Reprocessing of the IASI L1 products from the Infrared Atmospheric Sounding Interferometer (IASI) instrument currently flying on the MetOp-A platform has been performed at EUMETSAT for a period of four years, from July 2007 to April 2011. This work presents the validation activities on the generation of the data in order to ensure that the requirements have been satisfied. The reprocessing is conducted in order to account for Day-2 algorithms with a format evolution and the latest configuration parameters' improvements. The final reprocessing period will range from July, 2007 up to now. The reprocessed products will专门 allow the evaluation of the content and the improvement of the data in terms of spectral calibration. Furthermore, the MetOp-B Cal/Val has allowed the revision of configuration parameters and the reprocessing also aims at aligning as much as possible the IASI data measured before 2013 with those parameters.

Introduction of Quality Flags and Intercomparisons

Before day-2 evolution (May 2010), the products only contained a flag summarizing for all bands in the reprocessed products, it can be observed that 34 different on-board and on-ground processing quality flags are introduced. The check on the old quality flag also confirms that the reprocessing activities has not produced any impact on it as it was expected.

Improving Spectral Harmonization

Since July 2007, inter-pixel radiances differences in the IASI level 4C products exceeding 0.1 K were observed in some regions of the spectra. After some investigations, it was found that the on-ground processing algorithm was not able to fully correct the spectral response function. The solution was to symmetrise the Self Apodisation Function used to harmonise the spectra in the on-ground processing. In order to simplify the correction, CNES implemented the symmetrisation through the Spectral DataBase, which has been used since 07.02.2011. This impacts all pixel and in particularly the pixel 2. From the figures below, it can be observed that the inter-pixel differences with the pixel 2 has been largely reduced.

New Information in the Products

Cloud and land mask information from AVHRR has also been included in the IASI products which did not exist in the IASI L3 products before September 2009. The following figure shows the cloud fraction in a reprocessed product from the 30th of October 2007 where cloud features in the atmosphere can be observed:

Summary and Outlook

- Quality flags in the reprocessed products were validated and checked to contain about 13 new different on-board and on-ground quality flags
- New information on the cloud and land fraction was confirmed to exits now in the reprocessed products
- Reprocessed files showed recovered data that was originally missing in the archive.
- Pixel anomalies from the reprocessed files showed a reduction of the differences, especially in band 3.
- The reprocessing activities are expected to be concluded by end of February 2018
- Reprocessed products will be available for the users on the EUMETSAT archive

Contact: EUMETSAT User Helpdesk:  OPS@eumetsat.int

EUMETSAT, Eumetsat-Allee 1, 64295 Darmstadt, Germany