IASTEC : the IASI-NG system expertise centre

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ABSTRACT

CNES develops 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 advances 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, procurement and exploitation of the IASI-NG Technical Expertise Centre (IASTEC). IASTEC functionalities are the in-flight calibration, validation and continuous performance monitoring of both IASI-NG instruments and Level 1 processing, at the benefit of the users of IASI-NG products. Command/control and performance experts will make use of IASTEC during the commisionning phase as well as during the routine operations for more than 20 years.

The paper reports on IASTEC functionalites and interfaces.

IASI-NG Technical and Expertise Center is divided in two parts :

- ROOTS : Routine OperaTions Support, to monitor instrument and L1C products quality. If needed, to deliver updates of on-ground or on-board configuration.
- GENIE : Ground SEgmeNt scIence Expertise, dedicated to performances assessment and tuning of the parameters of the instrument and L1 processor algorithms.

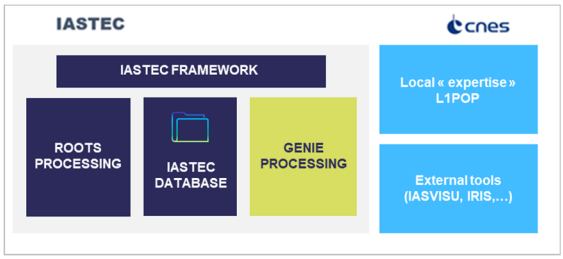

Fig. IASTEC functional breakdown

The IASTEC outputs are distributed to EPS-SG system, and useful for the users of IASI-NG L1 products. For instance, files are provided containing Noise Covariance Matrices and coefficients for spectral calibration which are used in particular for meteorological applications for global and local mission.

The IASI-NG Technical Expertise Centre is developed in an incremental approach. A first version was used to support connectivity and integration tests with EPS SG system, beginning of 2024. The objective is to release upgraded versions, between end of 2024 and Q1 2025. They will support CNES/EUMETSAT integration and verification tests with both IASTEC and EPS-SG system ready in their baseline configuration for launch.