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Easy access to geophysical data sets at the IRIS Data Management Center

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At the IRIS Data Management Center (DMC) we primarily manage seismological data but also have other geophysical data sets for related fields including atmospheric pressure and gravity measurements and higher level data products derived from raw data. With a few exceptions all data managed by the IRIS DMC are openly available and we serve an international research audience. These data are available via a number of different mechanisms from batch requests submitted through email, web interfaces, near real time streams and more recently web services.

Our initial suite of web services offer access to almost all of the raw data and associated metadata managed at the DMC. In addition, we offer services that apply processing to the data before it is sent to the user. Web service technologies are ubiquitous with support available in nearly every programming language and operating system. By their nature web services are programmatic interfaces, but by choosing a simple subset of web service methods we make our data available to a very broad user base. These interfaces will be usable by professional developers as well as non-programmers. Whenever possible we chose open and recognized standards. The data returned to the user is in a variety of formats depending on type, including FDSN SEED, QuakeML, StationXML, ASCII, PNG images and in some cases where no appropriate standard could be found a customized XML format.

To promote easy access to seismological data for all researchers we are coordinating with international partners to define web service interfaces standards. Additionally we are working with key partners in Europe to complete the initial implementation of these services. Once a standard has been adopted and implemented at multiple data centers researchers will be able to use the same request tools to access data across multiple data centers. The web services that apply on-demand processing to requested data include the capability to apply instrument corrections and format translations which ultimately allows more researchers to use the data without knowledge of specific data and metadata formats. In addition to serving as a new platform on top of which research scientists will build advanced processing tools we anticipate that they will result in more data being accessible by more users.