

The next generation of EUMETSAT hyperspectral infrared geophysical and principal components products

Marc Crapeau ⁽¹⁾, Tim Hultberg ⁽¹⁾, Stefan Stapelberg ⁽¹⁾, Jonas Wilzewski ⁽¹⁾, Dorothee Coppens ⁽¹⁾

⁽¹⁾ EUMETSAT

EUMETSAT Allee 1, 64295 Darmstadt, Germany

EMail: marc.crapeau@eumetsat.int

ABSTRACT

For over 15 years, EUMETSAT's Central Facility has been providing IASI Level 2 products to users in near-real time. The distribution started with Metop-A in 2007 and expanded to Metop-B in 2013 and Metop-C in 2019. Throughout this period, the quality of these products has consistently improved due to regular updates to the retrieval algorithms. New parameters have been added over the years, and a version of the IASI L2 processing was integrated into the EARS regional data service. A monitoring assessing the performances of the retrievals against references datasets (in-situ, ground based, airborne...) supports the data dissemination.

The EUMETSAT IASI L2 product suite includes high-quality atmospheric temperature and humidity profiles, utilizing synergistic microwave-infrared retrieval and machine learning algorithms for all-sky coverage. The products distributed also cover surface parameters, cloud characterisation and several atmospheric components available as profiles or integrated columns.

EUMETSAT is also disseminating a IASI L1 hybrid principal components (HPCs) product. This product combines the advantages of global PCs (very high level of compression and noise filtering) with the benefits of local PCs (conservation of rare spectral features).

With the approaching launches of Metop-SG A1 and MTG-S1, EUMETSAT is about to generate and disseminate hyperspectral infrared (HSIR) L2 and HPCs products for two new instruments, IASI-NG and IRS. These products will be generated using the same algorithms as those used for IASI. To support this new configuration involving three families of instruments, a major new version of the EUMETSAT HSIR L2 algorithms and formats is being developed. Based on more than 15 years of development and interaction with users, this new version aims to provide harmonized data for the three missions. This presentation will provide an overview of the innovations and specificities of this new version of the EUMETSAT HSIR L2 products.