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The Algerian Seismic Network: Performance from data quality analysis

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Seismic monitoring in Algeria has seen a great change after the Boumerdes earthquake of May 21st, 2003. Indeed the installation of a New Digital seismic network (ADSN) upgrade drastically the previous analog telemetry network.
During the last four years, the number of stations in operation has greatly increased to 66 stations with 15 Broad Band, 02 Very Broad band, 47 Short period and 21 accelerometers connected in real time using various mode of transmission (VSAT, ADSL, GSM, ...) and managed by Antelope software. The spatial distribution of these stations covers most of northern Algeria from east to west.
Since the operation of the network, significant number of local, regional and tele-seismic events was located by the automatic processing, revised and archived in databases. This new set of data is characterized by the accuracy of the automatic location of local seismicity and the ability to determine its focal mechanisms. Periodically, data recorded including earthquakes, calibration pulse and cultural noise are checked using PSD (Power Spectral Density) analysis to determine the noise level.
ADSN Broadband stations data quality is controlled in quasi real time using the “PQLX” software by computing PDFs and PSDs of the recordings. Some other tools and programs allow the monitoring and the maintenance of the entire electronic system for example to check the power state of the system, the mass position of the sensors and the environment conditions (Temperature, Humidity, Air Pressure) inside the vaults.
The new design of the network allows management of many aspects of real time seismology: seismic monitoring, rapid determination of earthquake, message alert, moment tensor estimation, seismic source determination, shakemaps calculation, etc.
The international standards permit to contribute in regional seismic monitoring and the Mediterranean warning system.
The next two years with the acquisition of new seismic equipment to reach 50 new BB stations led to densify the network and to enhance performance of the Algerian Digital Seismic Network.