

IMS Equipment Challenges for Waveform Technologies

The presentation is focused on equipment challenges for IMS seismic and infrasound networks. As per Operational Manuals, stations of both networks have to meet requirements for data authentication, data buffering, data availability with less than five min delay when transmitted to IDC and accurate control of absolute and relative timing for data samples. Developed Standard Station Interface (SSI) solution provides the compliance with these requirements. It is known that verification seismology is concerned with searching of reliable methods of signal detections at high frequencies whilst IDC MS/mb screening criteria relies on reliable surface waves detection at low frequencies. To achieve that the requirements for instrumental noises are defined as certain dBs below minimum background within the whole required frequency band. Therefore the compliance with them introduces challenging task when close to NLNM conditions are recorded at the site. The experience has shown that hybrid response seismometers provide optimal solution for utilization of system dynamic range and assuring the compliance with instrumental noise requirements. Results were achieved in infrasound technology to optimize the response of the WNRS within the required infrasound passband. To obey the requirement for infrasound system calibration the reference sensor technique was developed and validated at several stations.

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