

Expanding Magnetotellurics at IRIS - Continuing Surveys of North America and Establishing New Portable MT Capabilities

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Under SAGE, IRIS is beginning to establish the capacity to support portable magnetotelluric (MT) deployments from the PASSCAL Instrument Center (PIC). This will make crust- and lithosphere-scale MT observing capabilities widely available to principal investigators (PIs) by providing modern instrumentation with comprehensive training and data handling support at no cost. The PIC is a recognized center of excellence for facilitating seismological research with portable instrumentation, and leveraging its talents will help to broaden exposure to MT by encouraging combined seismic-magnetotelluric experiments and reducing the barriers to those not previously experienced with MT.

In addition, the continental-scale long-period MT surveying that began under EarthScope continues as part of a Federal mandate to characterize the hazards to sensitive infrastructure posed by the interaction of space weather with a variably conductive subsurface. IRIS has partnered with the MT Array Operations Center (AOC) at Oregon State University and is supported by NASA to complete a footprint of MT observations across California. As directed by a recent Presidential Executive Order, this survey effort may be extended eastward across the southern tier of the Lower-48 U.S. over the next few years.

Both these efforts are overseen by community governance bodies, including by the permanent PASSCAL Standing Committee and Electromagnetic Advisory Committee (EMAC). In addition, two EMAC working groups have been meeting regularly in 2019 to update standards and procedures for both the procurement of new instrumentation and development of “dirt-to-desktop” dataflows needed to enable research under the SAGE activities. In this presentation, we will provide a snapshot of the SAGE MT facility and NASA-funded MT survey, share results of a recent questionnaire soliciting broad feedback on MT needs from the geophysics community, provide a progress report on recent facility developments, and highlight the advisory input from the EMAC and its working groups.