

Marine electromagnetic archive for the Characterizing an Earthquake Rupture Barrier using Electrical Resistivity from Underwater Soundings (CERBERUS) experiment at the Gofar Transform Fault. These data were collected from January—March 2022 on the RV Thompson (TN-399).

This archive includes all raw time-series recordings from five profiles collected during two deep-tows (GTF1 and GTF2-5) of the Scripps Undersea Electromagnetic Source Instrument (SUESI) and relevant metadata as required for processing magnetotelluric (MT) and/or controlled-source electromagnetic (CSEM) responses. Data were recorded on 40 ocean-bottom electromagnetometers (OBEMs) and 2 towed receivers (Vulcans; only for GTF1).

Below is a description of the log files included in this archive:

All_Instrument_checkout_sheets: Contains photos of the hand-recorded checkout sheets made during instrument deployments and recoveries

All_OBEM_Compasses.txt: Time series of compass recordings for all OBEMs.

All_OBEM_metadata.xlsx: A spreadsheet that includes the metadata for each OBEM. Includes instrument number and name, GPS synch time, time tag, navigated positions, compass heading, pitch, and roll, and notes about data quality.

All_SUESI_syncTimes.txt: These are the times when SUESI's clock was synced to the onboard GPS clock. These are used to convert relative time recorded on the SUESI logs to absolute time.

GTF*_Array*: Diagrams of the array design for each tow with values of the component parameters.

GTF*_ATET.txt: These are log files from the Tail-End Transponder (ATET) Serial Data Logger (SDL). ATET is located behind the end of the transmitter antenna (see array design schematics). The SDL records date, time, heading, tilt, dip, and pressure in decibars (i.e., depth). The ATET depth is used with the SUESI depth to calculate the antenna dip angle.

GTF*_Barracuda.txt: These log files contain time-series of the positions of two transponders that are surface-towed on paravanes behind the vessel and equipped with GPS. One transponder is towed on the starboard side (9 Hz) and the other on the port side (10 Hz) of the vessel. NOTE: see Key & Constable (2021) [DOI: 0.1007/s11001-021-09427-z] for details on the Barracuda inverted long-baseline (ILBL) navigation system.

GTF*_SUESI.txt: These are log files from the deep-towed transmitter, SUESI. The logs record relative time, output current, transmitter altitude, transmitter depth, water conductivity, and two-way travel times from the acoustic interrogator (as needed for ILBL navigation).

GTF1_Vulcan*_Compass.txt: Time series of external compass recordings for Vulcans.

GTF1_Vulcan*_SDL.txt: Serial Data Logger (SDL) in the Vulcans. Columns are date, time, heading, tilt and dip (from internal compass), and pressure in decibars (i.e., depth).