Report from the FDSN Archive for Continuous Data at the IRIS DMC

2004 FDSN Meeting

13-17 September, 2004
Potsdam, Germany

By
Tim Ahern, IRIS DMS
(prepared August 5, 2004)

Introduction:
Data from several FDSN networks routinely flow into the FDSN Archive located at the IRIS DMC. At the IRIS DMC, these continuous data are archived. Additionally SPYDER® and FARM Products are routinely generated and made available through tools such as WILBER, the Data Handling Interface (DHI) and WEED.

The DMC continues to ship large amounts of seismological data to researchers around the world. This report will summarize current activity at the FDSN Archive for continuous data at the IRIS DMC in Seattle, Washington.

FDSN Data Flow into the IRIS DMC
Data are now flowing into the FDSN archive in real time from 9 of the FDSN networks that routinely contribute data to the IRIS DMC. These include China, Czech Republic, Geofon, IRIS, MedNet, ORFEUS, Switzerland, and the US National Network and very soon we expect real time data from Taiwan.

During 2004 we have received data from 14 different FDSN networks including,

- France (Geoscope),
- China,
- Italy (MedNet),
- Canada,
- Czech Republic,
- Germany (Grafenberg and GEOFONE),
- Japan (Pacific 21),
- Netherlands,
- Taiwan (BATS),
- Switzerland,
- Portugal (U. of Lisbon),
- United States (USNSN and IRIS GSN).

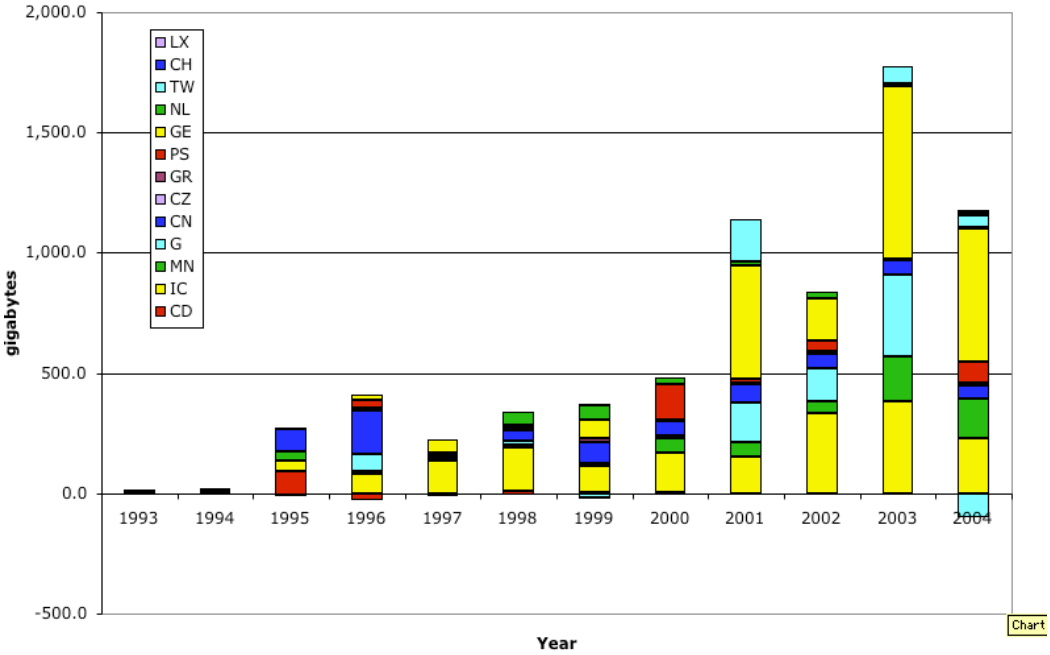

Figure 1. The above figure shows the net increase of FDSN data entering the FDSN archive by year. The figures for 2004 are valid through July 31, 2004. GE data is the most abundant source of data entering the DMC for the first half of this year. Negative values reflected in the about chart are a result of removing data from the archive, usually in preparation for receiving retransmissions of the data.

