

APRIL 2023

SISKIYOU COUNTY FLOOD CONTROL & WATER
CONSERVATION DISTRICT

Scott Valley Groundwater Sustainability Plan WY 2022 Annual Report



- Watershed Boundary
- Groundwater Basin
- Scott River
- Adjudicated Area
- Towns

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Executive Summary

The Scott Valley Groundwater Sustainability Plan (GSP) was adopted in December 2021 by the Siskiyou County Flood Control and Water Conservation District, the Groundwater Sustainability Agency (GSA) for the Scott Valley groundwater basin (Basin; see [Figure 1](#)). The GSA formed in accordance with the Sustainable Groundwater Management Act (SGMA) of 2014 to coordinate, develop, and implement a GSP for the Basin (DWR Basin No. 1-005). The GSP was submitted to the California Department of Water Resources (DWR) in January 2022, ahead of the January 31, 2022 deadline for high and medium priority basins.

California Water Code (CWC) §356.2 requires the submission of an annual report to DWR by April 1 of each year following the adoption of the GSP. The annual report includes information for the proceeding water year. This report is the second annual report submitted to DWR and provides an update on Basin conditions and GSP implementation progress within the Basin for water year (WY) 2022 (October 1, 2021 to September 30, 2022). It also includes changes in conditions that have occurred between the baseline year assessed in the GSP and the conditions in WY 2022. CWC §356.2 requires annual reports to include general information about the Basin and GSP, groundwater elevation data (contour maps and hydrographs), groundwater extraction, surface water supply, changes in groundwater storage, and a description of progress towards implementation of the GSP since the adoption of the previous annual report. [Table 1](#) provides a summary of the definition of undesirable results included in Chapter 3 of the GSP.

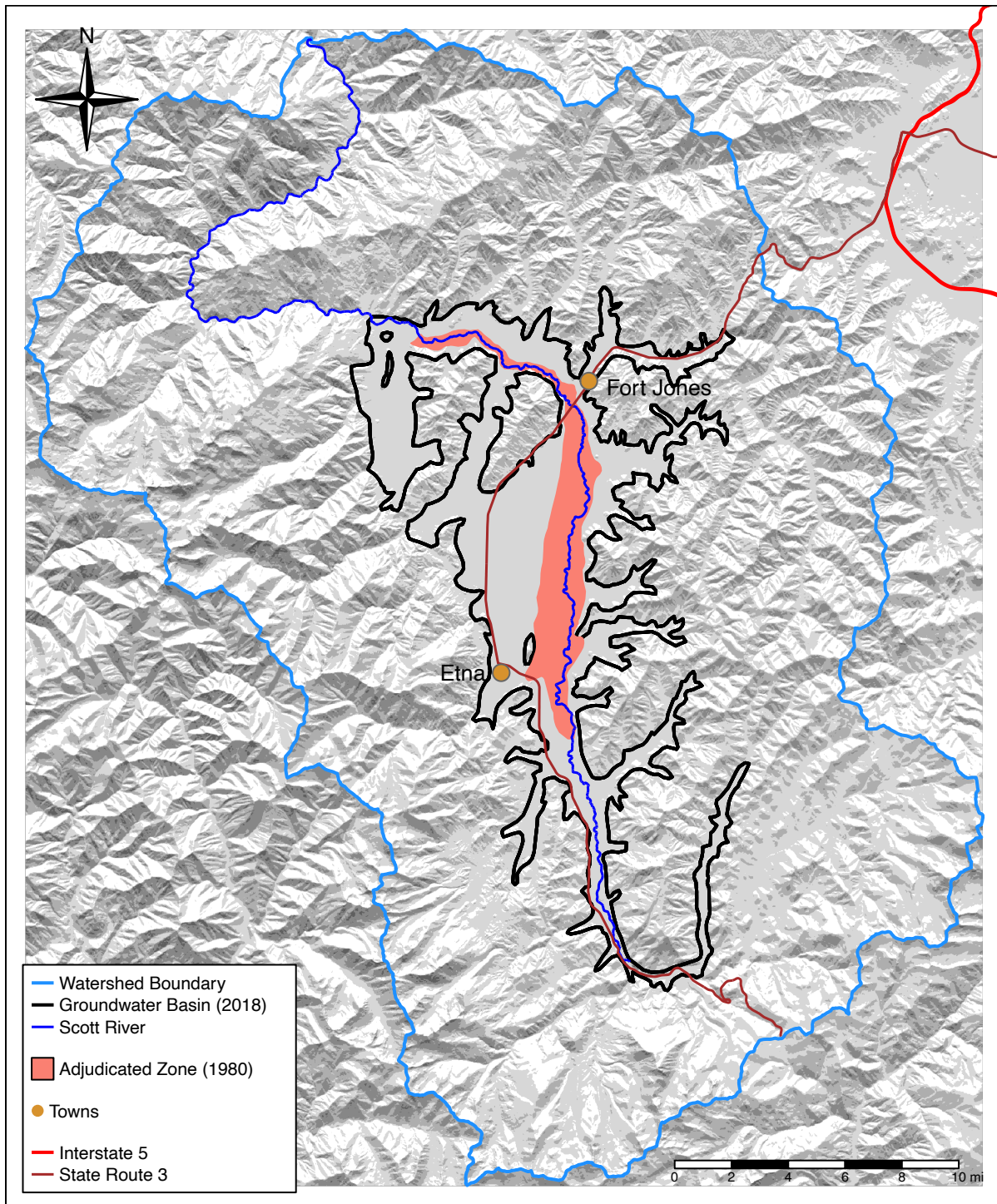


Figure 1: Scott Valley Bulletin 118 basin boundary (DWR 2018) and area subject to the 1980 Scott River Adjudication Decree (Superior Court of Siskiyou County 1980).

Table 1: Scott Valley GSP Sustainability Indicator undesirable results defined

Sustainability Indicator	Undesirable Result Defined
Chronic Lowering of Groundwater Levels	The fall low water level observation in any of the representative monitoring sites in the Basin falls below the respective minimum threshold for 2 consecutive years.
Reduction of Groundwater Storage	Same as "Chronic Lowering of Groundwater Levels."
Degraded Water Quality	More than 25% of groundwater quality wells exceed the respective maximum threshold for concentration and/or concentrations in over 25% of groundwater quality wells increase by more than 15% per year, on average over ten years.
Depletions of Interconnected Surface Water	The Basin is currently experiencing undesirable results with respect to this sustainability indicator; the undesirable result is avoided by achieving an average stream depletion reversal of at least 15% of the depletion caused by groundwater pumping outside of the adjudicated zone in 2042 and later, as defined by specific reference scenarios with SVIHM.
Seawater Intrusion	Not applicable for the Basin.
Land Subsidence	Groundwater pumping induced subsidence is greater than the minimum threshold of 0.1 ft (0.03 m) in any single year;

Introduction

Purpose

Annual reports will be completed throughout the course of GSP Implementation. The purpose these reports is to provide periodic updates on the progress towards Basin sustainability, current Basin conditions, and any improvements and/or additions to the monitoring networks. Changes in land ownership, well status, monitoring personnel availability, or monitoring program participation may limit data collected at the representative monitoring sites, as identified in the GSP. As changes to monitoring site status occur, the monitoring network is reevaluated to ensure adequate measurement density and spatial coverage of the Basin.

Scott Valley GSA

The Siskiyou County Flood Control and Water Conservation District is the sole GSA for the Basin. The Siskiyou County Flood Control and Water Conservation District Act (Cal Uncod. Water Deer, Act 1240 §§ 1-38) was adopted by the State Legislature in 1959. This Act established a special district of the same name, and of limited powers that could provide flood protection, water conservation, recreation and aesthetic enhancement within its boundaries. At the time of its creation, the jurisdictional boundaries of the Flood District were smaller than those of the County. In 1983, following County of Siskiyou Local Agency Formation Commission (LAFCO) action, the balance of the County was annexed into the District, making its jurisdictional boundaries coincide with the County. The District is governed by a Board of Directors that is composed of the Board of Supervisors; however, the District is a separate legal entity from the County, with independent rights and limited powers set forth in its originating act. The District's purpose is the conservation and control of storm, flood, and other waters and ensuring beneficial use thereof.

The Siskiyou County Flood Control and Water Conservation District approved the GSP for Basin in December 2021 and submitted the GSP to DWR in January 2022. The GSA will submit an annual report to DWR documenting the progress in achieving groundwater sustainability, by April 1st, for each preceding water year. The monitoring data for the preceding water year will be compiled to present the most current groundwater conditions to identify whether the Sustainable Management Criteria (SMCs) were met. Additionally, all progress in project management action implementation will be presented.

Basin Description

The Scott Valley Groundwater Basin (“Basin”) is located in the Scott River watershed (“Watershed”), part of the larger Klamath River watershed which spans sections of Northern California and Southern Oregon. The Basin covers 100 sq mi (259 sq km) Basin while the Watershed is much larger, encompassing 814 square miles (2,108 square km). Under the 2019 basin prioritization conducted by the California Department of Water Resources (DWR), the Basin (DWR Basin 1-005) was designated as medium priority (DWR 2019).

Scott Valley is encircled by mountain ranges with the Scott Bar, Marble, Salmon, and Scott Mountains to the north, west, southwest, and south, respectively, and hills and ridges east of the Scott Valley that divide the Scott and Shasta watersheds. The Scott River is the main water feature in the Basin, and is one of the major undammed streams in California. Within the Basin boundary, the Scott River flows south to north until it turns westward near Fort Jones. The Scott River flows northwest out of the Basin, traveling around the Scott Bar Mountains through a steep canyon to join the Klamath River at River Mile 143 (Harter and Hines 2008). The Basin includes two areas not required to form GSAs or develop GSPs under SGMA: the interconnected zone covered by a groundwater adjudication (Figure 1) and the Quartz Valley Indian Reservation (Figure 2). While outside the jurisdiction of the GSA, these portions of the Basin are considered by the GSP as they are within or adjacent to the GSA area. In 1980, the Scott River and some of the surrounding interconnected groundwater were adjudicated by decree No. 30662 (Superior Court of Siskiyou County 1980).

The Basin boundary encompasses the incorporated communities of Etna and Fort Jones; the unincorporated communities of Callahan, Greenview, and Quartz Valley/Mugginsville; and the QVIR on tribal trust lands. The population of Scott Valley was estimated at 8,000 (SRWC 2005), including the populations of the two incorporated towns. In the 2010 Census, the number of residents of Fort Jones and Etna was estimated at 839 and 737, respectively (U.S. Census Bureau 2012). Fort Jones relies on groundwater as a municipal water source, while Etna is reliant on surface water. A water district, the Scott Valley Irrigation District (SVID) serves water to users east of the Scott River (Figure 2). The Scott Valley and Shasta Valley Watermaster District, which manages the diversion of surface water in accordance with court adjudications or agreements, is operational in the Basin for French and Wildcat Creeks.

The majority of land within the Scott River watershed is under private ownership (two-thirds of the total area) with the remaining area managed by QVIR, the United States (U.S.) Department of the Interior Bureau of Land Management (BLM) and U.S. Forest Service (USFS) (Harter and Hines 2008). Much of the watershed surrounding Scott Valley is National Forest land. According to land use surveys conducted by DWR (DWR 2017), half of the Basin area is covered by agriculture, with most of that split approximately evenly between pasture and an alfalfa/grain rotation.

In May 2021, Governor Gavin Newsom declared a drought emergency for 41 counties in California, including Siskiyou County. In August 2021, the State Water Resources Control Board (SWRCB) adopted drought Emergency Regulations, regarding the Scott and Shasta Rivers which were re-adopted, with amendments, in July 2022¹. These Emergency Regulations authorized curtailments of surface water diversions when flows did not meet SWRCB approved drought emergency minimum monthly flow targets. It is unknown at this time the impacts curtailment of surface water diversions had on the underlying aquifer, however impacts to rural residential and groundwater dependent

¹https://www.waterboards.ca.gov/drought/scott_shasta_rivers/

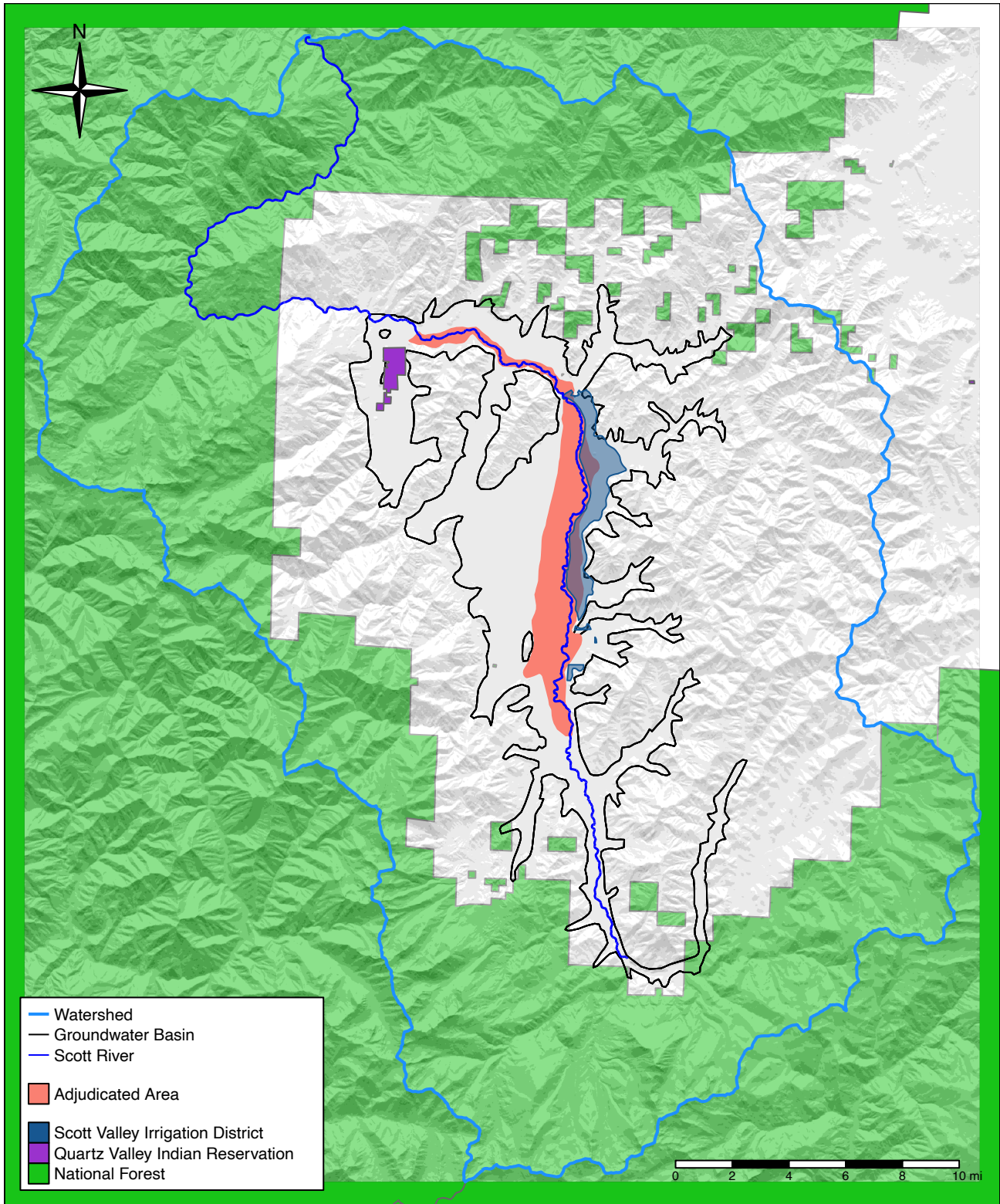


Figure 2: Jurisdictional areas within Scott Valley.

ecosystem (GDE) water use are still being evaluated.

Scott Valley has two major geologic components, the alluvial deposits in the valley and the underlying bedrock, which also forms the surrounding mountains. The Basin boundary generally corresponds to the area covered by valley alluvium, bounded by the contact between the alluvium and older bedrock. The complex geology of Scott Valley has previously been simplified by grouping geologic units into four main categories: Quaternary deposits, granitic bedrock, mafic and ultramafic bedrock, and sedimentary bedrock (NCRWQCB 2005). Generally, Quaternary deposits are composed of unconsolidated gravel sand and soils and make up the low gradient valley floor, extending up some tributary valleys. The granitic bedrock is in the mountains to the west of the Valley, ranging in composition from granite to granodiorite (NCRWQCB 2005; Mack 1958). Mafic and ultramafic bedrock is largely altered to serpentine and is found in the Marble Mountains in the northeast part of the Watershed and the Scott Mountains in the southeast part of the Watershed. Mafic and ultramafic bedrock also form a discontinuous band, extending from the southeast to northeast regions of the Watershed.

Folding, faulting, and shearing have caused deformation which has, in the last 1–2 million years, caused subsidence of the valley floor and uplift of the mountains (NCRWQCB 2005). In the Quaternary and late Tertiary, faulting resulted in a depression in the middle portion of Scott Valley, which lies several hundred feet lower than the bedrock in the northern part of the valley. Streams have deposited sediment throughout this area, resulting in the alluvial fill that comprises the main water bearing units today. The Basin underlying the alluvial floodplain is the primary groundwater feature in the area. Valley alluvium is mostly Recent in age with a few isolated Pleistocene sections along the edges of the Valley. As defined by DWR (2004), the Basin is 28 mi (45km) in length, 0.5 to 4 mi (0.8 to 6 km) in width and covers a surface area of 100 sq mi (259 sq km). The predominant water-bearing units in Scott Valley are Quaternary stream channel, floodplain, and alluvial fan deposits (DWR 2004). The combined thickness of the water-bearing units is somewhat irregular, with the greatest thicknesses (estimated at 200 feet in Tolley, Foglia, and Harter 2019), located in central-western region of the Basin, and thinning out towards the Basin boundary.

Climate

Scott Valley has a Mediterranean climate with distinctive seasons of cool, wet winters and warm, dry summers. The orographic effect of the mountains to the west and south of the Valley creates a rain-shadow in eastern areas of the Valley. The higher elevation areas to the west and south of the Valley historically receive greater annual precipitation than the east side of the Valley. At elevations below 4,000 ft (1219 m), precipitation mostly occurs as rainfall, as is the case on the valley floor. Precipitation accumulates as snow in the surrounding mountains, with a rain-snow transition zone between 4,000 and 5,000 ft (1219 and 1524 m) (McInnis and Williams 2012).

The long-term historical precipitation record indicates that recent average precipitation and snowfall are lower than levels recorded in the middle of the 20th century. Between 1945 and 1979, the 10-year trailing rolling average precipitation ranged from 19.1 to 23.5 in (48.5–59.7 cm; water years 1950 and 1959, respectively); since 1980, it has ranged between 11.5 and 18.7 inches (48.5-59.7 cm; water years 1989 and 1980, respectively). Additionally, average snow depth at snow measurement stations near the western boundary of the Watershed has gradually decreased over time. Although, at three stations near the southern boundary of the Watershed the snow depths have remained relatively stable. There has also been a decrease in the percentage of precipitation falling as snow on a regional scale over the past 70 years, as noted by Lynn et. al (2020). As shown in Figure 4, precipitation in WY2022, though higher than in WY2021, was relatively low compared to the historical record.

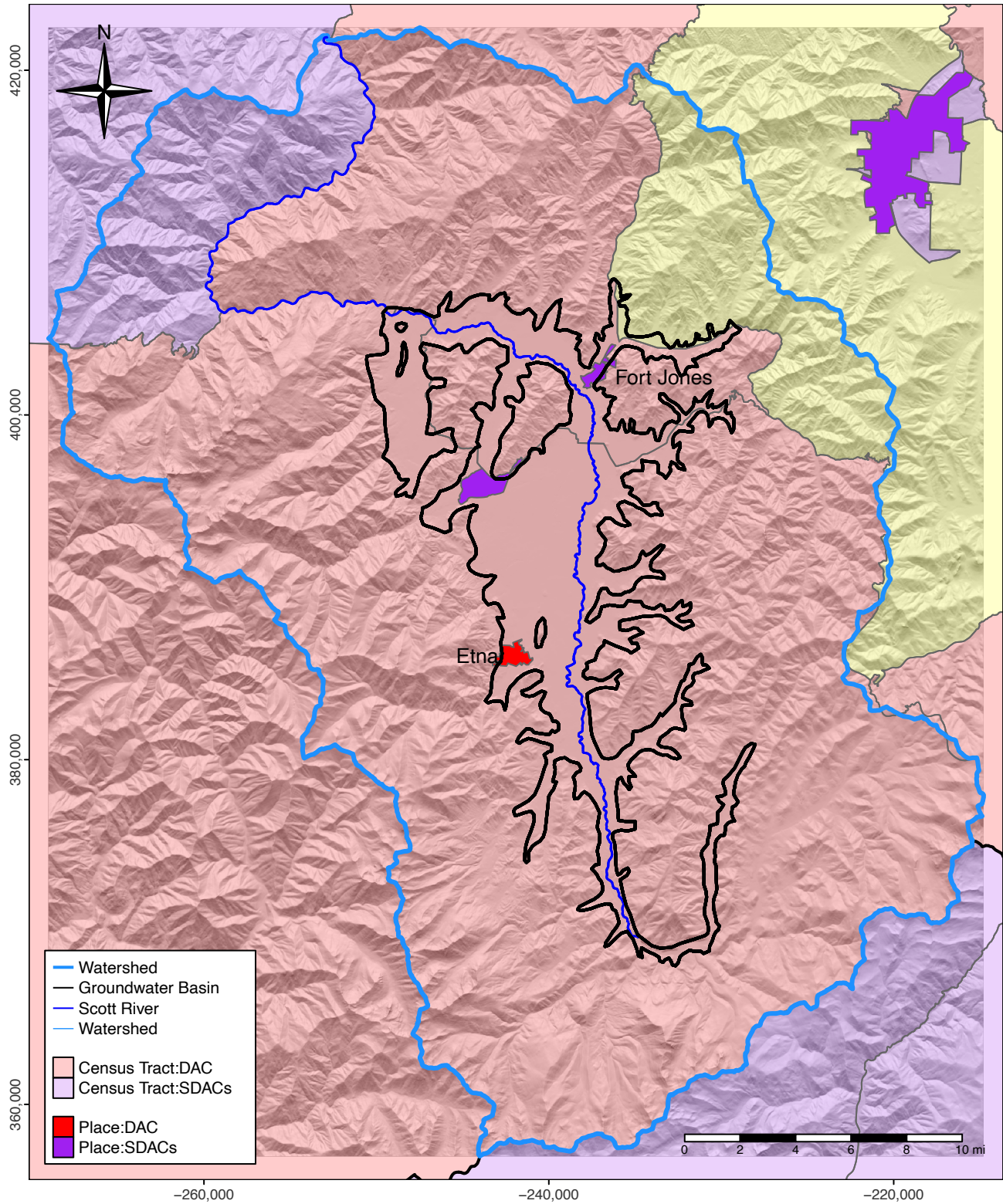


Figure 3: Based on the 2016 U.S. Census, place and tract boundaries of Disadvantaged Communities (DACs: \$42,737 <= MHI < \$56,982) and Severely Disadvantaged Communities (SDACs: MHI < \$42,737) in the Scott Valley watershed, using data from the DWR DAC Mapping Tool (DWR 2016b).

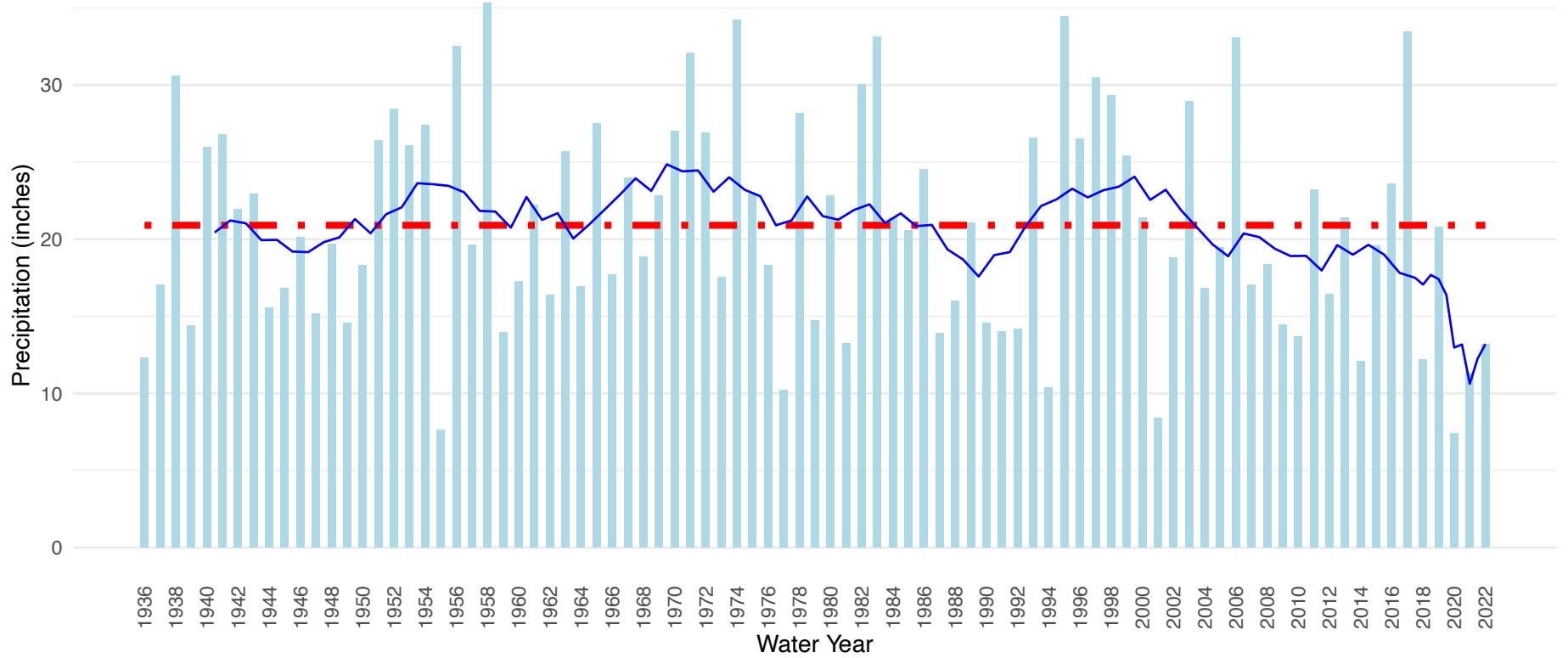


Figure 4: Fort Jones annual precipitation from 1935 to 2022, according to CDEC data. The long term mean is shown as a red dashed line, and the ten year rolling mean is the blue trendline.

Groundwater Basin Conditions

Groundwater Elevations

This section describes the change in groundwater elevations in WY 2022 and general observations of groundwater level declines or increases in WY2022. This summary includes quantified changes observed during the water year and refer to hydrographs and contour maps of groundwater elevation. The contour maps and hydrographs below solely include the available data that has undergone quality assurance and quality control processes. As such, coverage is limited and only part of the Basin is represented. Additional hydrographs can be found in **Appendix A**.

The representative monitoring points (RMPs) and the associated minimum thresholds and measurable objectives are shown in [Table 2](#).

[Figure 5](#) shows hydrographs of groundwater elevations and water year type using historical data to the greatest extent available, including WY 2022. **Appendix A** shows hydrographs of the SMC network, showing measurable objectives, management triggers, and minimum thresholds along with hydrographs of other wells in the Basin that are not included in the SMC network.

[Figure 6](#) and [Figure 7](#) show groundwater elevation contours for the seasonal high and low groundwater conditions, typically observed in March and October, respectively. [Figure 8](#) shows groundwater conditions in Fall 2022, marking conditions at the end of WY2022. Additional contour maps are shown in **Appendix B**.

[Figure 9](#) shows the change in groundwater elevation between Spring 2021 and Spring 2022.

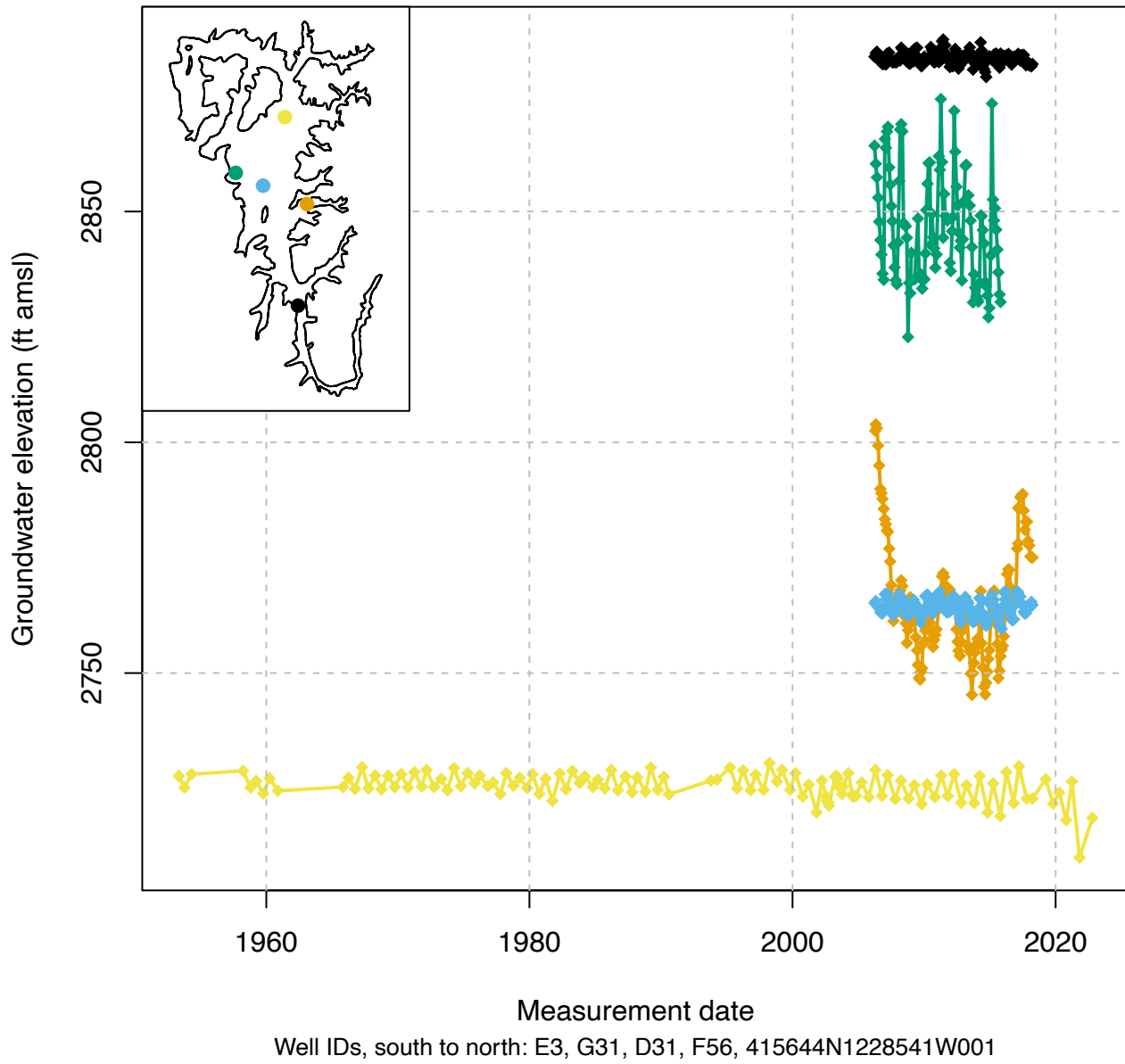


Figure 5: Selected long-term groundwater elevation measurements over time in five wells, one located in each hydrogeologic zone of the Scott Valley Groundwater Basin.

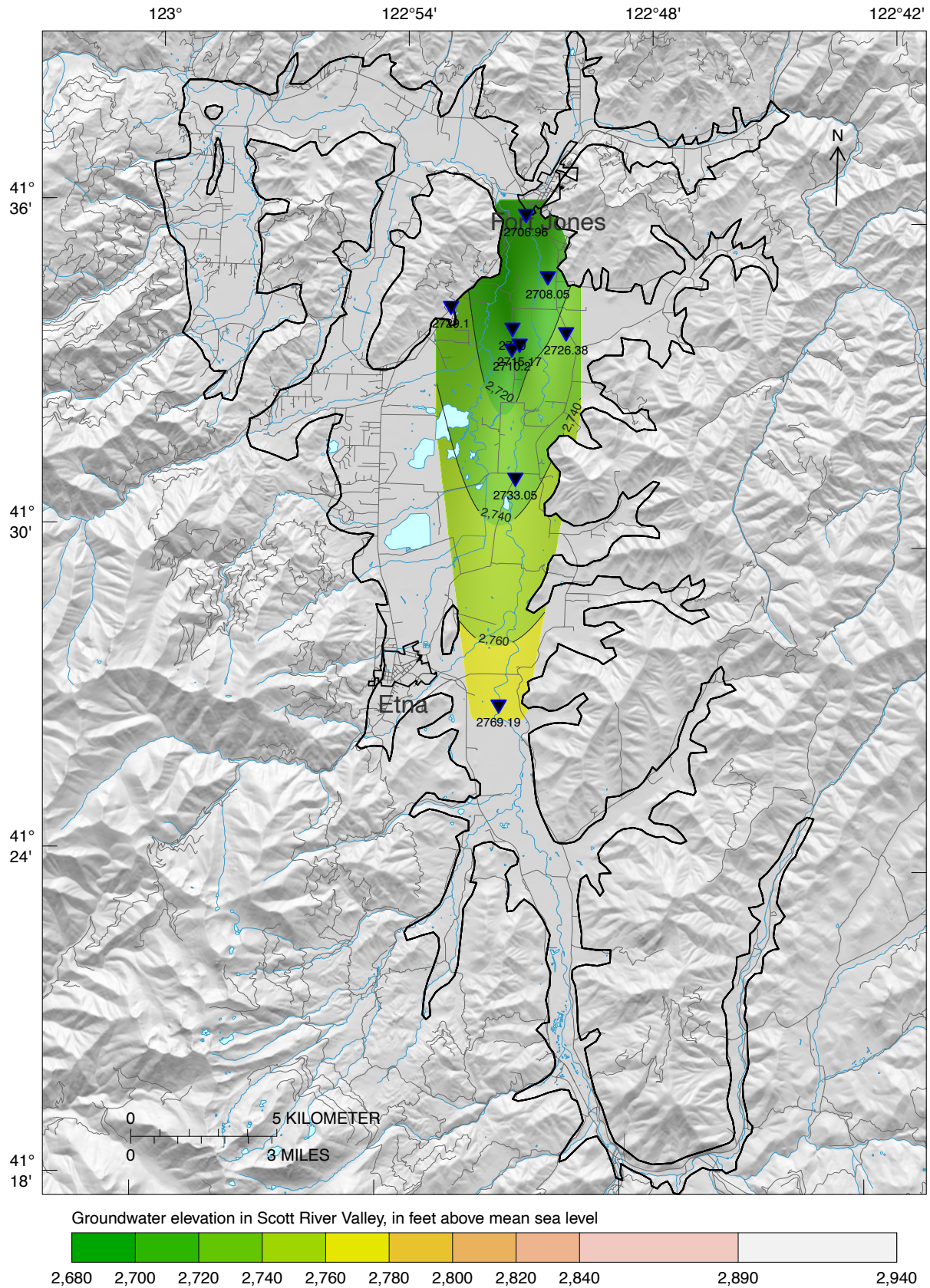


Figure 6: Scott Valley Groundwater Elevations, Fall 2021.

