

3.1-P10. Field Installation and Real-Time Data Processing of the New Integrated SeismoGeodetic System with Real-Time Acceleration and Displacement Measurements for Earthquake Characterization Based on High-Rate Seismic and GPS Data

We will discuss and show the results obtained from an integrated SeismoGeodetic System, model SG160-09, installed in the Chilean National Network. The SG160-09 provides high rate GNSS and accelerometer data, and create combined GNSS and accelerometer high-rate (200Hz) displacement time series in real-time. The SG160-09 receiver incorporates on-board GNSS point positioning using Real-Time Precise Point Positioning (PPP) technology with satellite clock and orbit corrections delivered over IP networks. The seismic recording element includes an ANSS Class A, force balance triaxial accelerometer with the latest, low power, 24-bit A/D converter, which produces high-resolution seismic data. The SG160-09 has been installed in the seismic station close to the area of the M8.2 Iquique earthquake of April 1, 2014, in northern Chile, a seismically prone area at the current time. The hardware includes the SG160-09 system, external Zephyr Geodetic-2 GNSS antenna, and high-speed Internet communication media. Both acceleration and displacement data was transmitted in real-time to the National Seismological Center in Santiago for real-time data processing using Earthworm / Early Bird. Data from the SG160-09 system was used for seismic event characterization along with data from traditional stand-alone broadband seismic and geodetic stations installed in the network.

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