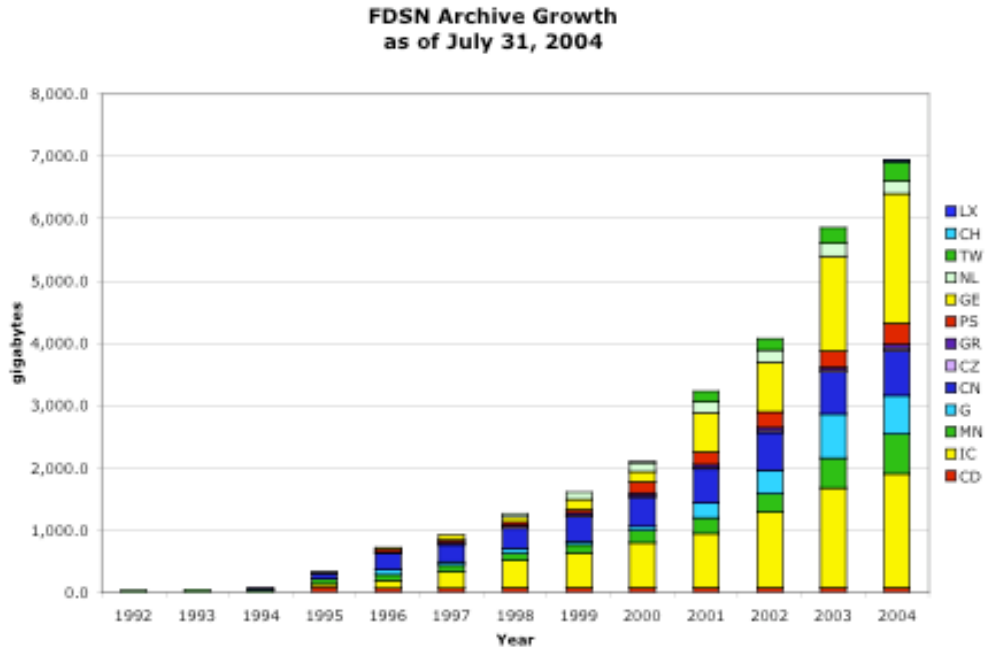

Figure 2. The FDSN archive at IRIS now has a total of 7 terabytes (dual sorted) of FDSN data in its archives, not including data from the IRIS GSN networks of IU and II.

