



eSW: the electronic Space Weather project at INGV

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The INGV (Istituto Nazionale di Geofisica e Vulcanologia, Italy) performs several measurements of upper atmosphere parameters at middle and high latitudes. The Ionospheric Observatory of Rome (geographic coordinates: 41.8°N, 12.5°E) is frequently mentioned in the international scientific literature being one of the most ancient in the world. It has a history of continuous observations from 1949 and therefore covers five solar cycles. The ionospheric Observatory of Gibilmanna (37.9°N, 14.0°E) performs vertical soundings since 1976. The observatories are equipped with the new ionosonde AIS (Advanced Ionospheric Sounder), entirely designed and developed by the INGV ionospheric laboratory. The institute carries out experimental observations at polar latitudes since 1990. At the Italian Antarctic station “Mario Zucchelli” (74.69°S, 164.12°E), the upper atmosphere observatory is equipped with the AIS ionosonde and with four single beam riometers measuring the ionospheric absorption at 30, 38.2 and 51.4 MHz. From 2003 the group manages an ionospheric scintillations observatory located at Ny Ålesund (Svalbard, Norway, geographic coordinates: 78.9°N, 11.9°E), equipped with two GISTM (GPS Ionospheric Scintillation and TEC Monitor) receivers; a similar station has been recently installed at “Mario Zucchelli” station. The new eSW project is based on all the measurements and studies above mentioned to give useful tools for the scientific and technological community in the field of telecommunications and Space Weather. The aim is the realization of a hardware-software system for a Data Base to standardize historical and real time observations for different instruments. The data are automatically processed and available via web through dynamic queries. In this work a general description of the observatories and the project plan are reported. Details on data flow, data treatment, applied technologies are presented as well as first results.