

PILGRIM HOT SPRINGS CSAMT MEASUREMENTS, SEWARD PENINSULA, ALASKA

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PILGRIM HOT SPRINGS CSAMT MEASUREMENTS, SEWARD PENINSULA, ALASKA

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ABSTRACT

Pilgrim Hot Springs is in the Seward Peninsula, western Alaska, approximately 60 road miles north of Nome. Pilgrim Hot Springs has reported surface temperatures ranging from 145°F to 160°F (63°C–71°C) (Miller and others, 1973; Motyka and others, 1983). Due to the proximity to a large community, Pilgrim Hot Springs is considered a potential resource for providing power or direct-use heat. As a pilot study to inform ongoing investigation of the subsurface geology of Pilgrim Hot Springs, DGGS staff collected 29 controlled source and natural source audio magnetotelluric (CSAMT) readings to develop resistivity models of the study area. This data release provides Stratagem format raw data and resistivity models and depth slice grids in ASCII text and GeoTIFF format. All files can be downloaded from the DGGS website (<http://doi.org/10.14509/30472>).

METHODS

CSAMT data were acquired throughout the study area using a Stratagem EH4 standard transmitter electrical resistivity imaging system from August 9th to 11th, 2016. Electrodes were 50 meters apart. Electrode dipoles and magnetic coils were oriented east-west and north-south. Stations were located with a WAAS enabled L1 handheld GPS units. Data were evaluated for quality. In some cases, the natural source signals were low amplitude and often poor quality. All poor time series were deleted from the data. Using IMAGEM software, one dimensional inversion models were created for east-west and north-south orientations.

DATA

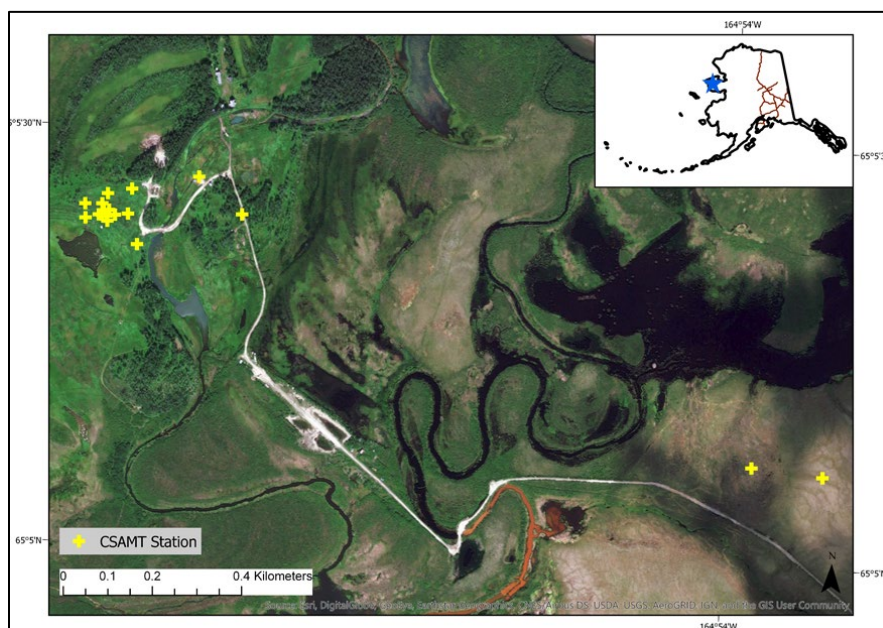


Figure 1. CSAMT stations with orthometric image

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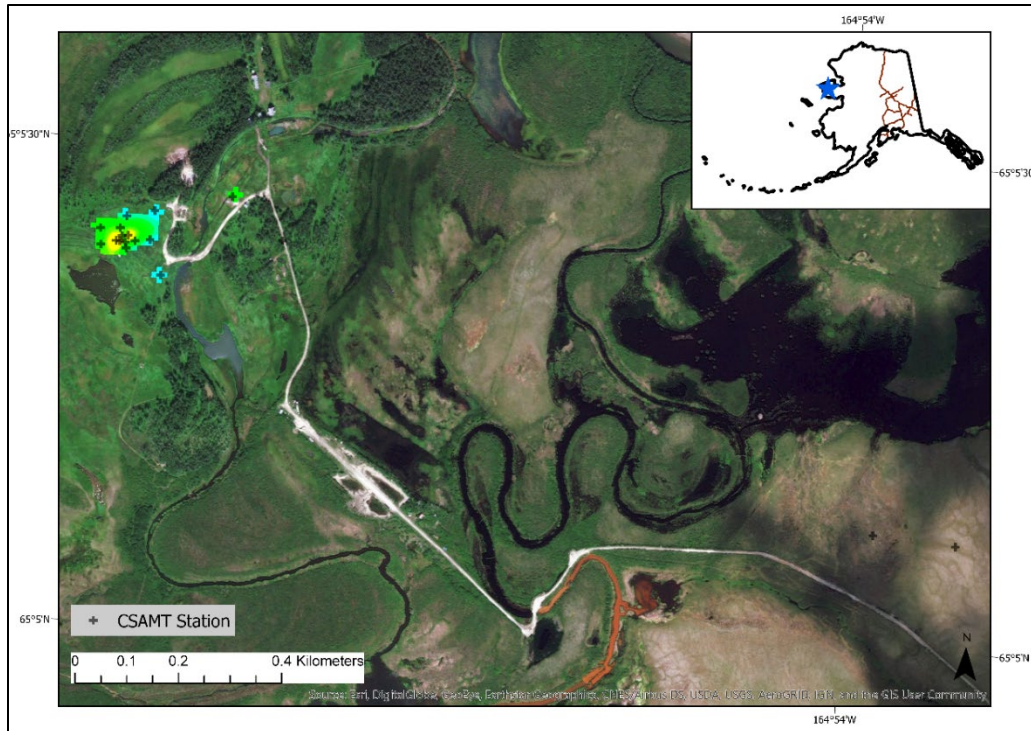


