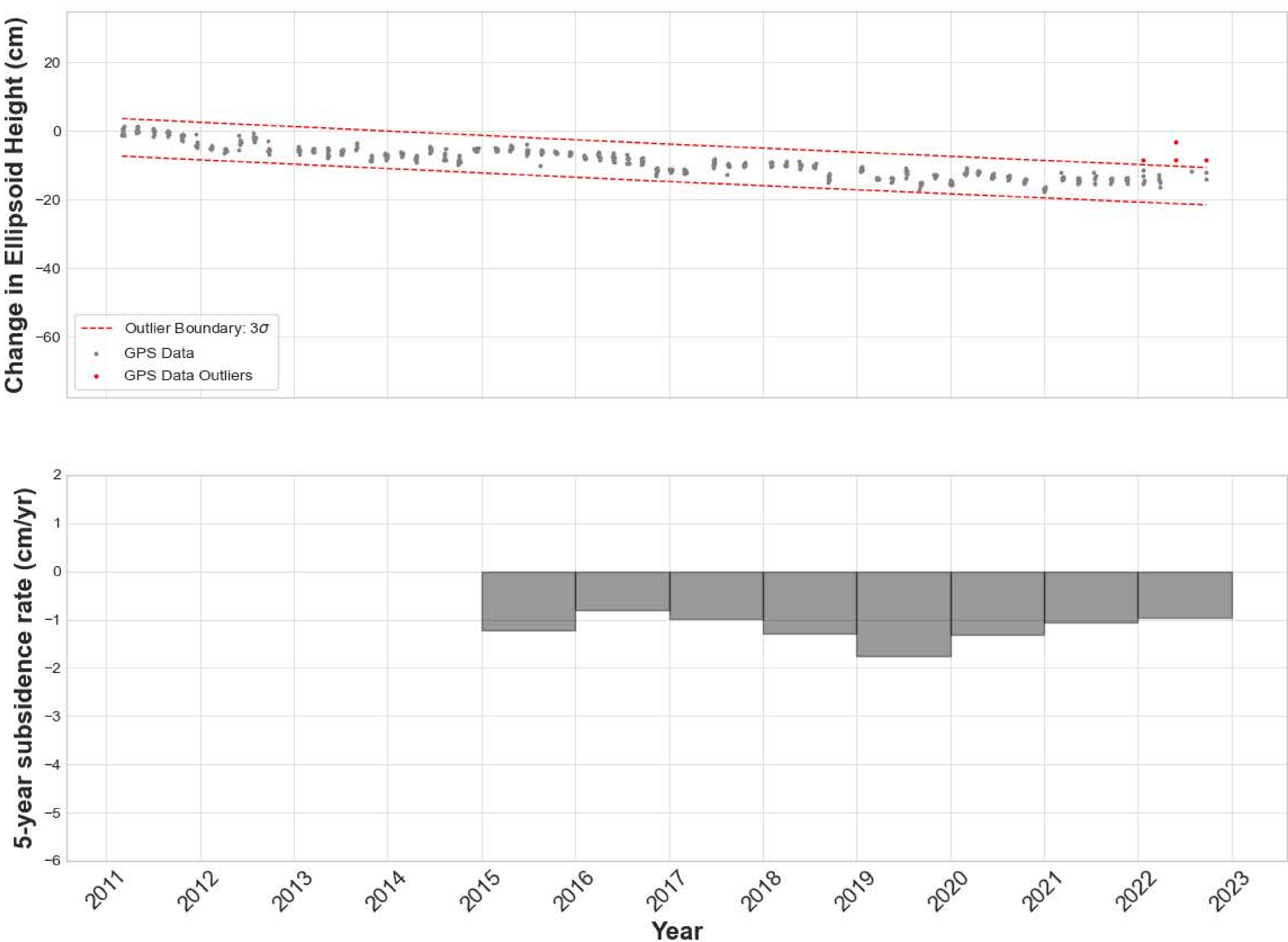
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P065



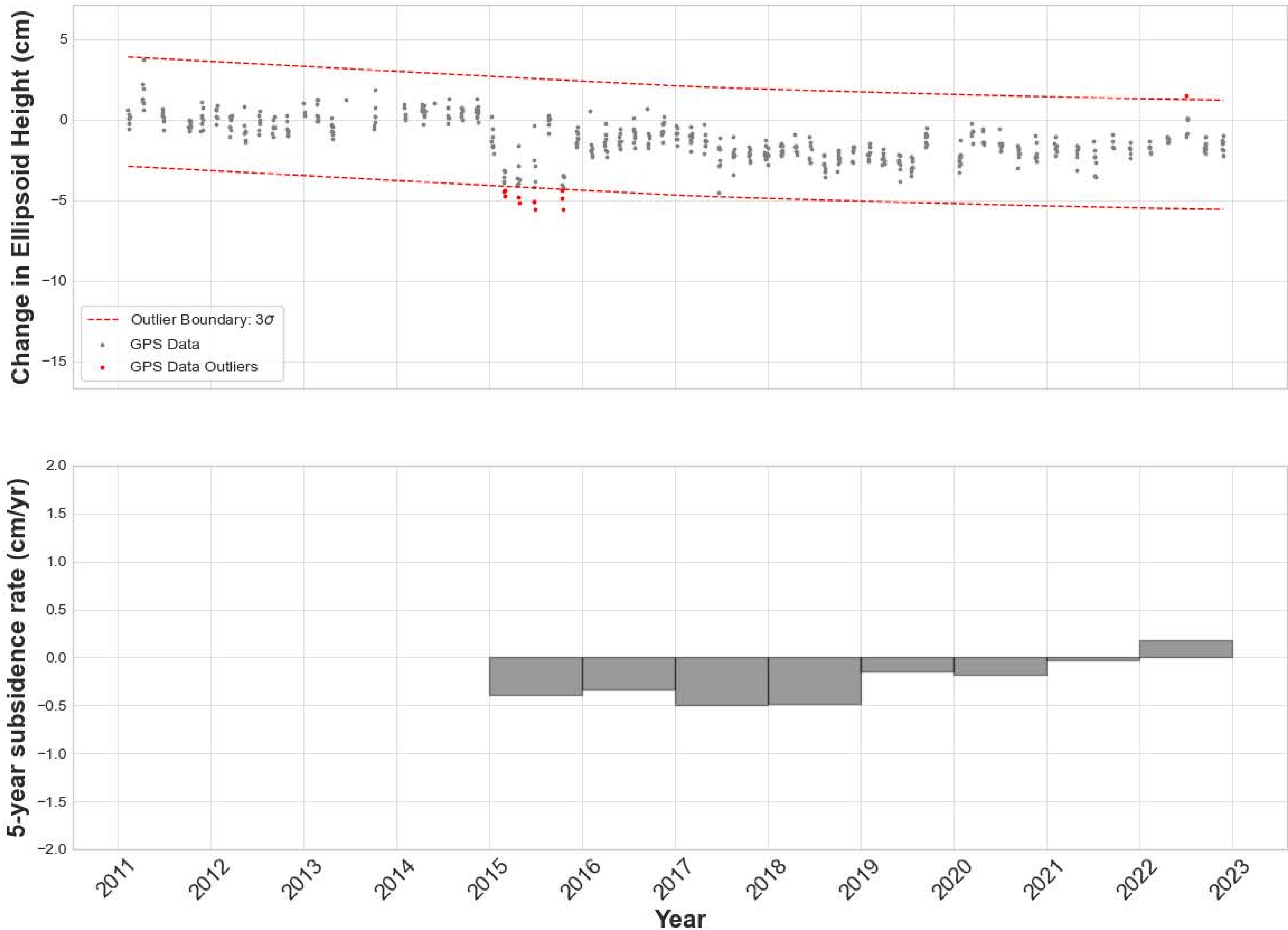
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P066



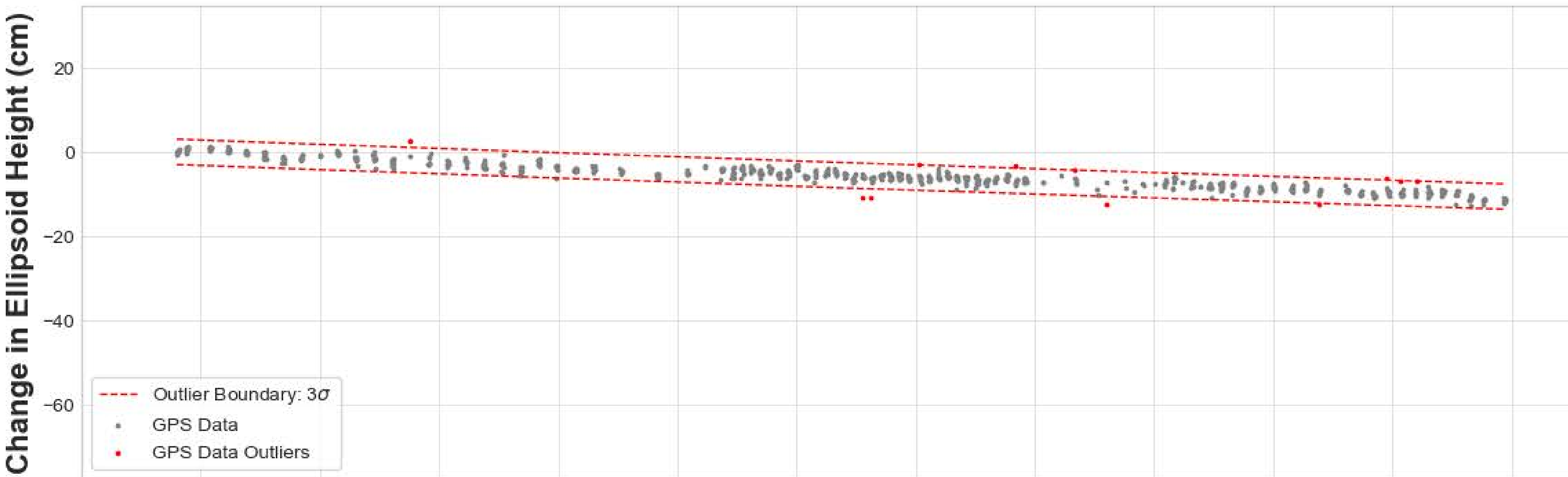
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

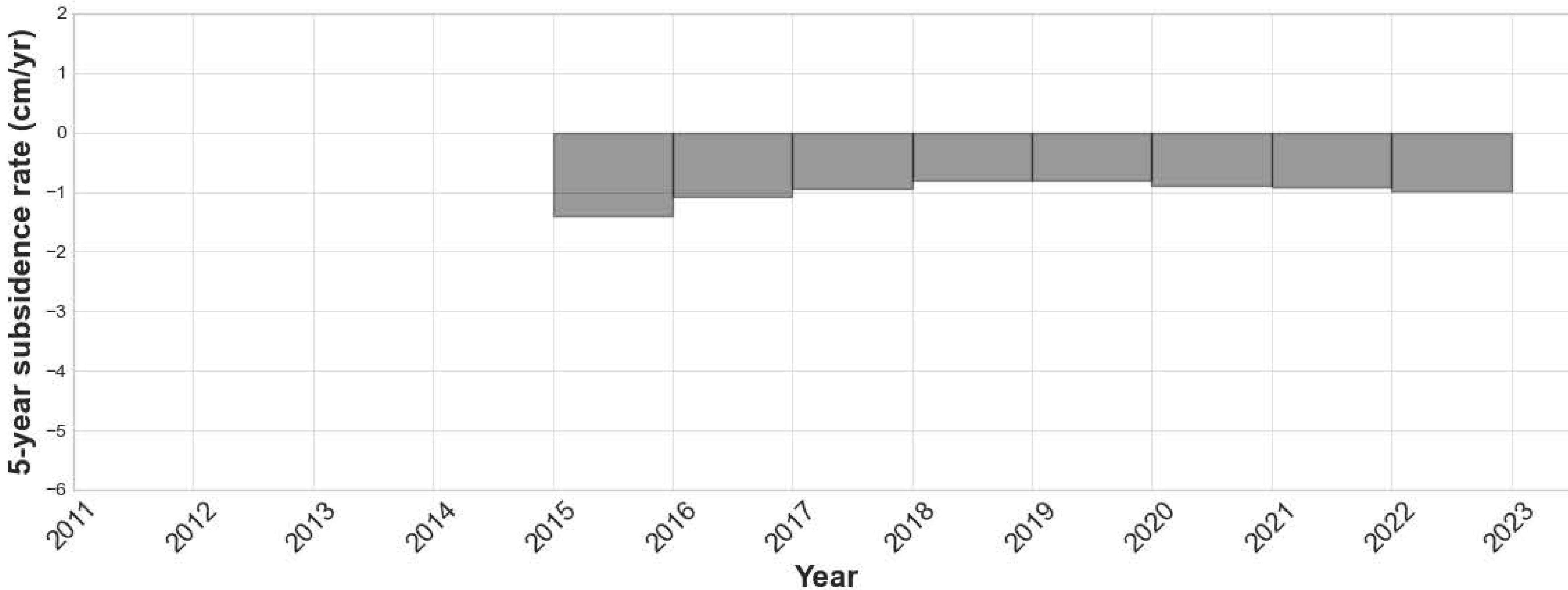
P067



Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

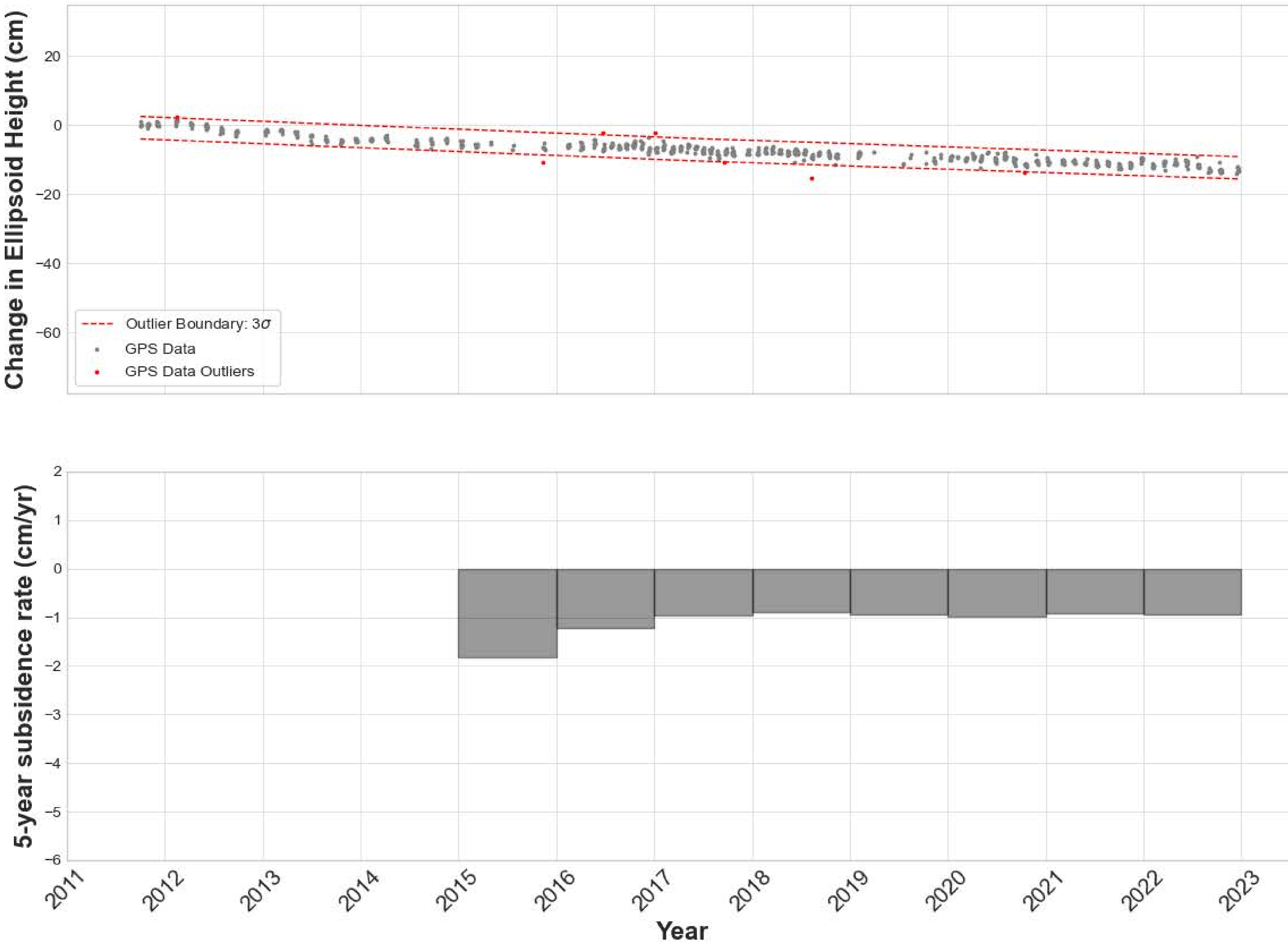
P068





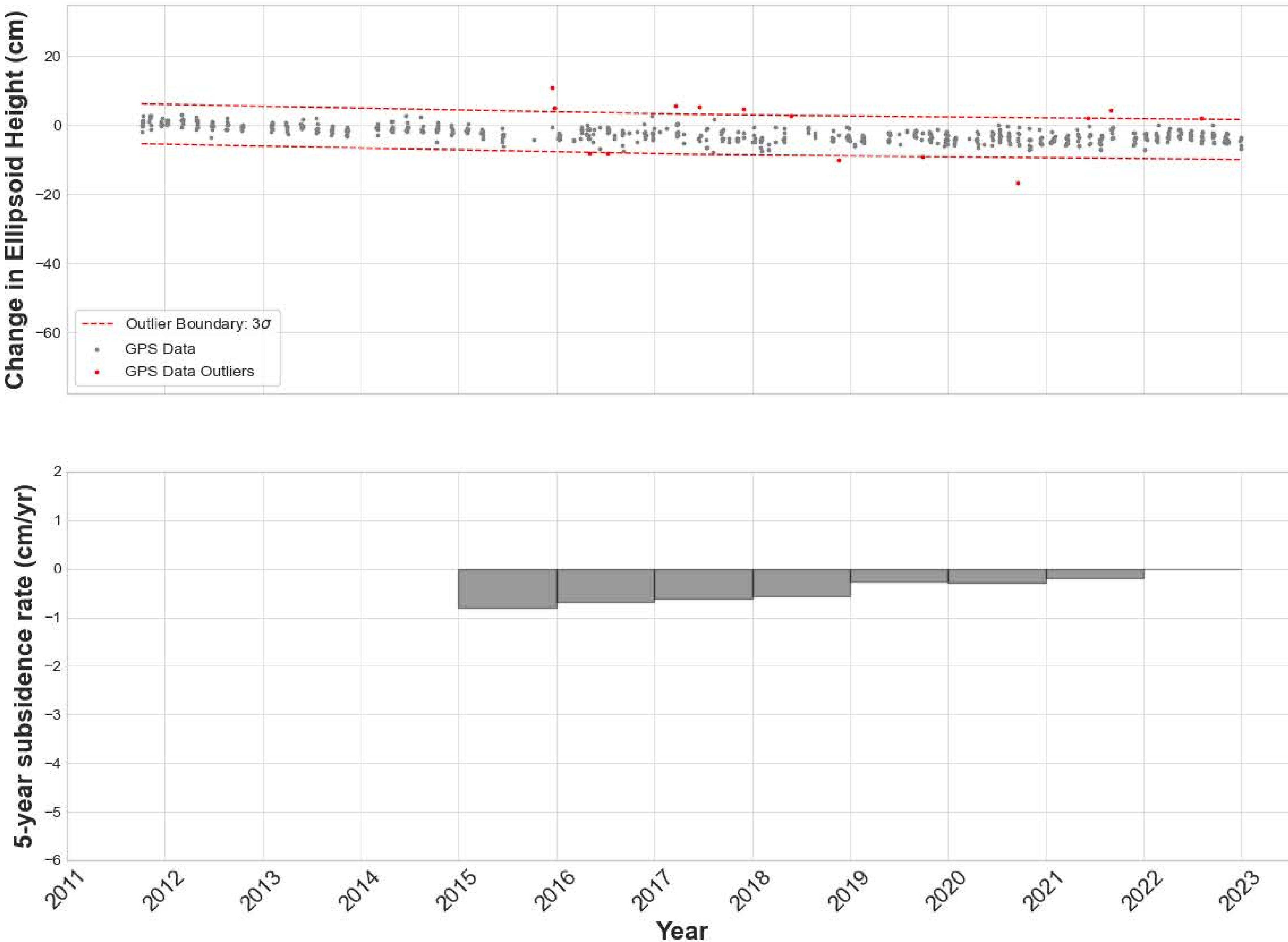
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P069



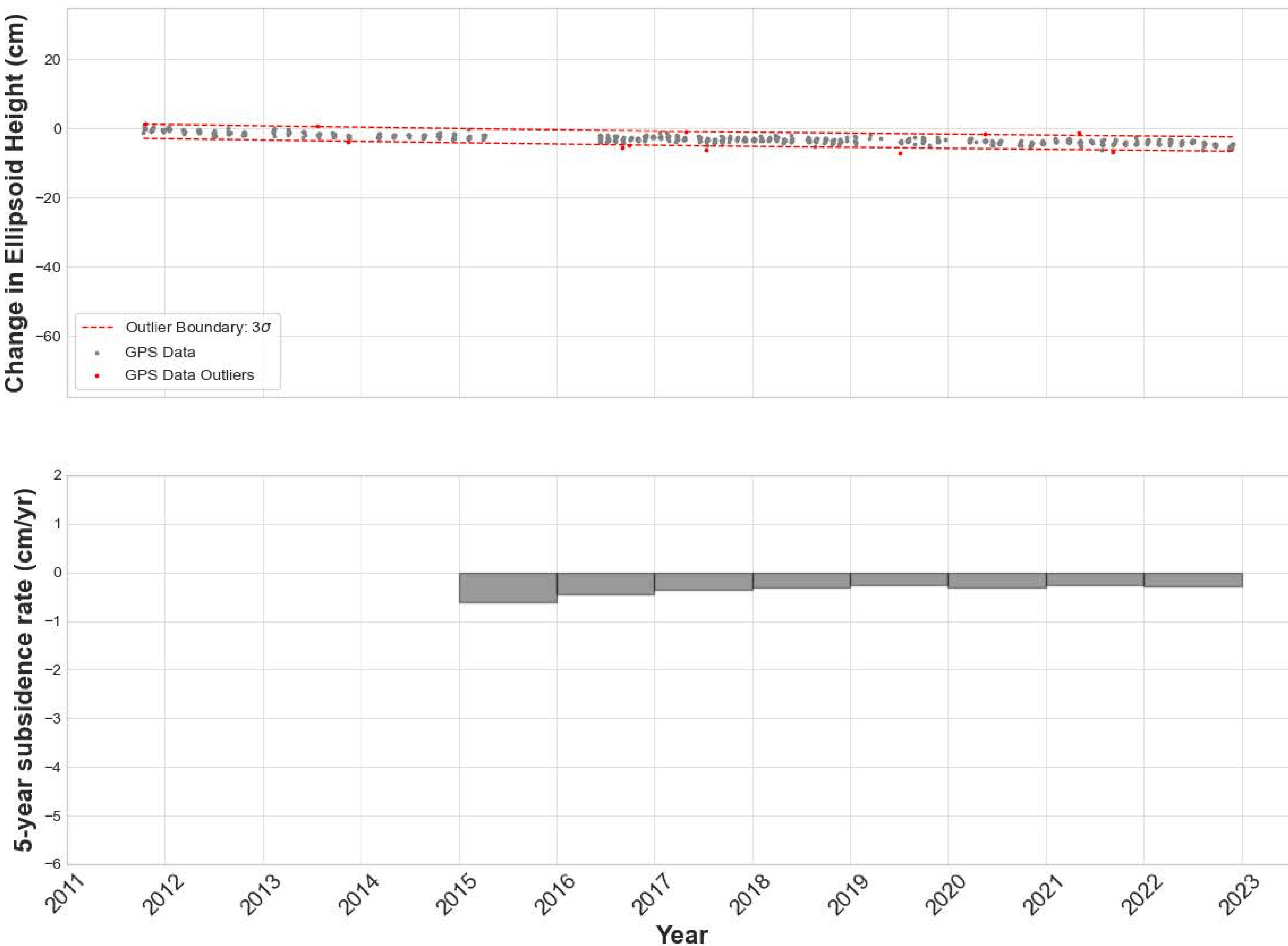
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P070



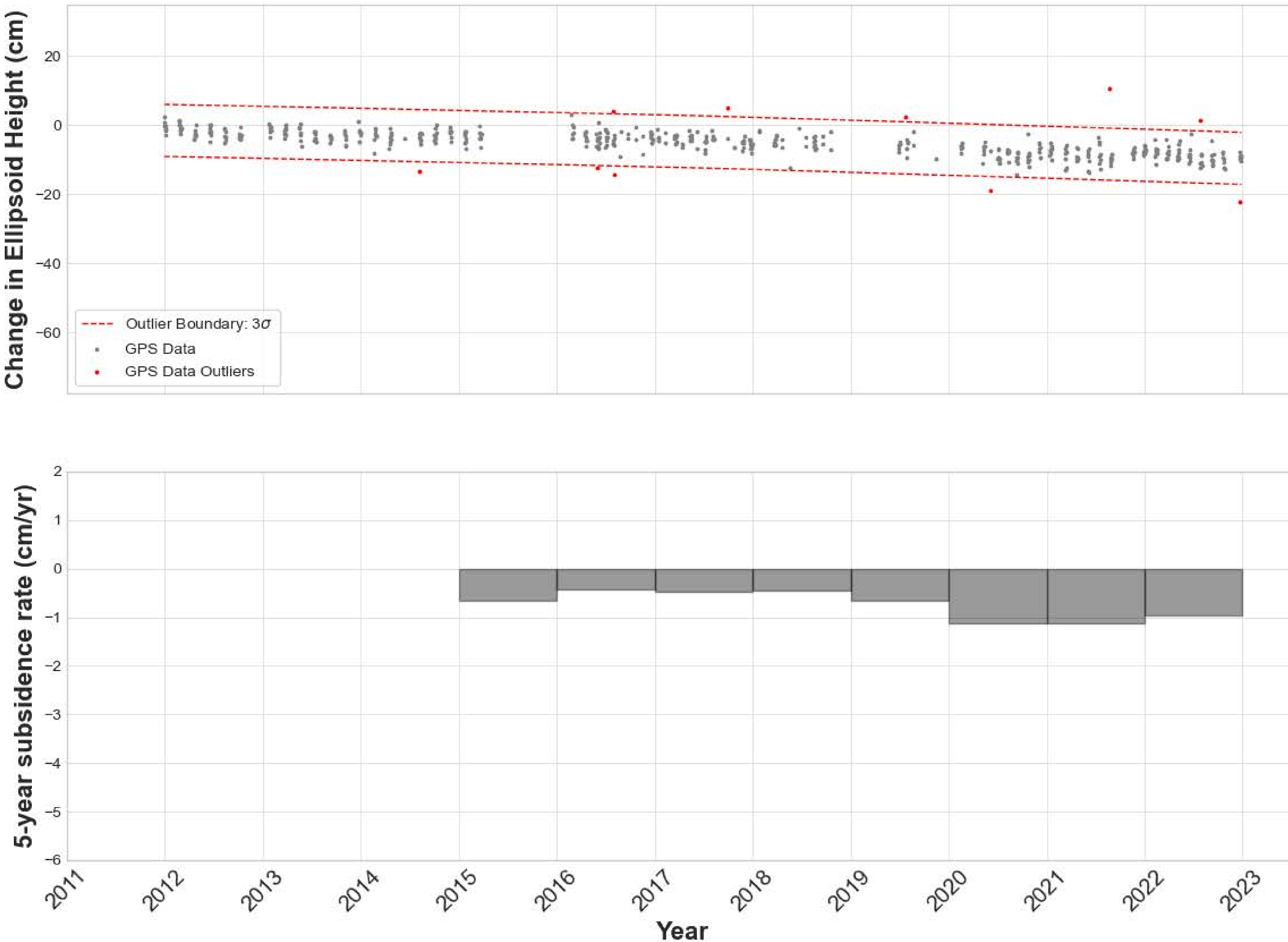
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P071



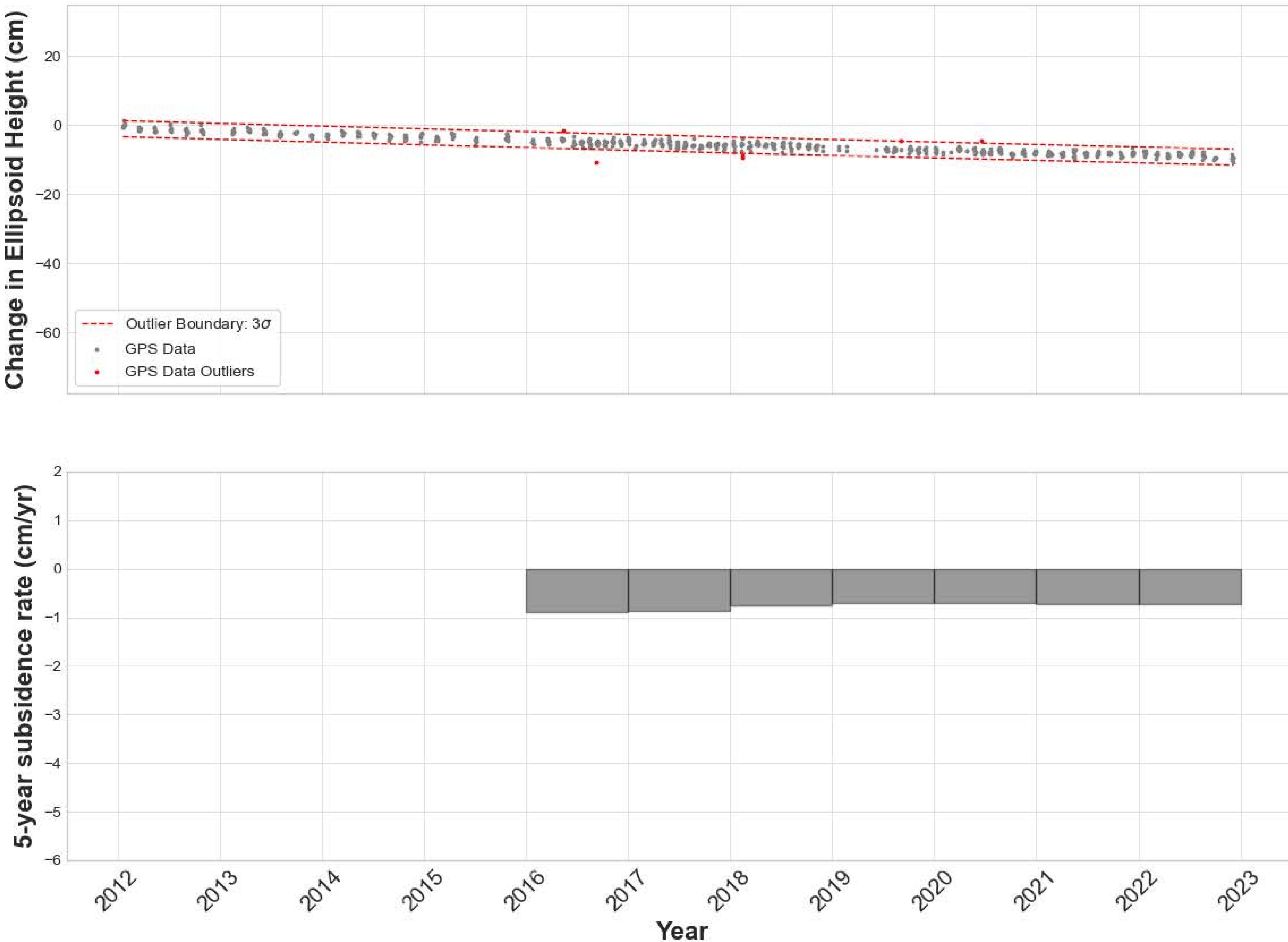
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P072



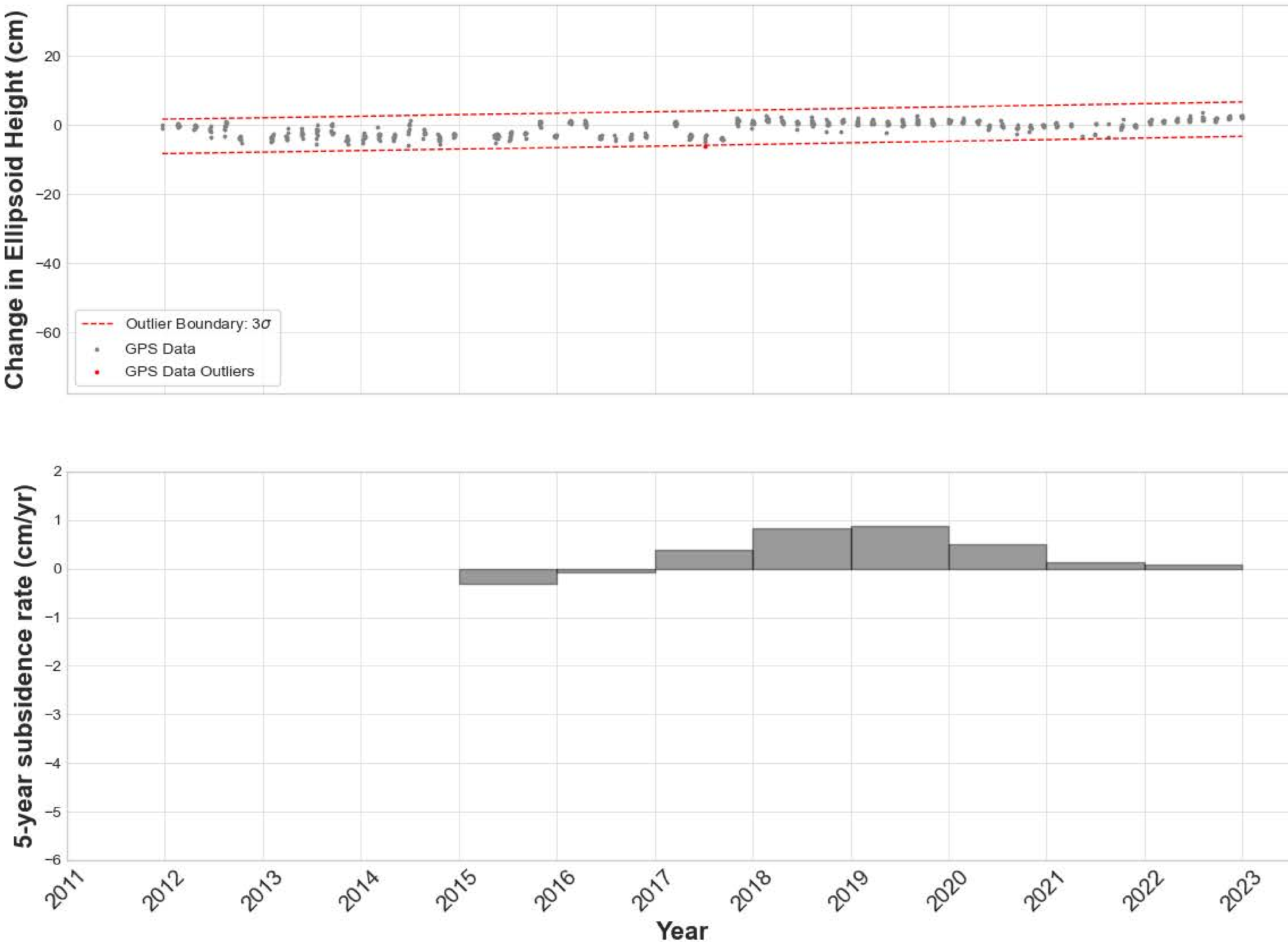
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P073



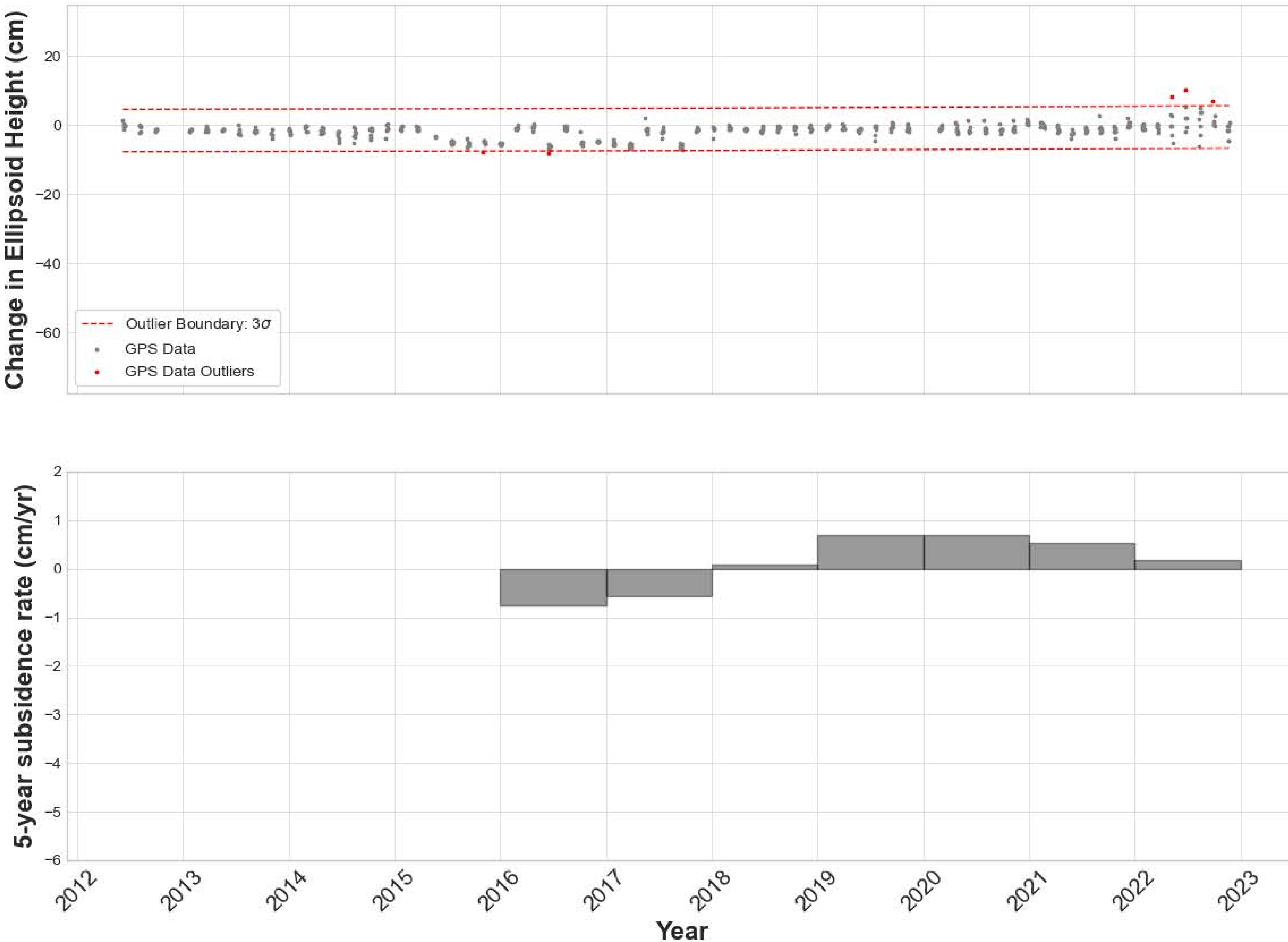
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P074



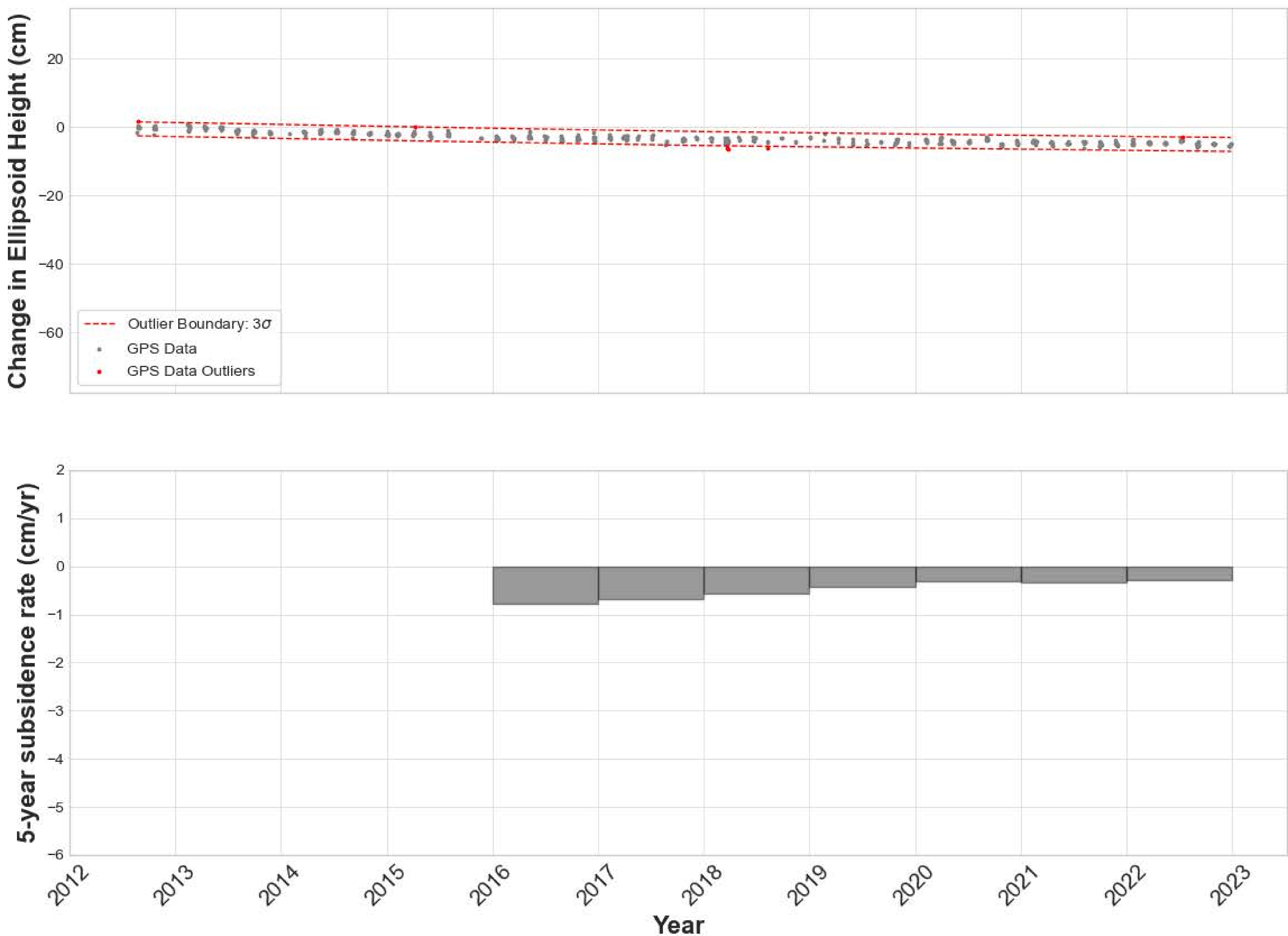
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P075



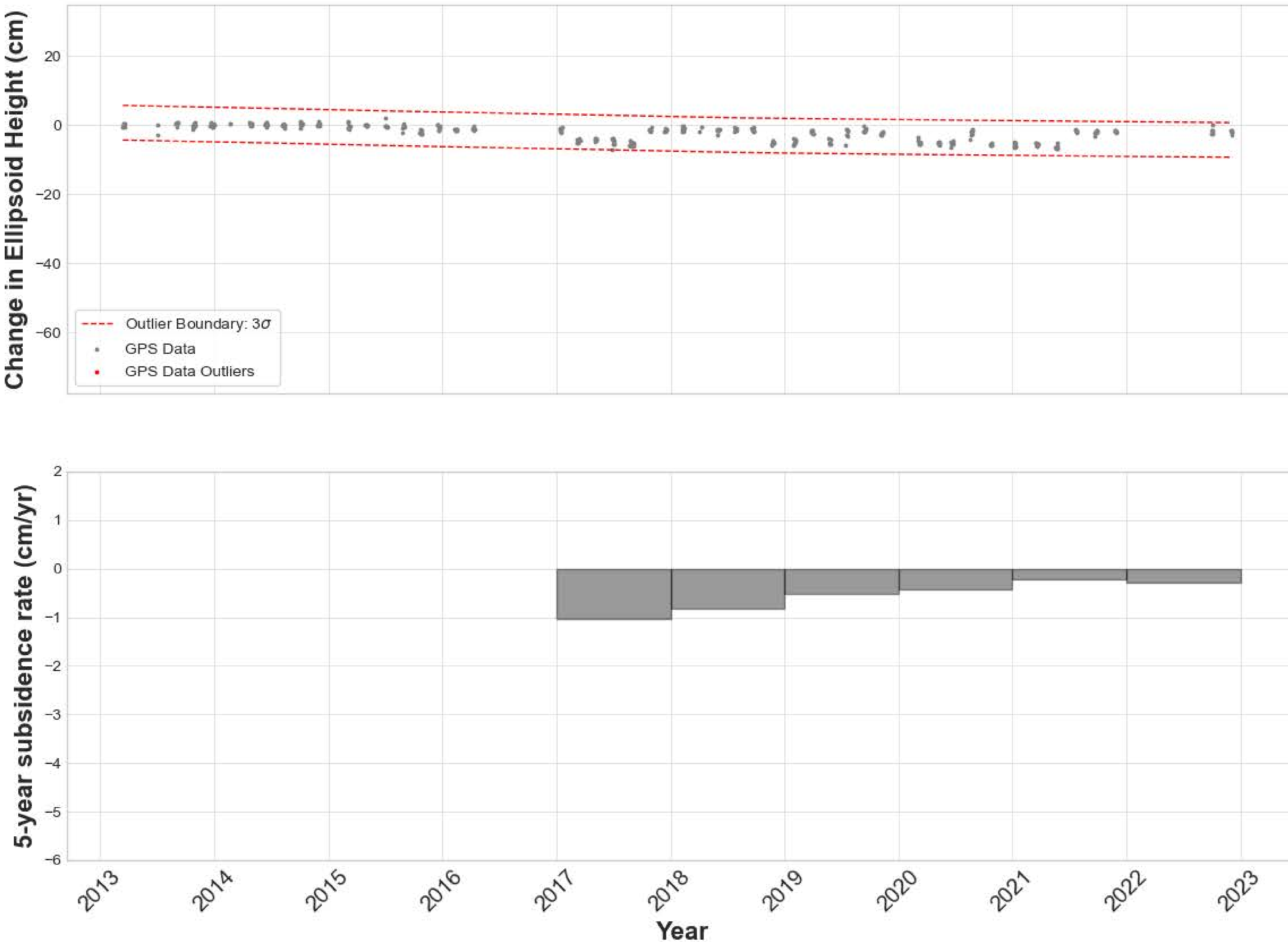
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P076



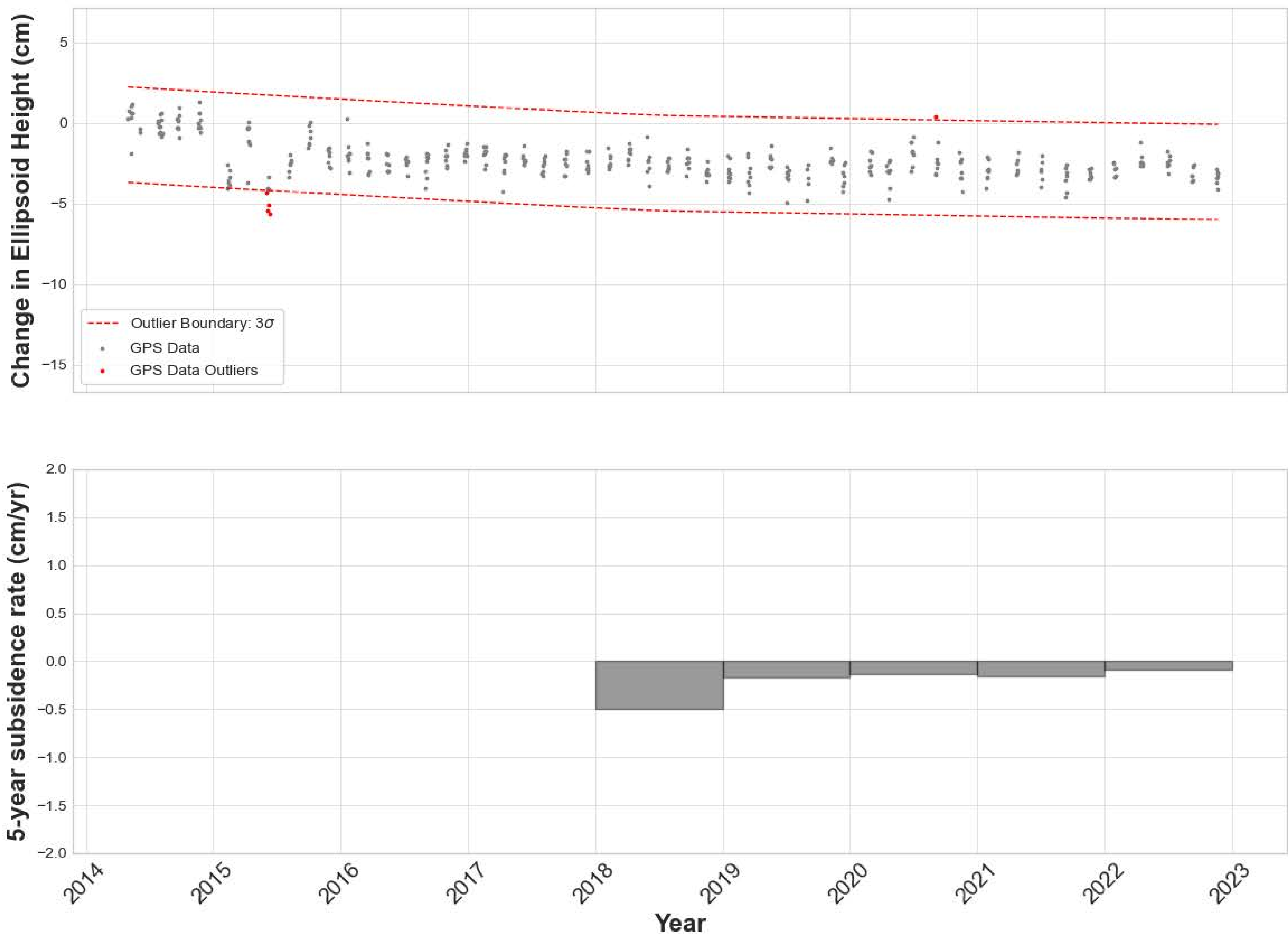
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P077



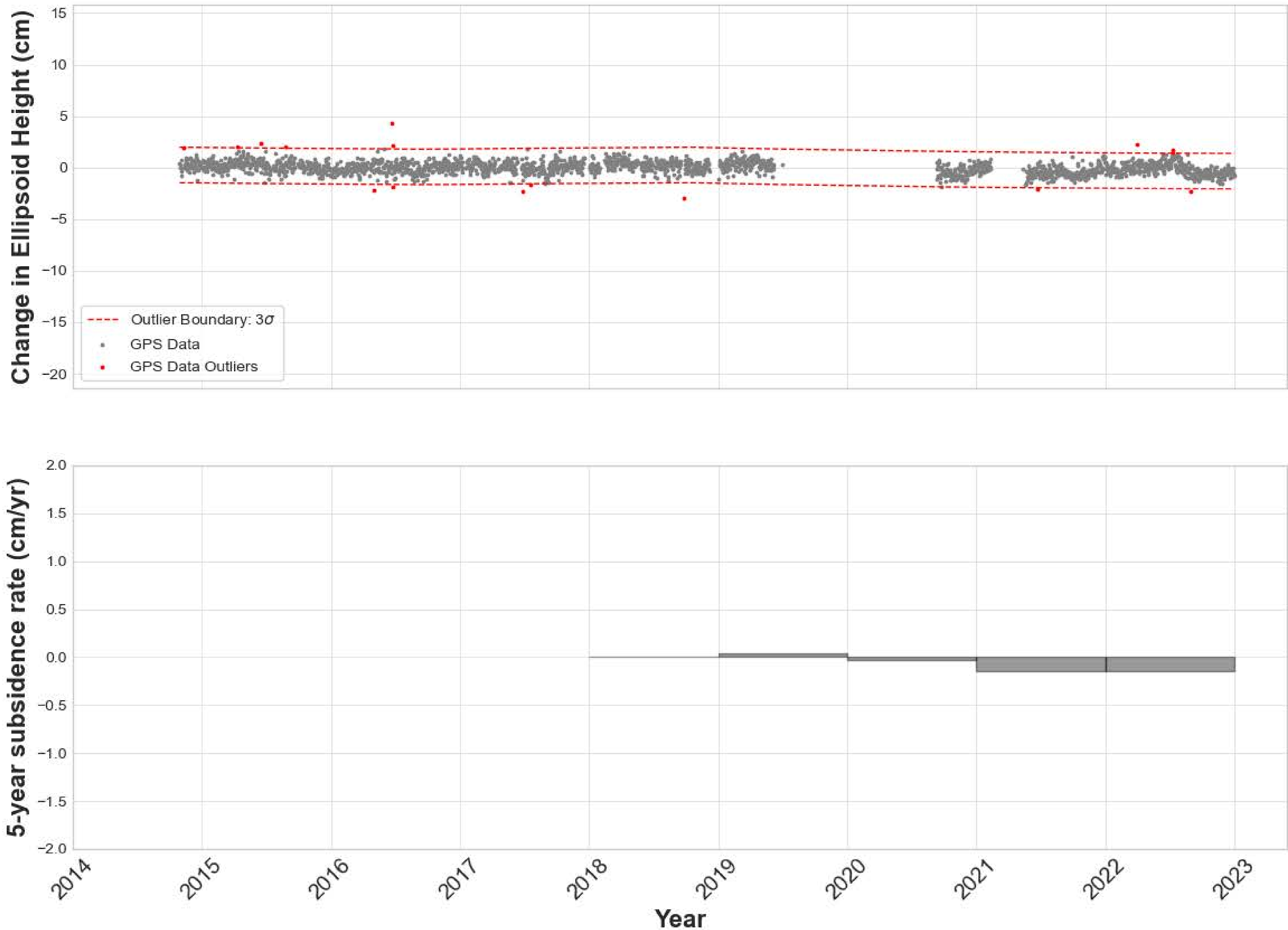
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P078



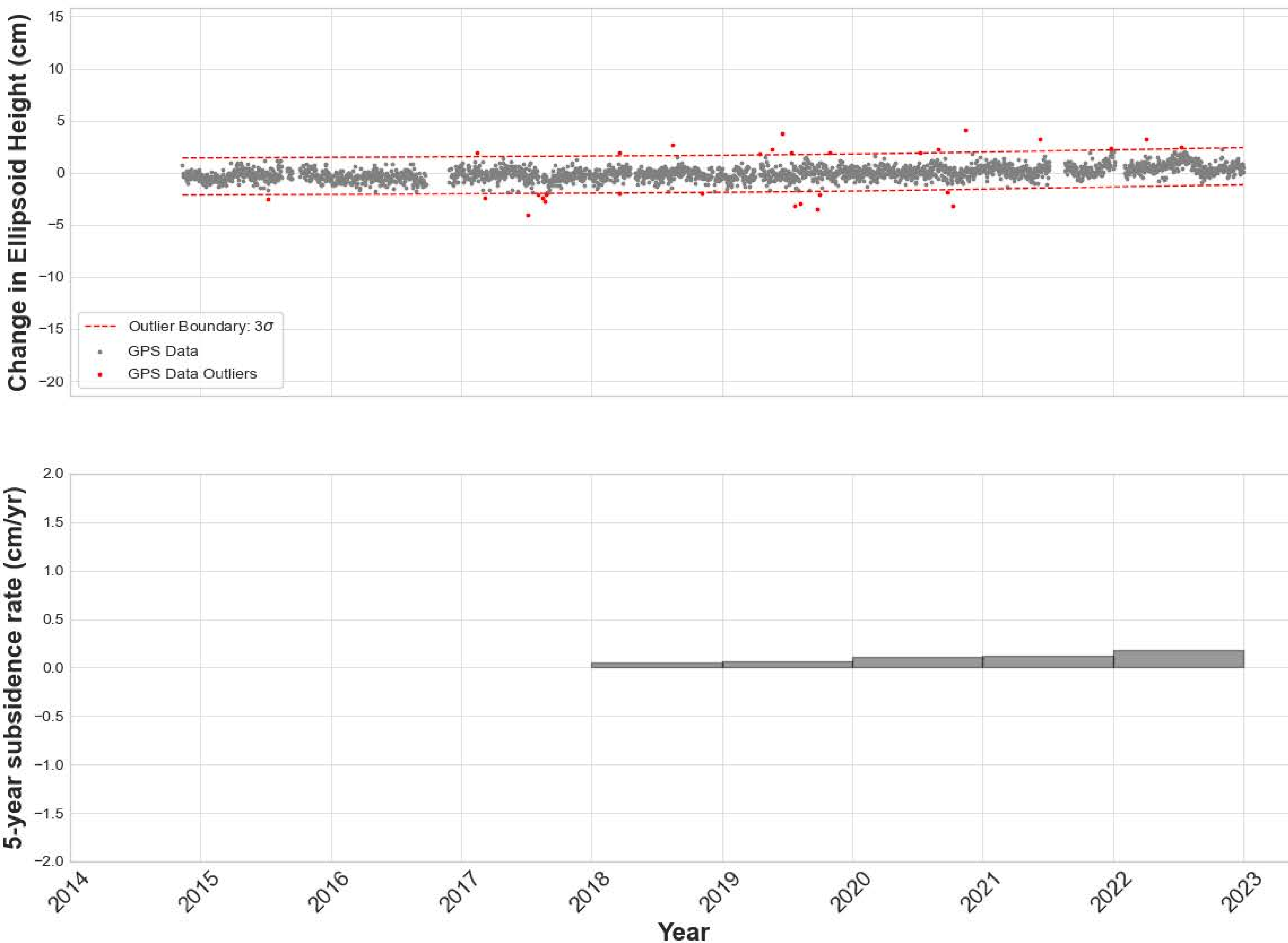
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P079



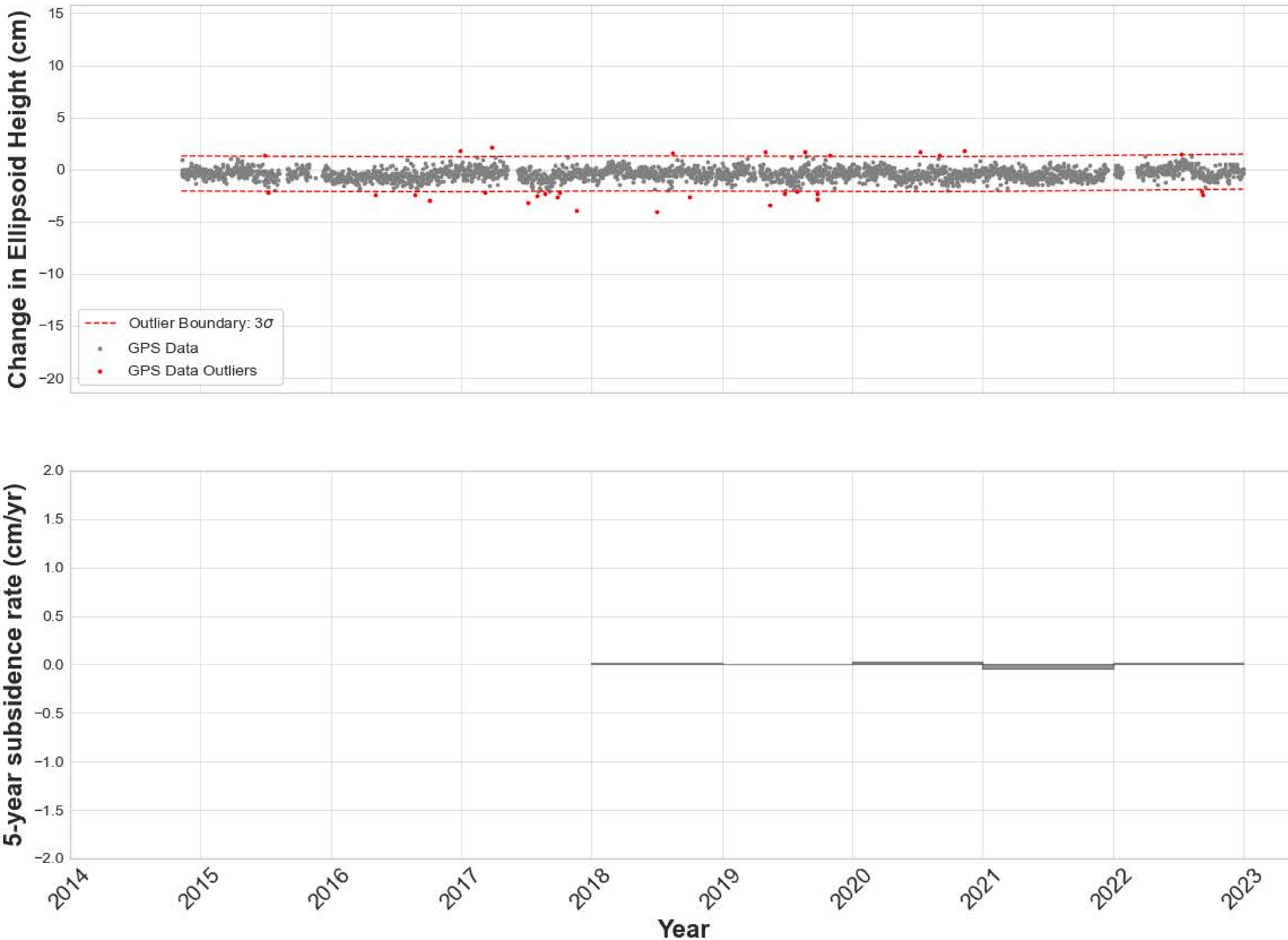
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P080



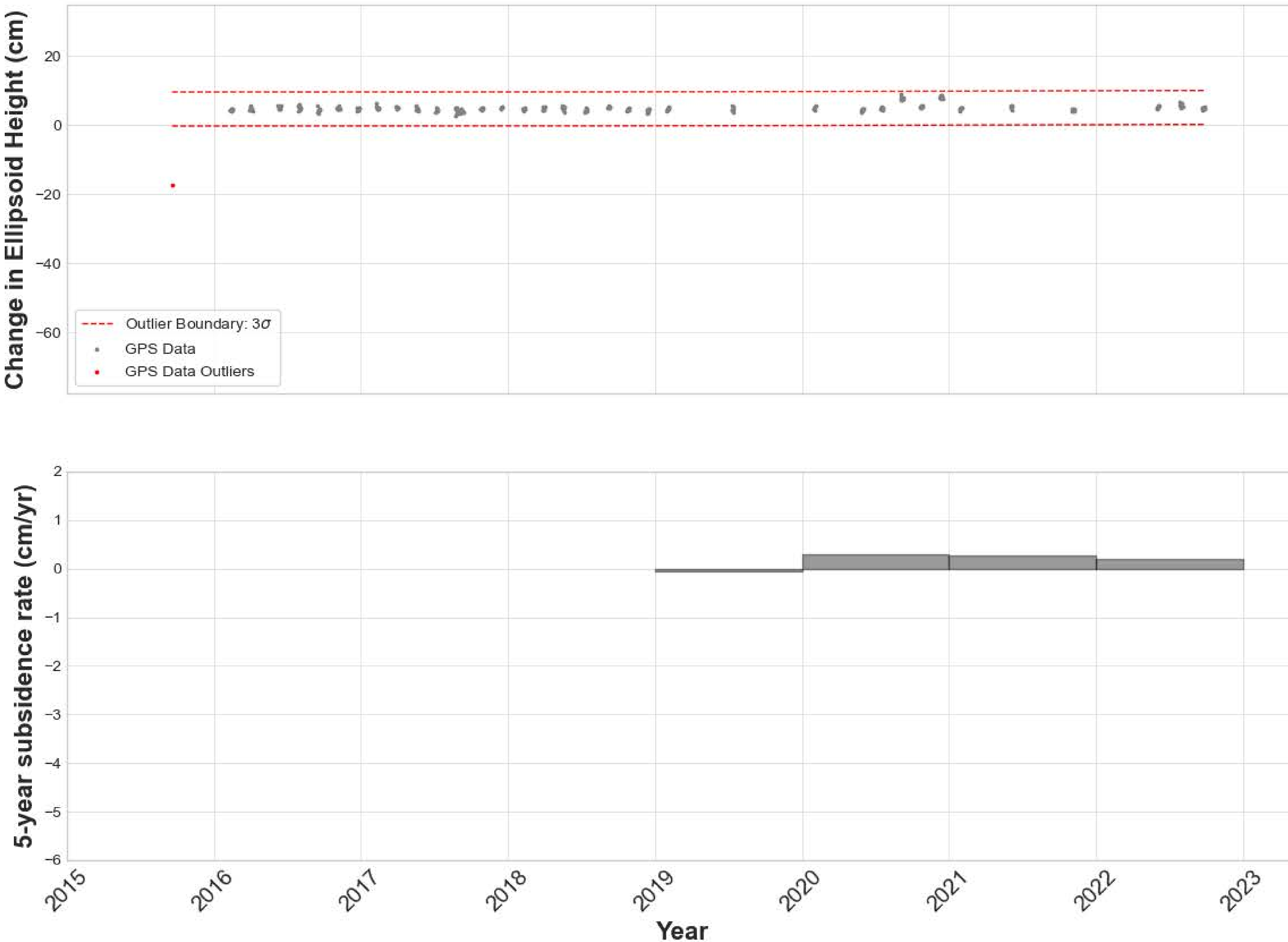
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P081



