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# Surface Seismic Monitoring Report Sulphur Mines Salt Dome Semi-Permanent Seismic Array

Report Period : July 1-15, 2023

Report Date: July 18, 2023

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## Sulphur Mines Dome Seismic Monitoring Summary:

- All seven semi-permanent seismic stations are currently operating normally.
- No seismic detections were observed from July 1-15, 2023 from the semi-permanent surface seismic array.
- The semi-permanent stations detection threshold ranges from magnitude  $\sim -0.5$  to  $0.25$ , depending on the time of day.

## Semi-Permanent Array Status

All seven semi-permanent seismic stations were operational during the first half of July 2023. The locations of the semi-permanent seismic stations are shown in Figure 1 and the Appendix Table 1 lists the station locations. Jarpe Data Solutions (JDS) continues to provide event-detection and location information.



Figure 1. Google map image showing the semi-permanent seismic recording station locations near and at the Sulphur Mines Salt Dome.

- The semi-permanent stations magnitude detection threshold varies for each station with time.
- The lowest noise / lowest magnitude threshold stations continue to be stations 2, 5, and 7, with periods of detectability about magnitude -0.5 (Figure 2).
  - Stations 4 and 5 had detection thresholds below magnitude -0.5, the lowest of the network.
- The stations with the highest background noise during this reporting period was station 6, the noise level increased on about July 5 to a detection threshold of about 0.4 (Figure 2).
- The cultural noise in the area affects the detection thresholds on all the stations from time to time. The detection threshold of the network ranges day to day from magnitude  $\sim -0.5$  to 0.5 depending on the time of day and the level of background noise on the various seismic stations. (Figure 2).

