

IASI-NG Instrument development status and performances

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ABSTRACT

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) dedicated to operational meteorology, oceanography, atmospheric chemistry, and climate monitoring.

CNES (Centre National d'Etudes Spatiales) is in charge of IASI-NG programme based on an instrument concept proposed and developed by Airbus Defence and Space. It will continue and improve the IASI mission in the next decades (2020-2040) in the field of operational meteorology, climate monitoring, and characterization of atmospheric composition related to climate, atmospheric chemistry and environment. The performance objective is mainly a spectral resolution and a radiometric error divided by two compared with the IASI first generation ones.

The measurement technique is based on wide field Fourier Transform Spectrometer (operating in the 3.5 - 15.5 μm spectral range) based on an innovative Mertz compensated interferometer to manage the so-called self-apodization effect and the associated spectral resolution degradation.

The Proto Flight Model, after integration and partial testing, has been mounted on METOP SG A1 and passed successfully the mechanical and TVAC Satellite campaign in 2023. It was then dismantled for open work completion. In parallel, FM2 instrument has been fully integrated and TVAC performance verification has been performed in April 2024.

We present here a synthesis of the main IASI-NG Instrument performances.