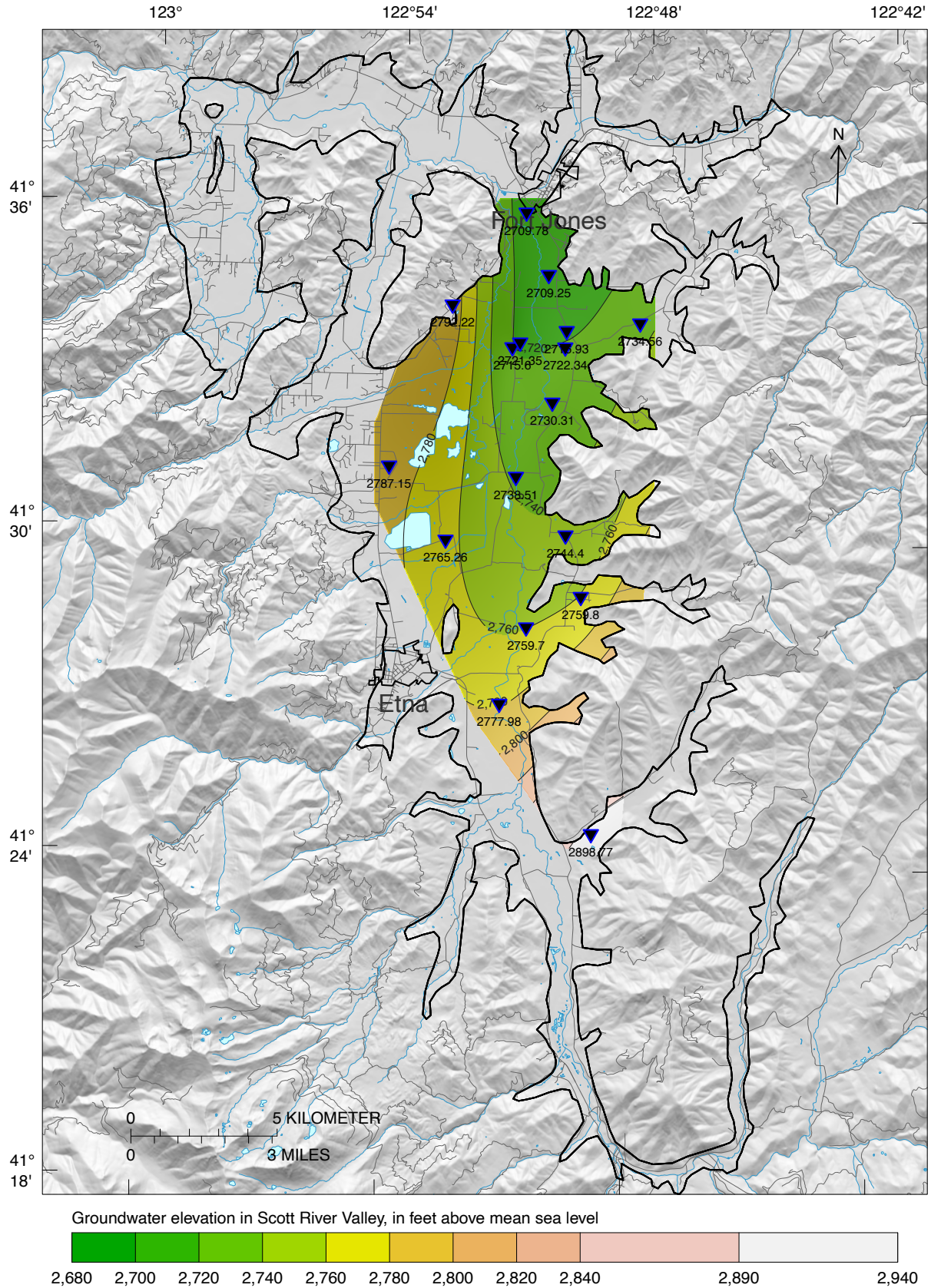


Figure 7: Scott Valley Groundwater Elevations, Spring 2022.

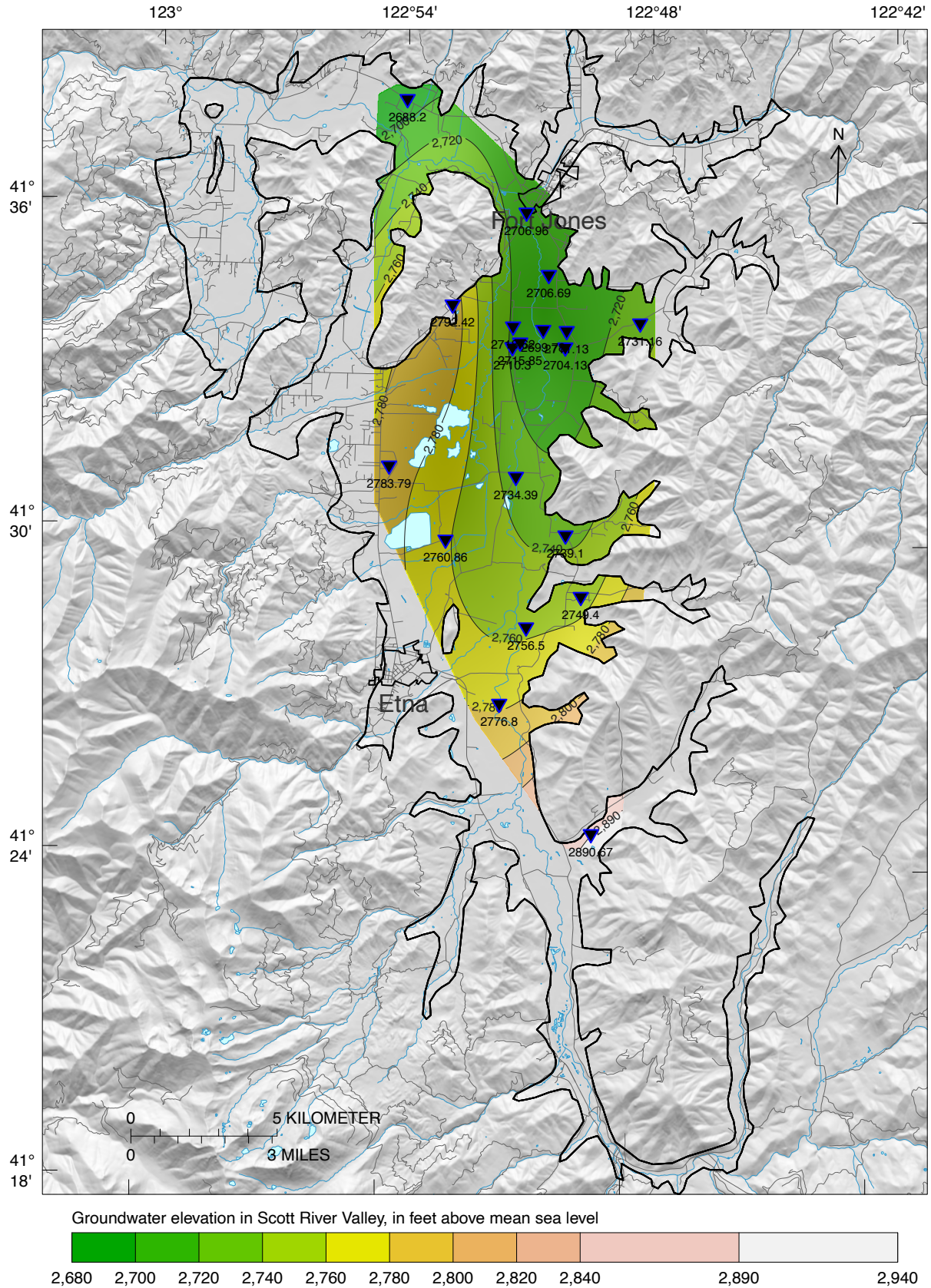


Figure 8: Scott Valley Groundwater Elevations, Fall 2022.

Groundwater Extractions

This section summarizes monthly groundwater extractions for the preceding water year with the data available and defines the method of measurement by water use sector. The best method available to estimate groundwater extraction in Scott Valley is through estimation with the SVIHM. The SVIHM was updated to include WY2022, and is currently being updated to account for the curtailment regulation by the State Water Resources Control Board. New estimates of groundwater extraction that account for the impact of this curtailment on groundwater extraction values will be generated once this update is complete.

Groundwater extraction, as estimated by SVIHM for WY2022, is 44,239 acre-feet (AF). There is an additional 1,000 AF of groundwater extraction based on population data ².

Surface Water Supply Used for Groundwater Recharge or In-Lieu Use

SGMA requires that the GSP annual report tabulate “Surface water supply used or available for use” (CCR §356.2 [b] [3]). For WY2022 the surface water supply data was estimated by the SVIHM at 23,397 AF. This value has not been adjusted to account for the drought emergency curtailment order. Updates to the SVIHM are underway to account for reductions due to this curtailment.

Minimal surface water supply was used for groundwater recharge in WY2022. As discussed under projects and management actions, flows in Scott River were not sufficient in WY2022 to meet or exceed the threshold set in the temporary permit to enable meaningful groundwater recharge.

Total Water Use

This section summarizes groundwater use and surface water available for use for the reporting period. For WY2022 the total water use combines the surface water supply data and estimated groundwater extraction to estimate total water use. This value is 68,636 AF.

Change in Groundwater Storage

The change in groundwater storage for the Basin is calculated based on the change in groundwater levels between fall of the report water year and previous water year. The groundwater contours are cropped to the extent of the groundwater level monitoring points to avoid low accuracy contours, thus the groundwater storage change is only calculated for the portion of the Basin where there is sufficient groundwater level data. Additionally, groundwater level stations are only used if they exist in both the current and previous year to avoid discrepancies in groundwater contour due to a lack of historic data. As more groundwater level monitoring stations are installed during

²Estimate assumes 1 AF per 3.5 persons/ year and population of 3,520 people (population based on estimate in 2019 Basin Prioritization).

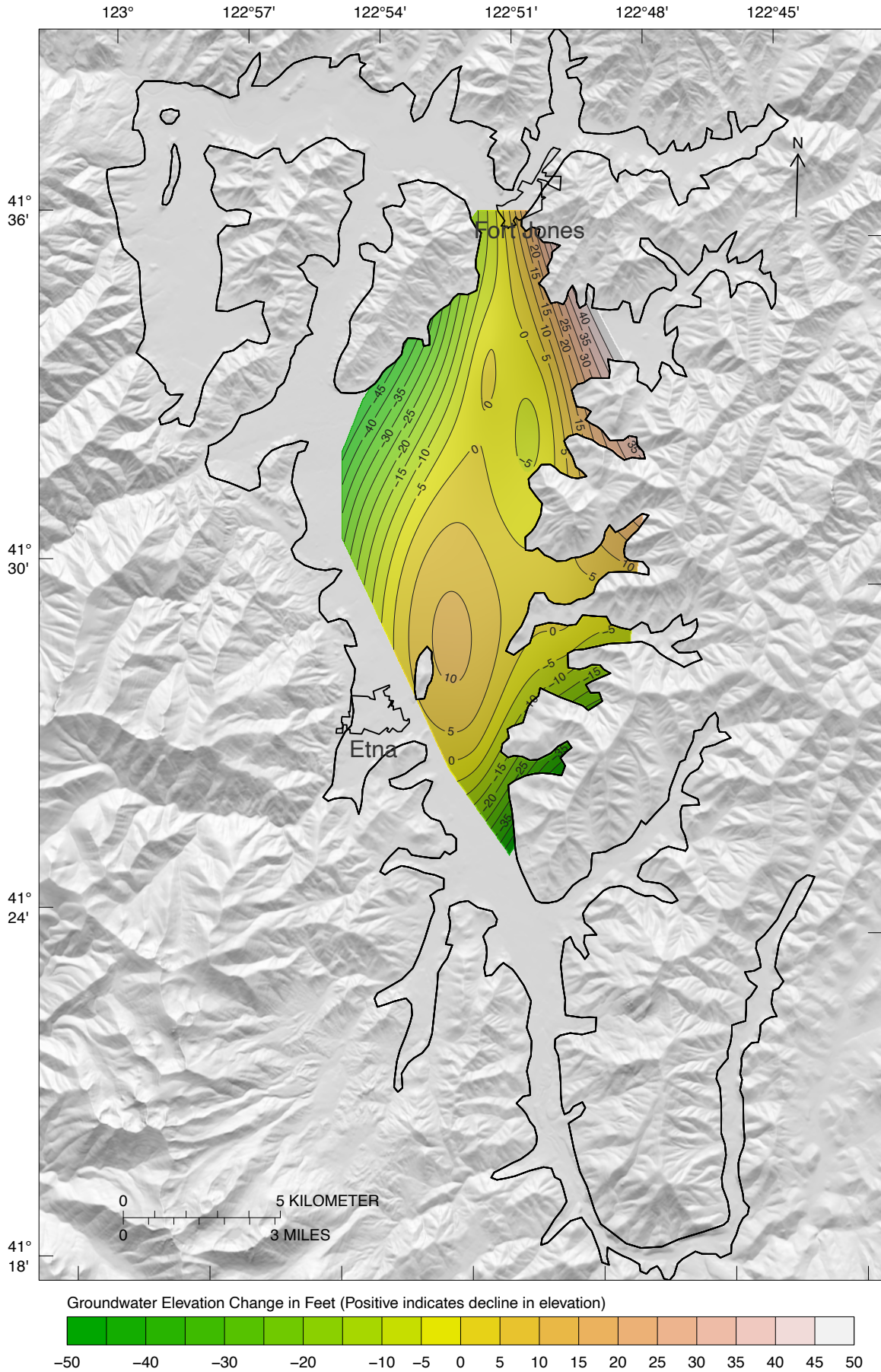
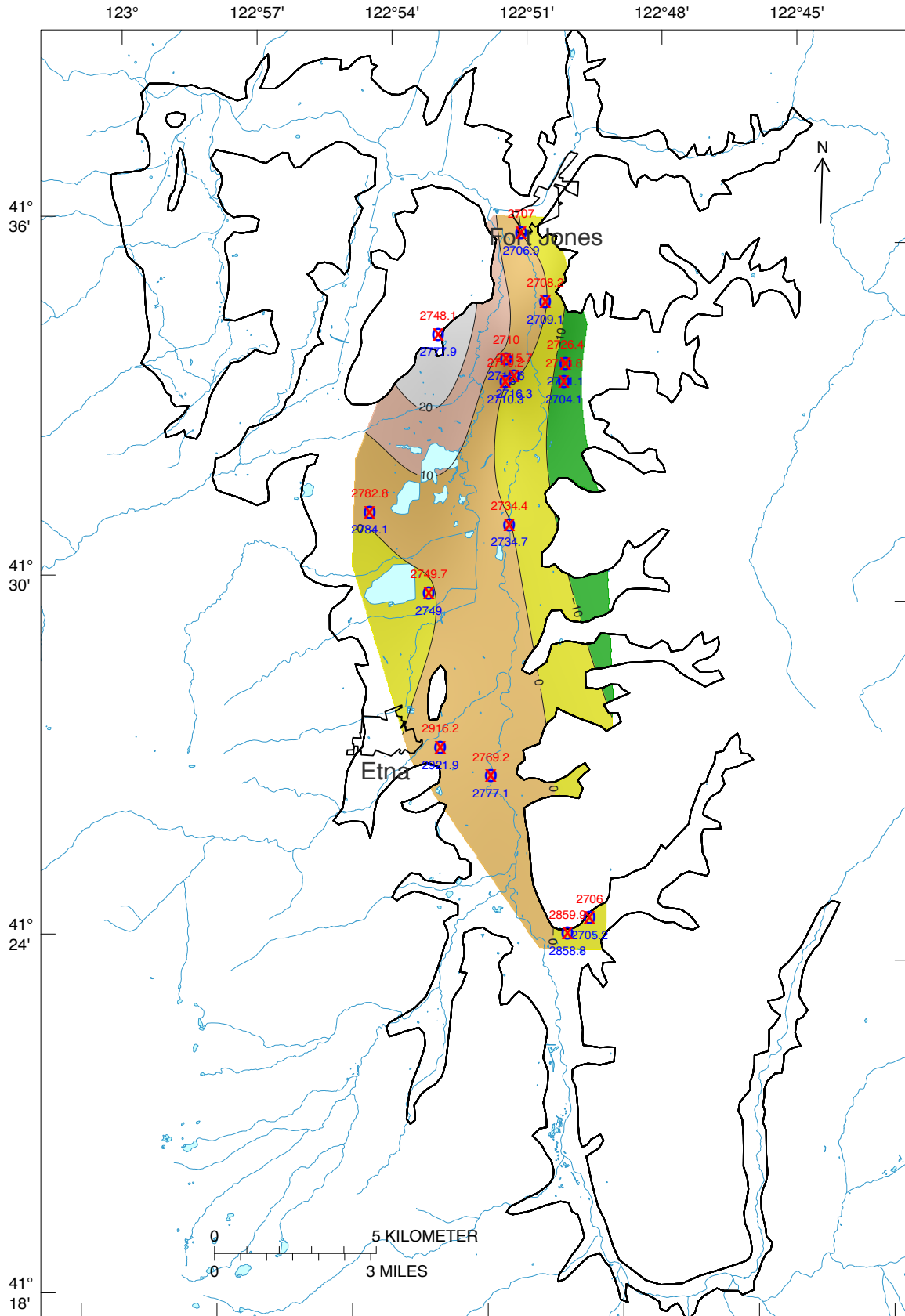


Figure 9: Scott Valley Groundwater Change from Spring 2021 to Spring 2022 in terms of meters above mean sea level (amsl).
18

plan implementation the groundwater contours will cover more of the Basin producing more accurate change in groundwater storage estimates. The change in groundwater storage for WY2022 is estimated as -8,146 AF.

The figure, [Figure 10](#) depicts water year type and annual change in groundwater storage, cumulative change in groundwater storage for the Basin based on historical data to the extent available, including from January 1, 2015 to the current reporting year.



Change in groundwater elevation in Scott River Valley, in feet



This

figure depicts water year type and the annual change in groundwater in storage, and the cumulative change in groundwater in storage for the Basin based on historical data to the greatest extent available, including from January 1, 2015, to the current reporting year.

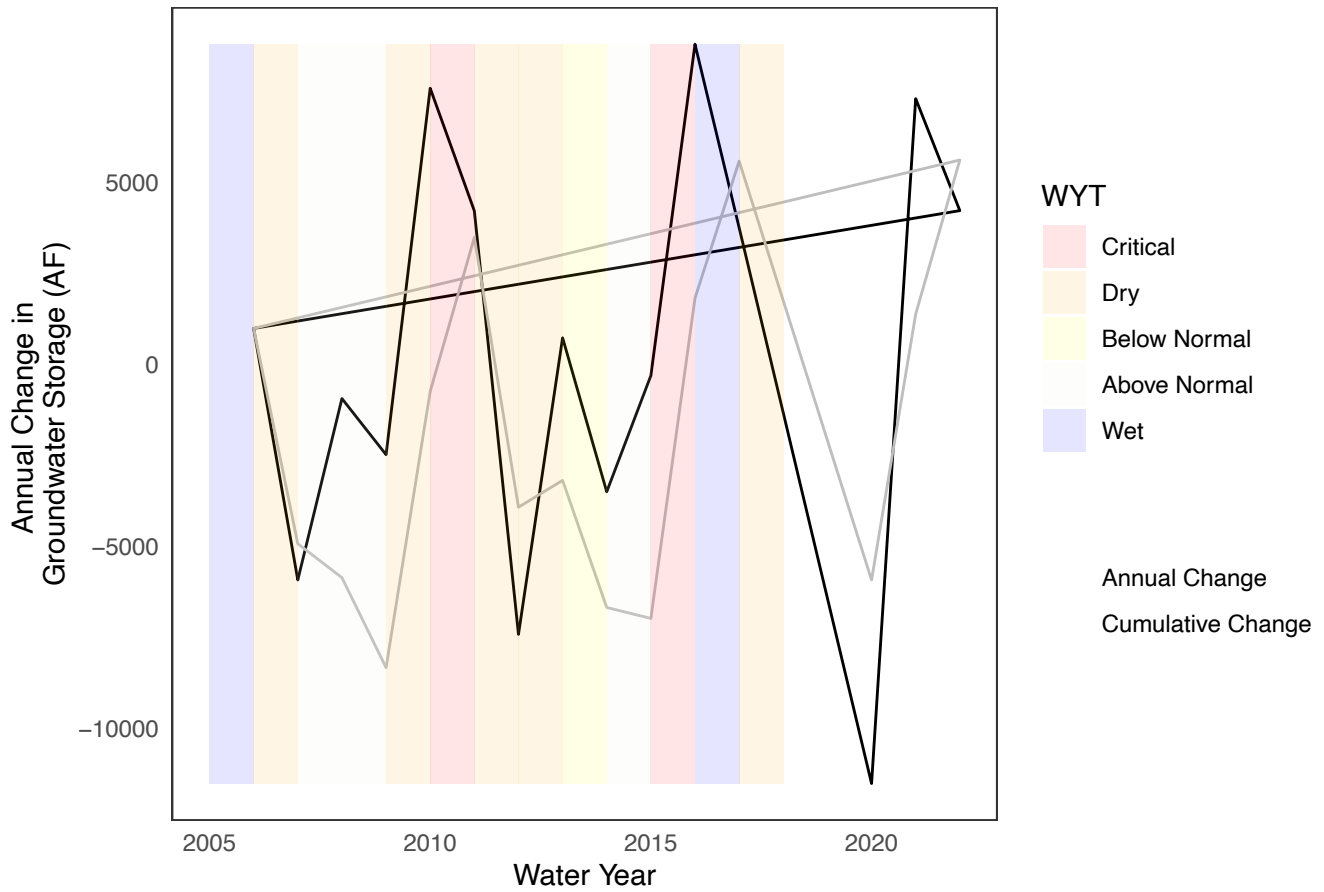


Figure 10: Groundwater storage change based on difference in fall groundwater contours between years.

Other Sustainability Indicators

Seawater Intrusion

This sustainability indicator is not applicable in this Basin.

Groundwater Quality

This section lists the water quality data sampled within WY 2022. Samples were all well below the maximum threshold ([Table 3](#)).

Table 3: Water quality data from WY 2022.

Well ID	Result	Analyte	Date	Units
CA4700814_001_001	<0.05	Nitrate as N	2022-06-07	MG/L
CA4710003_003_003	2.13	Nitrate as N	2022-06-06	MG/L

Subsidence

To monitor subsidence, the Basin relies on data provided by DWR based on Interferometric Synthetic Aperture Radar (InSAR), a satellite-based remote sensing technique that measures vertical ground surface displacement changes at high degrees of measurement resolution and spatial detail. This data is made available through the DWR SGMA Data Viewer ³ and shows overall subsidence less than 0.1 feet for the entire Basin during the water year 2022 ([Figure 11](#)).

Interconnected Surface Water

Interconnected surface waters in the Basin are not determined for WY2022 because the method using the SVIHM will be ready following additional model calibration and updates. The SVIHM will be used to determine the location, timing and rate of interconnected surface waters in the Basin.

Progress Toward Implementing the Plan

The GSA continued activities (e.g. RMP data collection) necessary to implement the GSP and put the Basin on a path toward sustainable management and has made progress towards implementation of the project and management actions outlined in the GSP.

³<https://sgma.water.ca.gov/webgis/?appid=SGMADataViewer#currentconditions>

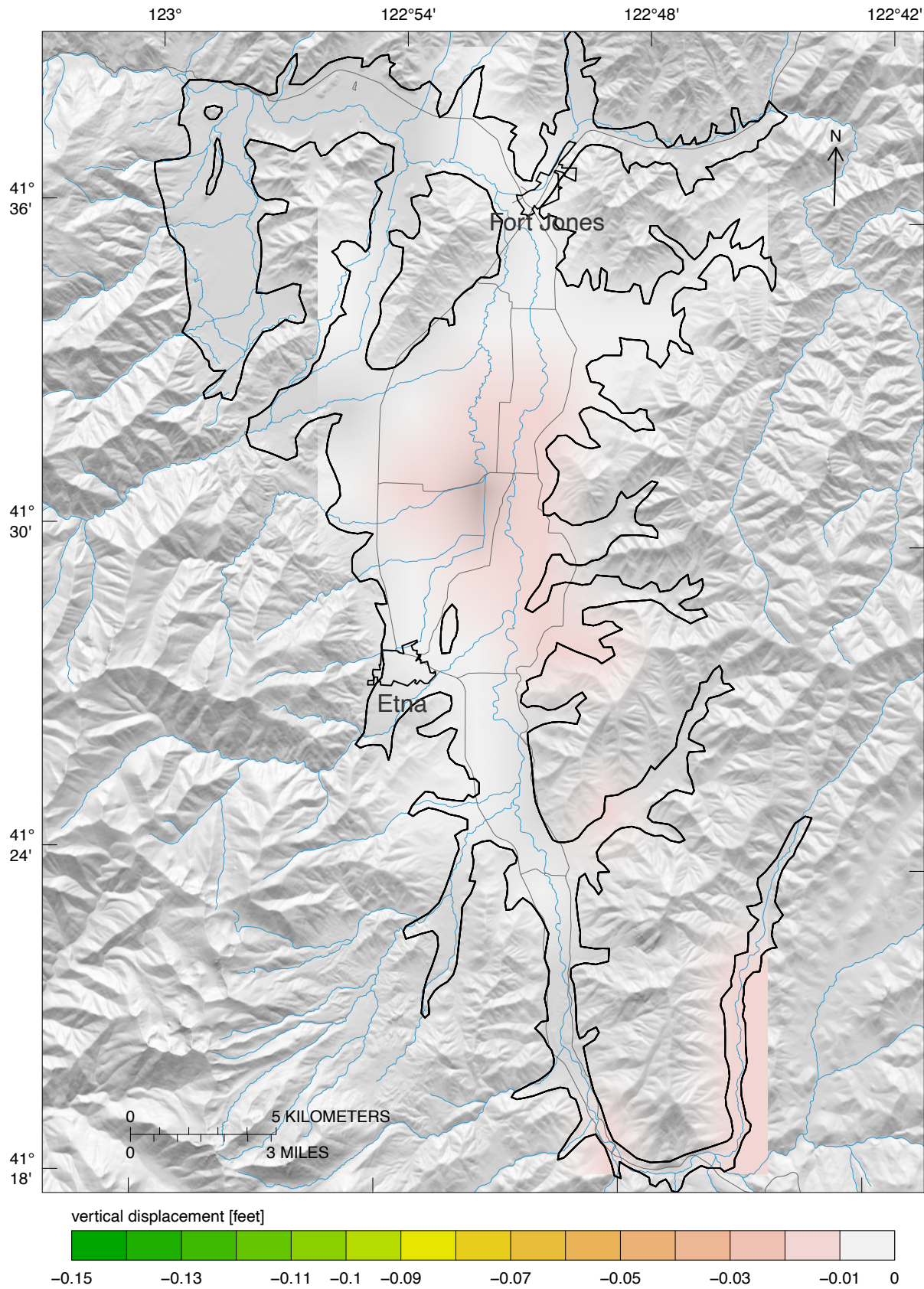


Figure 11: InSAR satellite measured total vertical subsidence (feet) in WY 2022. Note that the processed InSAR instrument and GIS conversion error is roughly +/-0.1 feet (<https://gis.water.ca.gov/arcgisming/rest/services/SAR>).

Interim Milestones

This section provides a list of interim milestones identified in Chapter 3 (Sustainable Management Criteria) of the GSP for all Sustainability Indicators. These Interim Milestones are anticipated to be achieved over the course of GSP implementation in increments of five years, pursuant to the CCR definition “Target values representing measurable groundwater conditions, in increments of five years, set by Agency as part of a Plan” [CCR Title 23, Division 2 §351(q)]. Progress toward achieving Interim Milestones since submitting the GSP is provided in Section “Groundwater Basin Conditions”. Further updates are expected in the first Five Year Assessment for the GSP, with status checks provided in future annual reporting.

Project Implementation and Management Actions

Tier 2 PMA: SVID Recharge Project

Flows in Scott River in the recharge period of January through March were not sufficient to meet or exceed minimum flow thresholds set in the temporary permit to divert and use water from the Scott River for 2022. As a result, only a small amount of water was used to test the system, and recharge was not actively conducted.

Coordination

State Water Resources Control Board – GSA staff meets biweekly with SWRCB staff to discuss updates and activities related to SWRCB’s Emergency Regulation Curtailments. The two parties discuss updates to curtailment actions in place, including Local Cooperative Extensions (LCS) and activities that may have impacts on groundwater management.

Karuk Tribe – The GSA is in the process of finalizing the next phase of a Memorandum of Understanding (MOU) with the Karuk Tribe regarding coordinating on aspects of the GSP implementation in the Scott and Shasta basins.

Other Activities

Drought Response

Under the Drought Emergency Regulation for Scott River and Shasta River Watersheds, Local Cooperative Solutions (LCS), can be implemented by individuals or groups, in lieu of curtailment. The LCS must achieve a net reduction of 30 % throughout the irrigation season of April 1st through October 31st and achieve a 30% monthly reduction between July 1st through October 31st, as compared to the same timeframe during the previous year. A total of 46 applications from Scott Valley Watershed were submitted to the State Water Board for Approval between March and September of 2022. Of the original 46 applications, 18 have been approved and the remaining 28 applications are awaiting a decision ⁴.

⁴https://www.waterboards.ca.gov/waterrights/water_issues/programs/drought/scott_shasta_rivers/ilcs.html

Grant Applications

The GSA submitted a grant proposal to DWR's *Sustainable Groundwater Management (SGM) SGMA Implementation Program (SGM Implementation Grant Program)* with components covering a wide range of PMAs including improvements in irrigation efficiency and additional groundwater recharge projects and pilot studies. DWR's SGM Implementation Grant Program is intended to help achieve groundwater sustainability by increasing groundwater availability, reducing water losses, improving understanding of surface water-groundwater interaction, and creating an inventory of all wells in the basin. Development of the grant proposal required subcommittees to prioritize PMAs and GSP activities for funding.

Activities Anticipated for 2023

Project Implementation

The GSA intends to continue activities (e.g. RMP data collection) necessary to implement the GSP and put the Basin on a path toward sustainable management. The GSA plans to continue the installation of continuous groundwater level and surface water monitoring sites to support the implementation of planned projects and management actions. The GSA submitted a grant proposal to DWR's *Sustainable Groundwater Management (SGM) SGMA Implementation Program (SGM Implementation Grant Program)* with components covering a wide range of PMA's including recharge pilot projects and improvements in irrigation efficiency. The proposal submitted to DWR's SGM Implementation Grant Program includes plans to help achieve groundwater sustainability by increasing groundwater availability, reducing water losses, improving understanding of surface water-groundwater interaction, and creating an inventory of all wells in the basin.

County Ordinances

Well Permitting The GSA is working with Siskiyou County Environmental Health Department's well permitting staff to develop a new "Well Permitting Guidance Document" that will update the county well permitting policies, along with complying with the Governors Executive Order (N-7-22, which language specific to well permitting is now under EO N-3-23).

Table 2: Objectives, triggers and thresholds for proposed Scott Valley RMPs for groundwater elevation. Fall Range refers to the maximum and minimum of measurements collected at each well during September–November. The minimum Measurable Objective (MO) is set as the 75th percentile of the fall measurement range - i.e., the measurement at which 25 percent of groundwater elevation measurements fall below it. The primary trigger (PT) is set at the historic low groundwater elevation measurement. The Minimum Threshold (MT) is set at the historic low plus a buffer. The buffer is either 10 percent of the historic low, or 10 feet, whichever is smaller.

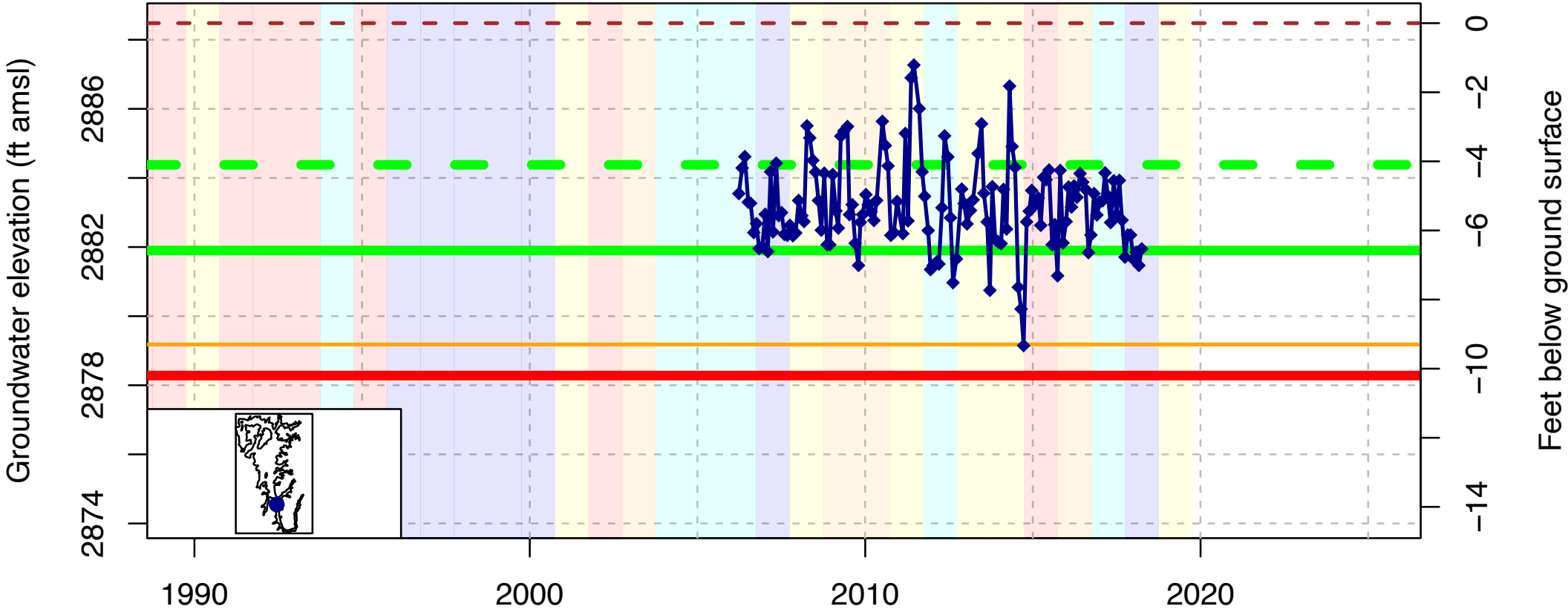
Well ID	Well Depth (ft bgs)	Fall Range (ft bgs)	MO (ft bgs)	PT (ft bgs)	MT (ft bgs)
42N09W27N002M	60	10.9-23.5	> 17.5	23.50	25.90
43N09W23F001M	60	4.6-12.3	> 8.5	12.30	13.50
43N09W02P002M	80	15.1-21.9	> 19.6	21.90	24.00
44N09W25R001M	140	11.5-22.2	> 17.8	22.20	24.40
44N09W29J001M	60	35.2-44.7	> 40.6	44.70	49.20
C26	80	12.7-20.2	> 13.9	20.20	22.20
E3	60	5.1-10.3	> 7.4	10.30	11.40
H6	–	3.0-9.8	> 6.7	9.80	10.70
K9	60	23.8-41.2	> 36.6	41.20	45.30
L31	–	10.3-23.6	> 19.3	23.60	26.00
L32	203	33.8-62.2	> 48.7	62.20	68.40
M10	43	4.6-7.4	> 6.5	7.40	8.20
M12	–	13.1-17.0	> 16.6	17.00	18.70
M2	140	33.2-75.8	> 67.0	75.80	83.30
N17	179	20.3-36.7	> 24.2	36.70	40.40
P43	75	4.2-19.4	> 13.9	19.40	21.30
Q32	57	4.0-13.1	> 9.8	13.10	14.40
R24	100	10.6-16.1	> 13.7	16.10	17.70
SCT_173	70	16.0-17.1	> 17.1	17.10	18.80
SCT_186	48	32.4-34.3	> 34.3	34.30	37.70
QV09	40	28.2-41.0	> 39.8	41.00	45.10
D31	81	4.1-10.5	> 7.8	10.50	11.60
G31	236	39.3-81.3	> 76.1	81.30	89.40
L18	170	44.9-71.4	> 67.3	71.40	78.60
Z36	197	21.2-45.5	> 33.9	45.50	50.10
SCT_202	184	99.2-139.3	> 139.3	139.30	149.30
QV18	140	53.2-68.1	> 65.4	68.10	74.90
QV01	82	6.1-16.2	> 14.7	16.20	17.80
SCT_183	100	16.6-17.5	> 17.5	17.50	19.20

Appendix A - Groundwater Elevation Hydrographs

The hydrographs used to set the minimum thresholds (MT) and measurable objectives (MO) for each representative monitoring point are shown in the following figures. Data points used to calculate the MTs and MOs are marked with a red dot. The groundwater level data used in the regression to calculate minimum thresholds have gone through a quality assurance and quality control (QAQC) process that removes data from the analysis for the following reasons:

- Oil or other foreign substances were floating at the groundwater surface inside the well and the data had high uncertainty as a result.
- The well was pumped recently.
- During the minimum threshold process and generation of a regression equation, a data point was deemed an outlier, which may result from the interference of drawdown from nearby wells.

