

IASI SYSTEM PERFORMANCE MONITORING BY TEC

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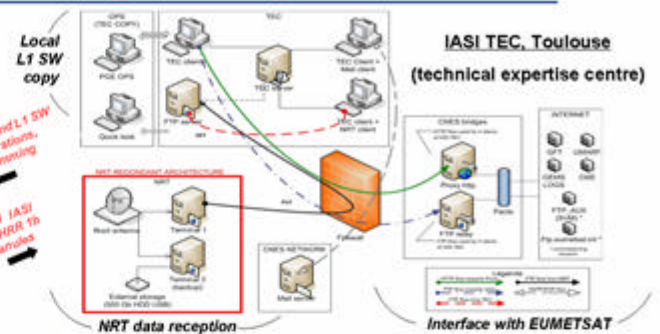
METOP A – IASI FM2

IASI TEC MISSION at CNES, Toulouse :

- to monitor the overall IASI performances (levels 0, 1) and lead expertise in case of anomaly
- to update the instrument and/or the on ground parameters configurations
- to maintain version of the operational level 1 processor at CGS1, EUMETSAT

HISTORY

- PREPARATION**
- ON GROUND QUALIFICATION (before launch, 2005 – 2006, 18 months)**
 - SSVT (simulated instrument parameters) and programming requests sent to GIF and Instrument during Thermal Vacuum
 - End to end products dissemination and processing loop
 - Change of NRT → EUMETCAST products dissemination
 - TEC internal IIOV training
 - Delivery of initial configurations: Instrument, on ground operational level 1 processing...

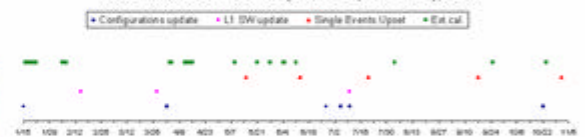


- COMMISSIONING**
- IN-ORBIT IIOV (instrument), 2006/10 – 2006/12, 2 months**
 - TEC participation to IIOV n° 8, 7, 8, 9, 10, 14 phases
 - L0 monitoring (near real time)
 - updating of instrument processing (configuration and software)
 - sending of External calibration and Verification raw level 0 data selection and decontamination



- IN-ORBIT CAL VAL (system performances) 2007/01 – 2007/07, 7 months**
 - TEC participation to Cal/Val. A, B & C phases
 - L1 products monitoring (near real time)
 - several instrument and level 1 processing configurations (a, b, c progressing)
 - several External Calibrations and Verification raw level 0 data selections

CALENDAR OF EVENTS (CAL VAL, ROUTINE), 2007



- OPERATION**
- ROUTINE METOP A – FM2 (products dissemination) since 2007/07, already 4 months**
 - daily TEC participation
 - L1 products monitoring (near real time)
 - regular & as needed instrument and level 1 processing configurations
 - regular & as needed quick External Calibration and Verification data selection

Data quality monitoring by TEC

- Spike detection, NFO errors, reduced spectra stability...
- Calibration coefficients stability, residual imaginary part...
- Under 1 coefficient...
- Interferometric side noise...
- 17 filtering quality, initial model data...
- Convergence quality...

Quality improvement

rejected spectra → **Quality improvement** → **increase of useful spectra...**

Instrument & level 1 configurations updated by TEC

Instrument and ground level 1 processing

raised flags, parameters out of range...

Overall quality flag

Daily data completeness Control (missing data)

Daily quality monitoring, using green & yellow & red critically code

ON BOARD

GROUND

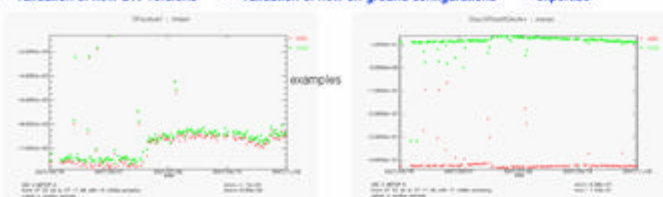
ON BOARD

On the trend slides, major events are visible : (see correspondence with the inset CALENDAR)

- the benefit of configuration updating
- the IASI recovers after IASIMETOP events (SEU...);
- the regular change Normal Op into Ext Cal mode for further instrument verification,
- any data gaps ...

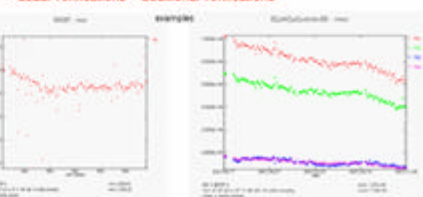
Role of the local copy of the L1 processing chain (OPS TEC)

- validation of new SW versions
- validation of new on-ground configurations
- expertise

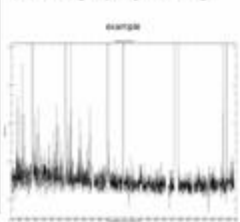


METOP/IASI event recovery (example: SEU)

- usual verifications + additional verifications



IASI imager quality monitoring



Summary

→ now more than 9 months in orbit for the 1st IASI instrument

- Excellent and stable performances for the whole IASI system (radiometry, spectral and geometry)
- TEC will continue in routine the in-depth performance monitoring, using monthly external calibration mode, delivering new set of parameters (monthly typically), or as necessary.
- Future TEC improvement: more automatisms, new tools, inter-calibration with other sounders (AIRS, TES), cf GSICS

