

The infrastructure of the ISMS is flexible enough to incorporate the collection, archiving and distribution of data from non-seismic techniques, for example, radioactivity, hydroacoustics and infrasound.

There are three main elements of the envisaged ISMS:

(a) A global network of stations

The Alpha stations consist primarily of arrays, with some three-component stations, and are designed and located to provide detection of seismic events throughout the world. The station waveform data are telemetered continuously to the International Data Centre (IDC), either directly or through an NDC. The NDC should record the station waveforms and log the IDC access to the station to corroborate the data reliability and enable the IDC to recover lost data when communication links fail. Alpha stations should meet GSE criteria for sensitivity, instrumental response, recording hardware and software, operation and management.

The Beta stations provide data supplementary to that provided by the Alpha stations, so that events can be located with improved accuracy. Beta stations are primarily three-component stations, with some arrays. GSE standards for these stations may not be as stringent as for the Alpha stations. Though not telemetered continuously to the IDC, waveform segments can be retrieved automatically by the IDC or by NDCs from continuous data archives at National Data Centres (NDCs) or the individual stations.

Participating States may also make available supplementary data (gamma data) from national and regional networks that are not formally part of the ISMS. Stations are maintained to national standards. Gamma data are available on request, although rapidity of response may vary from one network to another. The IDC will make use of these data according to standard procedures agreed to by the GSE.

(b) National Data Centres (NDCs)

NDCs are the primary users of data from the ISMS to support national verification needs. NDCs (or cooperative regional facilities, in some cases) operate and maintain Alpha and Beta stations according to GSE standards and procedures. The NDCs are responsible for the collection of continuous data from the alpha stations and for ensuring that such data are transmitted to the IDC. Communication links are operated to ensure availability of data to the IDC. Automatic access to Beta data may be at NDCs or at the stations themselves. Gamma data are compiled at the NDCs and submitted to the IDC.

(c) International Data Centre (IDC)

The IDC collects waveform data from Alpha stations (by continuous telemetry) and from Beta stations (as segments, retrieved automatically), and processes these data to produce and distribute a daily bulletin. Automation is incorporated in the IDC's procedures to the greatest extent