BROADBAND SEISMIC DATA DISTRIBUTION SYSTEM - IFREE PACIFIC REGIONGEOPHYSICAL NETWORK DATA CENTER

Hiromitsu Mizutani[1], Seiji Tsuboi[2], Nozomu Takeuchi[3], Shingo Watada[4], Toshiyuki Nakashima[5], Takuya Arai[5]

[1] IFREE, JAMSTEC, [2] IFREE, [3] ERI, Univ. of Tokyo, [4] Earthquake Research Insititute, U. of Tokyo, [5] Fujitsu Limited

The Institute for Frontier Research on Earth Evolution Pacific Region Geophysical Network Data Center (IFREE DC) will distribute the Western Pacific geophysical network data. The Pacific geophysical network consists of seismic observation, electromagnetic observation, GPS observation, superconductive gravimeter, and marine geophysical network.

The IFREE DC is operational, and currently provides broadband seismographic network data from OHP (Ocean Hemisphere Project) via WWW. At IFREE DC, we use a data distribution system called ``NINJA (New Interface for Networked JAVA Applications)", which has been developed in collaboration with IFREE and OHP.

NINJA was developed to create a networked data center that enables users to seemlessly retrieve data sets from different networks through a unified interface. We have developed the basic system of NINJA, and it is now operating through the web pages of both IFREE DC (http://pacific21.jamstec.go.jp) and OHP DMC (http://ohpdmc.eri.u-tokyo.ac.jp).

The technical features of NINJA include: (1) capability of communication through firewalls and (2) information synchronization between request interfaces. We use a tunneling mechanism for firewalls of Java RMI and use http to communicate between user clients and servers through firewalls. We are now developing a robust system for information synchronization through firewalls. In the Western Pacific Region, several different broadband seismographic networks are now being operated by various different institutes in Japan (e.g. PACIFIC21). Currently, these data are provided at each data center through different interfaces. If all the broadband seismographic data from the Western Pacific Region are provided in a unified interface (this does not mean a unified center), in collaboration with these institutes, it will be very helpful for researchers who wish to use the data sets.

From IFREE DC, we will provide waveform data in XML based SEED format, as well as the current SEED format. XML based SEED is a new format which is proposed as an extension of the current SEED. Headers are written in XML to avoid the problems caused by the limited length of headers in the current SEED format. However, the data records are left unchanged. The software for reading XML based SEED (e.g. xrdseed) is also provided.