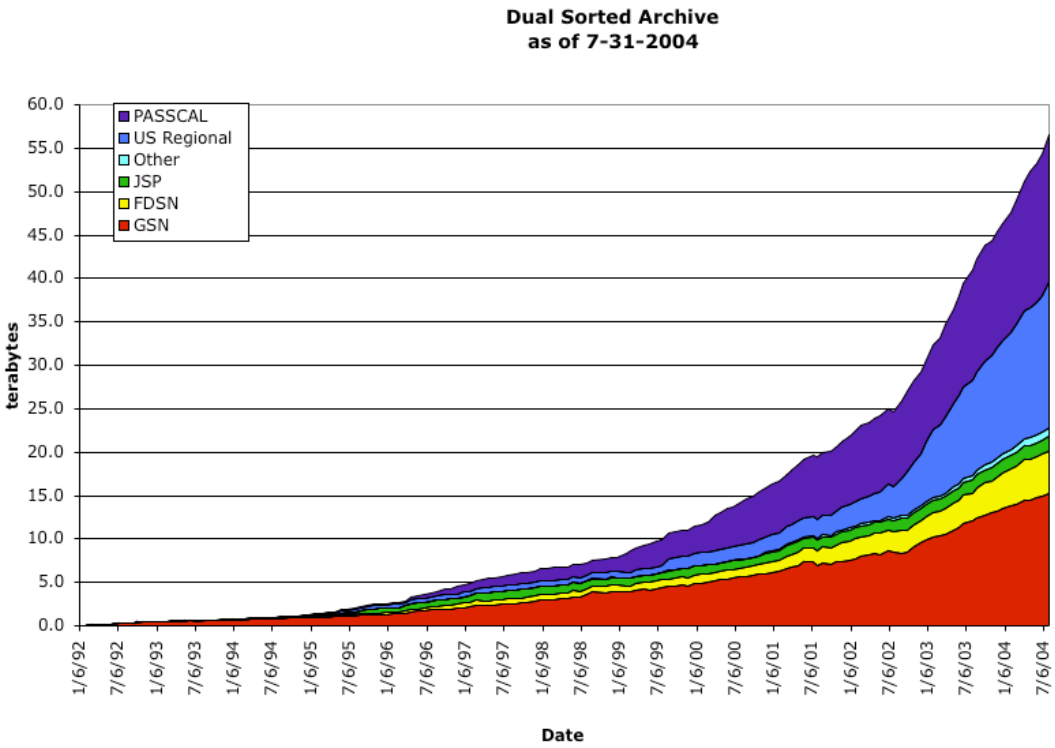

Figure 3. The above figure shows the total amount of data archived at the IRIS DMC. The non-IRIS FDSN contributions are shown in yellow. As of the end of July 2004 the IRIS DMC archive contained roughly 56 terabytes, dual sorted.

Data Shipments

The IRIS DMC has seen a significant increase in the number of shipments this year. At the present time we are estimating that roughly 100,000 individual user requests will be serviced. While we are not sure why there is such a marked increase in shipments in 2004, we do know that a significant fraction of the increase is for servicing requests from outside the United States.

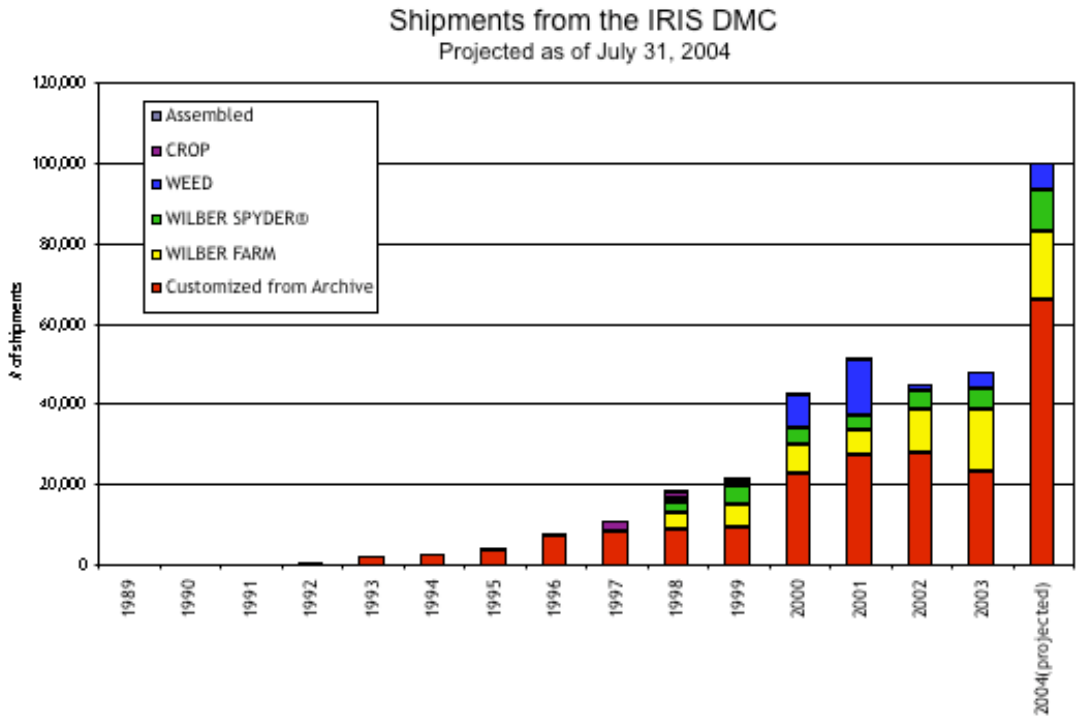

Figure 4. This figure shows the number of shipments from the Archive, and the SPYDER® and FARM products through WILBER that we project will be shipped this year. While we do not know why the number of shipments seem to have doubled this year, we do know that a significant number of them have come from outside the United States. This graph is projected based on shipments through July 31, 2004.

