IAF EARTH OBSERVATION SYMPOSIUM (B1)
Future Earth Observation Systems (2)

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IASI-NG PROGRAM DEVELOPMENT STATUS: GENERAL OVERVIEW

Abstract

IASI-NG (Infrared Atmospheric Sounding Interferometer New Generation) is a key element of the EPS SG (European Polar System Second Generation) Program. IASI-NG will continue the IASI first generation mission in the next decades (2024-2044), with notable improvements on performances, in the field of operational meteorology, climate monitoring, and characterization of atmospheric composition. The performances objectives are mainly a spectral resolution and a radiometric error improved by a factor two compared with the IASI first generation ones. For 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 IASI-NG instruments, the Level 1C data Operational Processing software (L1C POP) and the 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 Infrared Fourier Transform Spectrometer based on an innovative Mertz compensated interferometer to manage the so-called self-apodisation effect and the associated spectral resolution degradation. This paper reports on latest status of IASI NG program development which achieved its Critical Design Reviews for Instrument and System aspects. Further 5 years of instrument definition consolidation and engineering models activities, all the instrument sub-system environment qualification and performance tests have been successfully completed. Early 2021, the alignment, integration and test phases have started on the first IASI-NG instrument Flight Model (PFM) with the coming final performances vacuum test before delivery in fall 2021. IASI-NG PFM instrument will be then mounted on the Metop SG A1 PFM Satellite under development by ESA to participate to the Satellite environment test campaign in 2022. A focus will be also made on data processing from Level 0 raw data to Level 1C data. CNES achieved the definition of the L1C POP with the validation of algorithms. These algorithms consist in the removal of instrument dependent variations of the spectral response, radiometric and spectral calibration in order to provide both accurate and stable spectra to the users. The first version of the L1C POP will be provided in 2021 by CNES to EUMETSAT for integration in the EPS SG payload data processing center. The status of mission performances and the overall system validation on going activities will be also provided.