Figure 2. Depth slice grid, CSMAT stations, and orthometric image. Average resistivity 90 to 110 meters below ground surface from east-west 1D inversion.

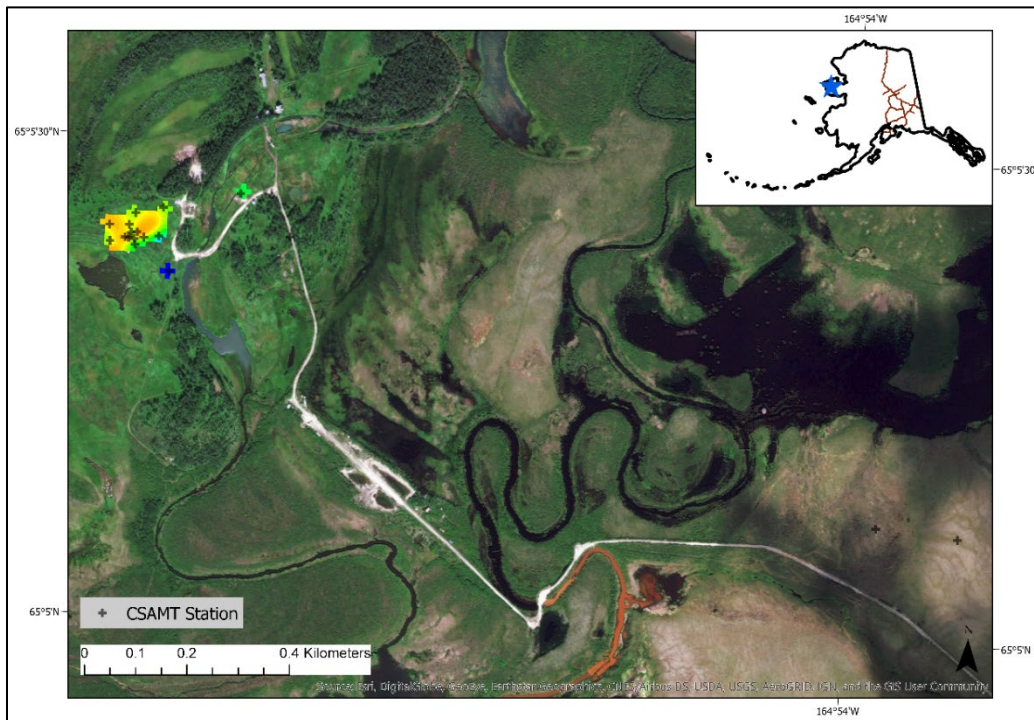


Figure 3. Depth slice grid, CSMAT stations, and orthometric image. Average resistivity 150 to 200 meters below ground surface from east-west 1D inversion.