The number of shipments going outside the US from the IRIS DMC shows a similar characteristic, a doubling of the number of shipments from previous years.

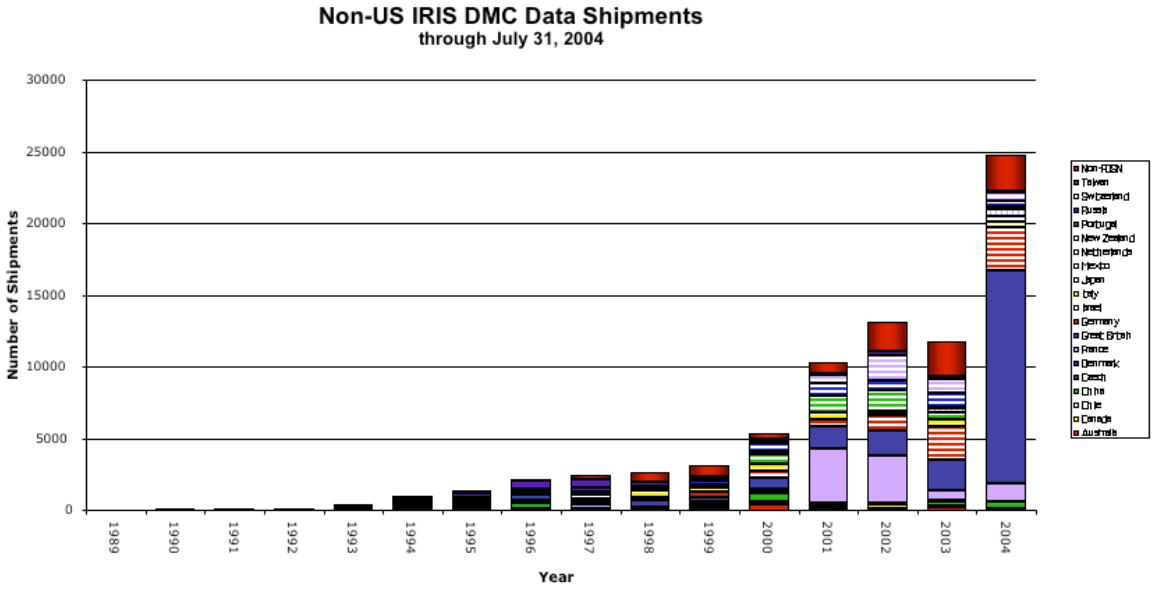

Figure 5. This figure shows the number of shipments flowing outside the United States. This is not projected, but rather reflects the actual shipments made through July 31, 2004. The increase for the entire year over previous years will be close to 20,000.

