

IASI-NG: Overview of the processing algorithms

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ABSTRACT

Developed by Airbus Defense and Space under CNES overall responsibility in partnership with EUMETSAT, the Infrared Atmospheric Sounding Interferometer New Generation (IASI-NG) is a key payload element of the second generation of European meteorological polar-orbit satellites (METOP-SG). The objective of IASI-NG is to continue the IASI mission and improve the performances by dividing the spectral resolution and the radiometric noise by a factor of two.

To achieve the targeted performance enhancement, the IASI-NG instrument design differs significantly from IASI. It is based on an innovative Mertz interferometer concept that allows partial compensation of the so-called self-apodization effect. The complexity of the instrument makes it necessary to perform a dynamical estimation of the Instrument Spectral Response Function (ISRF). This estimation and the subsequent correction are performed by the ground processing using metrology laser measurements and a model of the interferometer.

The radiometric, spectral and geometric calibrations performed by the ground processing are essential to achieve the performances of the mission. The calibration of the measurements being closely tied to the instrument, the IASI-NG evolutions have led to new algorithms, especially concerning the spectral calibration.

We will present an overview of the processing algorithms implemented in the operational IASI-NG L1C processor, with an emphasis on the sounder data processing.