

What is THREDDS?

THREDDS (Thematic Real-time Environmental Distributed Data Services) is middleware to bridge the gap between data providers and data users. The goal is to simplify the discovery and use of scientific data and to allow scientific publications and educational materials to reference scientific data.

The THREDDS effort consists of two main areas: the THREDDS Data Server (TDS) and the Common Data Model (CDM) / netCDF-Java library.

The THREDDS Data Server

The THREDDS Data Server (TDS) provides catalog, metadata, and data access services for scientific data. Every TDS publishes THREDDS catalogs that advertise the datasets and services it makes available. THREDDS catalogs are XML documents that list datasets and the data access services available for the datasets. Catalogs may contain metadata to document details about the datasets. TDS configuration files provide the TDS with information about which datasets and data collections are available and what services are provided for the datasets. The available remote data access protocols include OPeNDAP, OGC WCS, OGC WMS, and HTTP. The ncISO service allows THREDDS catalogs to be translated into ISO metadata records.

The TDS also supports several dataset collection services including some sophisticated dataset aggregation capabilities. This allows the TDS to aggregate a collection of datasets into a single virtual dataset, greatly simplifying user access to that data collection.

The TDS is open source, 100% Java, and runs inside the open source Tomcat Servlet container.

Common Data Model

The Common Data Model (CDM) provides data access through the netCDF-Java API to a variety of data formats (e.g., netCDF, HDF, GRIB). Layered above the basic data access, the CDM uses the metadata contained in datasets to provide a higher-level interface to geoscience specific features of datasets, in particular, providing geolocation and data subsetting in coordinate space.

The TDS uses the CDM/netCDF-Java to read datasets in various formats. The CDM also provides the foundation for all the services made available through the TDS.

A pluggable framework allows other developers to add readers for their own specialized formats. The CDM also provides standard APIs for georeferencing coordinate systems, and specialized queries for scientific feature types like Grid, Point, and Radial datasets.

Want to Learn More?

Visit: <http://www.unidata.ucar.edu/software/tds>

Much of the real-time data available over Unidata's Internet Data Distribution (IDD) system is available through a THREDDS Data Server hosted at Unidata. See it in action by pointing the IDV (or your browser) to:

<http://motherlode.ucar.edu:8080/thredds/>

