IASI-NG Monitoring Tools

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ABSTRACT

In preparation for the EPS-SG launch, the Hyperspectral Infrared L1 Team at EUMETSAT, is in charge of running offline monitoring tools for IASI-NG. Having realistic simulated data is important to test and run these tools, so we first created an IASI-NG data simulator that could provide close approximations of IASI-NG spectra for any day of choice. To do this, we downloaded hourly ERA-5 reanalysis data and obtained radiances using the RTTOV software. These radiances were then interpolated over an IASI-NG viewing geometry following the Metop-C orbit. Finally, some realistic random noise was added to the spectra based on on-ground measurements of the instrument's NedT. This data served as input for four core monitoring modules:

- Cross calibration module, which allows for the comparison with other hyperspectral satellites (IASI, HIRAS, CrIS), imagers (METimage) or synthetic spectra (RTTOV),
- Spectral Calibration module, which ensures the spectral calibration matches other reference instruments or ECMWF observations and tracks the instrument's Self Apodization Function
- Noise monitoring module, which monitors the behaviour and evolution of the instrument's noise individually and per Field of View, along with the noise correlation
- Flags monitoring module, which tracks the value of different variables present in the Radiance or Engineering files such as general quality flags, black body temperatures or instrument modes, and raises alerts when these have unexpected values.

In this presentation we will show the plots provided by these tools, what instrumental defects we can track with them and what we expect to see once EPS-SG is in orbit and we have real IASI-NG spectra.