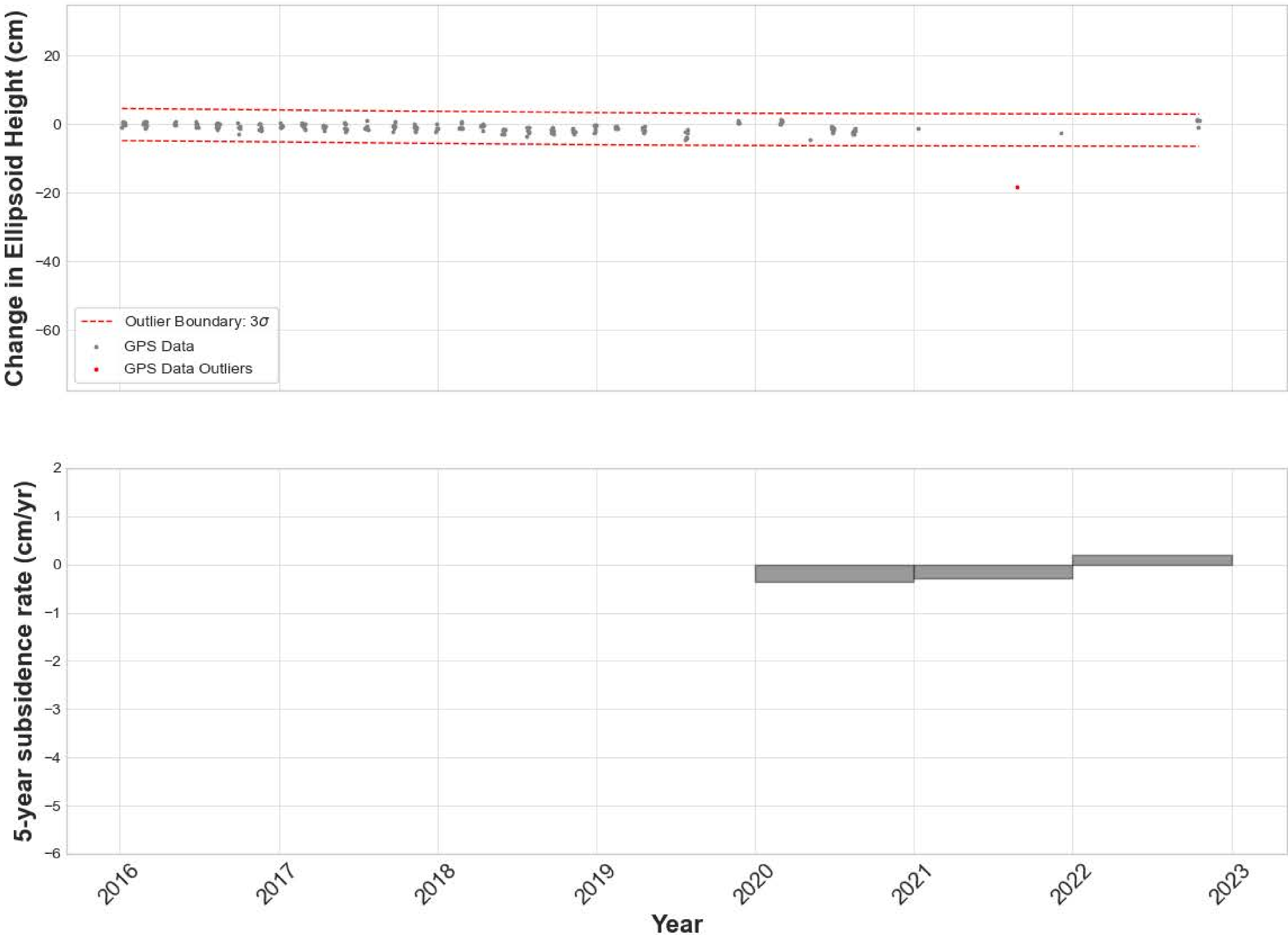
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P082



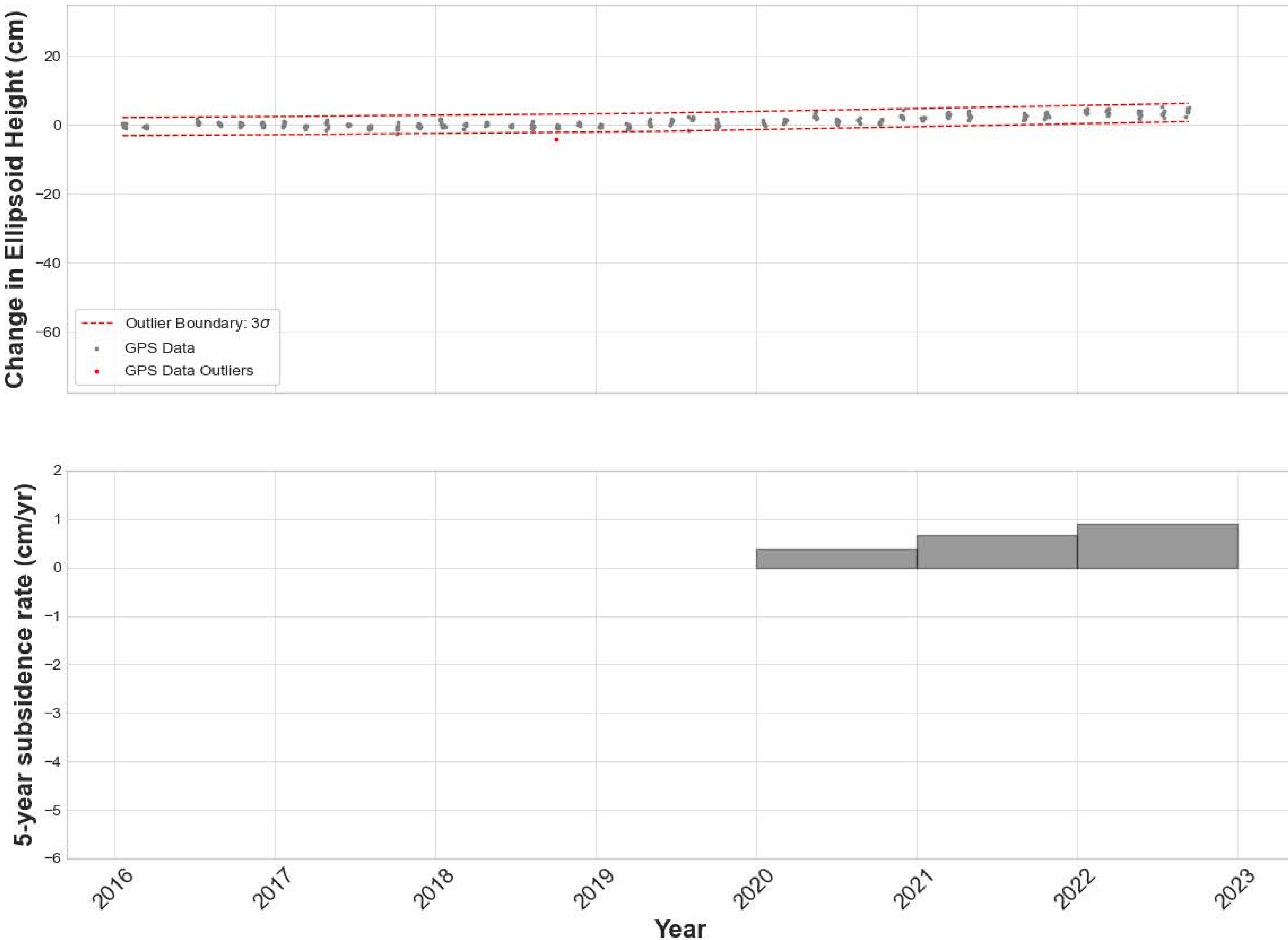
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P083



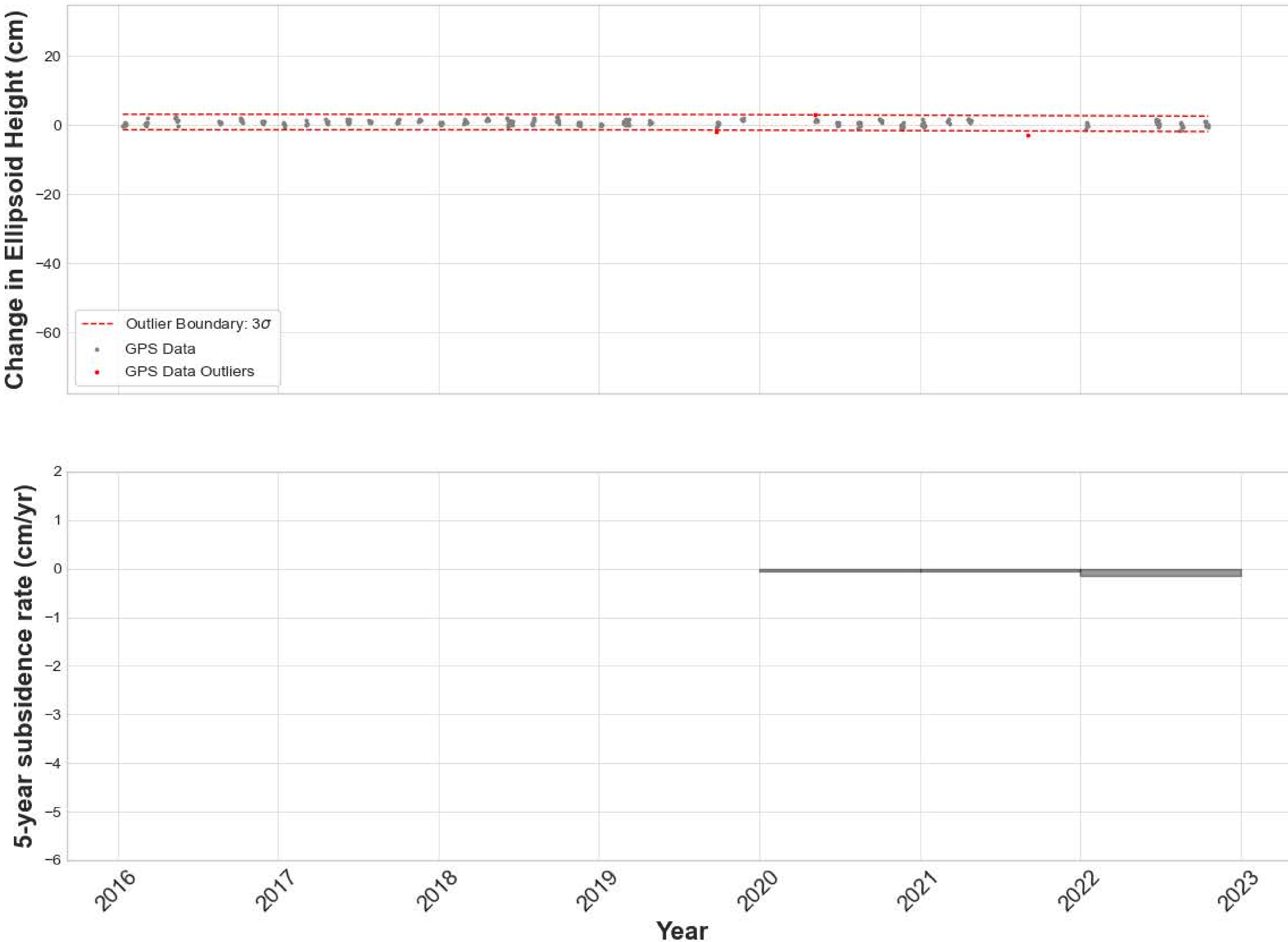
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P084



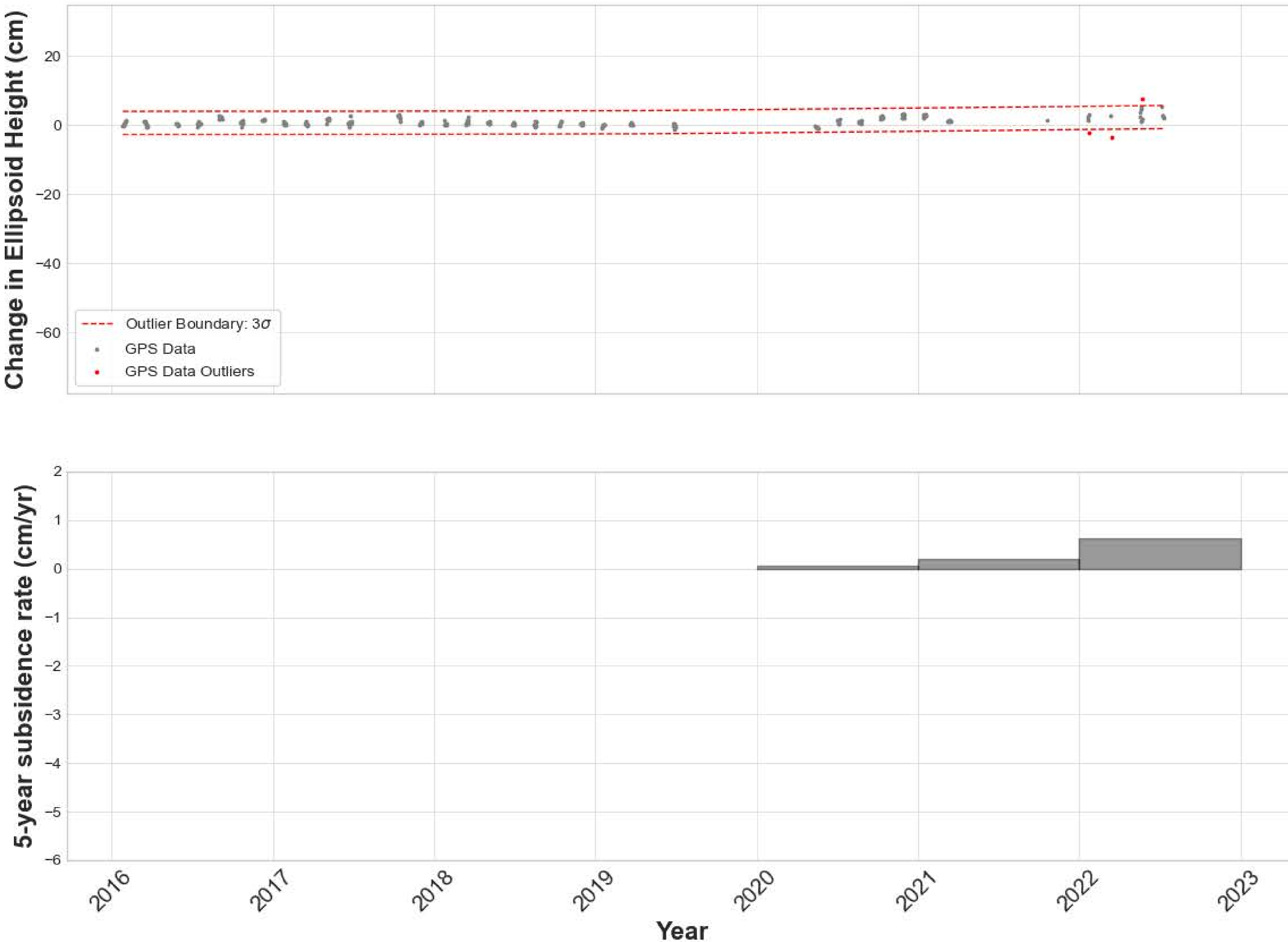
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P085



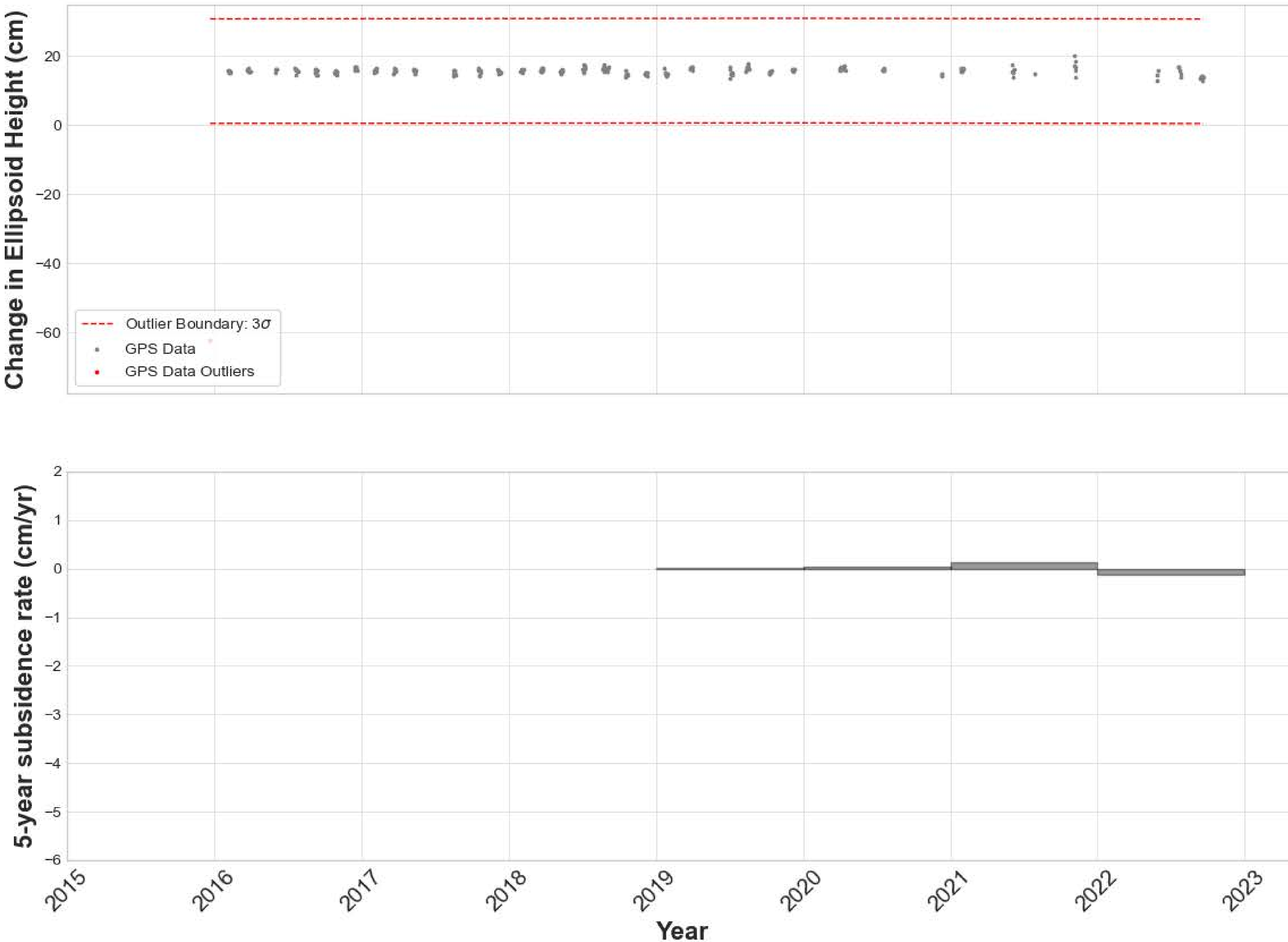
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P086



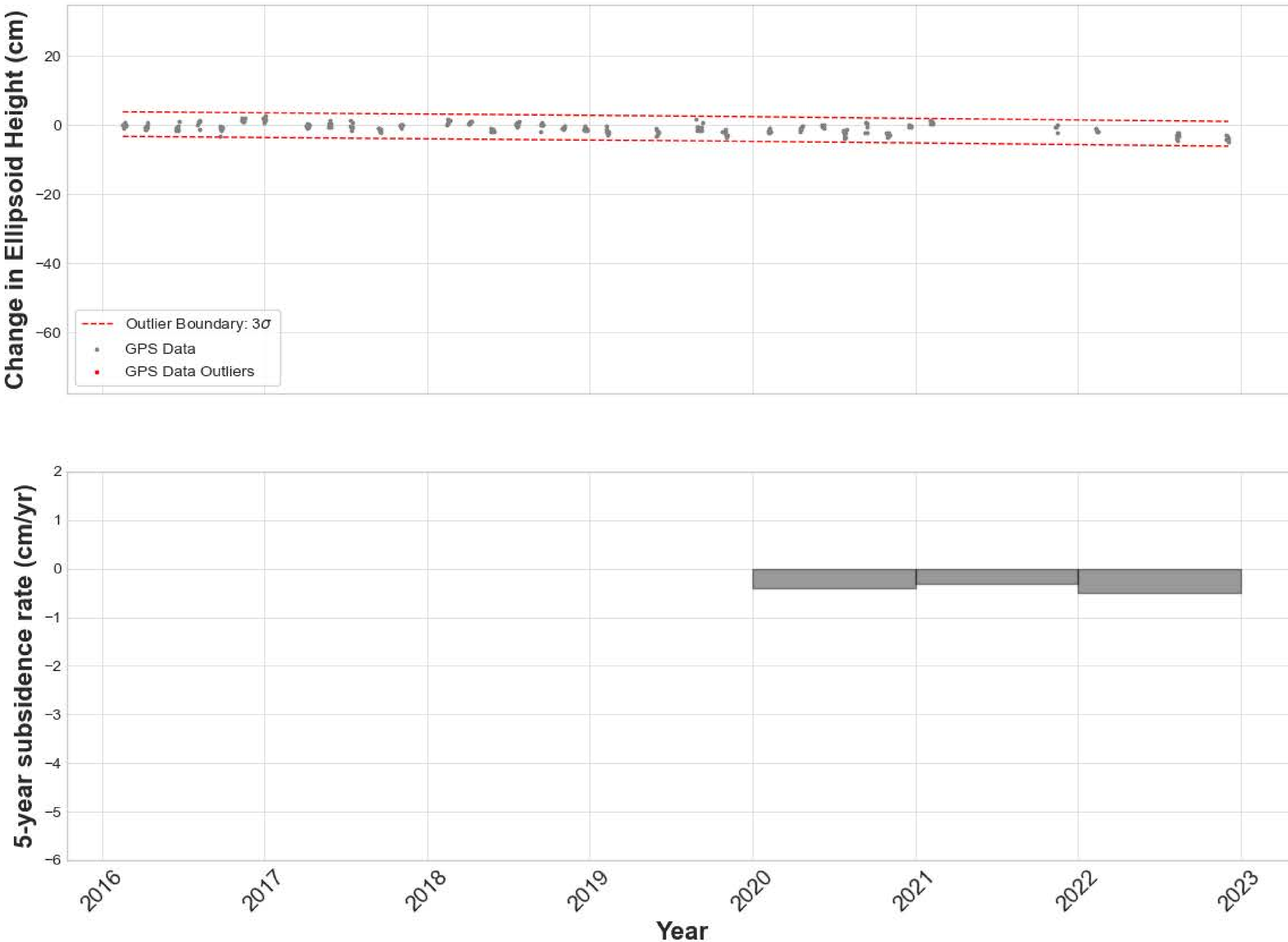
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P087



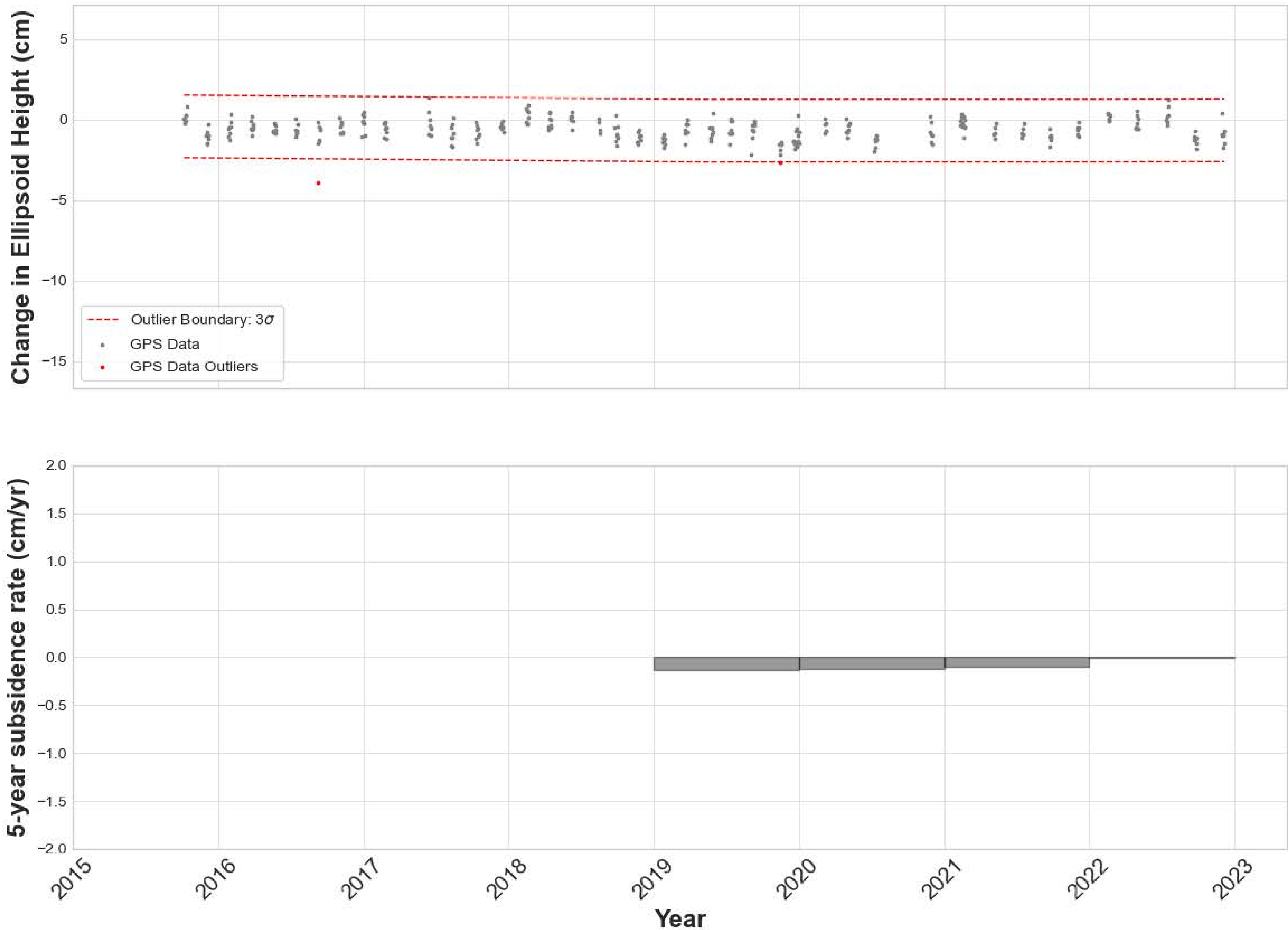
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P088



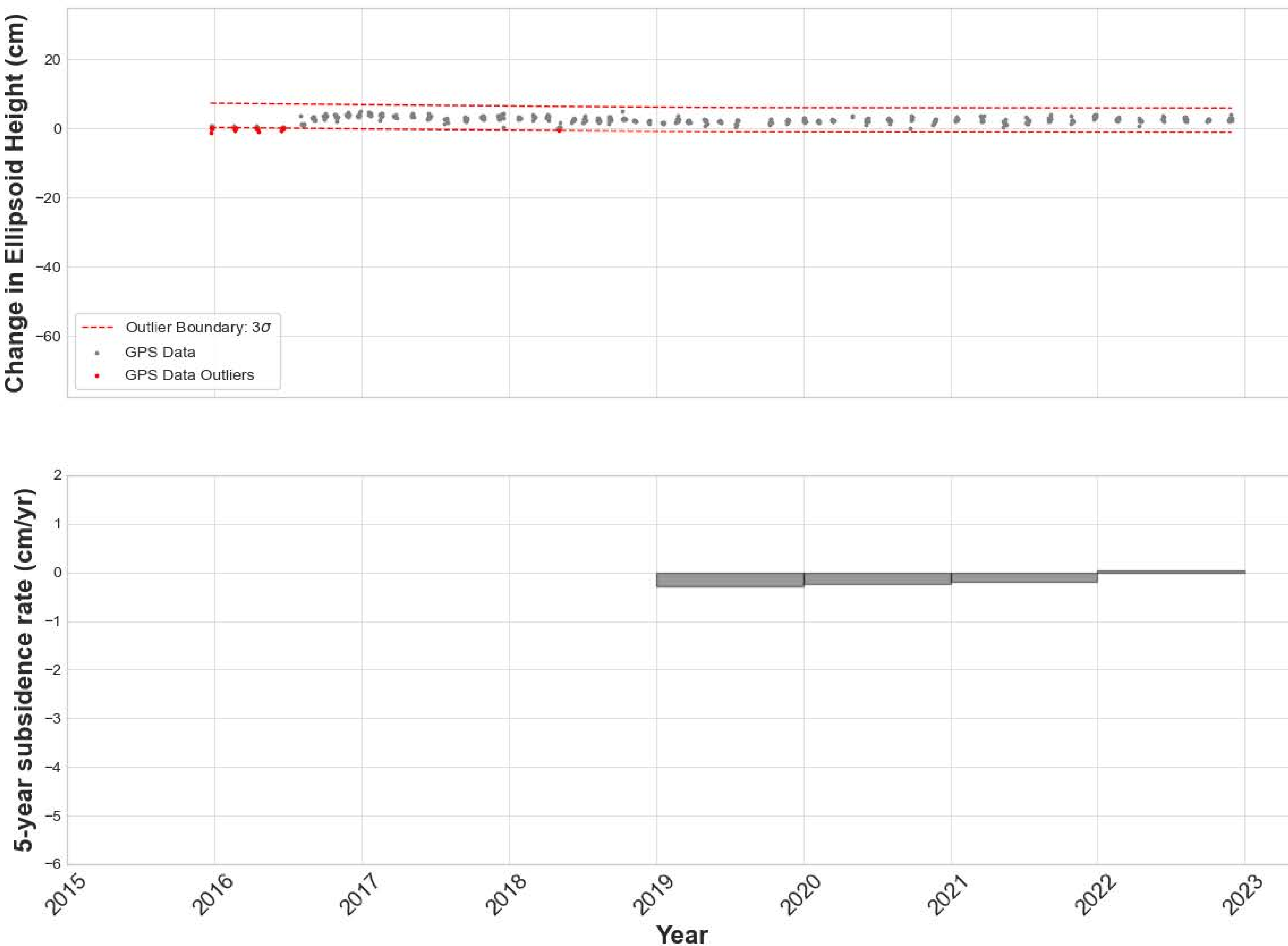
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P089



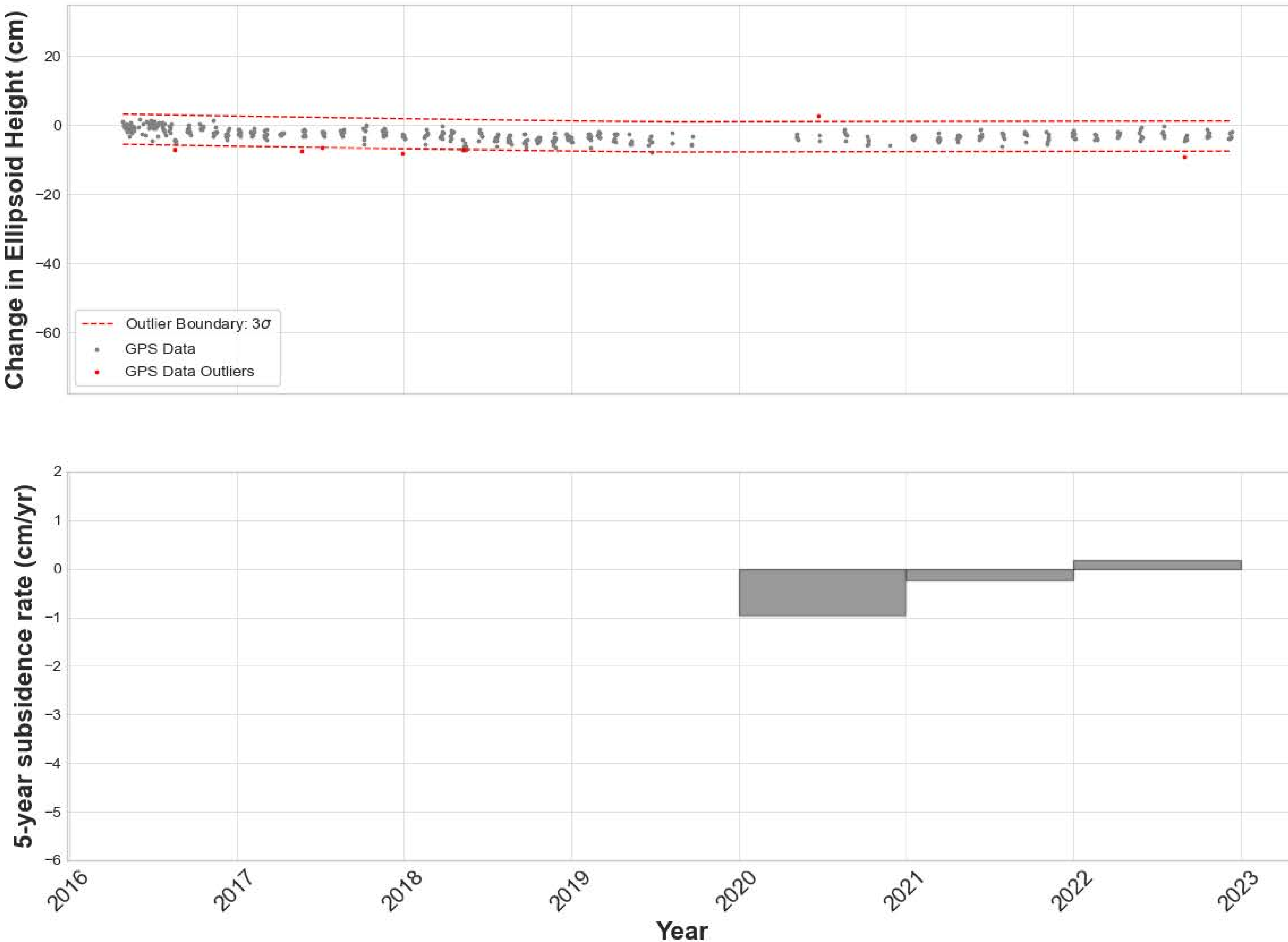
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P090



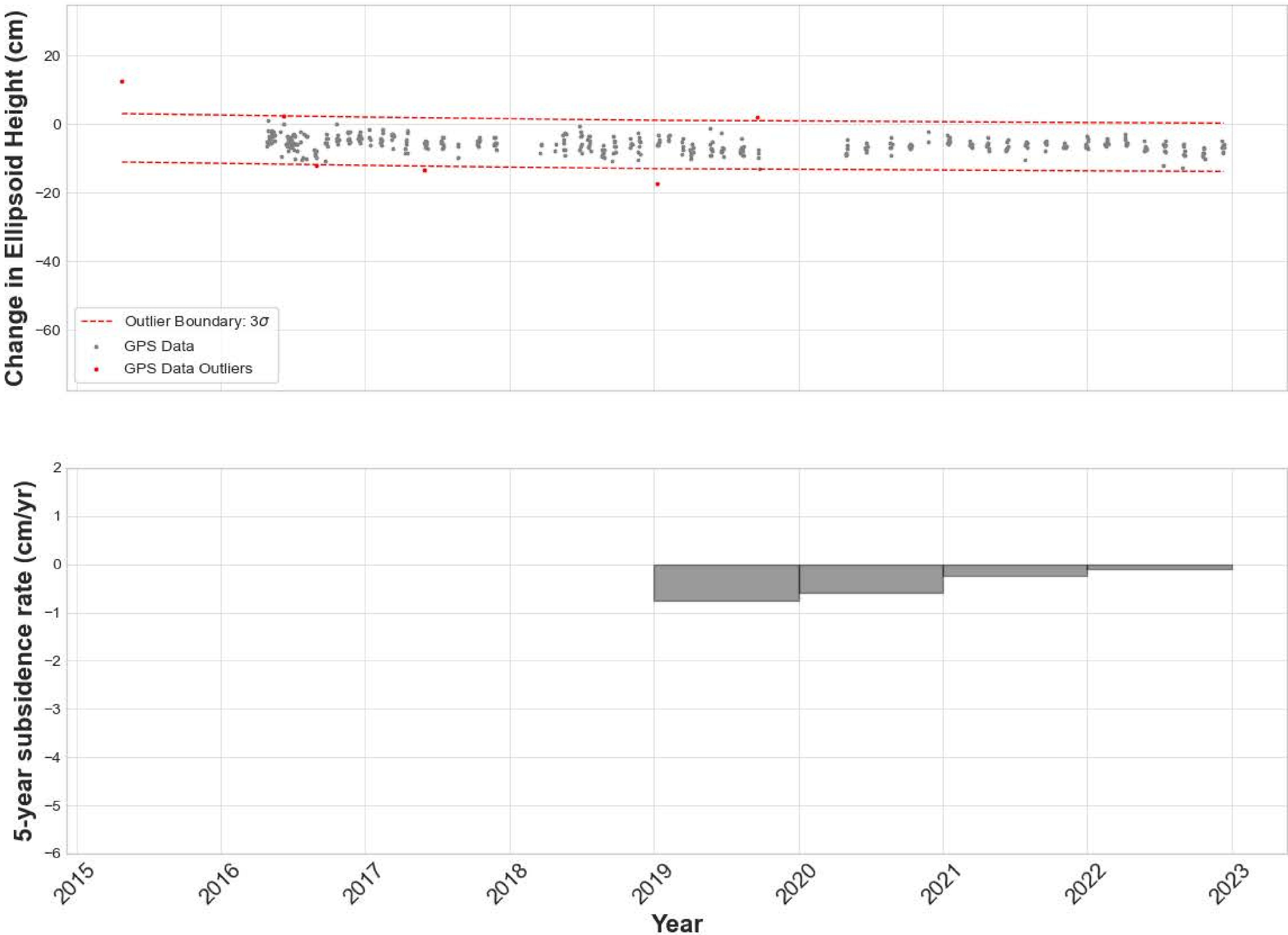
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P091



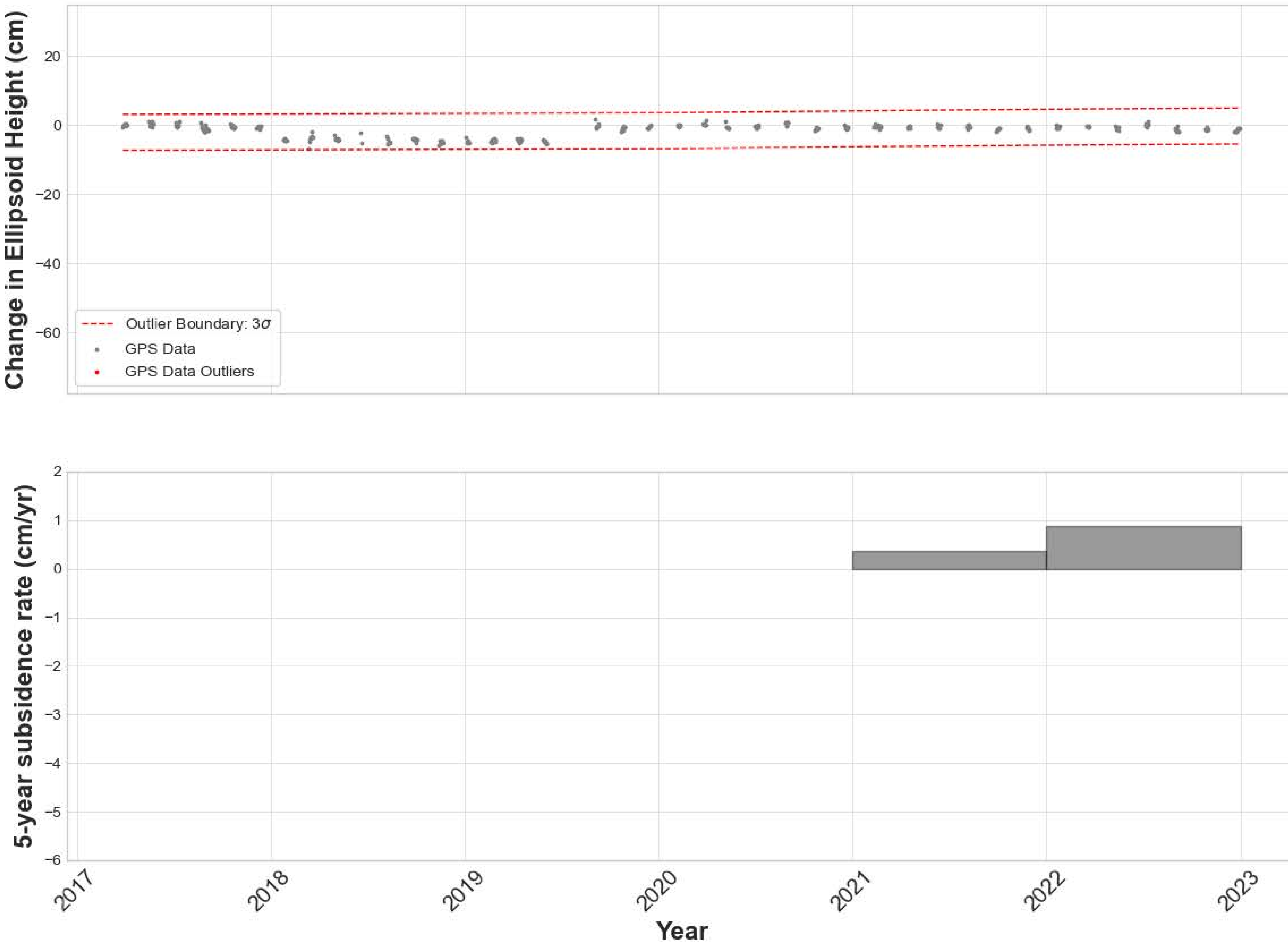
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P092



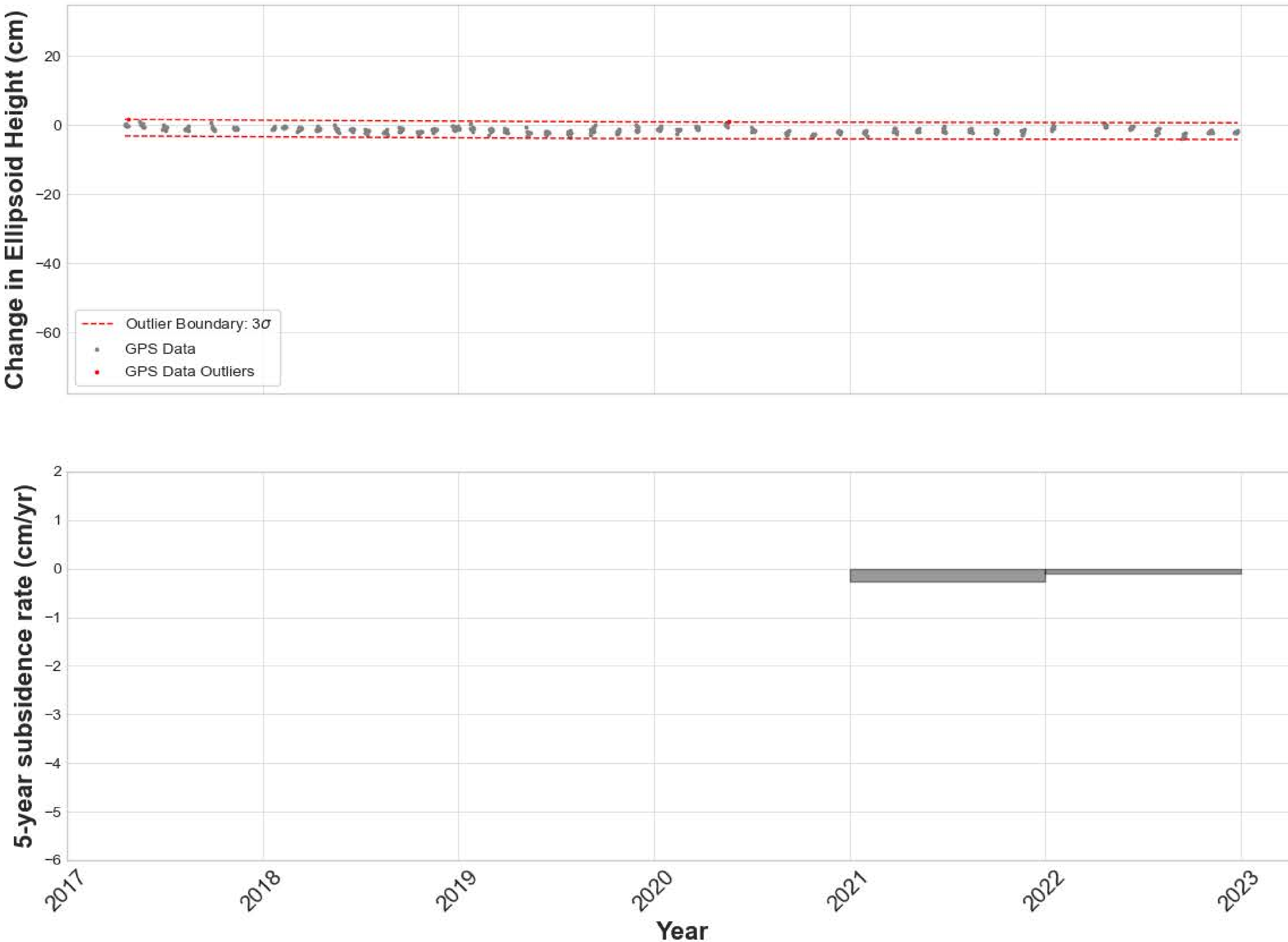
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P093



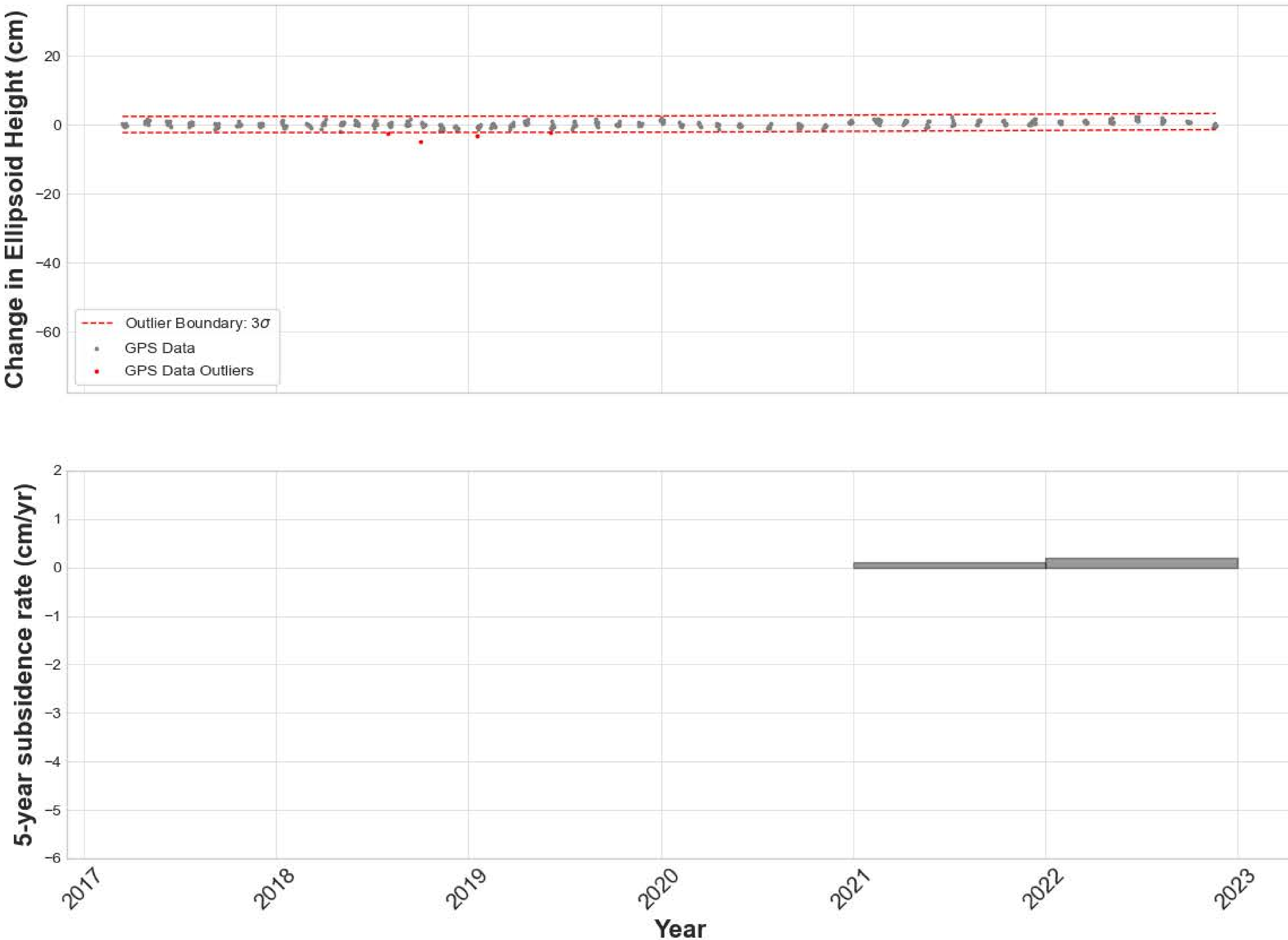
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P094



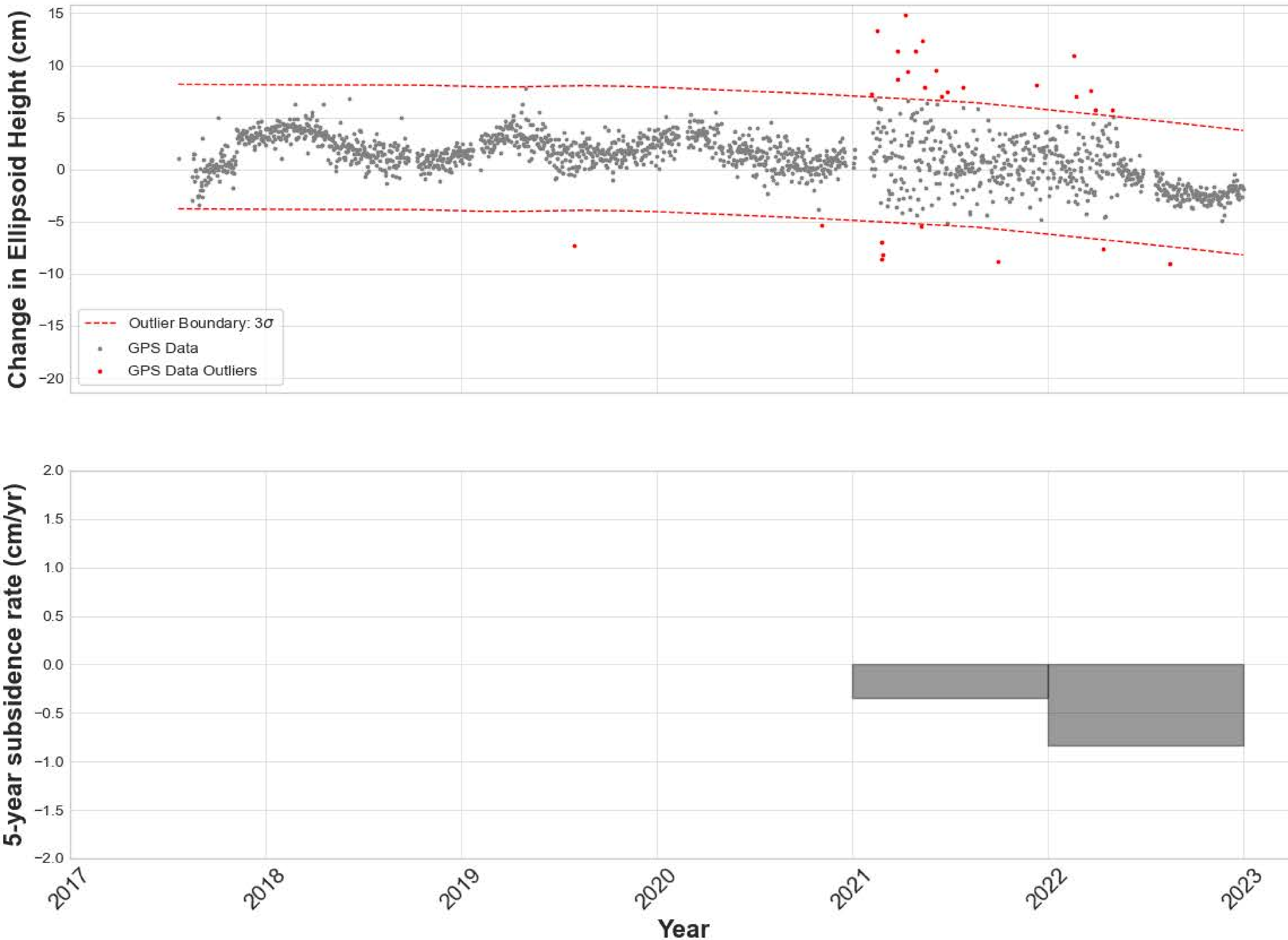
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P095



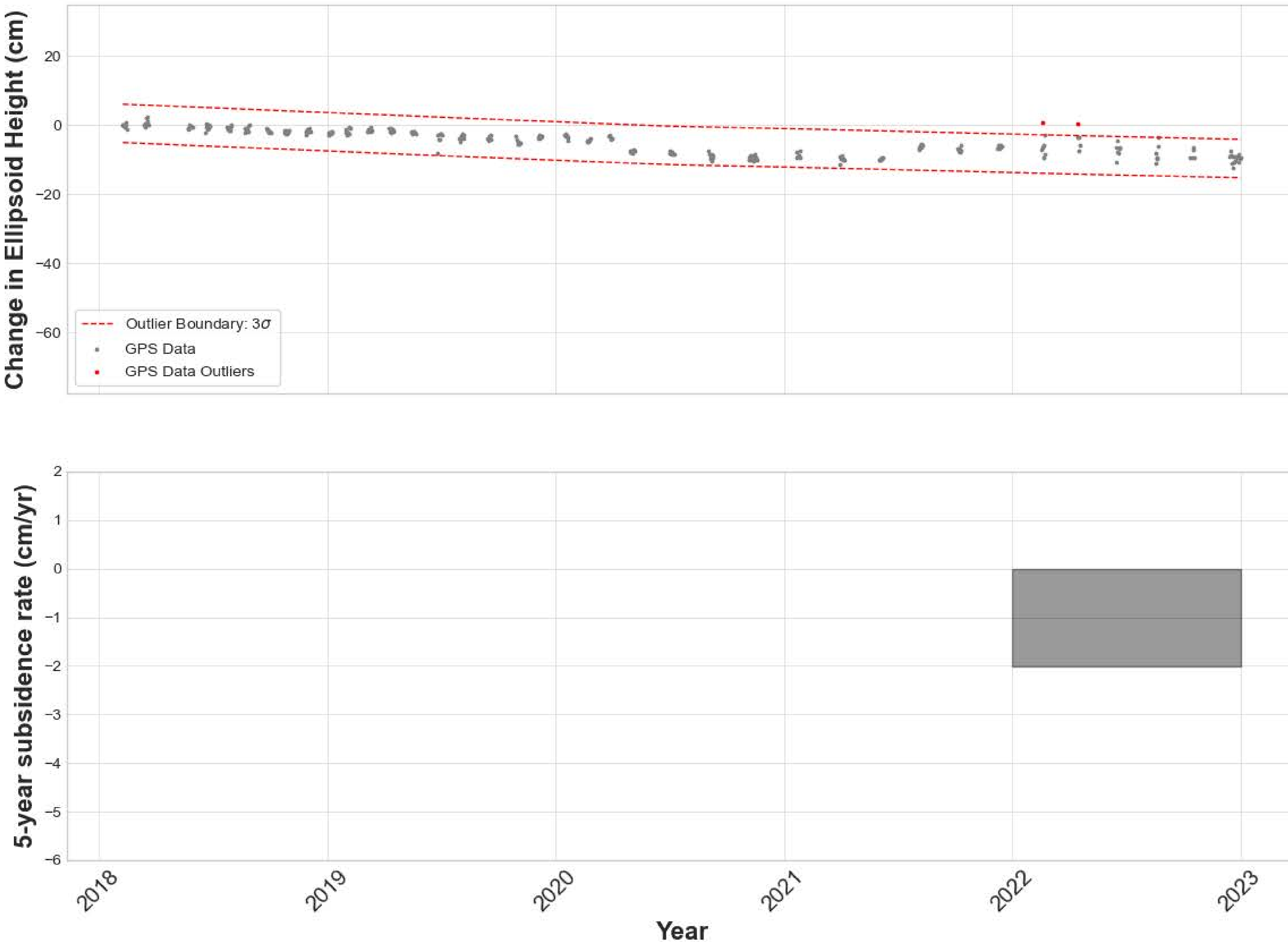
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P096



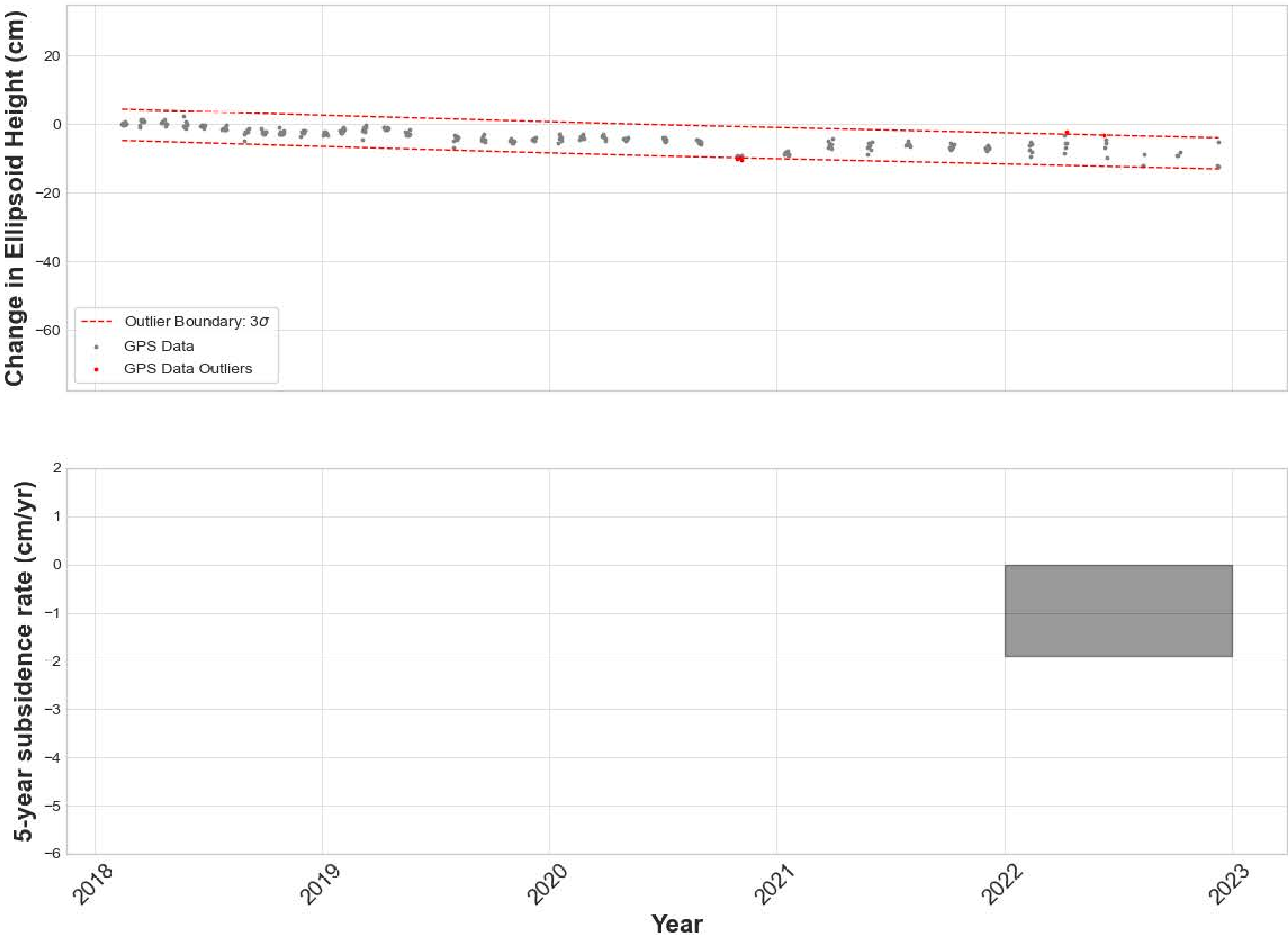
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P097



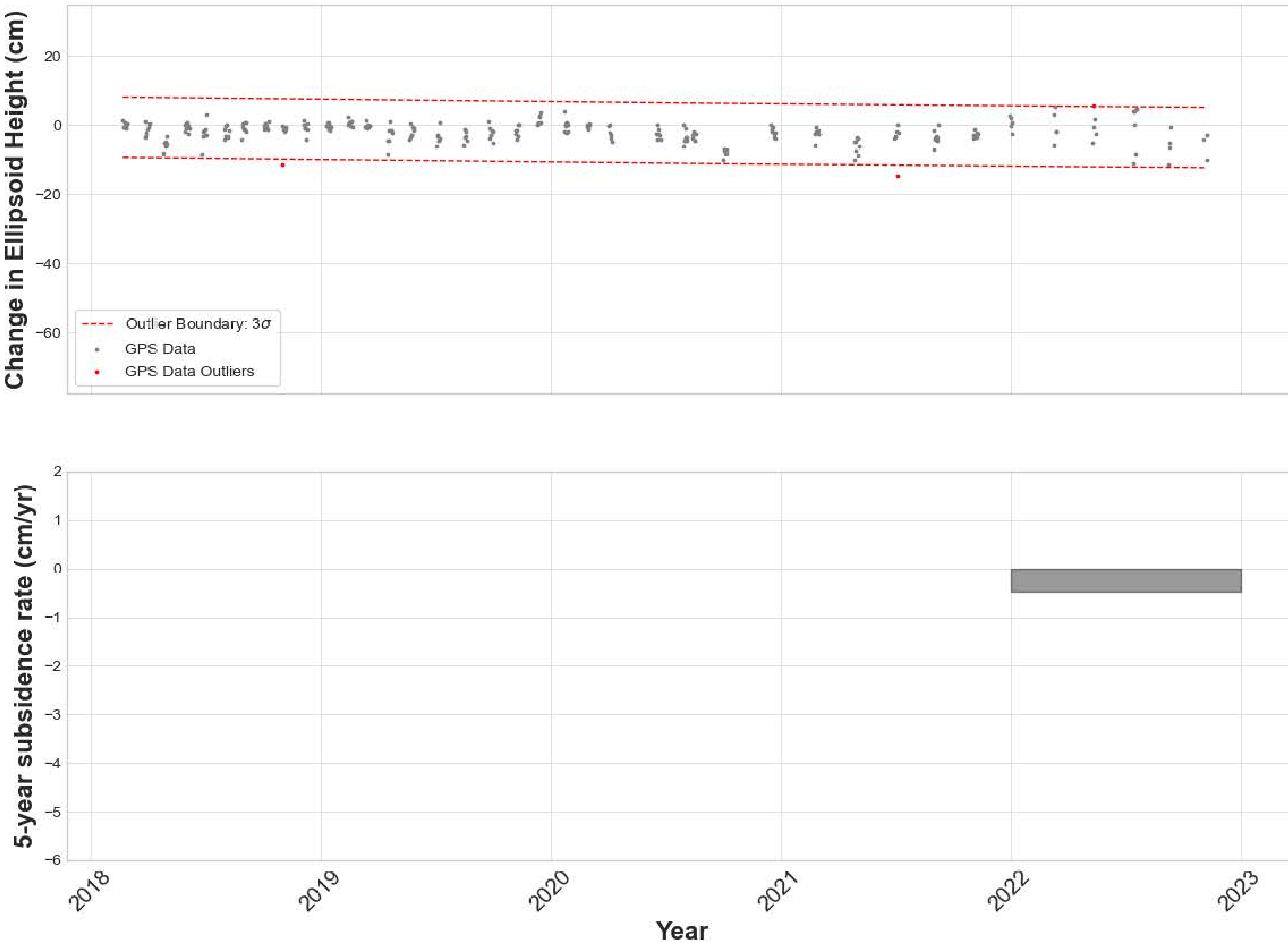
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P098



