



## **Improvements in Data Quality, Integration and Reliability: New Developments at the IRIS DMC**

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The IRIS DMC operates a large Data Management Center funded primarily by the US National Science Foundation. Our traditional focus has been on the reception of seismic waveforms and associated metadata, curation of datasets, and the distribution of data to the research and monitoring communities. New activities at the DMC include: 1) the establishment of an Auxiliary Data Center (ADC) near High Performance Computing Centers (HPCs), 2) the development and operation of a new quality assurance system, and 3) work in both vertical and horizontal integration of geoscience datasets. This presentation will address the following topics.

In 2013, a fully functioning, unstaffed, center was installed at Lawrence Livermore National Laboratory, near one of the most capable high performance computing centers in the world. Not only does the ADC function as an operational replicate of the IRIS DMC in Seattle, it also allows HPC access to the large archive of data managed by IRIS using local intranet instead of internet input/output capacities.

A current effort is now being directed toward the improvement of data quality of nearly all data entering the IRIS DMC through a combination of a sophisticated quality assurance system called MUSTANG, with more direct involvement by IRIS personnel to help identify stations with data quality issues.

IRIS is also involved in the COOPEUS project, a collaboration between large research infrastructures in Europe and the US. First step in COOPEUS was to standardize the method of accessing data from 2 waveform data centers in the US and 5 seismological data centers in Europe. This vertical integration has resulted in a "federated" system of data centers. Additionally, IRIS is leading an EarthCube Building Blocks project that will improve horizontal access to data across geoscience disciplines. When coupled with brokering and service registration efforts, this EC effort will aid in data discovery, access, and utilization.

This presentation will provide a general overview of IRIS efforts with the ADC, the MUSTANG QA effort, and new cyberinfrastructure targeting improved data integration, both within seismology as well as across other geoscience disciplines.