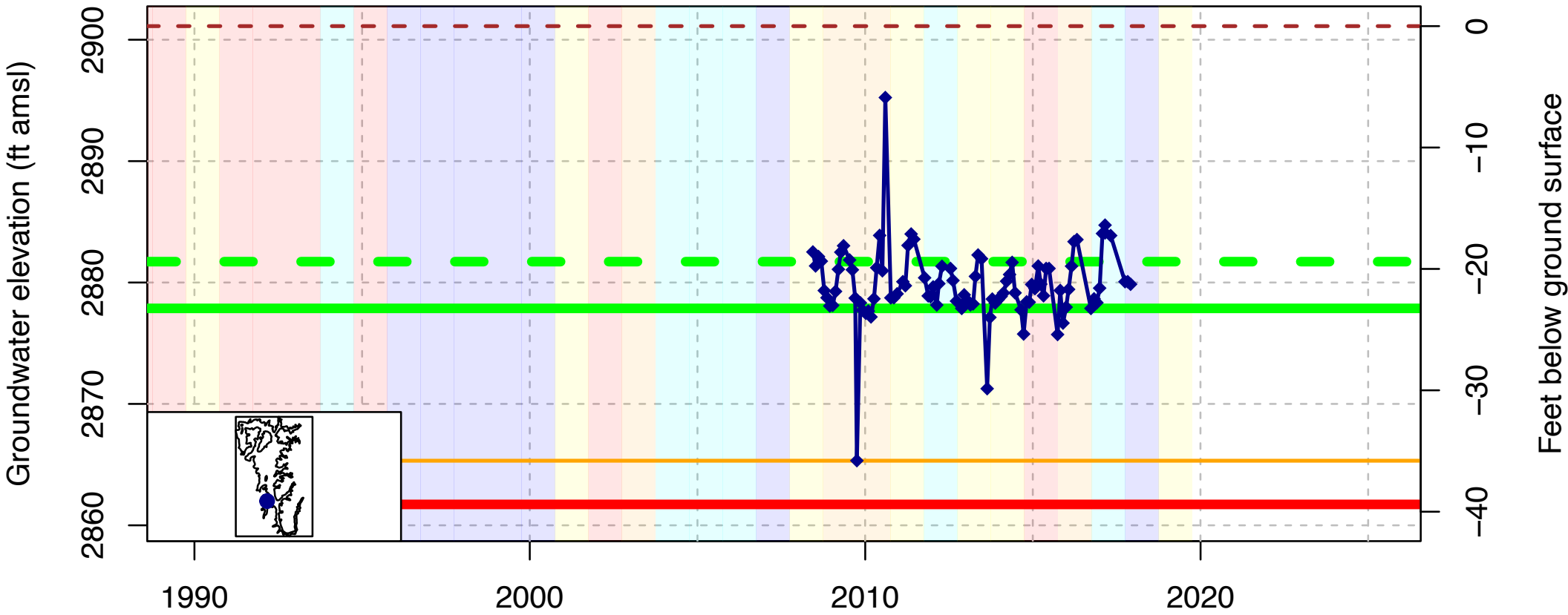
DWR Stn_ID: ; well_code: E3; well_name: E3; well_swn: NA



- - Ground Surface (2888 ft amsl)
- Measurable Objective (Upper Fall High) (4 ft bgs)
- Measurable Objective (Lower 75th Quantile) (7 ft bgs)
- Trigger (Fall Low) (9 ft bgs)
- Minimum Threshold (Exceptional Fall Low) (10 ft bgs)

- Water Year Type
- Critical
 - Dry
 - Below Normal
 - Above Normal
 - Wet

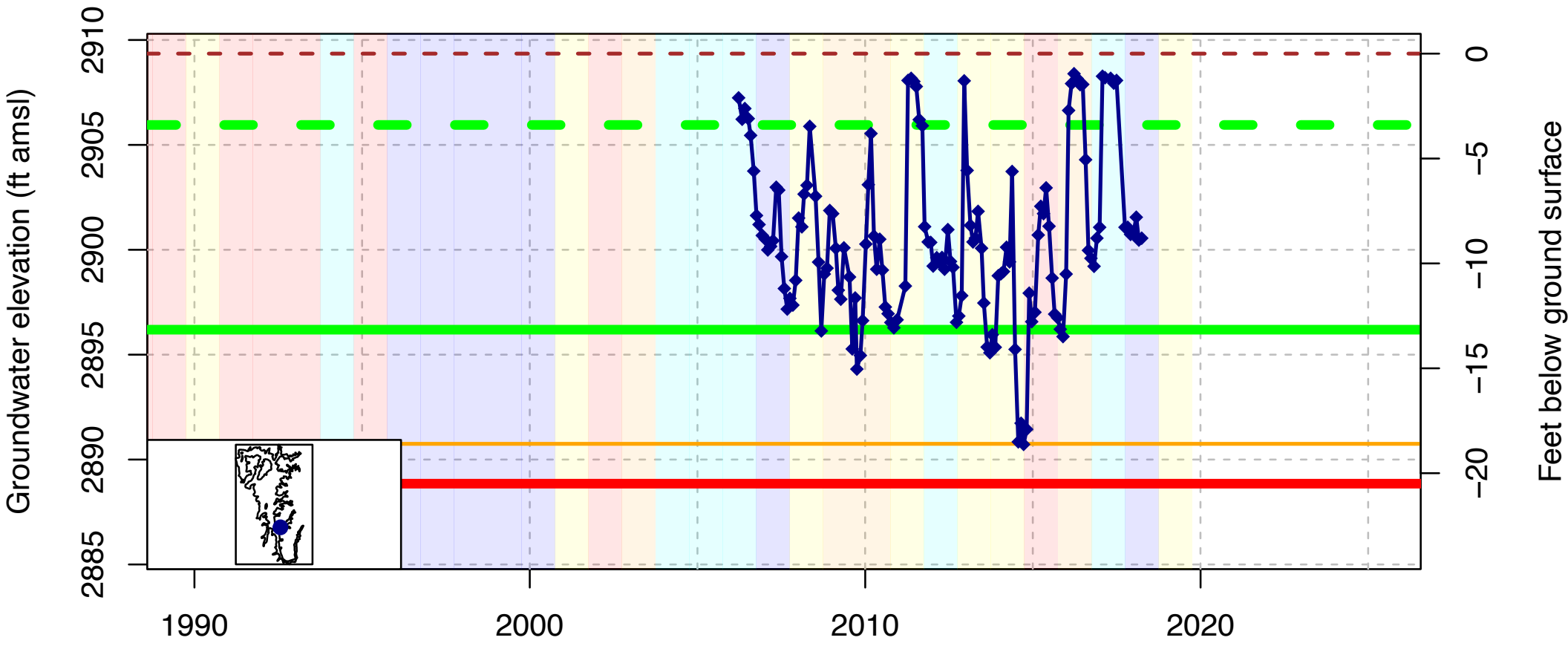
DWR Stn_ID: ; well_code: N17; well_name: N17; well_swn: NA



- - Ground Surface (2901 ft amsl)
- - - Measurable Objective (Upper Fall High) (19 ft bgs)
- Measurable Objective (Lower 75th Quantile) (23 ft bgs)
- Trigger (Fall Low) (36 ft bgs)
- Minimum Threshold (Exceptional Fall Low) (39 ft bgs)

- Water Year Type
- Critical
 - Dry
 - Below Normal
 - Above Normal
 - Wet

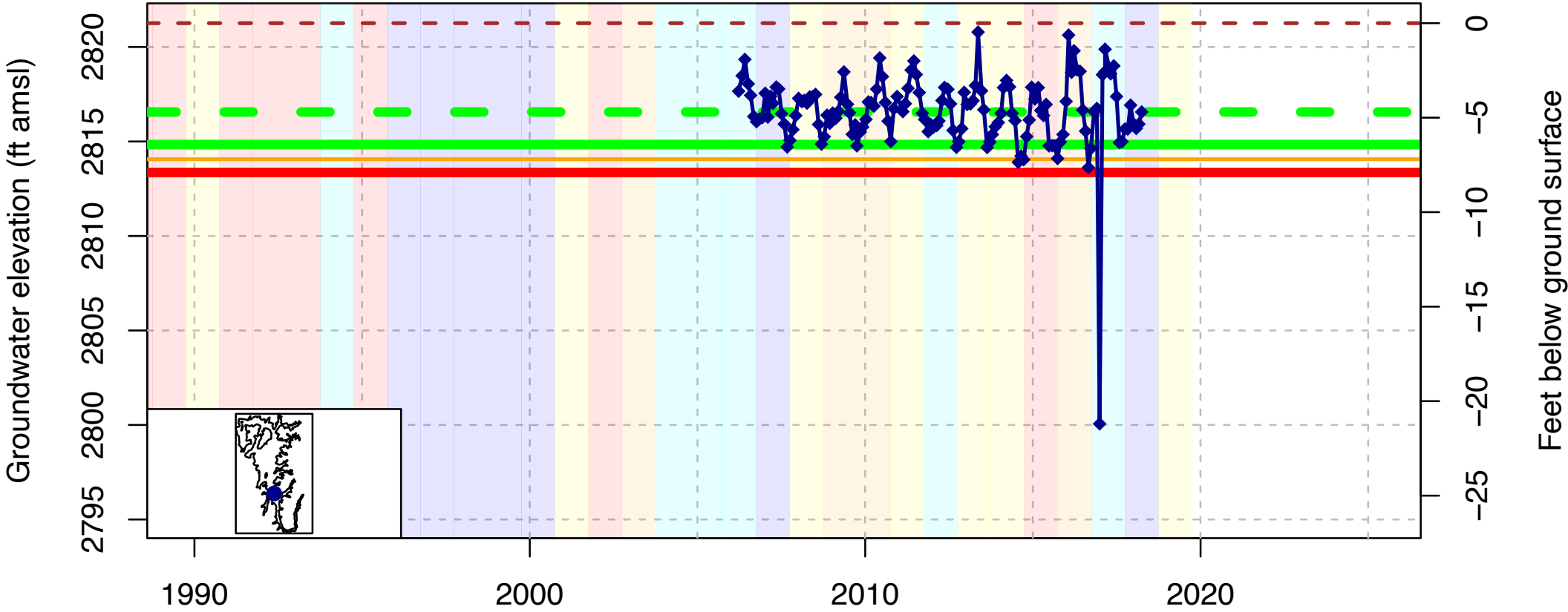
DWR Stn_ID: ; well_code: P43; well_name: P43; well_swn: NA



- - Ground Surface (2909 ft amsl)
- Measurable Objective (Upper Fall High) (3 ft bgs)
- Measurable Objective (Lower 75th Quantile) (13 ft bgs)
- Trigger (Fall Low) (19 ft bgs)
- Minimum Threshold (Exceptional Fall Low) (20 ft bgs)

- Water Year Type
- Critical
 - Dry
 - Below Normal
 - Above Normal
 - Wet

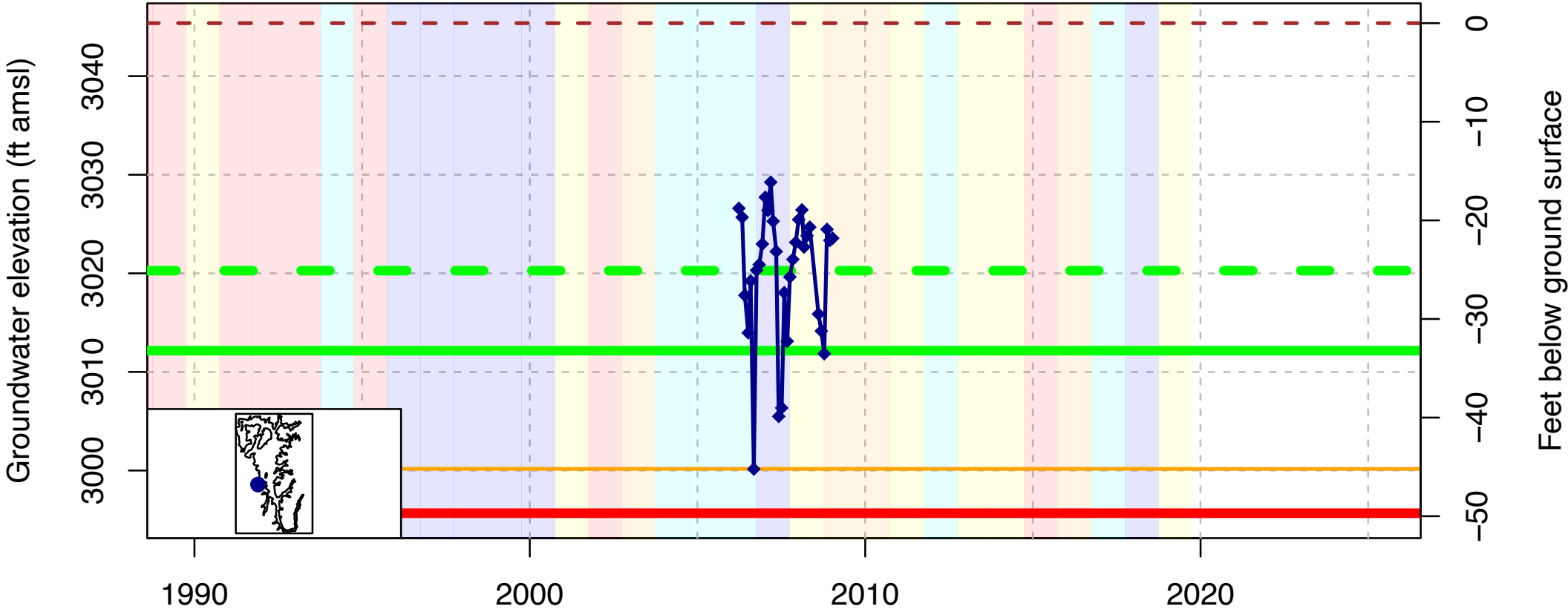
DWR Stn_ID: ; well_code: M10; well_name: M10; well_swn: NA



- - Ground Surface (2821 ft amsl)
- - - Measurable Objective (Upper Fall High) (5 ft bgs)
- Measurable Objective (Lower 75th Quantile) (6 ft bgs)
- Trigger (Fall Low) (7 ft bgs)
- Minimum Threshold (Exceptional Fall Low) (8 ft bgs)

- Water Year Type
- Critical
 - Dry
 - Below Normal
 - Above Normal
 - Wet

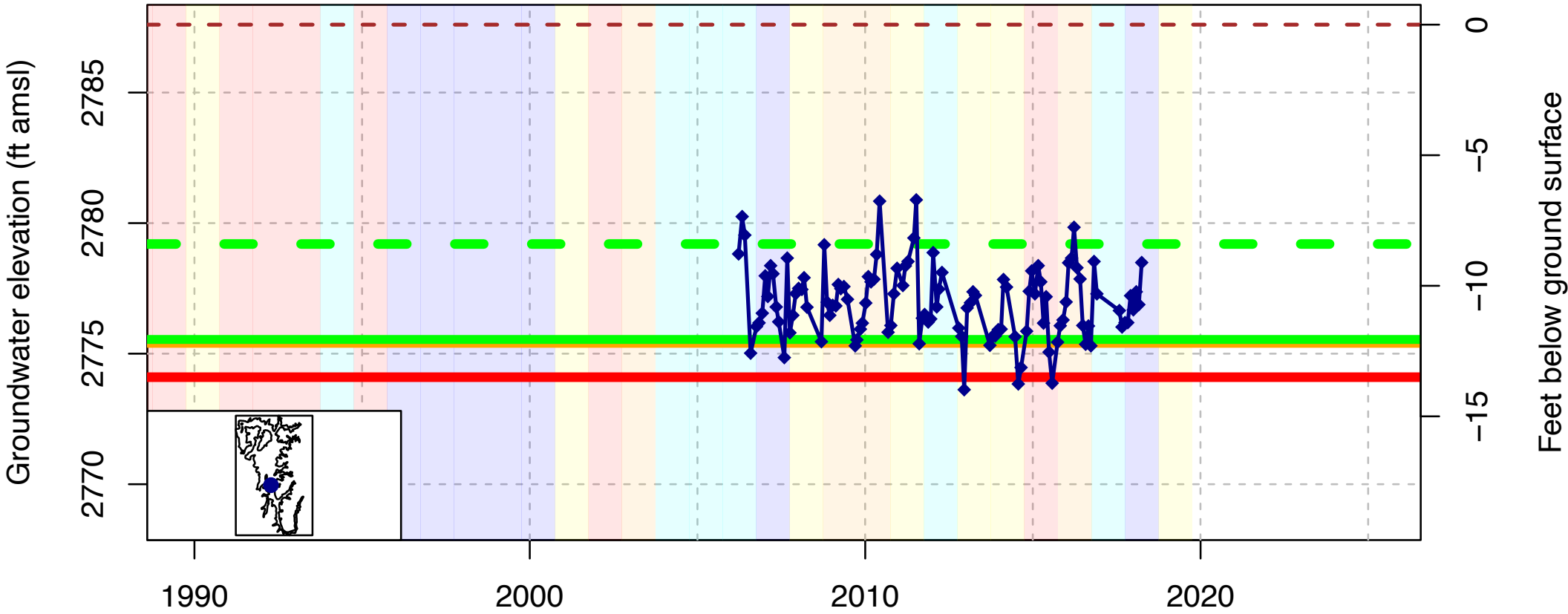
DWR Stn_ID: ; well_code: Z36; well_name: Z36; well_swn: NA



--- Ground Surface (3045 ft amsl)
--- Measurable Objective (Upper Fall High) (25 ft bgs)
--- Measurable Objective (Lower 75th Quantile) (33 ft bgs)
--- Trigger (Fall Low) (45 ft bgs)
--- Minimum Threshold (Exceptional Fall Low) (50 ft bgs)

Water Year Type
Critical
Dry
Below Normal
Above Normal
Wet

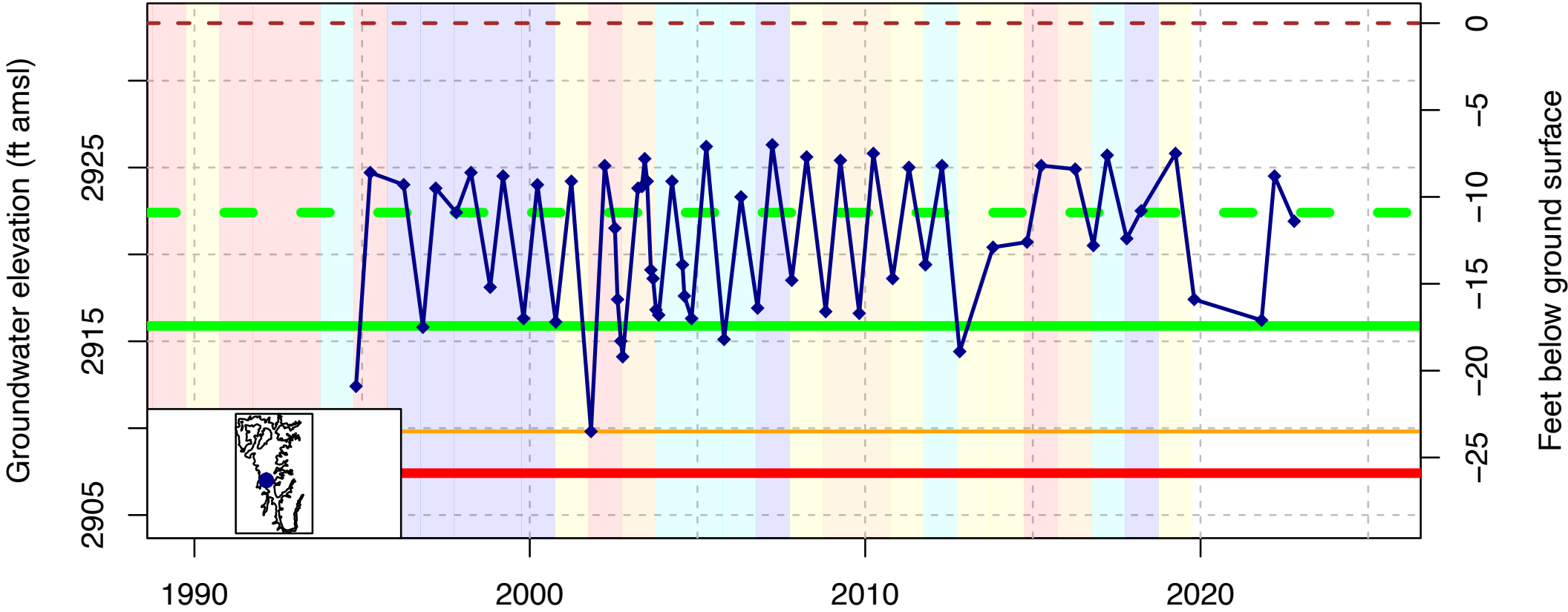
DWR Stn_ID: ; well_code: M12; well_name: M12; well_swn: NA



- - Ground Surface (2788 ft amsl)
- - Measurable Objective (Upper Fall High) (8 ft bgs)
- - Measurable Objective (Lower 75th Quantile) (12 ft bgs)
- - Trigger (Fall Low) (12 ft bgs)
- - Minimum Threshold (Exceptional Fall Low) (14 ft bgs)

- Water Year Type
- Critical
 - Dry
 - Below Normal
 - Above Normal
 - Wet

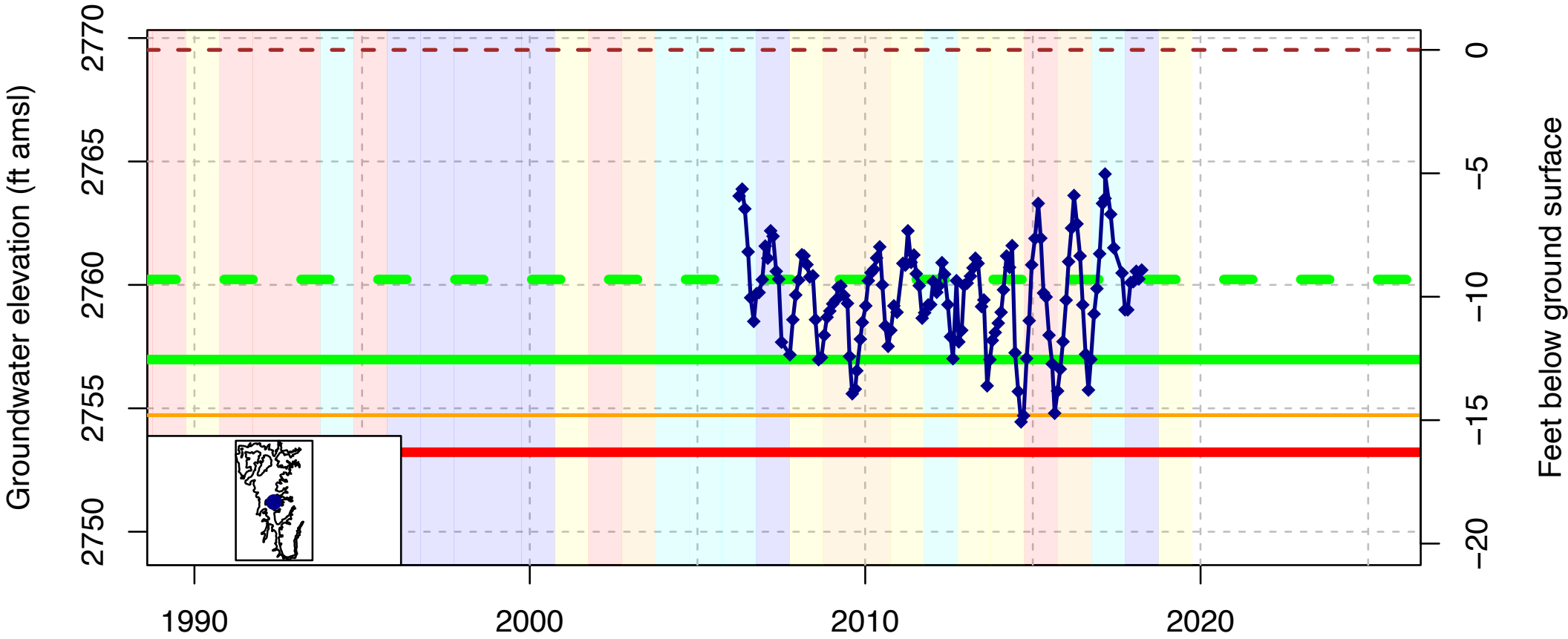
DWR Stn_ID: ; well_code: 414555N1228745W001; well_name: 42N09W27N002M; well_swn: 42N09W27N002M



- - Ground Surface (2933 ft amsl)
- Measurable Objective (Upper Fall High) (11 ft bgs)
- Measurable Objective (Lower 75th Quantile) (17 ft bgs)
- Trigger (Fall Low) (24 ft bgs)
- Minimum Threshold (Exceptional Fall Low) (26 ft bgs)

- Water Year Type
- Critical
 - Dry
 - Below Normal
 - Above Normal
 - Wet

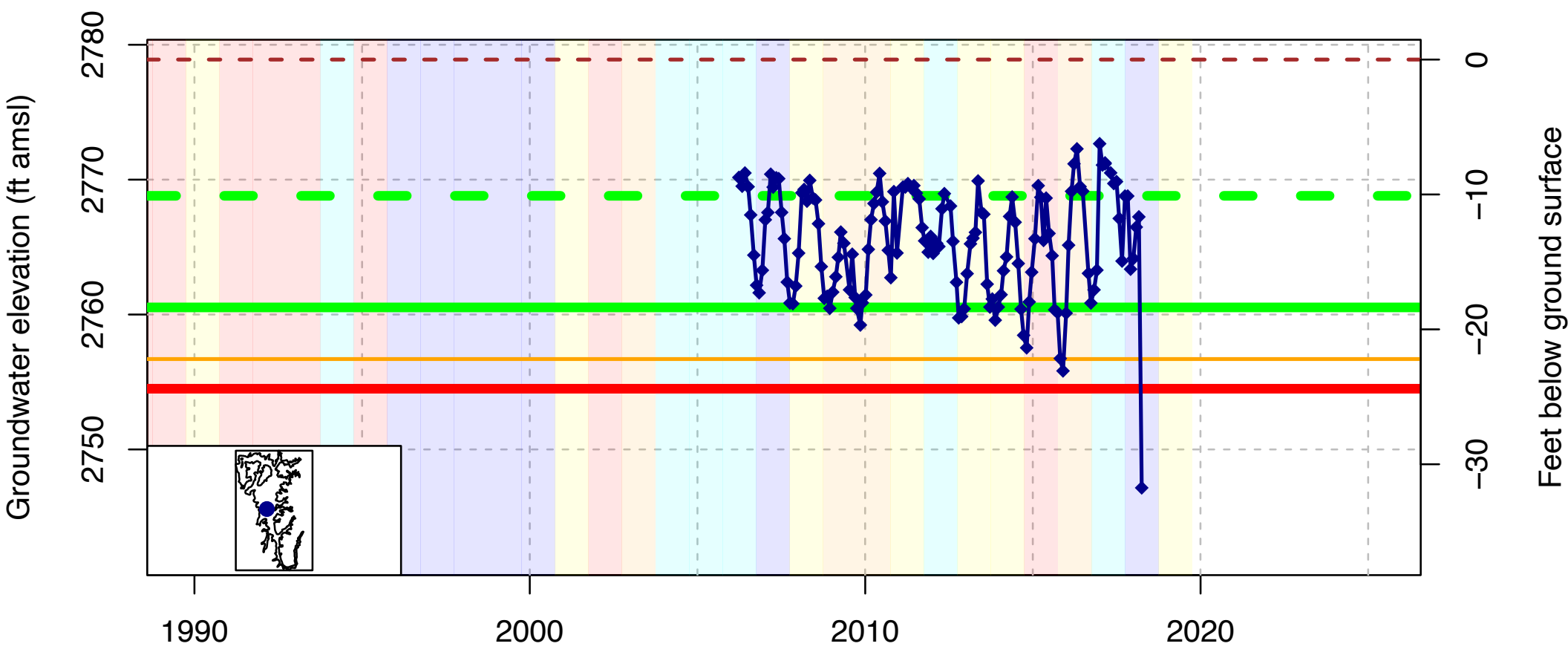
DWR Stn_ID: ; well_code: R24; well_name: R24; well_swn: NA



- - Ground Surface (2770 ft amsl)
- Measurable Objective (Upper Fall High) (9 ft bgs)
- Measurable Objective (Lower 75th Quantile) (13 ft bgs)
- Trigger (Fall Low) (15 ft bgs)
- Minimum Threshold (Exceptional Fall Low) (16 ft bgs)

- Water Year Type
- Critical
 - Dry
 - Below Normal
 - Above Normal
 - Wet

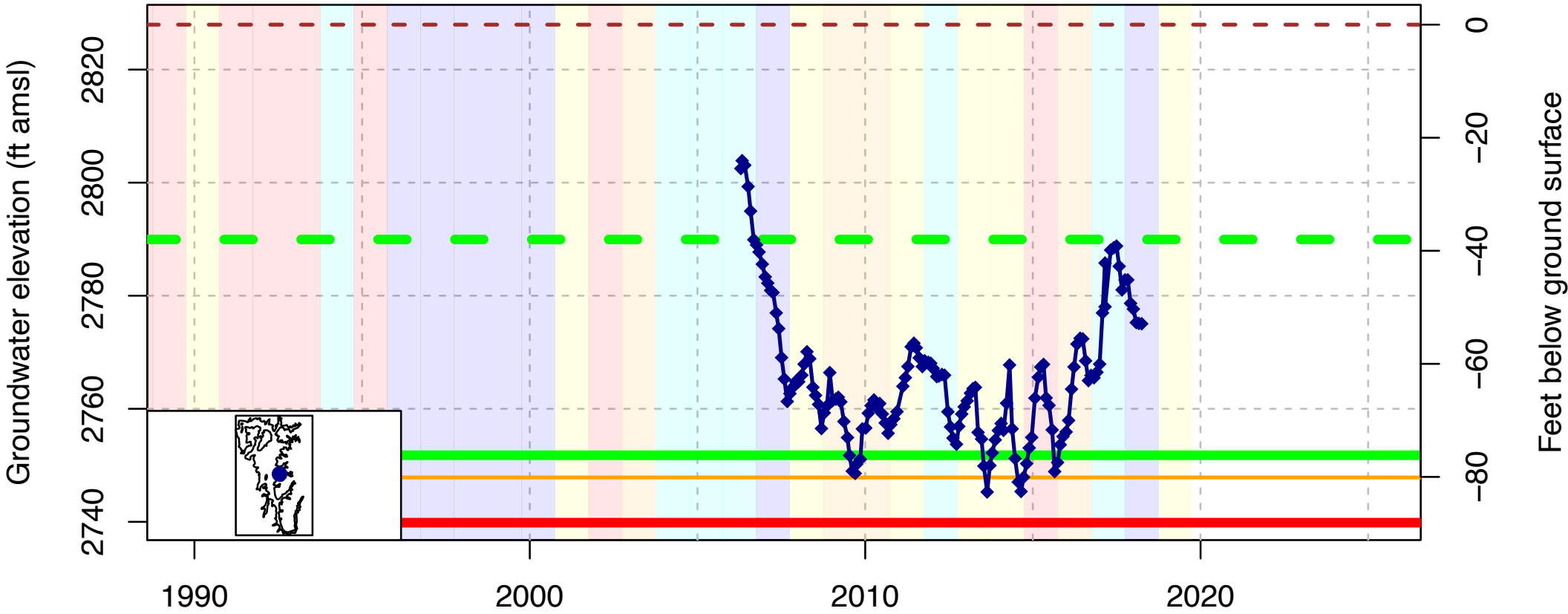
DWR Stn_ID: ; well_code: L31; well_name: L31; well_swn: NA



- - Ground Surface (2779 ft amsl)
- Measurable Objective (Upper Fall High) (10 ft bgs)
- Measurable Objective (Lower 75th Quantile) (18 ft bgs)
- Trigger (Fall Low) (22 ft bgs)
- Minimum Threshold (Exceptional Fall Low) (24 ft bgs)

- Water Year Type
- Critical
 - Dry
 - Below Normal
 - Above Normal
 - Wet

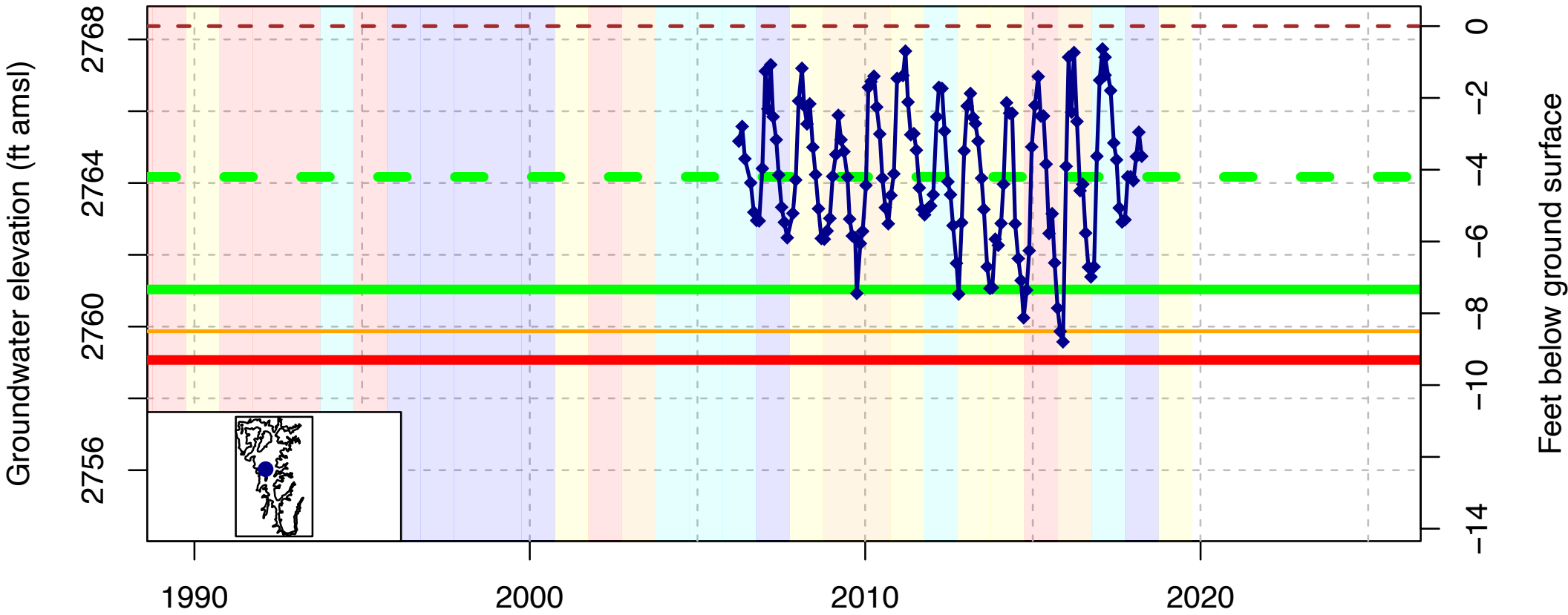
DWR Stn_ID: ; well_code: G31; well_name: G31; well_swn: NA



- - Ground Surface (2828 ft amsl)
- Measurable Objective (Upper Fall High) (38 ft bgs)
- Measurable Objective (Lower 75th Quantile) (76 ft bgs)
- Trigger (Fall Low) (80 ft bgs)
- Minimum Threshold (Exceptional Fall Low) (88 ft bgs)

- Water Year Type
- Critical
 - Dry
 - Below Normal
 - Above Normal
 - Wet

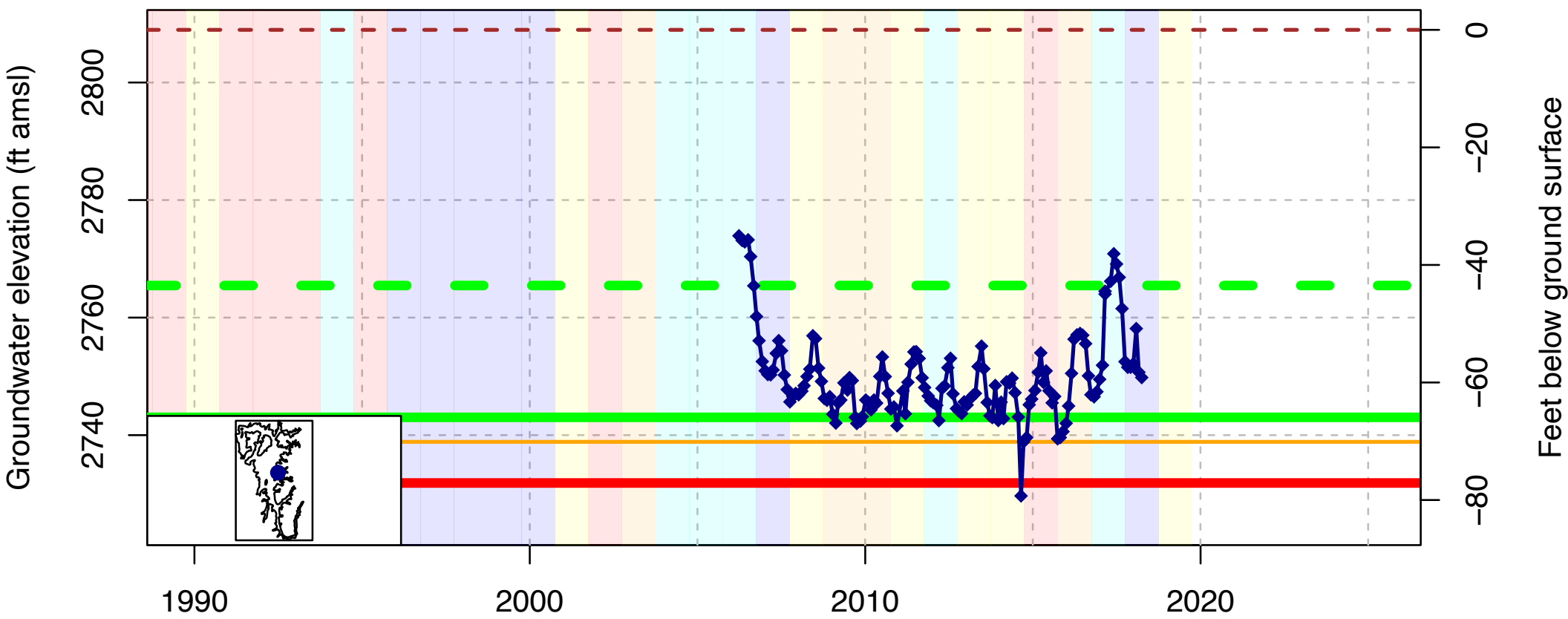
DWR Stn_ID: ; well_code: D31; well_name: D31; well_swn: NA