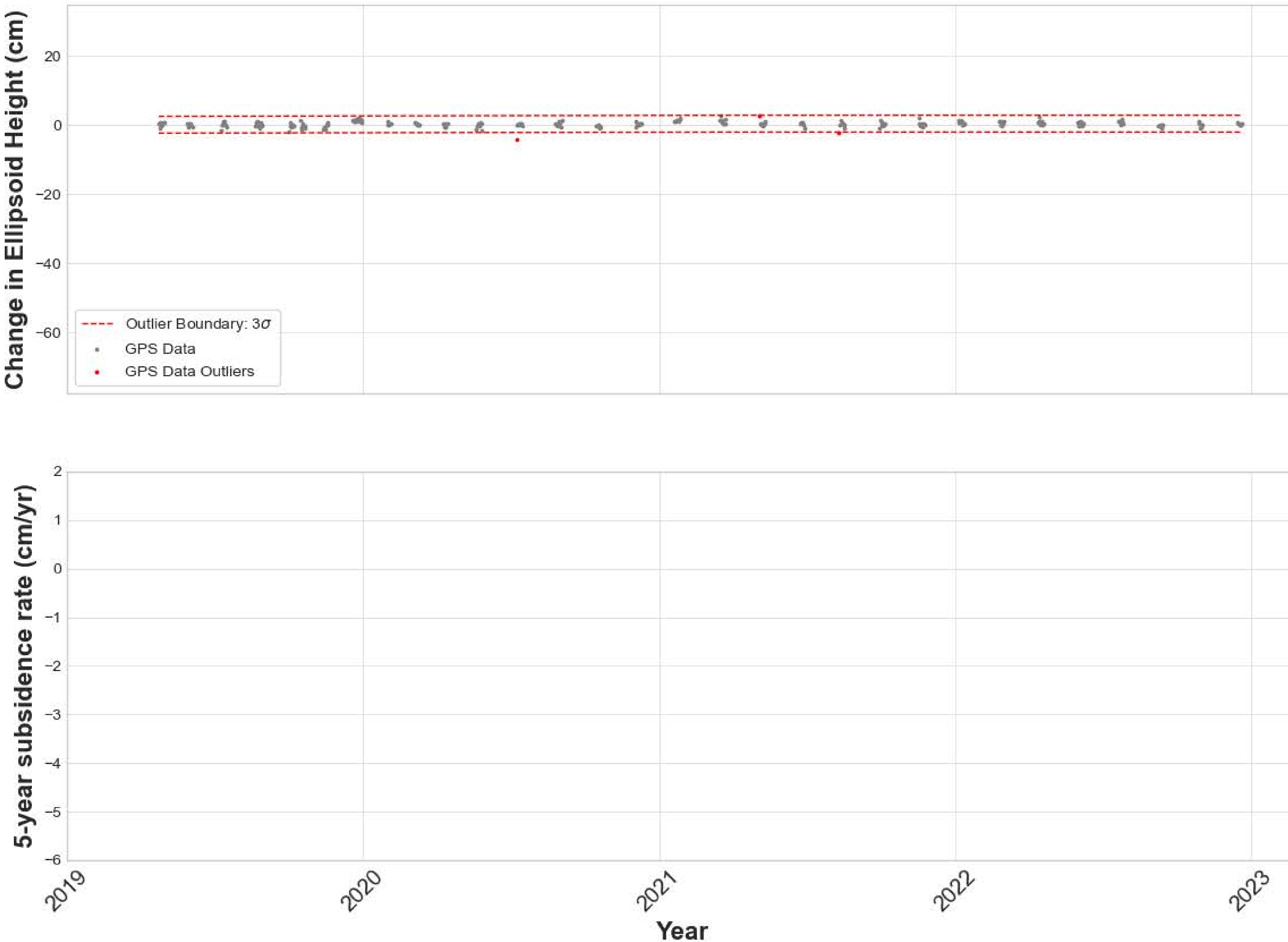
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P099



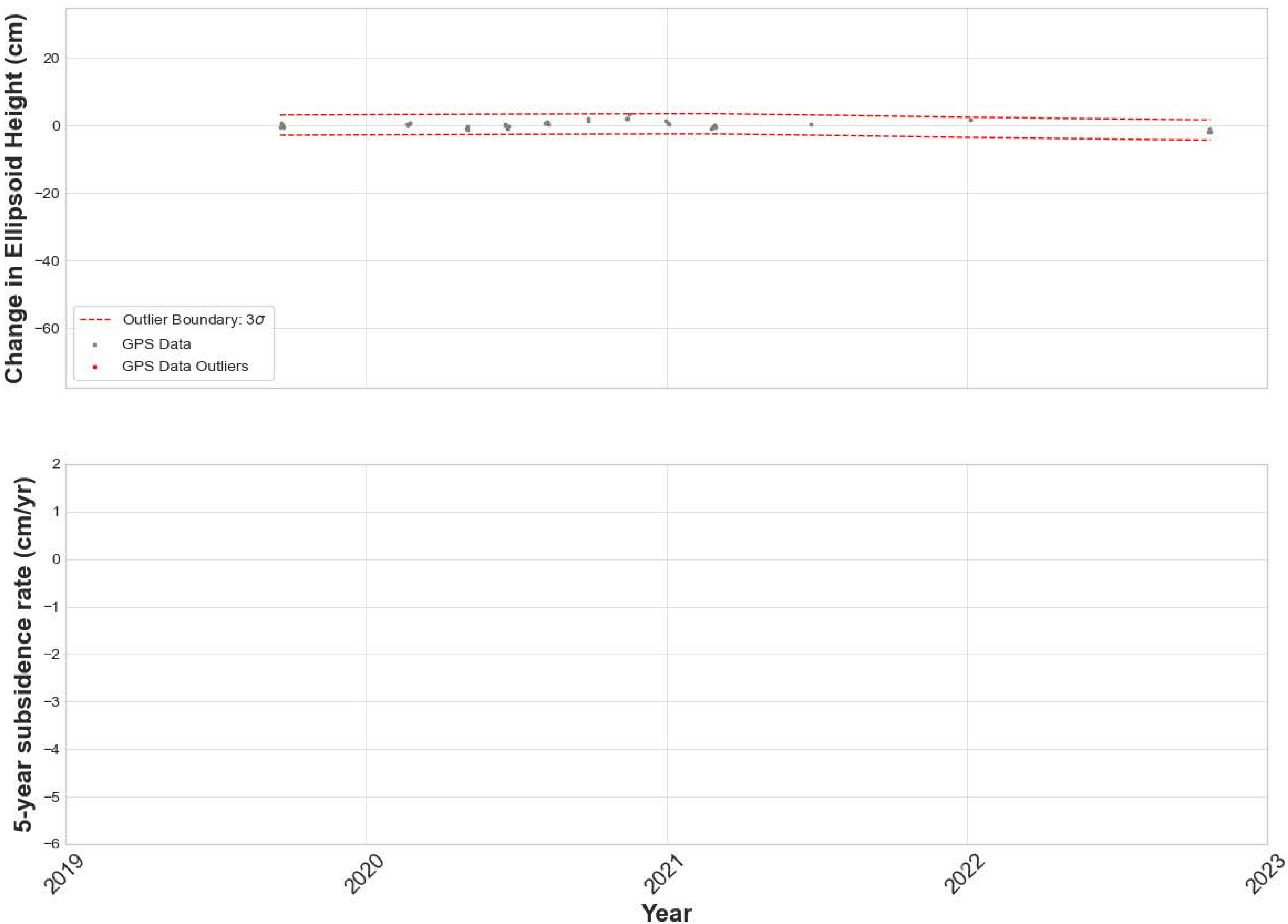
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P100



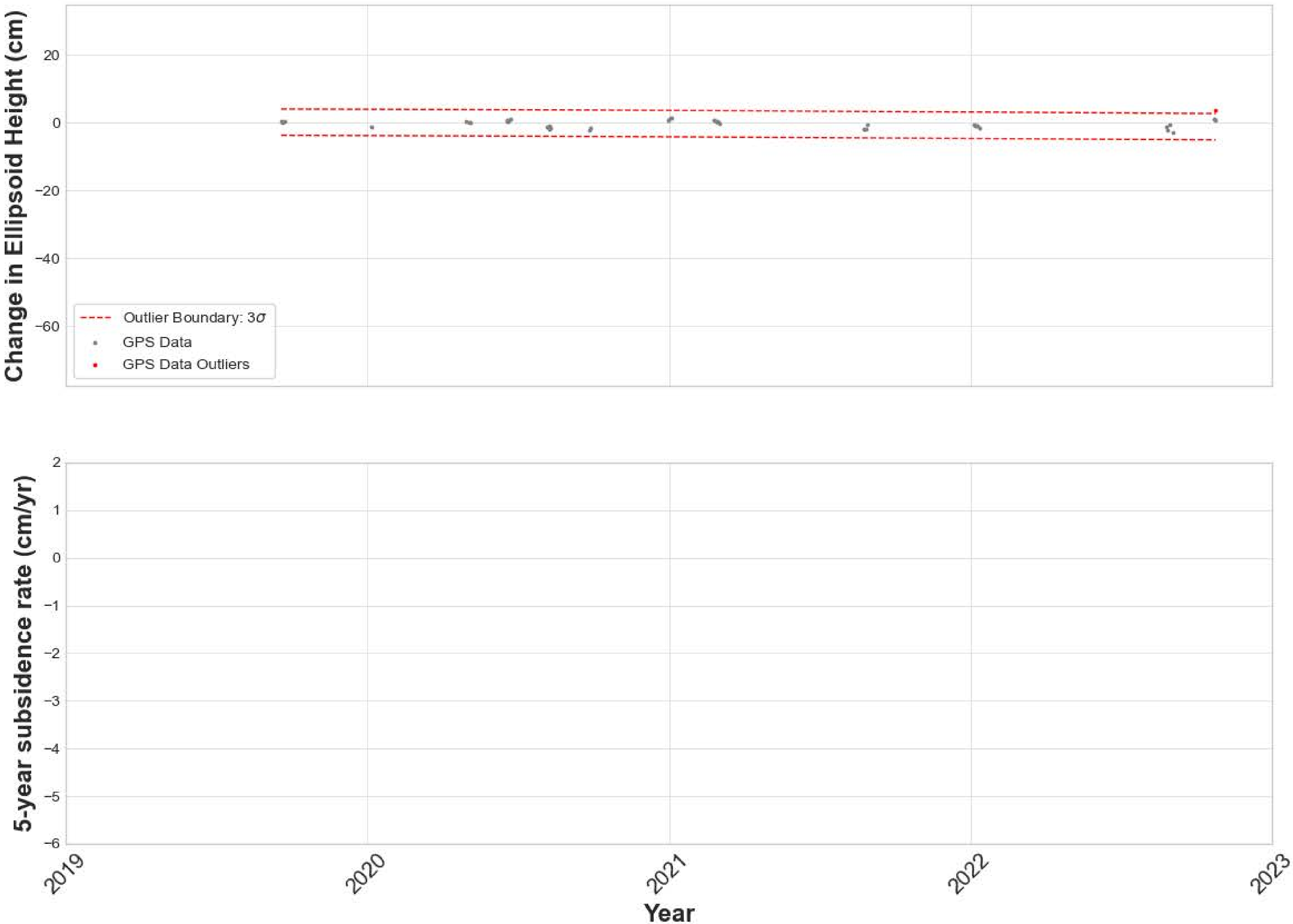
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P101



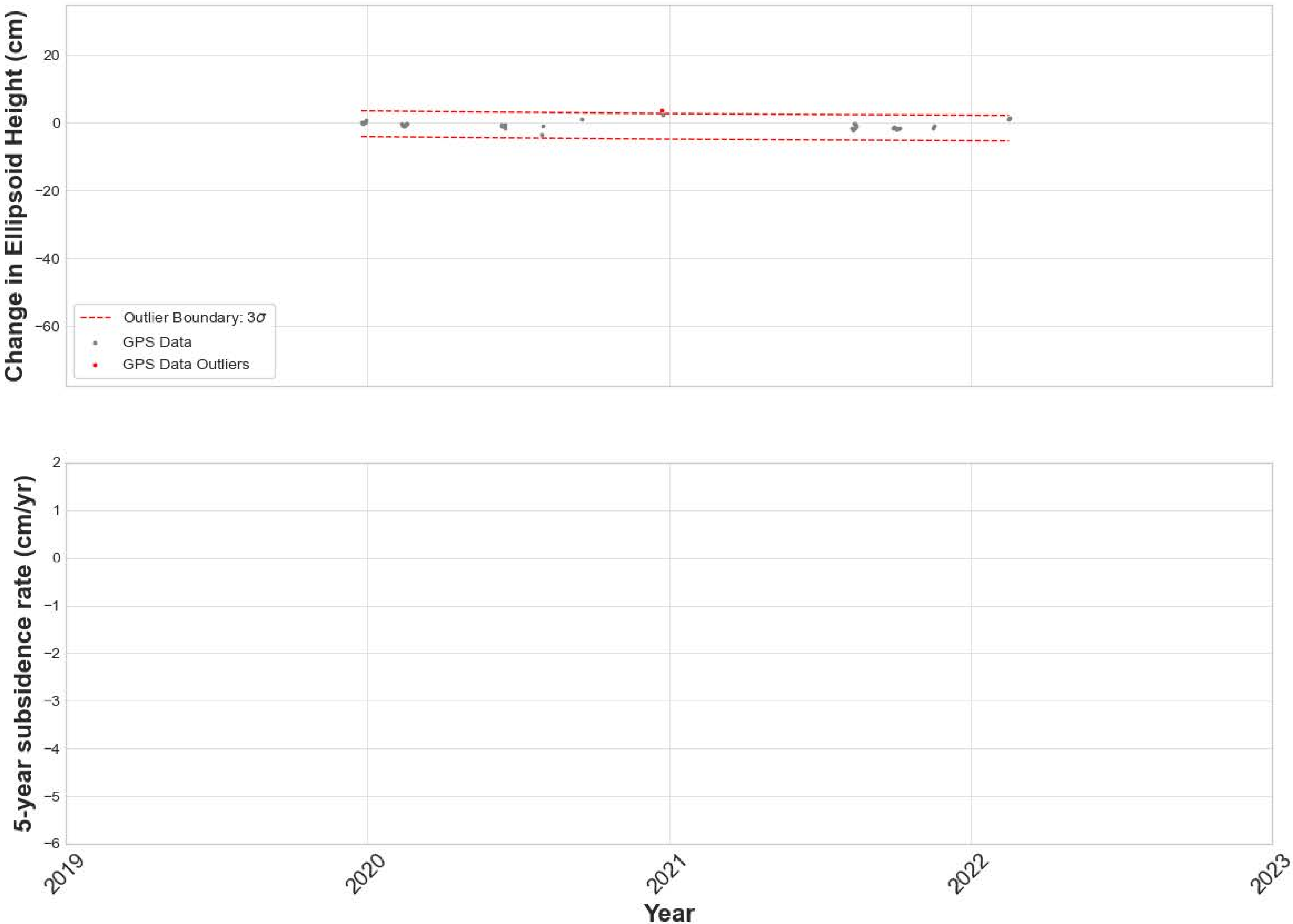
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P103



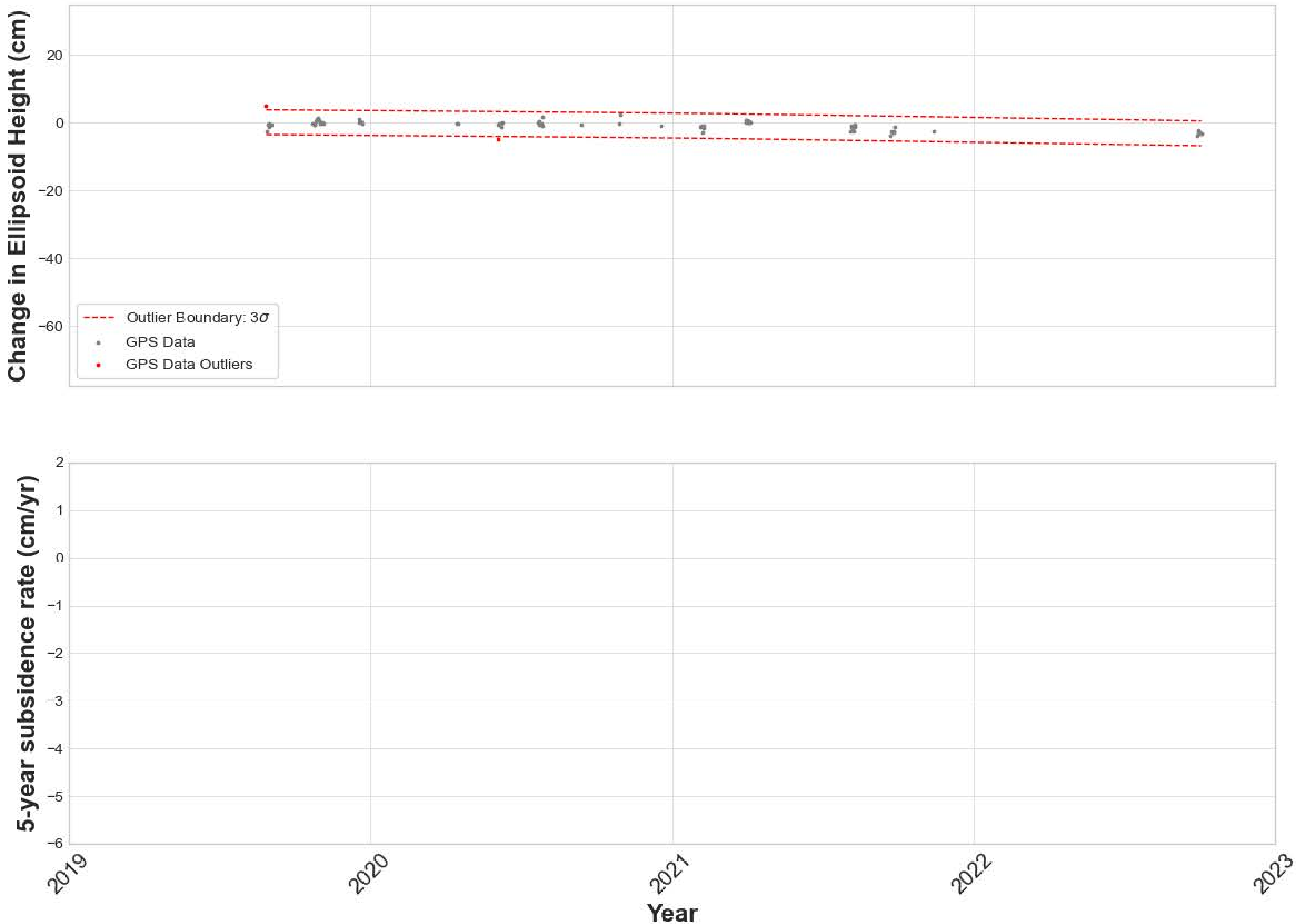
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P104



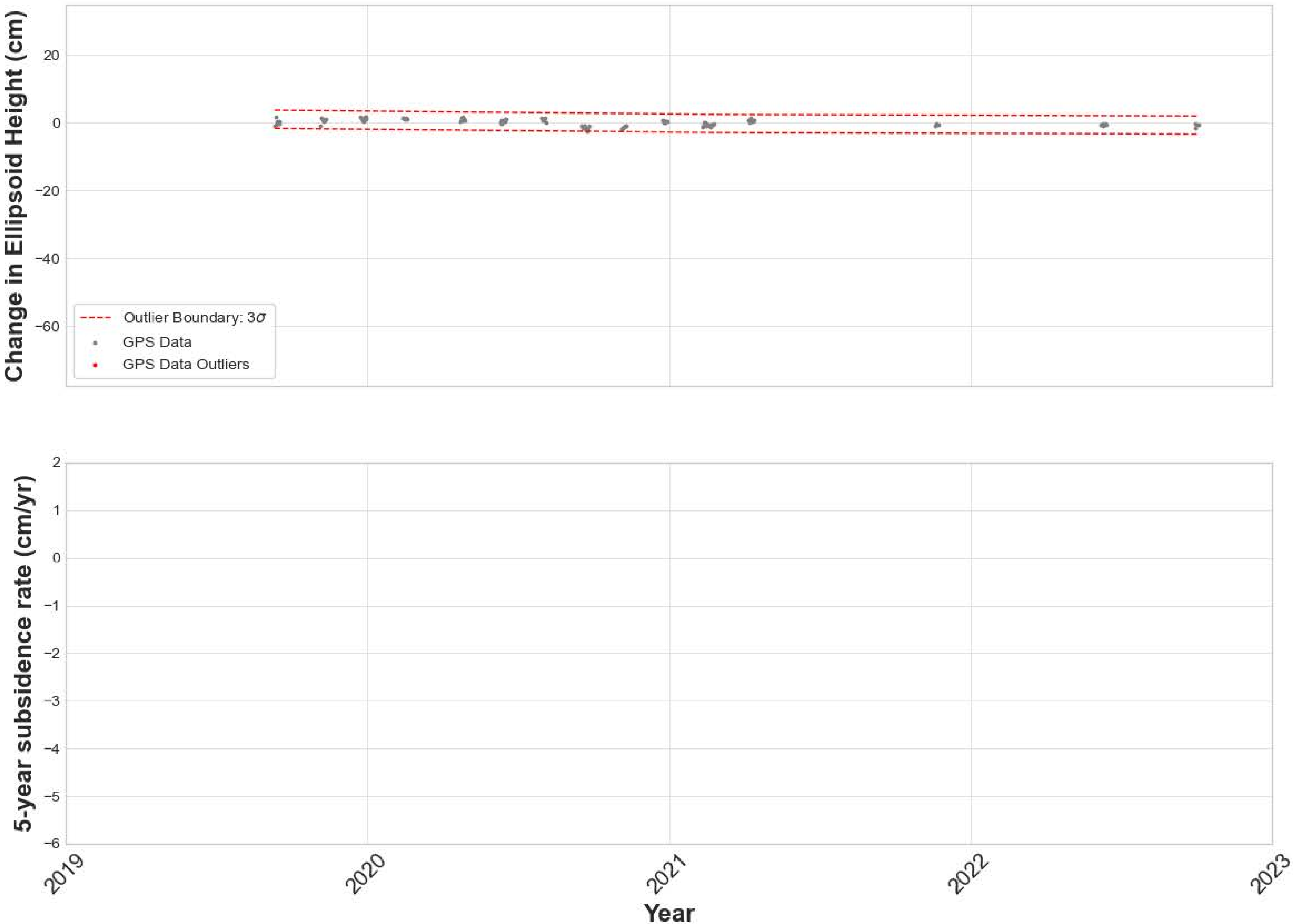
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P105

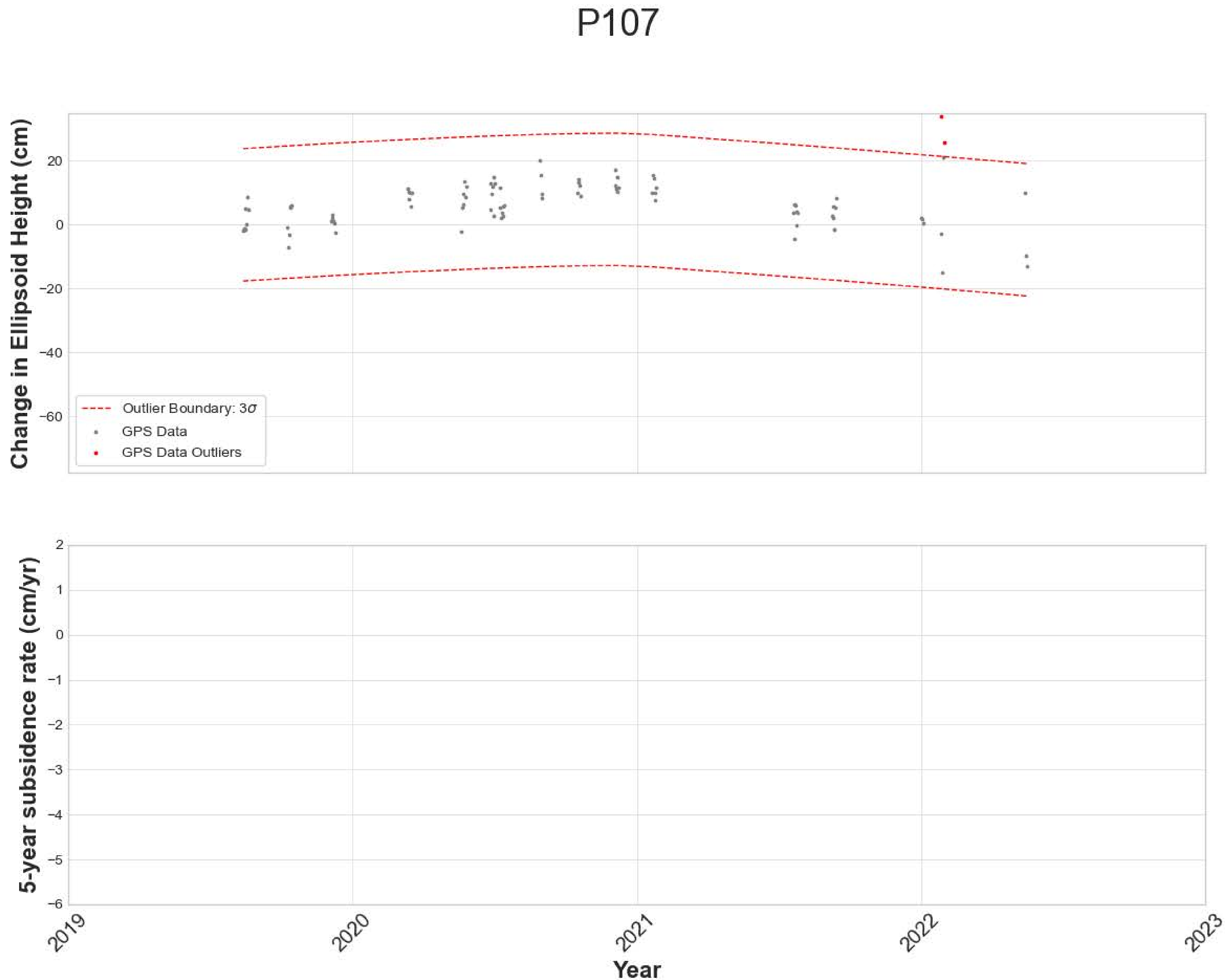


Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P106

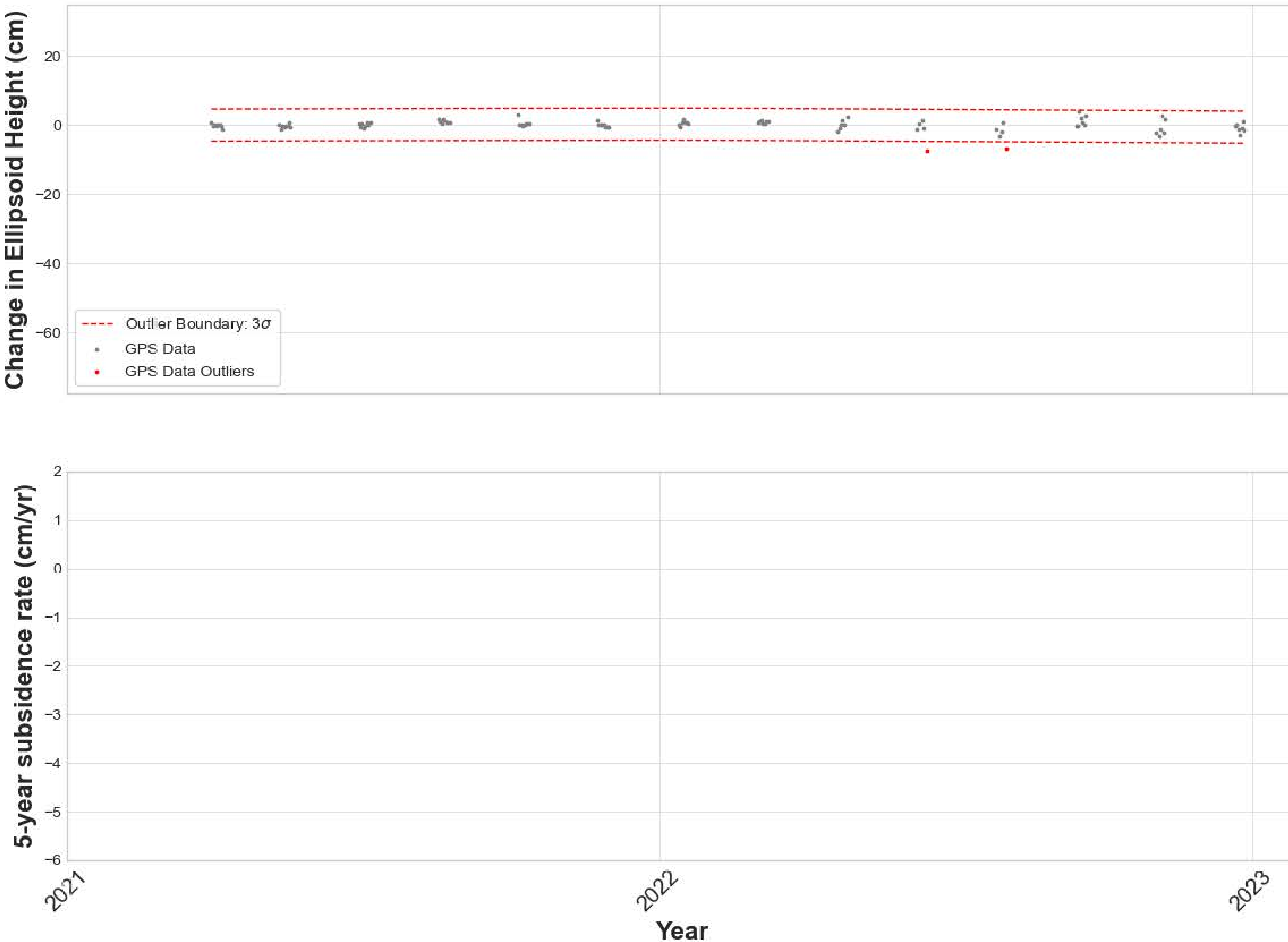


Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.



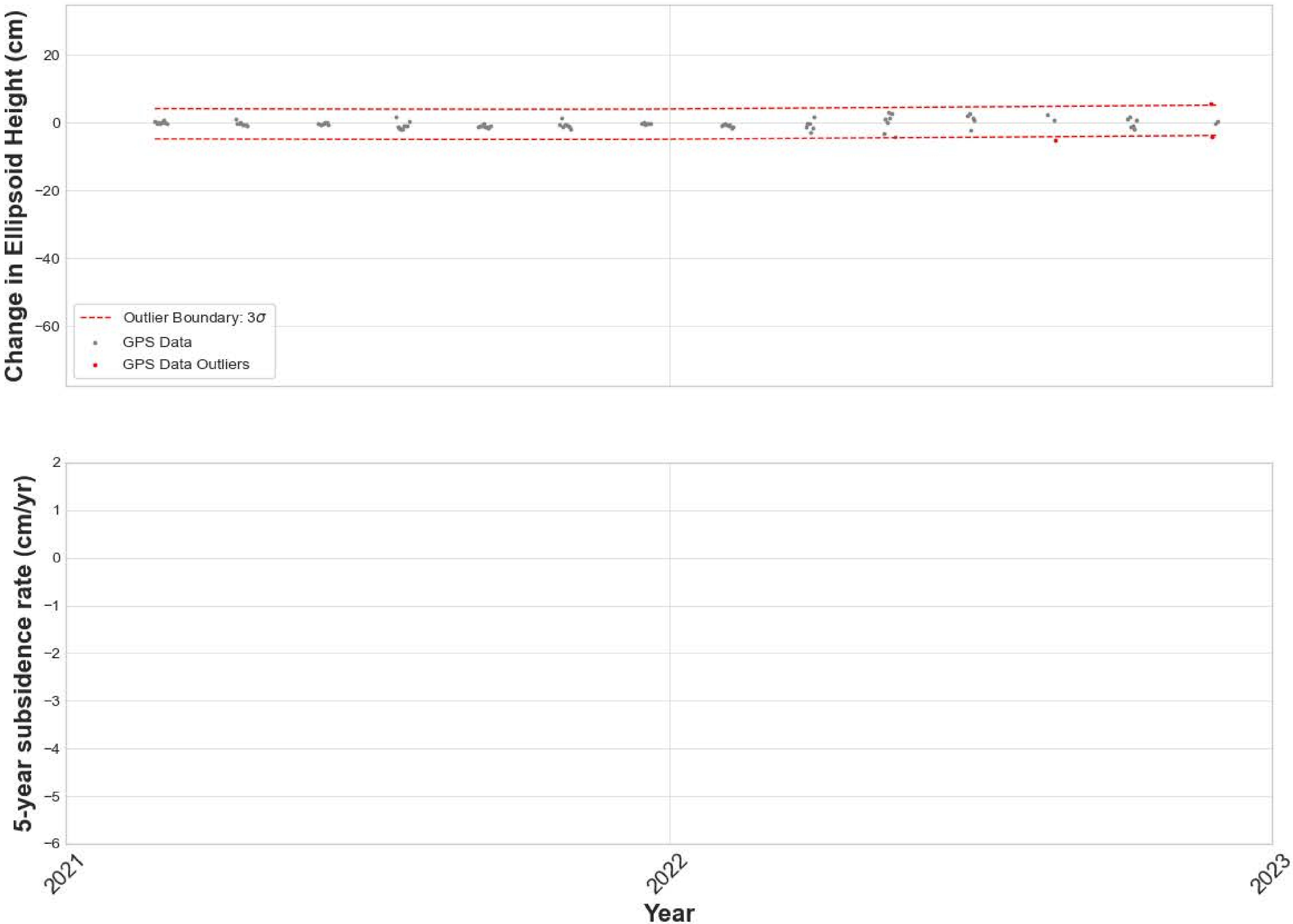
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P108



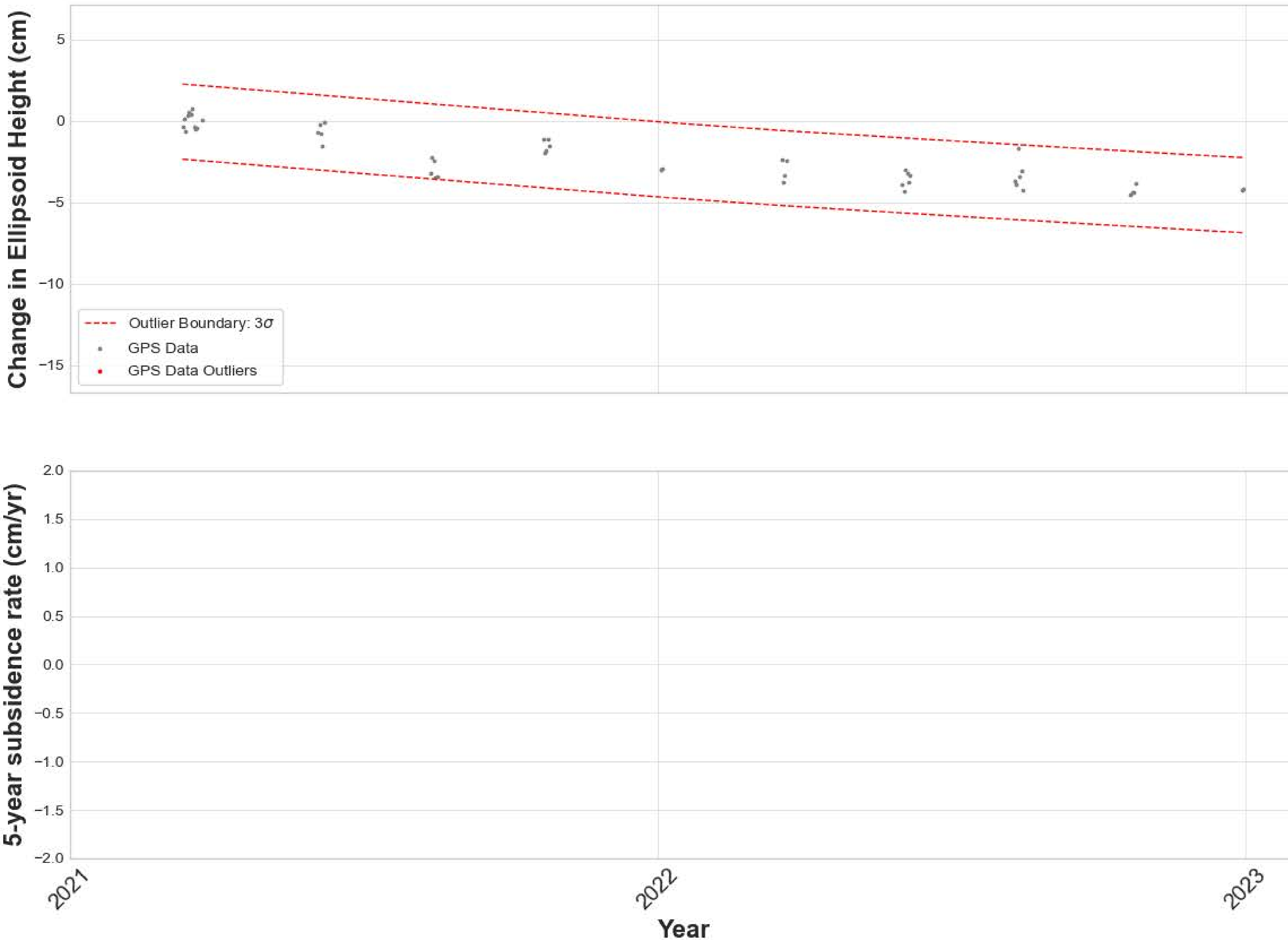
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P109



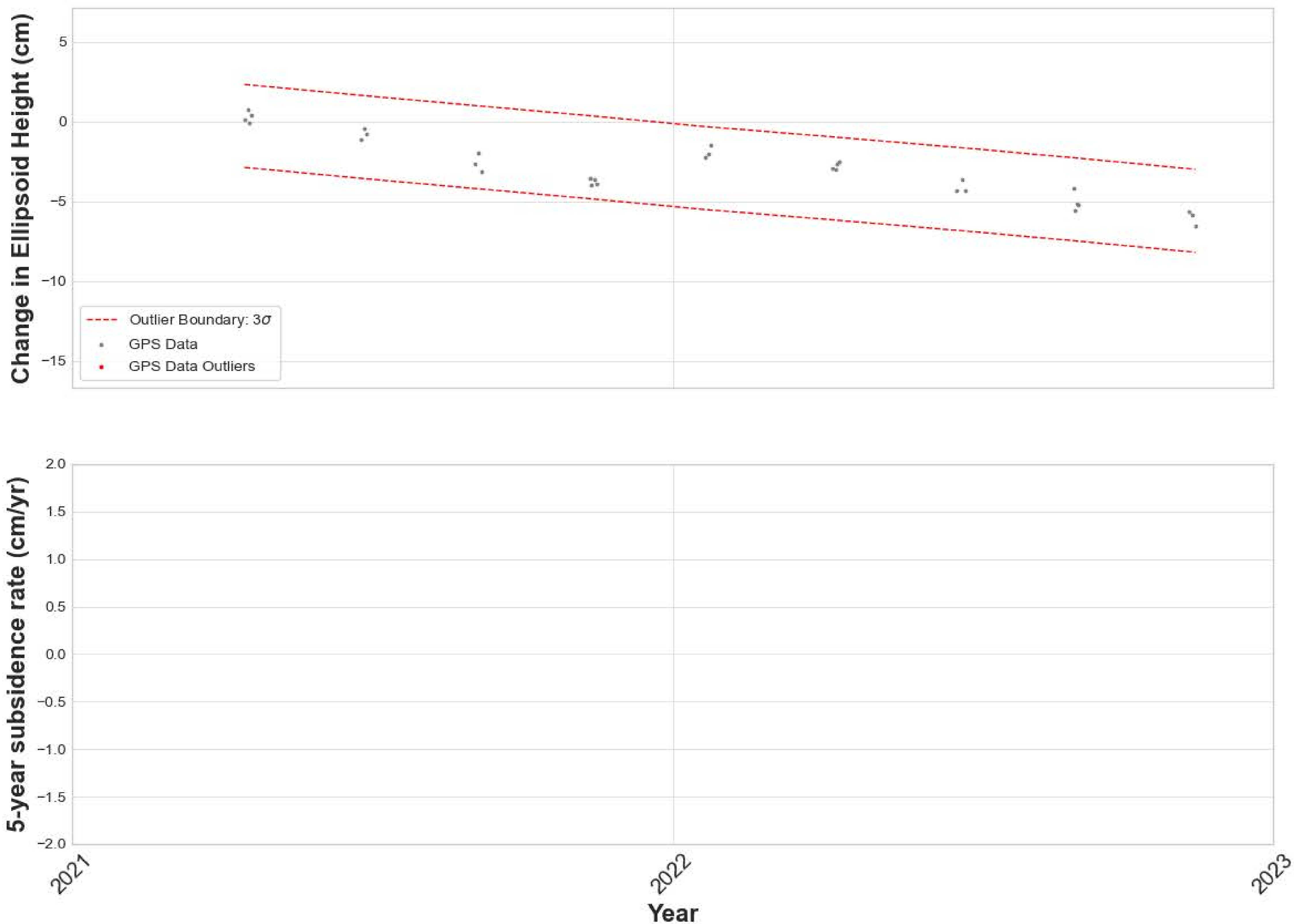
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P110



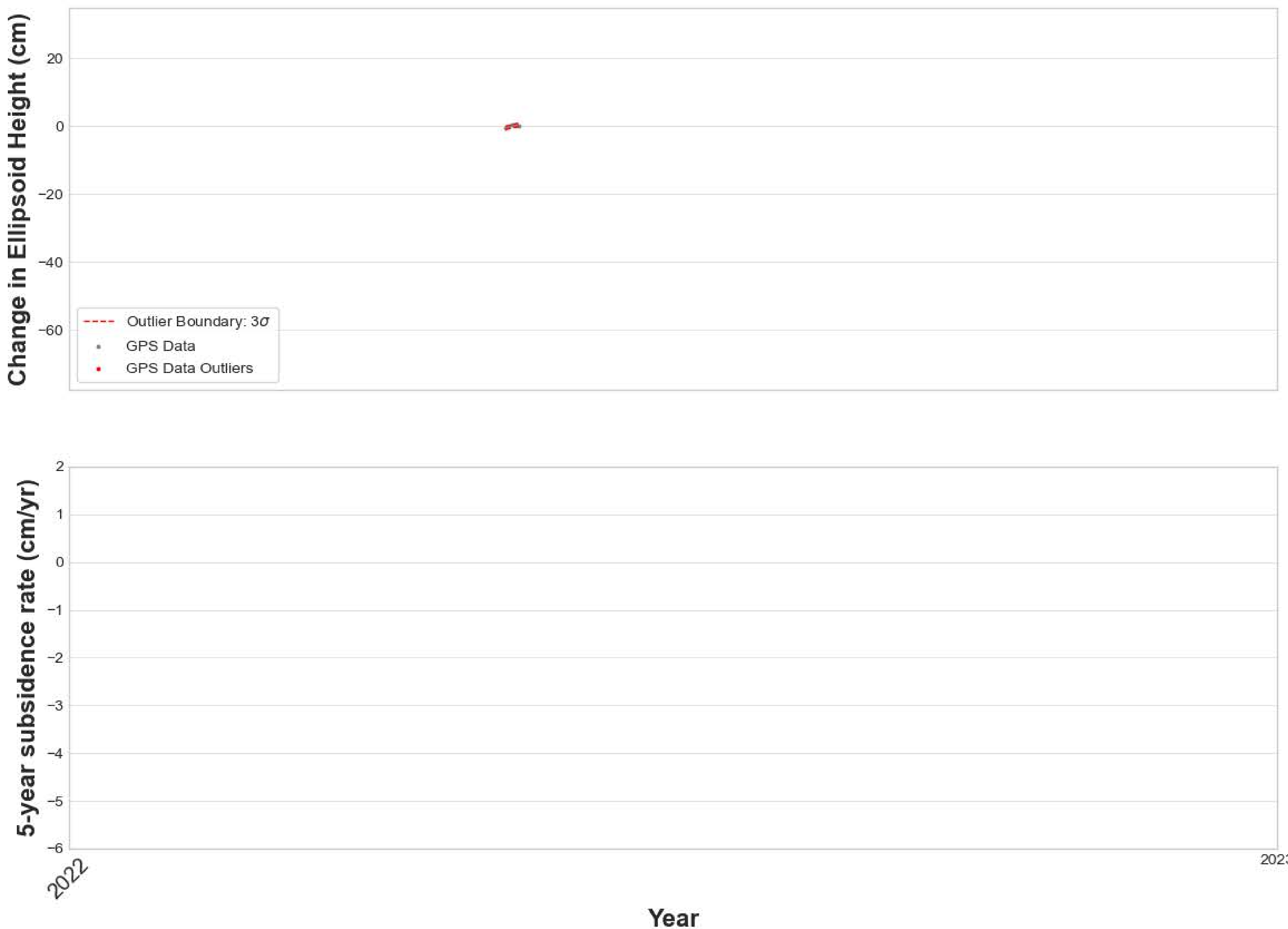
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P111



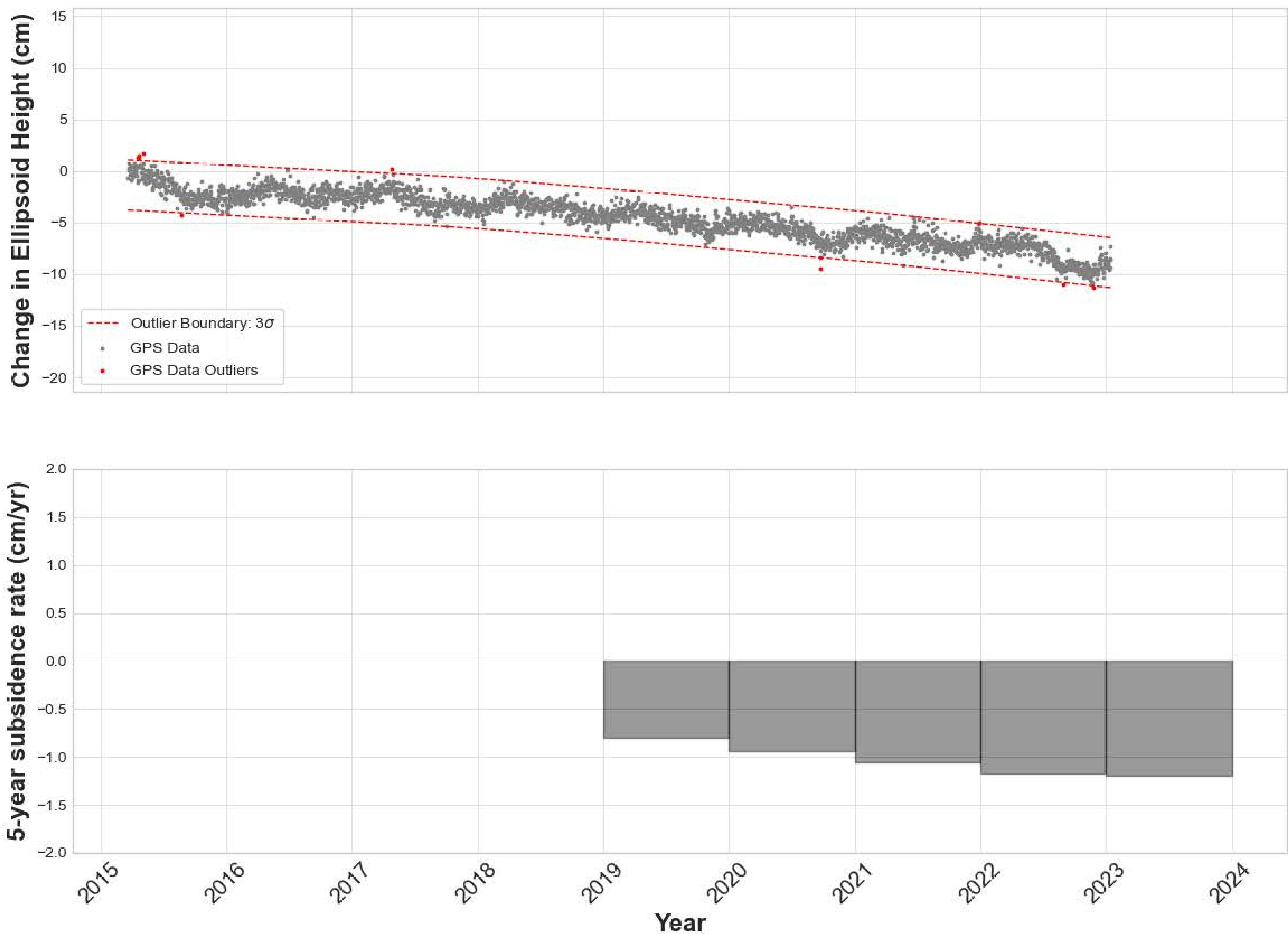
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

P112



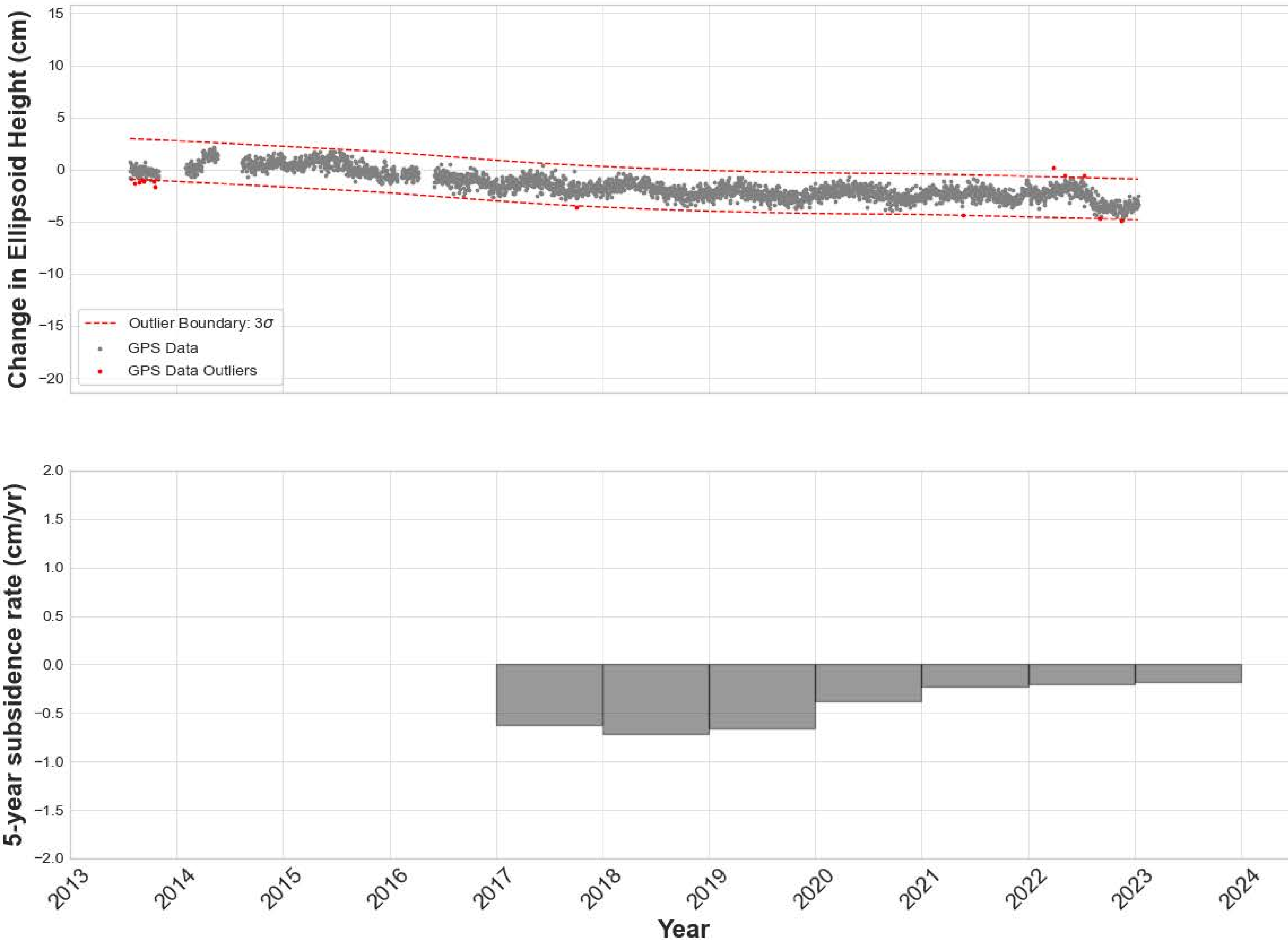
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

PWES



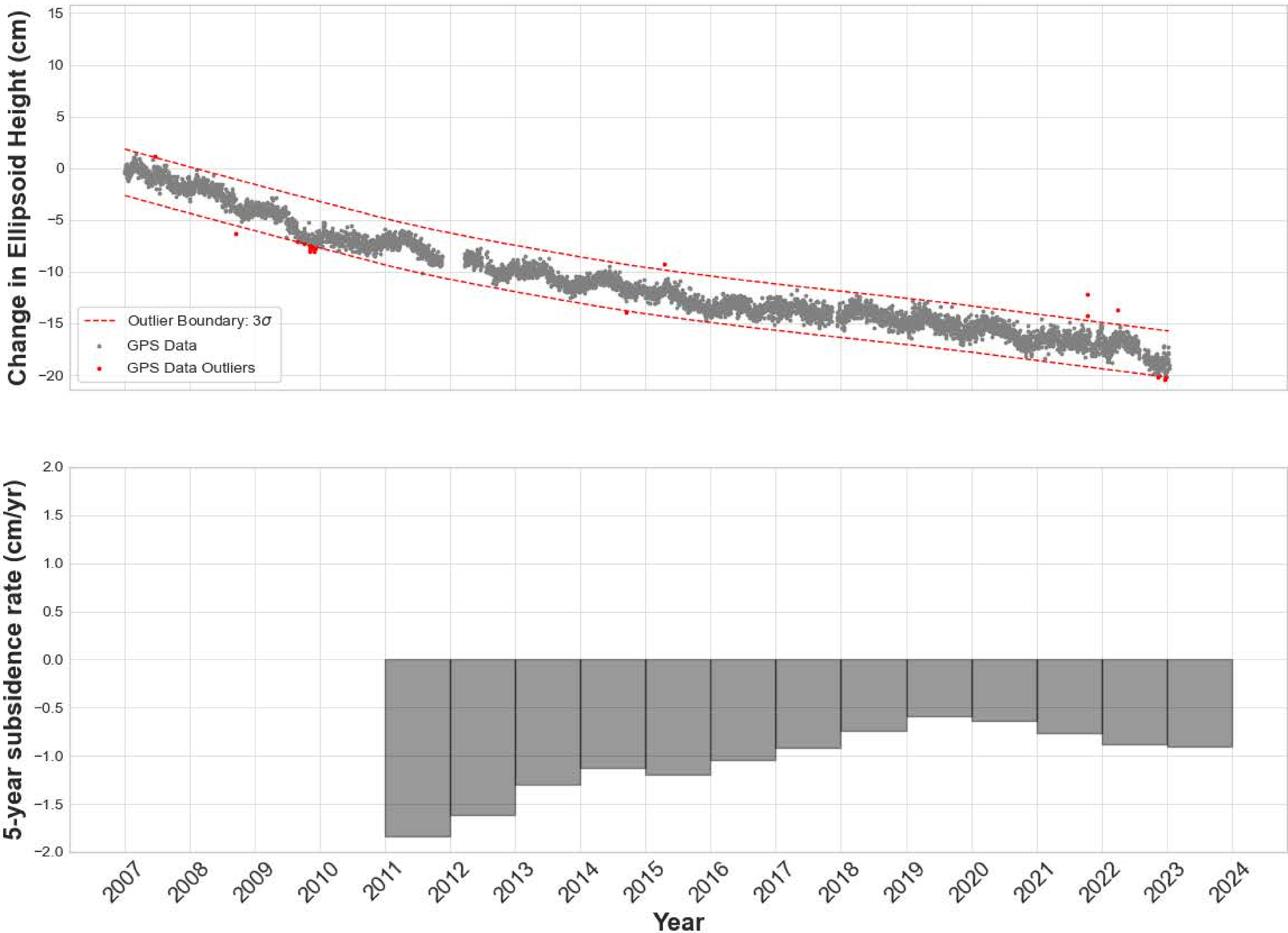
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

RDCT



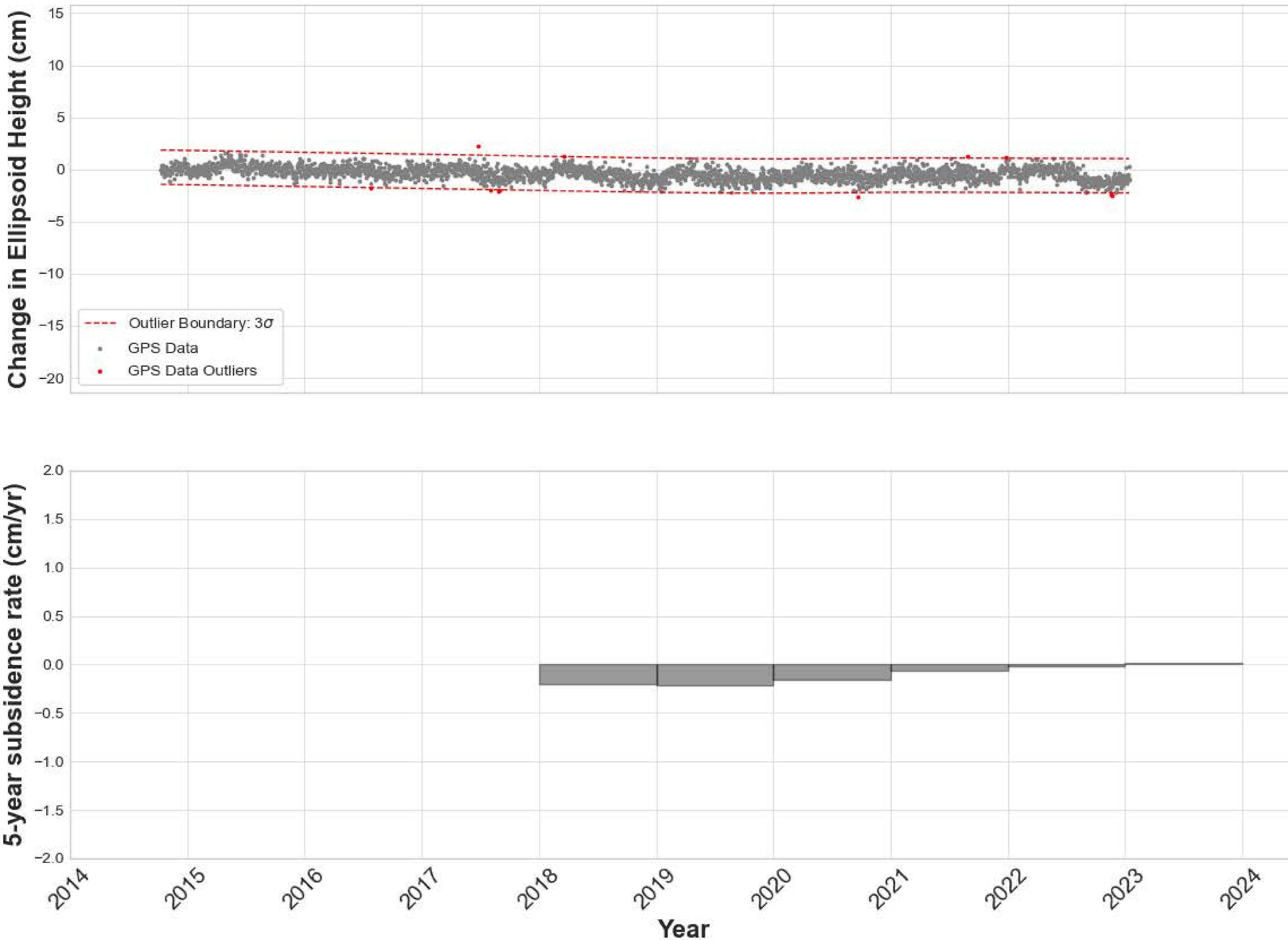
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

ROD1



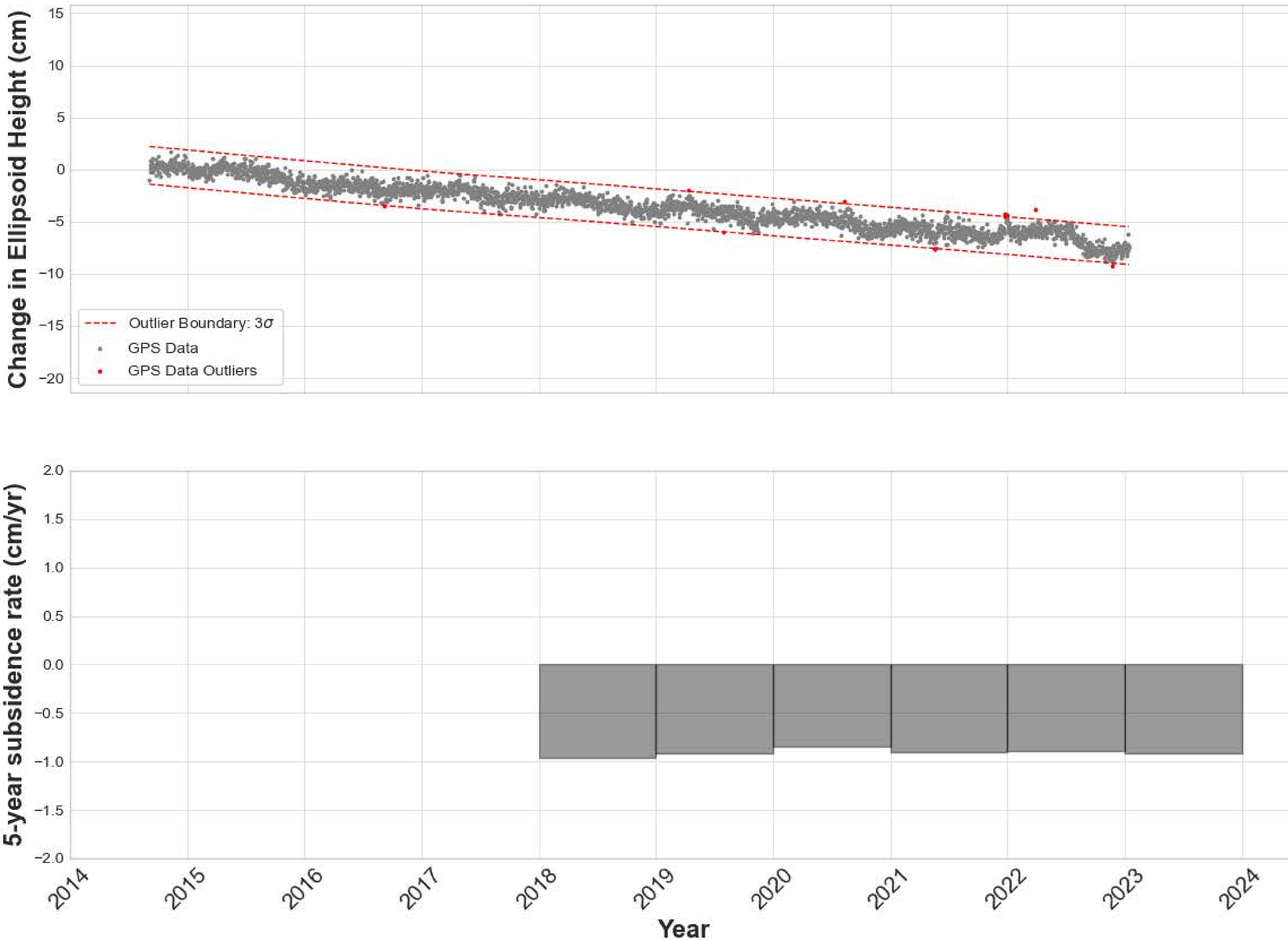
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