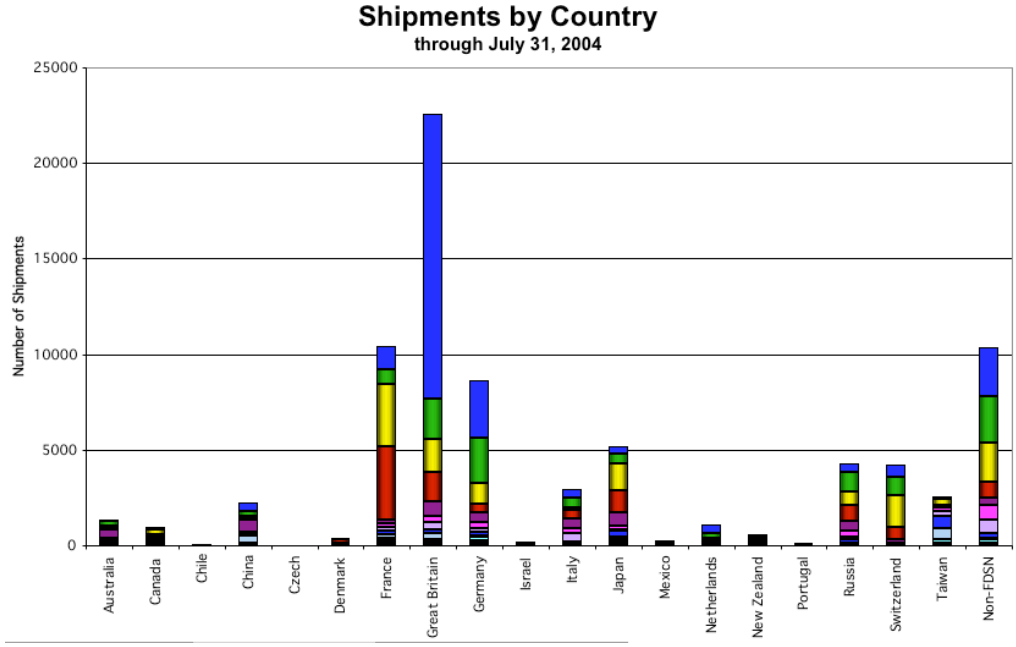

Figure 6. This figure shows that Great Britain is now the country (other than the US) that has requested data from the FDSN archive most frequently. Large numbers of requests also come from France, Germany, Japan, Russia and Switzerland.

Real Time Streaming Data Distribution

Just as the IRIS DMC is now receiving data in near real time through automated techniques, we are also beginning to support distribution of data via streaming mechanisms. We currently support streaming in one of three ways:

1. Live Internet Seismic Server (LISS) Developed by USGS/ASL
2. Data Handling Interface (DHI) Developed by the IRIS DMC and University of S. Carolina
3. SeedLink. Developed by the GEOFONE group at GFZ. This method of data distribution is just being introduced.