- - Ground Surface (2768 ft amsl)
- Measurable Objective (Upper Fall High) (4 ft bgs)
- Measurable Objective (Lower 75th Quantile) (7 ft bgs)
- Trigger (Fall Low) (8 ft bgs)
- Minimum Threshold (Exceptional Fall Low) (9 ft bgs)

- Water Year Type
- Critical
 - Dry
 - Below Normal
 - Above Normal
 - Wet

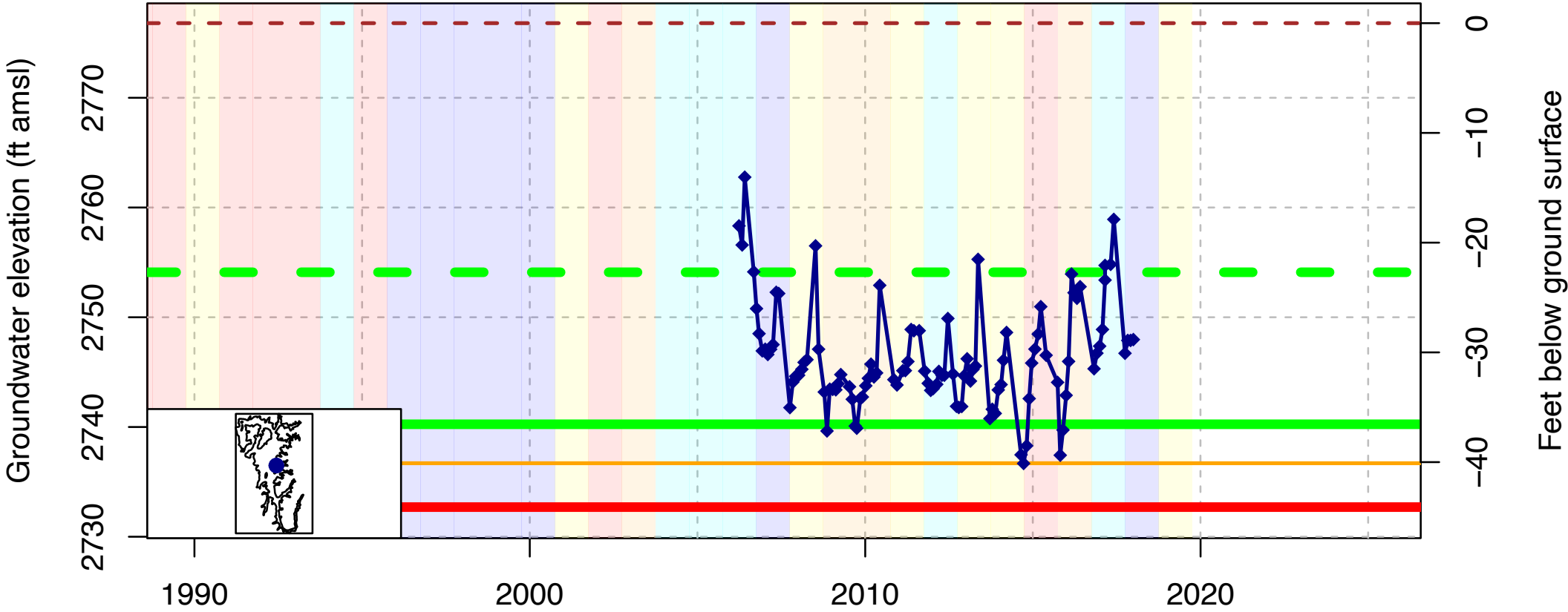
DWR Stn_ID: ; well_code: L18; well_name: L18; well_swn: NA



- - Ground Surface (2809 ft amsl)
- Measurable Objective (Upper Fall High) (44 ft bgs)
- Measurable Objective (Lower 75th Quantile) (66 ft bgs)
- Trigger (Fall Low) (70 ft bgs)
- Minimum Threshold (Exceptional Fall Low) (77 ft bgs)

- Water Year Type
- Critical
 - Dry
 - Below Normal
 - Above Normal
 - Wet

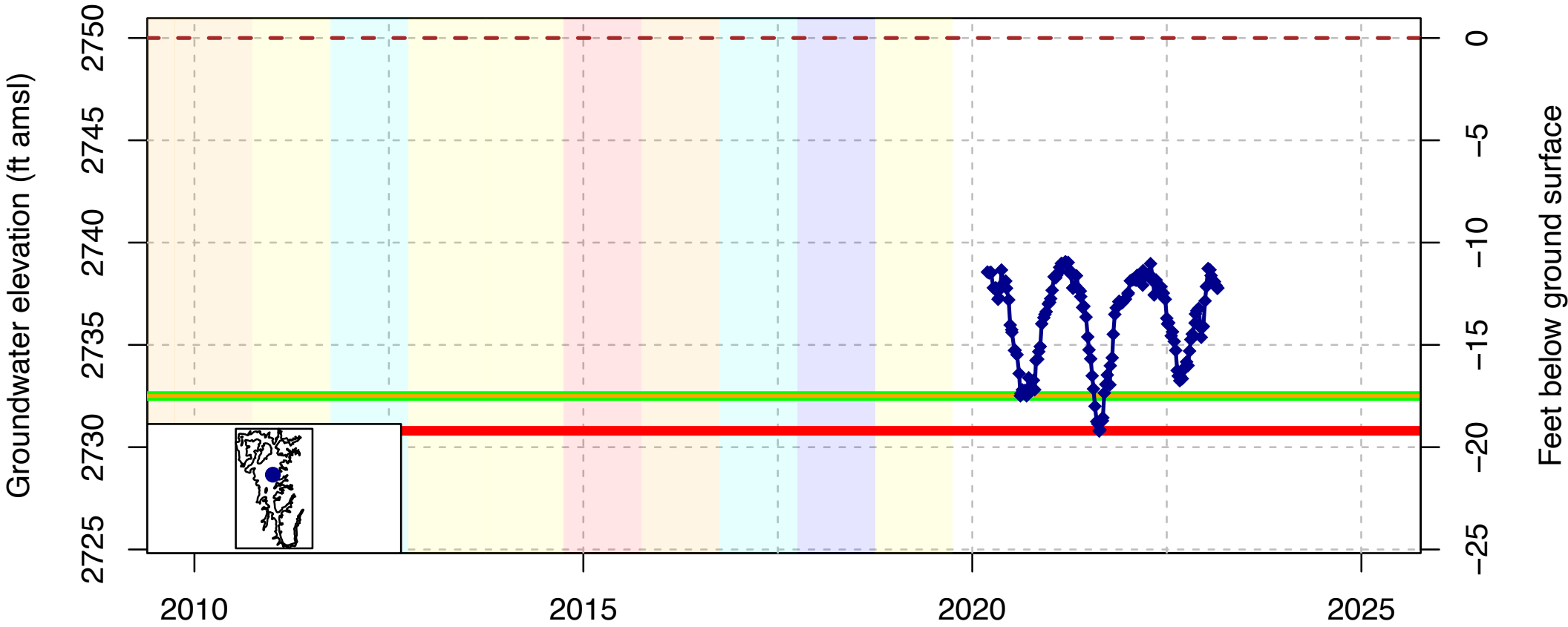
DWR Stn_ID: ; well_code: K9; well_name: K9; well_swn: NA



- Ground Surface (2777 ft amsl)
- Measurable Objective (Upper Fall High) (23 ft bgs)
- Measurable Objective (Lower 75th Quantile) (37 ft bgs)
- Trigger (Fall Low) (40 ft bgs)
- Minimum Threshold (Exceptional Fall Low) (44 ft bgs)

- Water Year Type
- Critical
 - Dry
 - Below Normal
 - Above Normal
 - Wet

DWR Stn_ID: ; well_code: SCT_183; well_name: NA; well_swn: NA

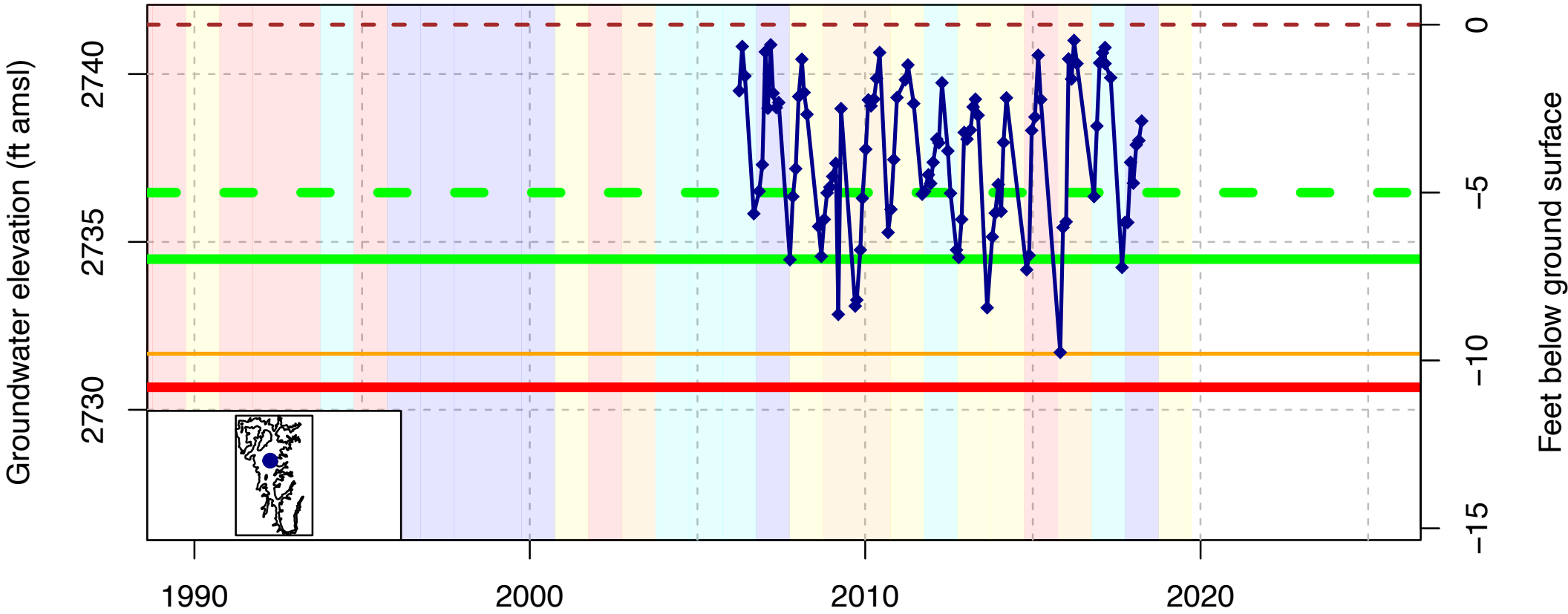


- - Ground Surface (2750 ft amsl)
— Measurable Objective (17.5 ft bgs)
— Trigger (17.5 ft bgs)
— Minimum Threshold (19.2 ft bgs)

Water Year Type

- Critical
- Dry
- Below Normal
- Above Normal
- Wet

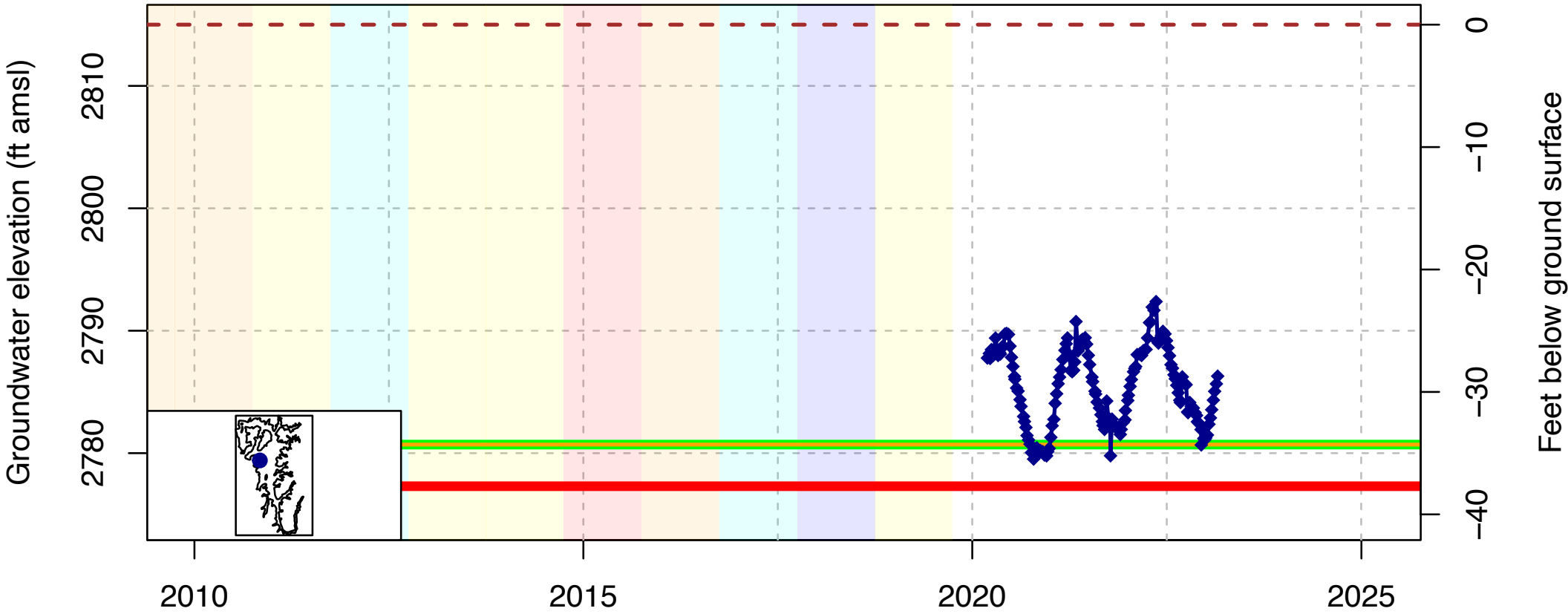
DWR Stn_ID: ; well_code: H6; well_name: H6; well_swn: NA



--- Ground Surface (2741 ft amsl)
--- Measurable Objective (Upper Fall High) (5 ft bgs)
--- Measurable Objective (Lower 75th Quantile) (7 ft bgs)
--- Trigger (Fall Low) (10 ft bgs)
--- Minimum Threshold (Exceptional Fall Low) (11 ft bgs)

Water Year Type
Critical
Dry
Below Normal
Above Normal
Wet

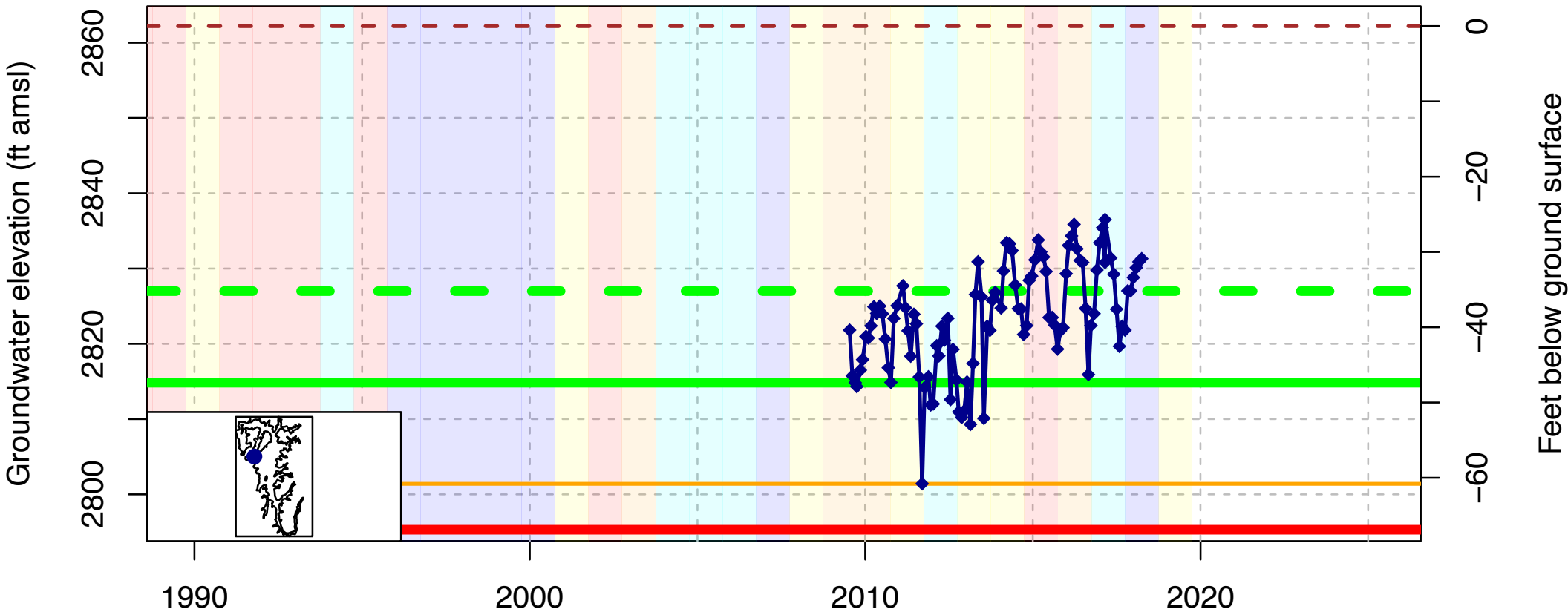
DWR Stn_ID: ; well_code: SCT_186; well_name: NA; well_swn: NA



- - Ground Surface (2815 ft amsl)
Measurable Objective (34.3 ft bgs)
Trigger (34.3 ft bgs)
Minimum Threshold (37.7 ft bgs)

Water Year Type
Critical
Dry
Below Normal
Above Normal
Wet

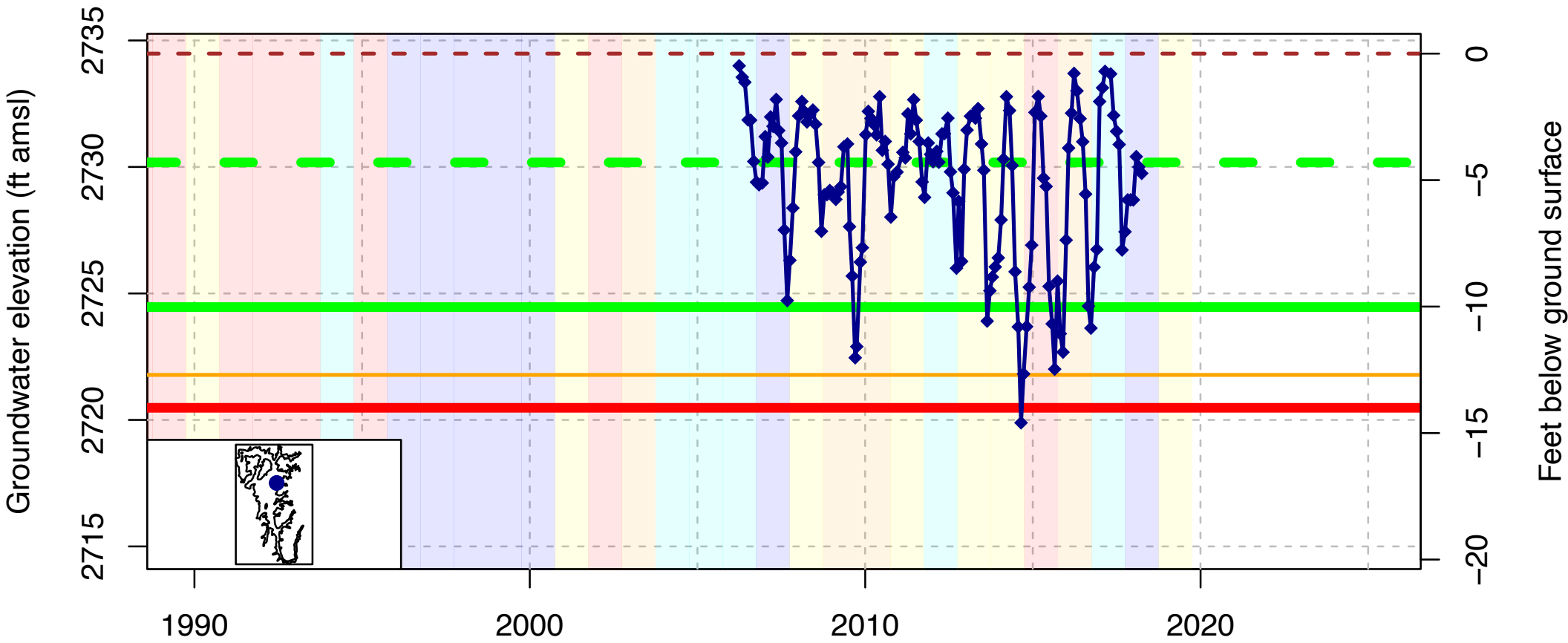
DWR Stn_ID: ; well_code: L32; well_name: L32; well_swn: NA



- - Ground Surface (2862 ft amsl)
- Measurable Objective (Upper Fall High) (35 ft bgs)
- Measurable Objective (Lower 75th Quantile) (47 ft bgs)
- Trigger (Fall Low) (61 ft bgs)
- Minimum Threshold (Exceptional Fall Low) (67 ft bgs)

- Water Year Type
- Critical
 - Dry
 - Below Normal
 - Above Normal
 - Wet

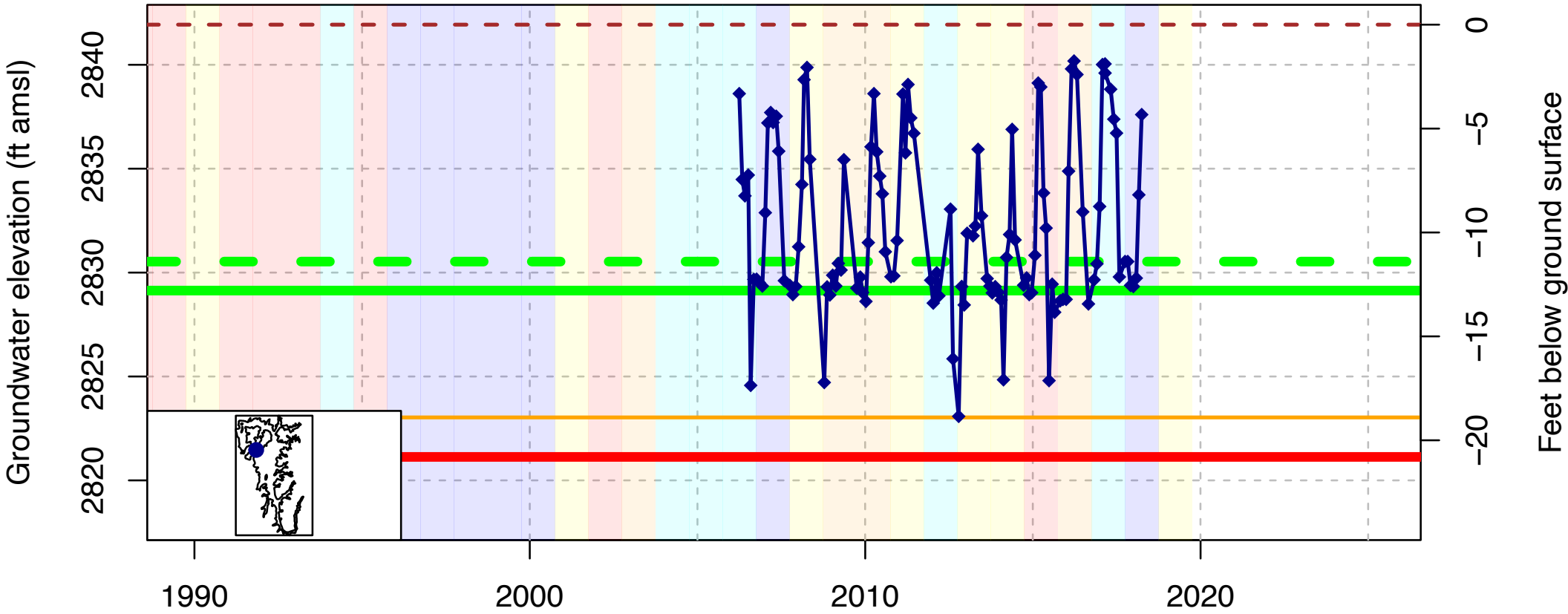
DWR Stn_ID: ; well_code: Q32; well_name: Q32; well_swn: NA



- - Ground Surface (2734 ft amsl)
- Measurable Objective (Upper Fall High) (4 ft bgs)
- Measurable Objective (Lower 75th Quantile) (10 ft bgs)
- Trigger (Fall Low) (13 ft bgs)
- Minimum Threshold (Exceptional Fall Low) (14 ft bgs)

- Water Year Type
- Critical
 - Dry
 - Below Normal
 - Above Normal
 - Wet

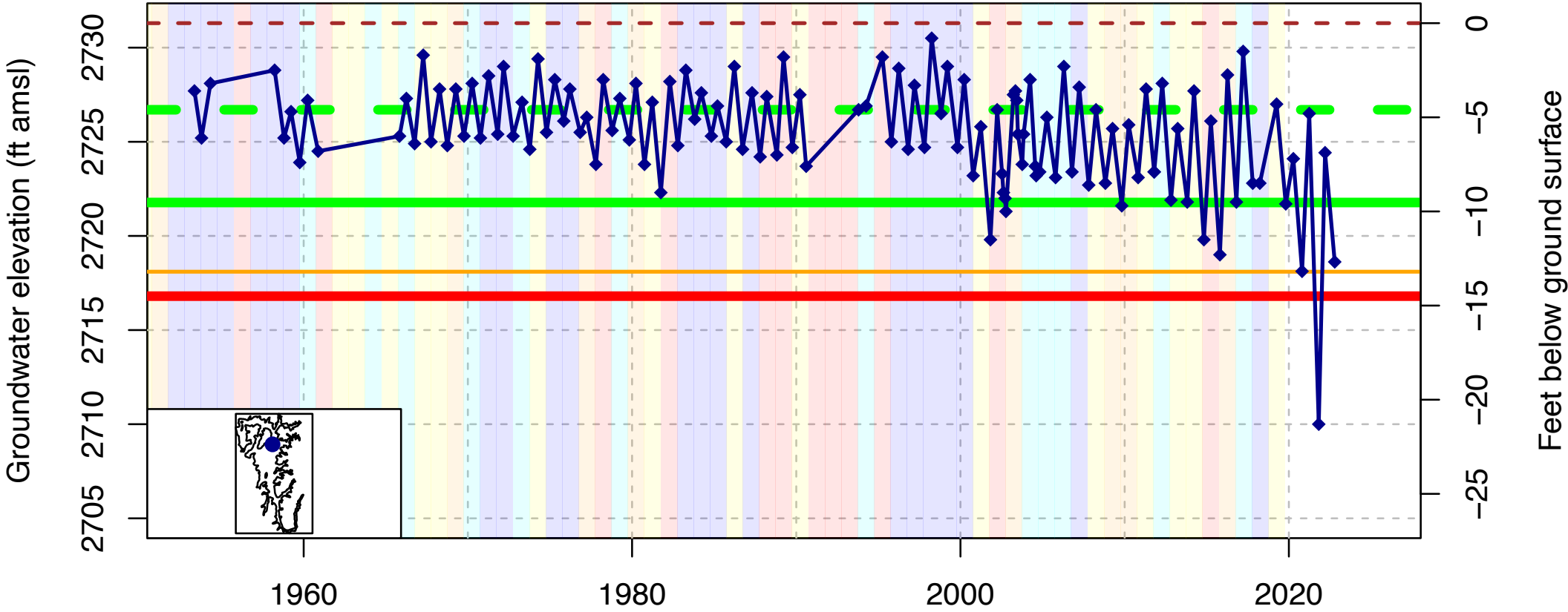
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- - Ground Surface (2842 ft amsl)
- Measurable Objective (Upper Fall High) (11 ft bgs)
- Measurable Objective (Lower 75th Quantile) (13 ft bgs)
- Trigger (Fall Low) (19 ft bgs)
- Minimum Threshold (Exceptional Fall Low) (21 ft bgs)

- Water Year Type
- Critical
 - Dry
 - Below Normal
 - Above Normal
 - Wet

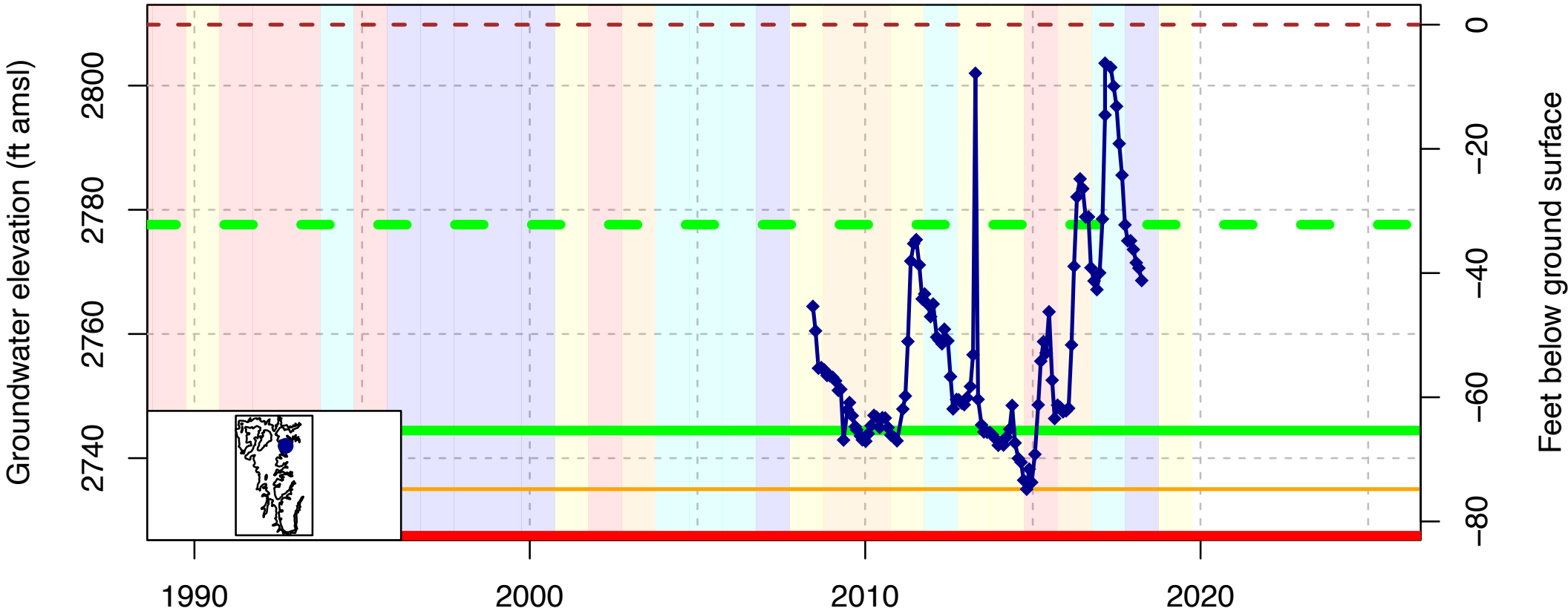
DWR Stn_ID: ; well_code: 415644N1228541W001; well_name: 43N09W23F001M; well_swn: 43N09W23F001M



- Ground Surface (2731 ft amsl)
- Measurable Objective (Upper Fall High) (5 ft bgs)
- Measurable Objective (Lower 75th Quantile) (10 ft bgs)
- Trigger (Fall Low) (13 ft bgs)
- Minimum Threshold (Exceptional Fall Low) (14 ft bgs)

- Water Year Type
- Critical
 - Dry
 - Below Normal
 - Above Normal
 - Wet

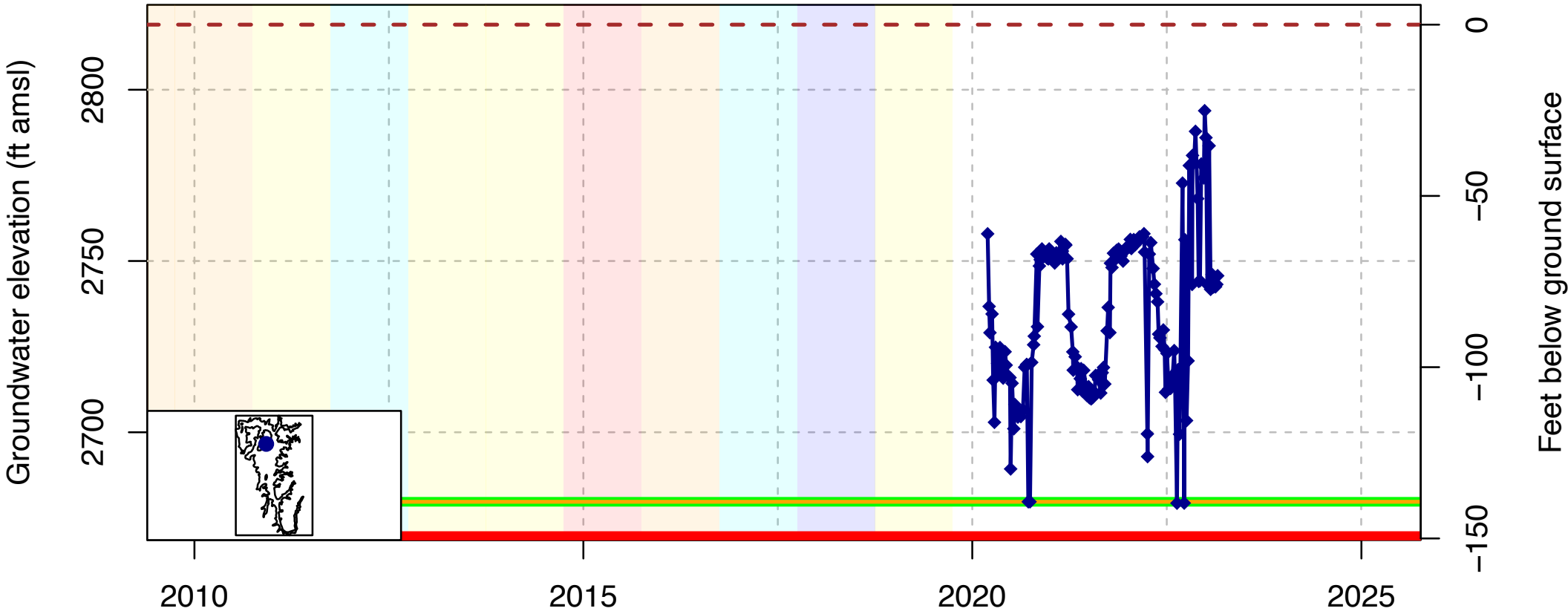
DWR Stn_ID: ; well_code: M2; well_name: M2; well_swn: NA



- - Ground Surface (2810 ft amsl)
- Measurable Objective (Upper Fall High) (32 ft bgs)
- Measurable Objective (Lower 75th Quantile) (65 ft bgs)
- Trigger (Fall Low) (75 ft bgs)
- Minimum Threshold (Exceptional Fall Low) (82 ft bgs)

