NEW OPERATIONAL SPACE WEATHER SENSORS

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The Space Environment Monitor for the National Polar-orbiting Operational Environmental Satellite System (NPOESS) is the next generation operational sensor suite for measuring the characteristics of precipitating charged particles in low-earth orbit. Refered to as the SEM-N this sensor suite consists of three separate instruments used primarily for measuring; 1) auroral electrons and protons in the energy range from 30 eV to 30 keV, 2) precipitating radiation belt electrons and ions in the energy range from several ten's of keV to above 1 MeV, and 3) solar protons with energies from 10 MeV to greater than 140 MeV. Each of these sensors is based on heritage designs used on current meteorological satellites operated by the United States (U.S.) and by the European Organization for the Exploitation of Meteorological Satellites (EUMETSAT) or on current scientific missions for the National Aeronautics and Space Administration (NASA). Current operational algorithms are also currently being adopted to produce the space Environmental Data Records (EDRs) corresponding to the differential energy fluxes from the individual sensors as well as derived EDRs locating the auroral boundary and the auroral energy deposition. These EDRs will be integrated into existing space weather operations within the U.S. and Europe. The anticipated launch for the first NPOESS spacecraft is 2013 with a projected 10-year lifetime.

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