RPFB



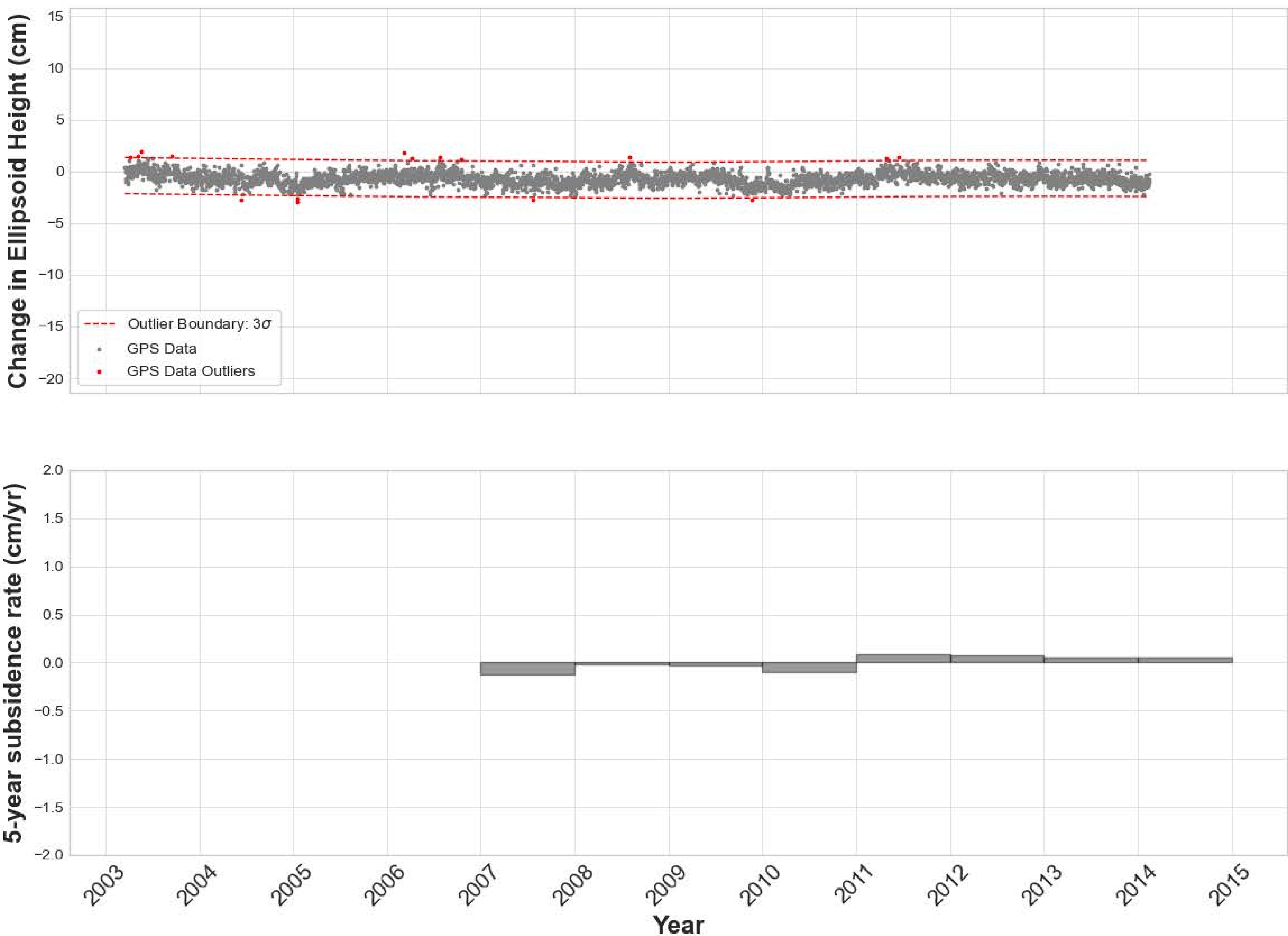
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

SESG



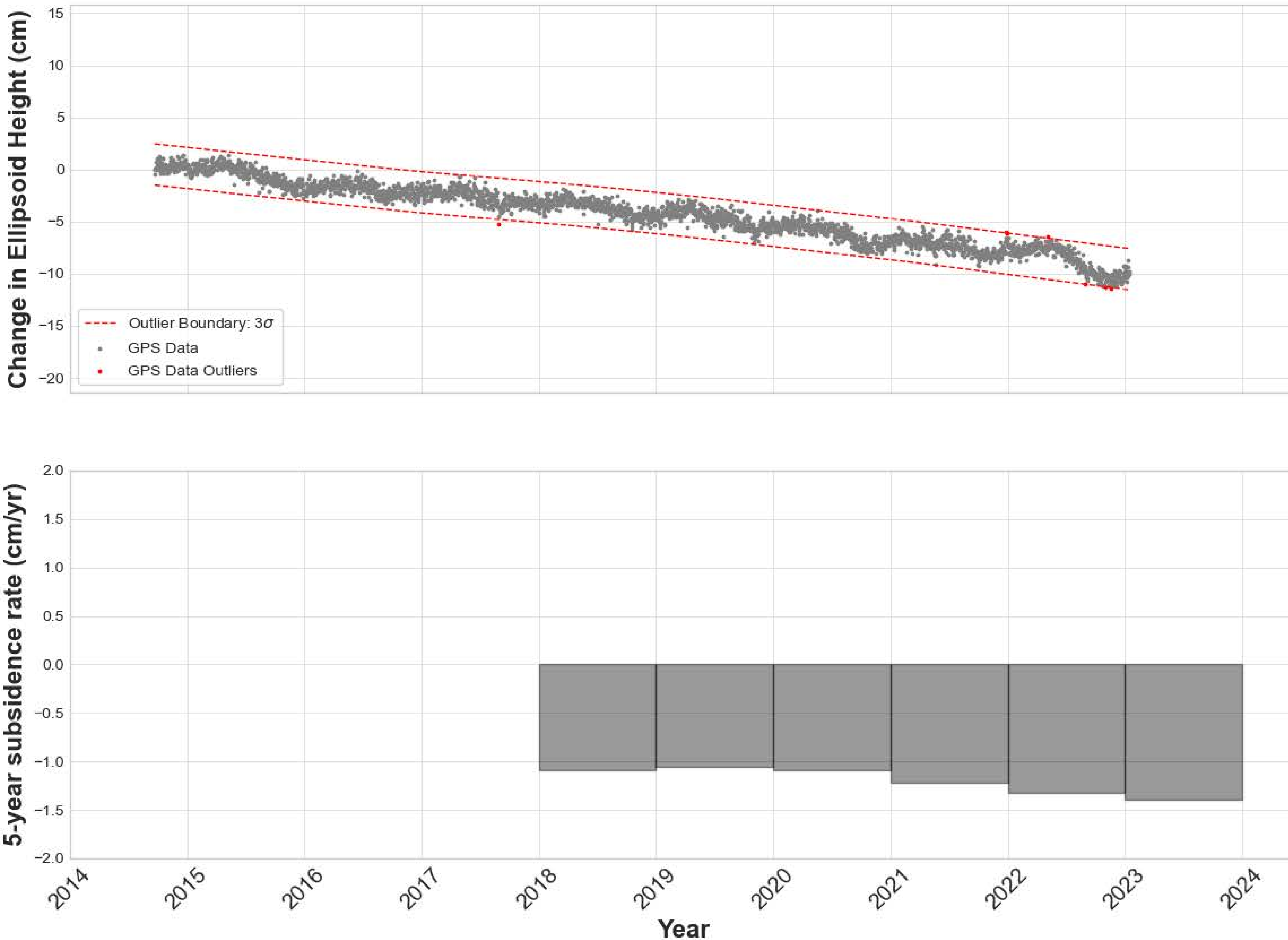
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

SG32



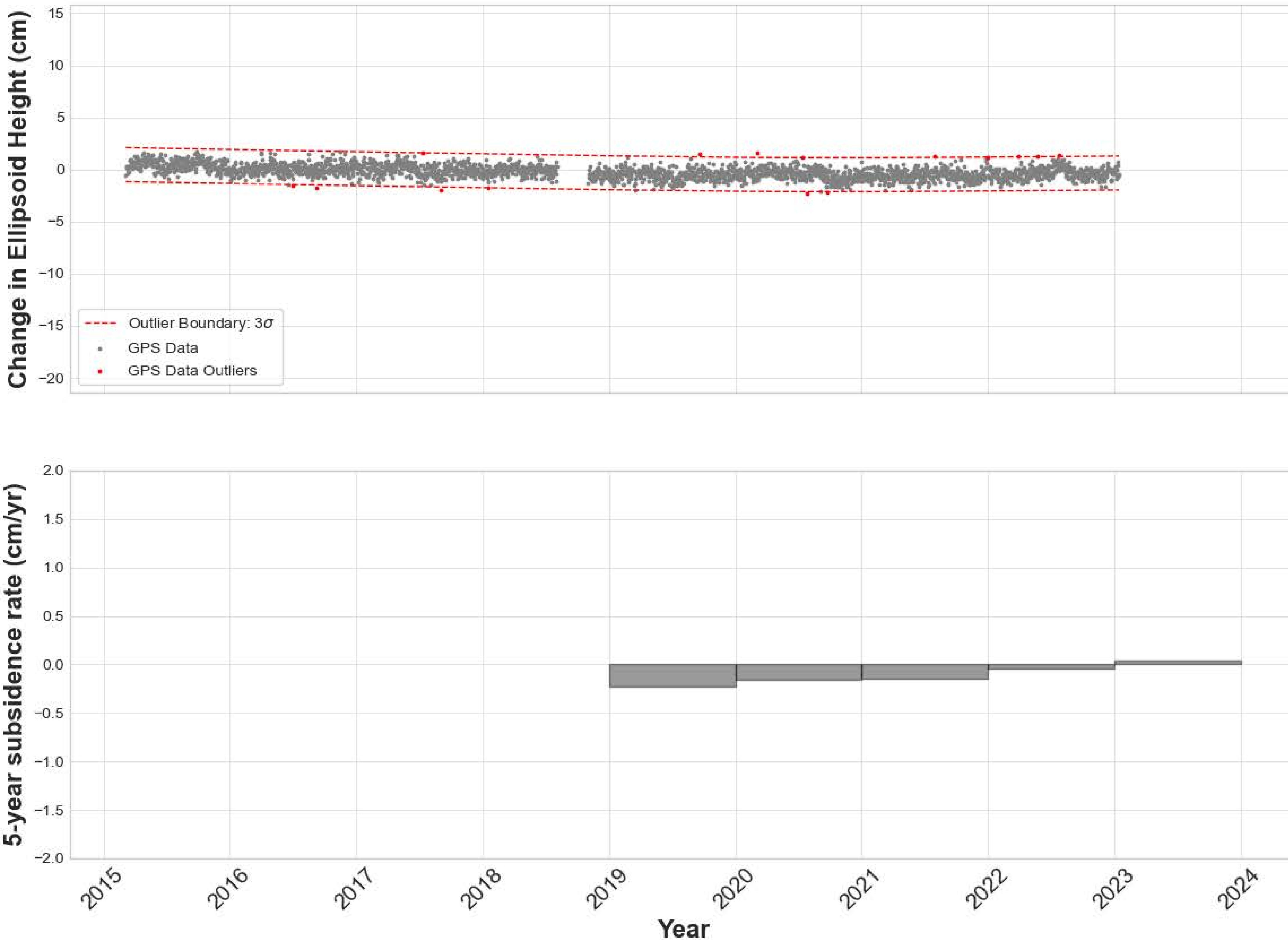
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

SHSG



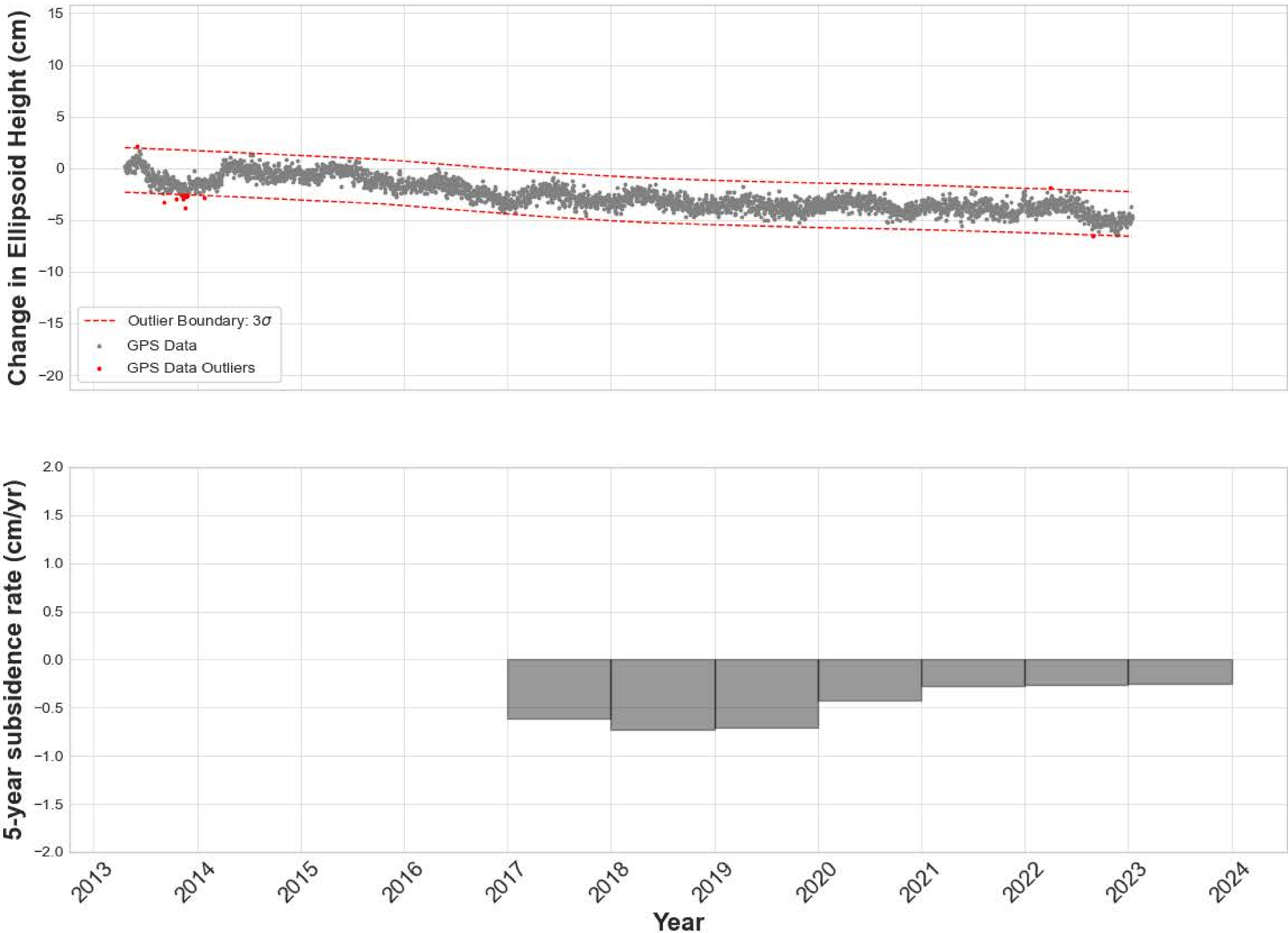
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

SISD



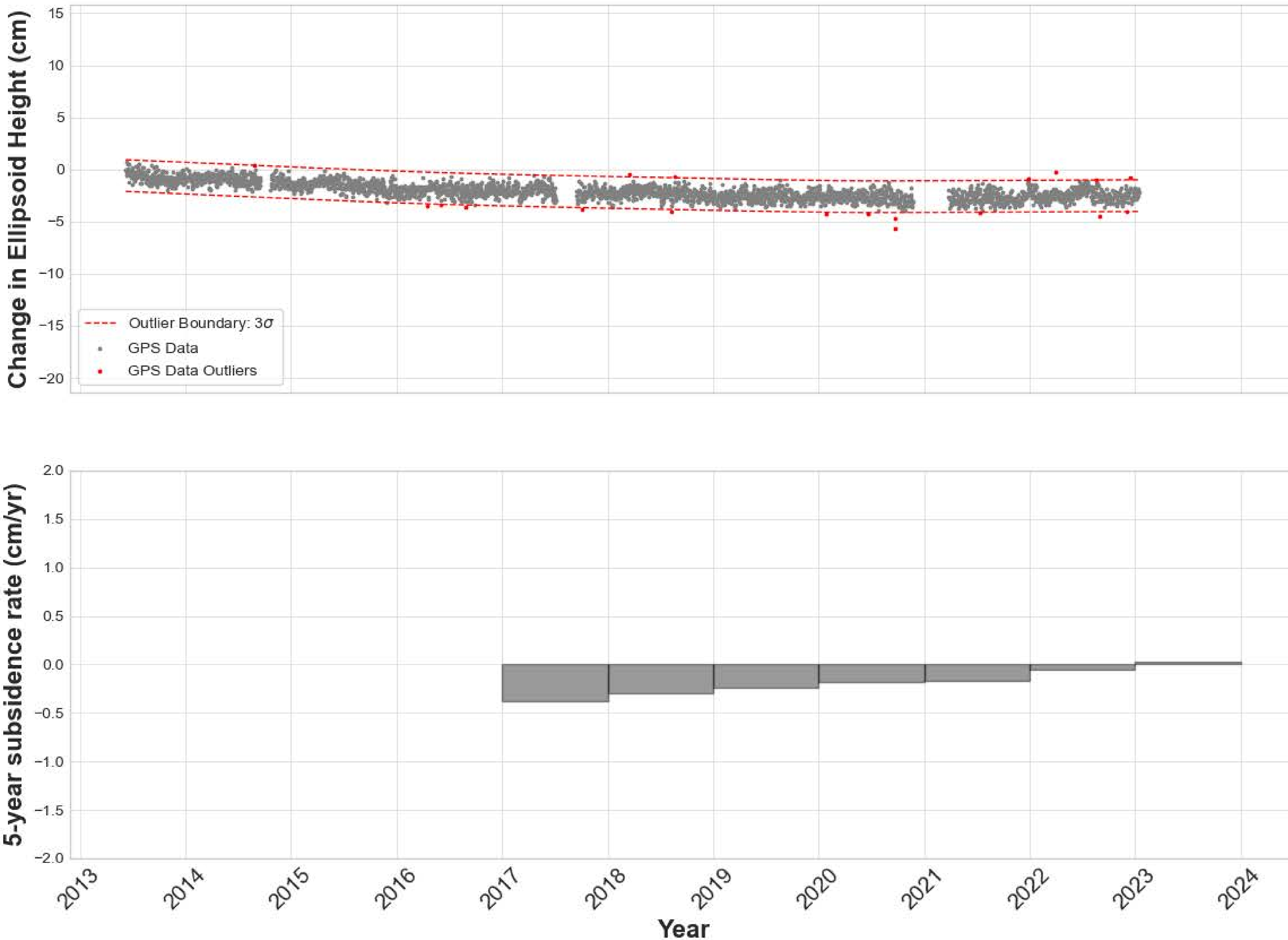
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

SPBH



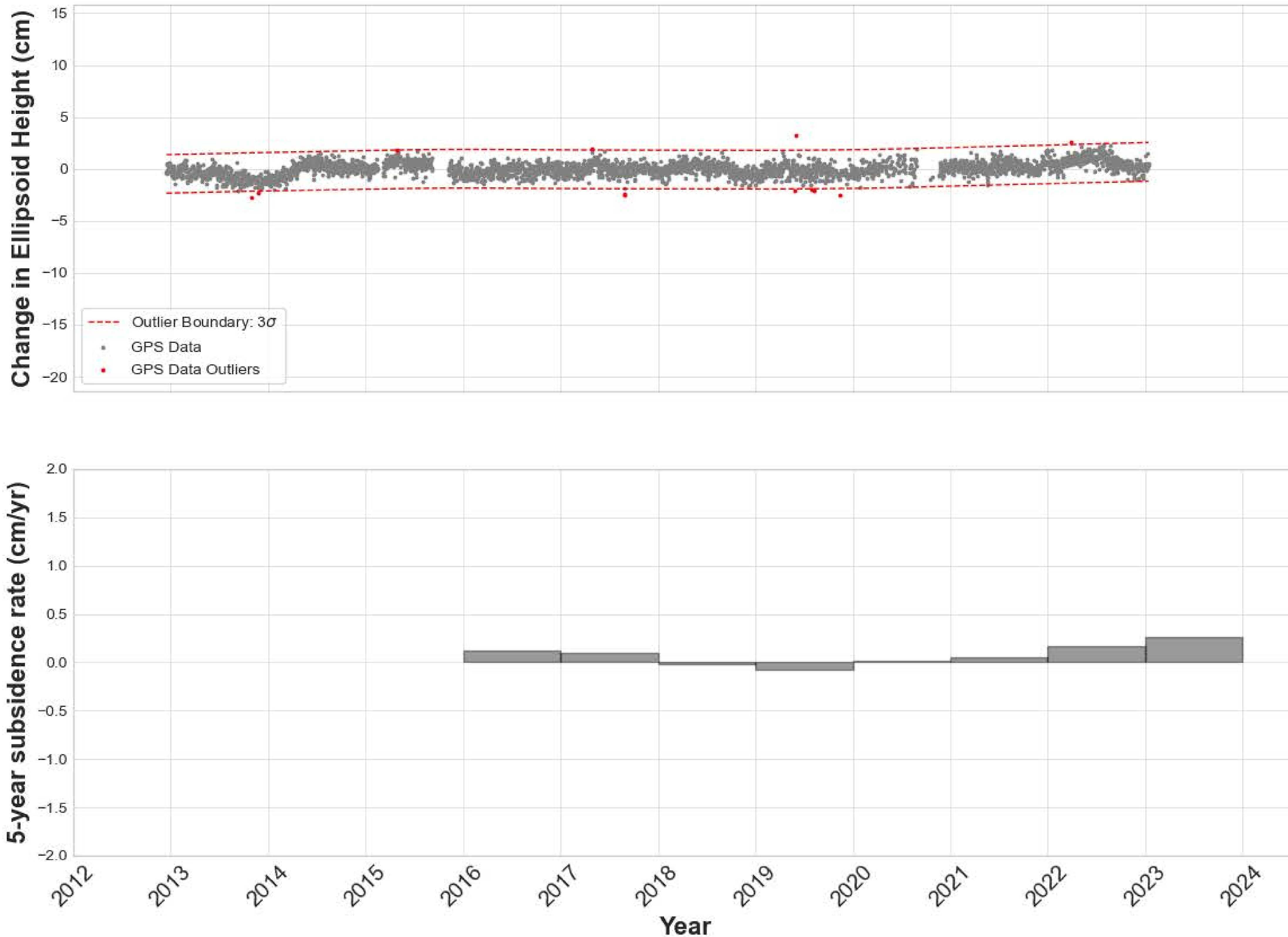
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

TDAM



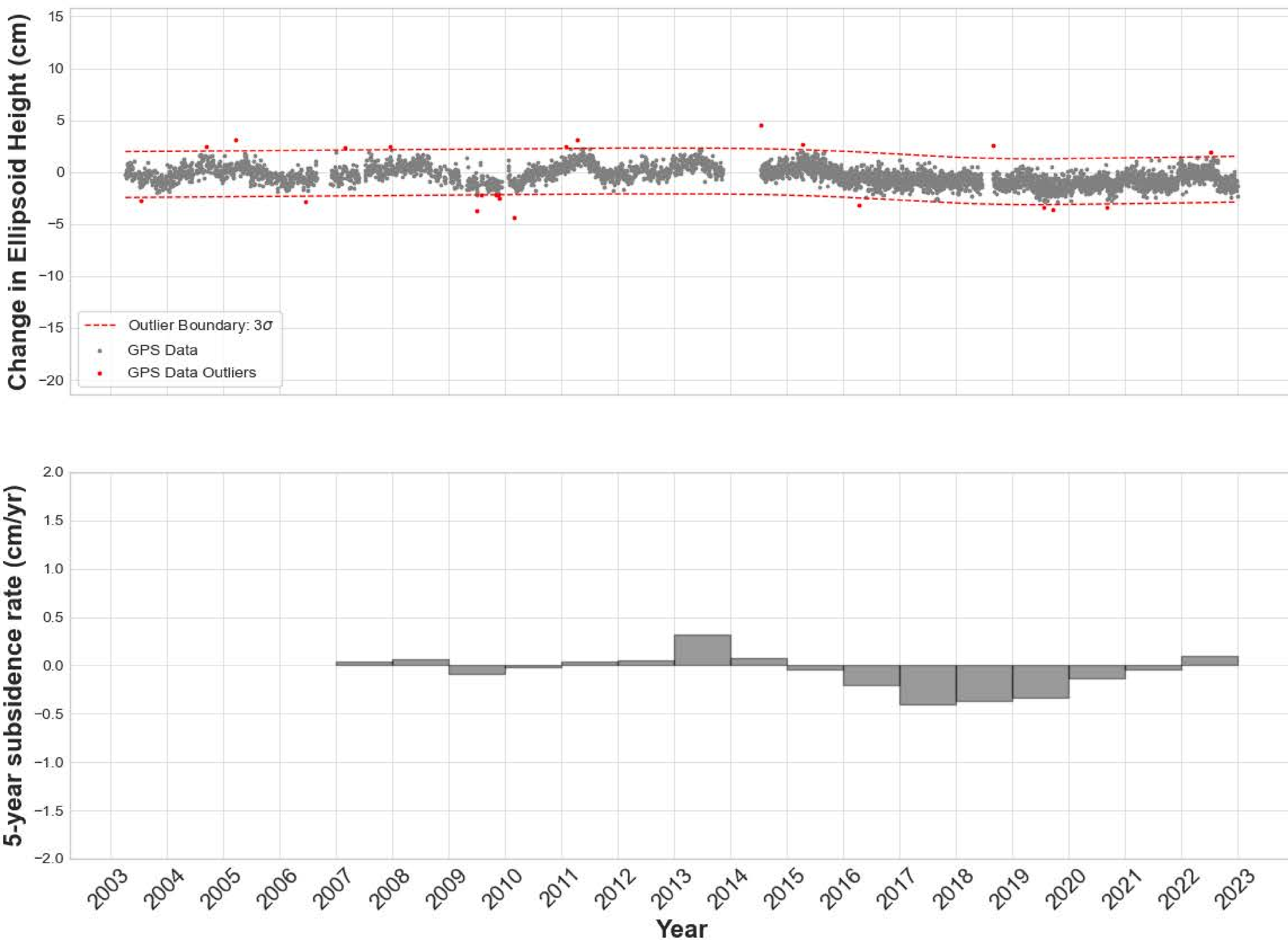
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

THSU



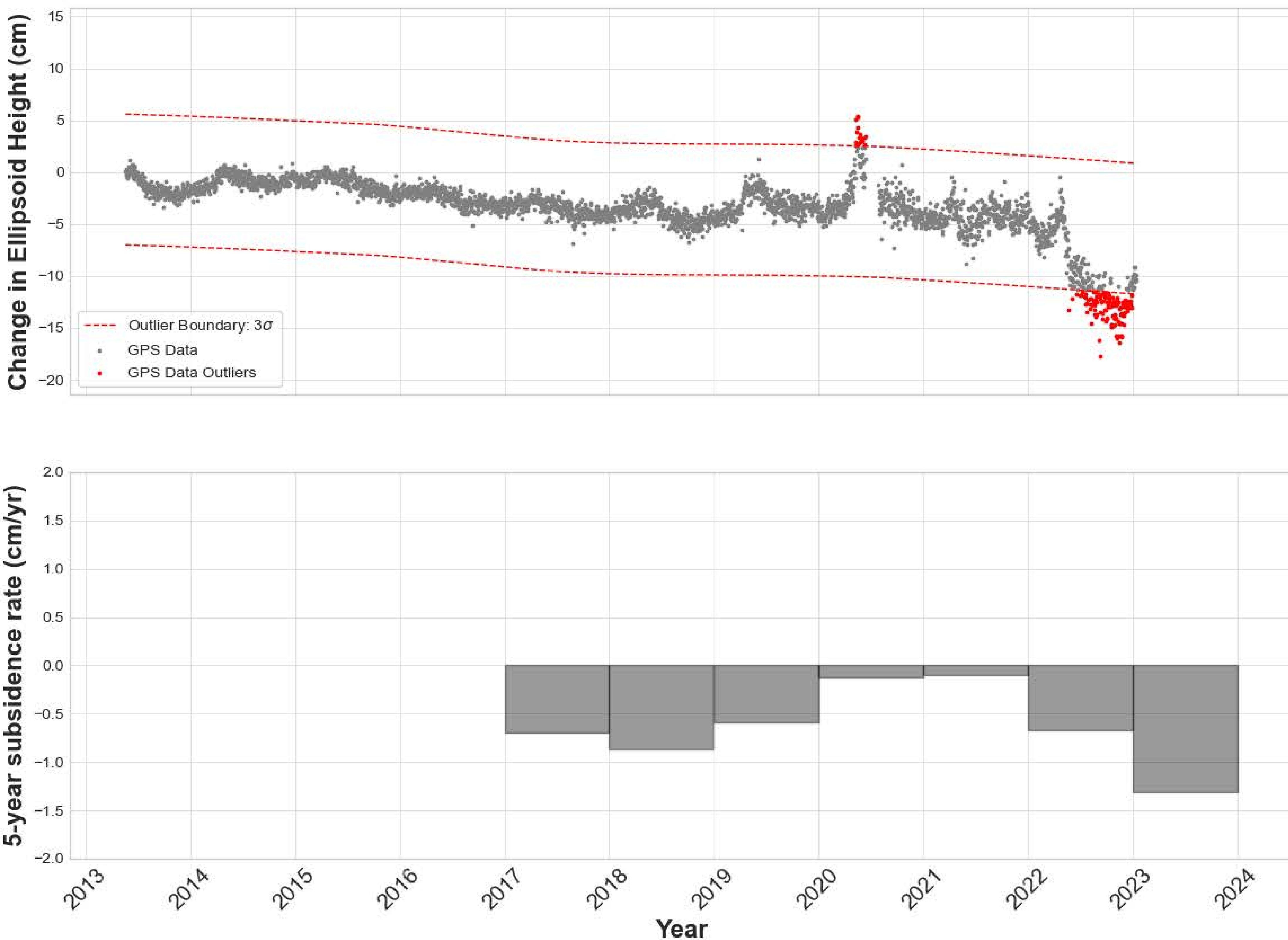
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

TMCC



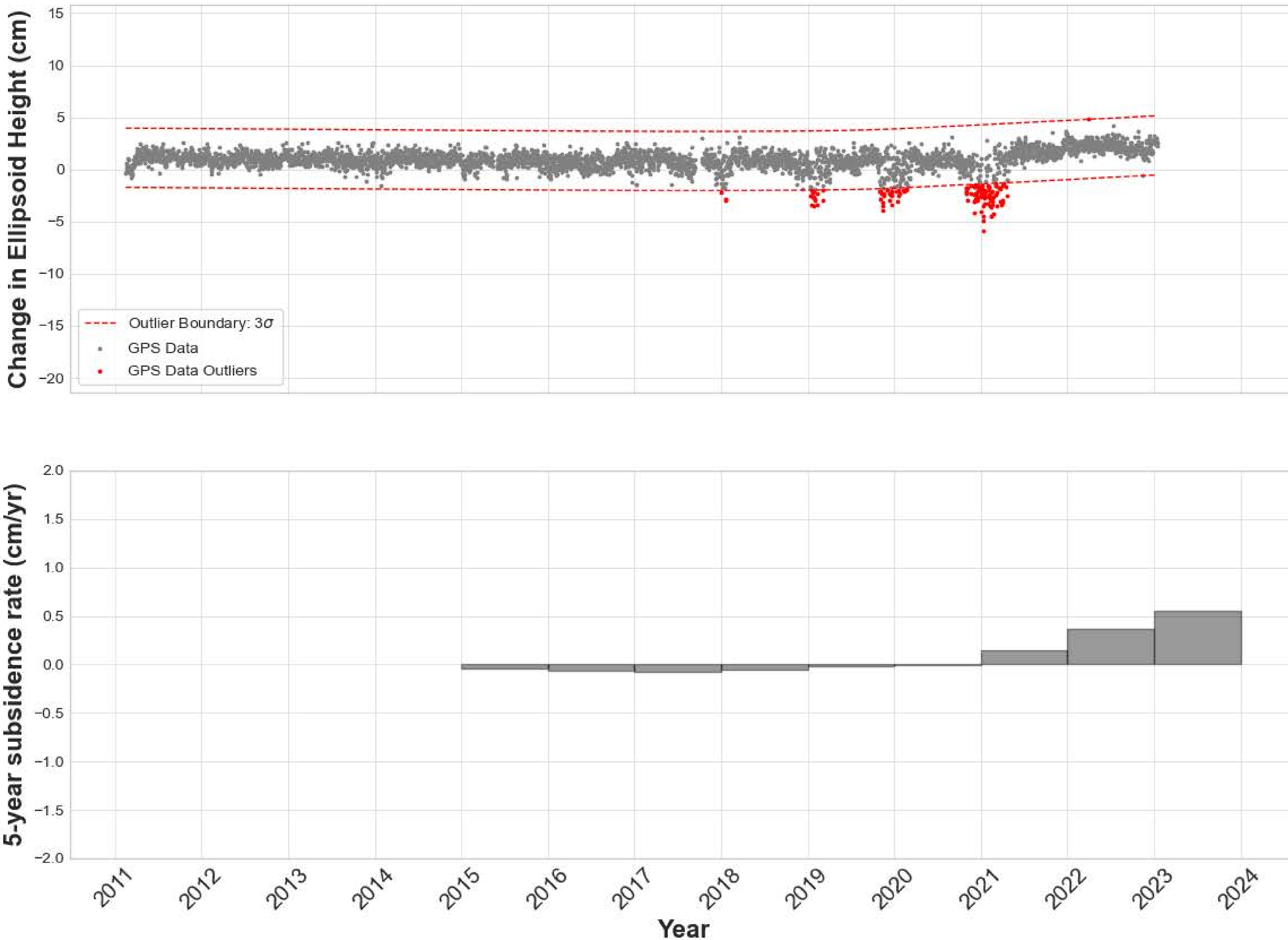
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

TSFT



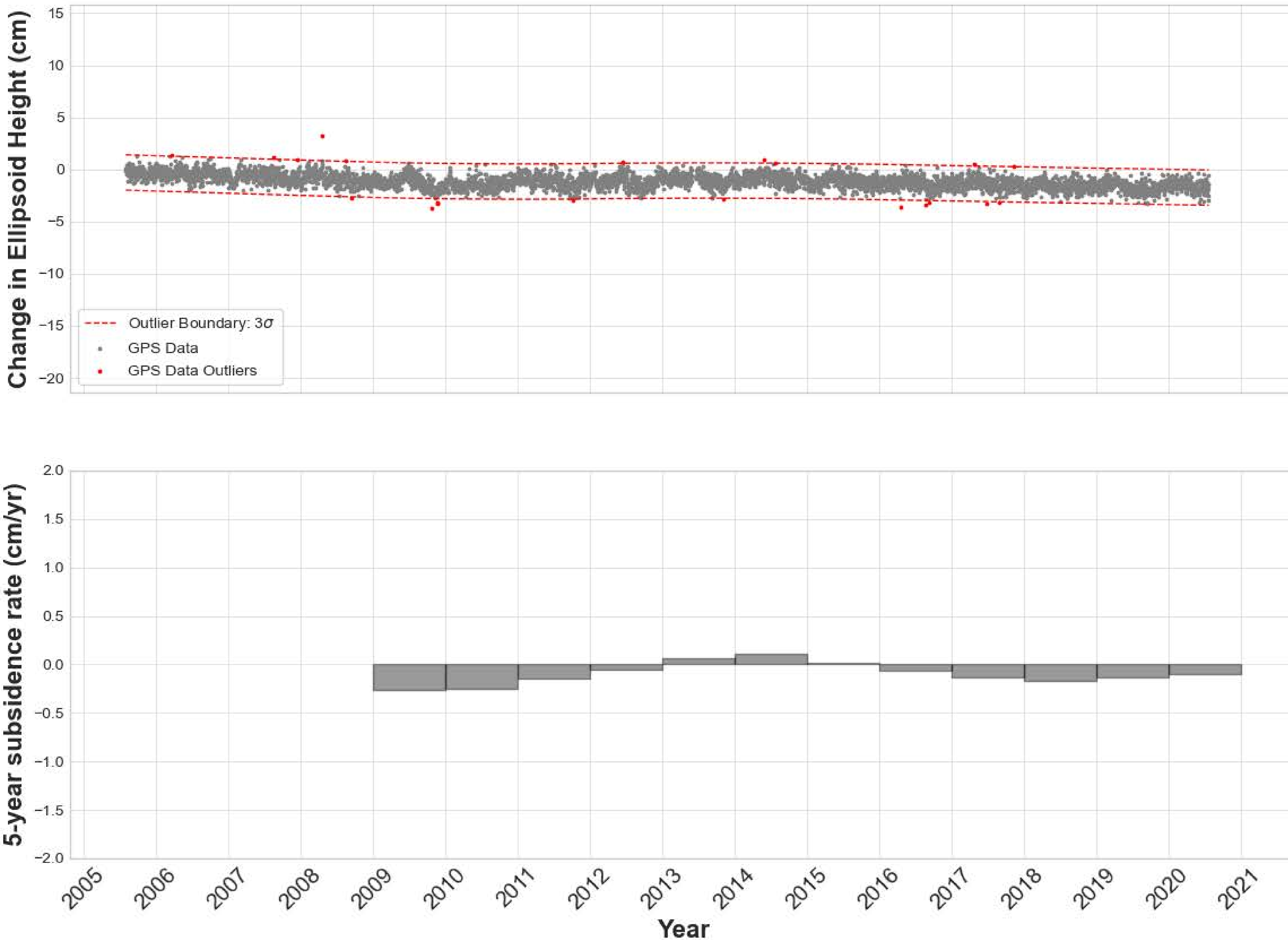
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

TXAC



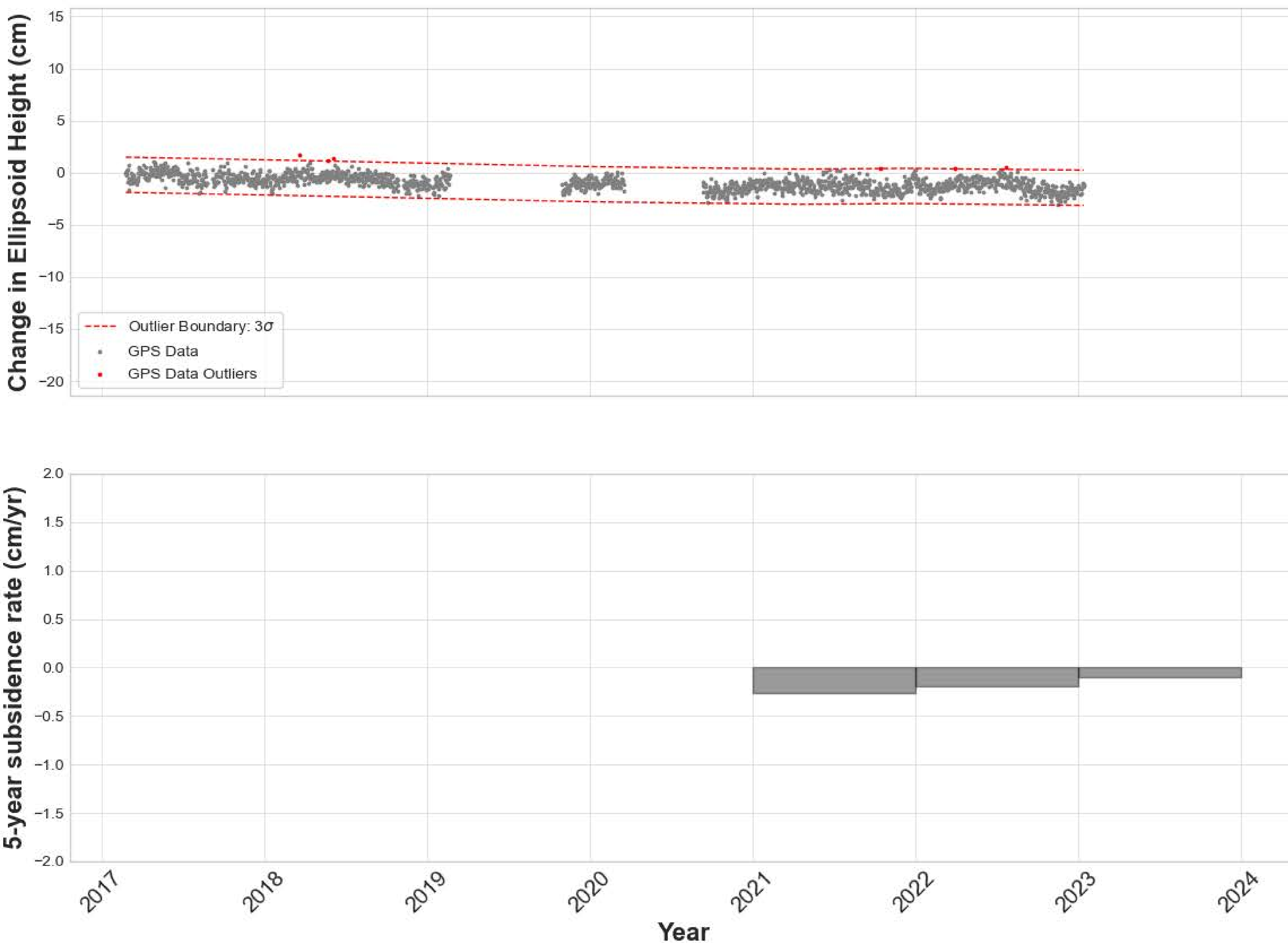
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

TXAG



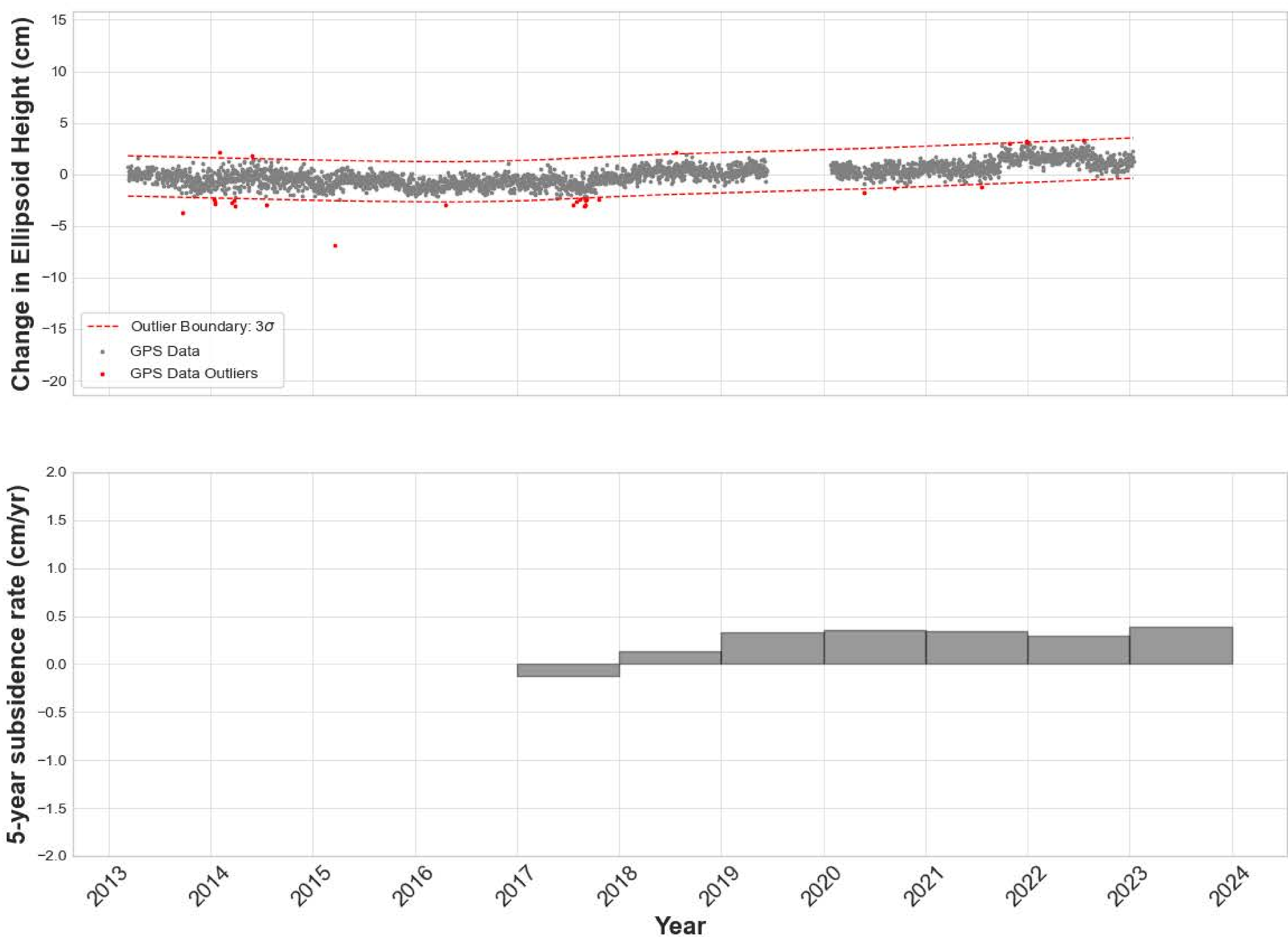
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

TXAV



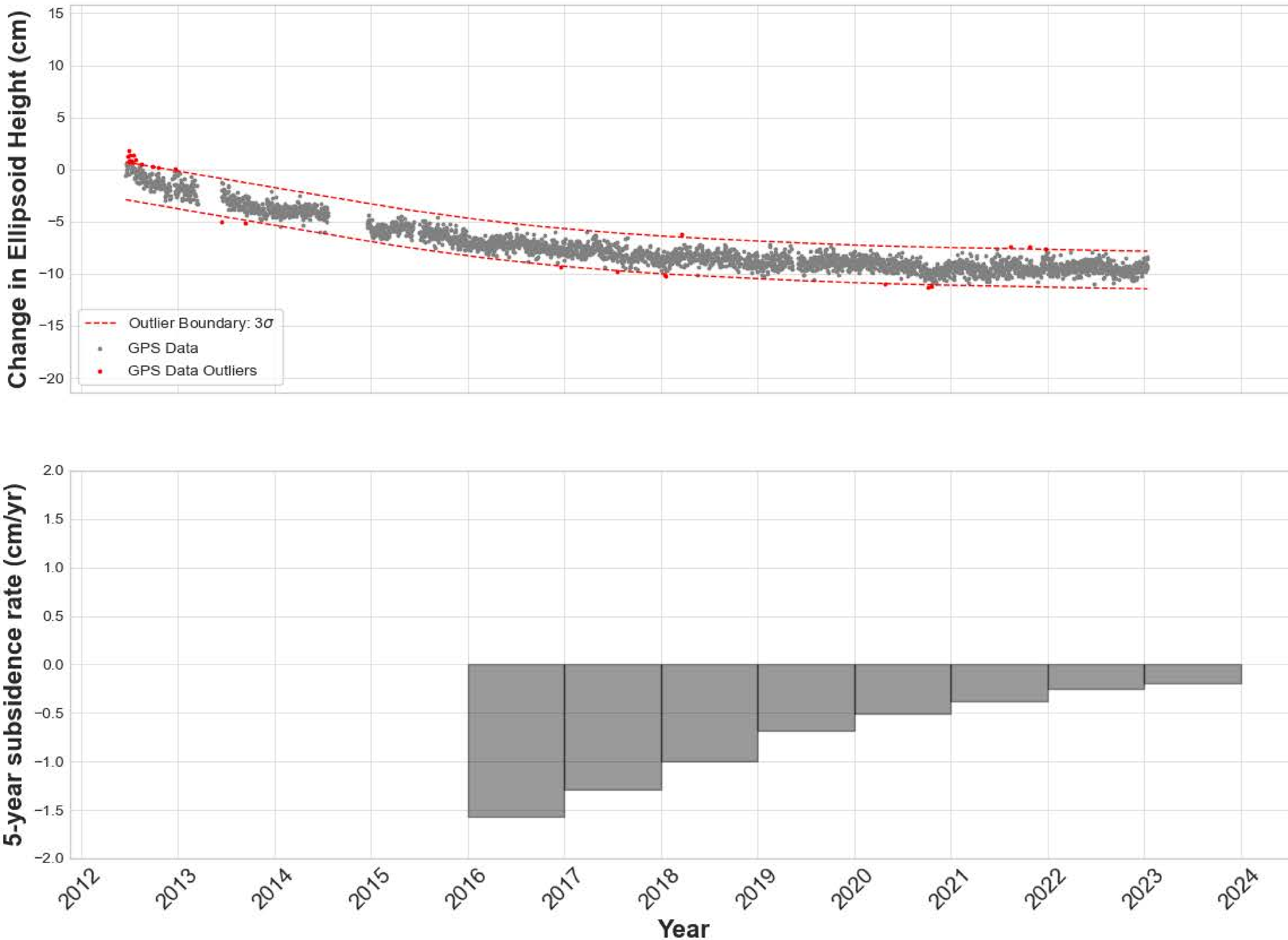
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

TXB1



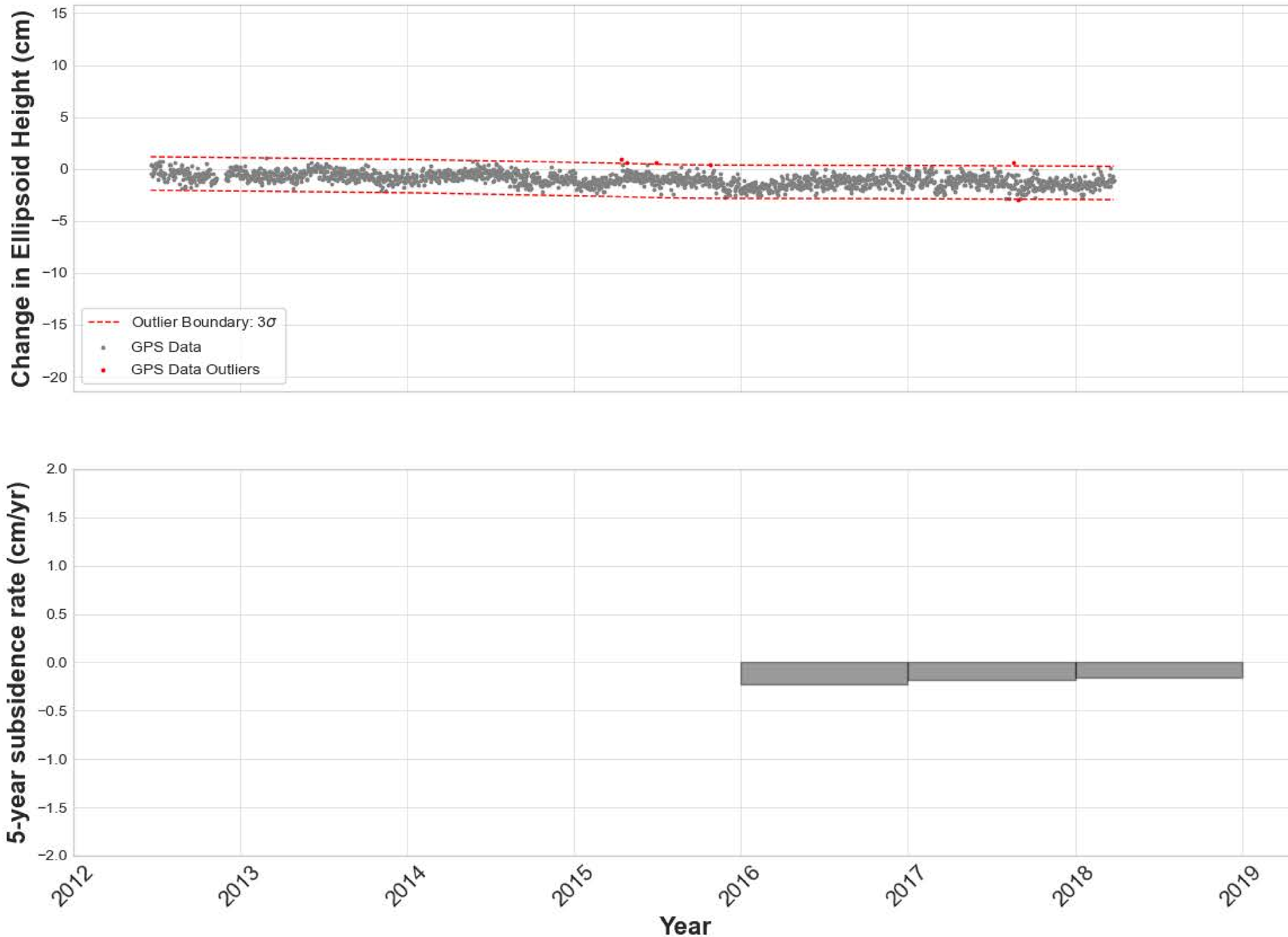
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

TXB2



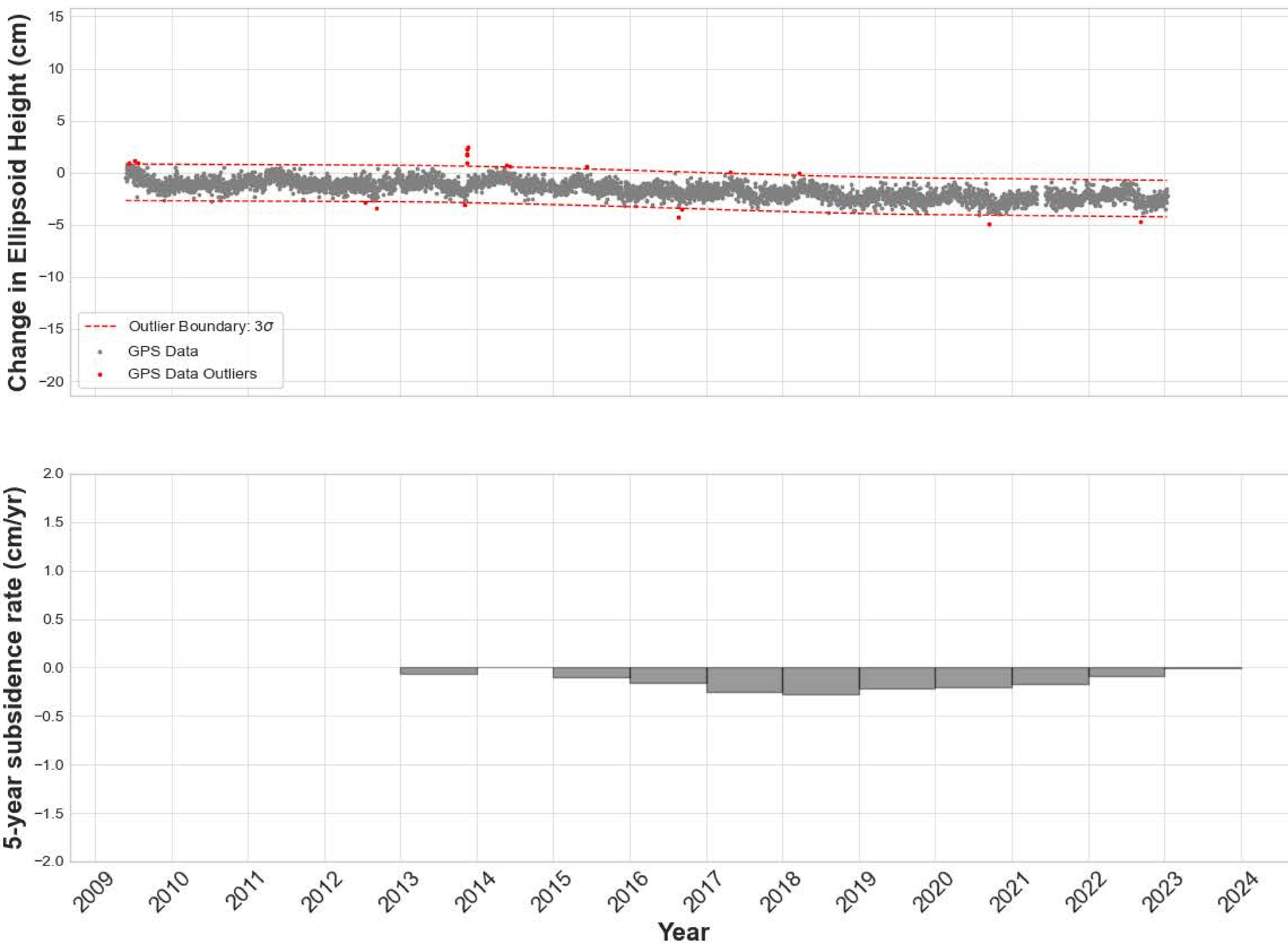
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

TXB6



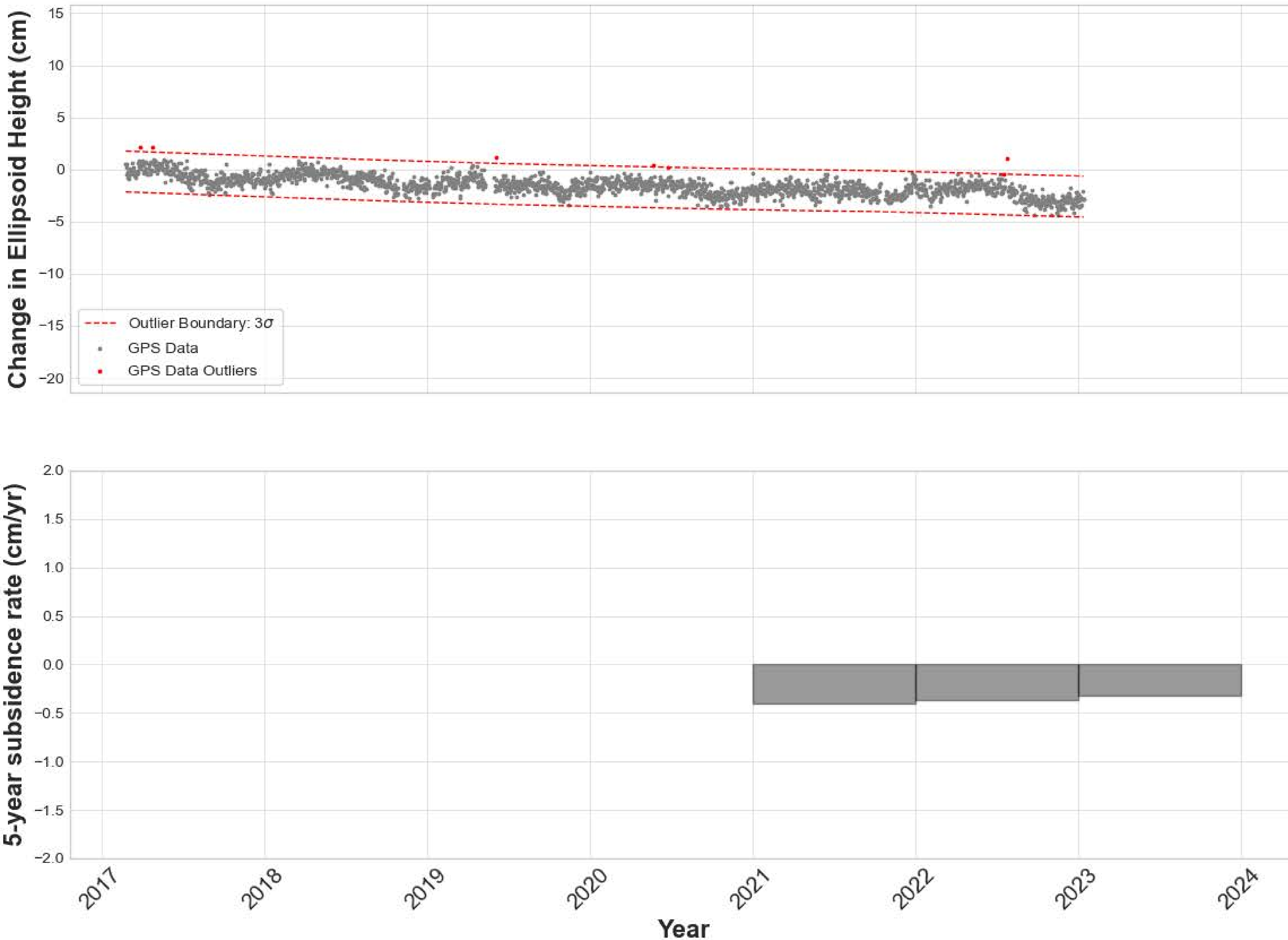
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

TXBC



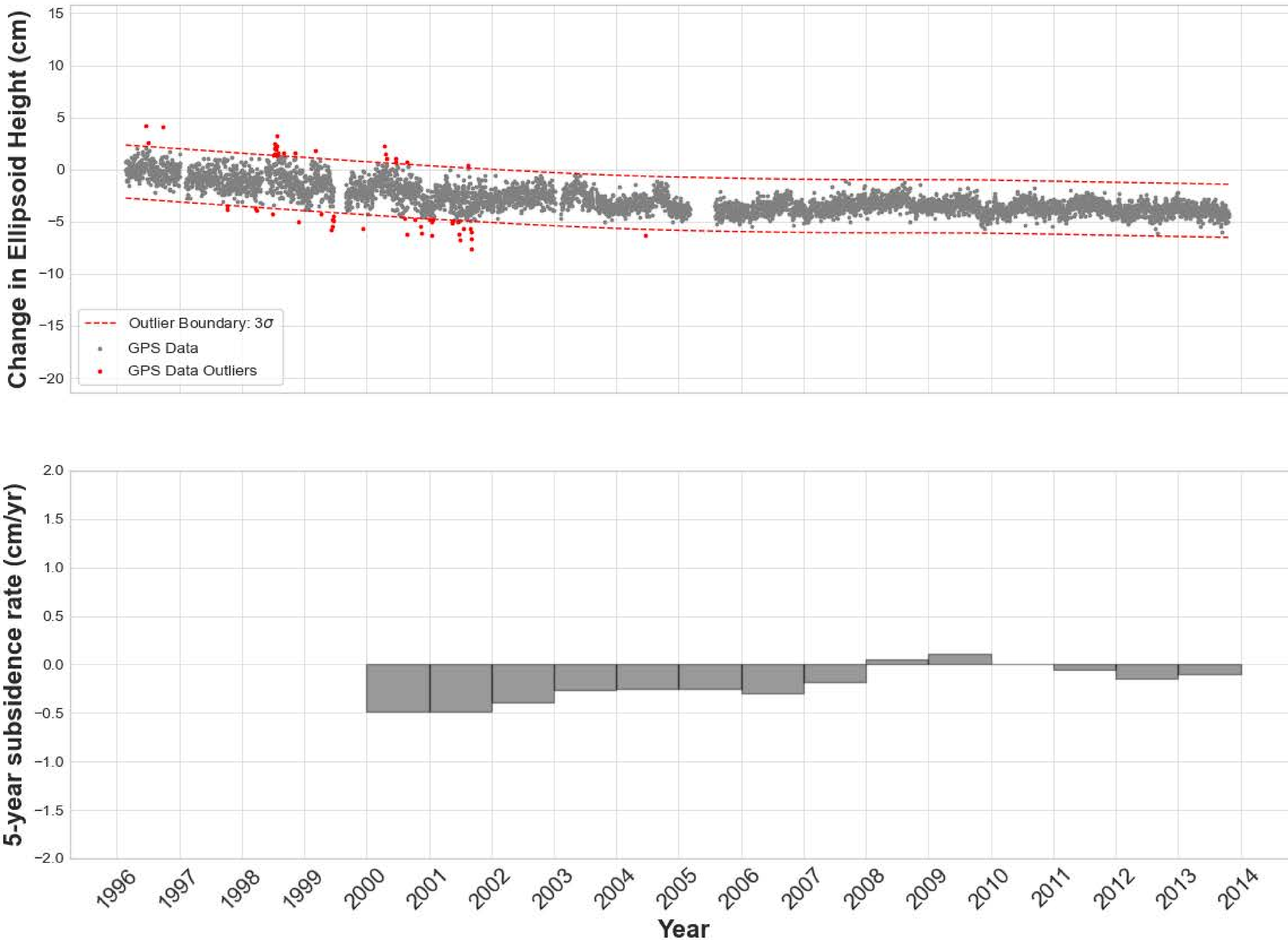
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

