



Very broad–band seismic instrumentation for ground and marine high–sensitivity measurements

Valerio Iafolla, Emiliano Fiorenza, Carlo Lefevre, Sergio Nozzoli, Roberto Peron, Andrea Reale, and Francesco Santoli

IFSI - INAF, Gruppo di gravitazione sperimentale, Roma, Italy (roberto.peron@ifsi-roma.inaf.it)

ISA (Italian Spring Accelerometer) is a very broad–band high–sensitivity accelerometer, result of a long activity devoted to the development of instruments for space use (room temperature gradiometers and accelerometers). It can equally well be used for geophysical studies. It is the underlying component of a wide variety of instruments, as a high–sensitivity seismometers (sensitivity $10^{-10} \text{g}/\sqrt{\text{Hz}}$ under 10^{-1} Hz) and field seismometers, gravimeters and gradiometers (which employ a sensitivity $10^8 \text{g}/\sqrt{\text{Hz}}$ under 10 Hz). Many instruments have been built and operated, in a variety of environments, including the multi–parameter sea–floor station GEOSTAR (GEophysical and Oceanographic Station for Abyssal Research). Following a description of the accelerometer, a review of the various types of measurements will be given, discussing its many applications. These range from seismic measurements to environment characterization (e.g., underground cavities reconnaissance) to geodetic studies. This instrument is therefore suited for use in wide warning networks for e.g. seismic monitoring: its integration into such networks will be discussed.