- Water Year Type
- Critical
 - Dry
 - Below Normal
 - Above Normal
 - Wet

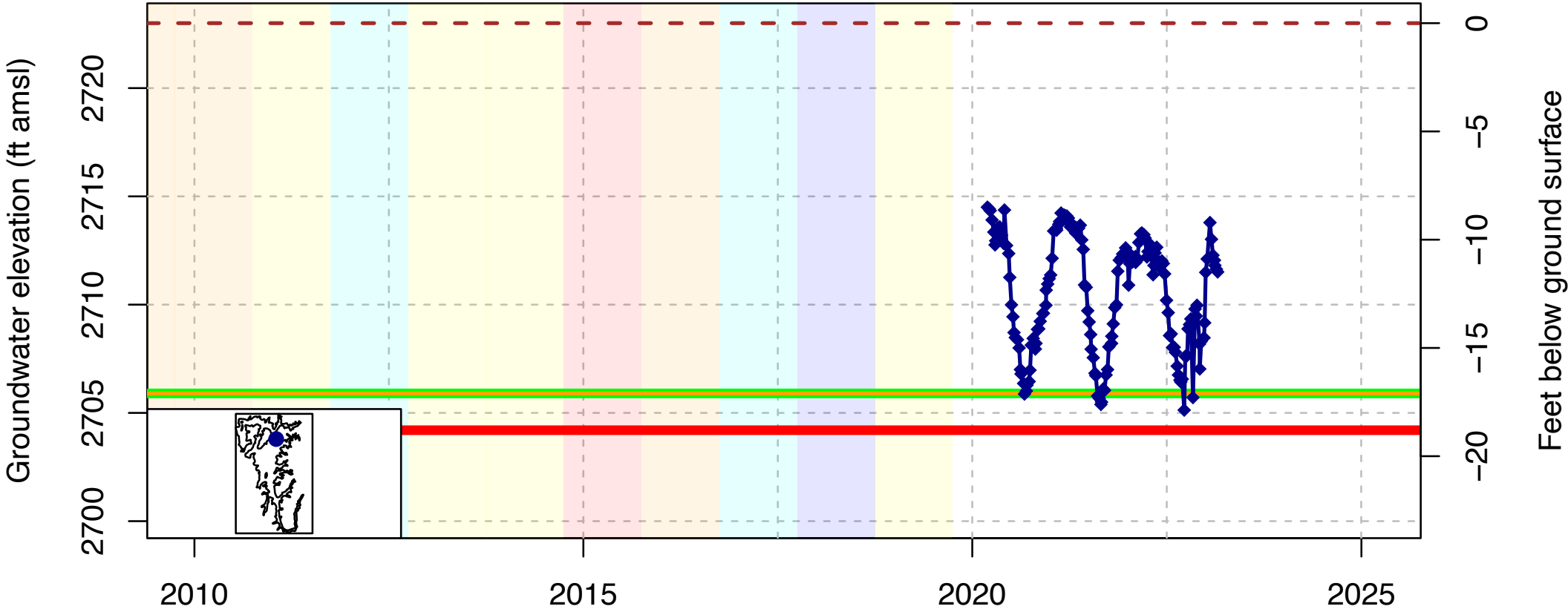
DWR Stn_ID: ; well_code: SCT_202; well_name: NA; well_swn: NA



- - Ground Surface (2819 ft amsl)
Measurable Objective (139.3 ft bgs)
Trigger (139.3 ft bgs)
Minimum Threshold (149.3 ft bgs)

Water Year Type
Critical
Dry
Below Normal
Above Normal
Wet

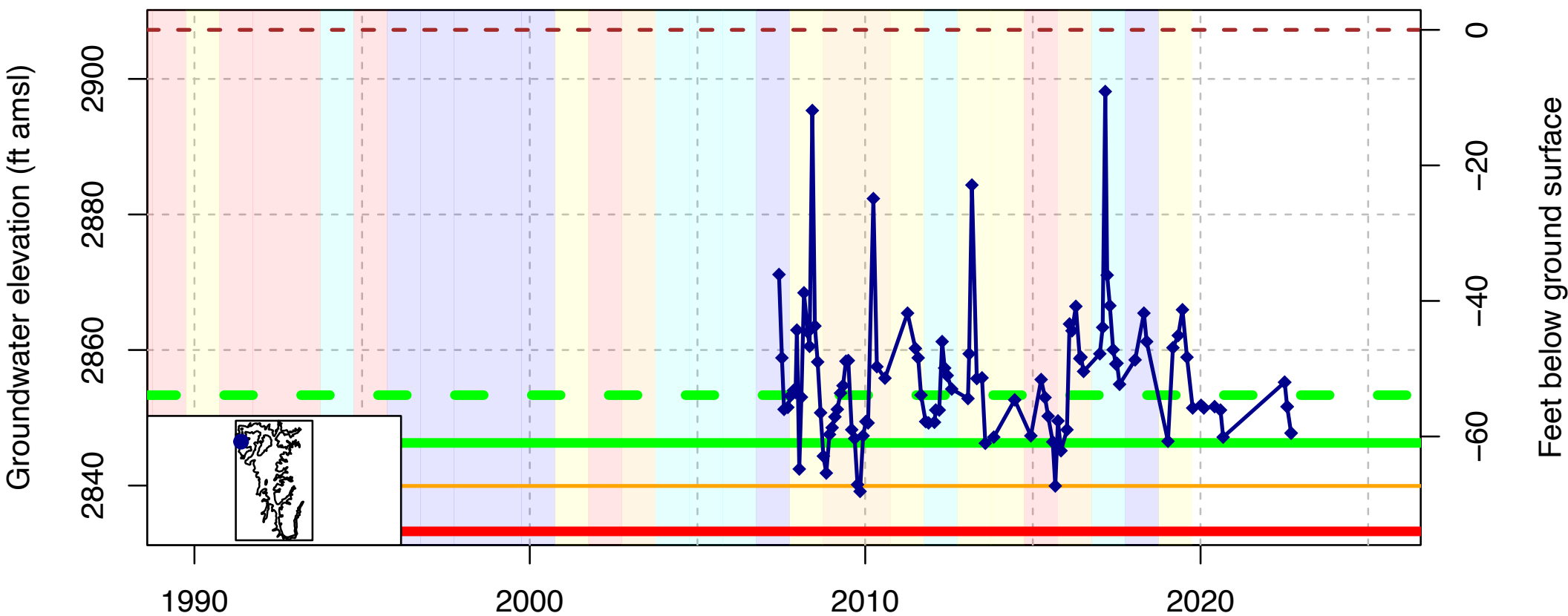
DWR Stn_ID: ; well_code: SCT_173; well_name: NA; well_swn: NA



- - Ground Surface (2723 ft amsl)
Measurable Objective (17.1 ft bgs)
Trigger (17.1 ft bgs)
Minimum Threshold (18.8 ft bgs)

Water Year Type
Critical
Dry
Below Normal
Above Normal
Wet

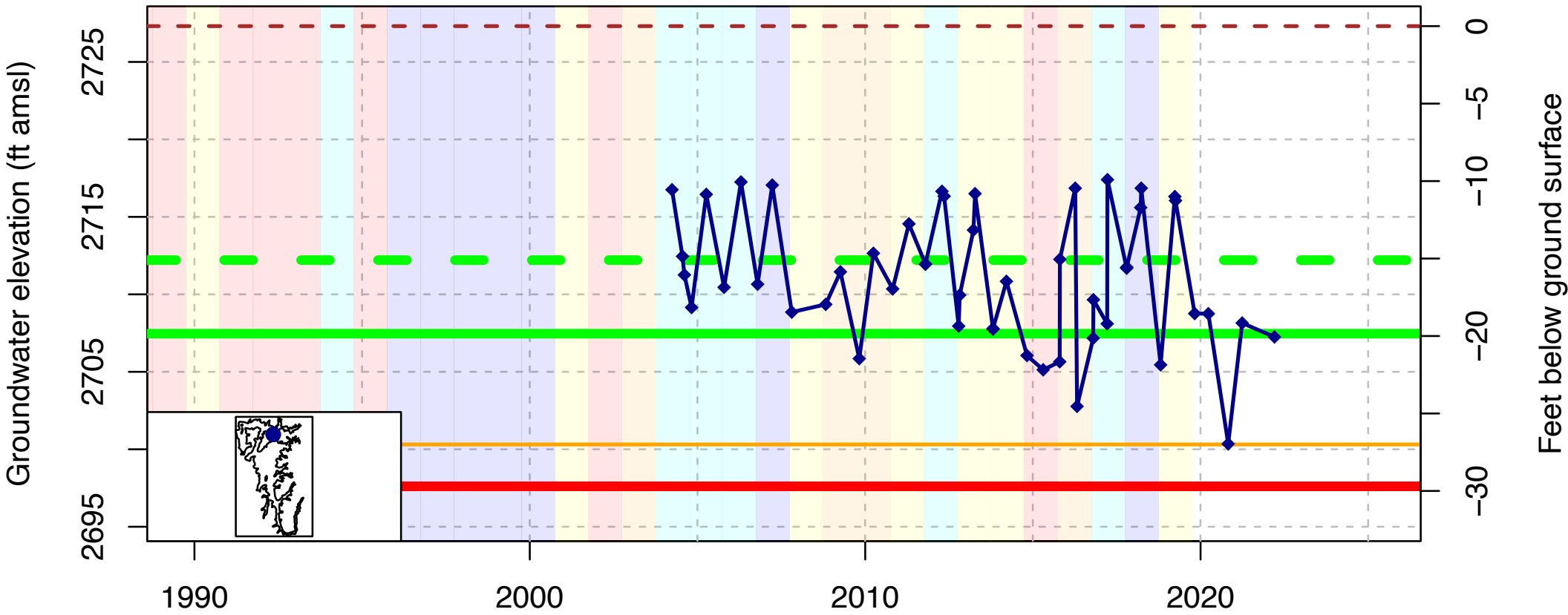
DWR Stn_ID: ; well_code: QV18; well_name: 12912_Yamitch; well_swn: NA



- - Ground Surface (2907 ft amsl)
- Measurable Objective (Upper Fall High) (54 ft bgs)
- Measurable Objective (Lower 75th Quantile) (61 ft bgs)
- Trigger (Fall Low) (67 ft bgs)
- Minimum Threshold (Exceptional Fall Low) (74 ft bgs)

- Water Year Type
- Critical
 - Dry
 - Below Normal
 - Above Normal
 - Wet

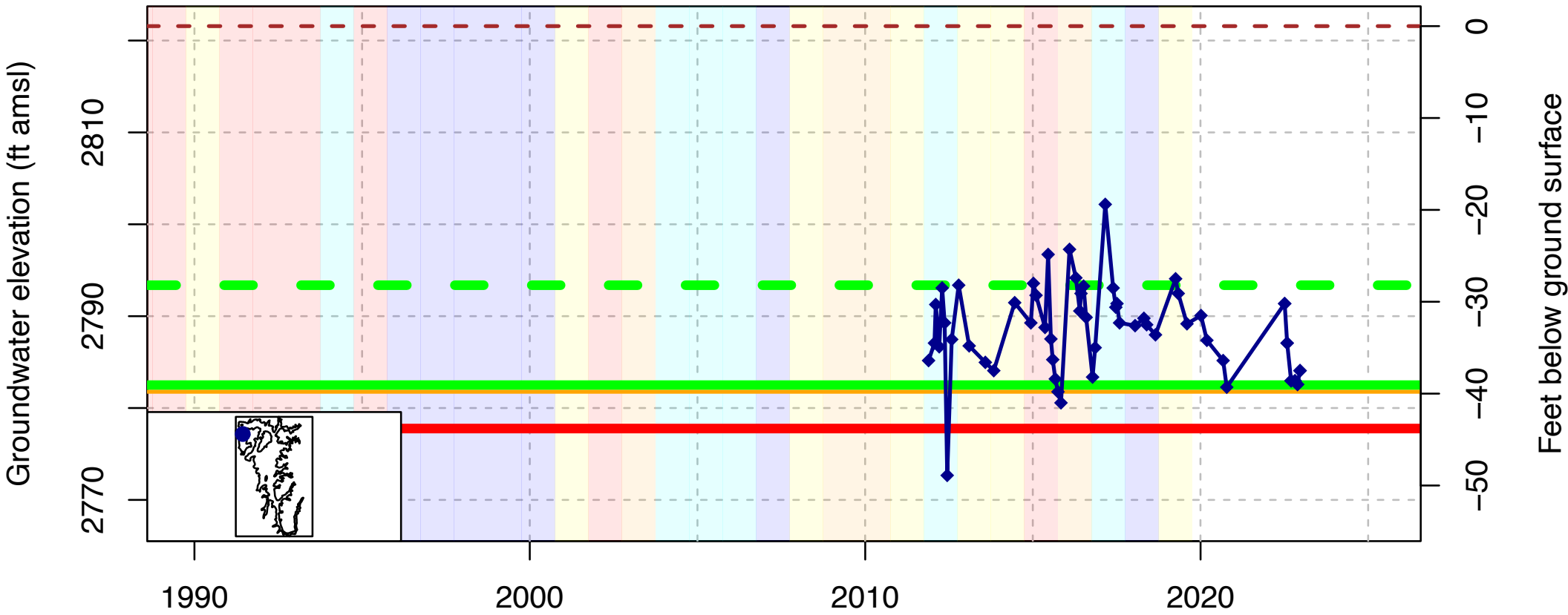
DWR Stn_ID: ; well_code: 416033N1228528W001; well_name: SCV03; well_swn: 43N09W02P002M



--- Ground Surface (2727 ft amsl)
--- Measurable Objective (Upper Fall High) (15 ft bgs)
--- Measurable Objective (Lower 75th Quantile) (20 ft bgs)
--- Trigger (Fall Low) (27 ft bgs)
--- Minimum Threshold (Exceptional Fall Low) (30 ft bgs)

Water Year Type
Critical
Dry
Below Normal
Above Normal
Wet

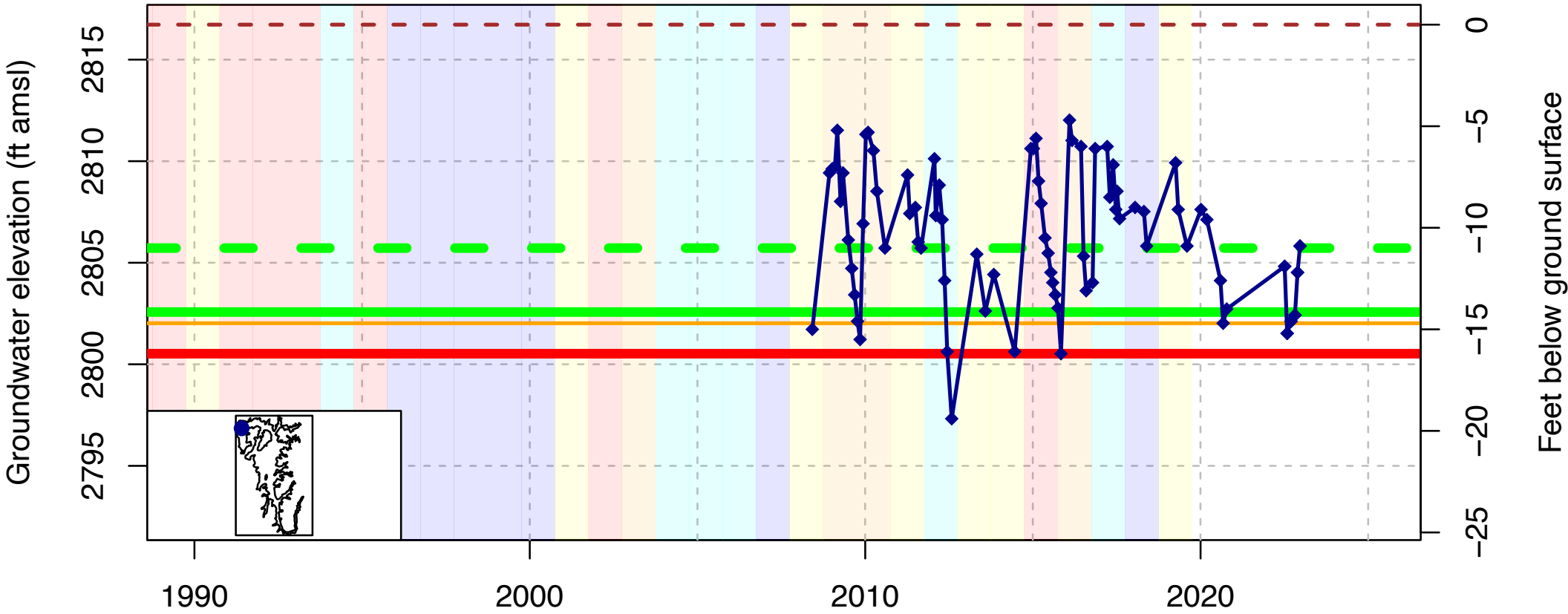
DWR Stn_ID: ; well_code: QV09; well_name: 13616_QuartzValleyRd; well_swn: NA



- - Ground Surface (2822 ft amsl)
- - - Measurable Objective (Upper Fall High) (28 ft bgs)
- Measurable Objective (Lower 75th Quantile) (39 ft bgs)
- Trigger (Fall Low) (40 ft bgs)
- Minimum Threshold (Exceptional Fall Low) (44 ft bgs)

- Water Year Type
- Critical
 - Dry
 - Below Normal
 - Above Normal
 - Wet

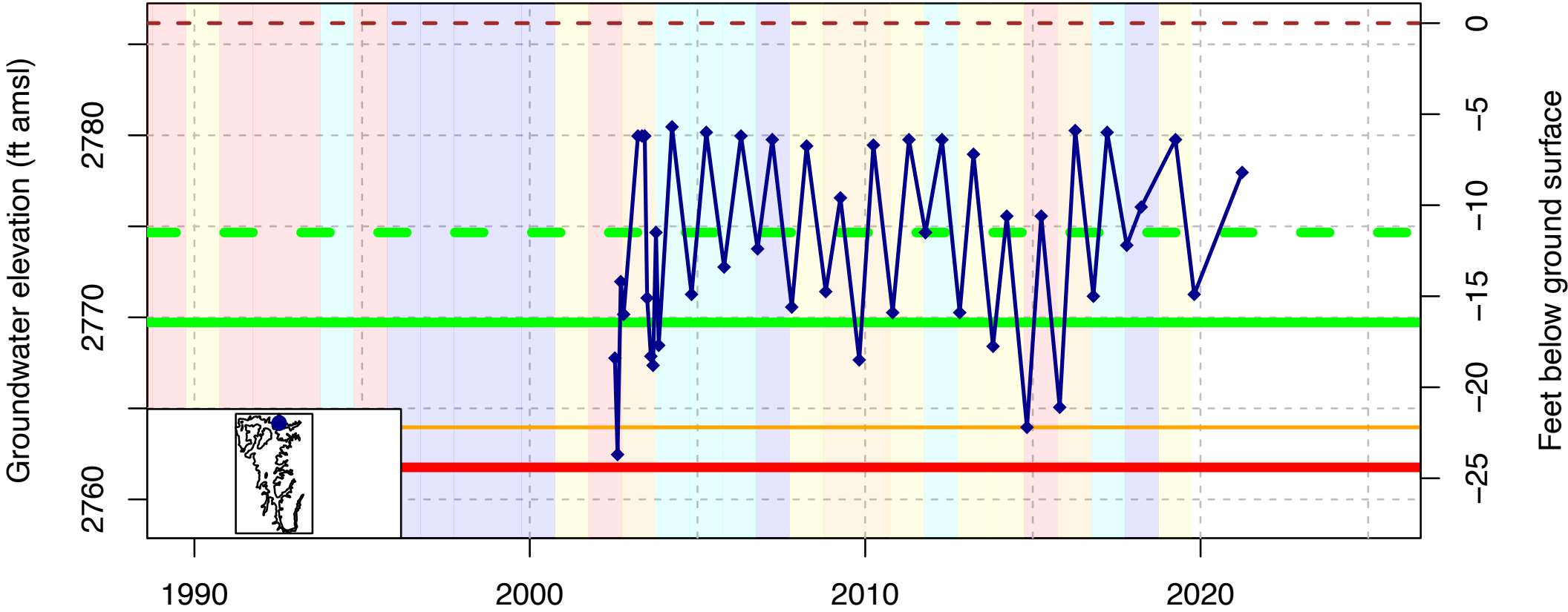
DWR Stn_ID: ; well_code: QV01; well_name: 9009_BigMeadows; well_swn: NA



--- Ground Surface (2817 ft amsl)
--- Measurable Objective (Upper Fall High) (11 ft bgs)
--- Measurable Objective (Lower 75th Quantile) (14 ft bgs)
--- Trigger (Fall Low) (15 ft bgs)
--- Minimum Threshold (Exceptional Fall Low) (16 ft bgs)

Water Year Type
Critical
Dry
Below Normal
Above Normal
Wet

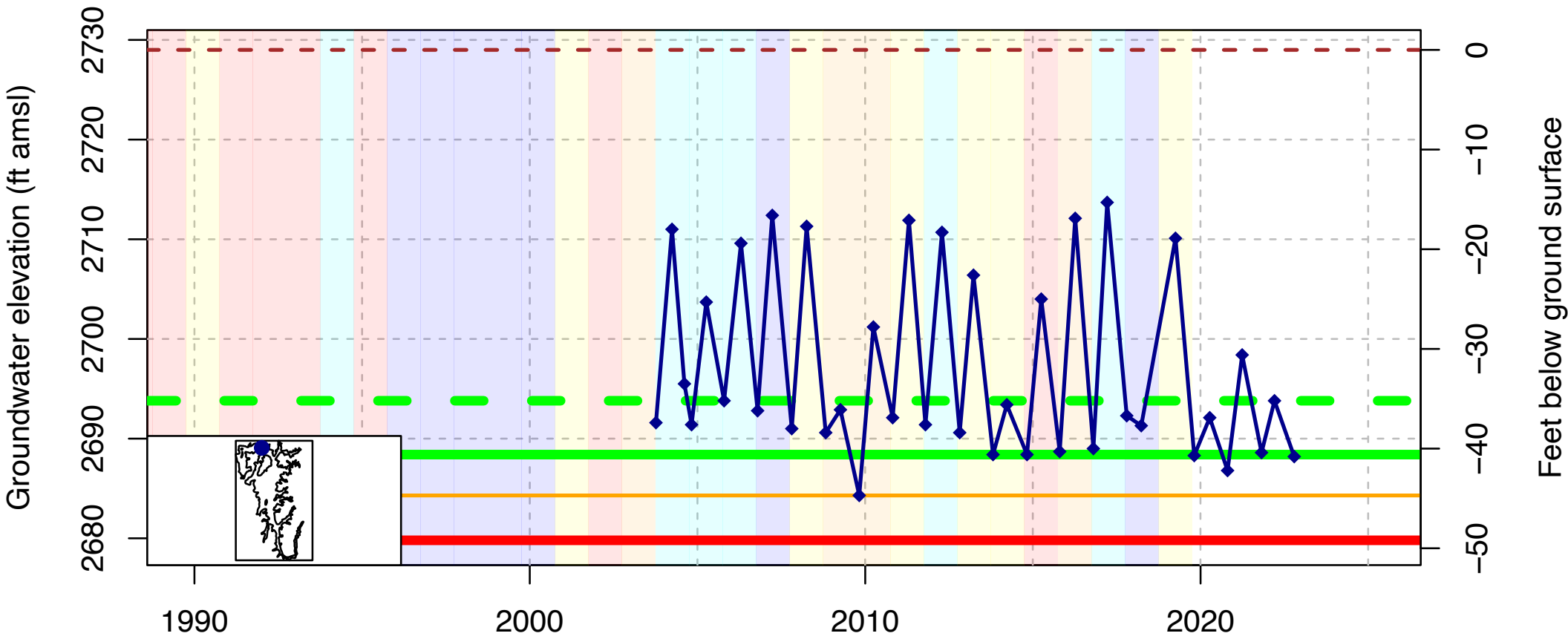
DWR Stn_ID: ; well_code: 416288N1228303W001; well_name: 44N09W25R001M; well_swn: 44N09W25R001M



- - Ground Surface (2786 ft amsl)
- Measurable Objective (Upper Fall High) (12 ft bgs)
- Measurable Objective (Lower 75th Quantile) (16 ft bgs)
- Trigger (Fall Low) (22 ft bgs)
- Minimum Threshold (Exceptional Fall Low) (24 ft bgs)

- Water Year Type
- Critical
 - Dry
 - Below Normal
 - Above Normal
 - Wet

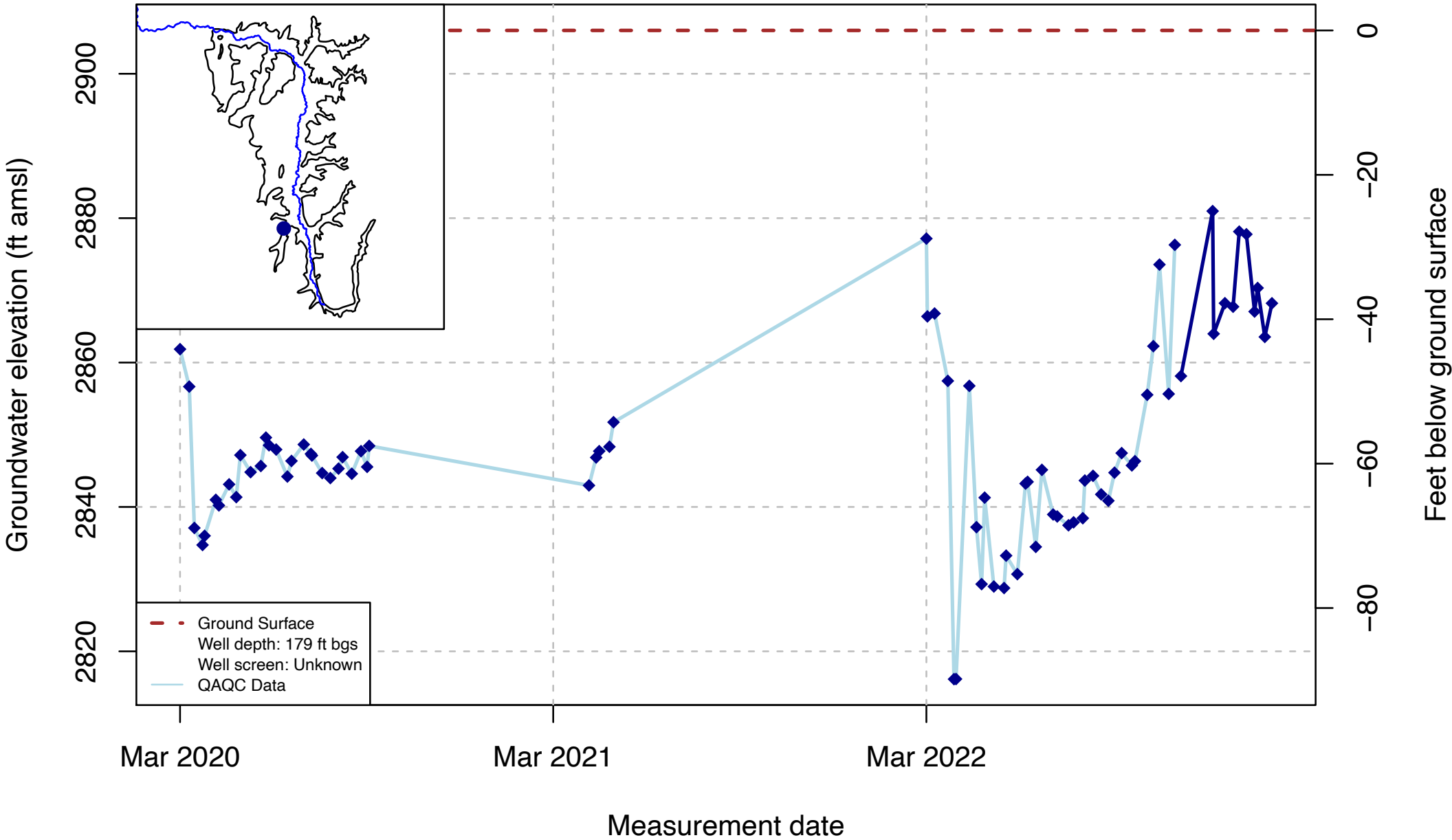
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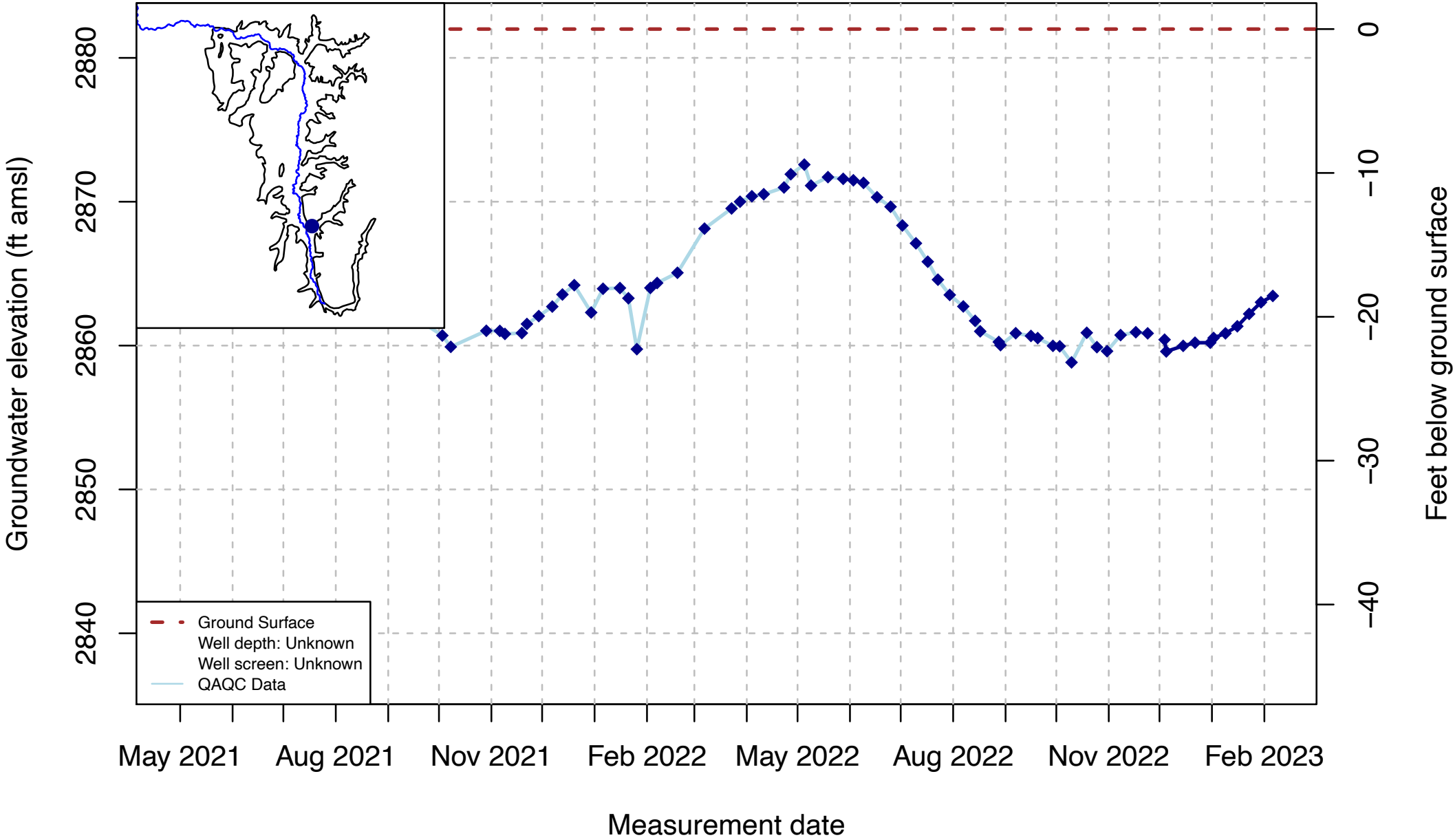
- - - Ground Surface (2729 ft amsl)
- Measurable Objective (Upper Fall High) (35 ft bgs)
- Measurable Objective (Lower 75th Quantile) (41 ft bgs)
- Trigger (Fall Low) (45 ft bgs)
- Minimum Threshold (Exceptional Fall Low) (49 ft bgs)

- Water Year Type
- Critical
 - Dry
 - Below Normal
 - Above Normal
 - Wet

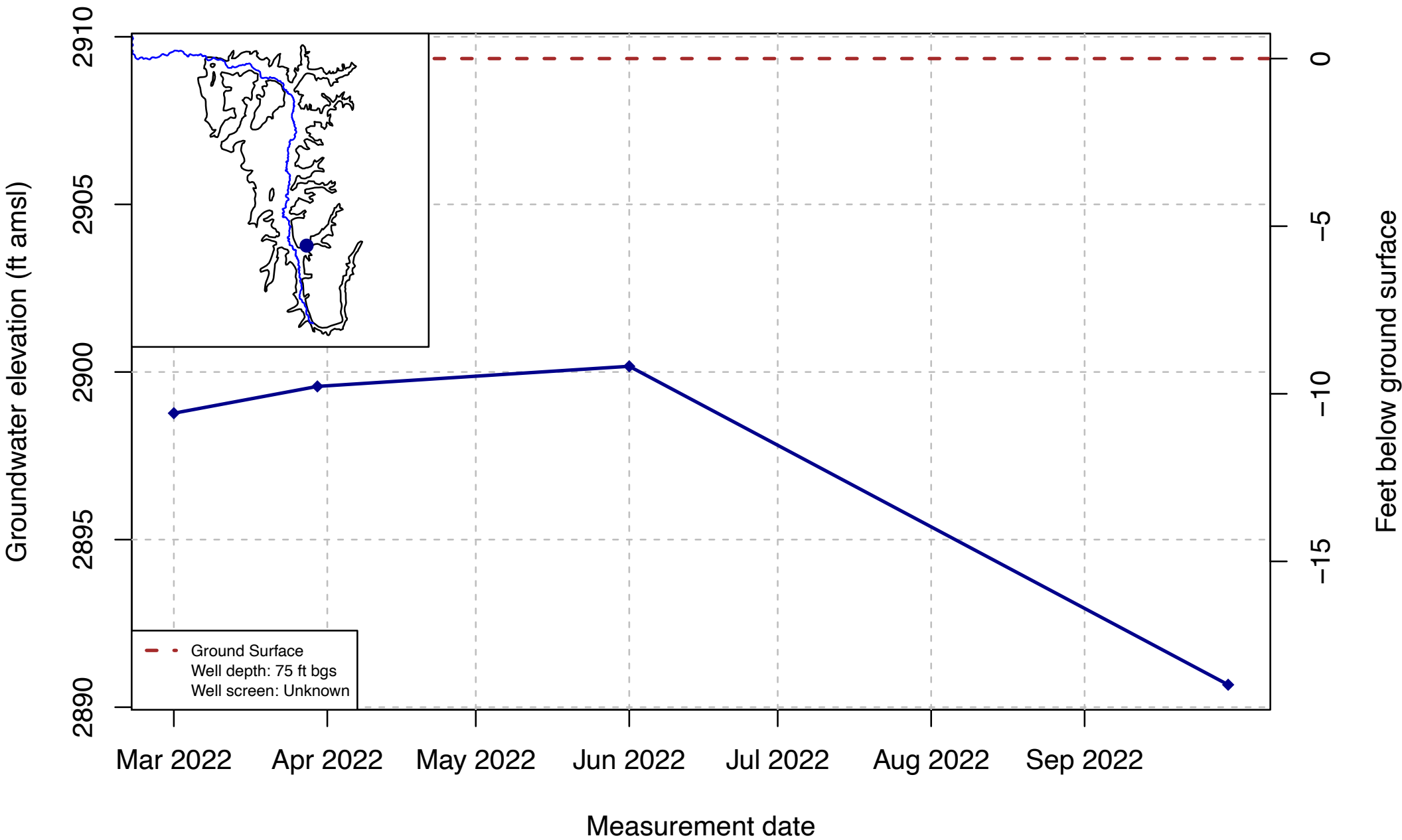
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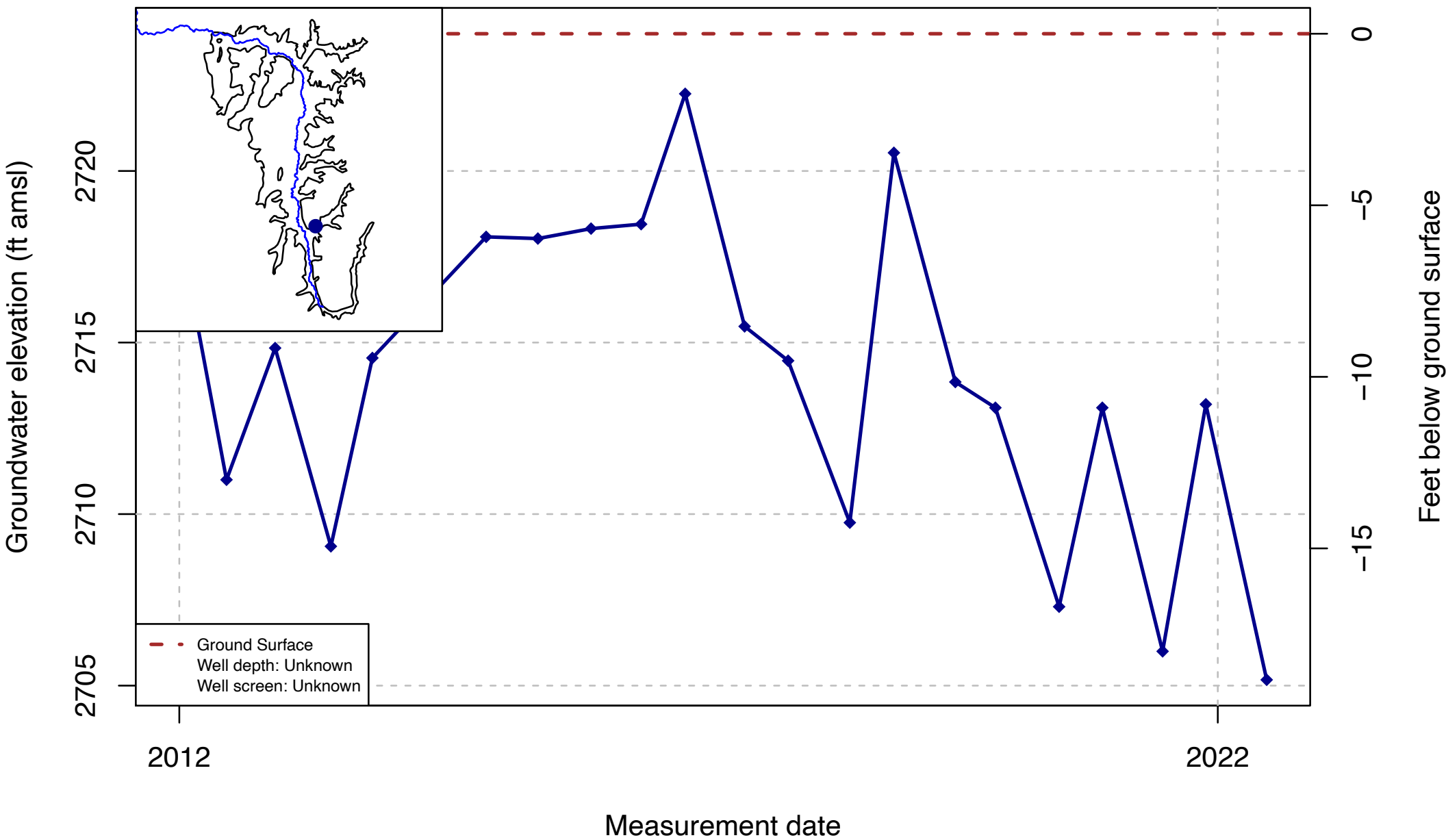
Well Code: SCT_198; SWN: NA