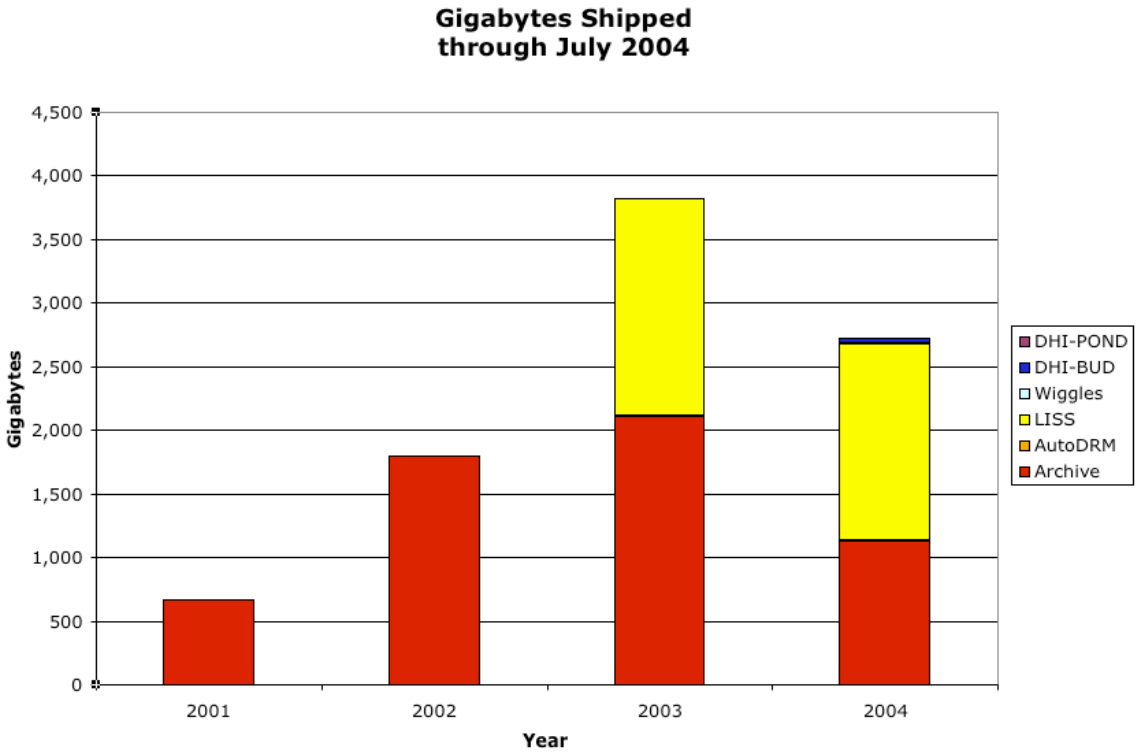

Figure 7. This figure shows the number of gigabytes of data shipped conventionally from the archive in red and the amount of data shipped through LISS and DHI based techniques. The yellow portion shows that nearly the same amount of data was shipped by LISS as from the DMC archive.

The IRIS DMC will ship a total of 4.6 terabytes of waveform data this year if shipments continue at the current rate.

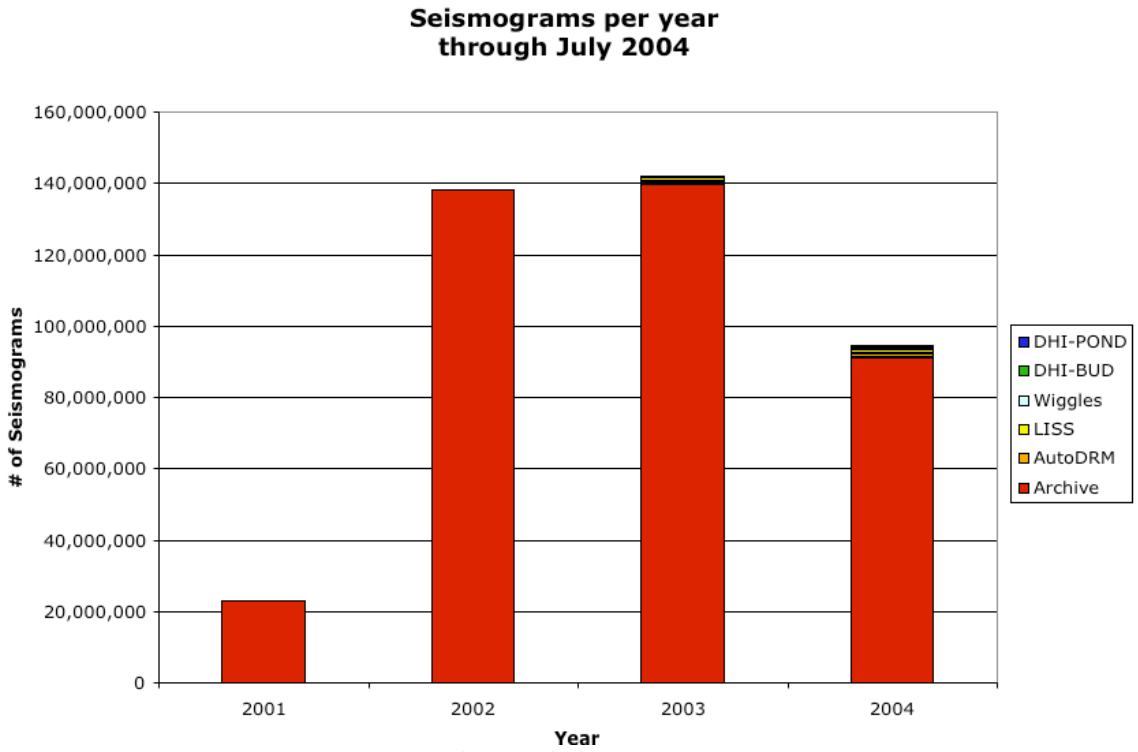

Figure 8. Seismograms Shipped by Year. A seismogram is defined to be a continuous time series from a single network, station, location, channel time series.

LISS methods actually produce a fairly small number of seismograms (just over 1 million) shipped since a single channel normally only produces a single seismogram in an extended period of time. We project that the IRIS DMC will ship about 162 million seismograms in 2004, an increase of about 16% over last year.