TXBH



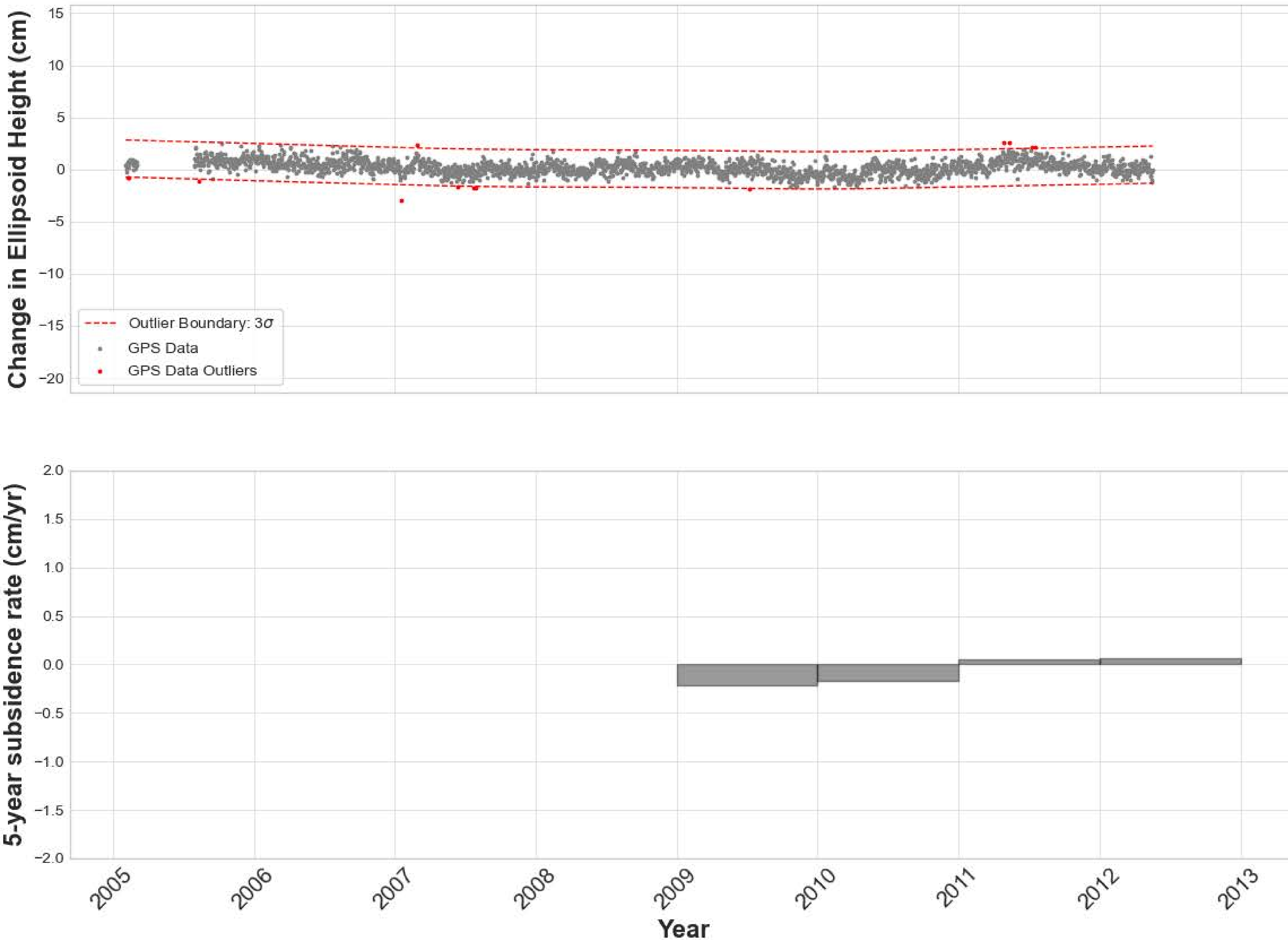
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

TXBM



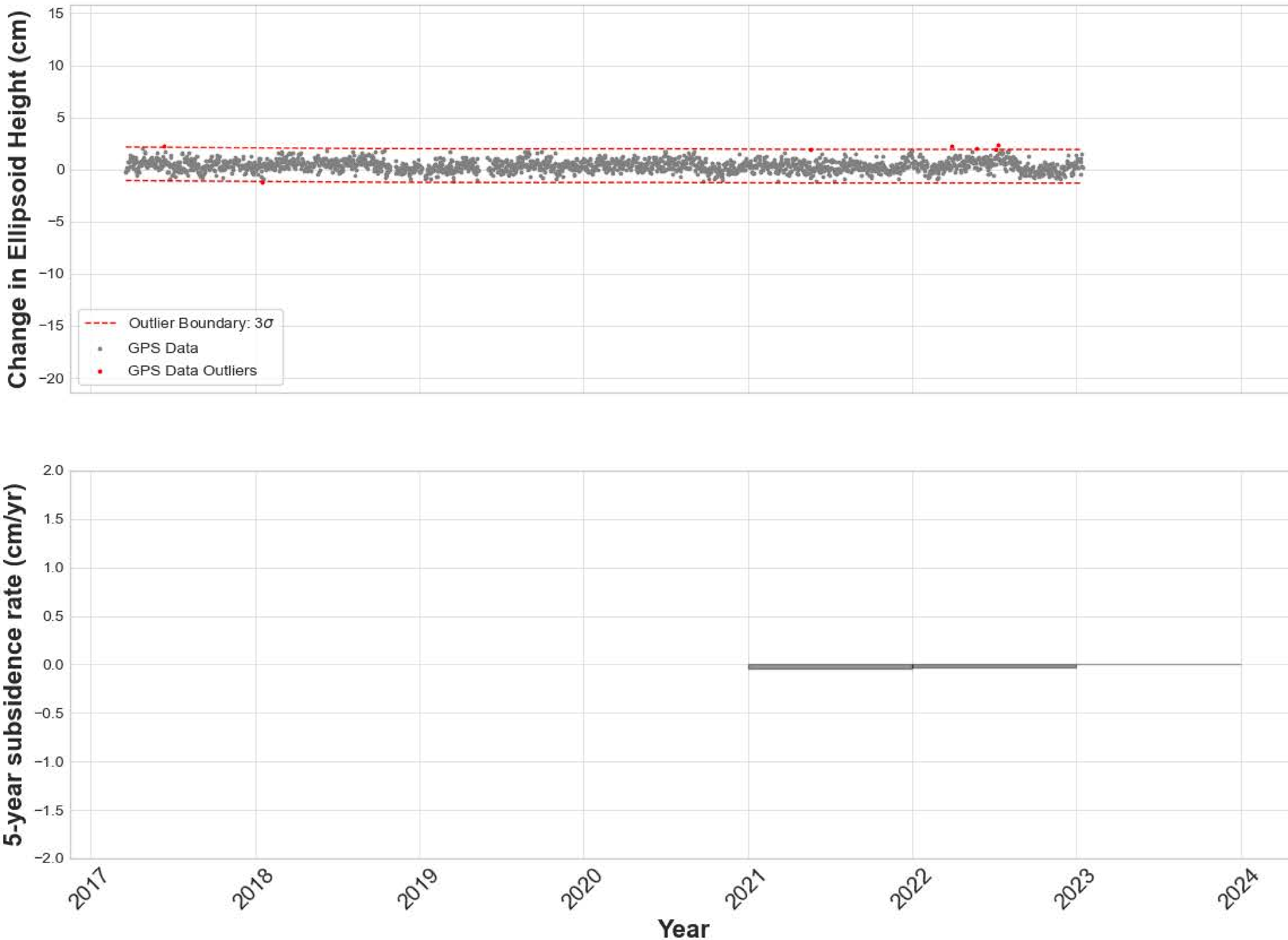
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

TXBY



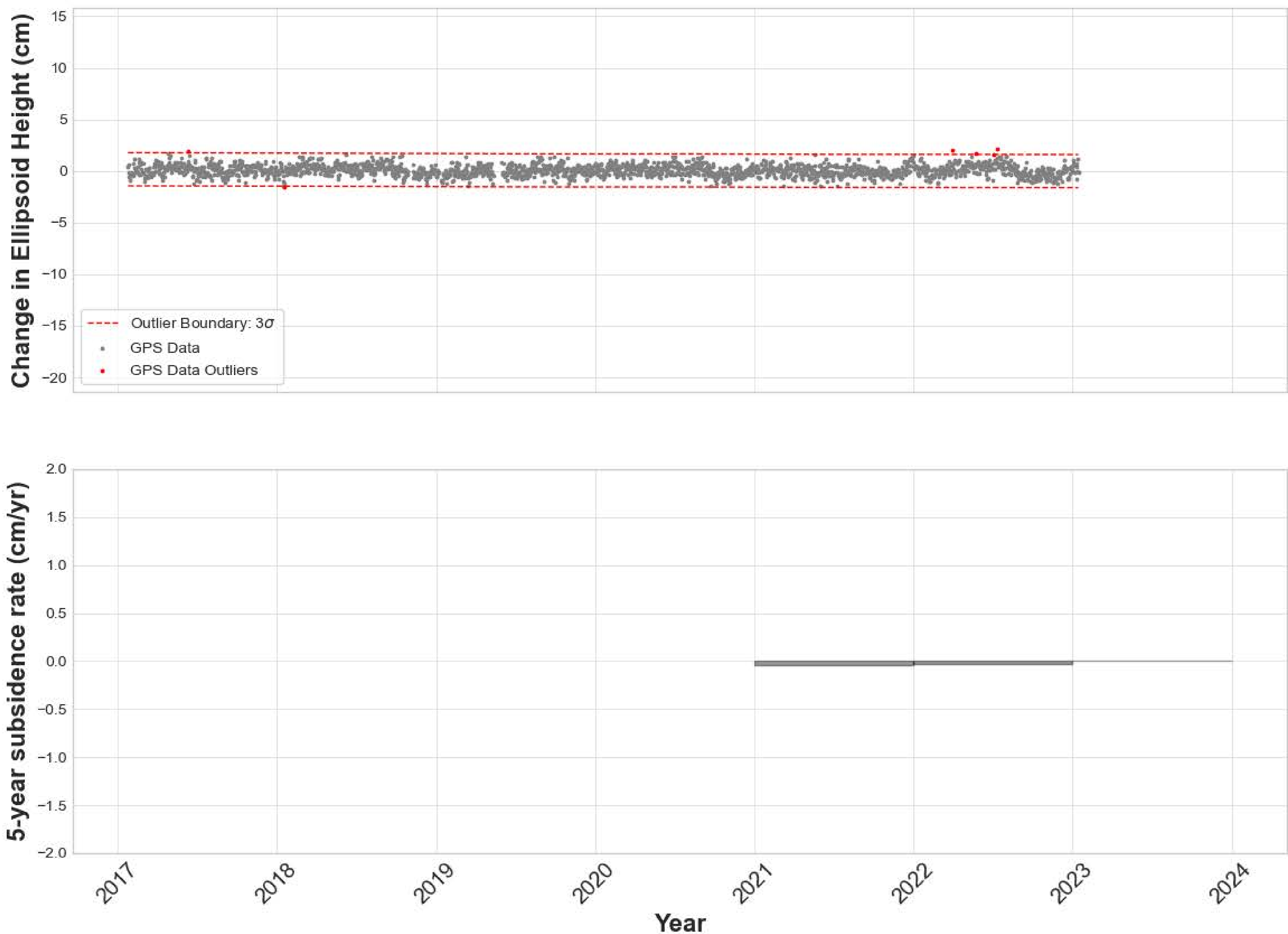
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

TXC5



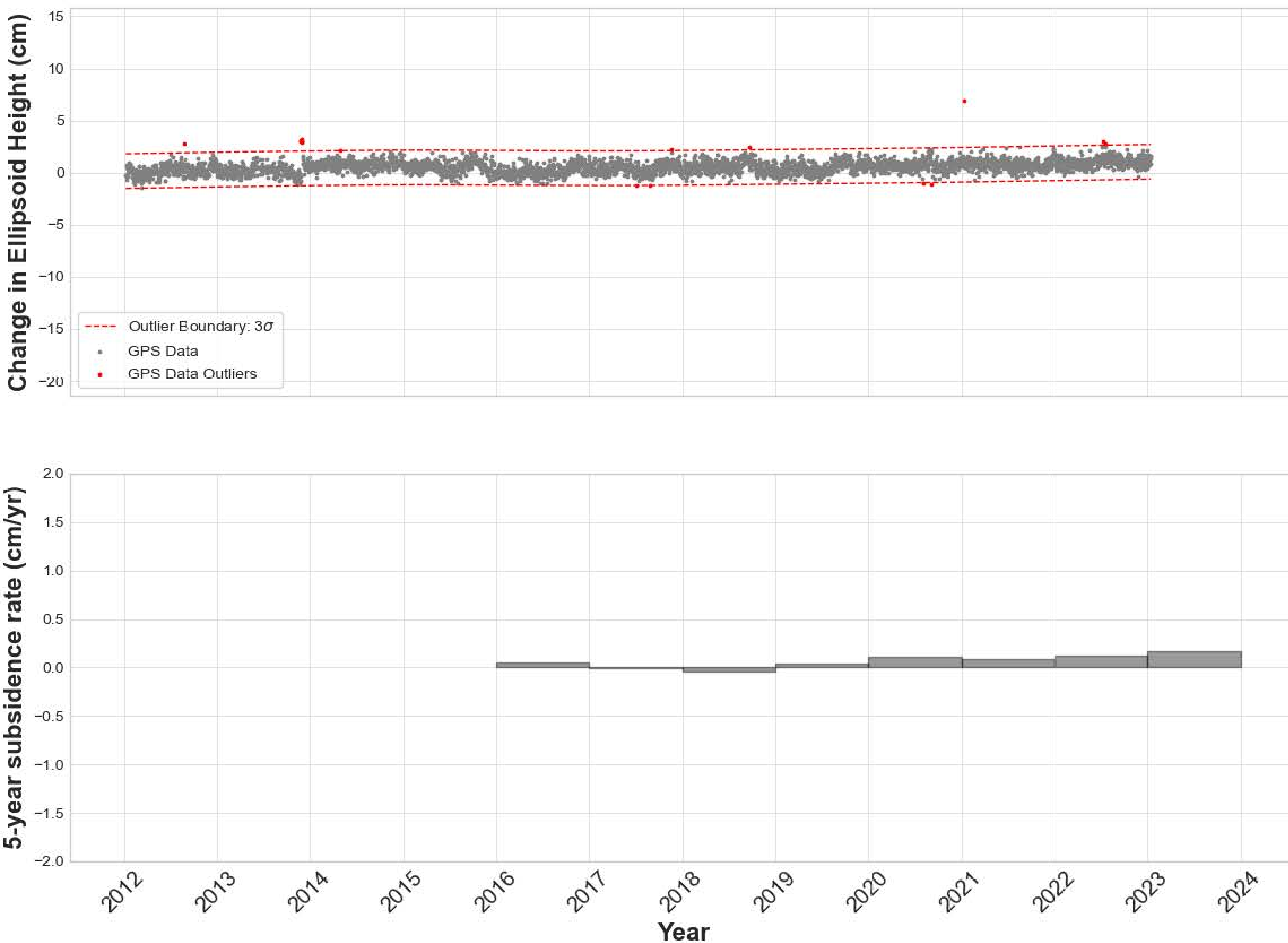
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

TXCF



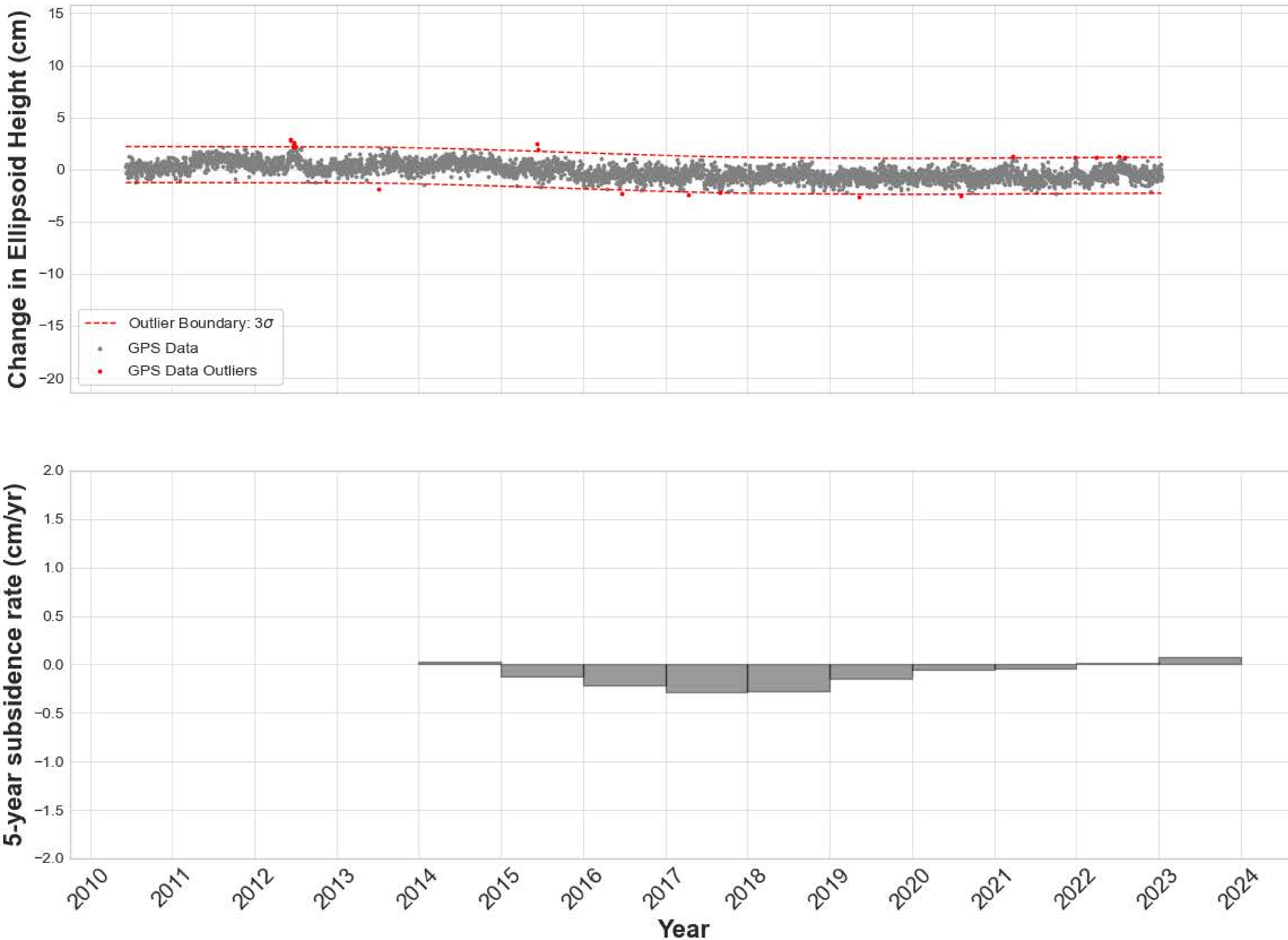
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

TXCK



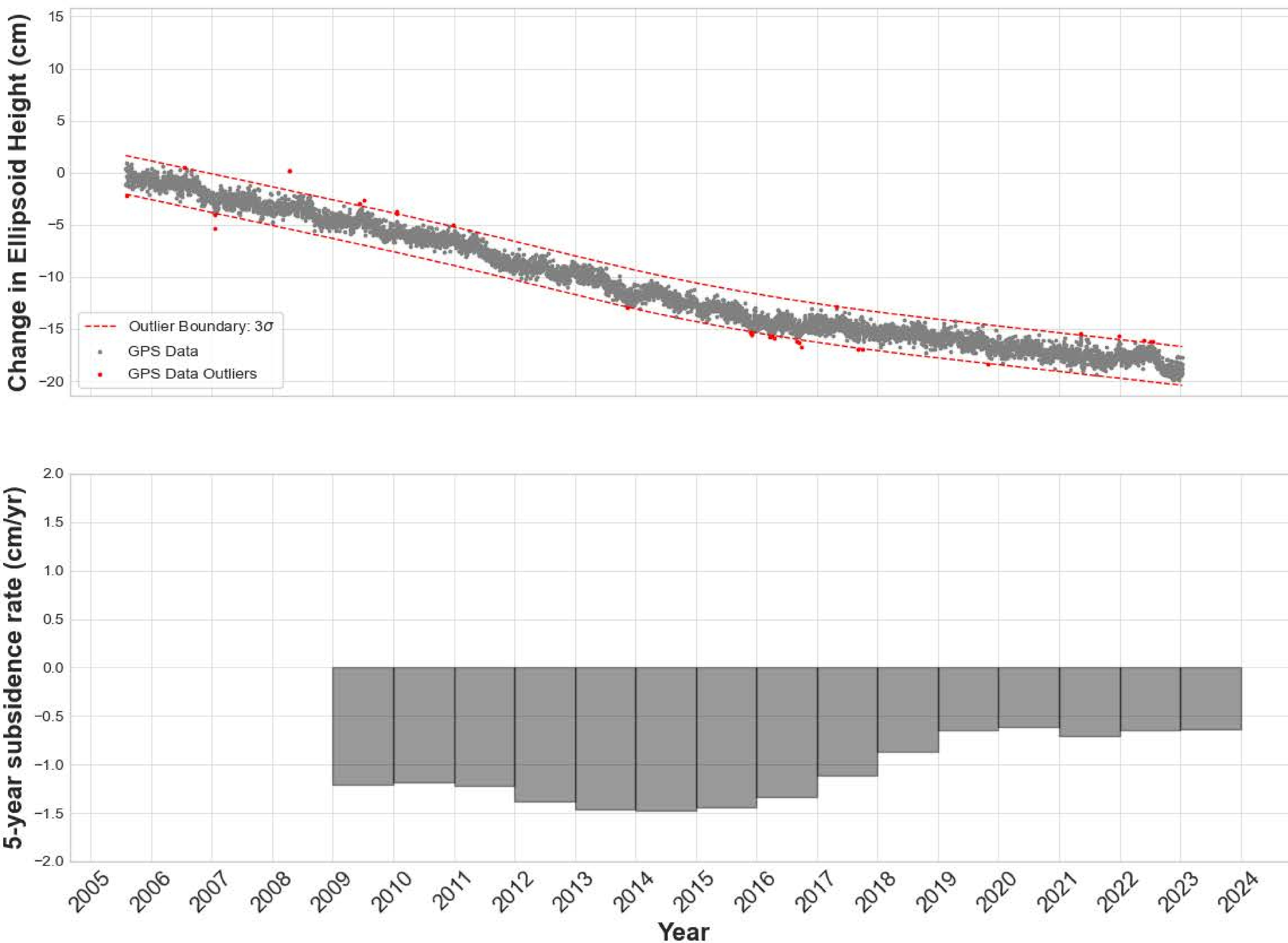
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

TXCM



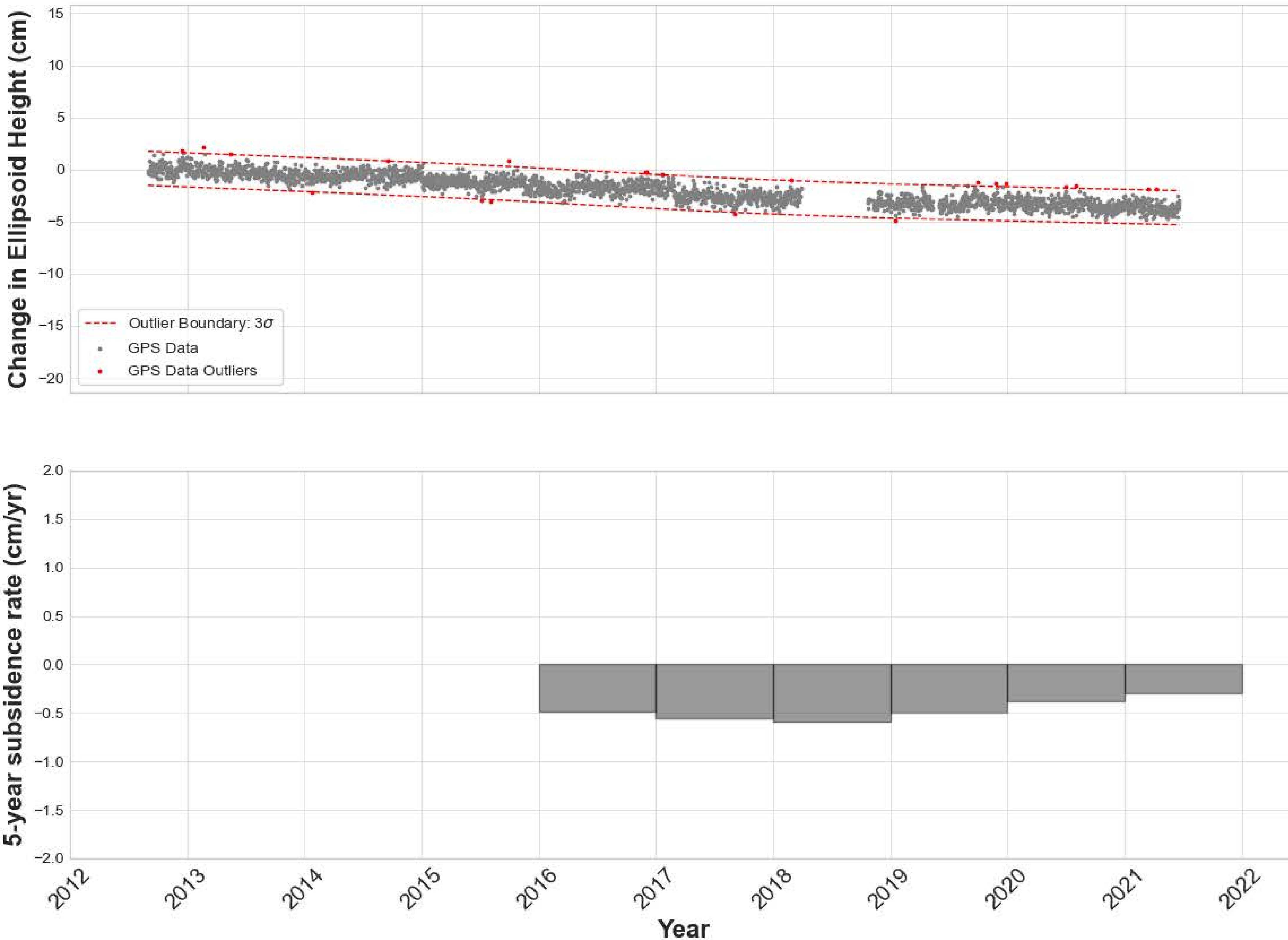
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

TXCN



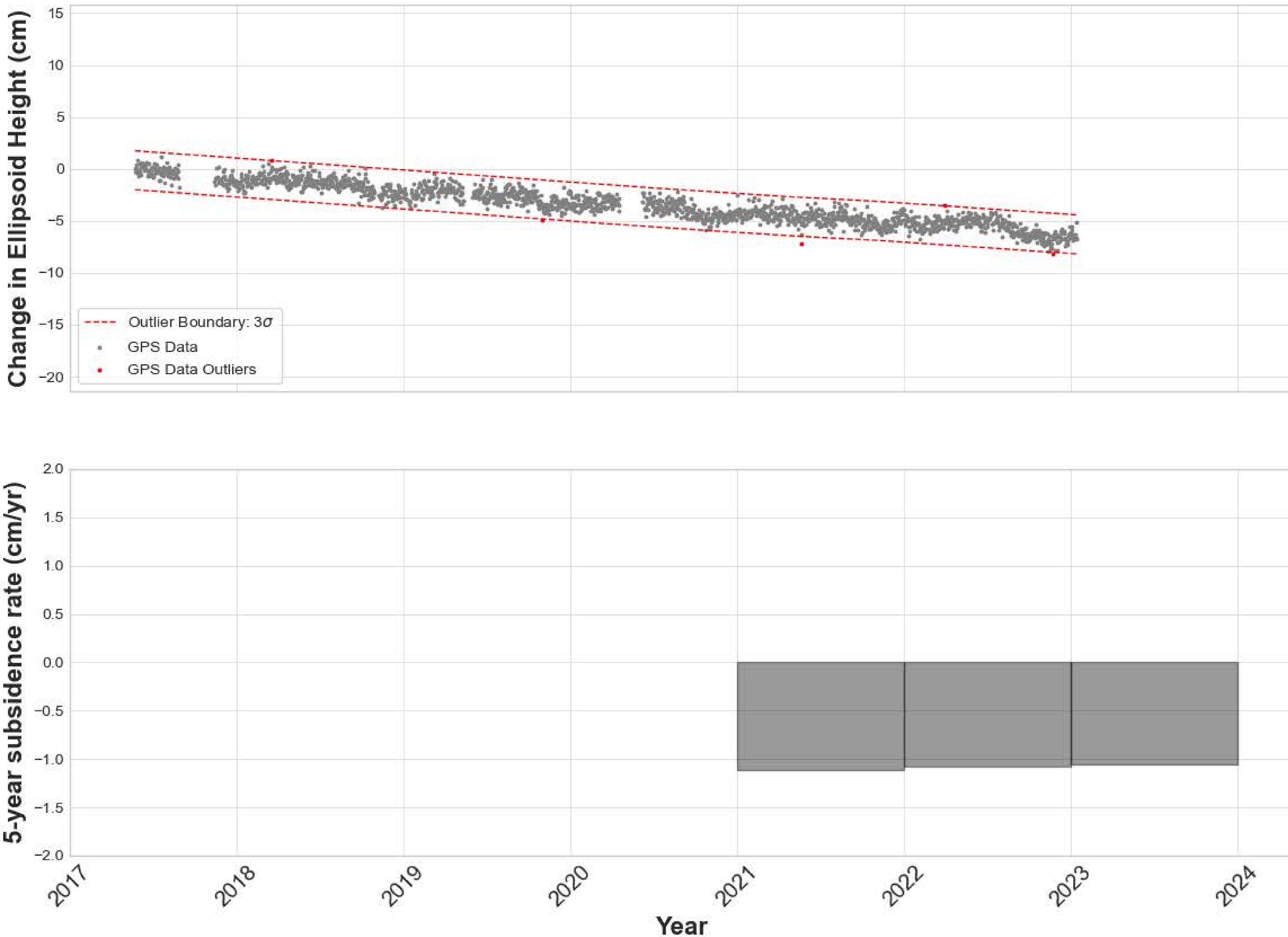
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

TXCV



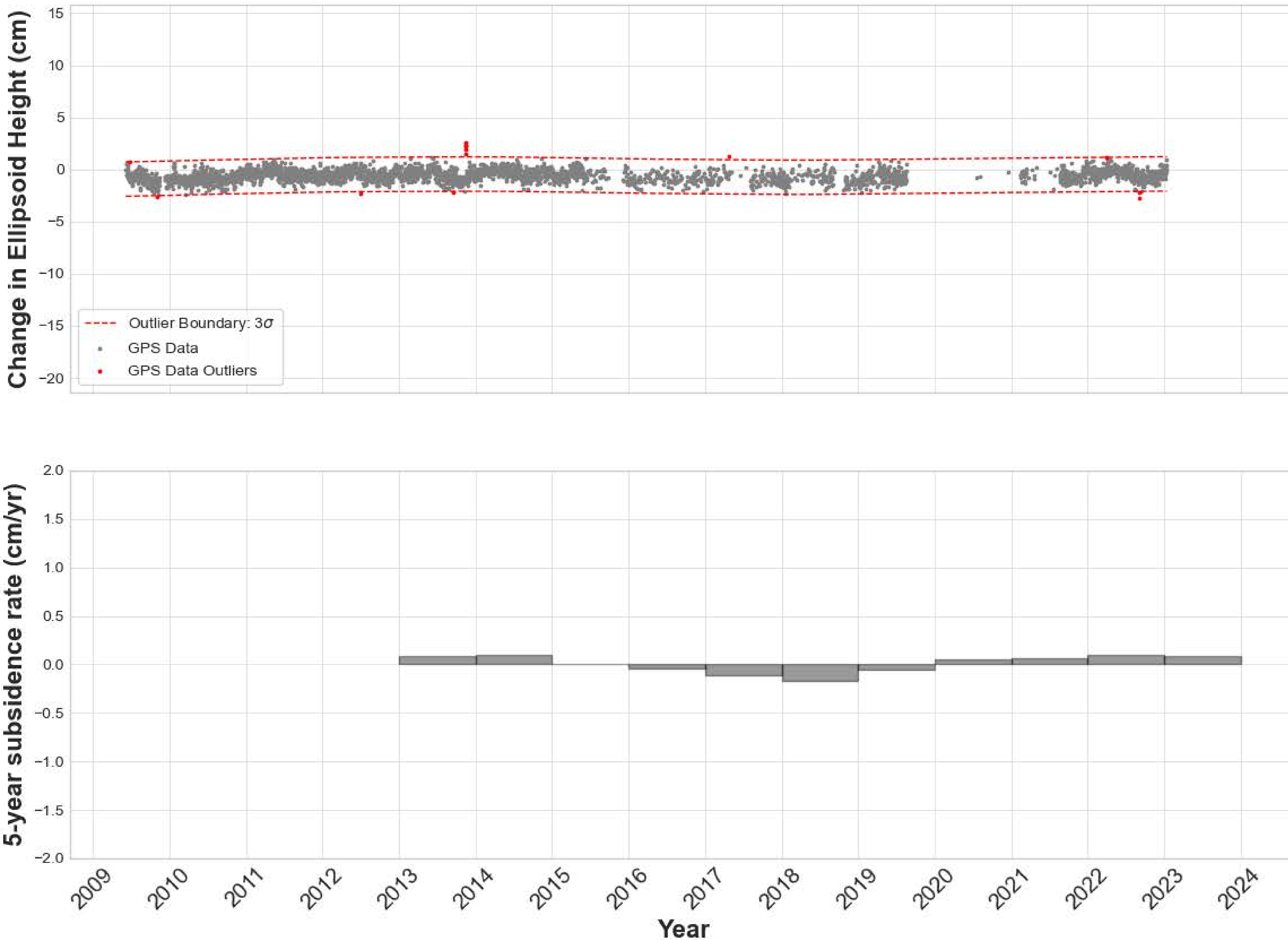
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

TXCY



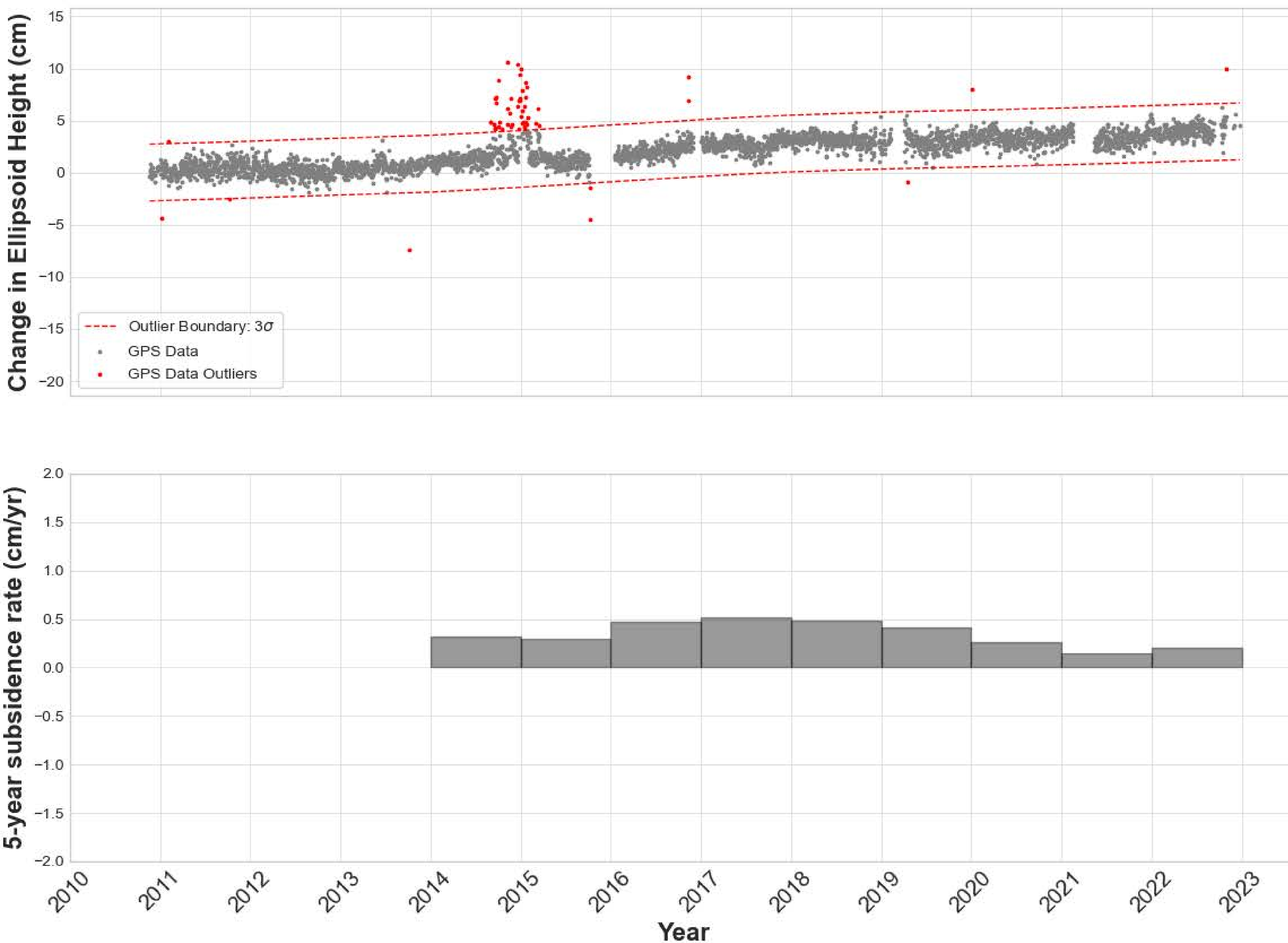
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

TXED



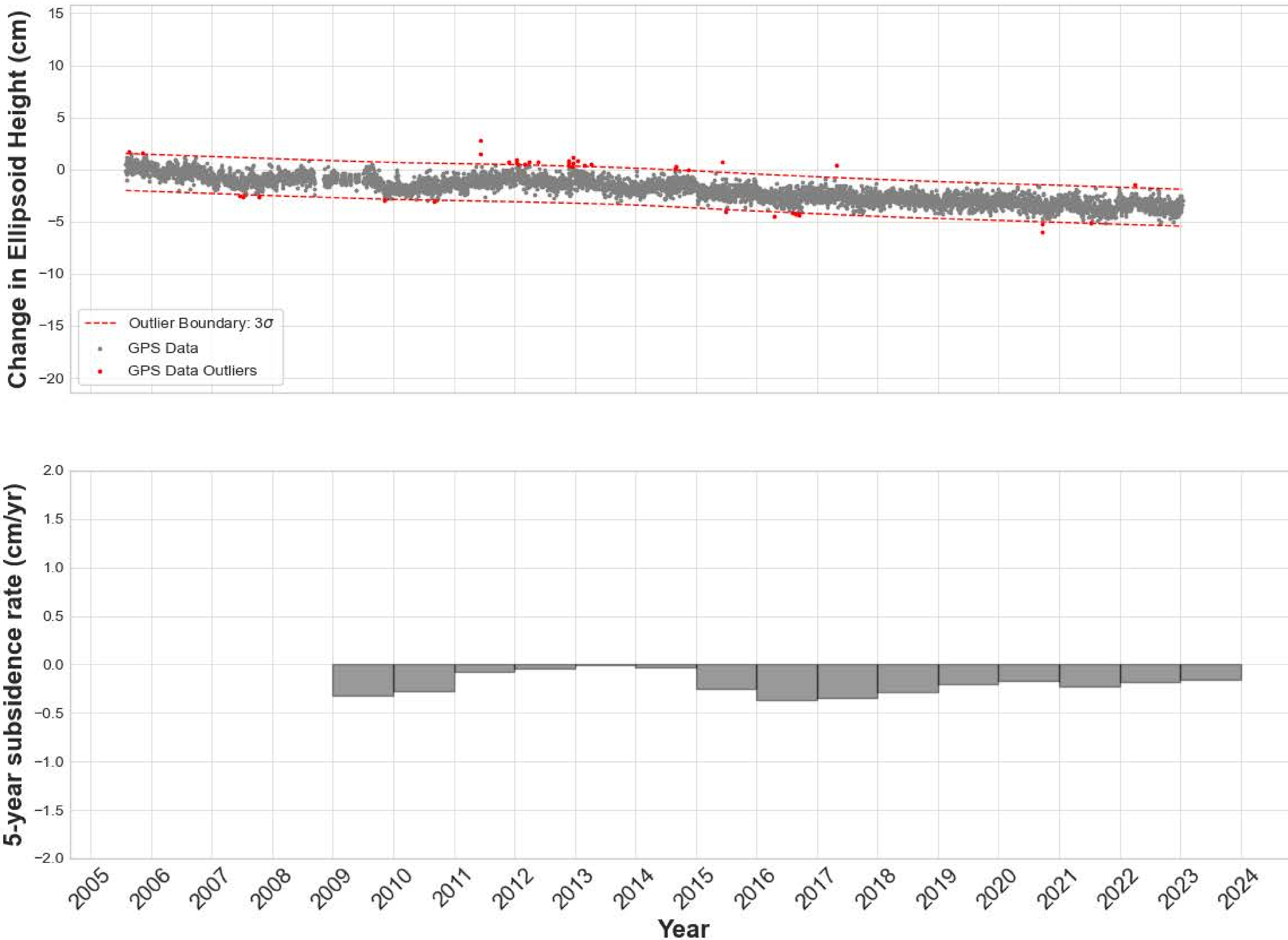
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

TXEX



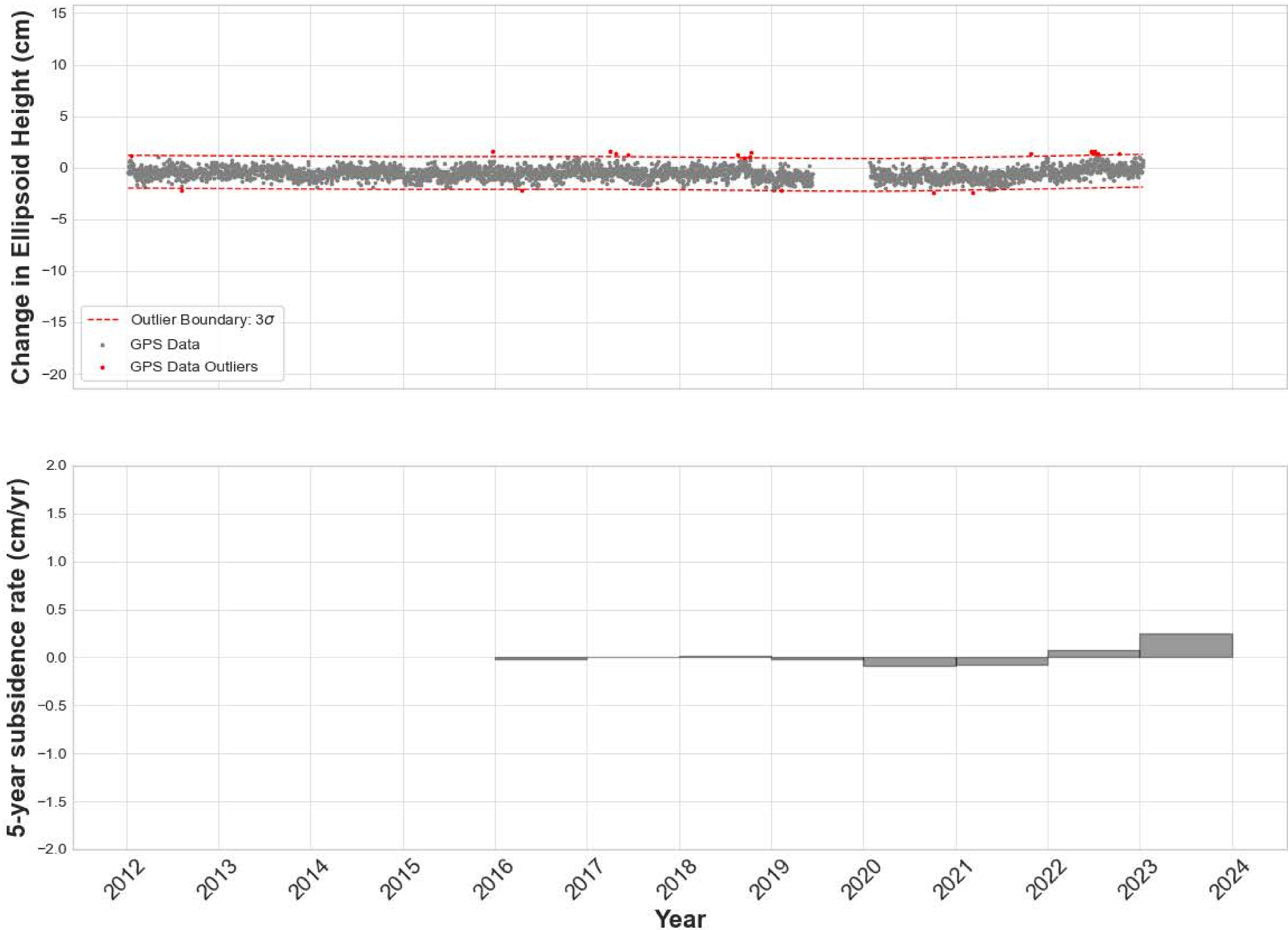
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

TXGA



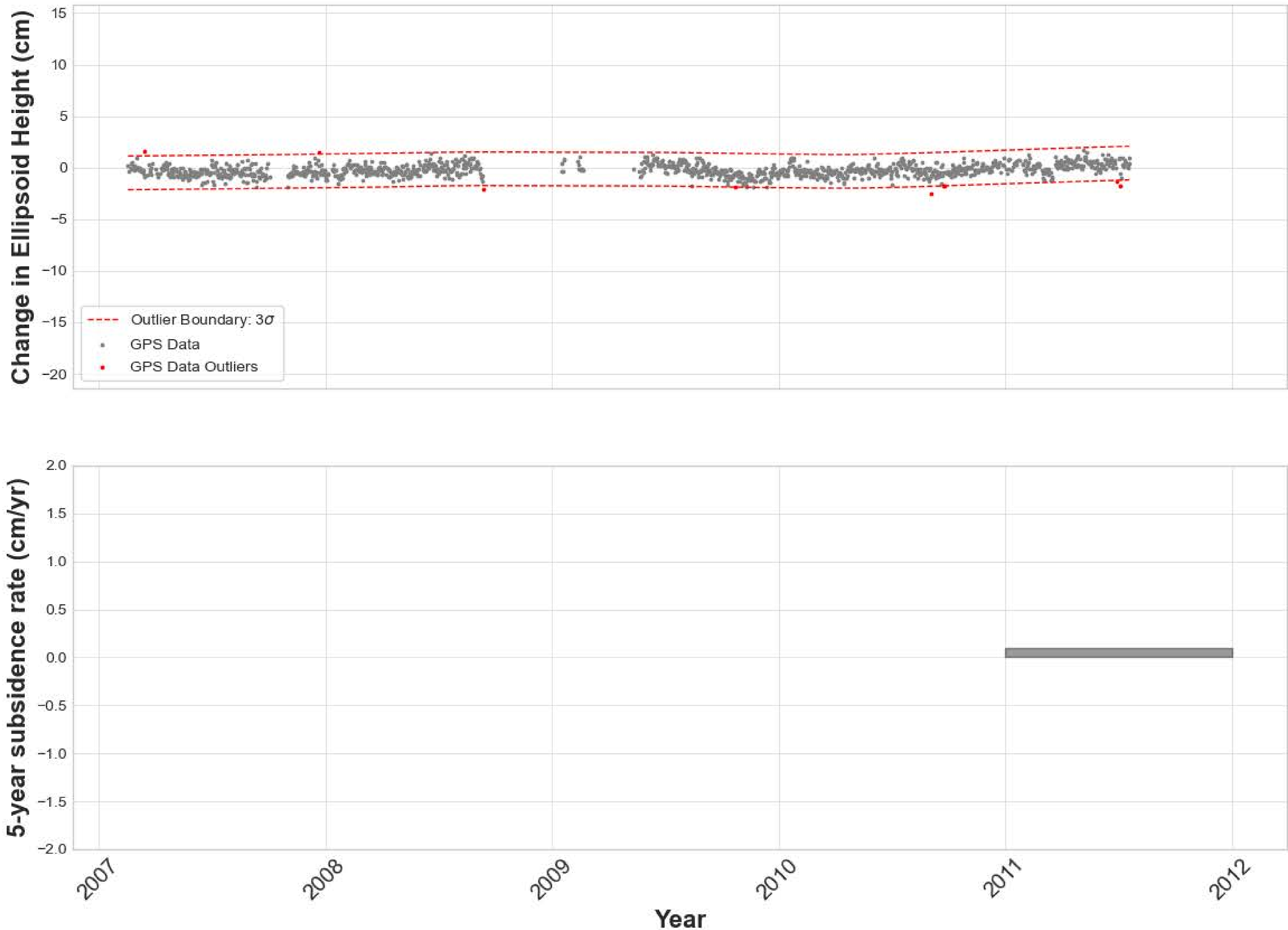
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

TXGN



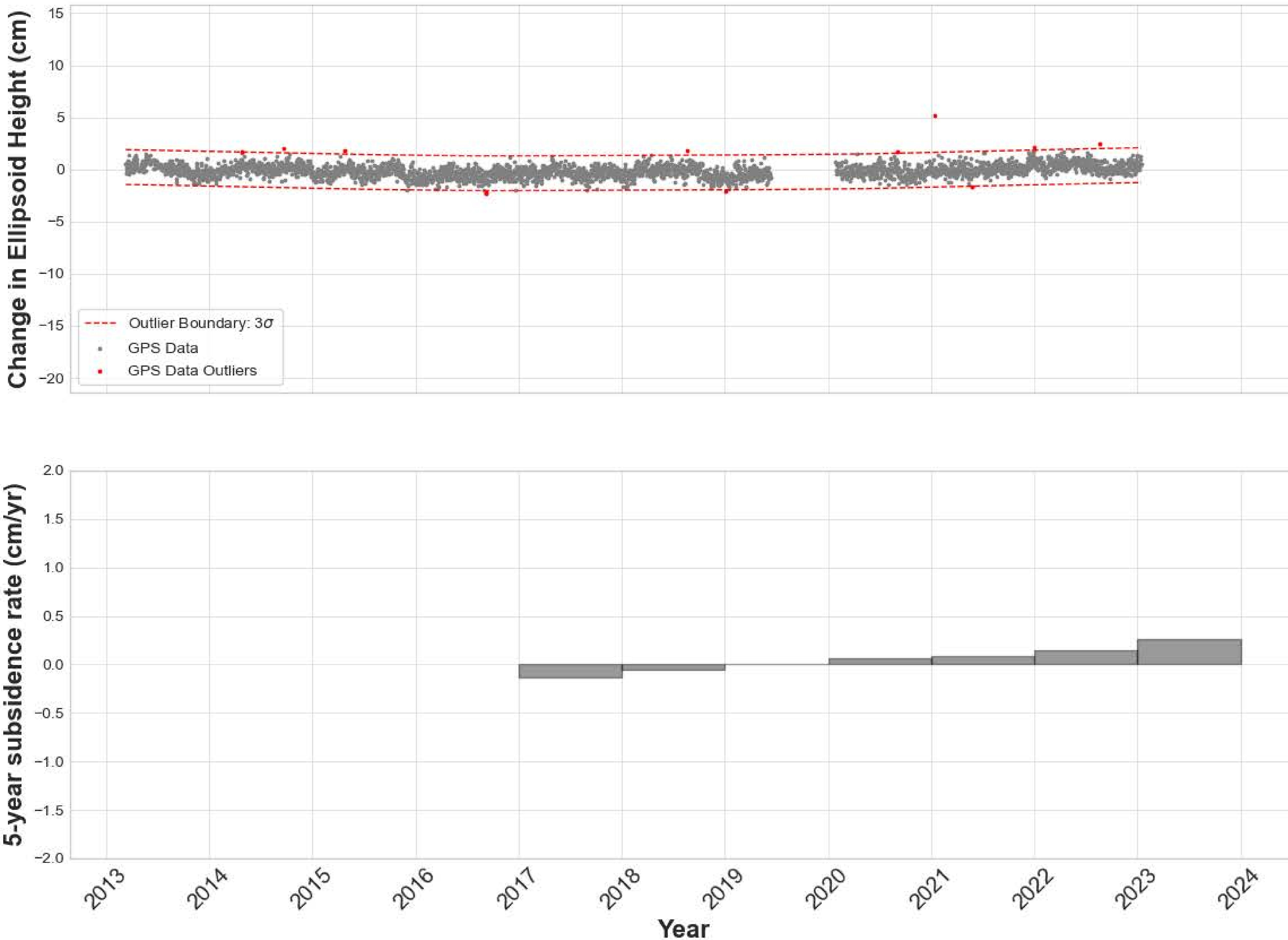
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

TXGV



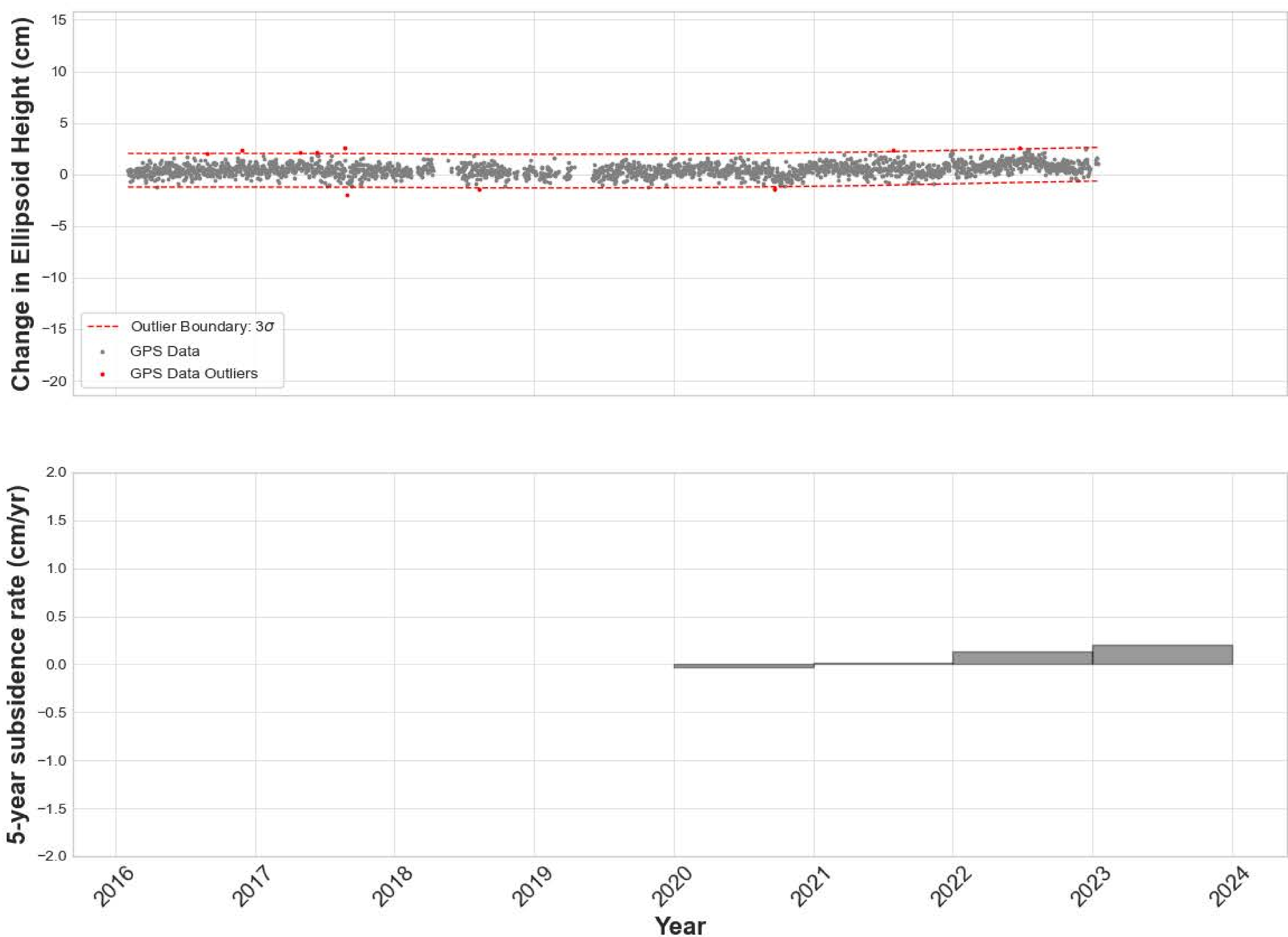
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

TXH1



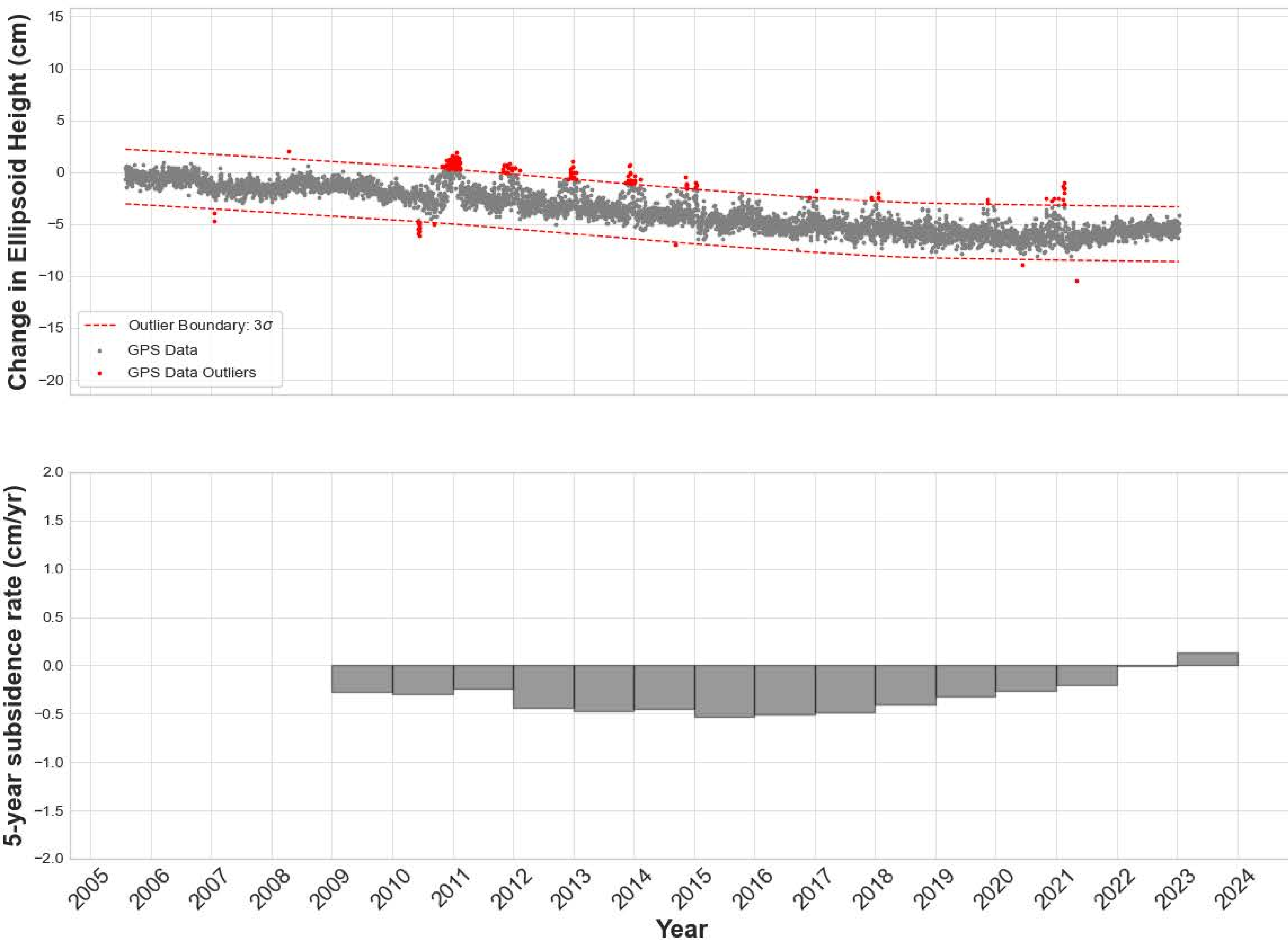
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

TXH2



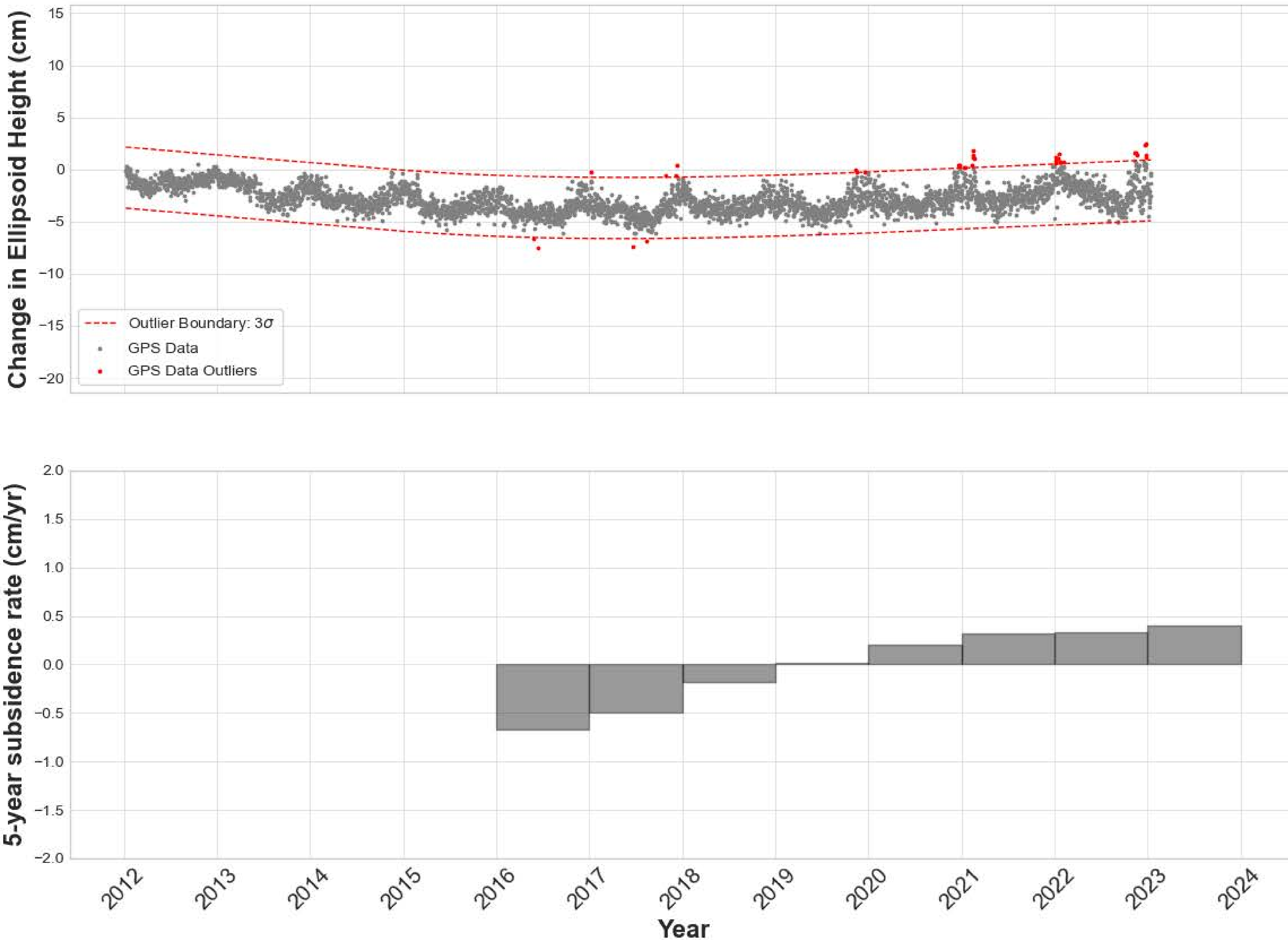
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

