



Evolution of IASI products and dissemination

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Changes in Level 1 Products

- **Quality Flag (Boolean)** will be set per band
 - This increases the availability of good B1 and B2 spectra when only B3 is degraded
- **Detailed Quality Flag (16-bit)**
 - Provides details on degradation cause

- **Co-located and averaged IIS and AVHRR images for each IASI Field Of View**
 - Mean and variance of IIS radiance
 - Cloud fraction (%) from AVHRR
 - Land and Coast fraction (%) from AVHRR

• Cloud fraction:

$$C = \frac{\sum_{i \in C} AvhrrWgtPsf(i)}{\sum_{i \in C} 1}$$

Round to nearest int(100 * C)

Where C is the set of cloudy AVHRR pixels in the IASI FOV, AvhrrWgtPsf the AVHRR pixel weights in the IASI FOV.

The AVHRR L1b cloud mask is used to compute C: if the AVHRR pixel is of good quality and available, it shall be considered cloudy if one or more of the criteria 1 to 6 are fulfilled:

- Bit values from AVHRR L1B
- Criteria
- CLOUD_INFORMATION bit string
- 1 Bit4 = 0 and Bit5 = 1
 - 2 Bit6 = 0 and Bit7 = 1
 - 3 Bit8 = 0 and Bit9 = 1
 - 4 Bit10 = 0 and Bit11 = 1
 - 5 Bit12 = 0 and Bit13 = 1
 - 6 Bit14 = 0 and Bit15 = 1
 - 7 All Bits 4 to 15 are set to zero (all tests failed)
 - 8 Bit4 = 1 and Bit5 = 1 and Bit6 = 1 and Bit7 = 1 (snow/ice cover)

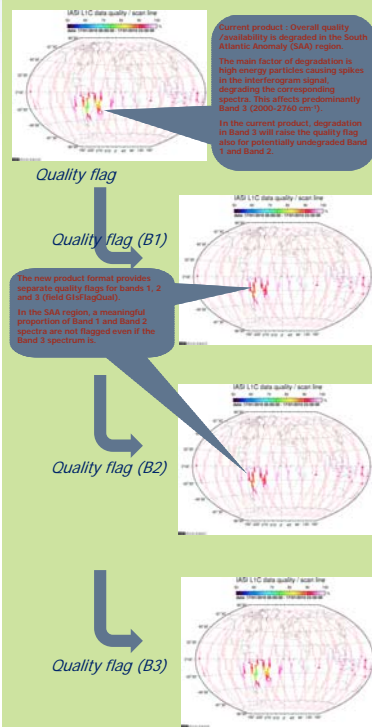
The corresponding quality flag may carry the snow/ice cover when all AVHRR pixels are OK !

Evolutions requested by the user community to provide a simple complement to the AVHRR radiance analysis. Ongoing work aims at relating the AVHRR radiance analysis to the cloud flagging.

• Land /coast fraction:

Same as for the Cloud fraction, taking as C the set of land and coast AVHRR pixels in the IASI FOV.

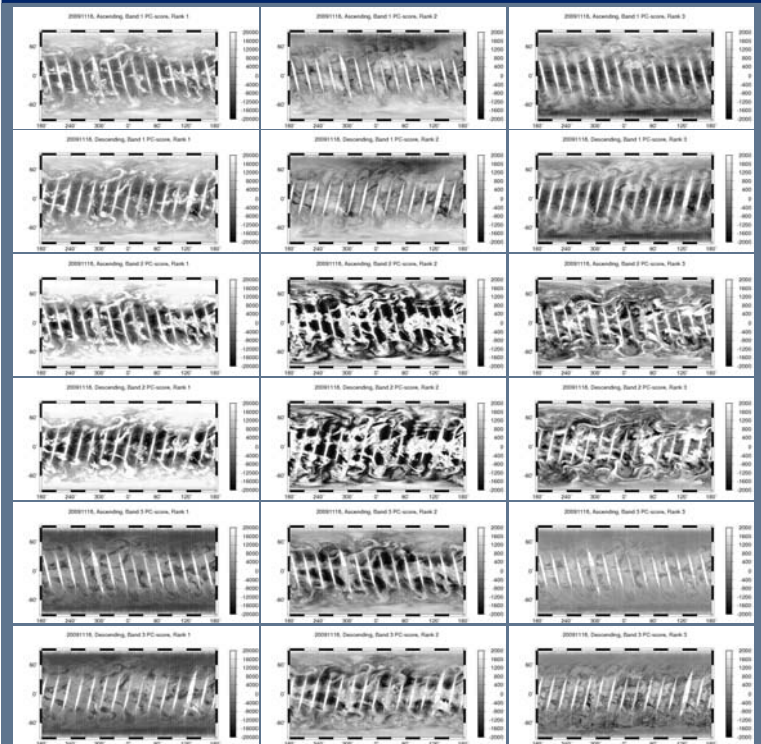
The AVHRR L1b cloud mask, bits 0-3, is used to compute C. That information is derived from the land/sea mask applied in the processing.



Principal Component Compressed Spectra Products

- **Noise Reduced representation** of IASI re-sampled apodised spectra (Level 1c) by Principal Component Analysis (PC) Scores

- **Theoretical basis:** "Support study on IASI Level 1c Data Compression – Final Report", A.C.L. Lee and S. Bedford, 2004
- **Operational Implementation:** one set of eigenvectors per IASI band (1 to 3), compatible with AAPP software
- **Performance:** please refer to poster by T. Hultberg *et al.*



Schedule

- 15/03/2010 : Change of format for IASI L1c products in NRT on EUMETCast (BUFR format) and offline in EUMETSAT Data Centre U-MARF
- 2nd Quarter 2010 : Start of trial dissemination of PC Compressed spectra *in parallel with full spectra*
 - PC Scores on EUMETCast (BUFR format) and offline
 - PC Residuals offline
- 2nd Quarter 2012 : Launch and commissioning of Metop-1, to be renamed Metop-B. When in routine operation,
 - Full spectra of IASI on Metop-B on EUMETCast and offline
 - PC Scores of IASI on Metop-A on EUMETCast, PC scores, residuals and full spectra offline

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