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Creating Synergy Between IMS Data and Local Data: Verification, Detection Threshold and Local Applications

Combining IMS seismological data with data from local and regional seismographs can provide many benefits to NDCs. We will provide three different examples from the Danish NDC: a) verification of the DPRK nuclear tests, b) identification of conventional explosions in the Danish territorial waters, and c) using IMS data to determine the depth of small Danish earthquakes. The Danish NDC operates five BB seismographs in Denmark, and jointly with partners in the GLISN project 20 BB seismographs in Greenland. In daily operation data from selected Norwegian and Swedish stations are included. The recent nuclear tests by DPRK were clearly recorded in Greenland as well as in Denmark, and we were able to locate the events quickly using our own data exclusively, thus providing a completely independent validation. The precision was improved when including IMS data. All processing at the Danish NDC is carried out using the SeisAn processing package. Data from IMS is downloaded and imported into SeisAn. This is feasible when including smaller amounts of IMS data. For full integration between local data processing and IMS waveforms as well as bulletin data, it would be desirable to have a direct link between NDC-in-a-box and SeisAn.

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