TXHE



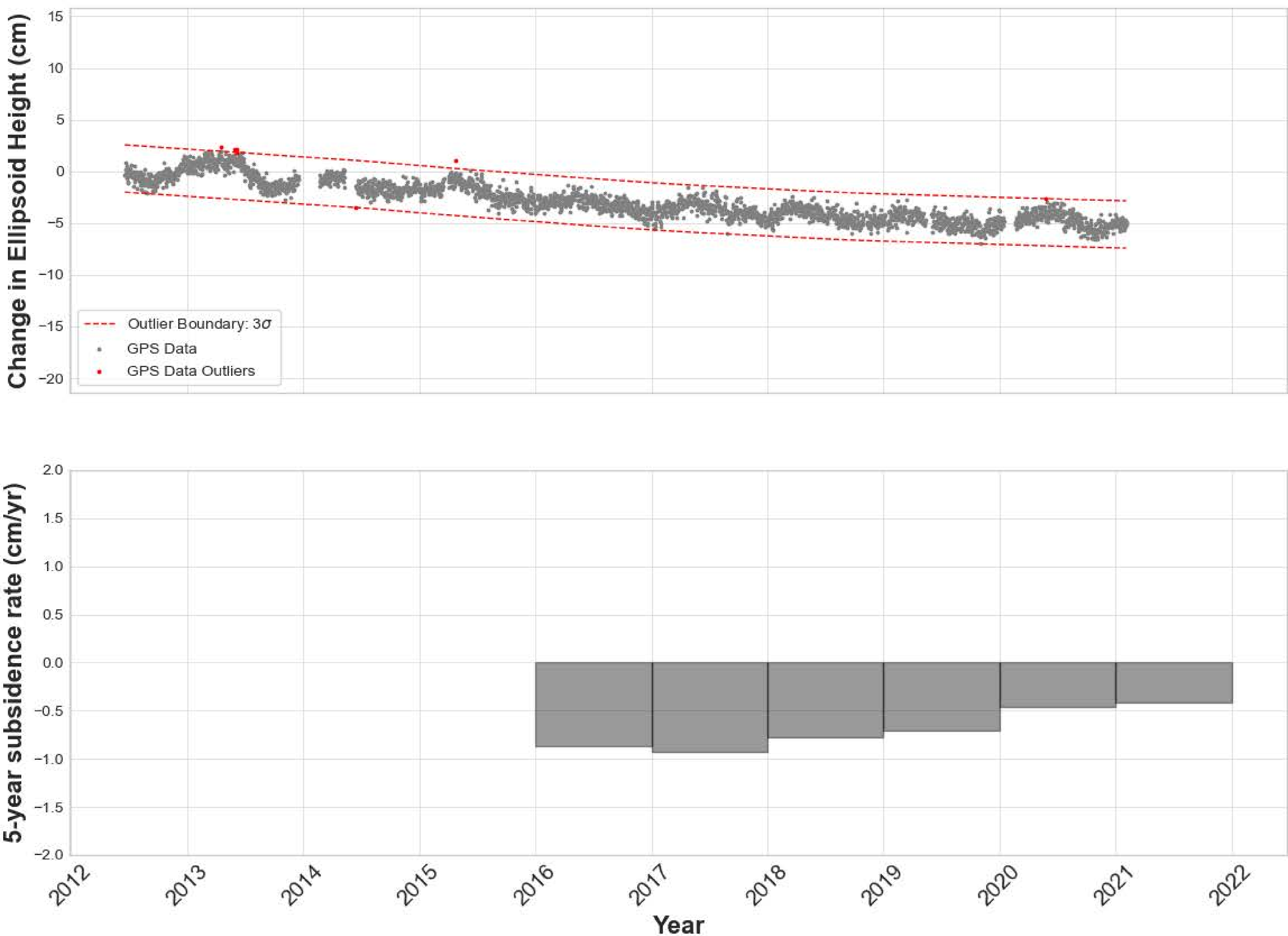
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

TXHP



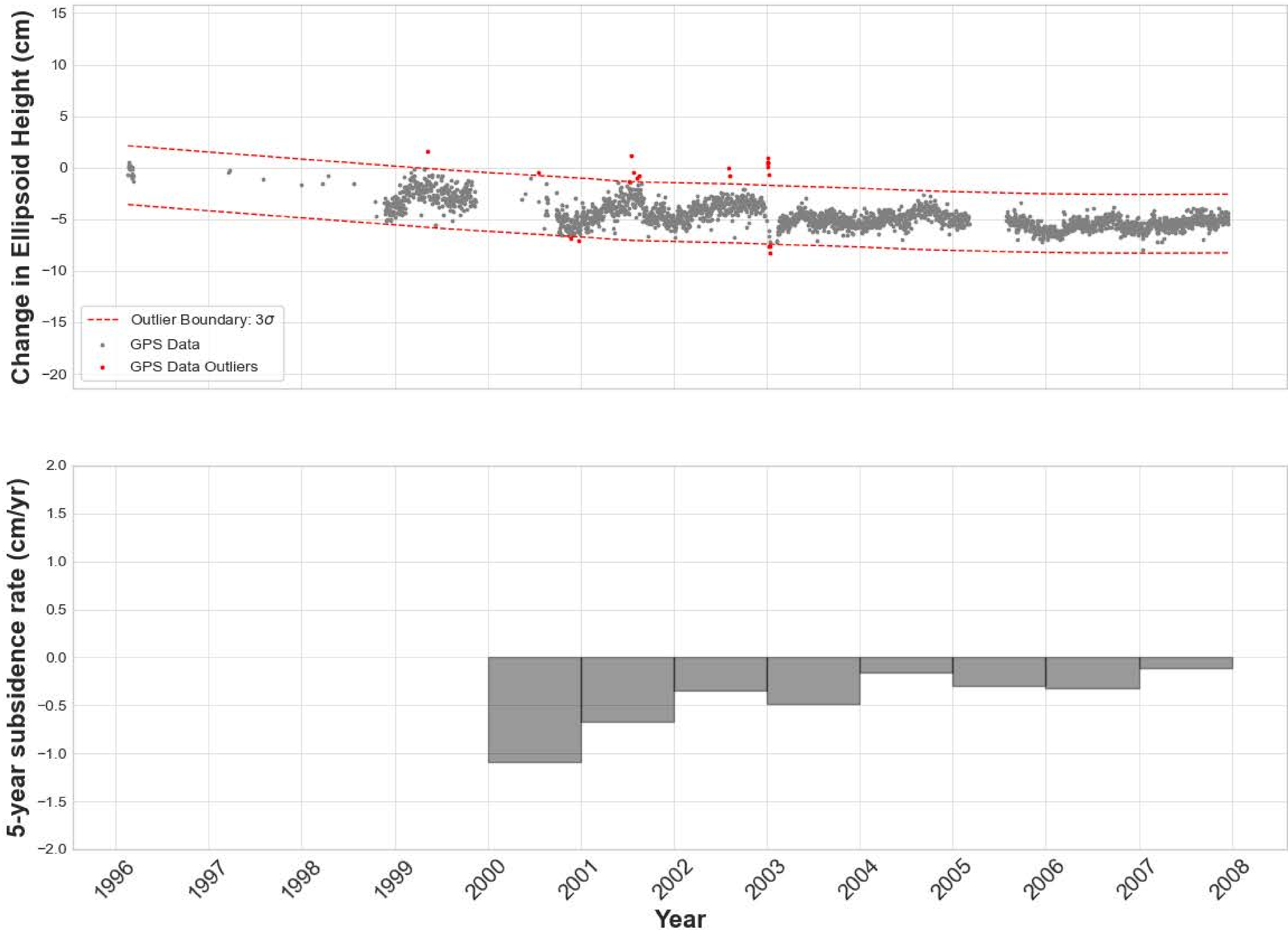
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

TXHS



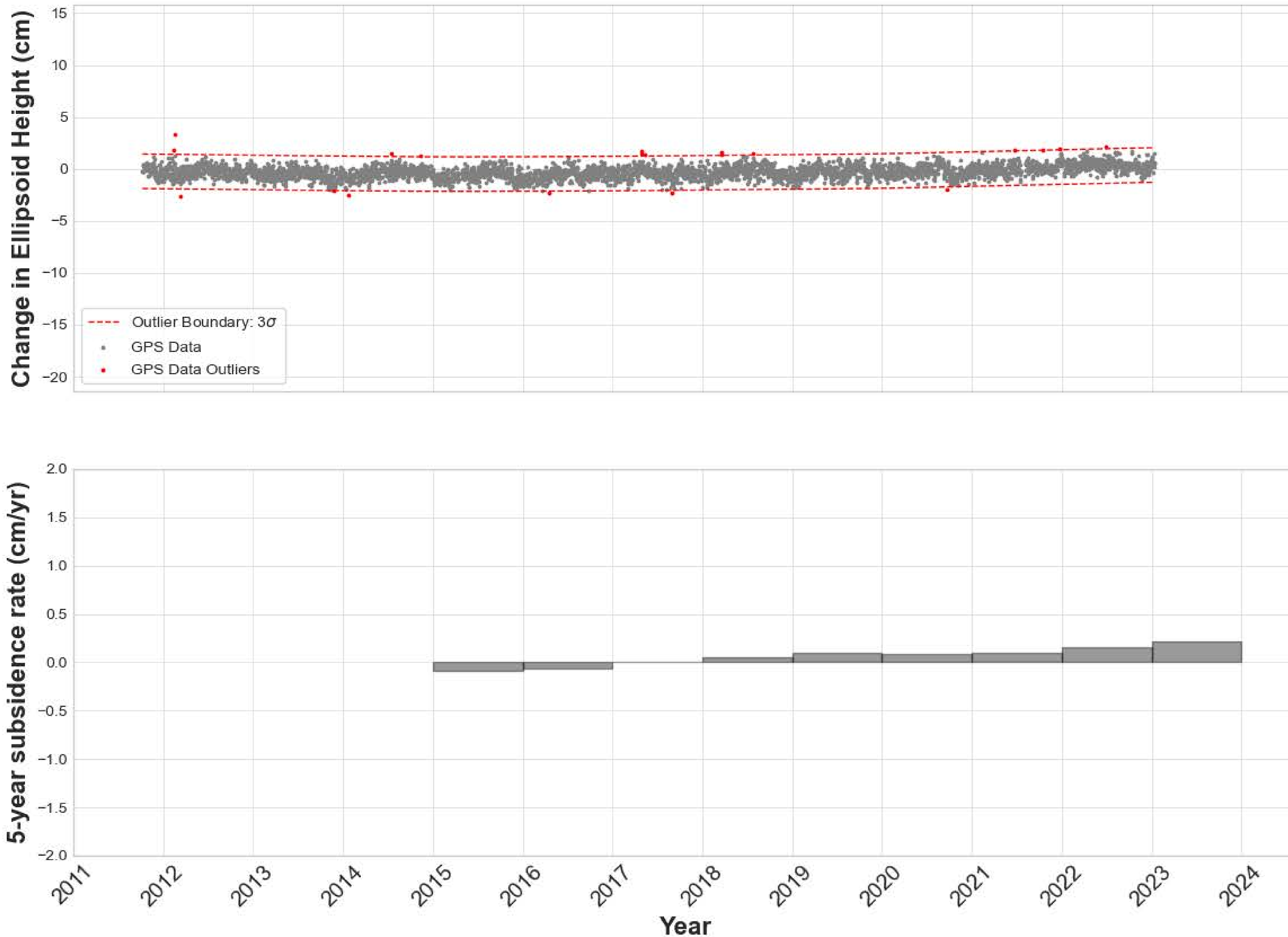
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

TXHU



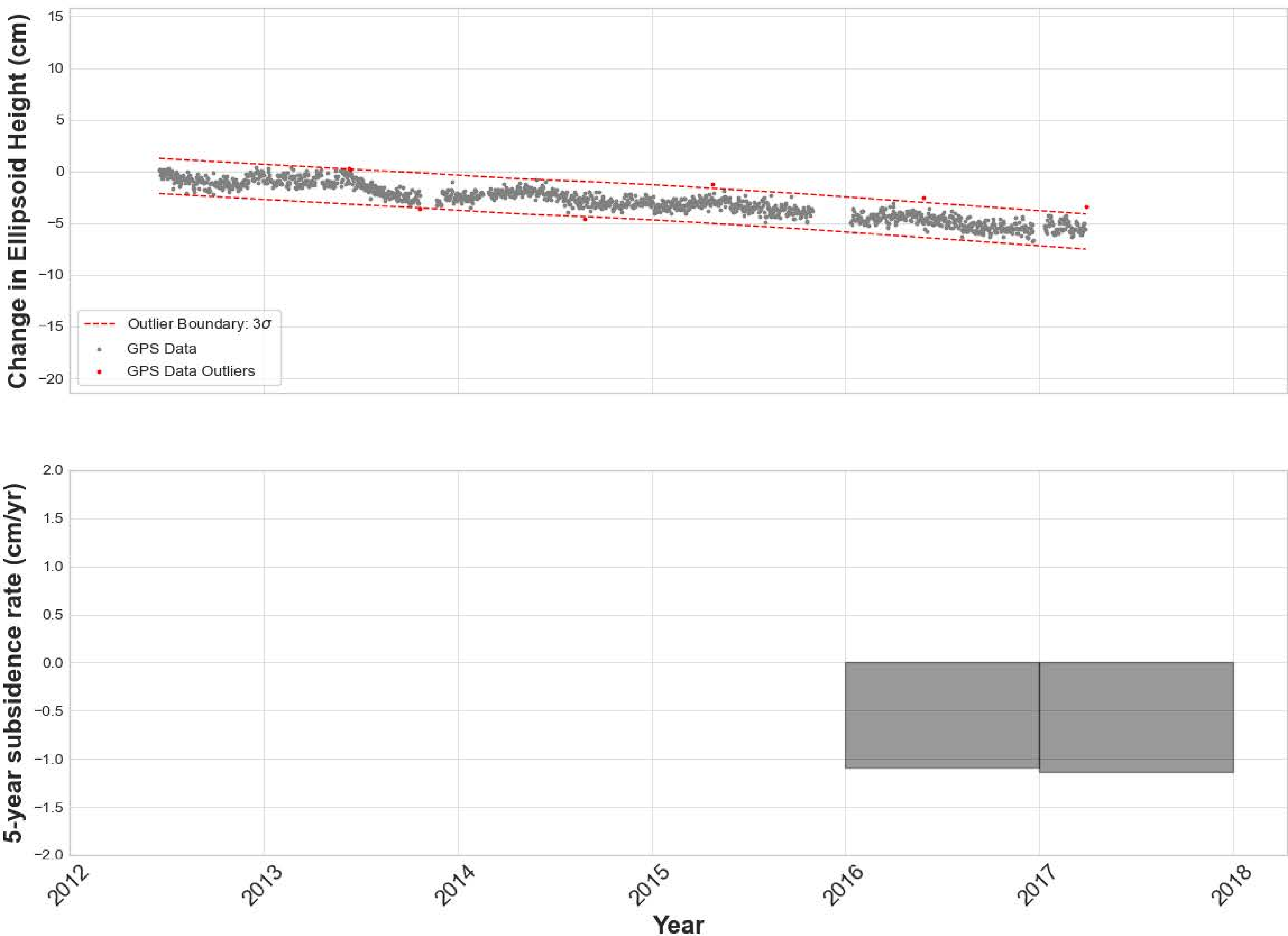
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

TXKO



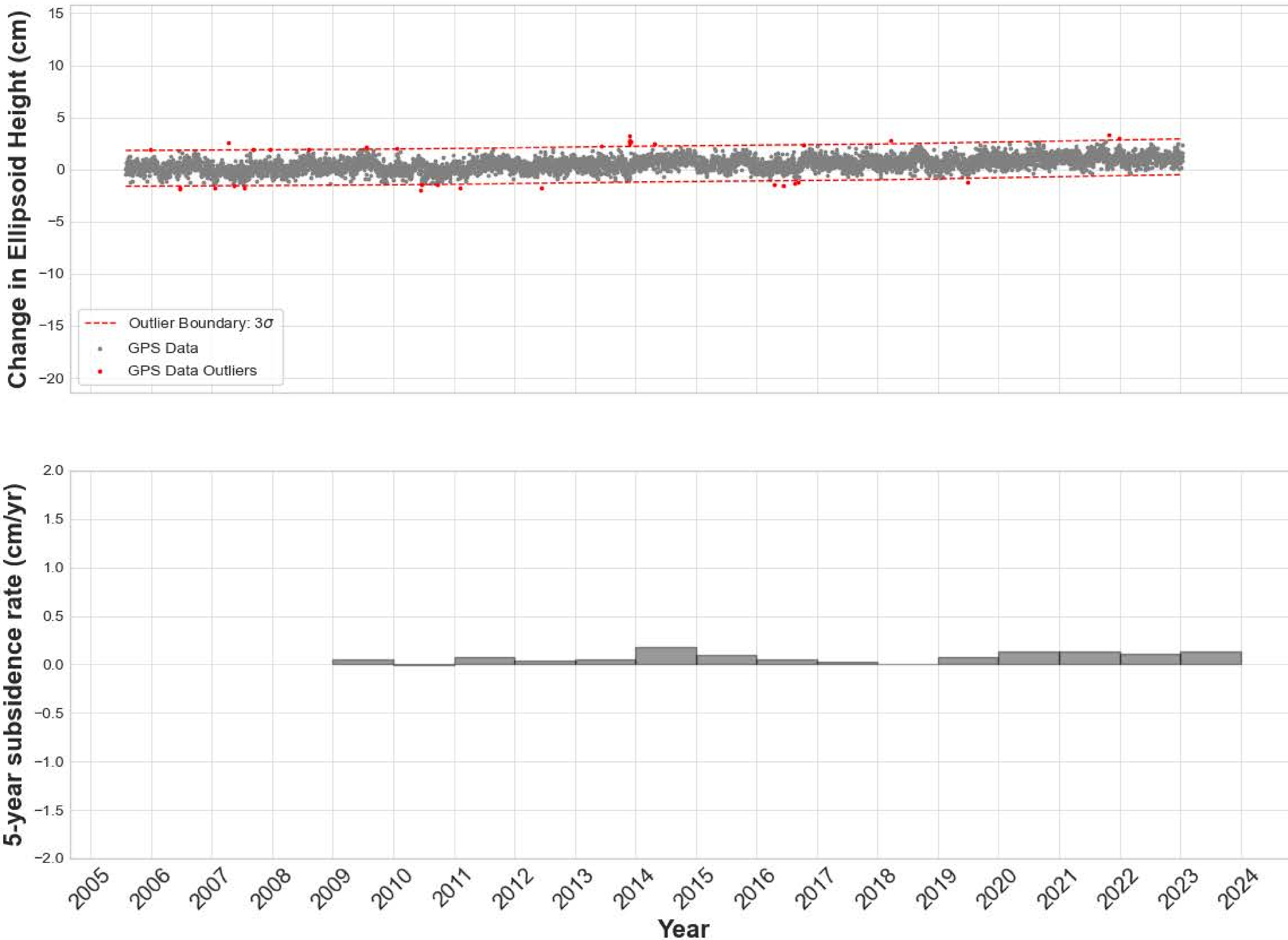
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

TXKY



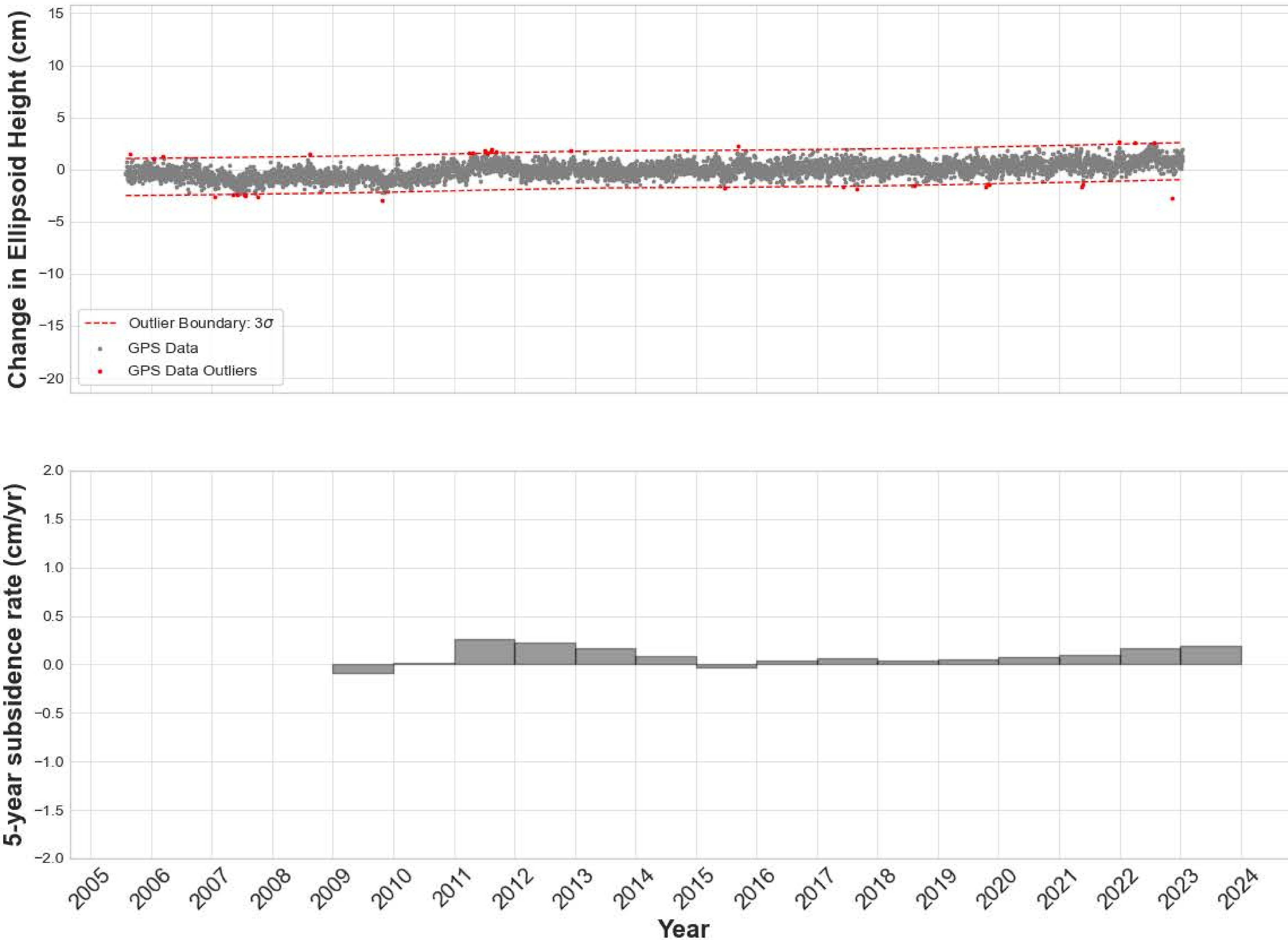
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

TXLF



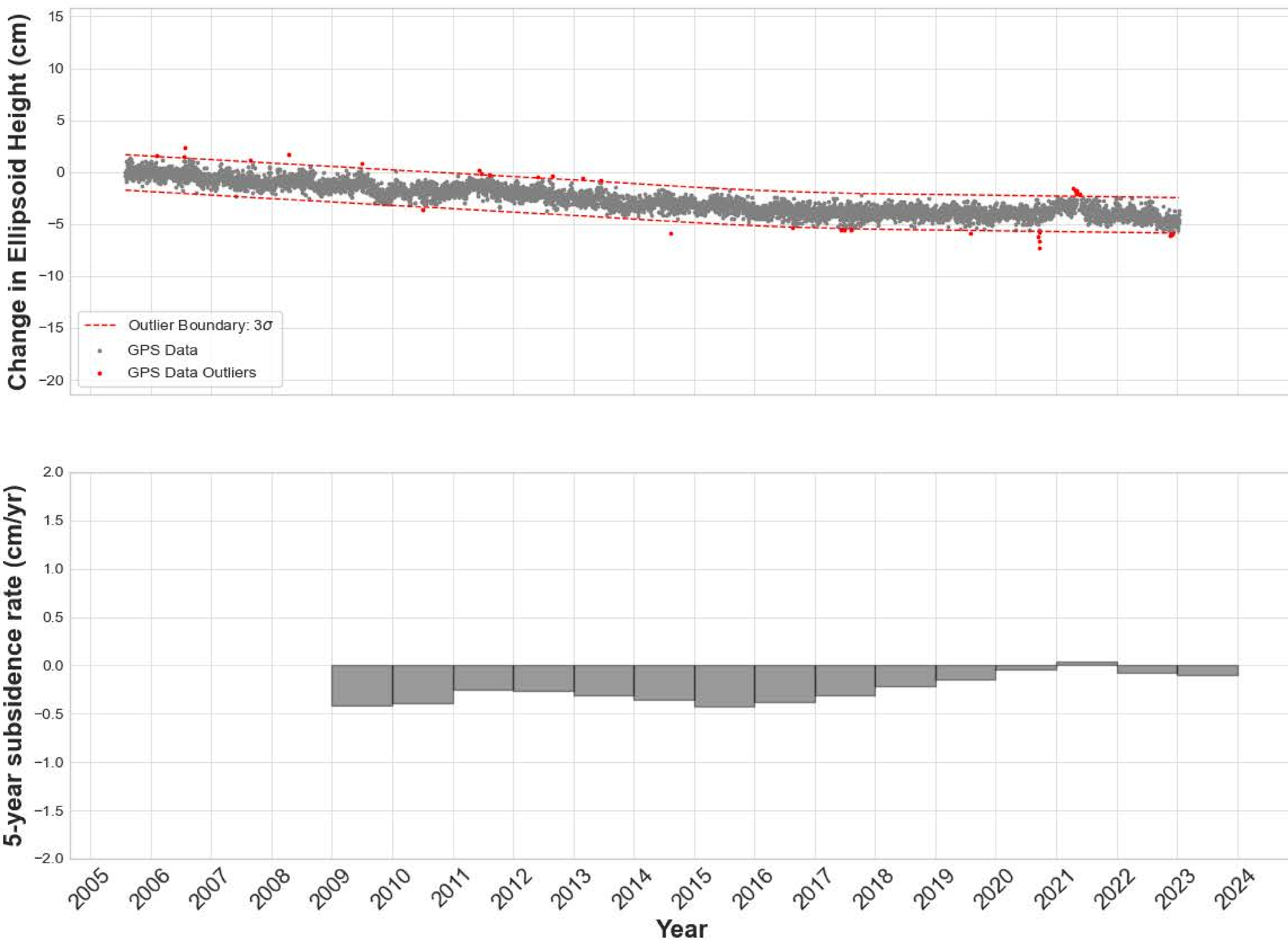
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

TXLI



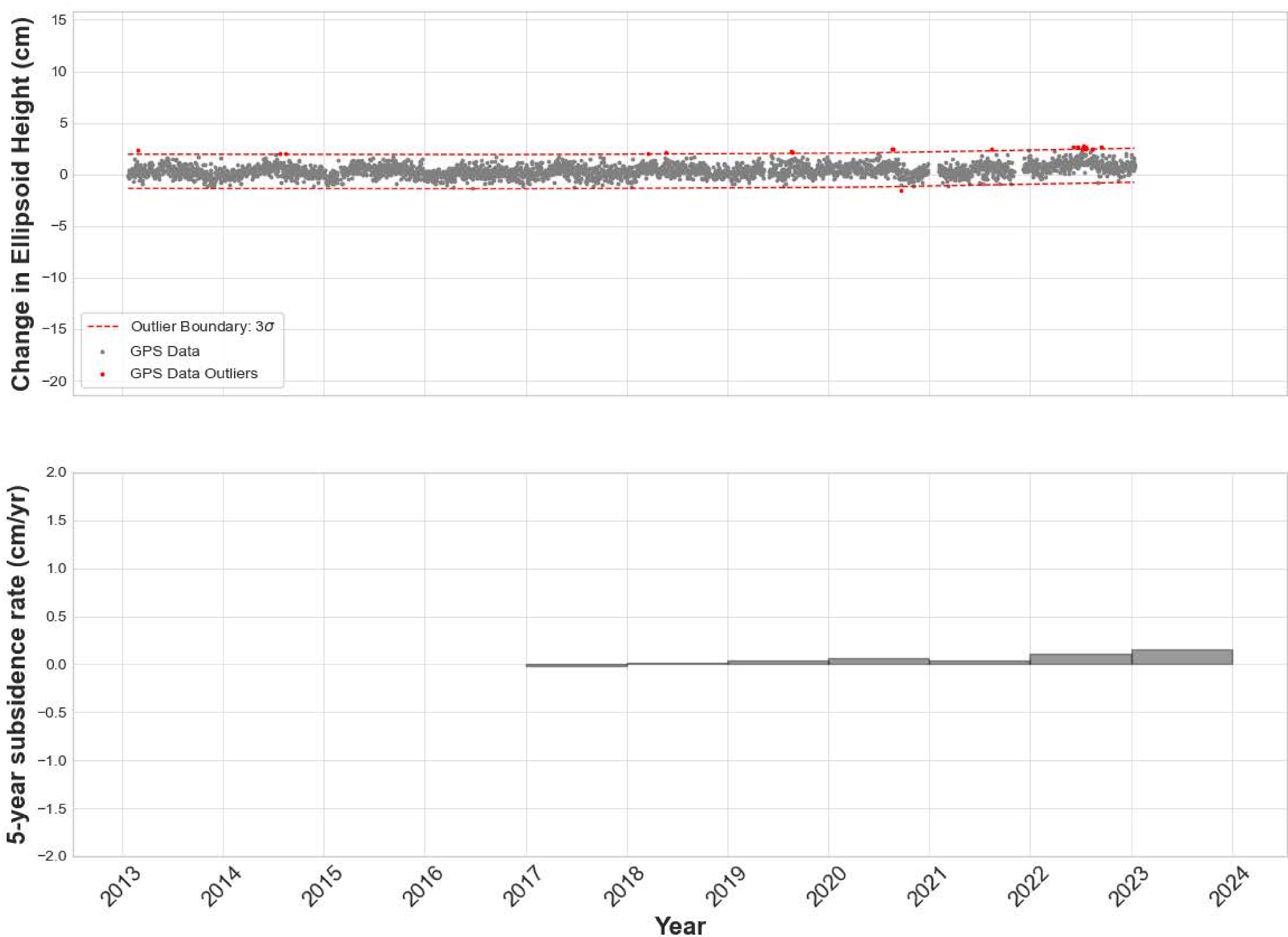
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

TXLM



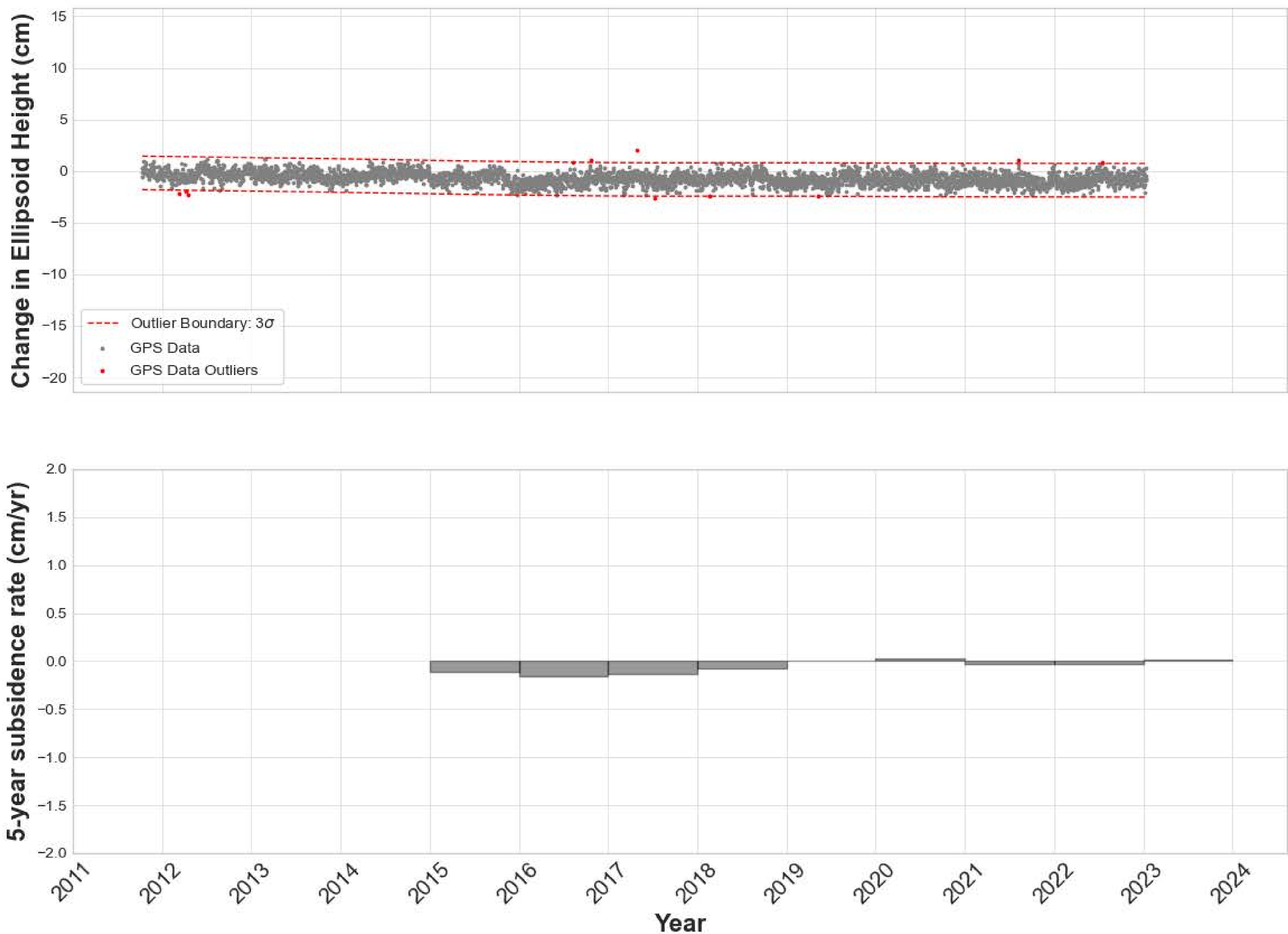
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

TXLQ



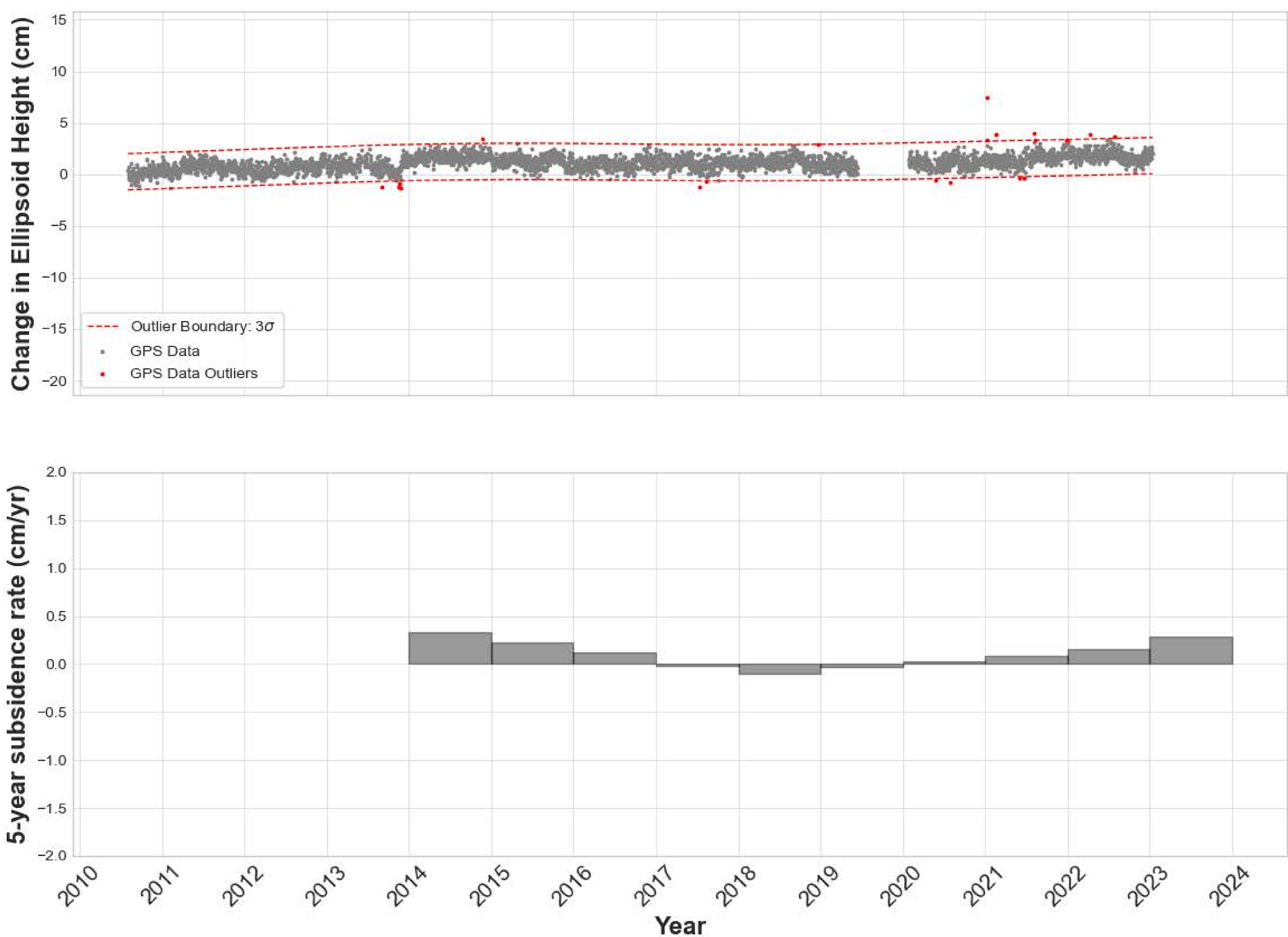
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

TXLV



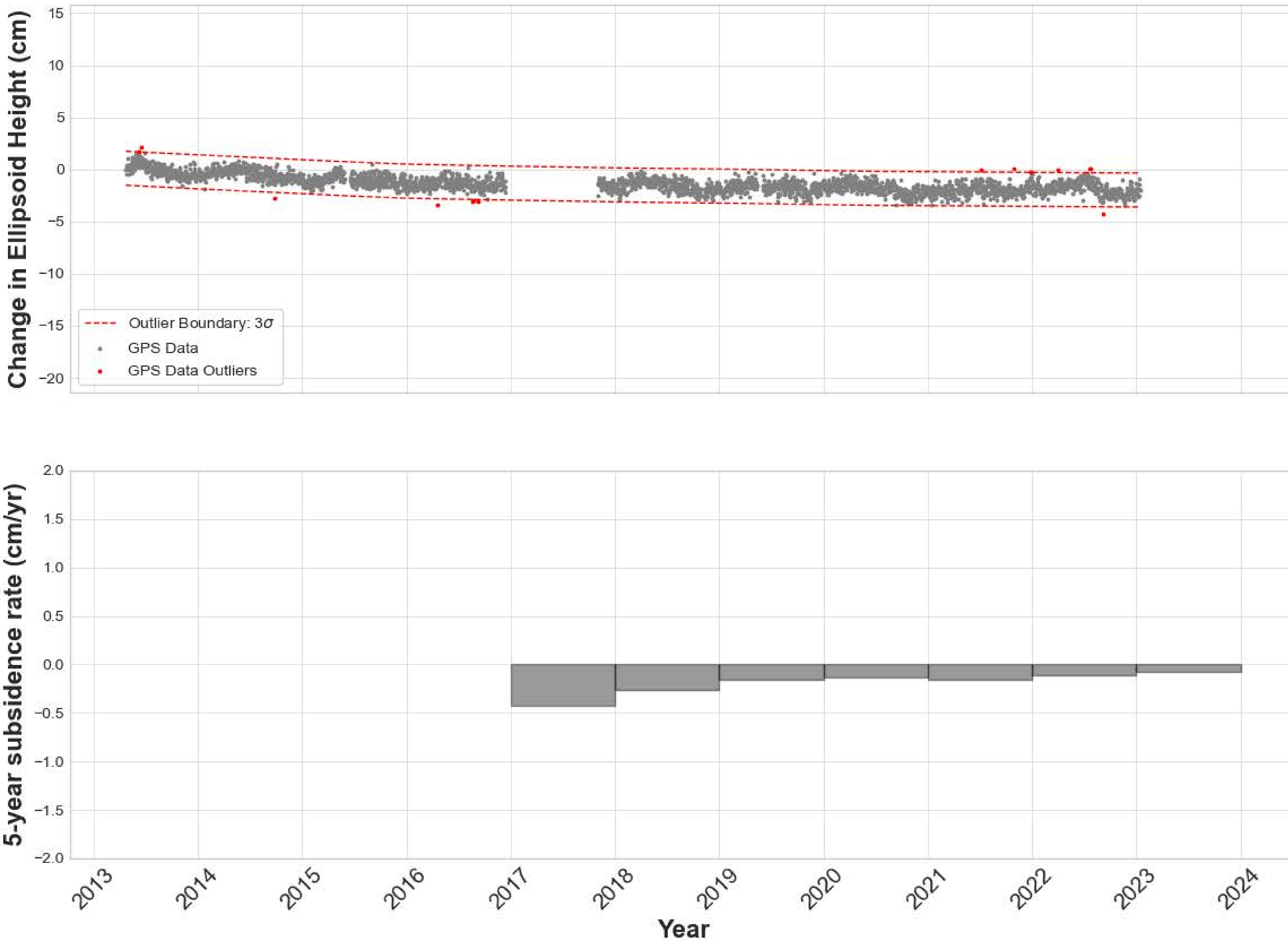
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

TXMD



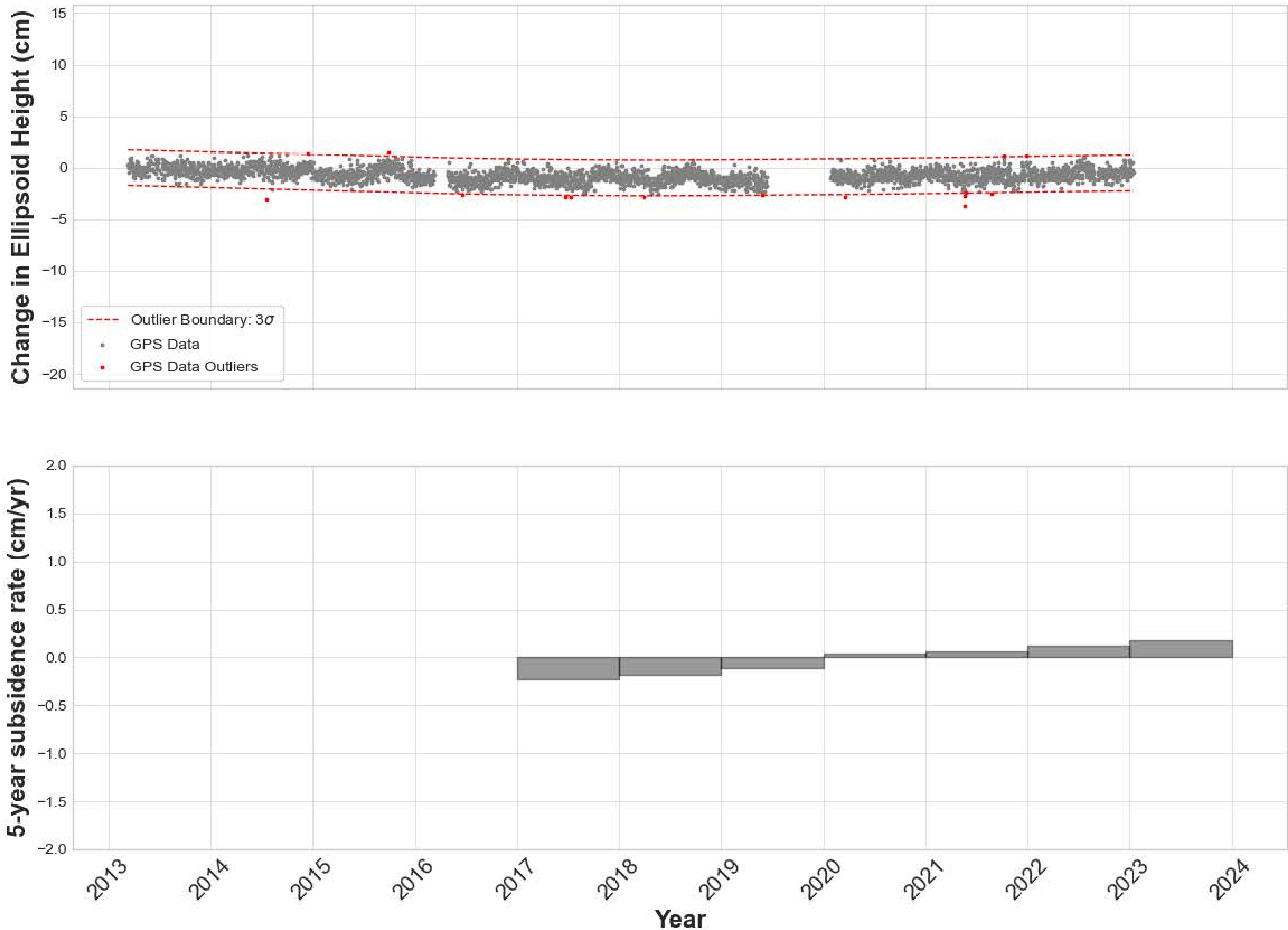
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

TXMG



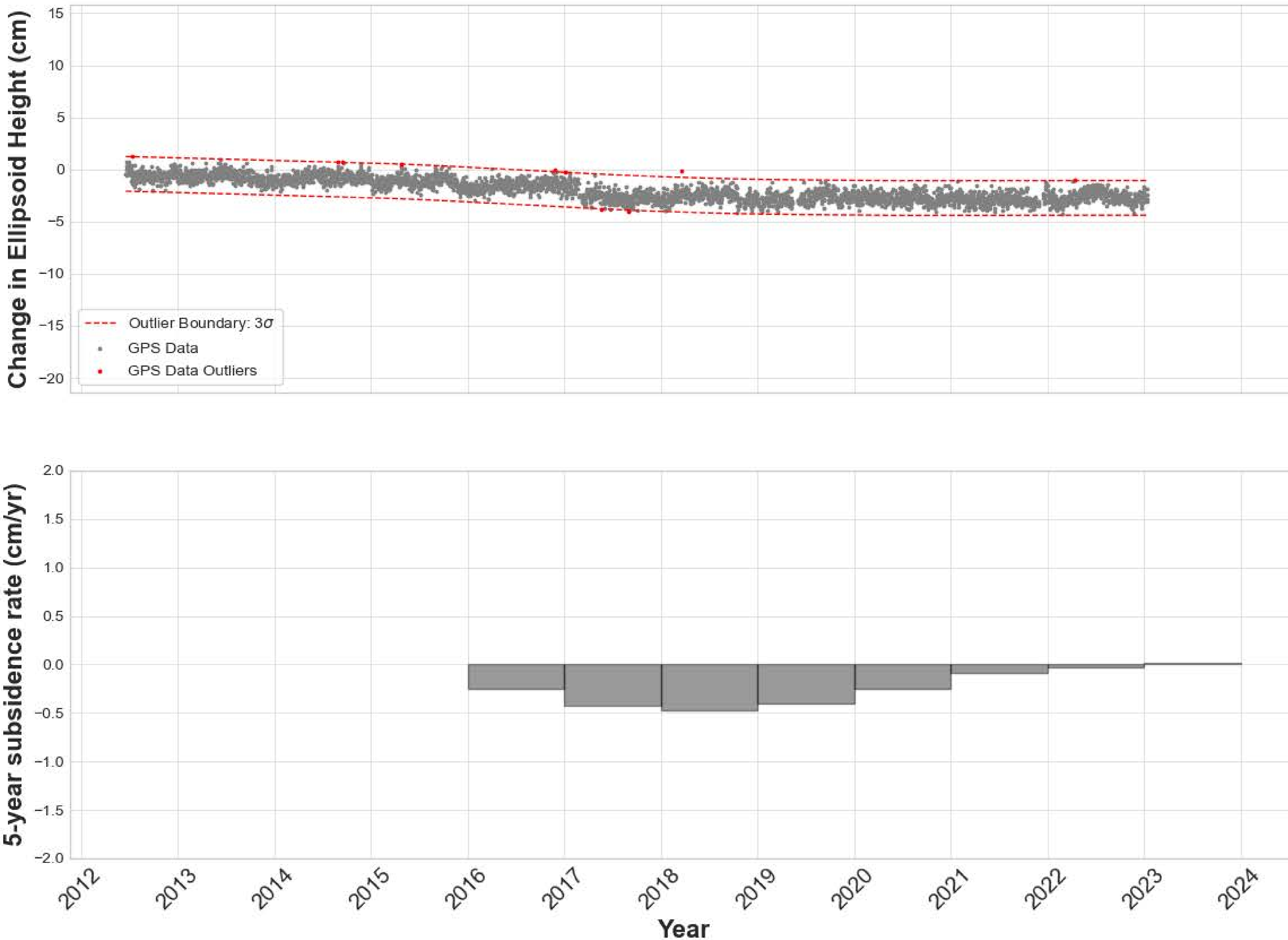
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

TXNE



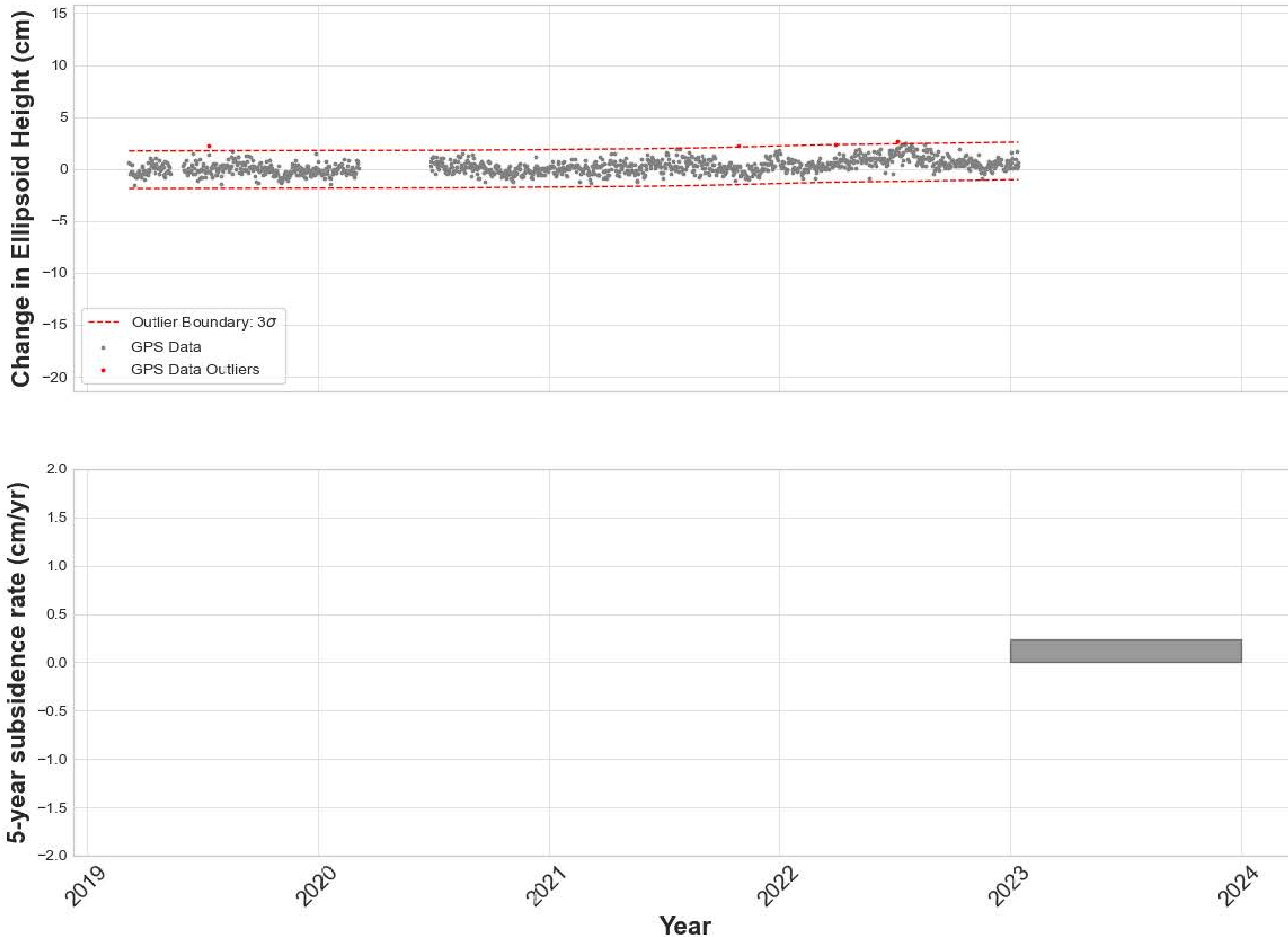
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

TXNV



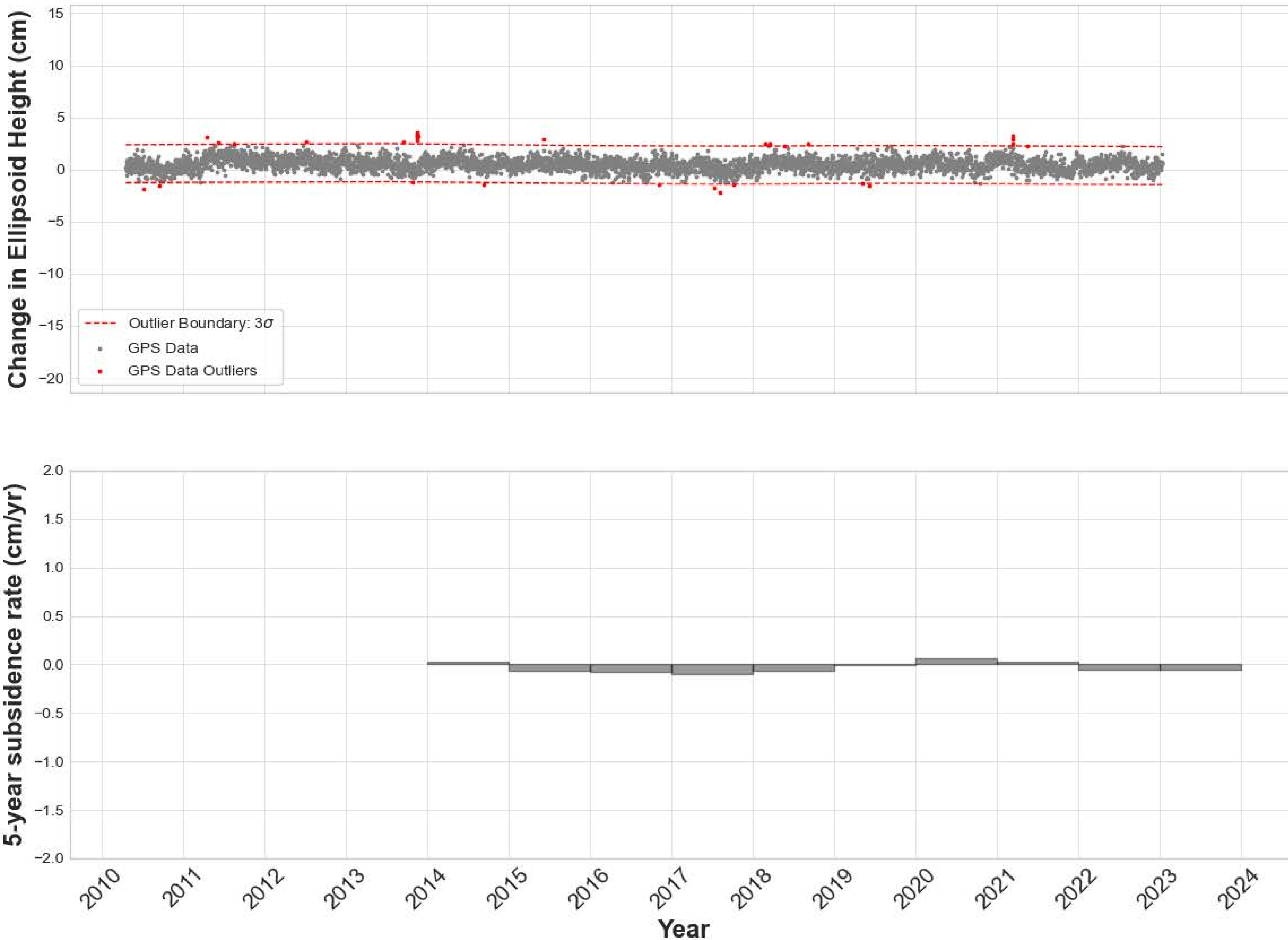
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

TXP5



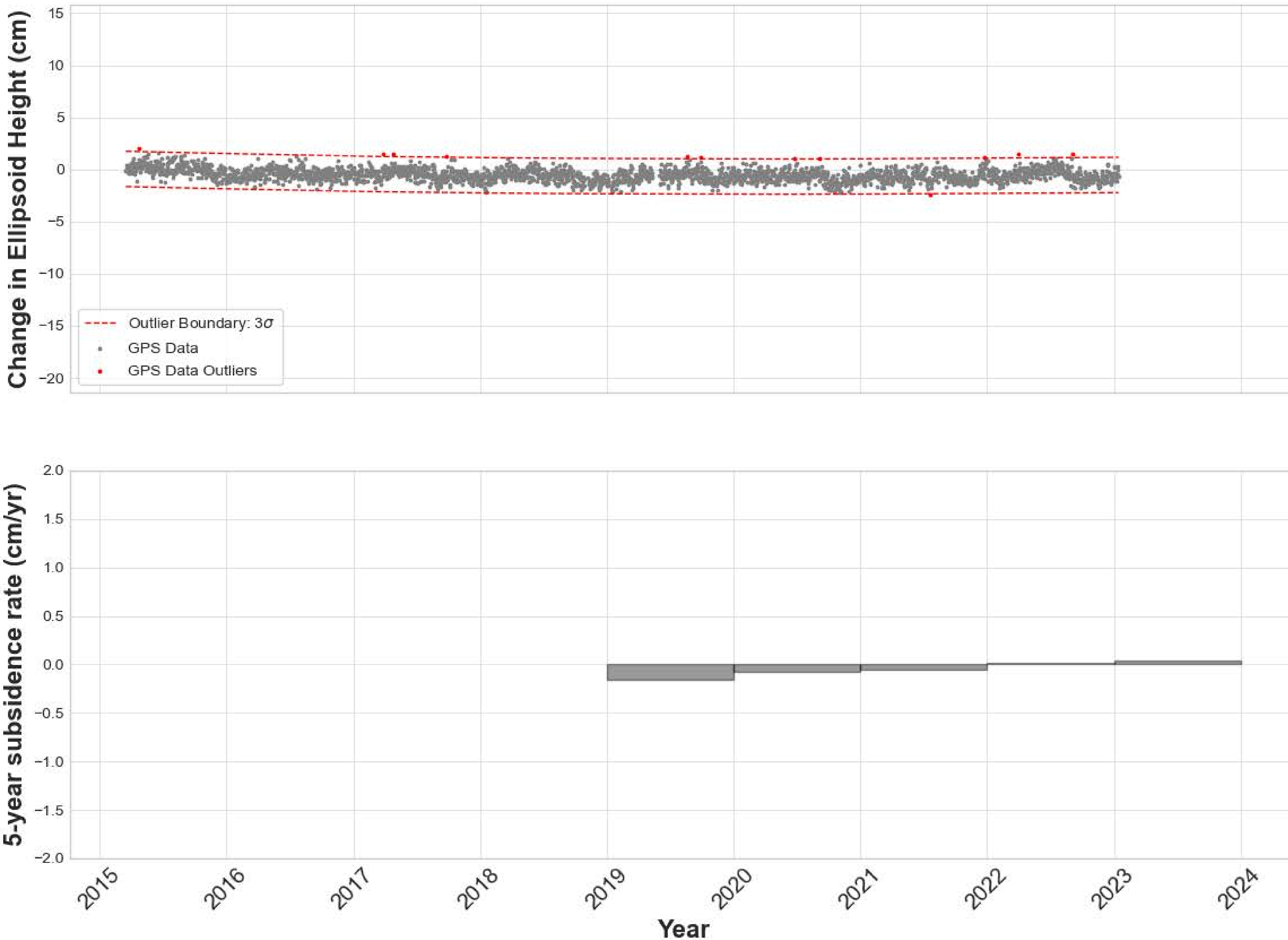
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

TXPV



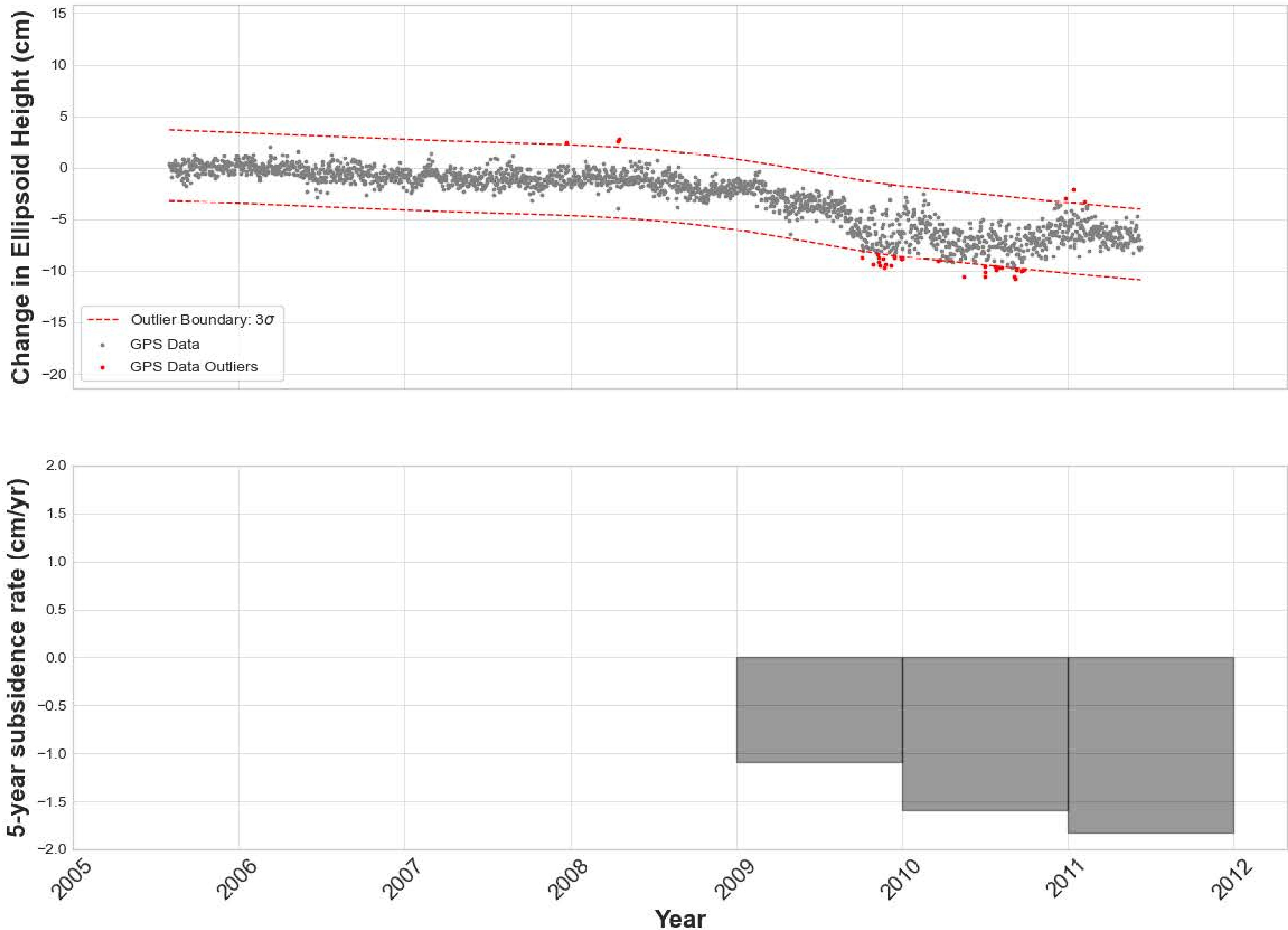
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