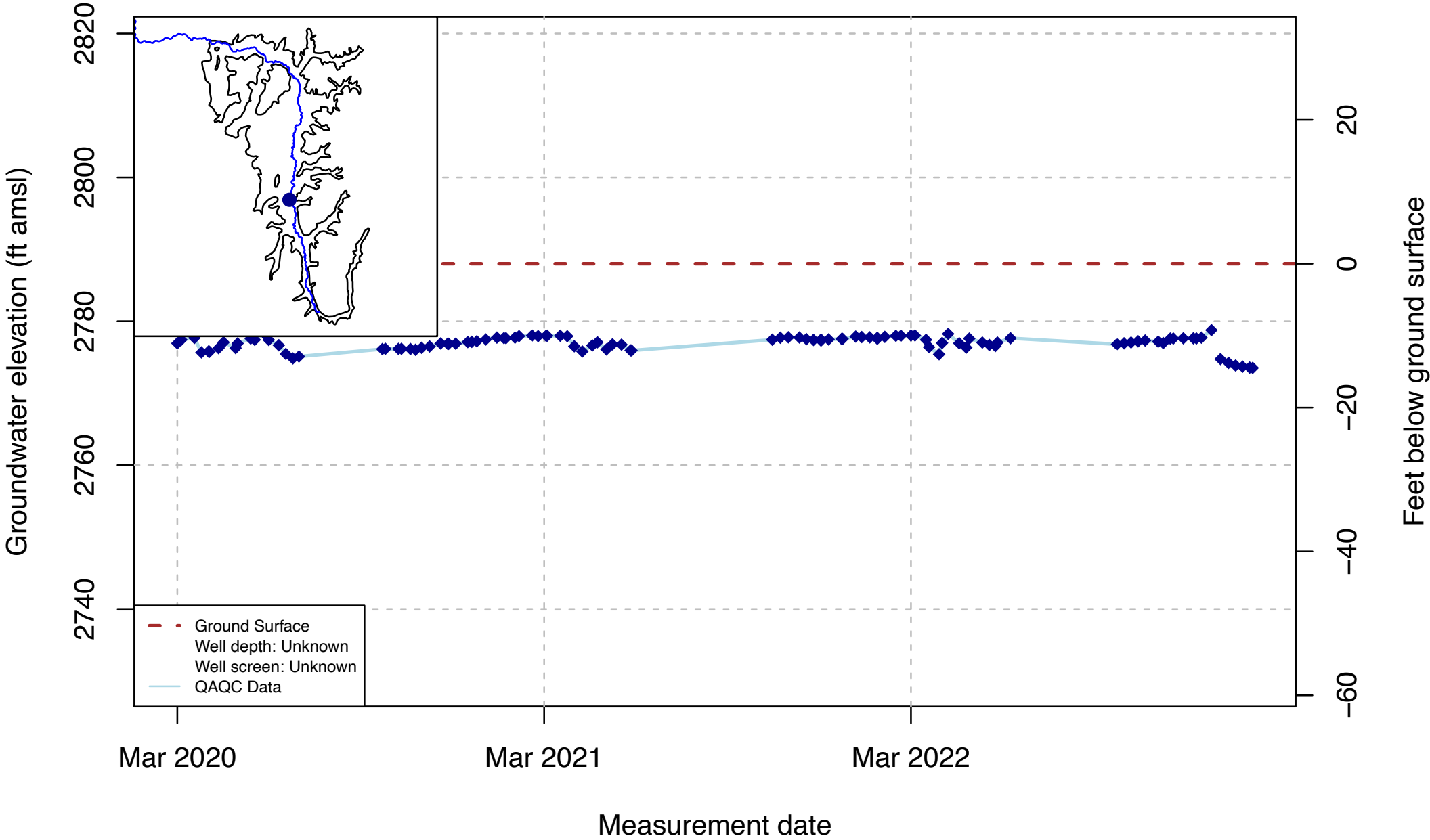
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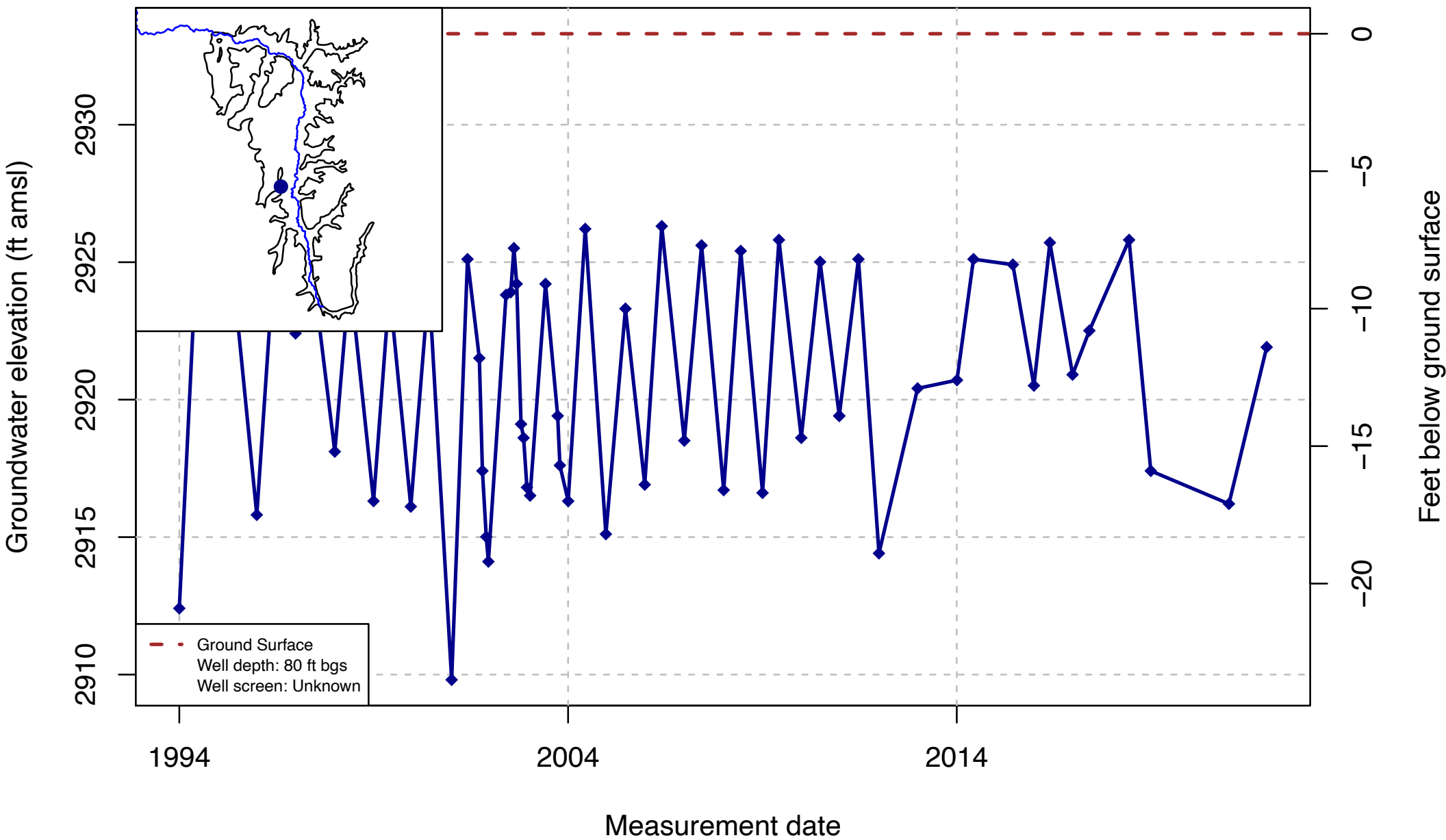
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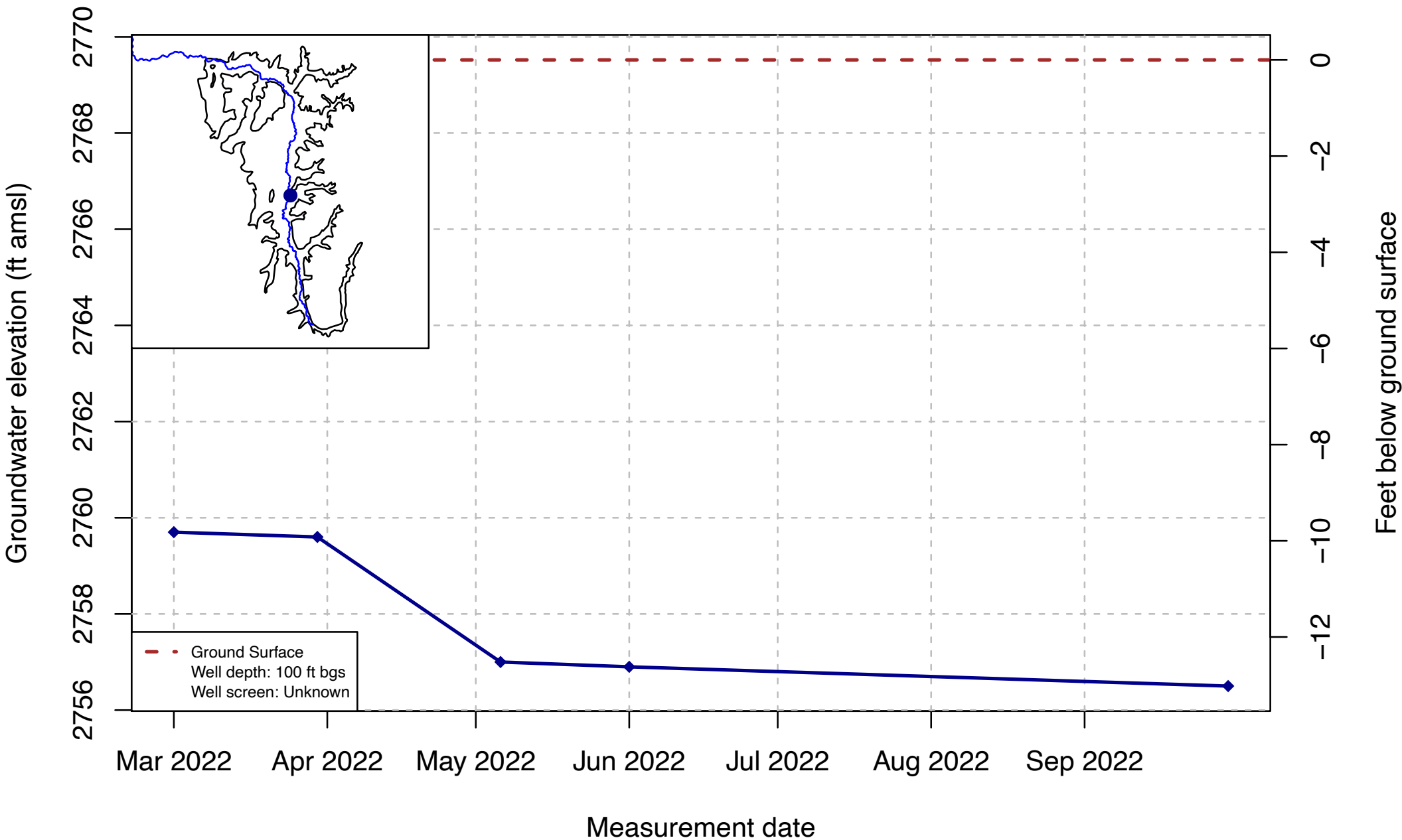
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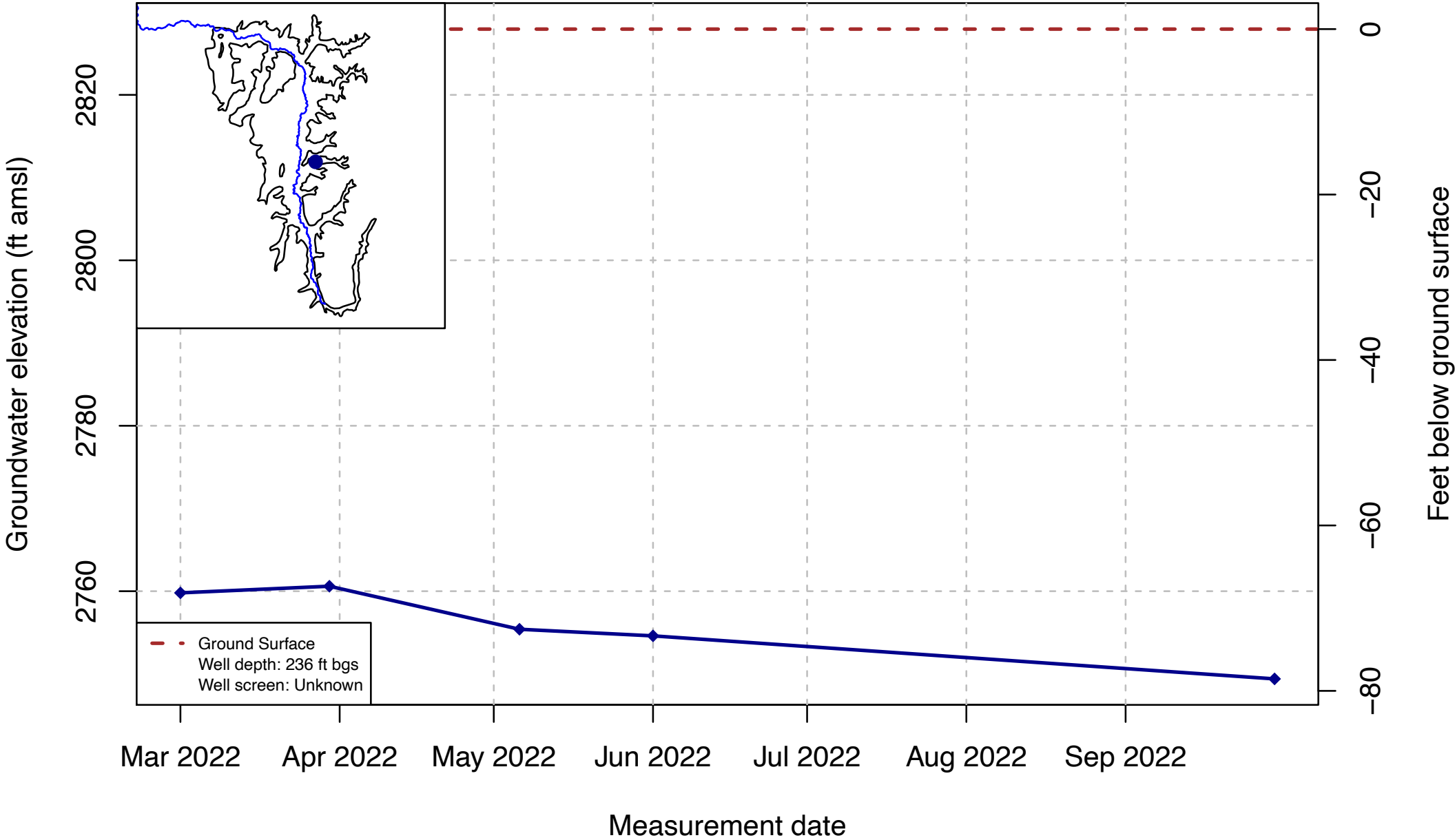
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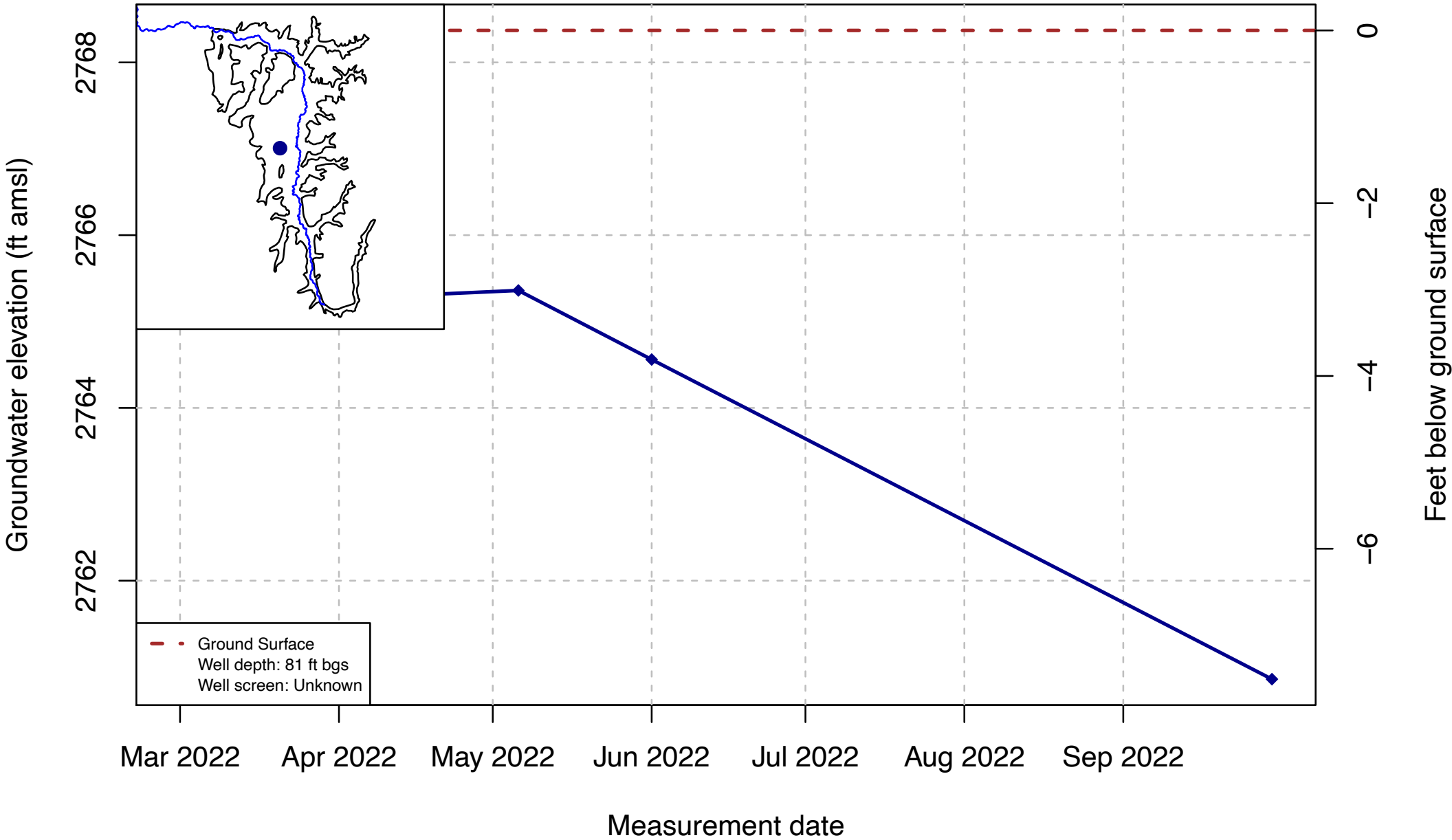
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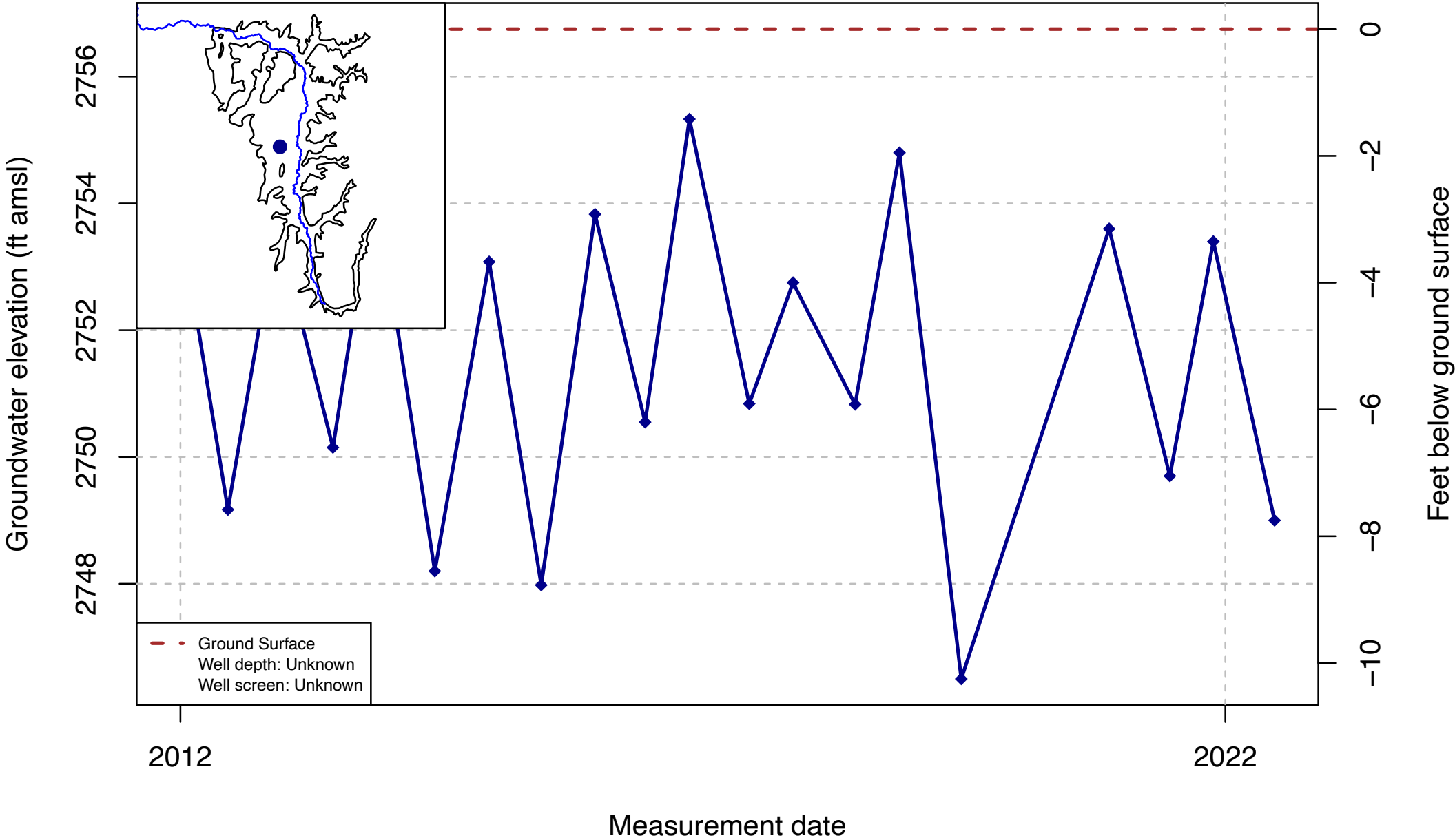
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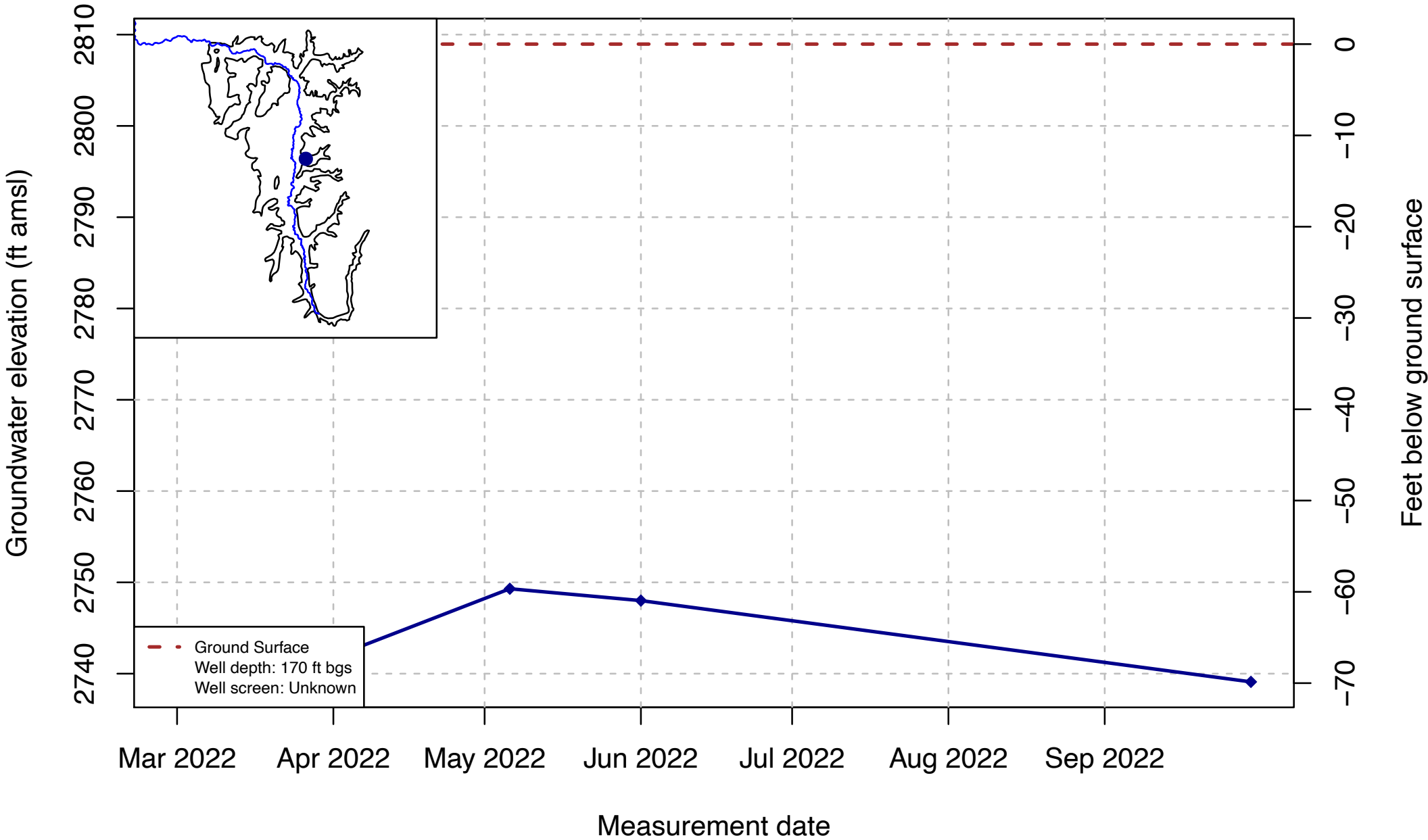
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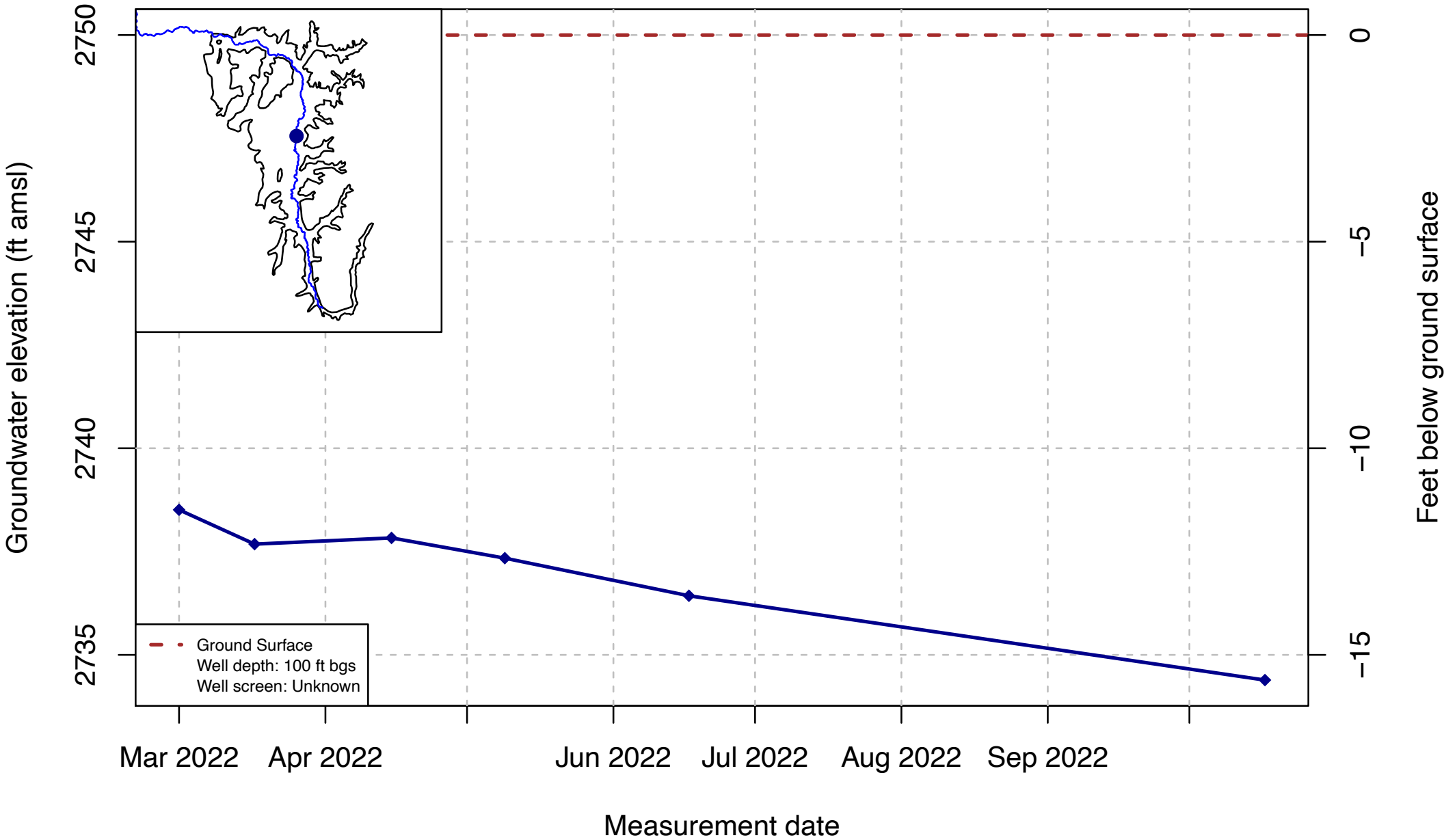
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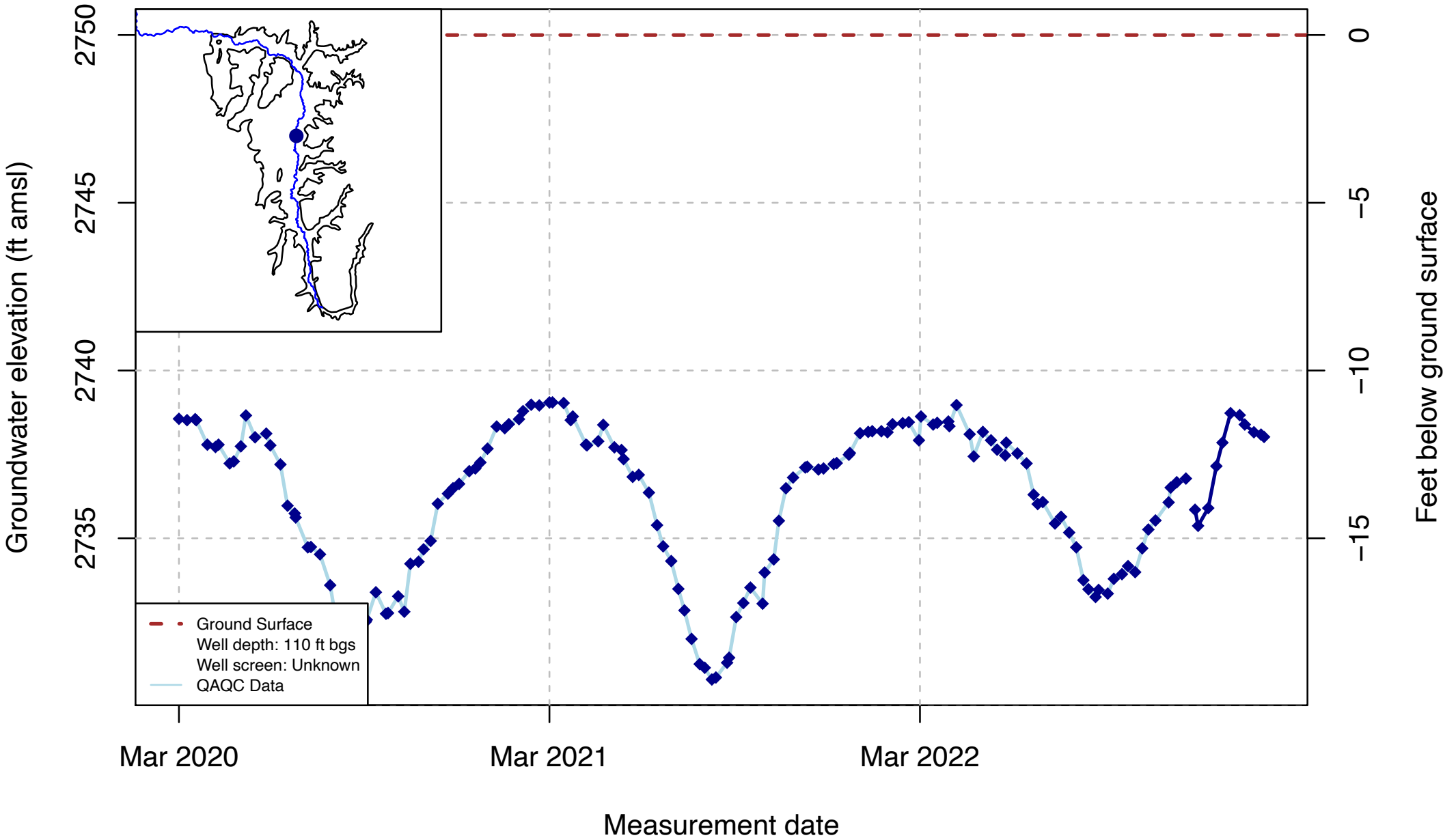
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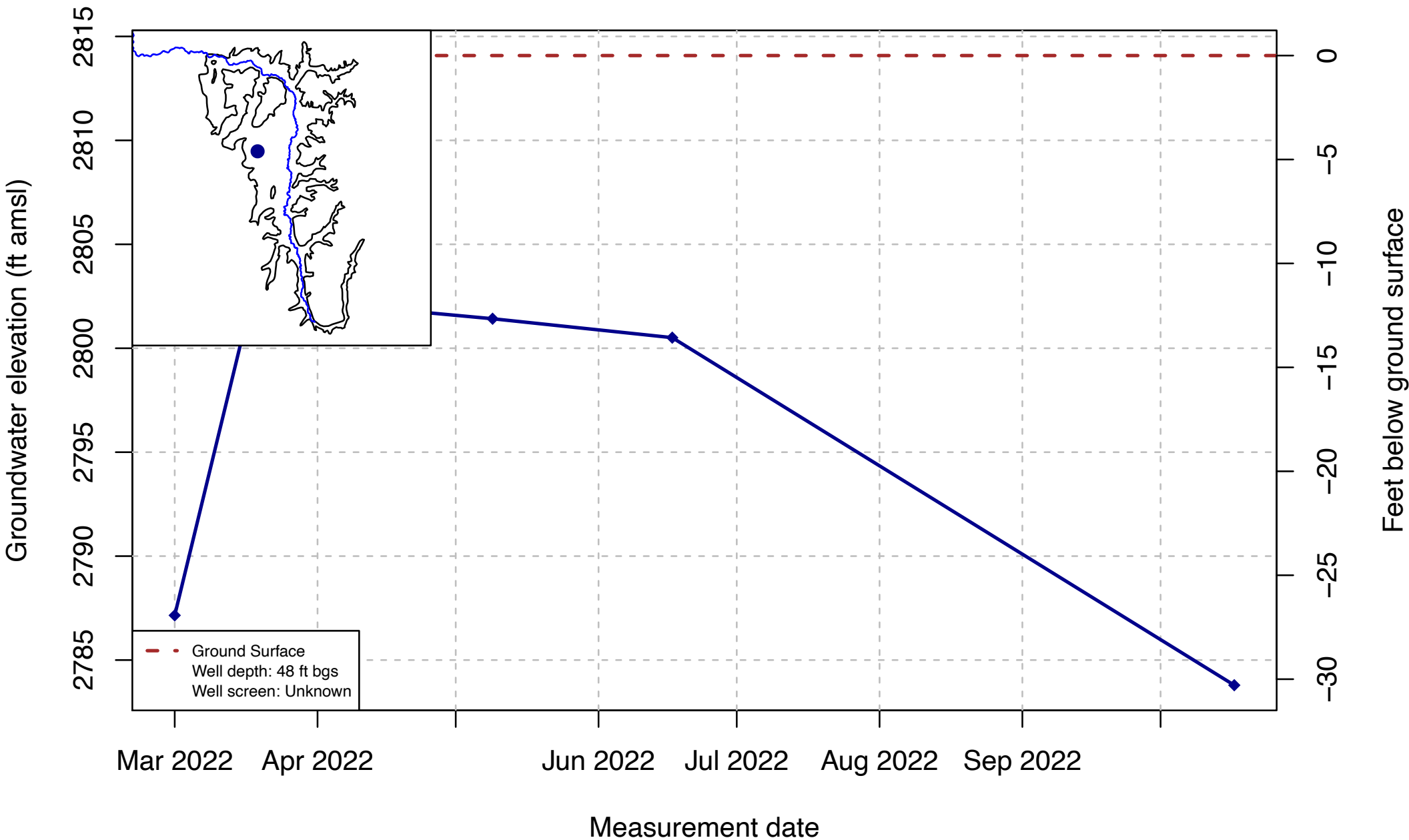
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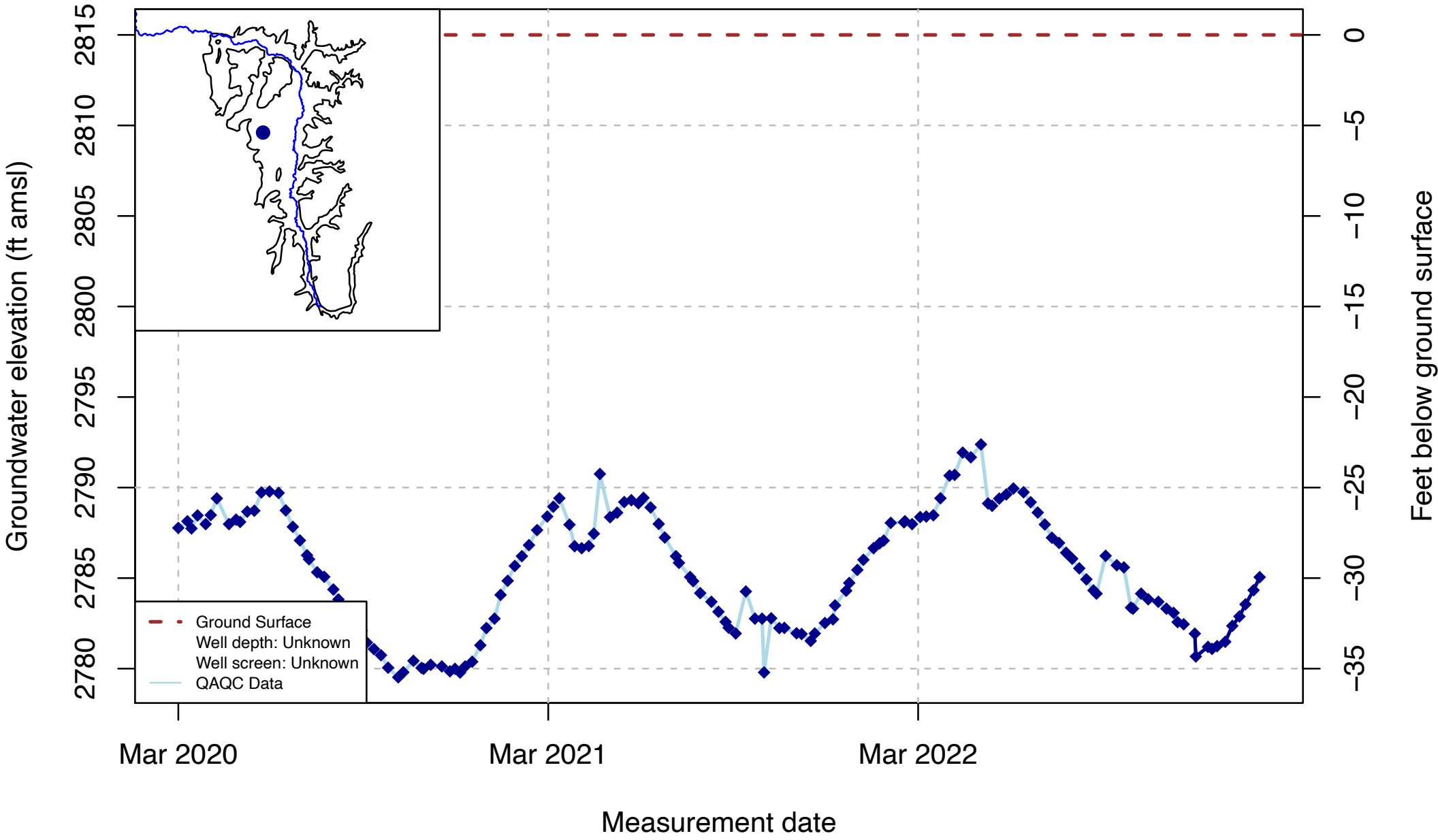
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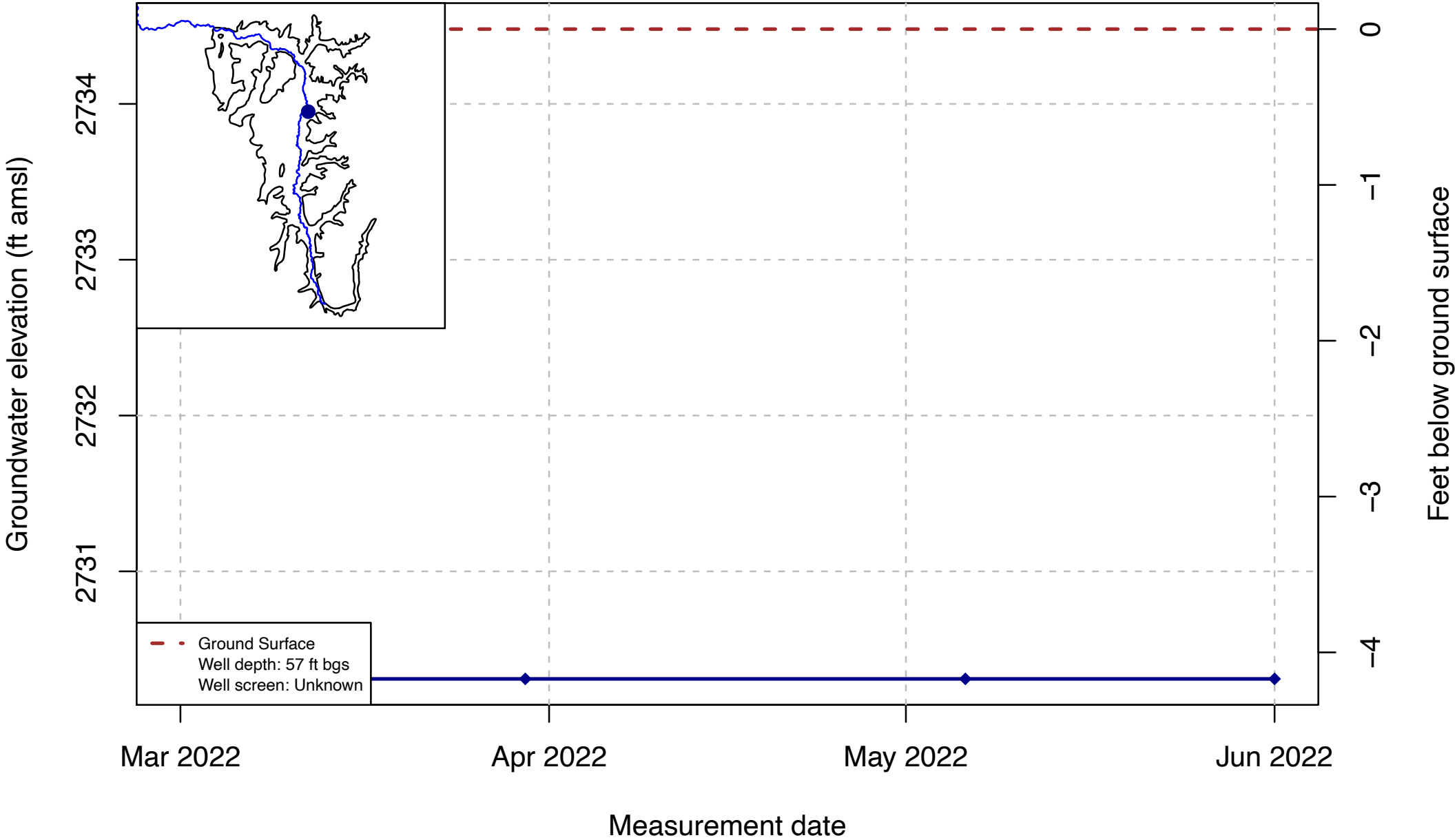
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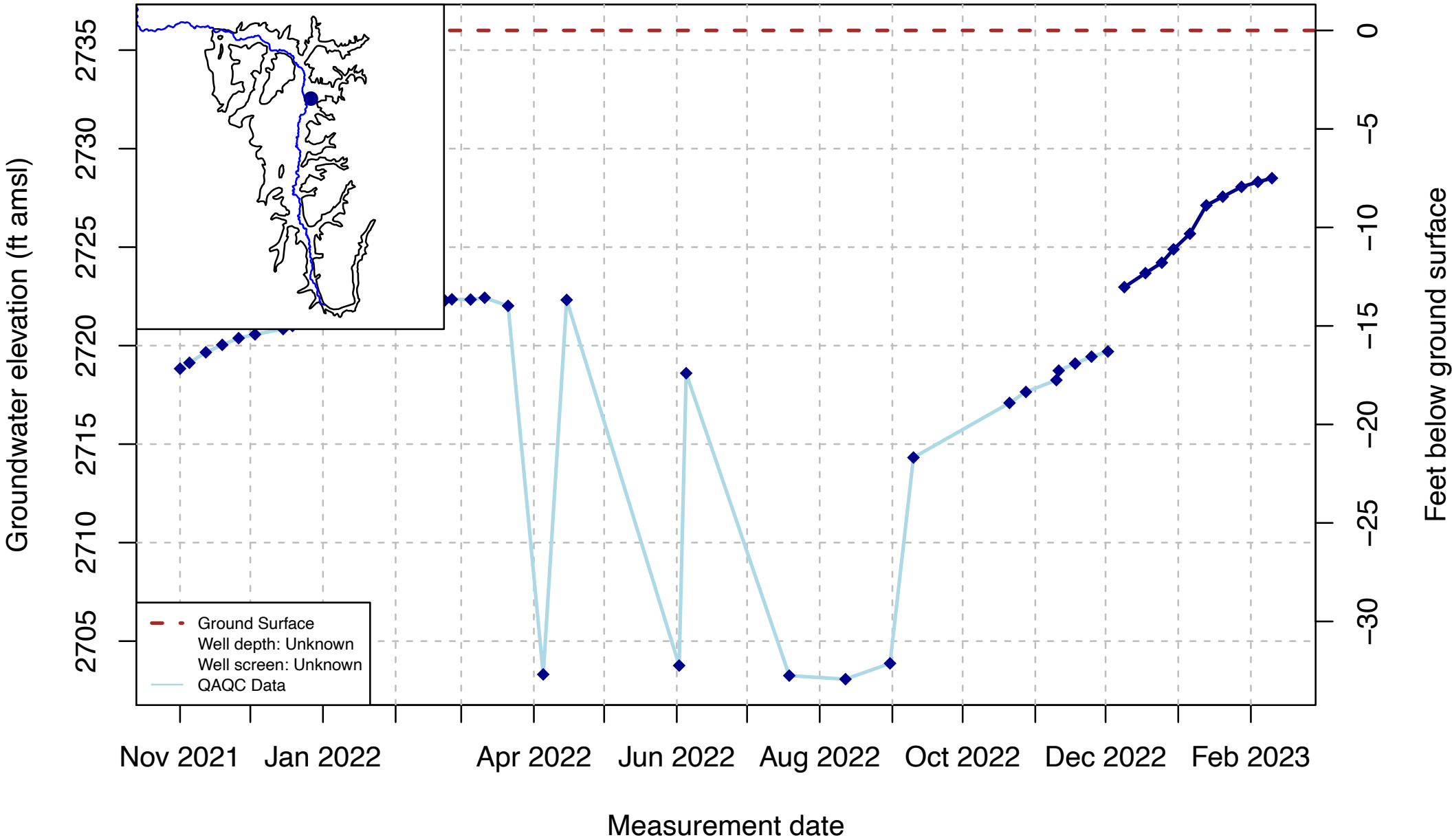
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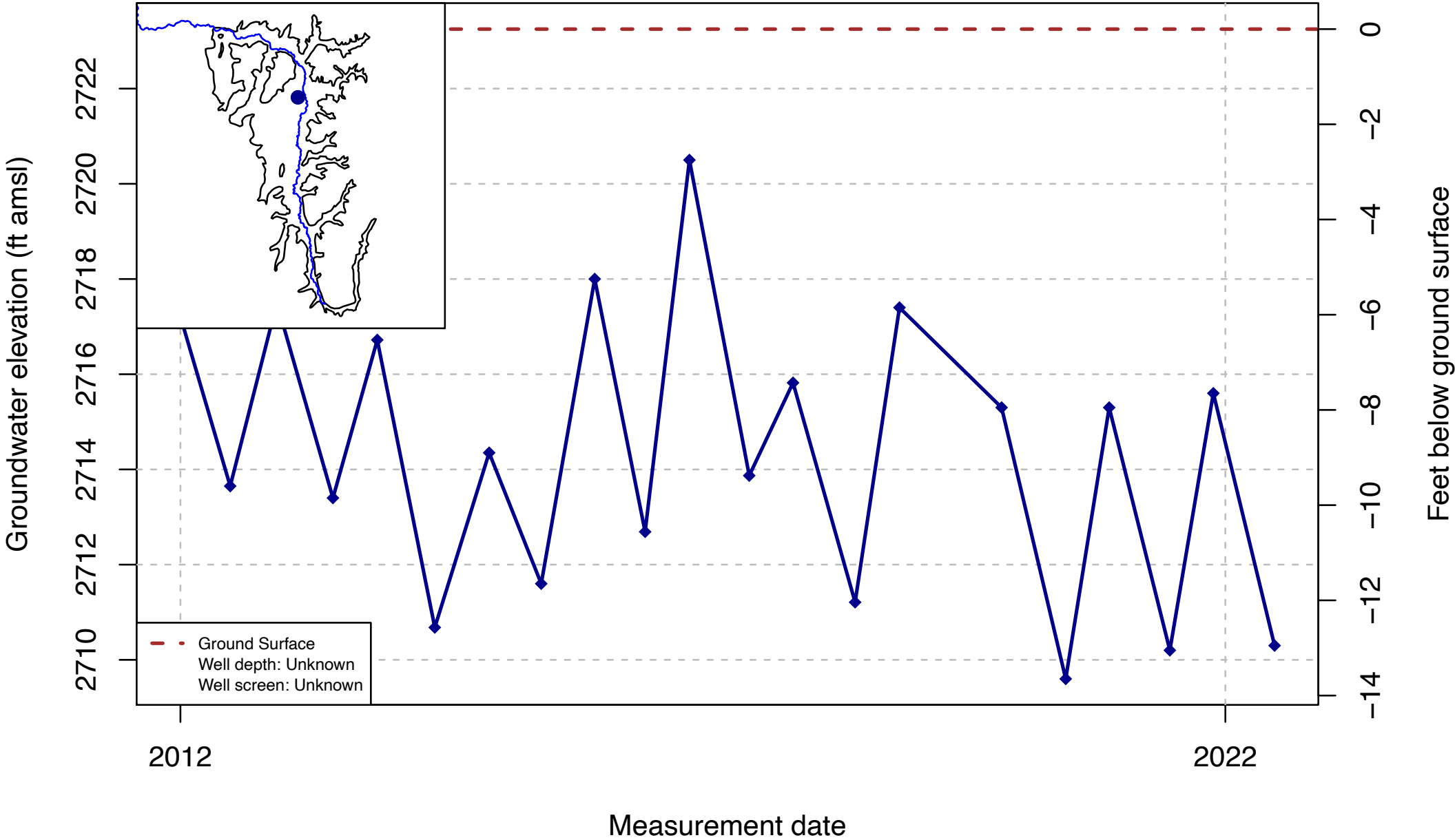
