IASI-NG Program: General Status Overview

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ABSTRACT

CNES is developing the Infrared Atmospheric Sounding Interferometer New Generation (IASI-NG), a key payload element of the second generation of European meteorological polar-orbit satellites (MetOp-SG A), dedicated to operational meteorology, atmospheric composition, and climate monitoring. IASI-NG will continue and improve the IASI mission in the next decades (2025-2045) with notable improvements on performances. The performance objective is mainly a spectral resolution and a radiometric error divided by two compared with the IASI first generation ones.

For the IASI-NG program, a cooperation agreement is implemented between CNES and EUMETSAT. Under this agreement, CNES has oversight responsibility for the development and procurement of the instruments, the definition of instrument in flight operations, the Level 1C data processing software (L1C POP) and the IASI NG Technical Expertise Centre (IASTEC) in charge of the in-flight calibration, validation and continuous performance monitoring. The instrument measurement technique is based on wide field Fourier Transform Spectrometer (operating in the 3.5 µm - 15.5 µm spectral range) based on an innovative Mertz compensated interferometer to manage the so-called self-apodisation effect and the associated spectral resolution degradation. EUMETSAT is in charge of developing the EPS SG (EUMETSAT Polar System Second Generation) System and operating, archiving and distributing IASI-NG data to the users.

The paper reports on latest status of IASI NG program.

Further several years of instrument development, integration and test activities, IASI-NG program reached important milestones with the completion of the two first Instrument flight model's. IASI-NG flight model instrument integrated on the MetOp SG A1 flight satellite supported the Satellite Qualification test campaign. The results of the tests performed on instrument Flight Model will be presented with the status of the next Instrument Flight Model.

The status of the most recent CNES activities related to the system and ground segment progress will be also provided. CNES achieved the development of a first version of Level 1 C data Processor encompassing the full perimeter of data processing algorithms. This processor will be used for the integration and validation tests of EPS SG mission data processing centre. A final version of the processor to perform the In Orbit Verification and Cal/Val activities, is under development with delivery planned early 2025.

The development of the IASI-NG Technical Expertise Centre, which will be used for In Orbit performances evaluation of the instrument and tuning of the L1C products, also started in an incremental approach. The objective is to release a version to support IASI-NG system compatibility test with EPS SG system end of 2024.