TXRN



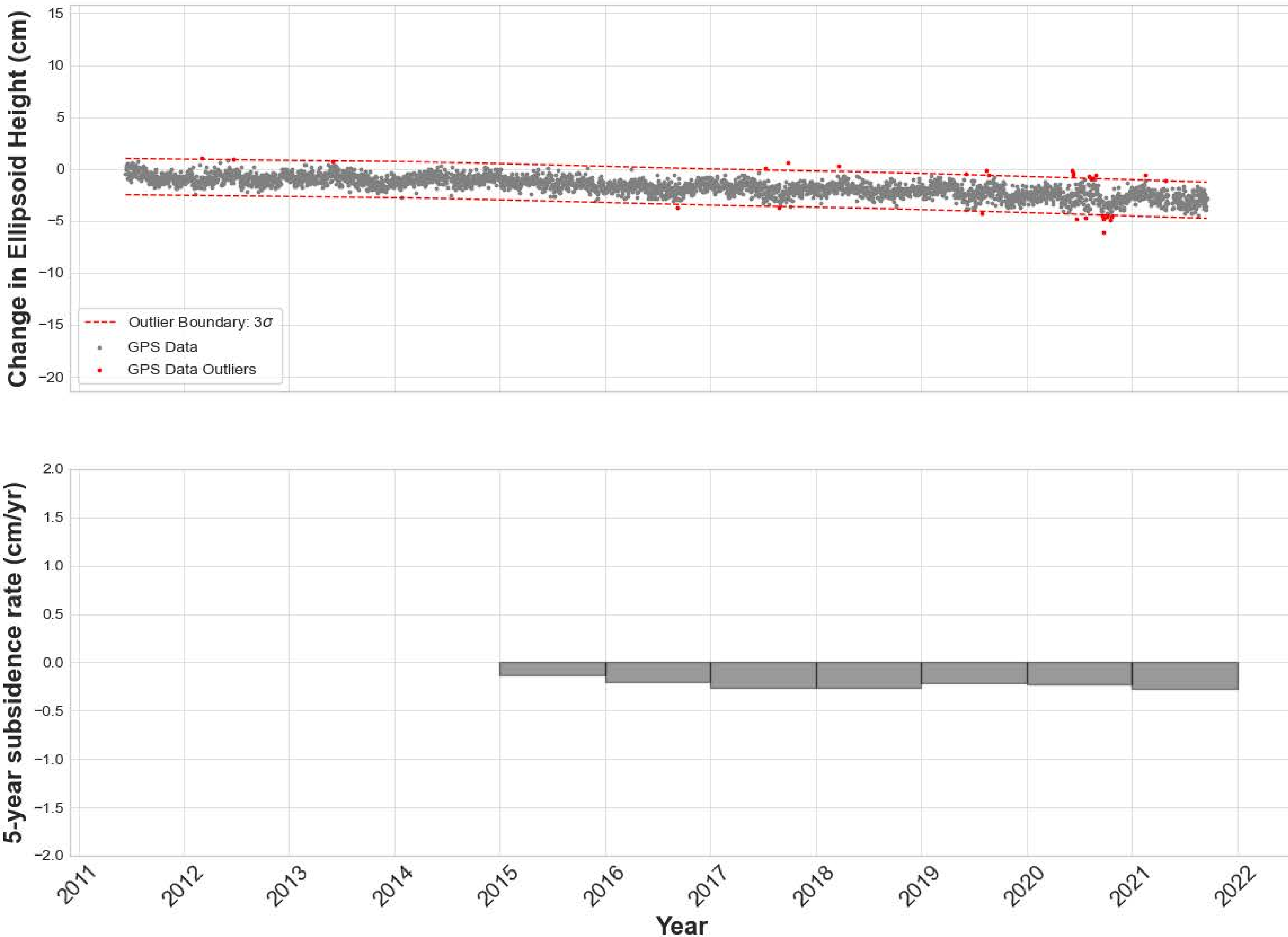
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

TXRO



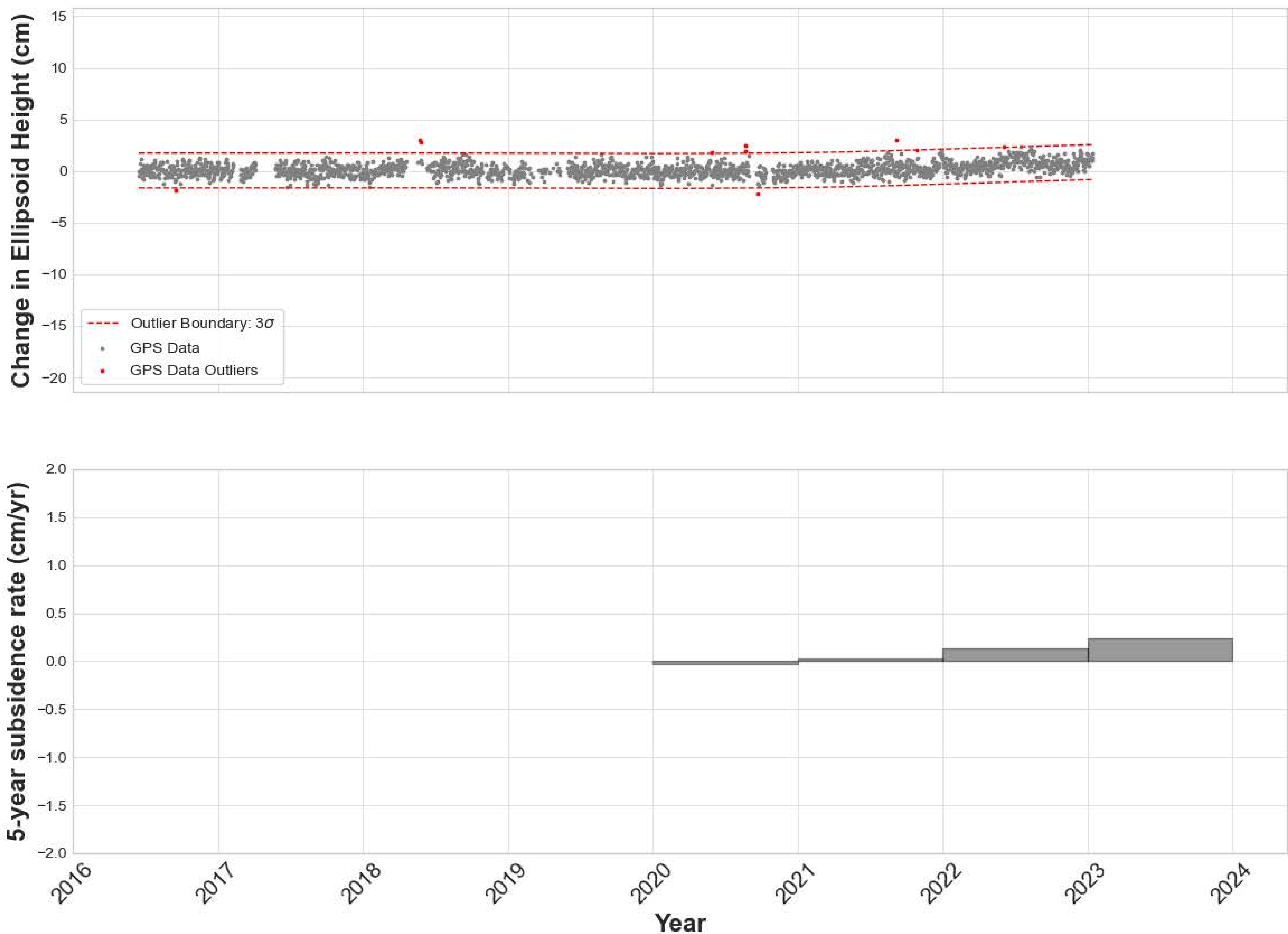
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

TXRS



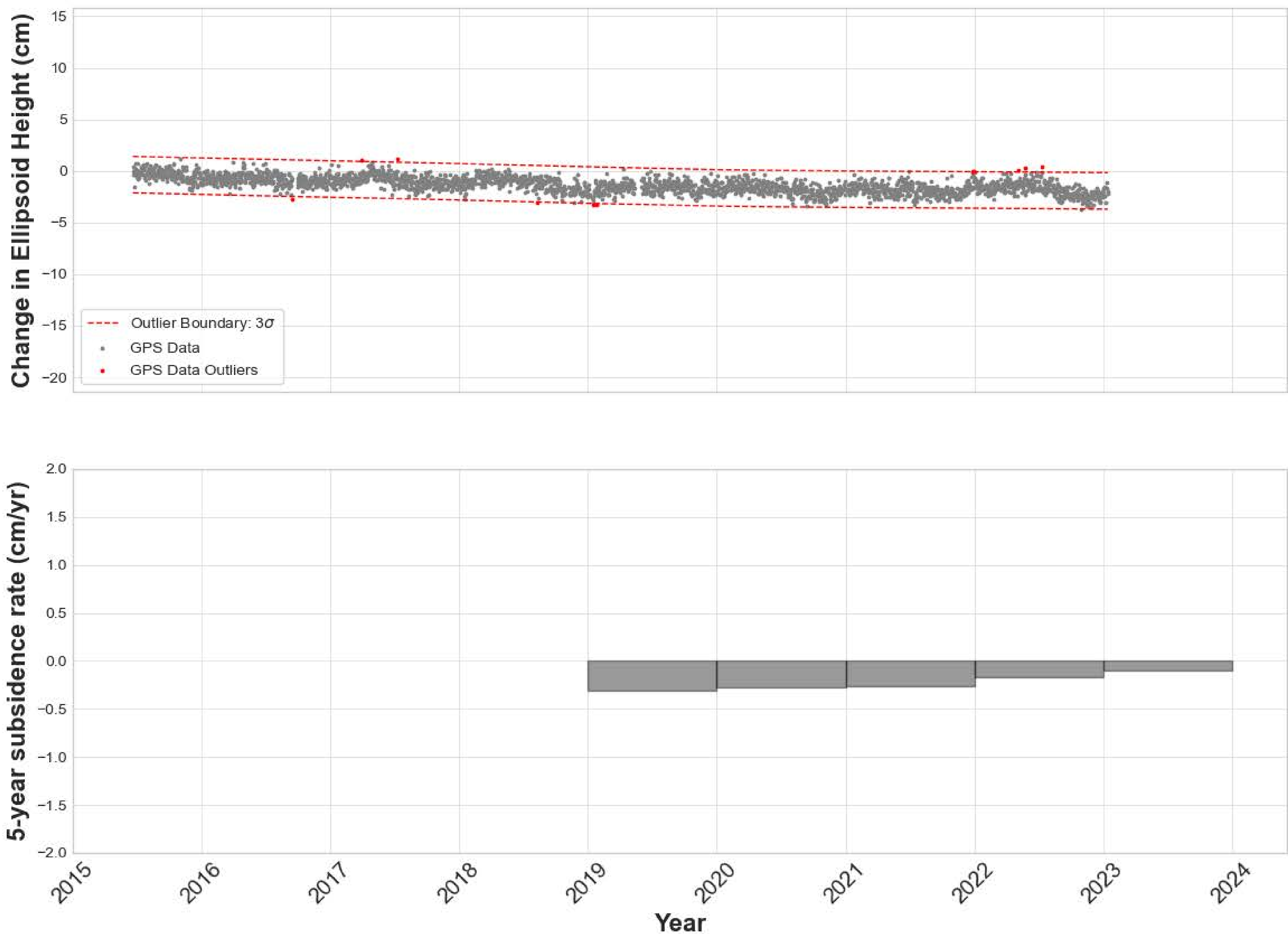
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

TXSP



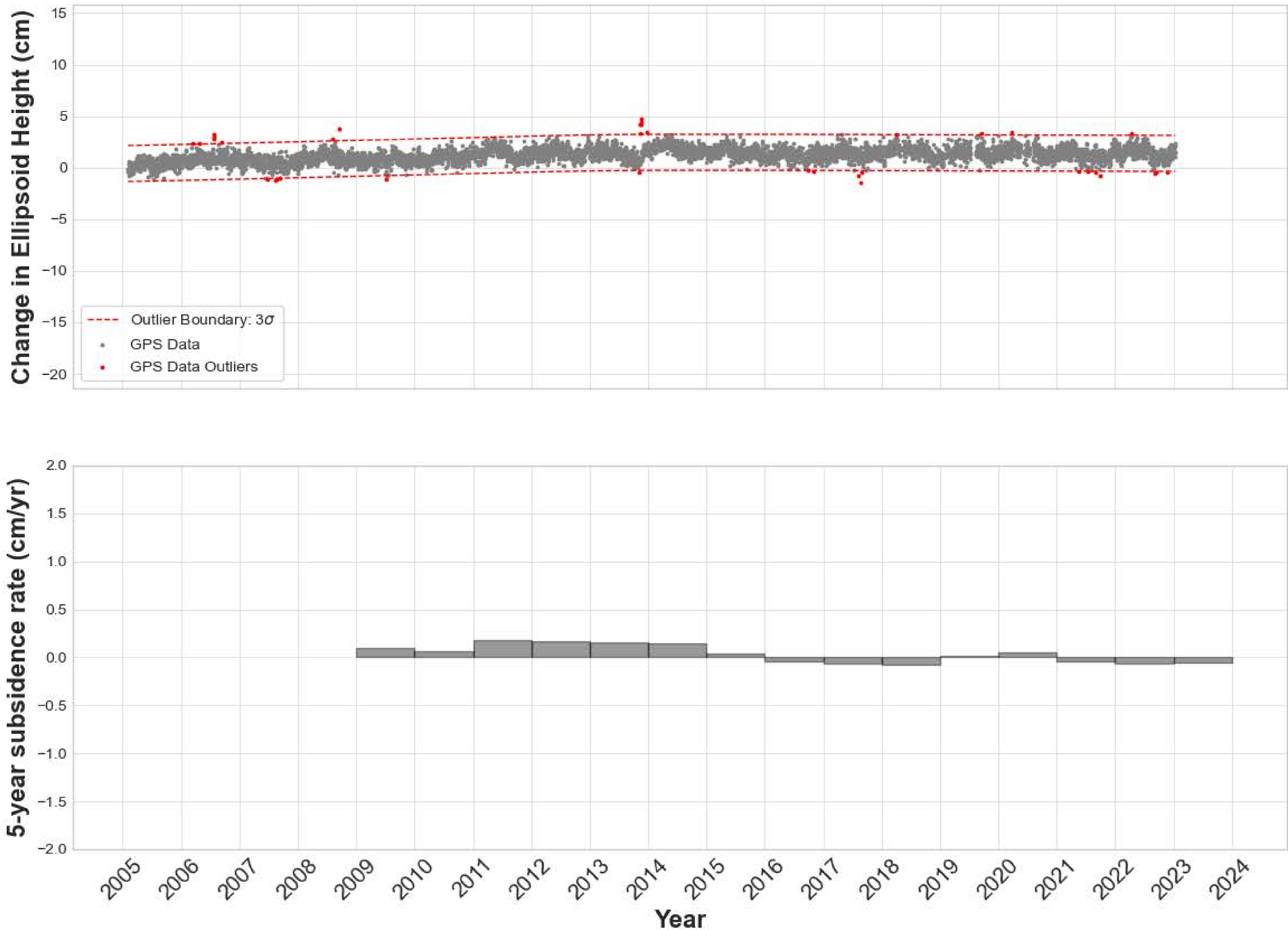
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

TXTG

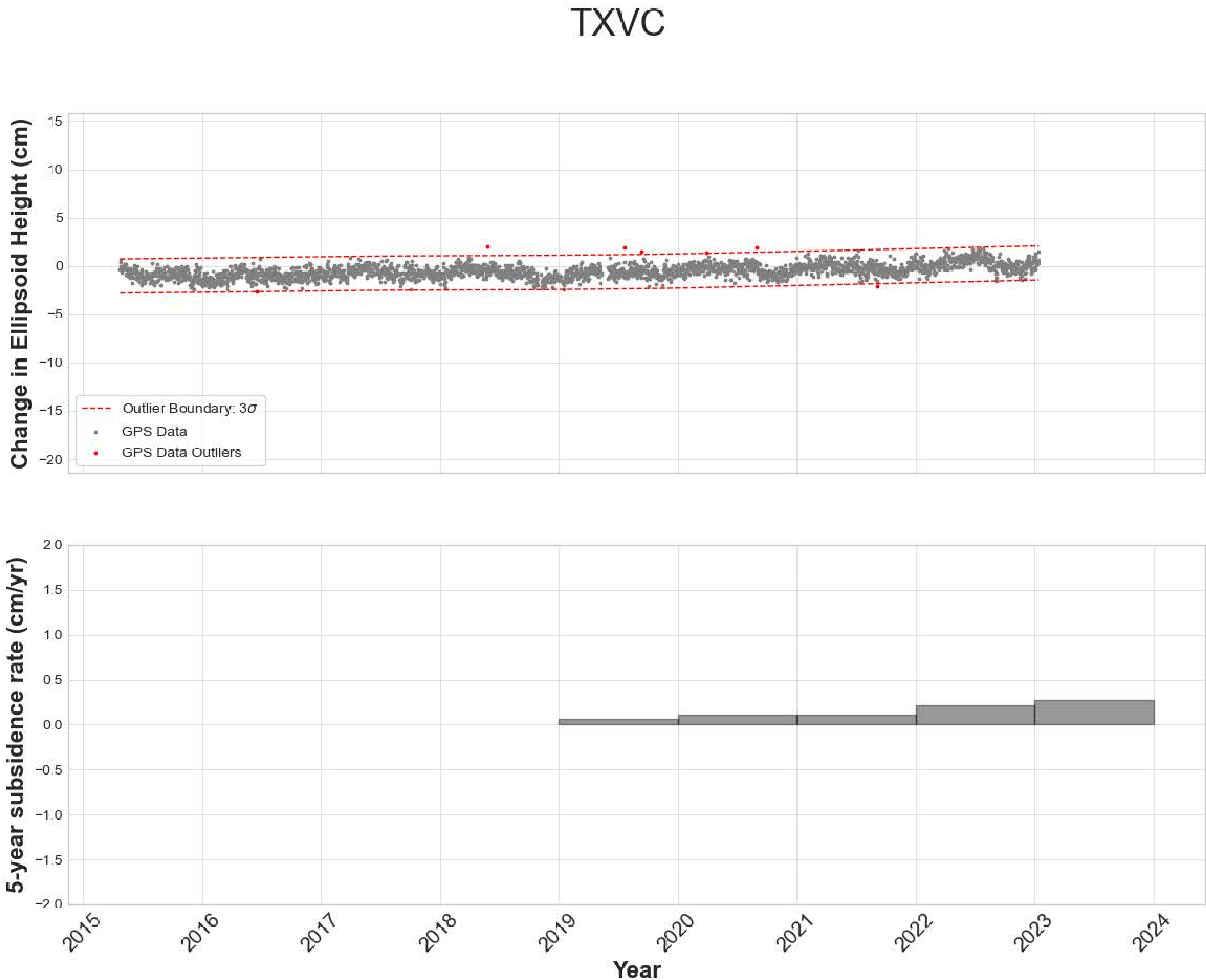


Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

TXVA

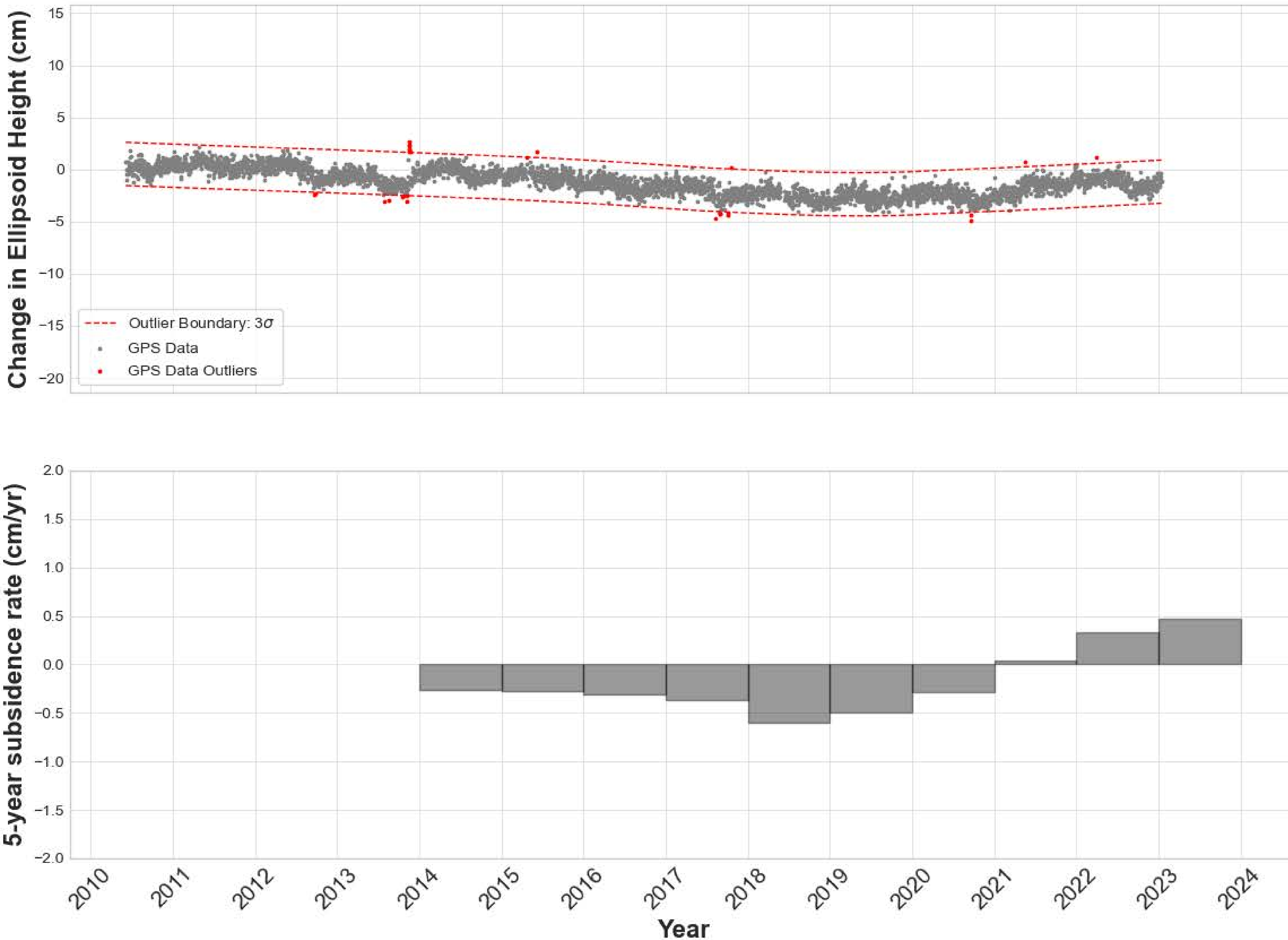


Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.



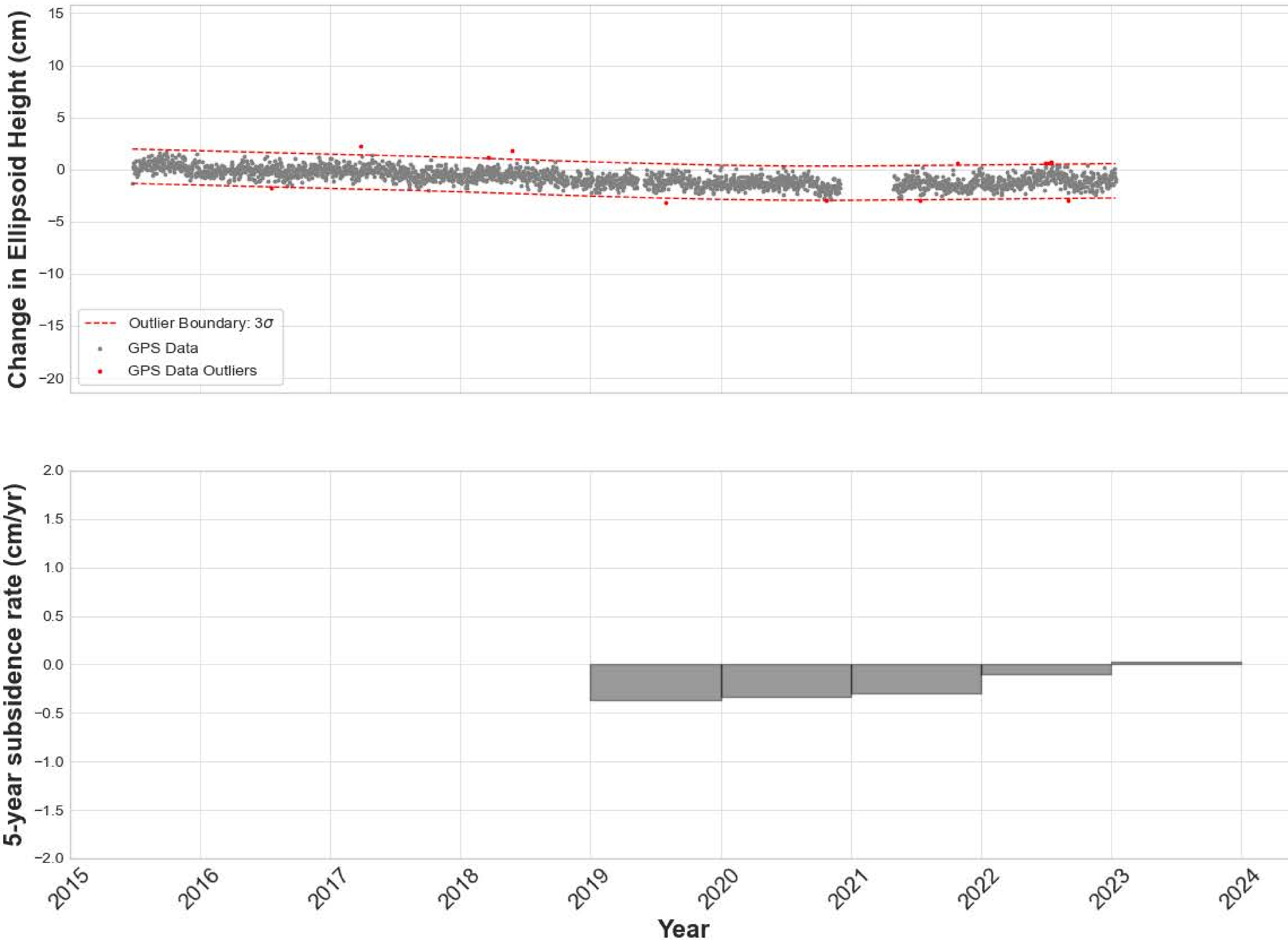
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

TXWH



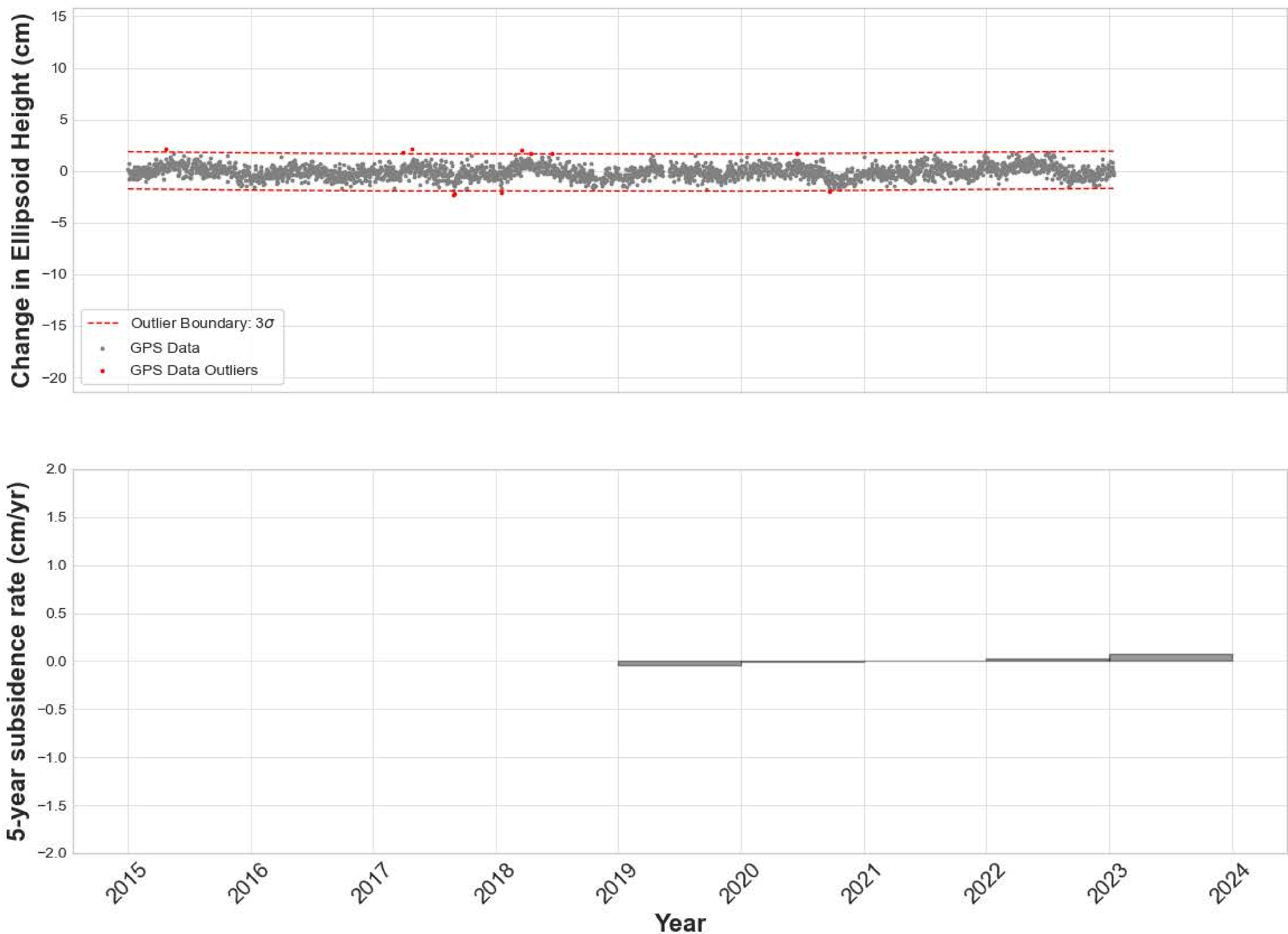
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

TXWI



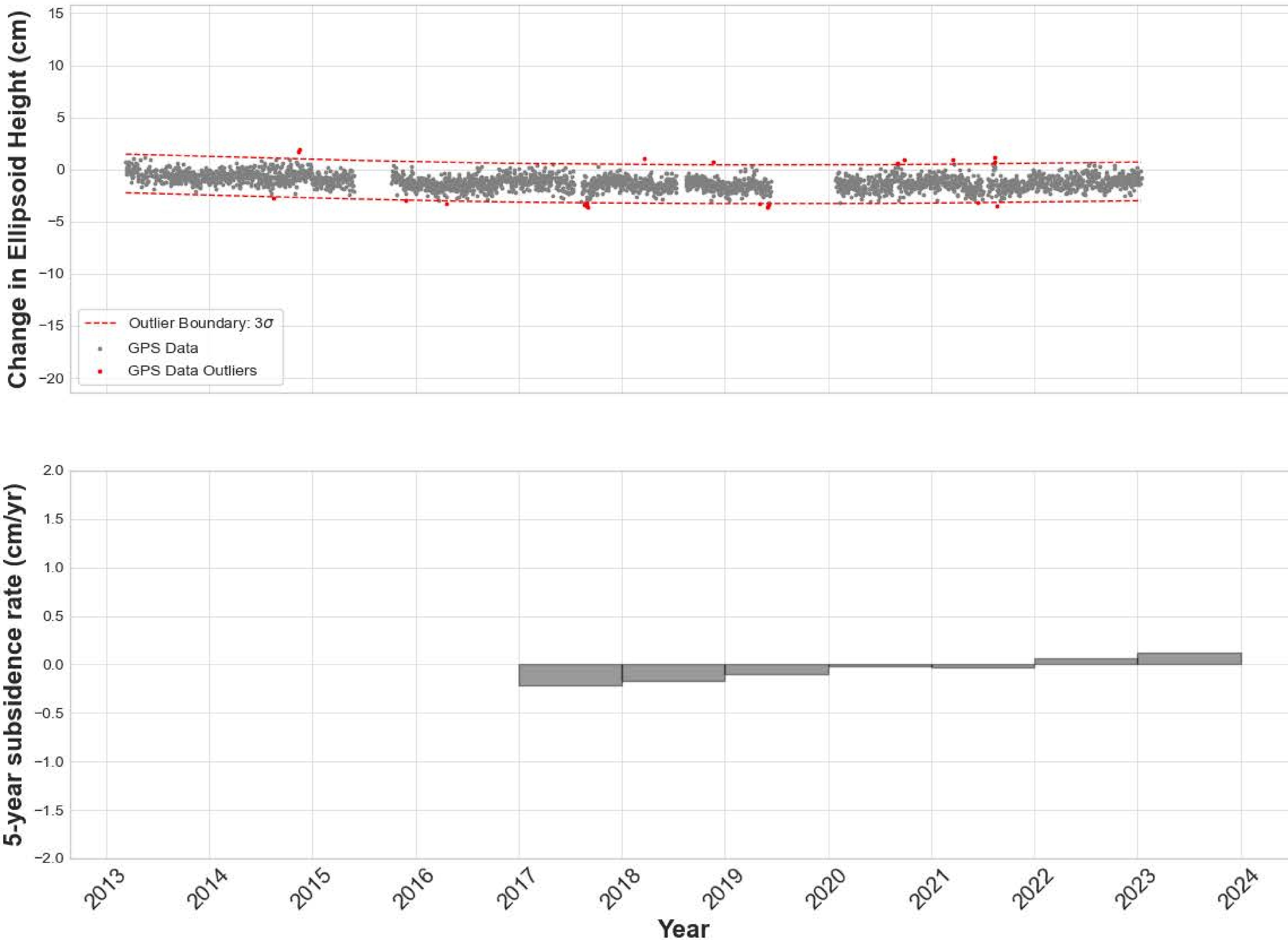
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

TXWN



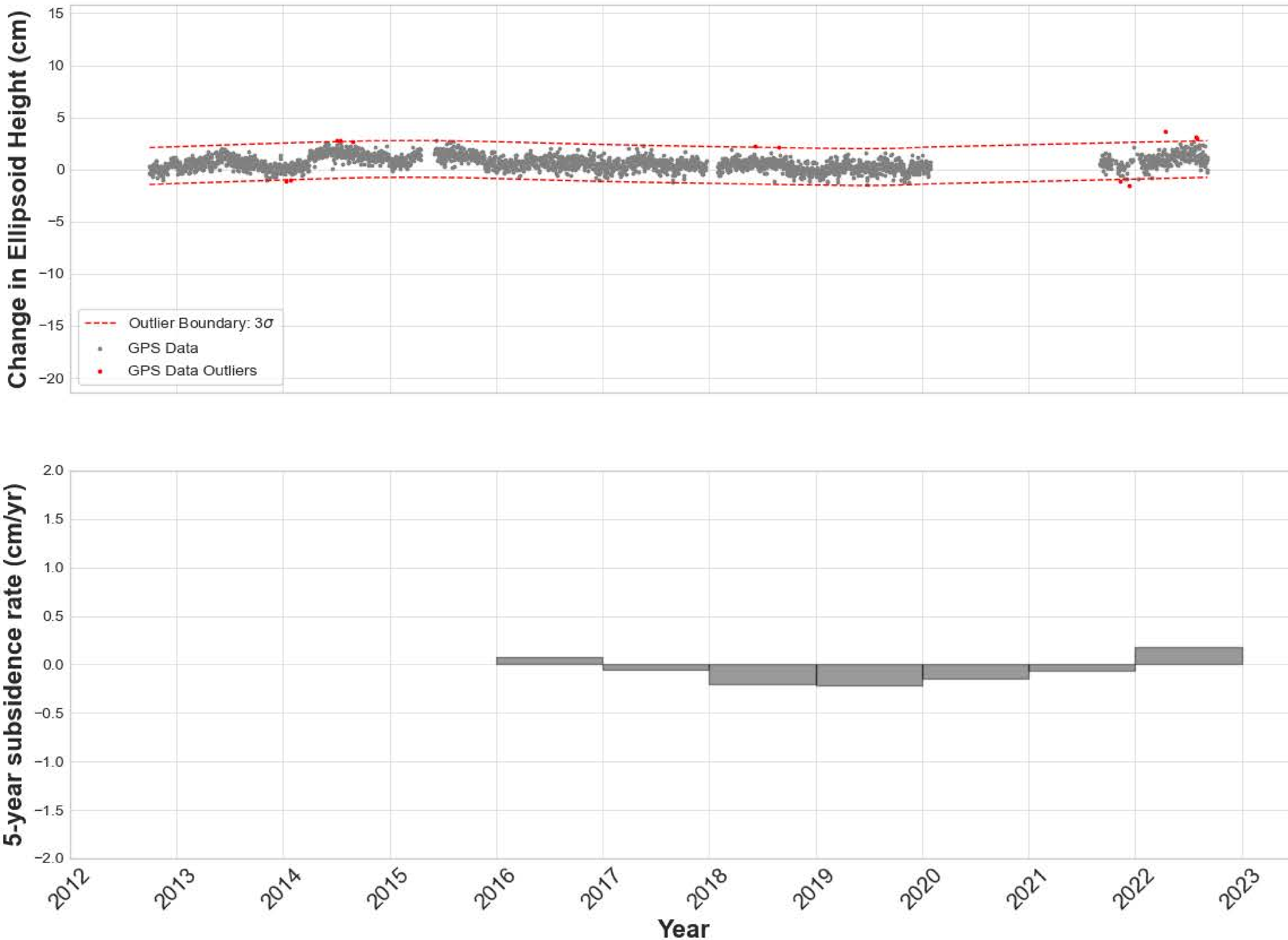
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

TXWO



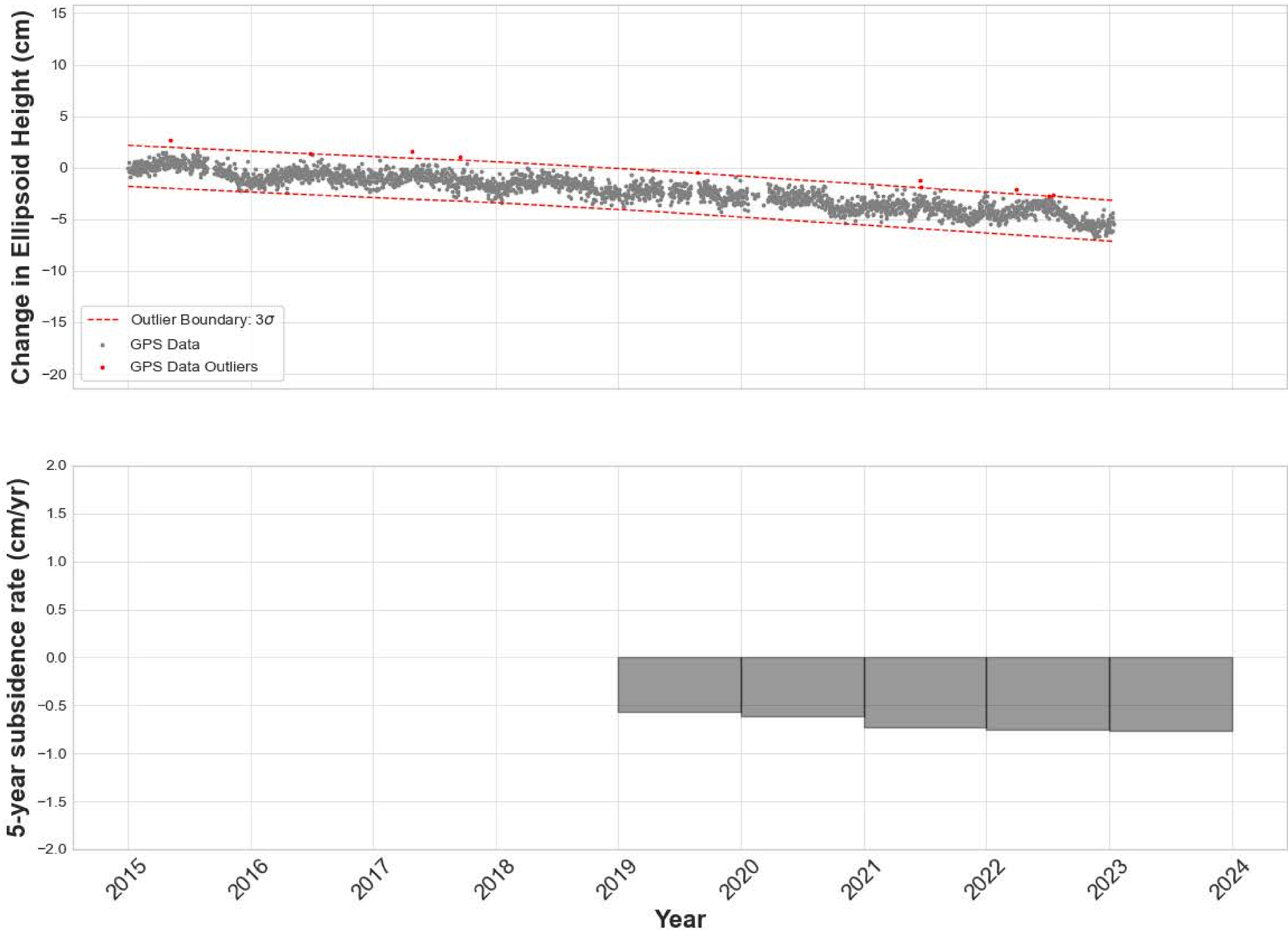
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

UH01



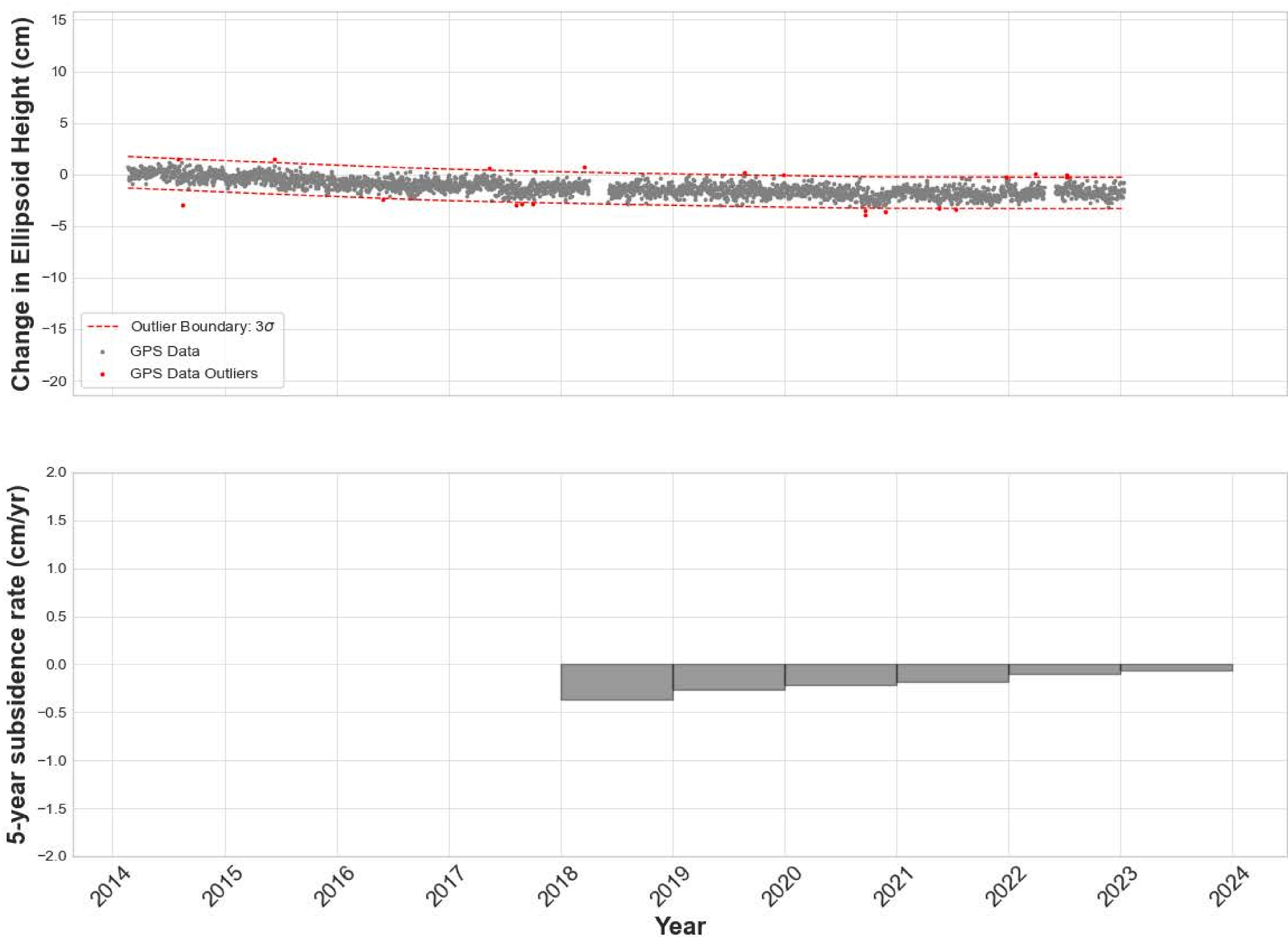
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

UH02



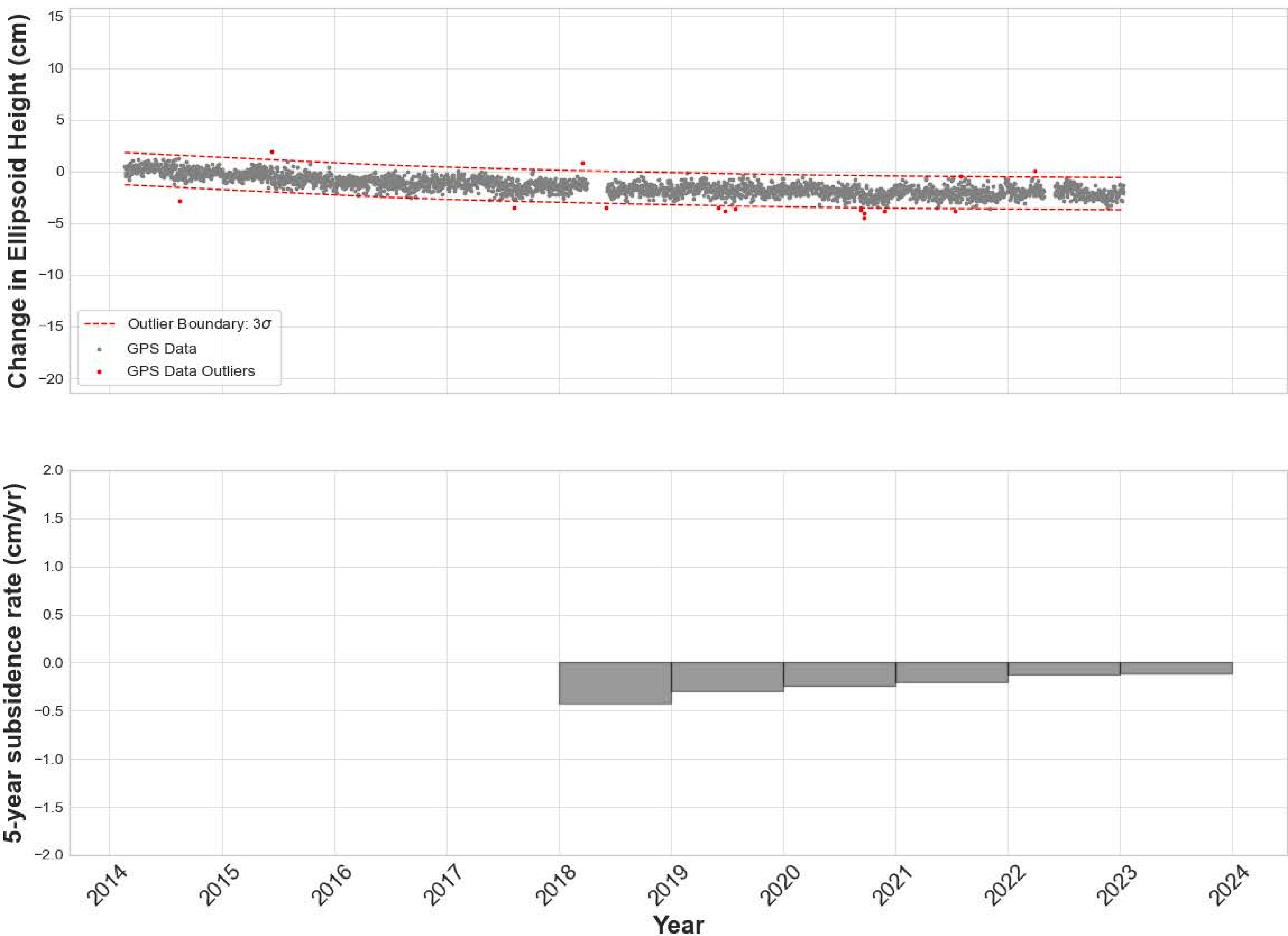
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

UHC1



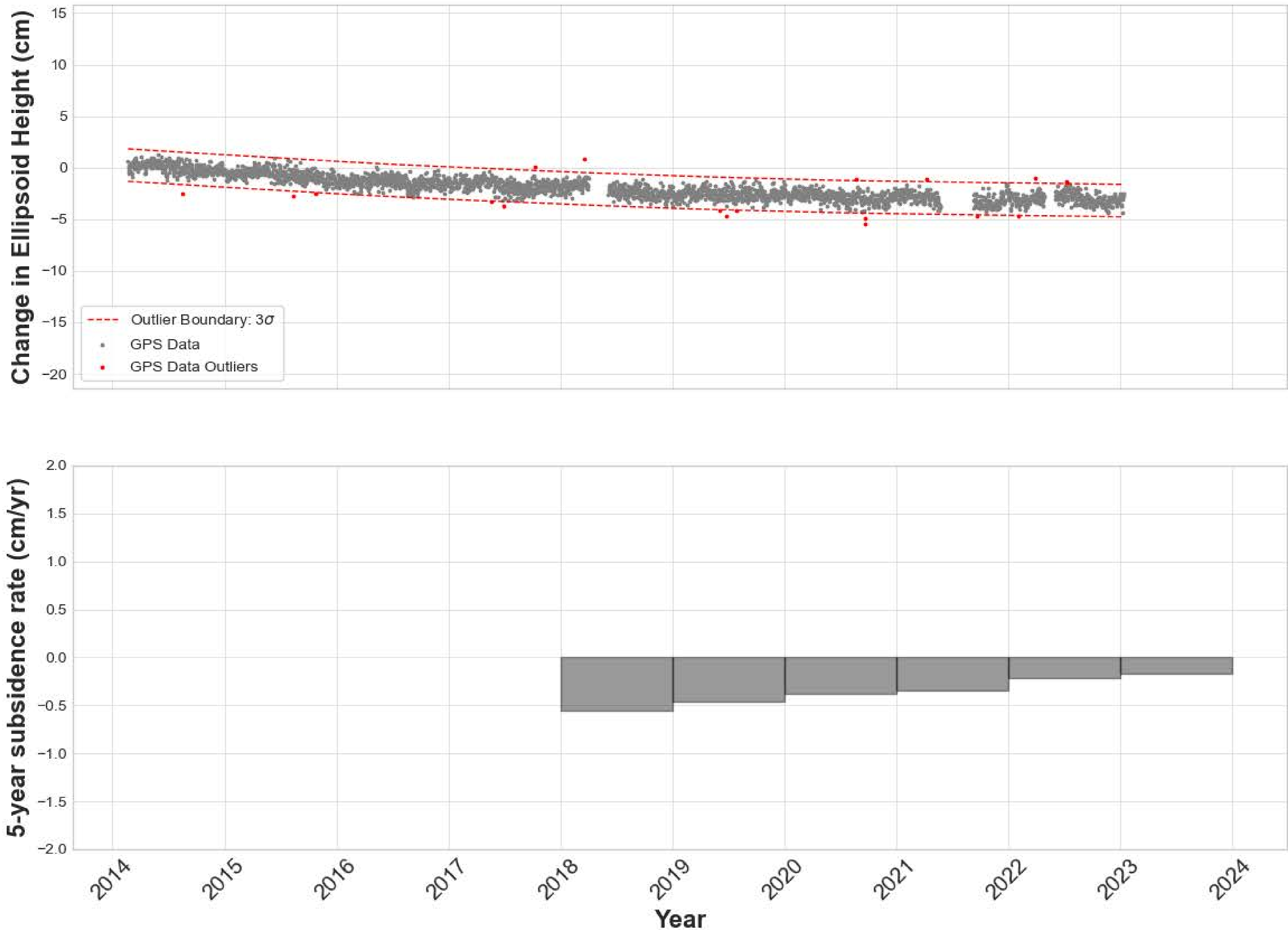
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

UHC2



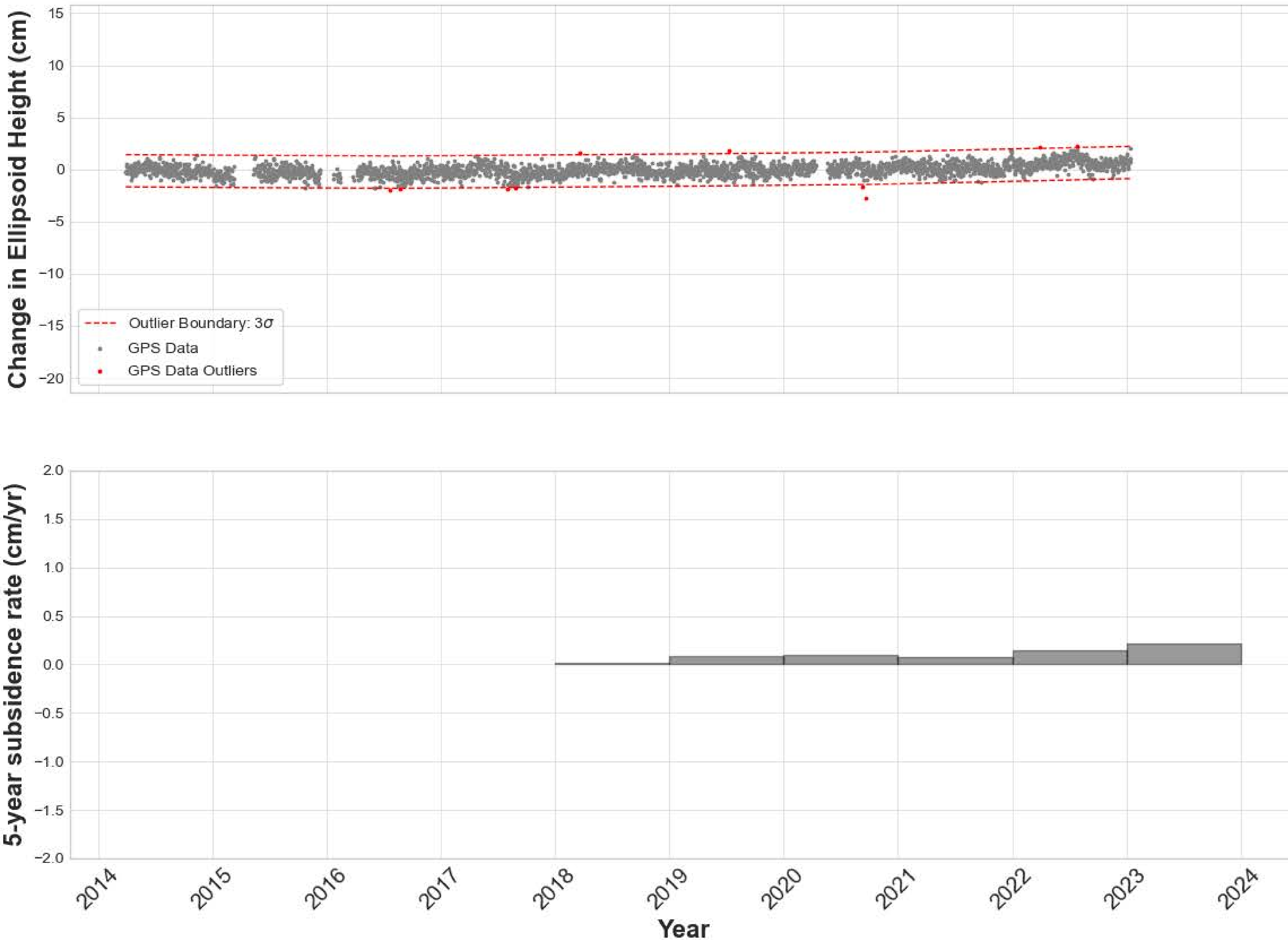
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

UHC3



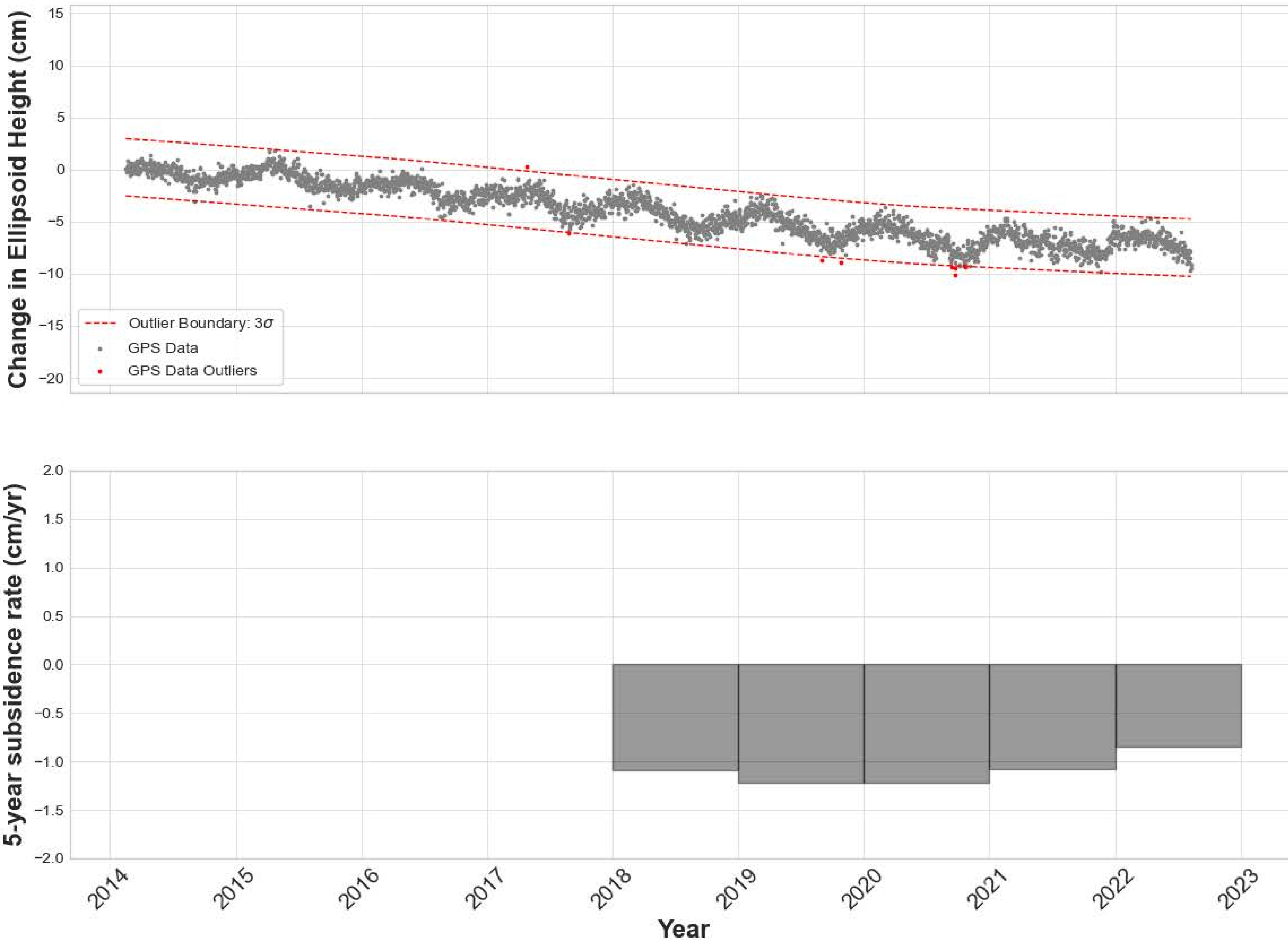
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

UHCL



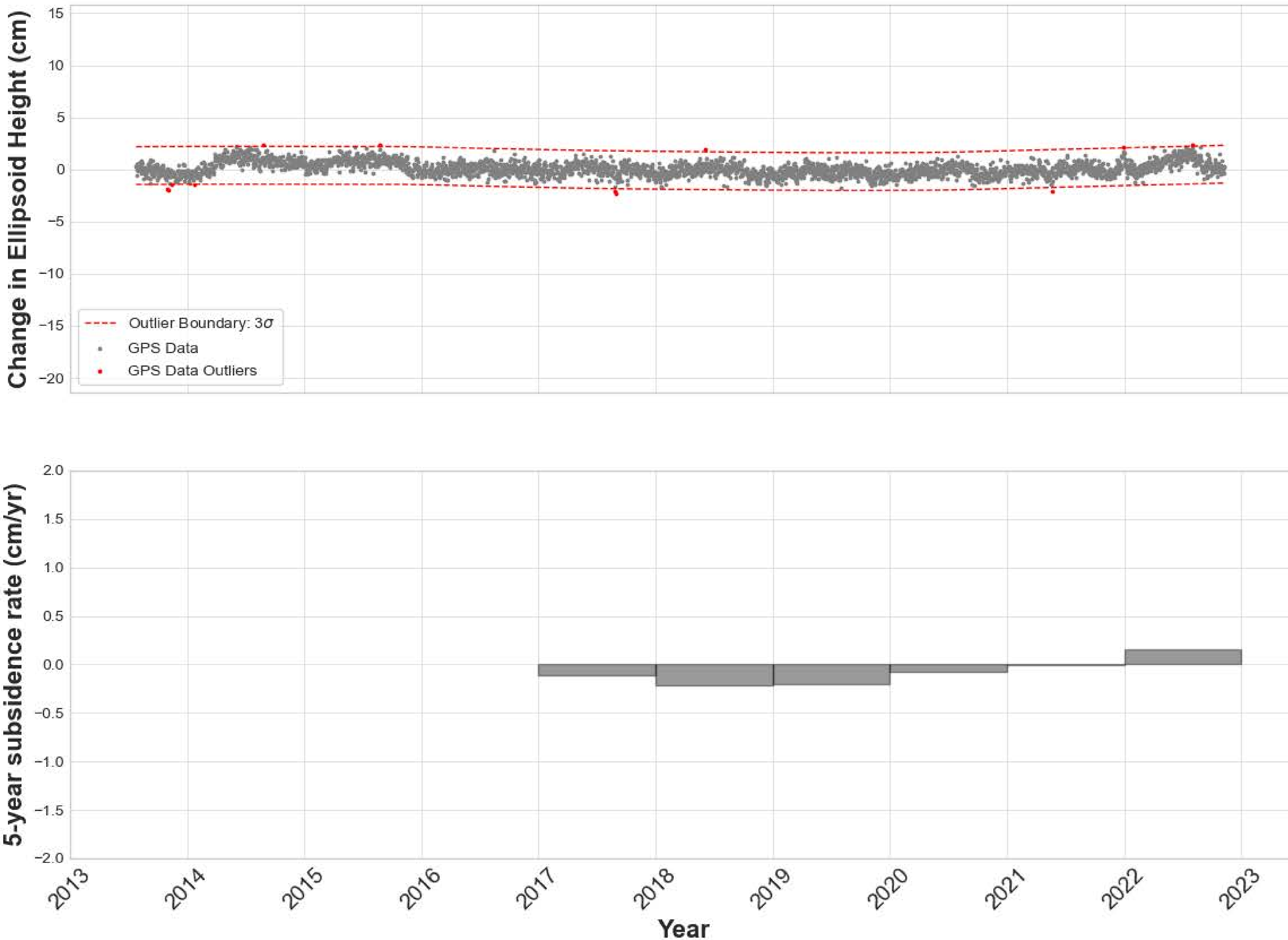
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