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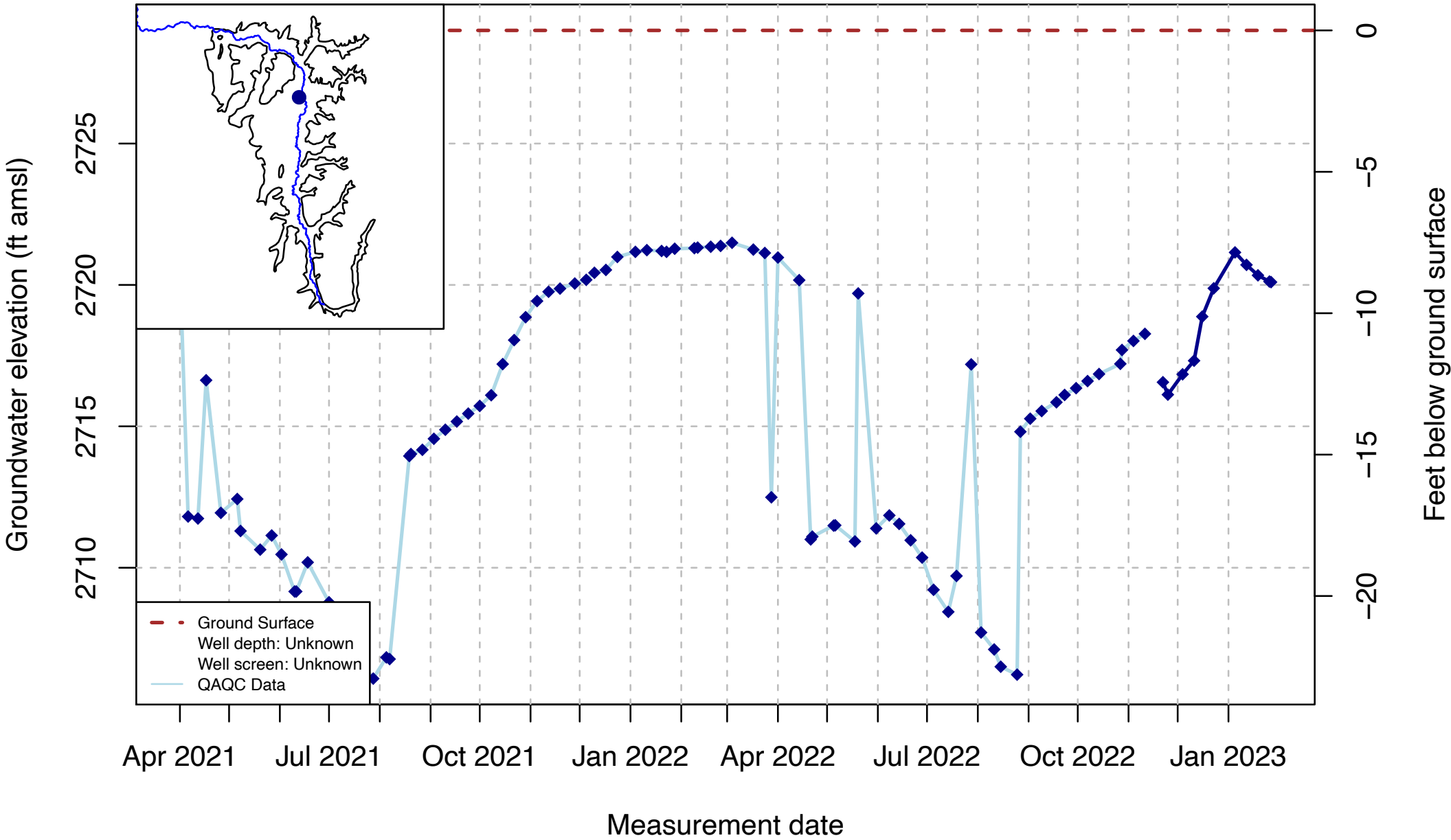
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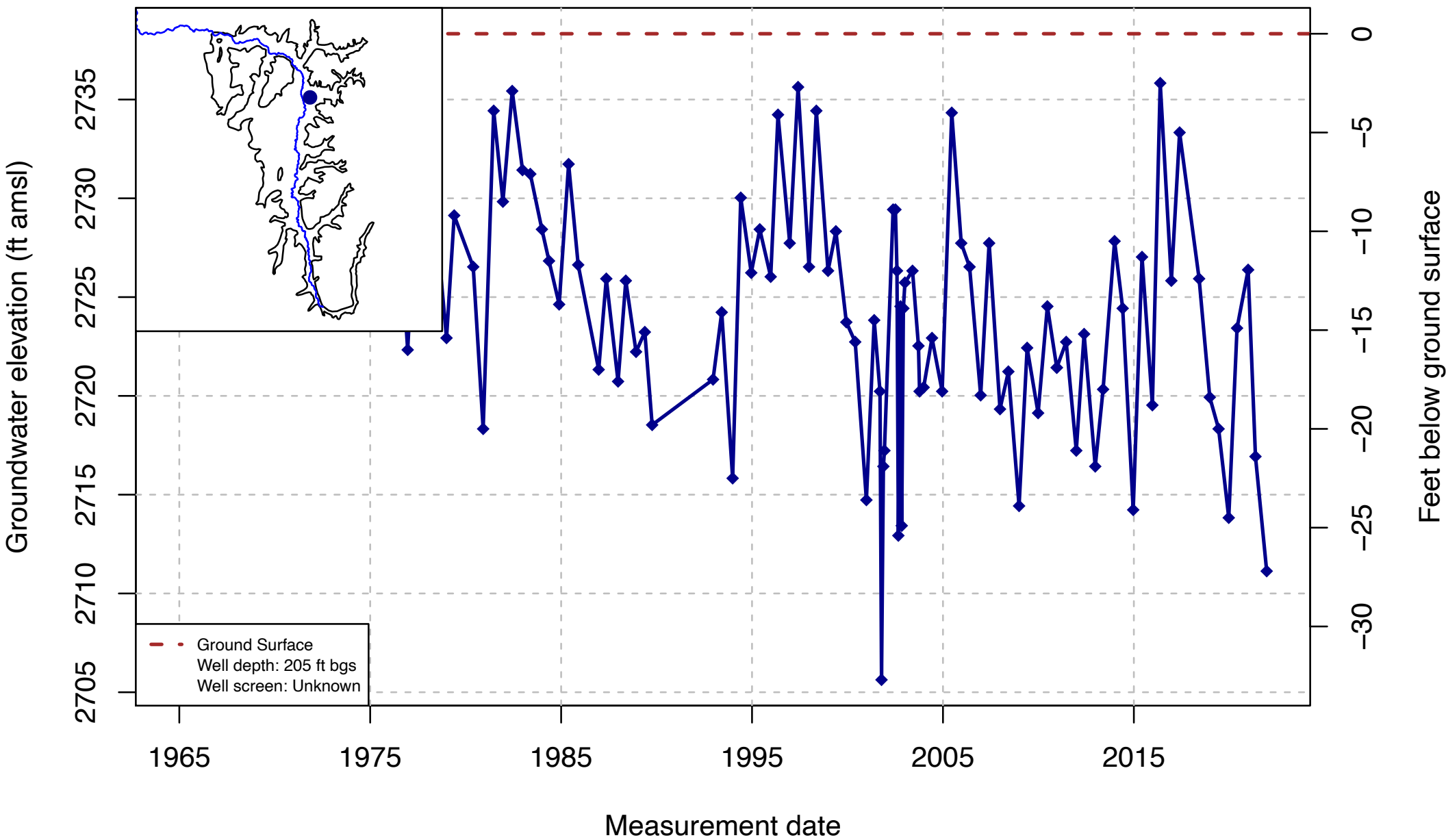
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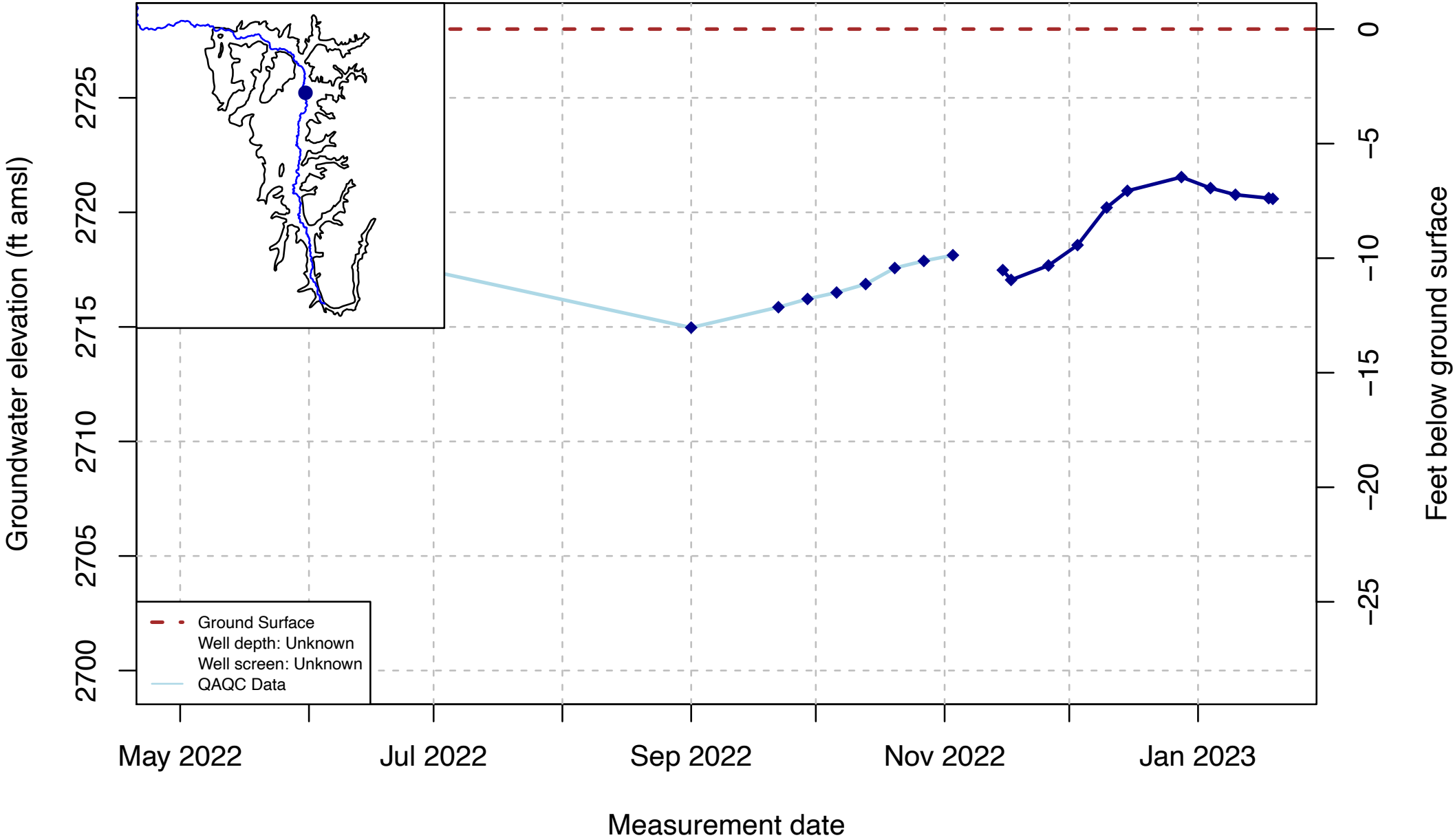
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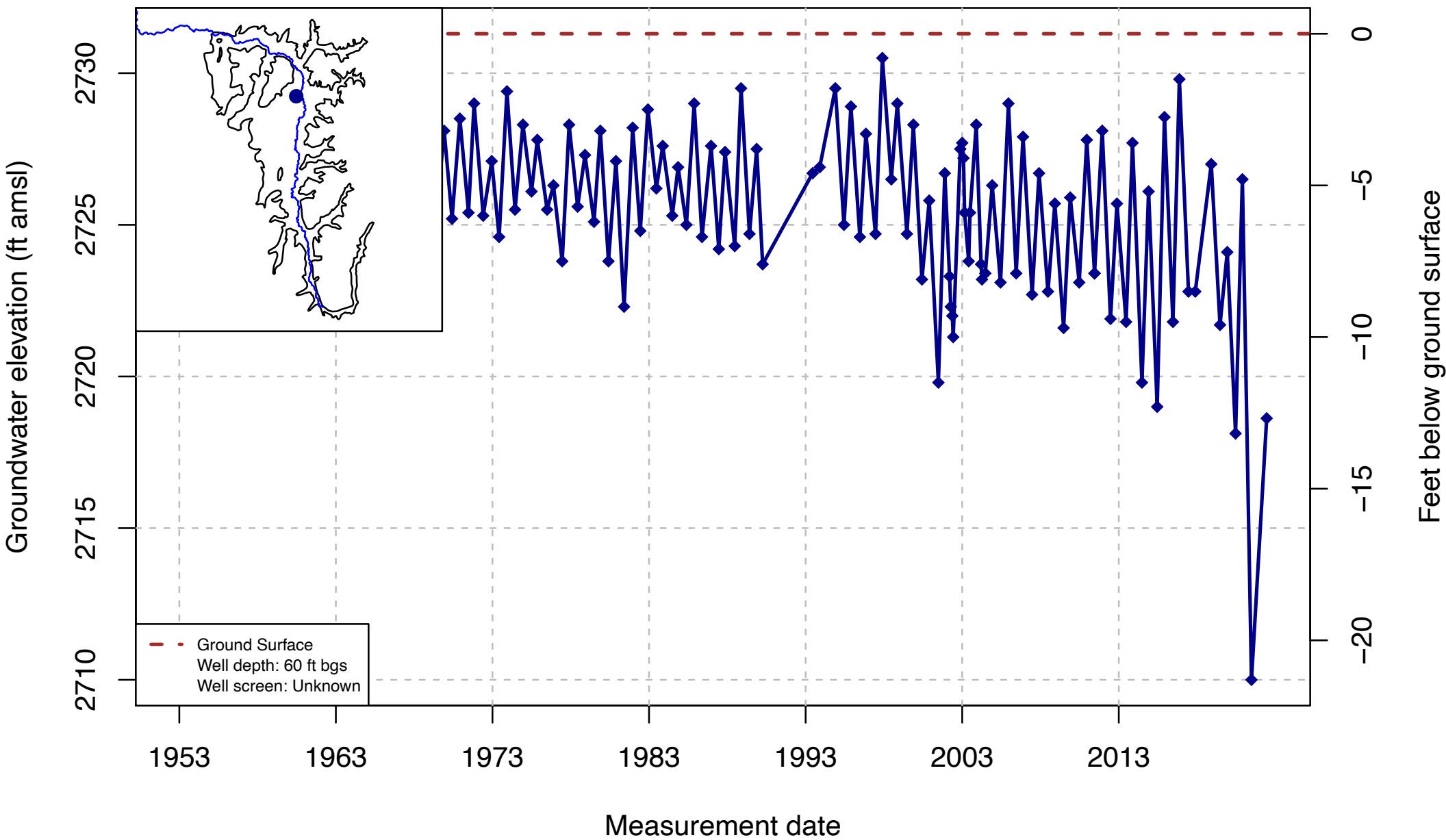
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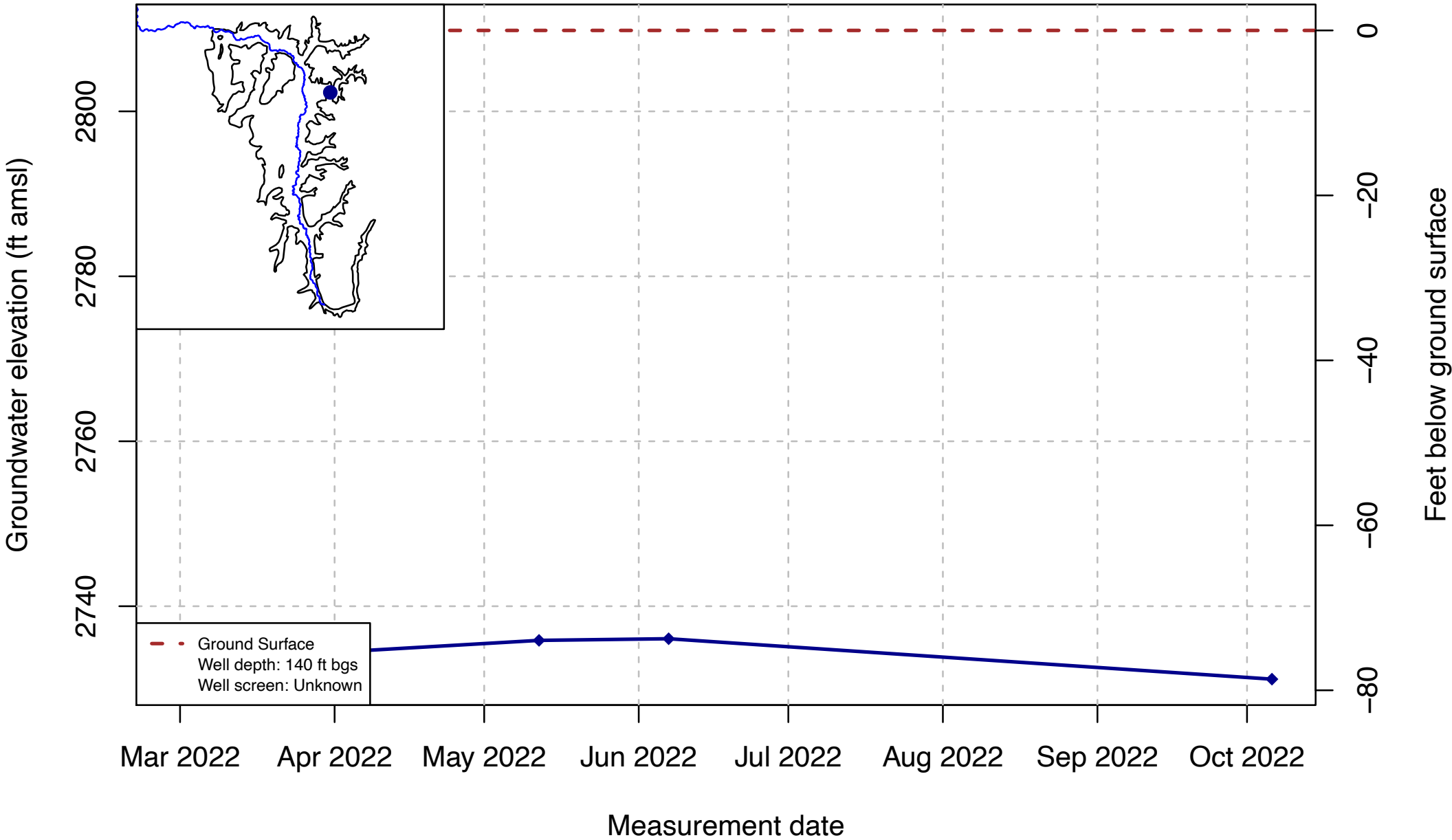
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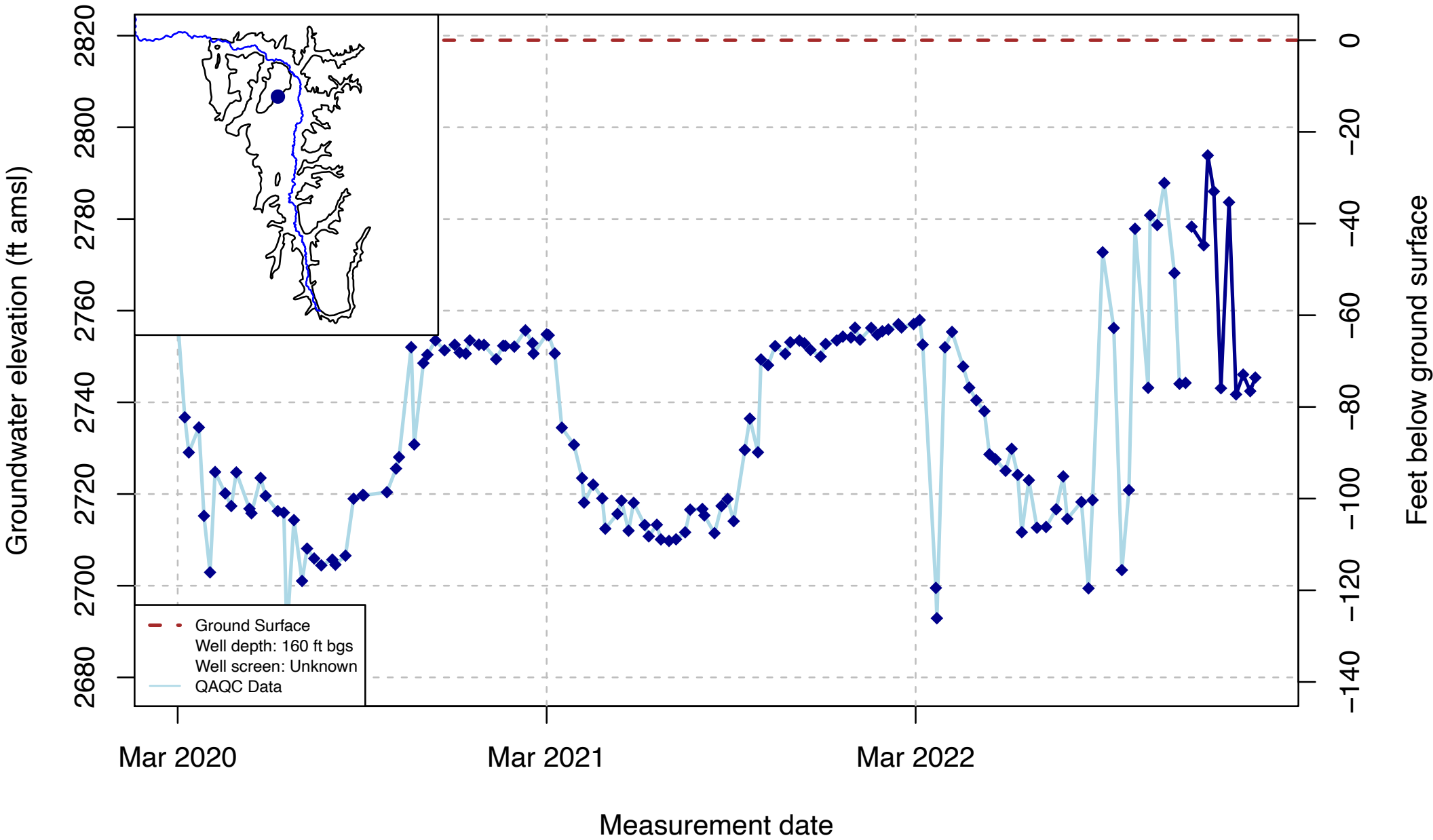
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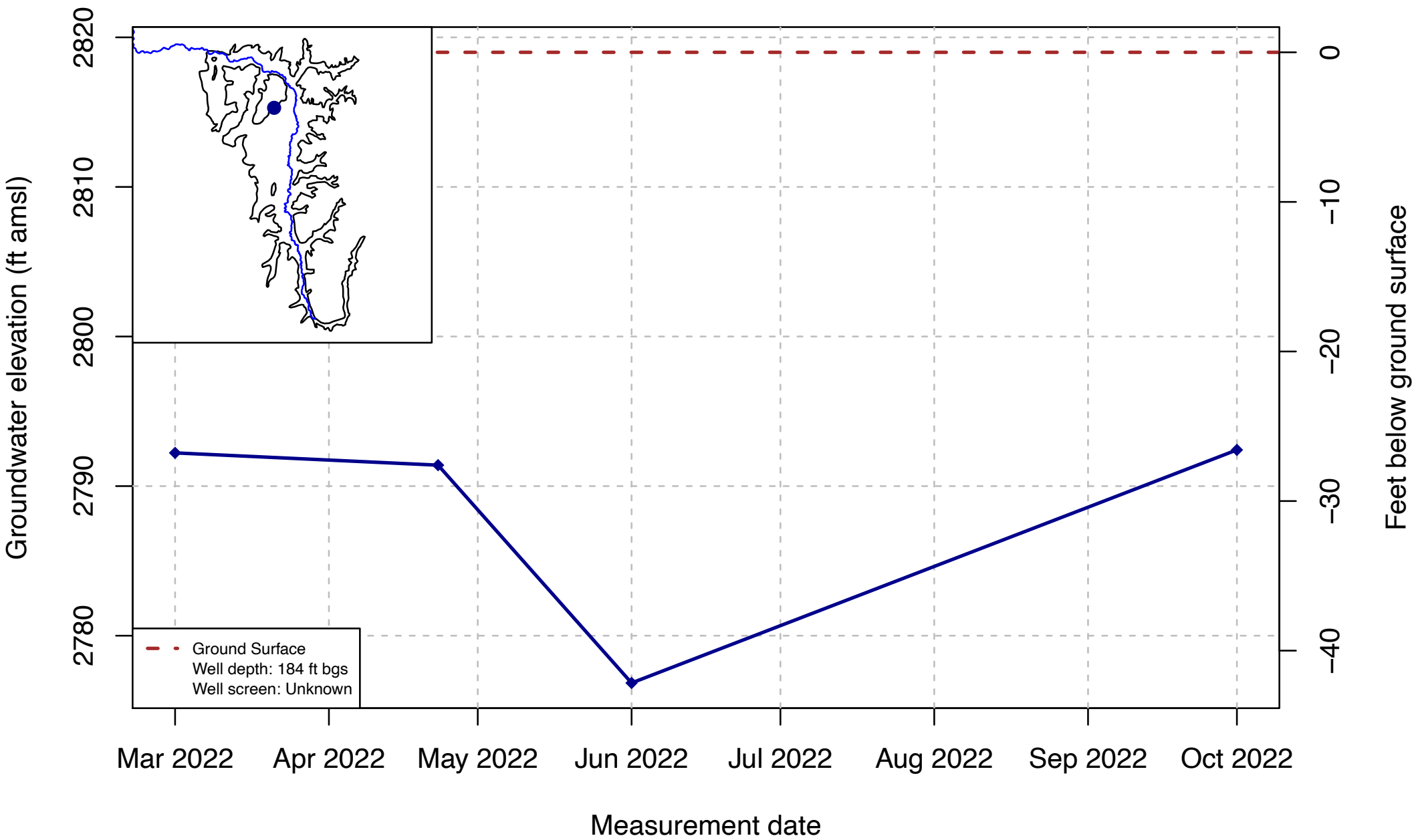
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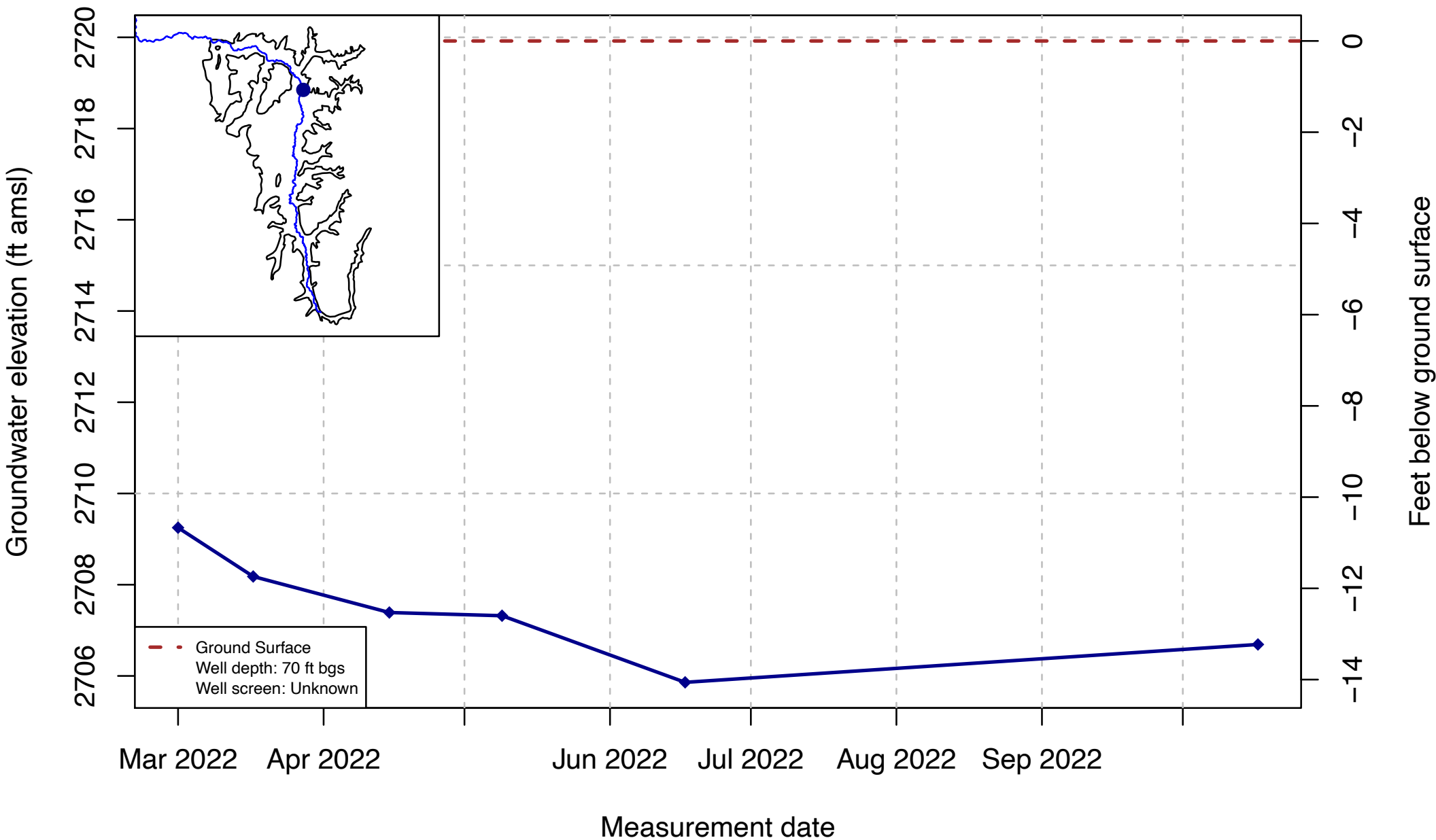
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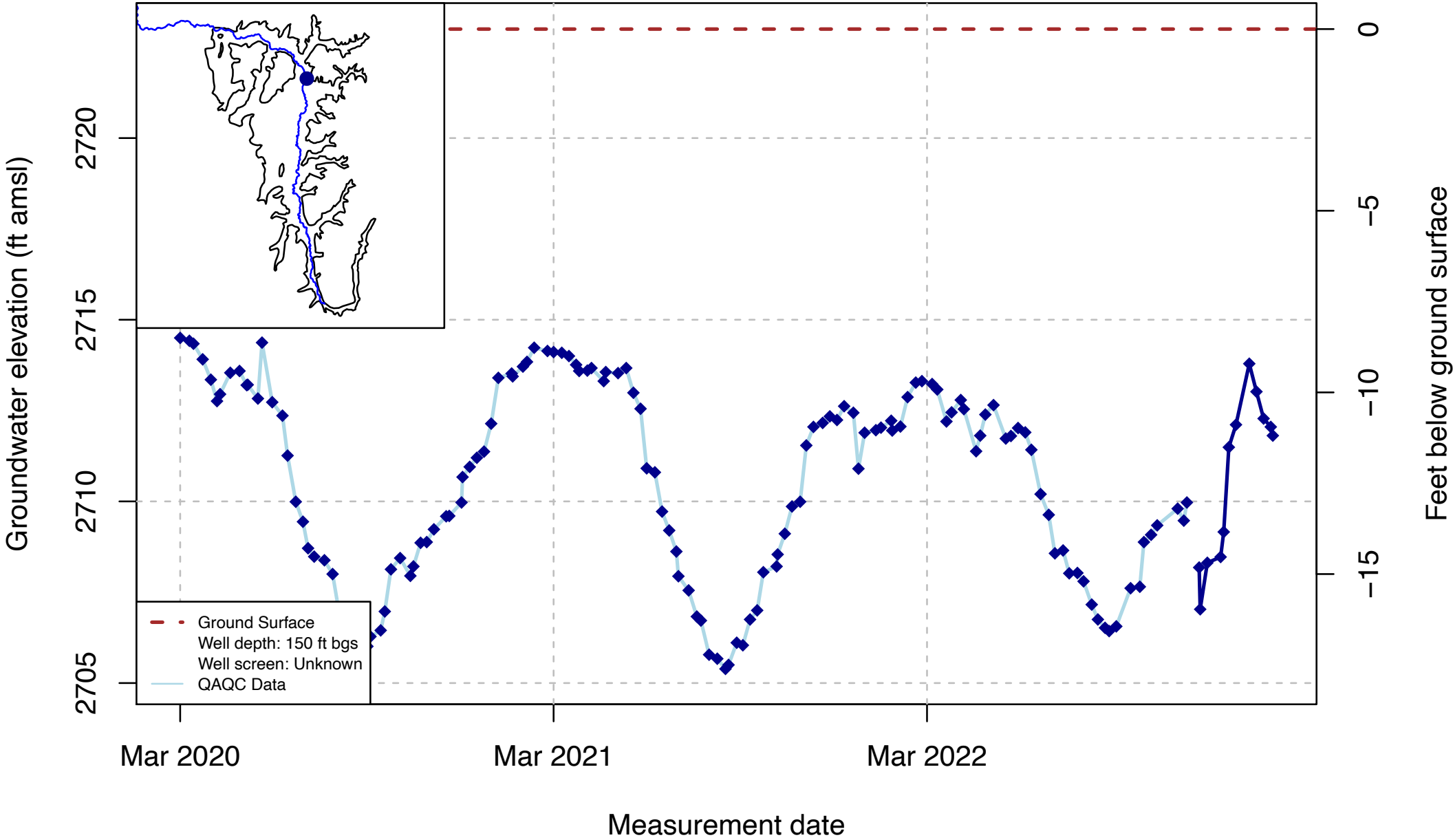
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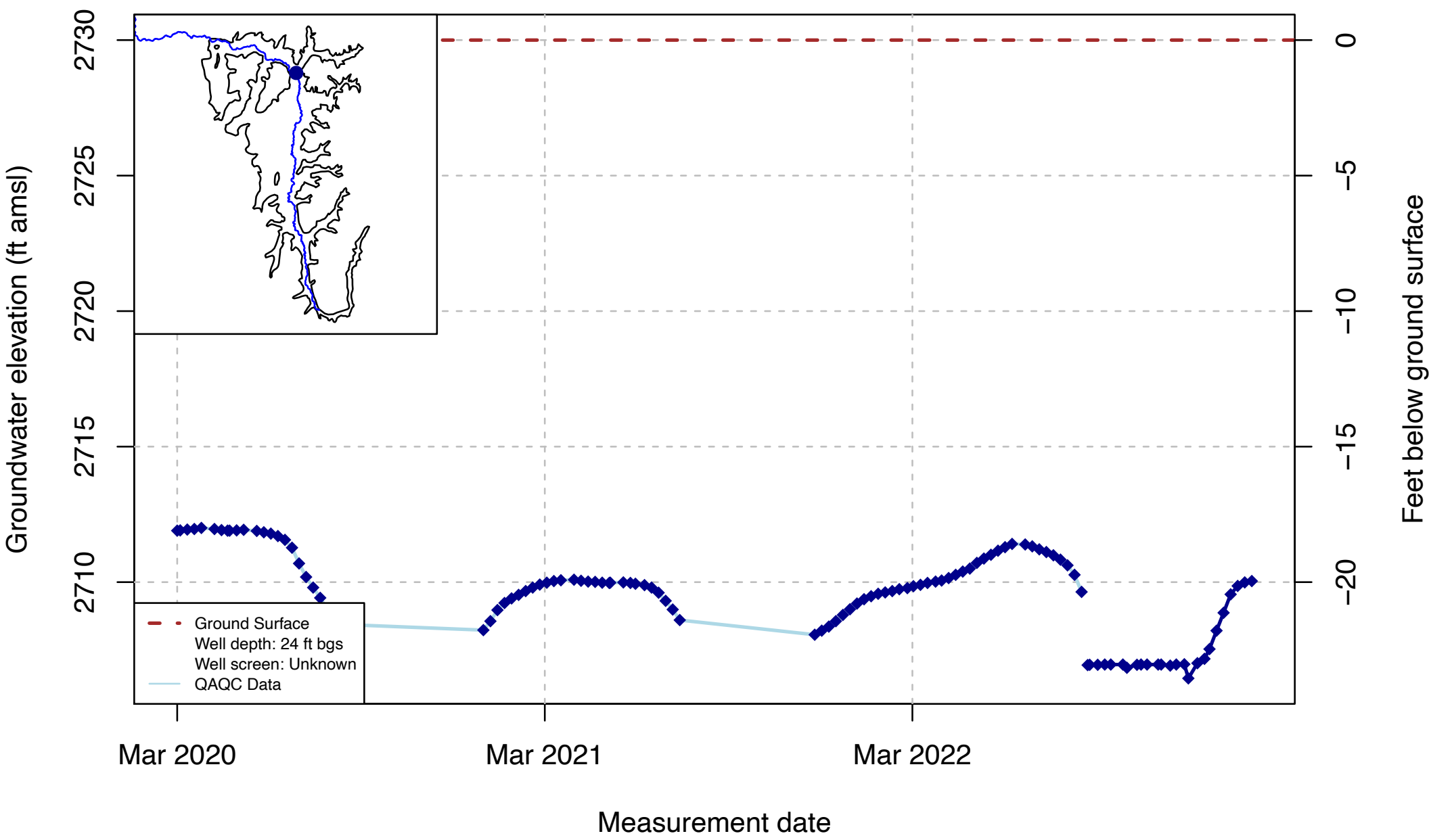
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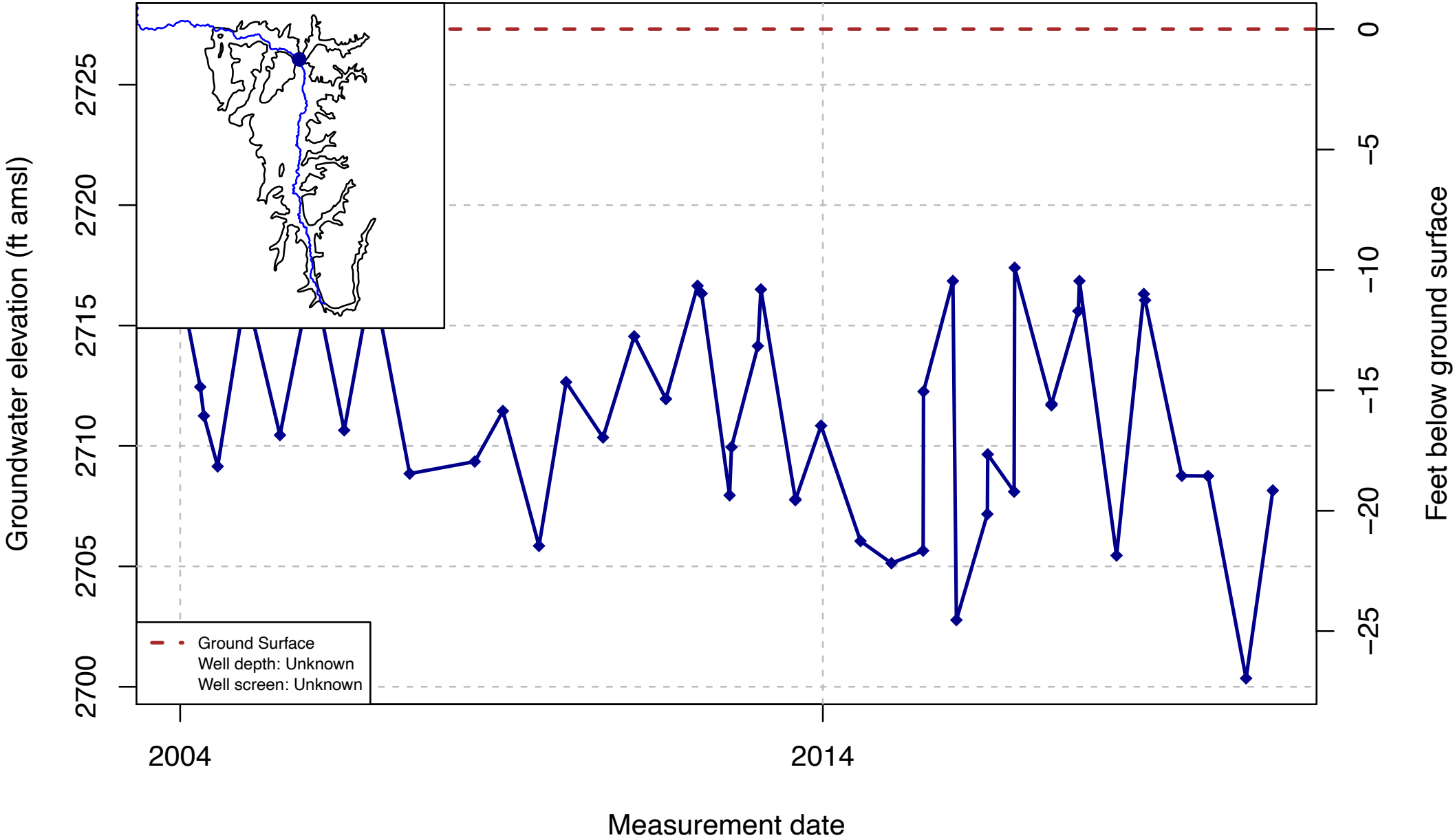
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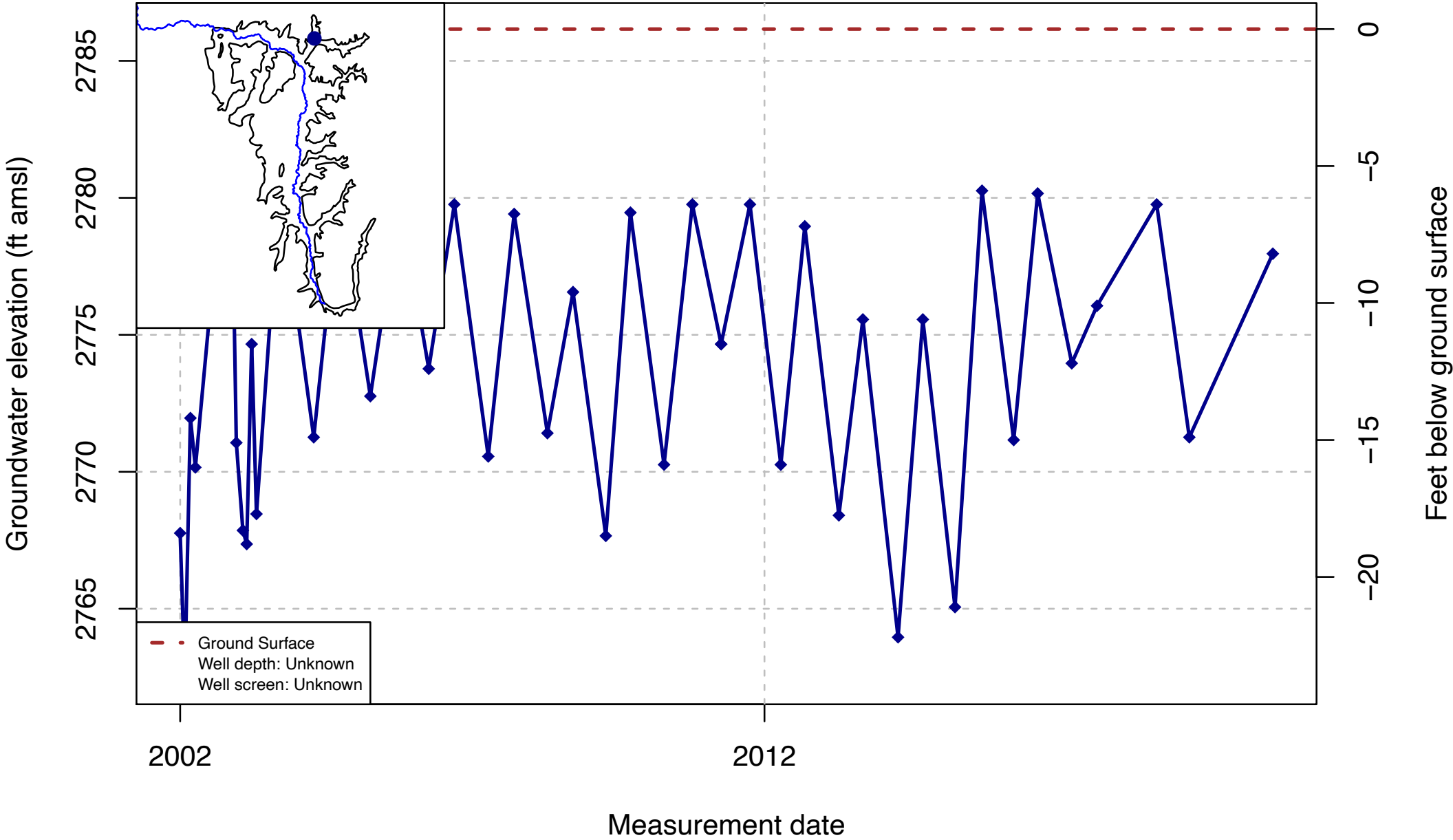
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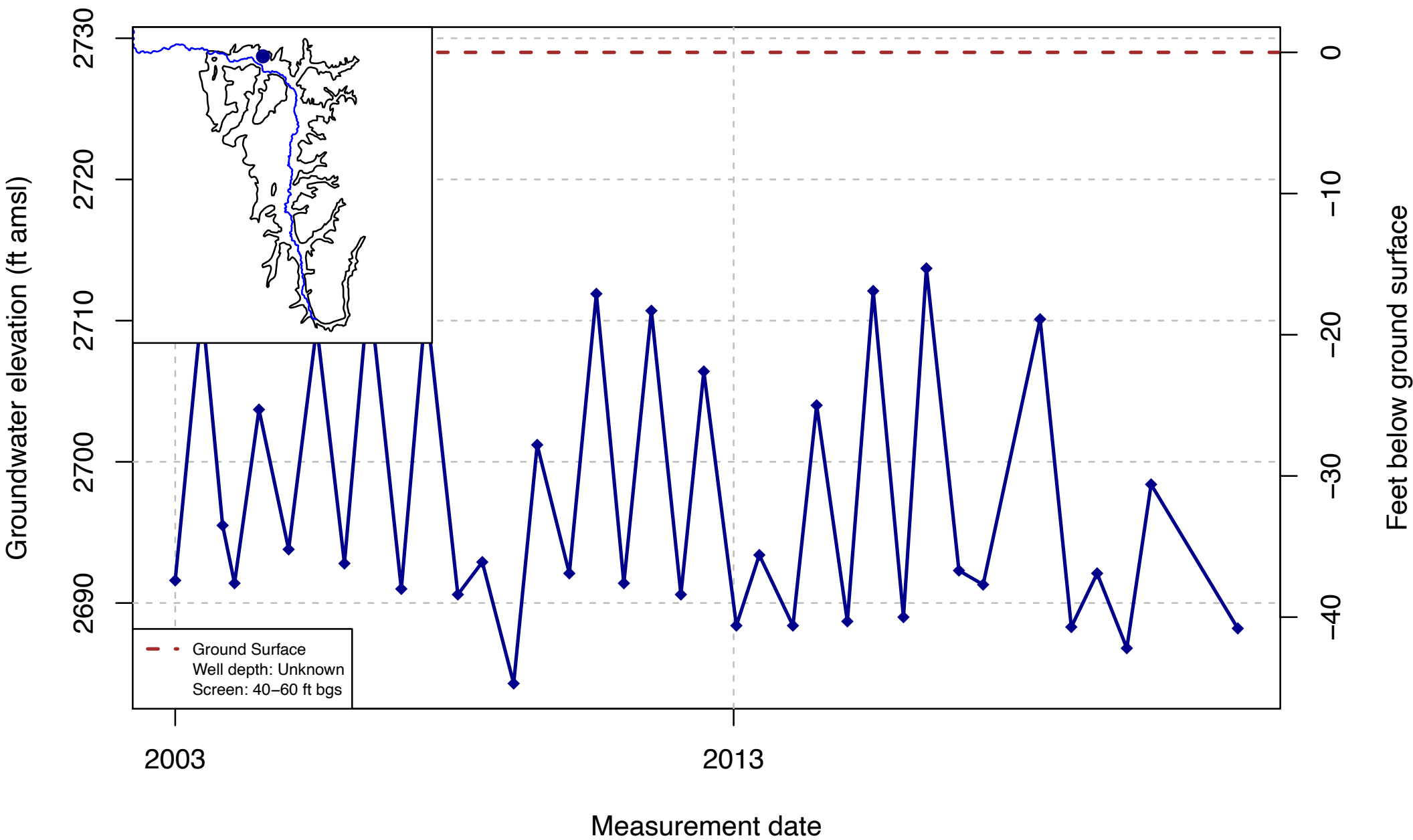
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Well Code: 416288N1228303W001; SWN: 44N09W25R001M



