



Simulated products from the ATOVS and AVHRR Product Processing Facility for EPS

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The EPS ATOVS and AVHRR Product Processing Facility (PPF) will process global ATOVS (Advanced TIROS Operational Vertical Sounder, i.e. HIRS/4 (High Resolution Infrared Radiation Sounder), AMSU-A (Advanced Microwave Sounding Unit A), MHS (Microwave Humidity Sounder)), and AVHRR/3 (Advanced Very High Resolution Radiometer) data from the Metop and NOAA satellites. These satellites are the space component of the Initial Joint Polar System (IJS) of Europe (EUMETSAT) together with the U.S. (NOAA-NESDIS). EUMETSAT will provide ATOVS and AVHRR data from the morning orbit (Metop-A, Metop-B) and the afternoon orbit (NOAA-N, N1) from 2005 onwards. NOAA-N is the first satellite to be launched of the IJS and will provide the first space based data from the Microwave Humidity Sounder, developed by EUMETSAT, which replaces the AMSU-B instruments of the ATOVS instrument suite. Metop will provide full resolution AVHRR data, whereas Global Area Coverage (GAC) resolution will be provided from the NOAA satellites.

The ATOVS and AVHRR PPF in the EPS Core Ground Segment (CGS) processes the data of the whole space component to

- Level 1 (radiances)
 - AVHRR/3
 - HIRS/4
 - AMSU-A
 - MHS
- Level 2 (temperature and humidity profiles on the HIRS/4 FOV per default),
 - using all sounding instruments and AVHRR.

The products provided are based on complete orbital dumps and are global products. The High Resolution Picture Transmission will continue from both Metop and NOAA satellites, from the former in an Advanced (AHRPT) version, making use of packet data streams.

With NOAA-N in orbit (launch scheduled 13 May 2005) it is foreseen to process the NOAA-N ATOVS and AVHRR data in the EPS Core Ground Segment in order to test the processing system and to validate the algorithms.

The development of the CGS algorithms was supported by prototyping for the complete processing chains. The prototypes are able to support the whole product production and can achieve this within the timeliness constraints for level 1 (2h15min after sensing) and level 2 products (3h after sensing). NOAA-N data will also be processed with the prototypes for verification purposes. The status of the operational ATOVS processing is demonstrated with the test data, which are available in the native EPS product format.

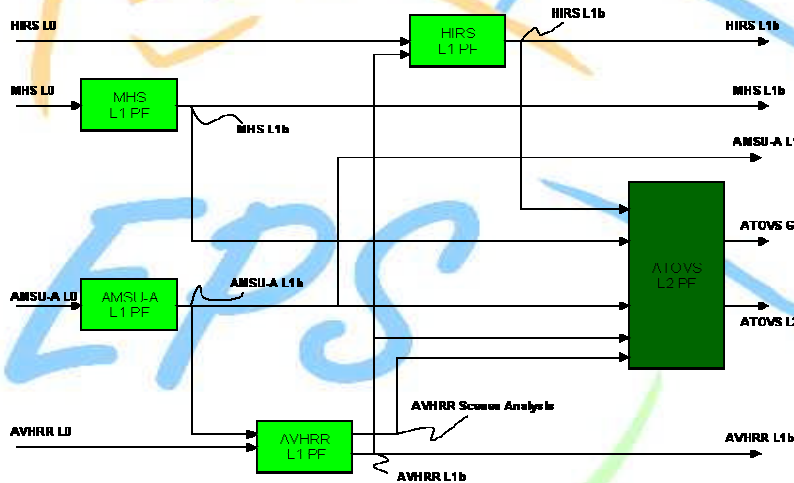
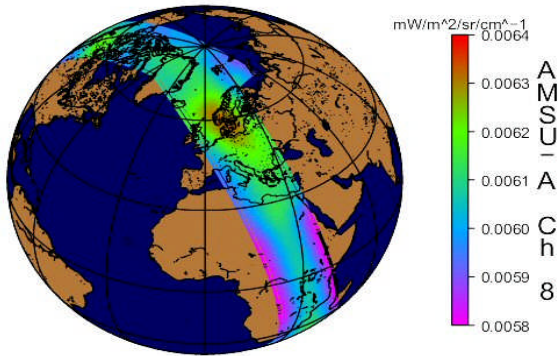


Figure 1: ATOVS and AVHRR Processing Chains in the EPS Core Ground Segment.

The results below demonstrate typical Level 1 products obtained from CGS processing. The product generations are demonstrated with the EPS test products, which were produced with prototype data of NOAA-16 and formatted in the native EPS product format. These data are available from EUMETSAT (see our web page <http://www.eumetsat.int> and there on the EPS page under pre-launch information). The product naming is conform with the naming convention also used in the UMARF (Unified Meteorological Archive and Retrieval Facility).

NOAA16 20020320 AMSU-A Ch 8 Radiance

AMSA_XXX_1B_M01_20020320103121Z_N_T_20020320122621



NOAA16 20020320 AMSU-A Ch 15 Radiance

AMSA_XXX_1B_M01_20020320103121Z_N_T_20020320122621

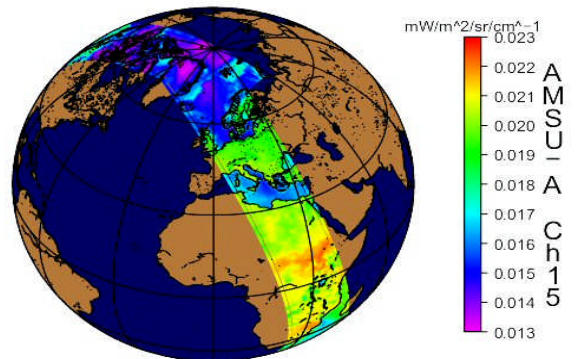


Figure 2: CGS ATOVS products. Left: AMSU-A channel 8 radiances; Right: AMSU-A channel 15 radiances. Data are from NOAA-16 20 March 2002.