UHCR



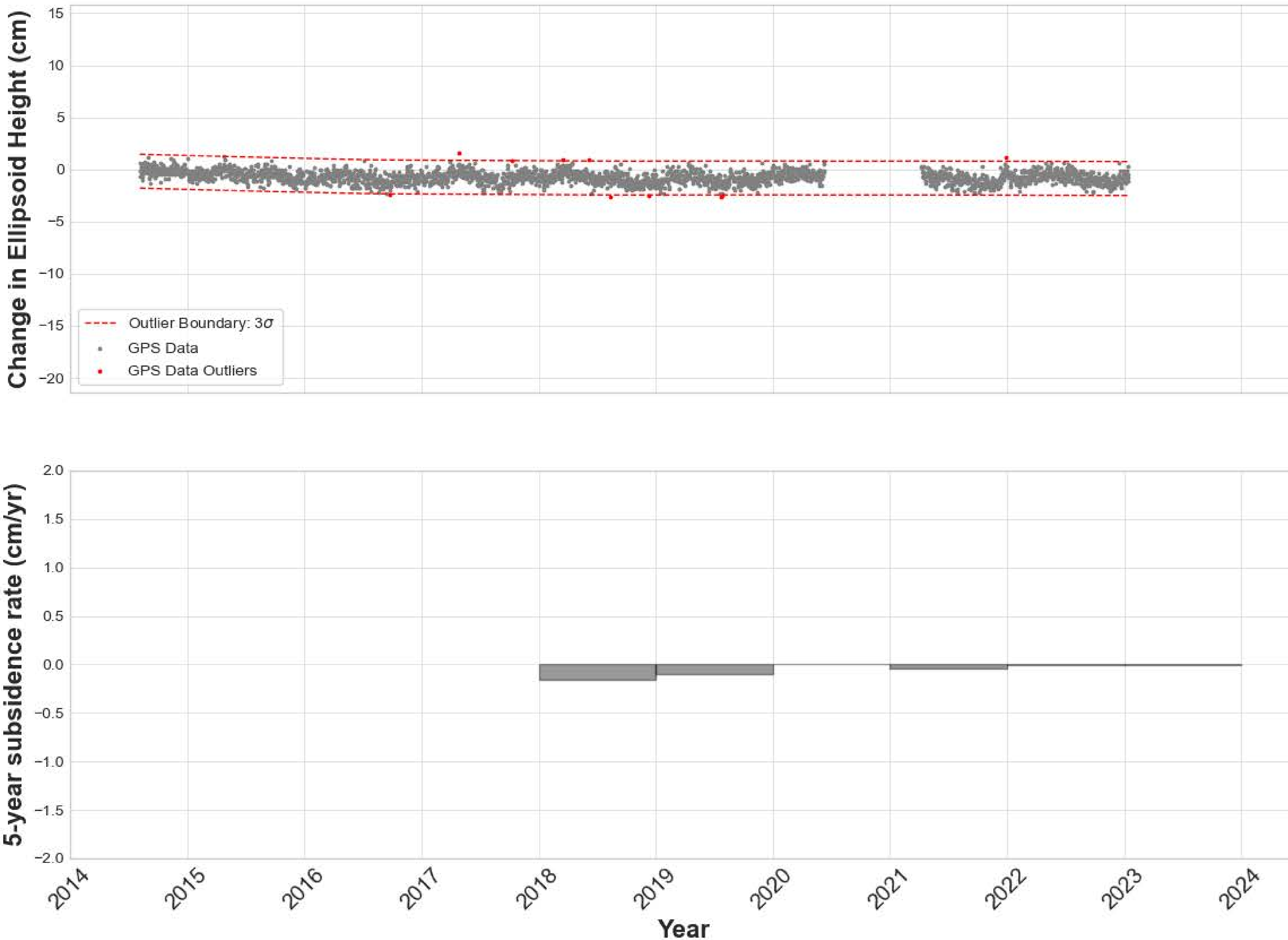
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

UHDT



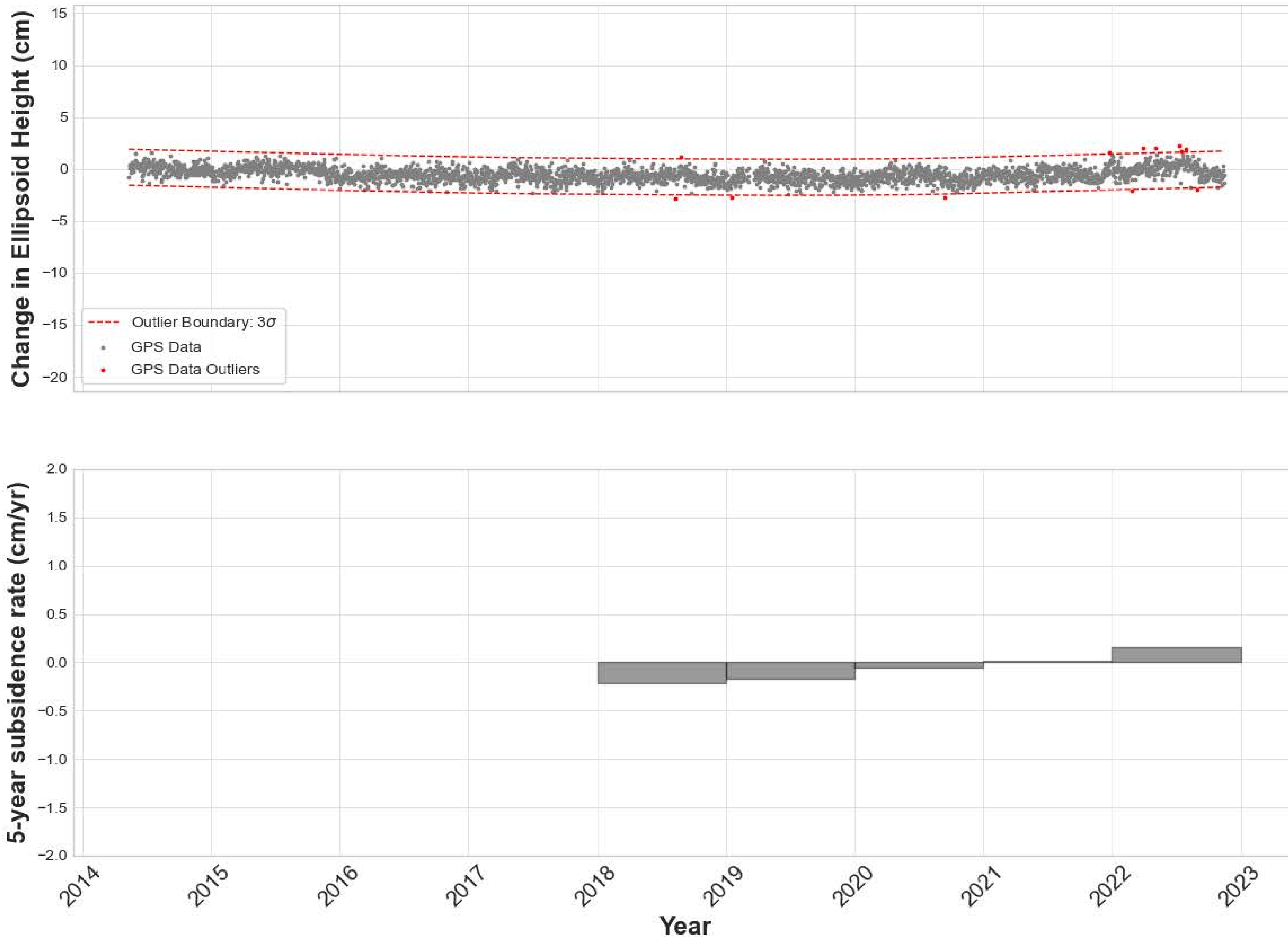
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

UHEB



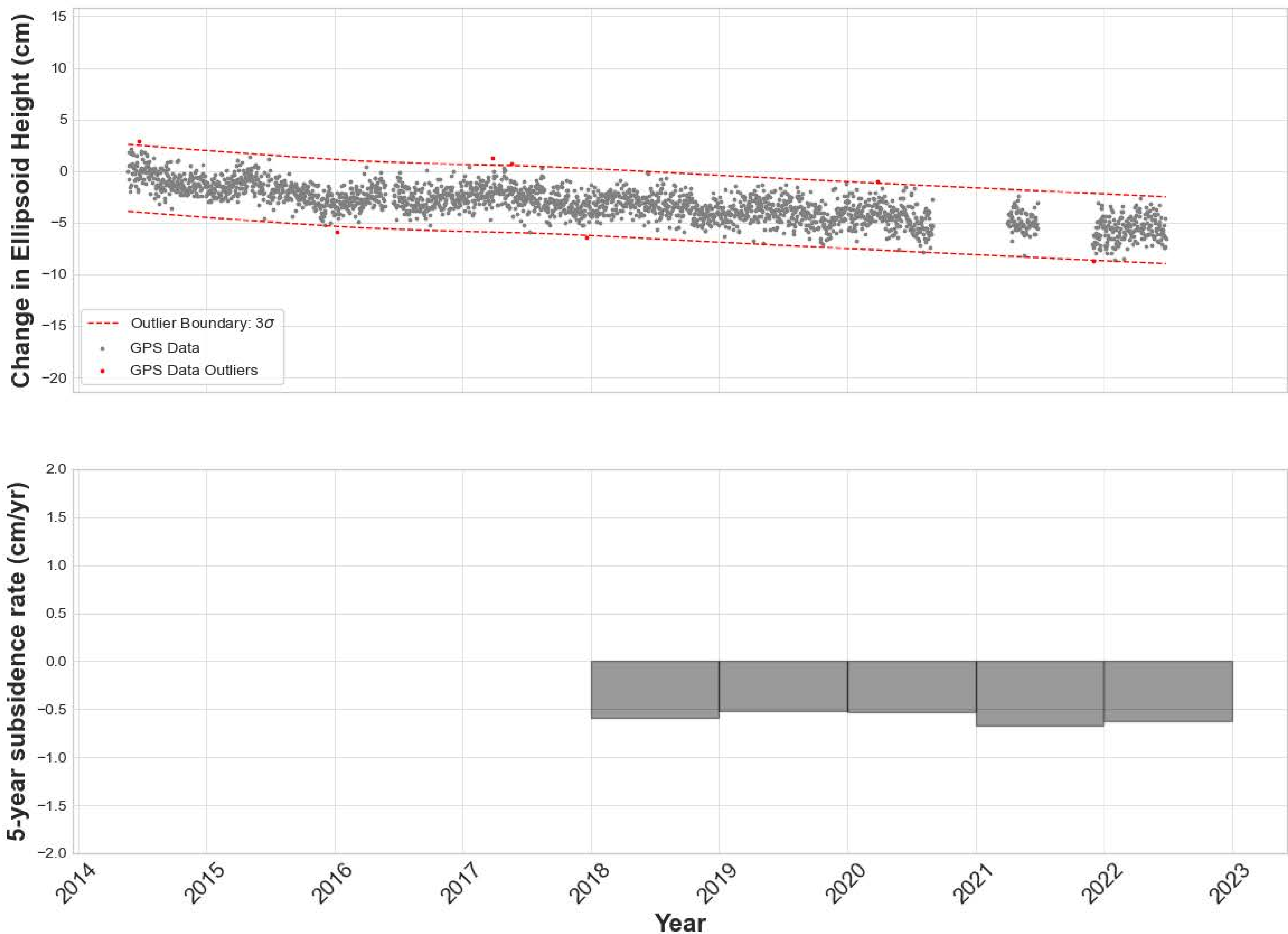
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

UHEP



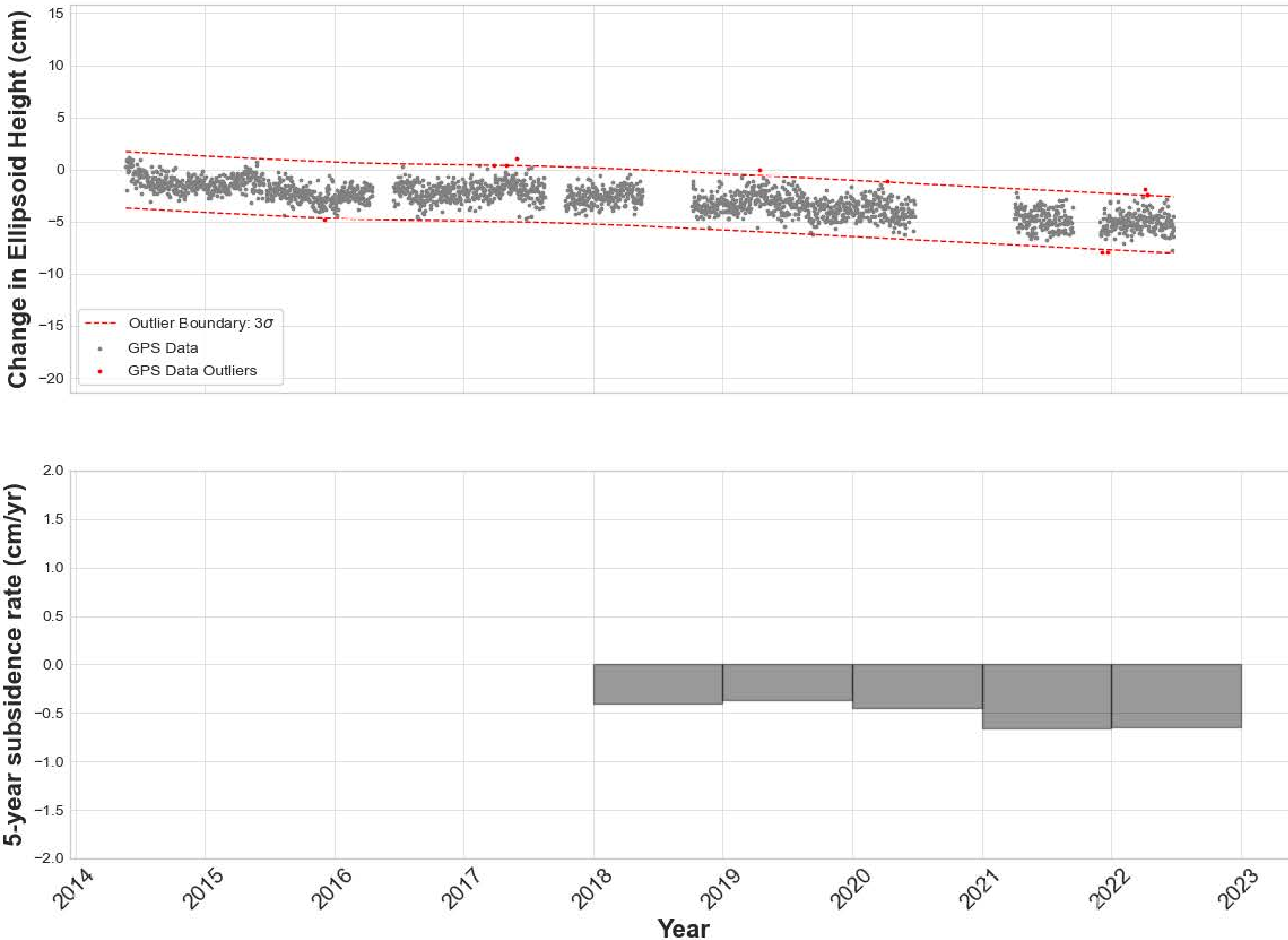
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

UHF1



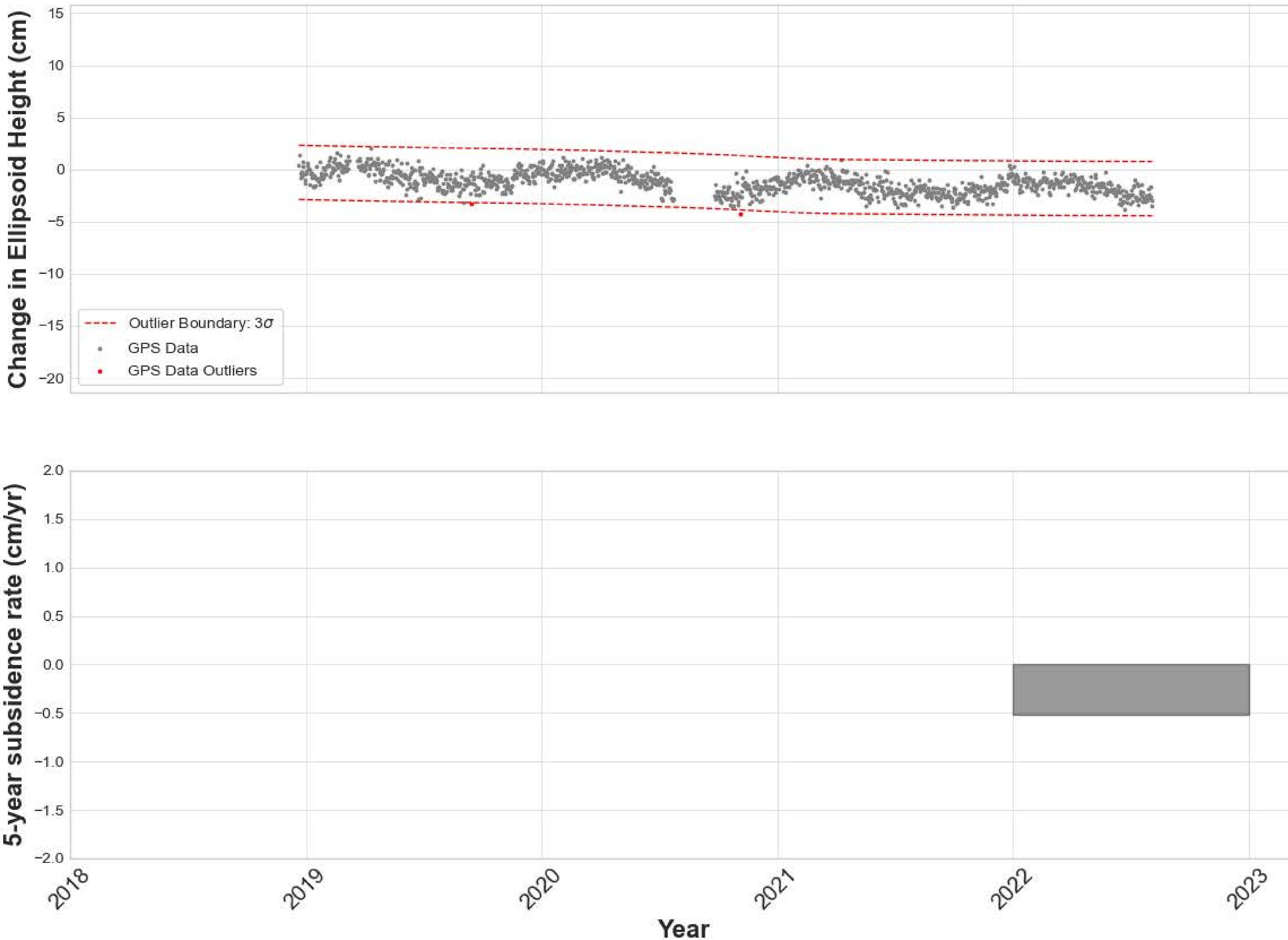
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

UHJF



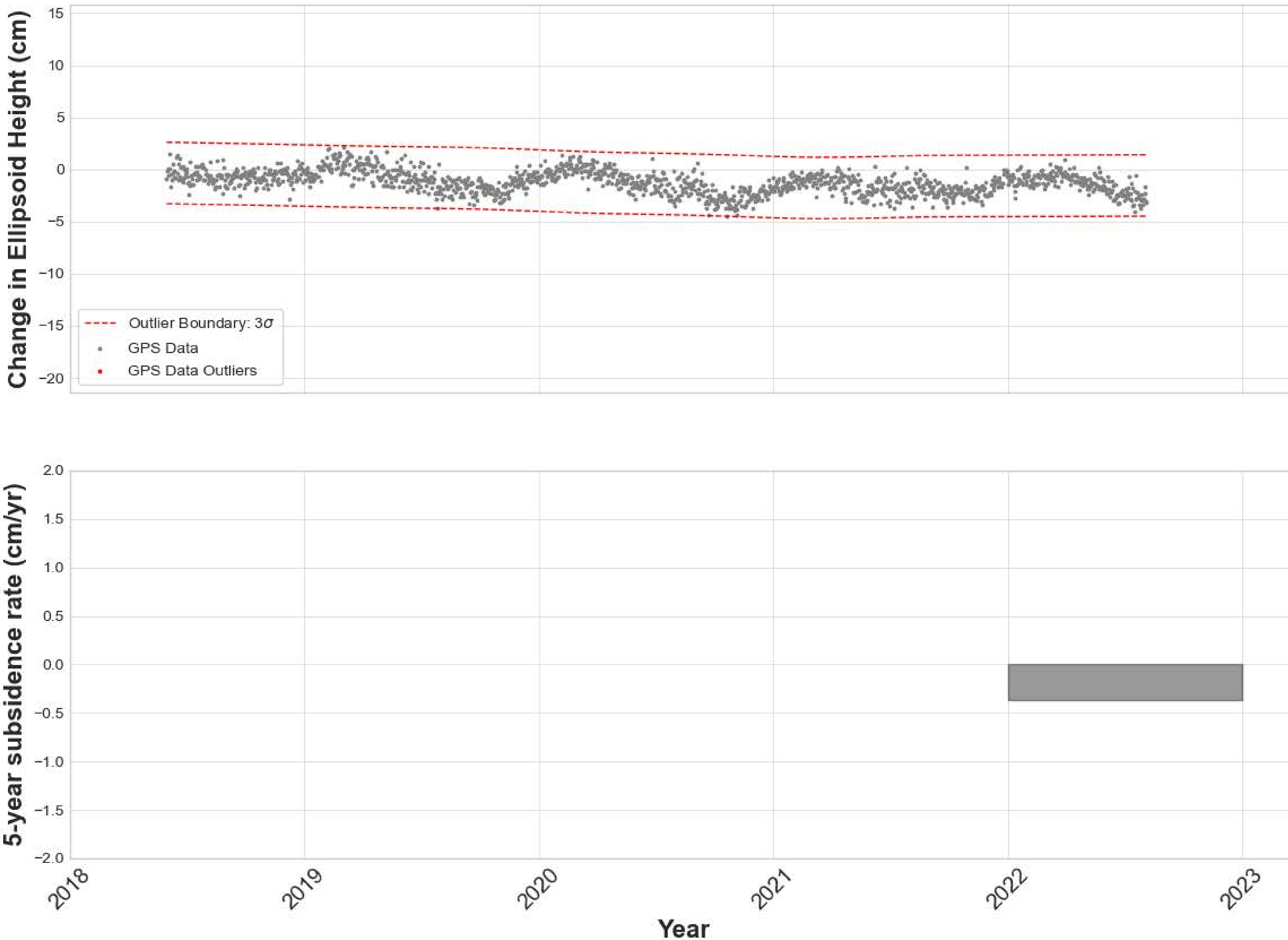
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

UHKD



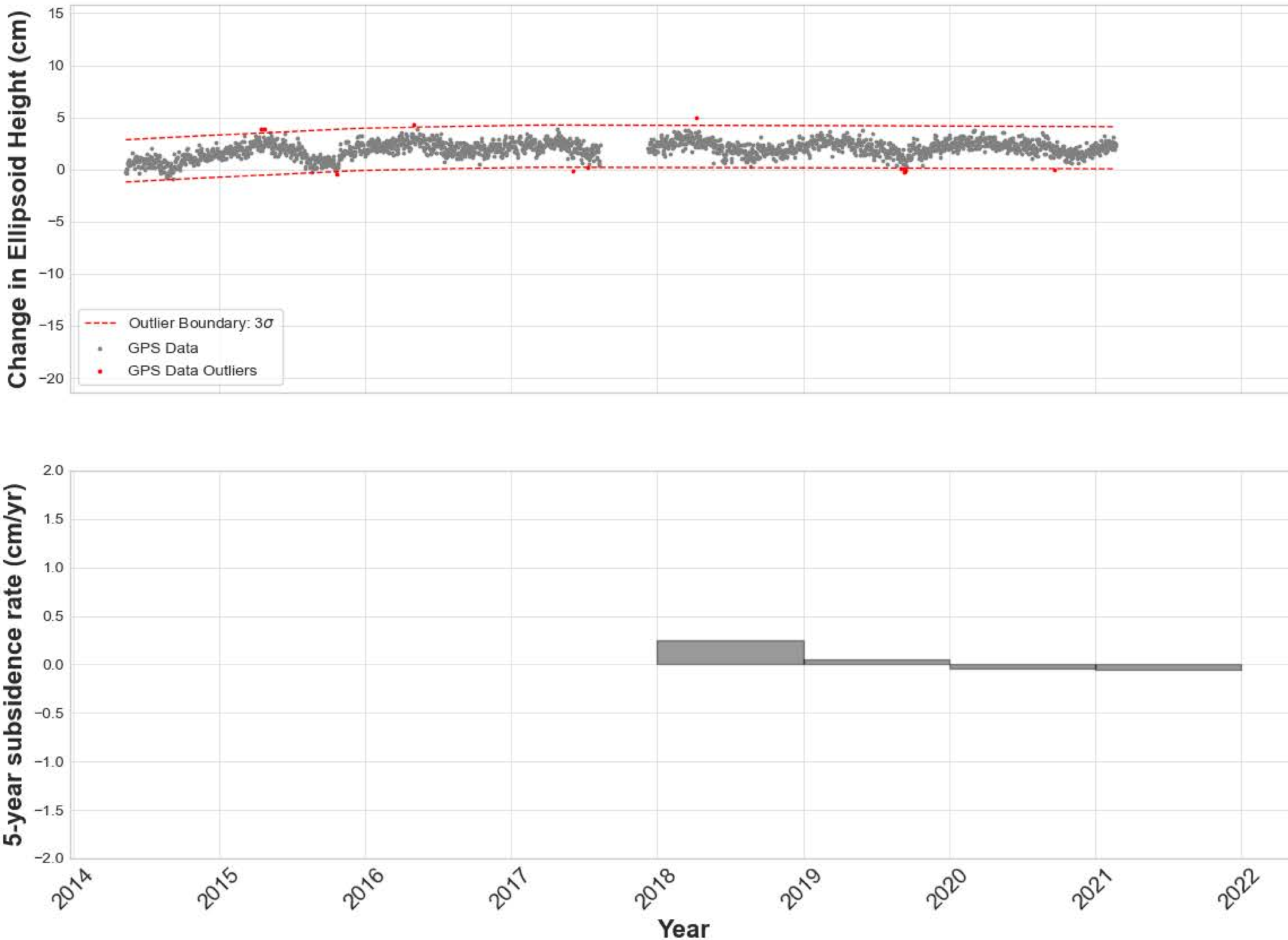
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

UHKS



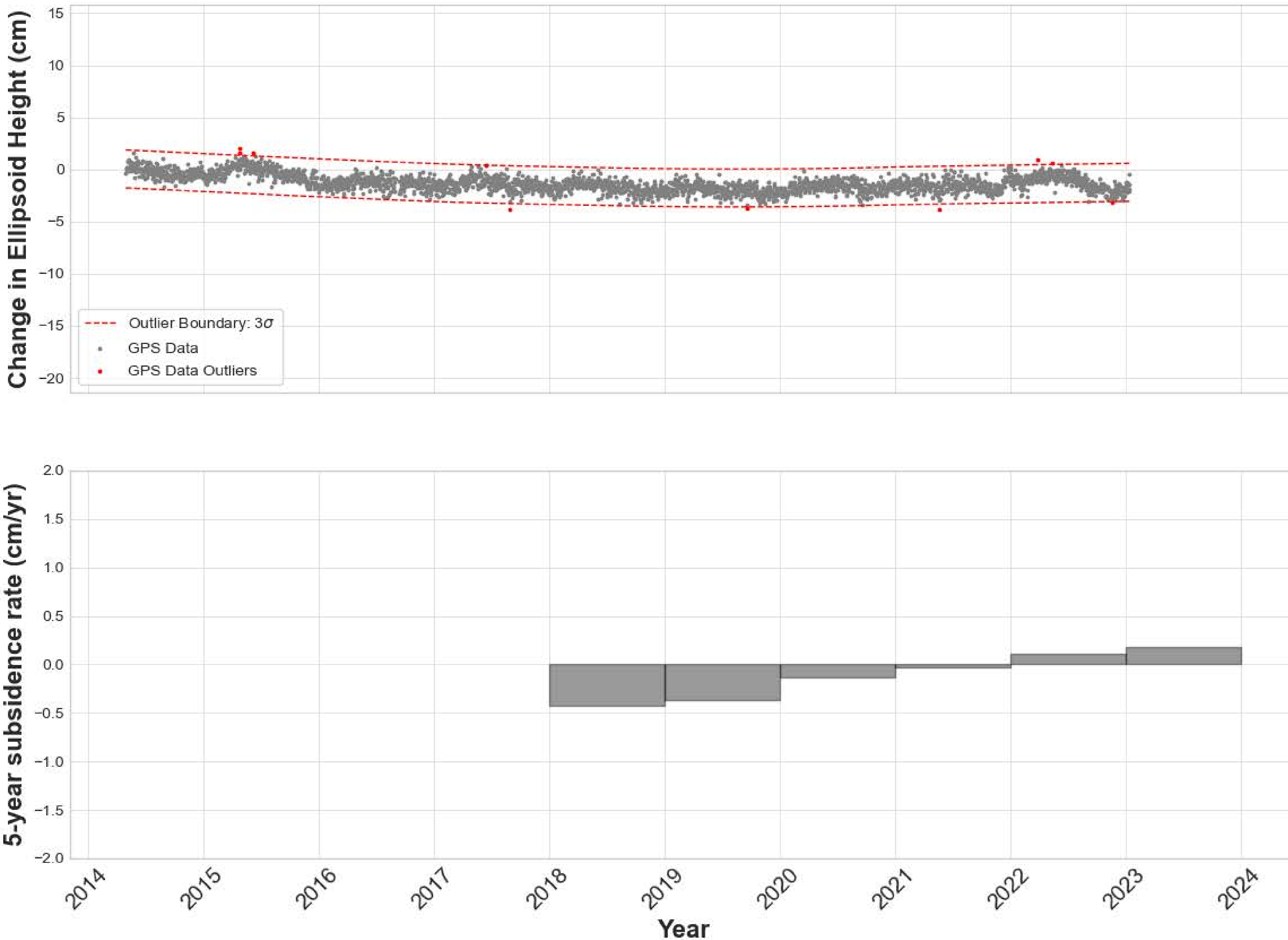
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

UHL1



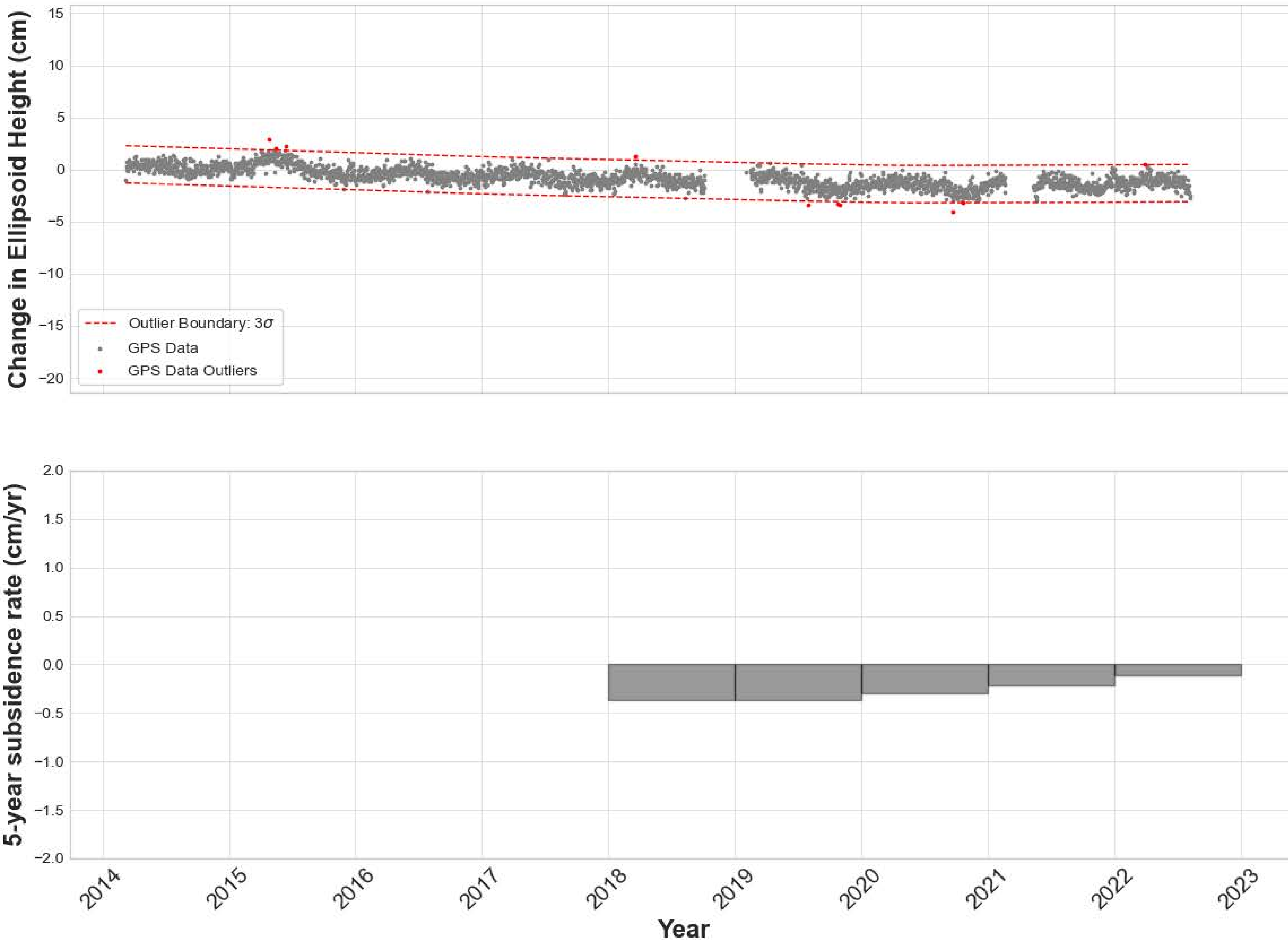
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

UHRI



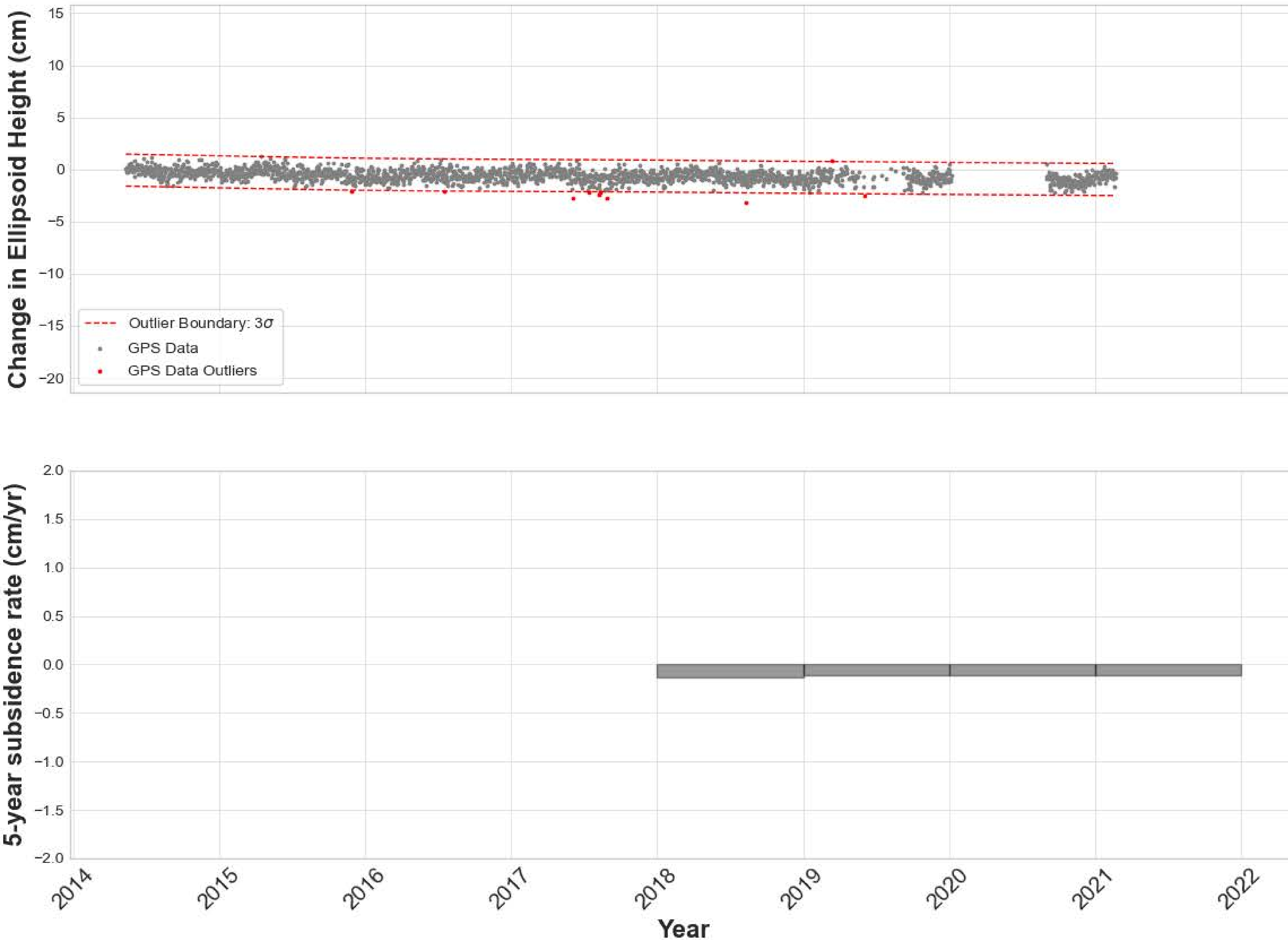
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

UHSL



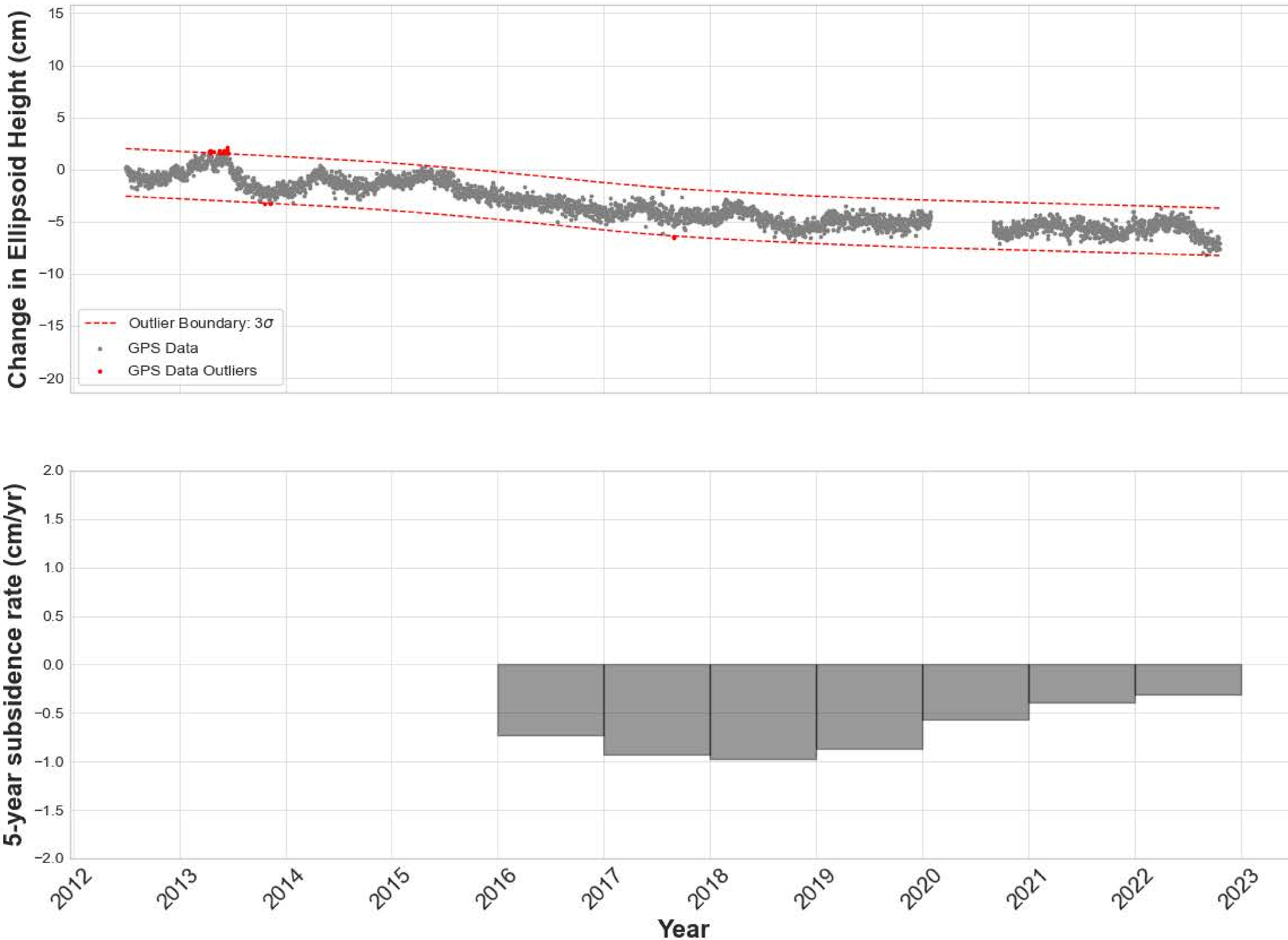
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

UHWL



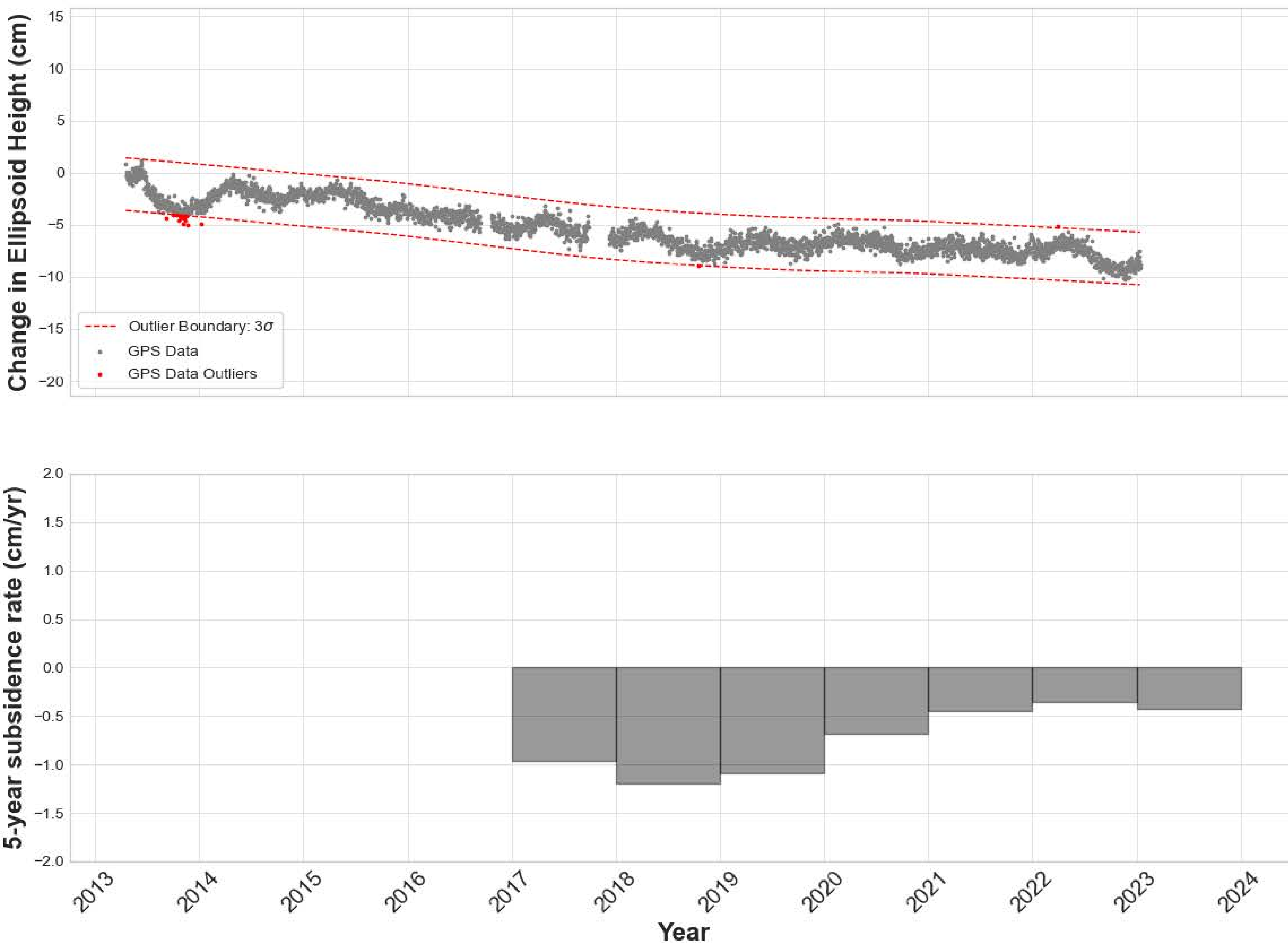
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

UTEX



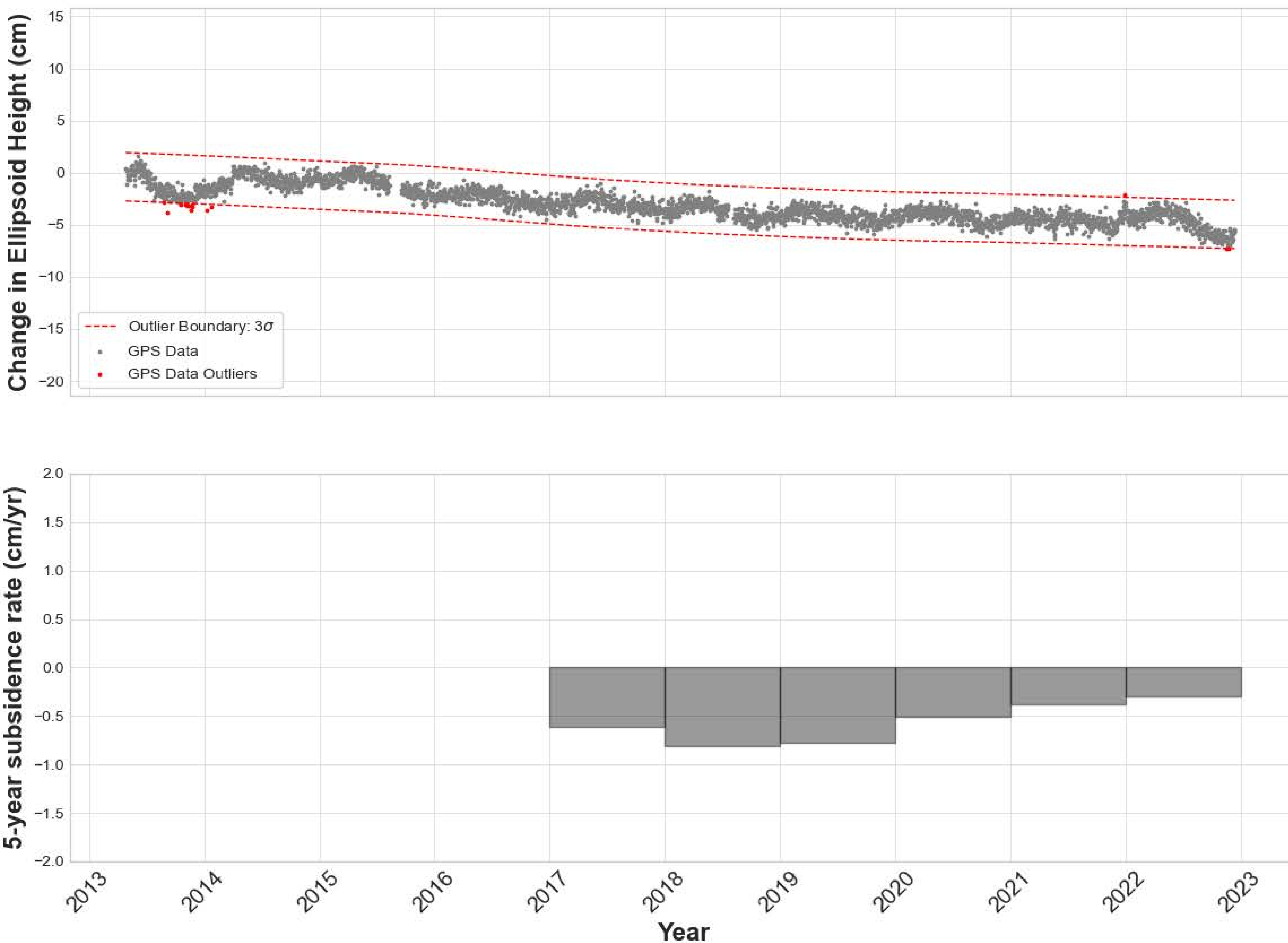
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

WCHT



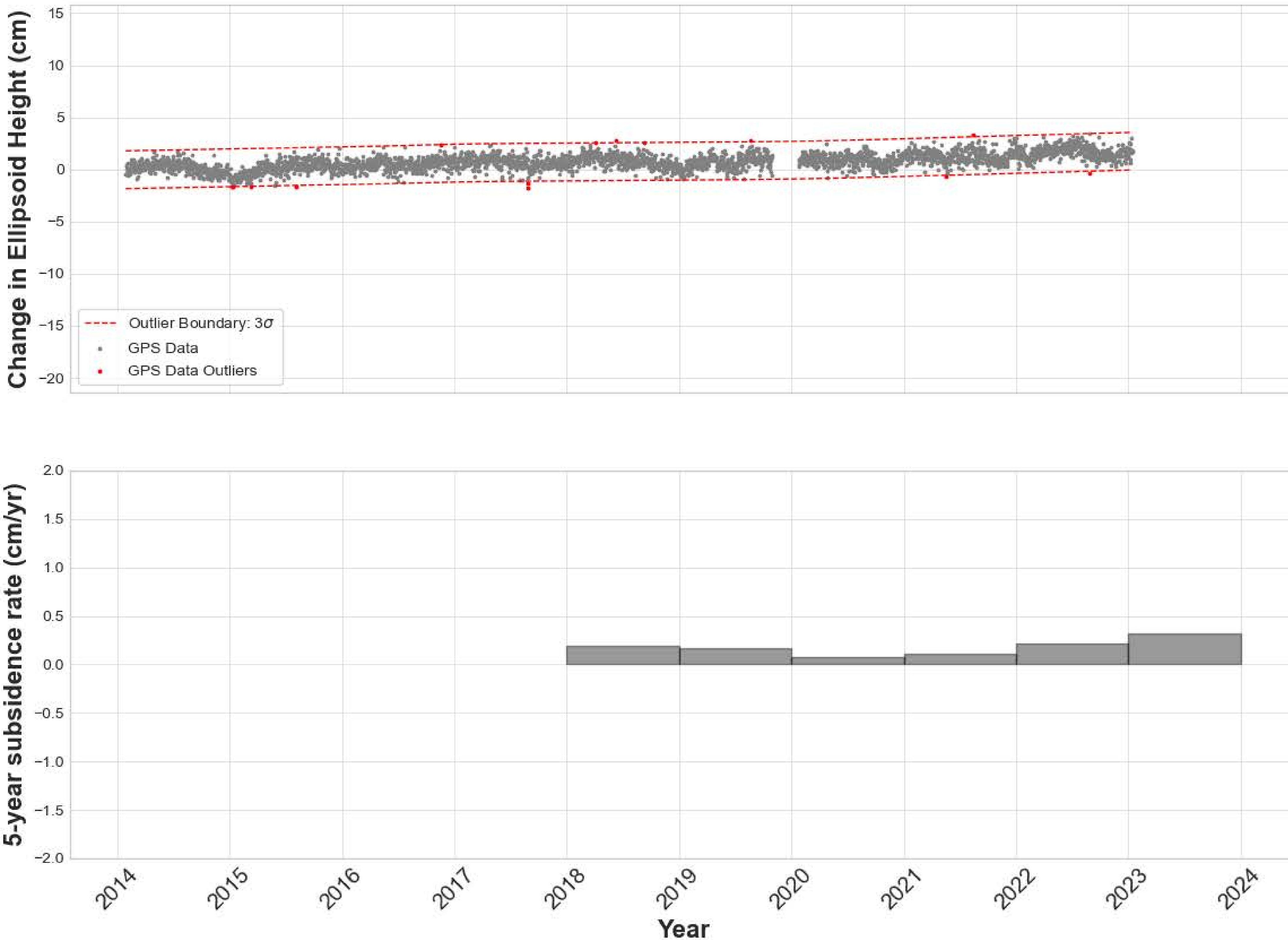
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

WDVW



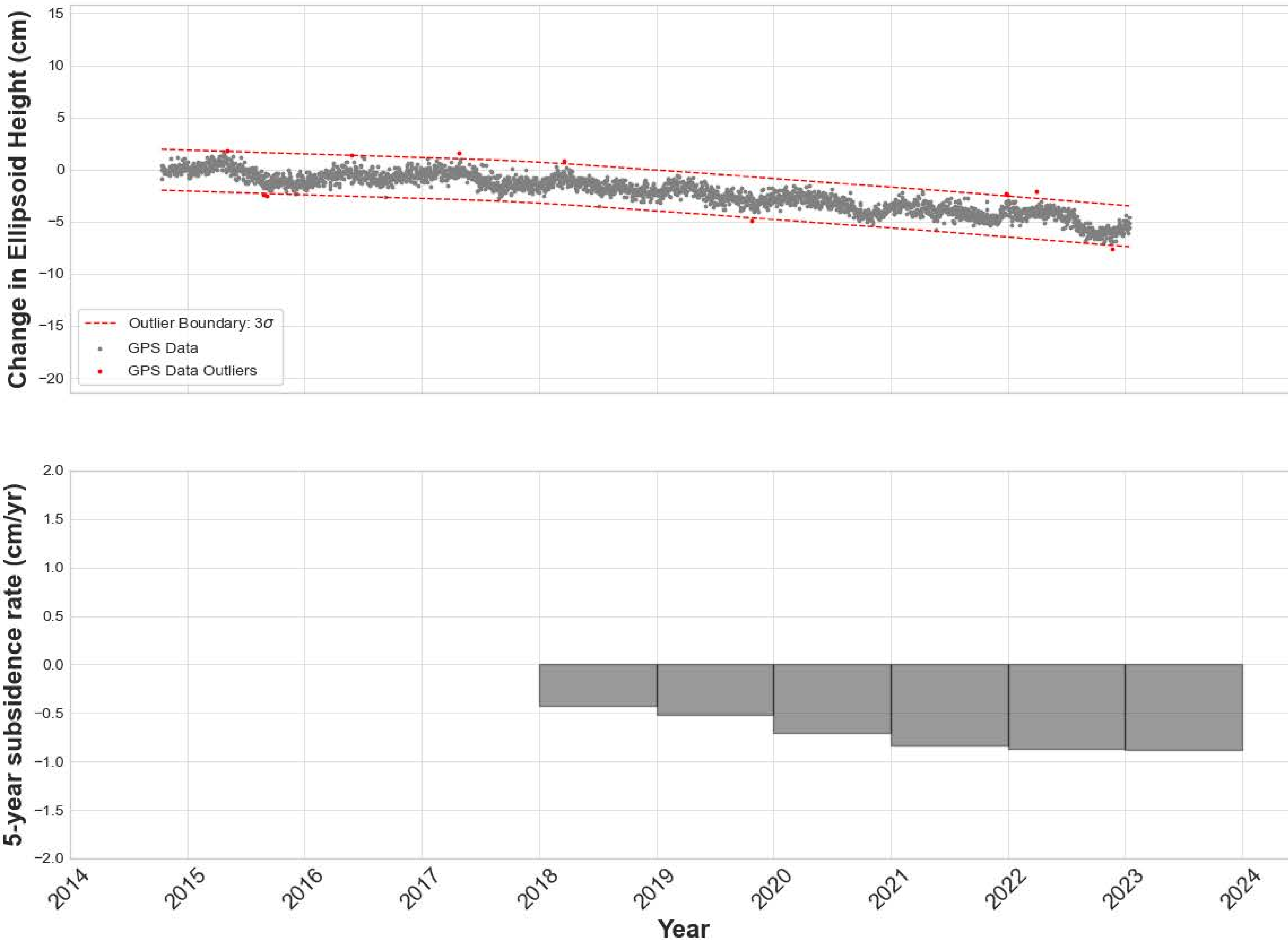
Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

WEPD

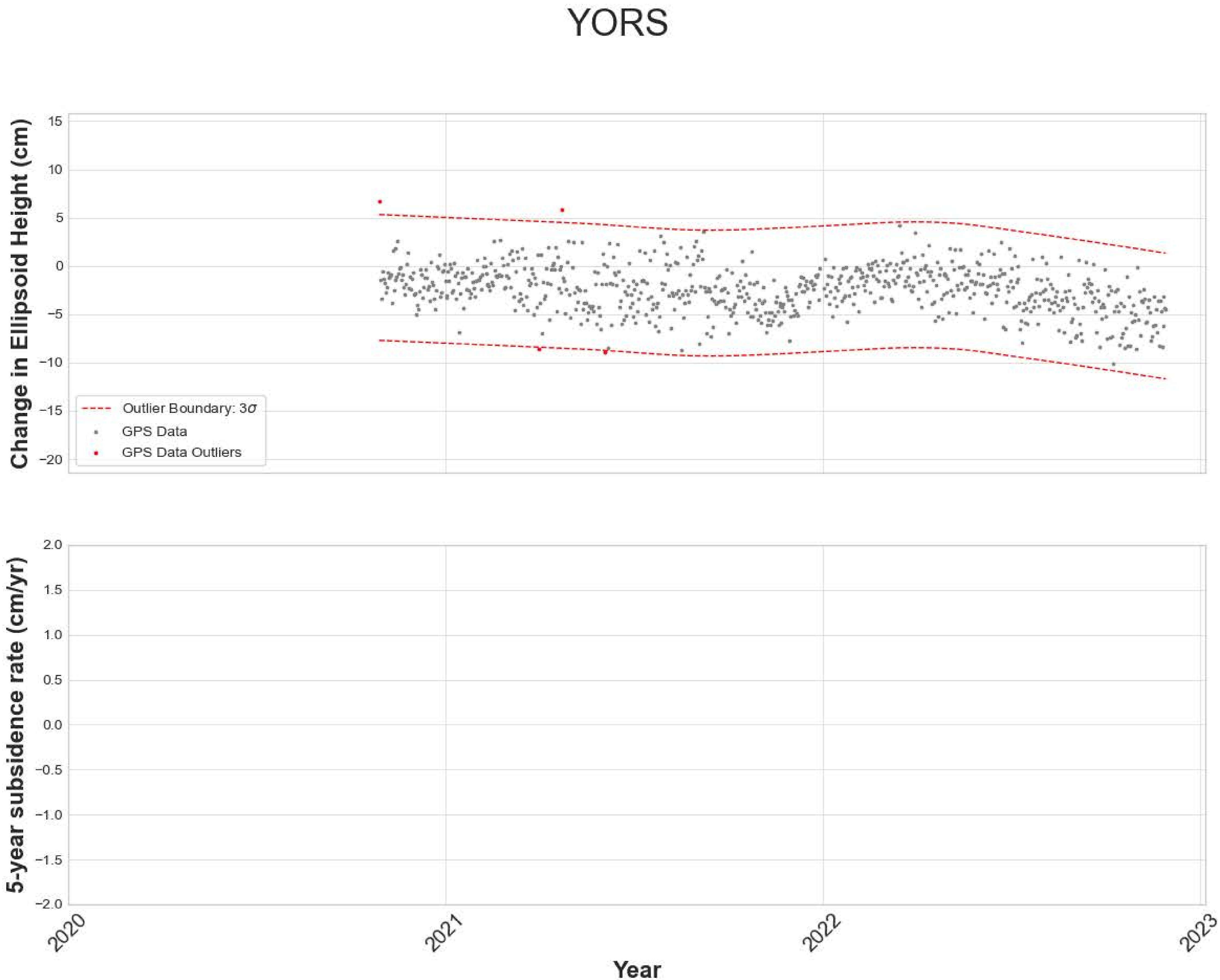


Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

WHCR

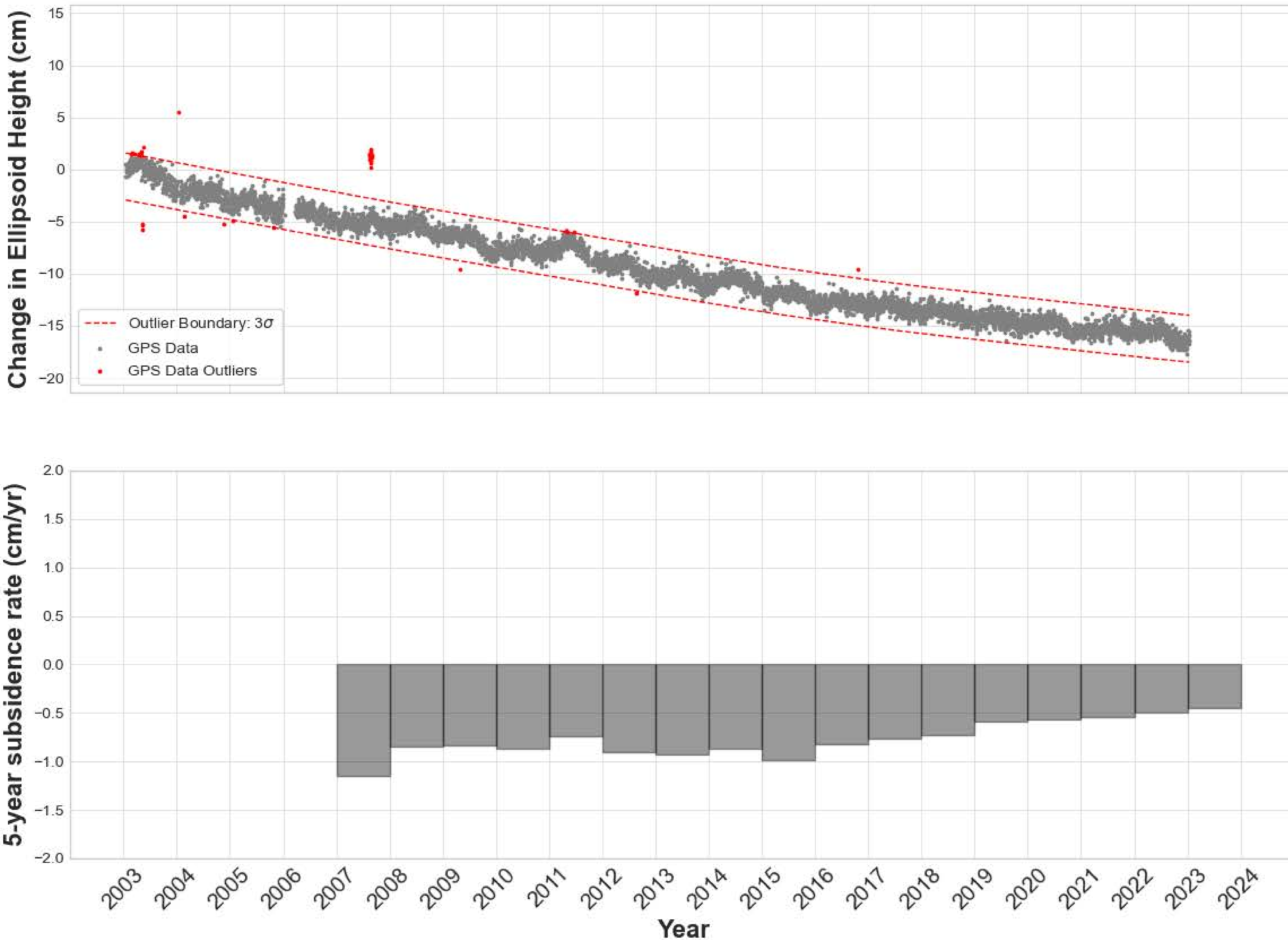


Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.



Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

ZHU1



Processed GPS data (Source: University of Houston) over period of record. Processed GPS data (gray circles) located inside the outlier boundary (red dashed line) are used when calculating subsidence rates. Processed GPS data identified as outliers (red circles) are not considered by HGSD when calculating subsidence rates and are shown for informational purposes only.

SMARTER ABOUT WATER

How can I save water at home?

- Replacing old water fixtures with EPA WaterSense labeled products can save the average family 700 gallons of water per year. look for WaterSense Meets EPA Criteria
- Download the Water My Yard app for weekly recommendations on how much water your yard needs.
- Reducing your shower time to just 5 minutes can save both water and the energy needed to heat the water.
- A leaky faucet can waste more than 3,000 gallons of water per year. Check for leaks by taking the 10-Minute WaterSense Challenge.

VISIT **SMARTERABOUTWATER.ORG** FOR MORE WATER CONSERVATION TIPS + RESOURCES.

Fort Bend Subsidence District Report 2023-01

Fort Bend Subsidence District
Richmond, Texas
www.fbsubsidence.org