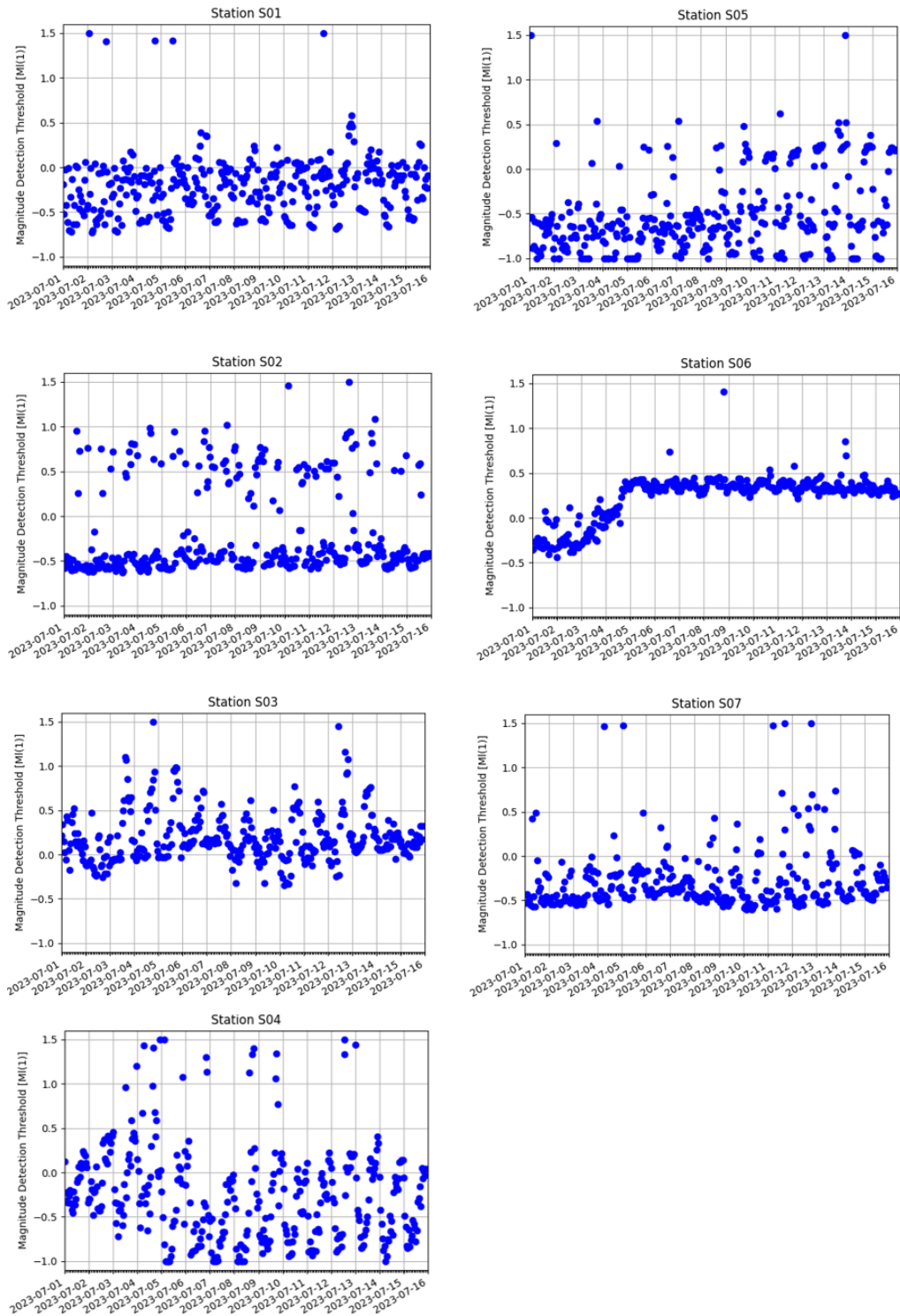


Figure 2. Detection thresholds from each semi-permanent station from July 1-15, 2023. The threshold is based on a theoretical seismic event located 1 km (3280 ft) from the station.

## Appendix

*Table 1. Seismic Station locations and operational dates at Sulphur Mines Dome (to June 30, 2023). Temporary Station locations and start and end dates provided by Westlake.*

<b>Station</b>	<b>LAT WGS84</b>	<b>LON WGS84</b>	<b>Date start</b>	<b>Date end</b>
1a	30.257519	-93.412295	1/30/2023	2/9/2023
1b	30.253427	-93.413504	2/9/2023	4/3/2023
2a	30.257004	-93.409735	1/30/2023	2/9/2023
2b	30.255468	-93.413201	2/9/2023	2/27/2023
2c	30.254707	-93.413785	2/27/2023	4/5/2023
3a	30.253309	-93.409116	1/30/2023	2/9/2023
3b	30.256257	-93.414608	2/9/2023	4/5/2023
4a	30.248590	-93.412296	1/30/2023	2/27/2023
4b	30.250684	-93.412051	2/27/2023	3/8/2023
4c	30.250632	-93.410027	3/8/2023	3/15/2023
4d	30.250303	-93.411914	3/15/2023	est 4/3/2023
5a	30.250159	-93.415560	1/30/2023	2/27/2023
5b	30.250672	-93.415279	2/27/2023	3/15/2023
5c	30.250352	-93.413960	3/15/2023	est 4/3/2023
6a	30.253187	-93.416629	1/30/2023	3/15/2023
6b	30.252864	-93.416142	3/15/2023	4/4/2023
7a	30.254665	-93.416147	1/30/2023	4/3/2023
Semi Perm S01	30.24525	-93.40734	4/4/2023	
Semi Perm S02	30.25707	-93.40979	4/6/2023	
Semi Perm S03	30.25362	-93.40910	4/6/2023	
Semi Perm S04	30.24704	-93.42130	4/5/2023	5/12/2023
Semi Perm S04_1	30.25056	-93.42040	5/12/2023	
Semi Perm S05	30.25635	-93.42238	4/5/2023	
Semi Perm S06	30.25324	-93.41668	4/5/2023	
Semi Perm S07	30.25469	-93.41619	4/5/2023	