Well Code: 416335N1228997W001; SWN: 44N09W29J001M



Appendix B - Groundwater Elevation Contour Maps

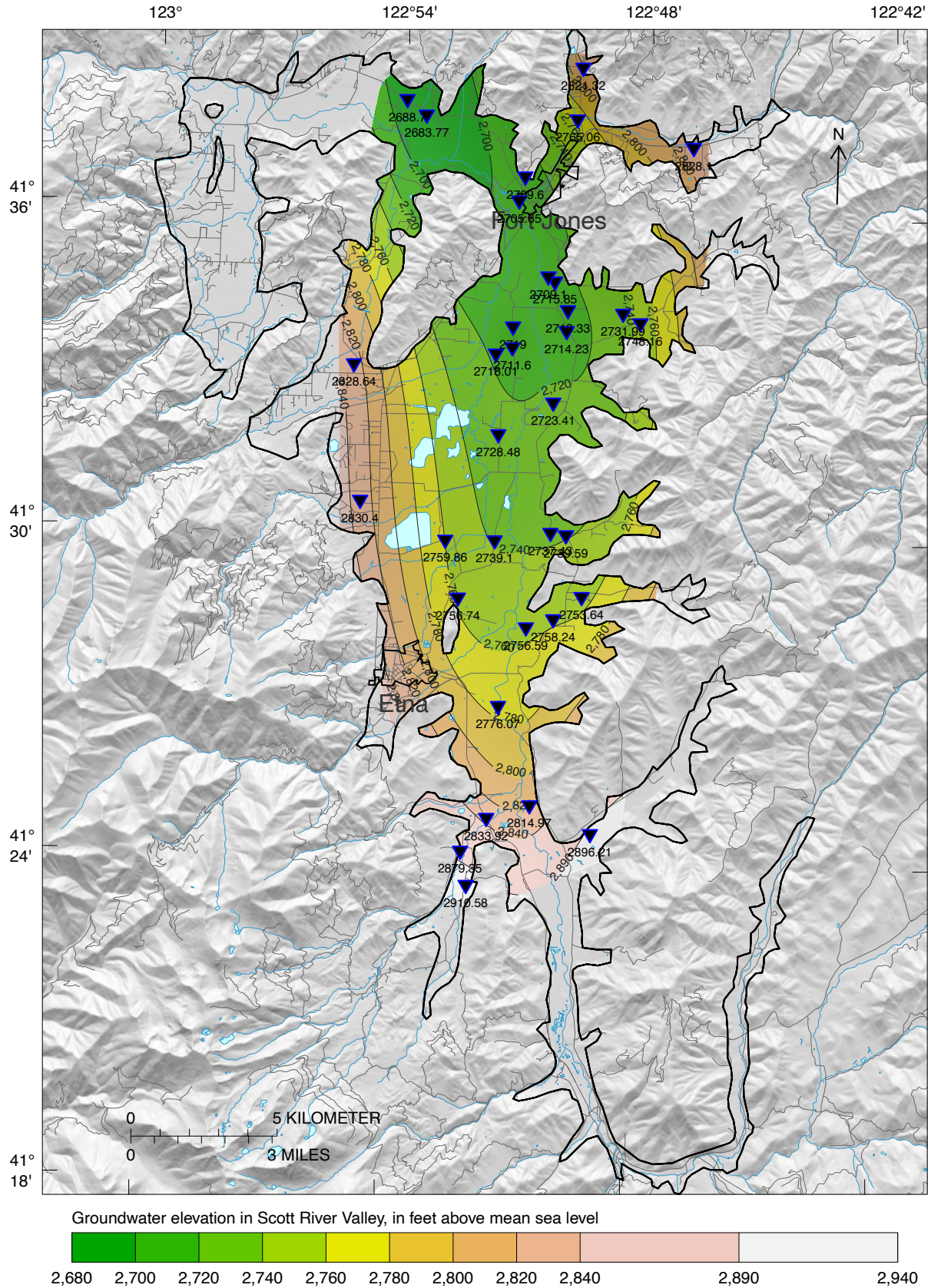


Figure 12: Scott Valley Groundwater Elevations, Fall 2015.

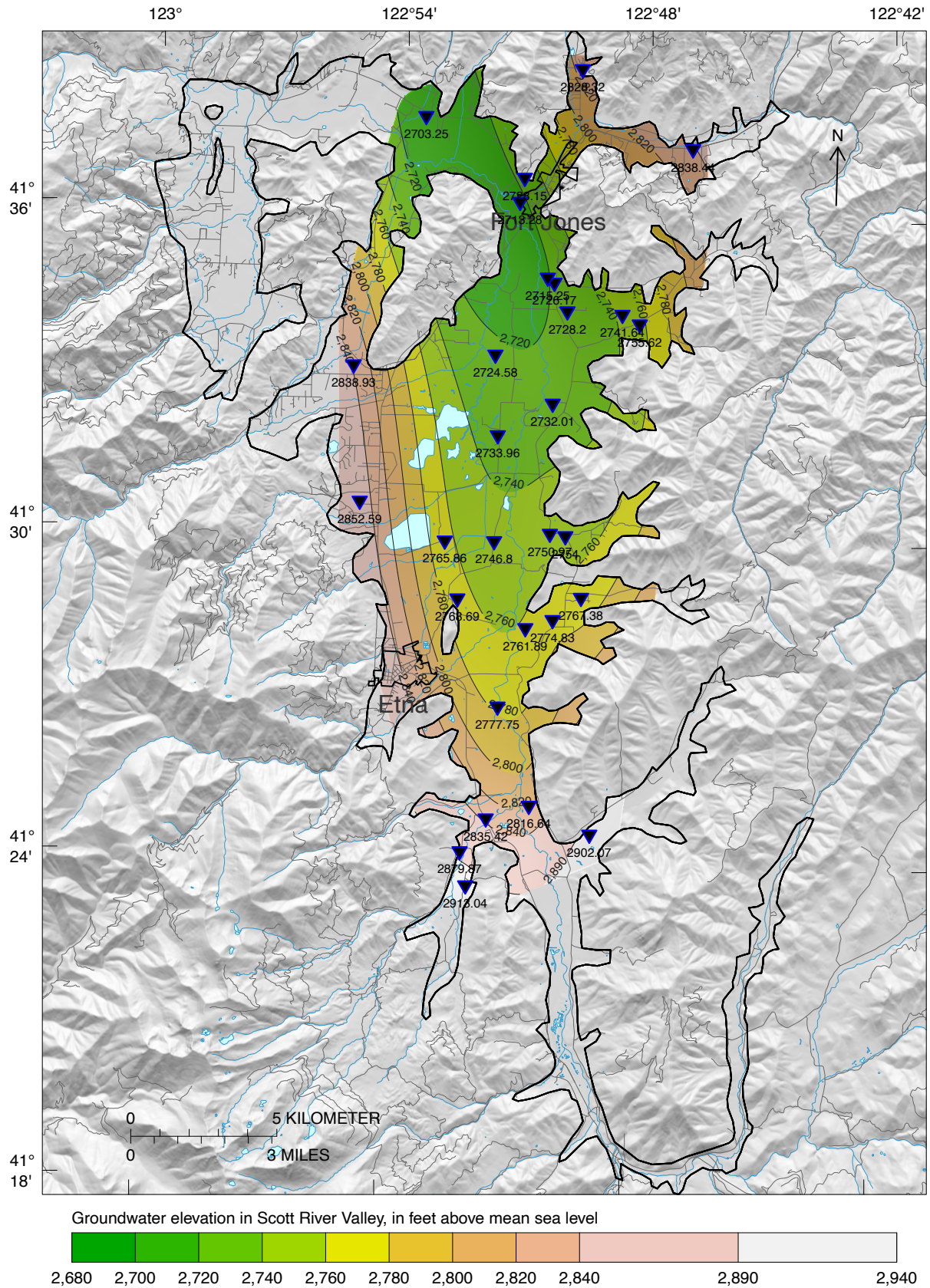


Figure 13: Scott Valley Groundwater Elevations, Spring 2015.

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