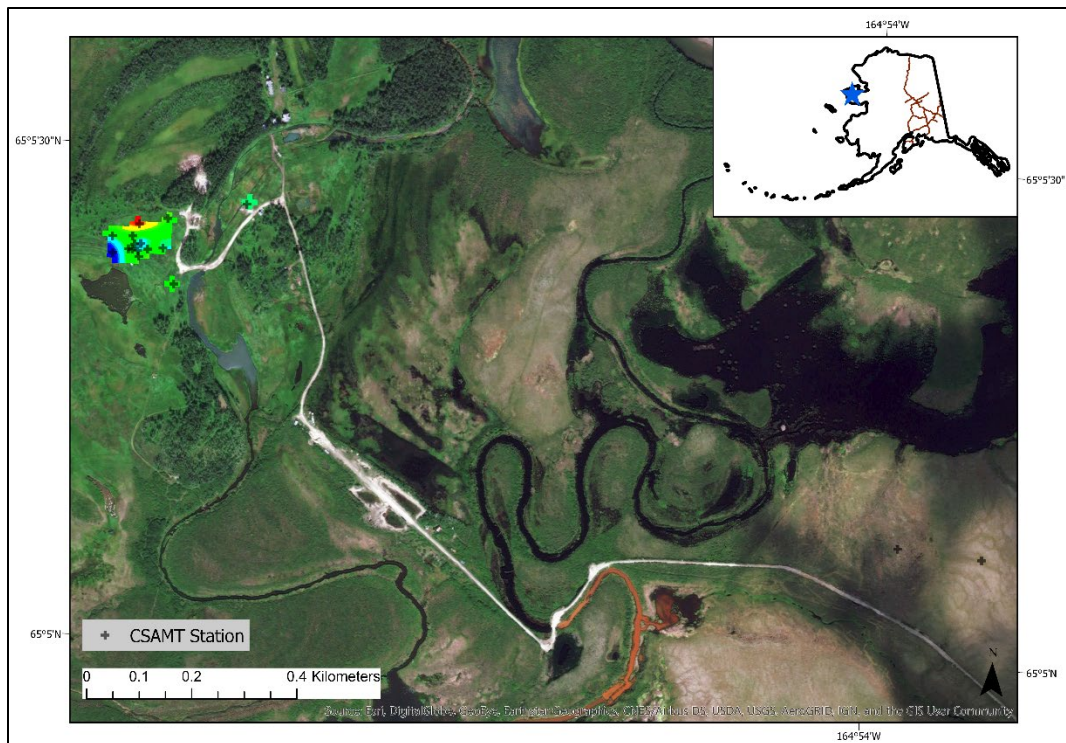


Figure 4. Depth slice grid, CSMAT stations, and orthometric image. Average resistivity 90 to 110 meters below ground surface from north-south 1D inversion.

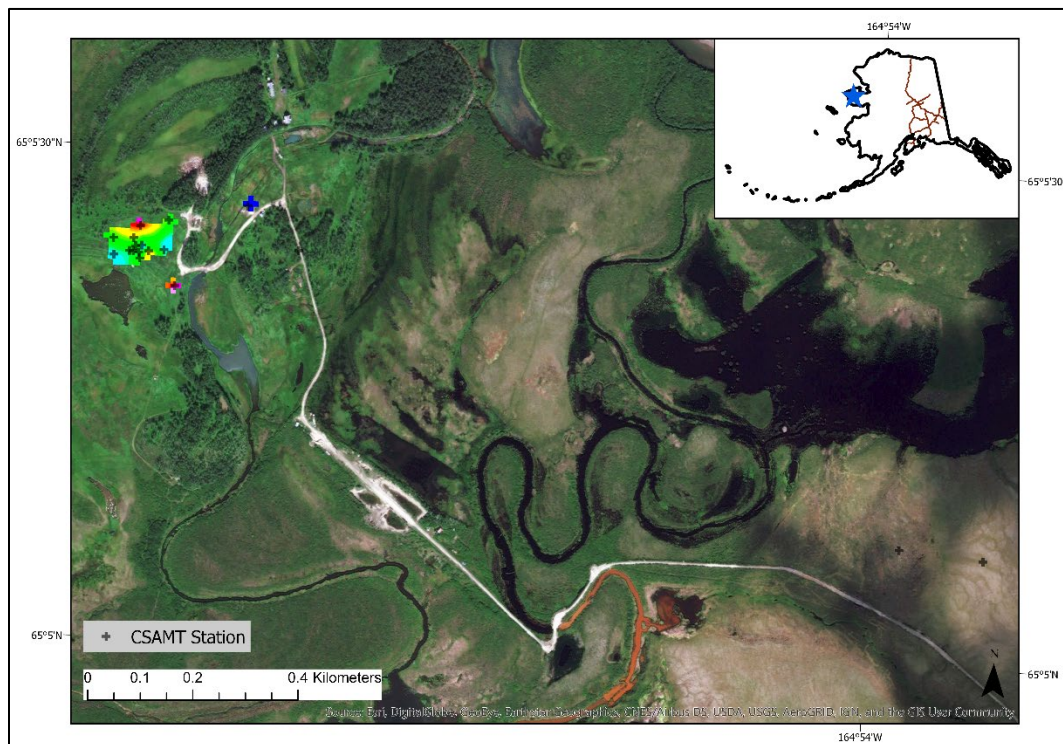


Figure 5. Depth slice grid, CSMAT stations, and orthometric image. Average resistivity 150 to 200 meters below ground surface from north-south 1D inversion.

ACKNOWLEDGMENTS

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REFERENCESS

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- <http://doi.org/10.14509/671>