GRAS SAF RADIO OCCULTATION DATA FROM EPS/METOP

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The EUMETSAT network of Satellite Application Facilities (SAFs) will, together with the EUMETSAT central facilities, constitute the future ground segments for the MSG and EPS/Metop satellites. SAFs are located in national meteorological offices or other approved institutes of EUMETSAT member states. The scope of the SAF activities will be to deliver products and/or software to derive these products, at the level of meteorological parameters, based primarily on the satellite data.
The GRAS (Global Navigation Satellite System Receiver for Atmospheric Sounding) SAF will receive raw and preprocessed GPS radio occultation data from the GRAS instrument onboard the EPS/Metop satellite, process these into vertical profiles of refractivity, temperature, pressure, and humidity, and distribute these products continuously to numerical weather prediction and climate monitoring users. The GRAS SAF products promise globally distributed high-vertical resolution data on a 24 hour-basis, forming a considerable improvement on todays measurement methods regarding coverage, vertical resolution, frequency, and cost. The accuracy requirements of the products vary with height. The expected temperature RMS will be between 0.5 and 5 K, pressure RMS between 0.5 and 2 hPa, specific humidity RMS between 0.025 and 1 g/kg, and refractivity RMS between 0.1 and 2 %. Vertical resolution will be between 0.3 and 3 km.
A second objective of the GRAS SAF is to supply software for 1/3/4D-VAR assimilation of radio occultation data into numerical weather prediction models.
The GRAS SAF has members at DMI (Denmark), IEEC (Spain), and Met Office (UK). The host institute is DMI, where the Processing Center will be situated during the operational phase. The GRAS SAF is expected to distribute and archive atmospheric products from around 500 occultations per day at least through the expected project lifetime of 15 years.
The main users of the GRAS SAF products will be meteorologists doing NWP data assimilation, and users from the climate research and atmospheric science communities, needing comprehensive, globally distributed temperature, pressure, and humidity information. The products will come in two types:
Near-Real Time Products (for NWP), disseminated less than three hours after acquisition,
Offline Products (improved, for climate research), available less than 30 days after acquisition.