

## **Impact of thermal inhomogeneity on IASI spectral response and its correction**

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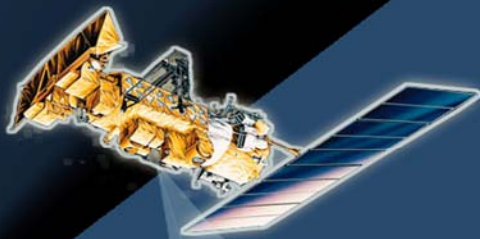
IASI (Infrared Atmospheric Sounding Interferometer) has relatively large Instantaneous Fields Of View (IFOV), so that the instrument cannot be considered as an ideal interferometer with an optical path aligned along the normal to the moving mirror. The deviation from this normal increases from the centre towards the outer regions of an IFOV, leading to increased path differences. Consequently, the spectral response function varies across the IFOV and the assumption of a constant reference spectral response function causes an error in the corresponding radiance if the thermal contrast within an IFOV is big. The error can reach 1 K, which is large compared to the radiometric noise. The thermal inhomogeneity within IASI fields of view are routinely measured by the co-located AVHRR (Advanced Very High Resolution Radiometer), thus it is possible to estimate and correct for this effect. However, the accurate calculation of the corresponding correction requires substantial computing resources. Therefore, a parameterisation is proposed which is practicable and fit for purpose in an operational environment.

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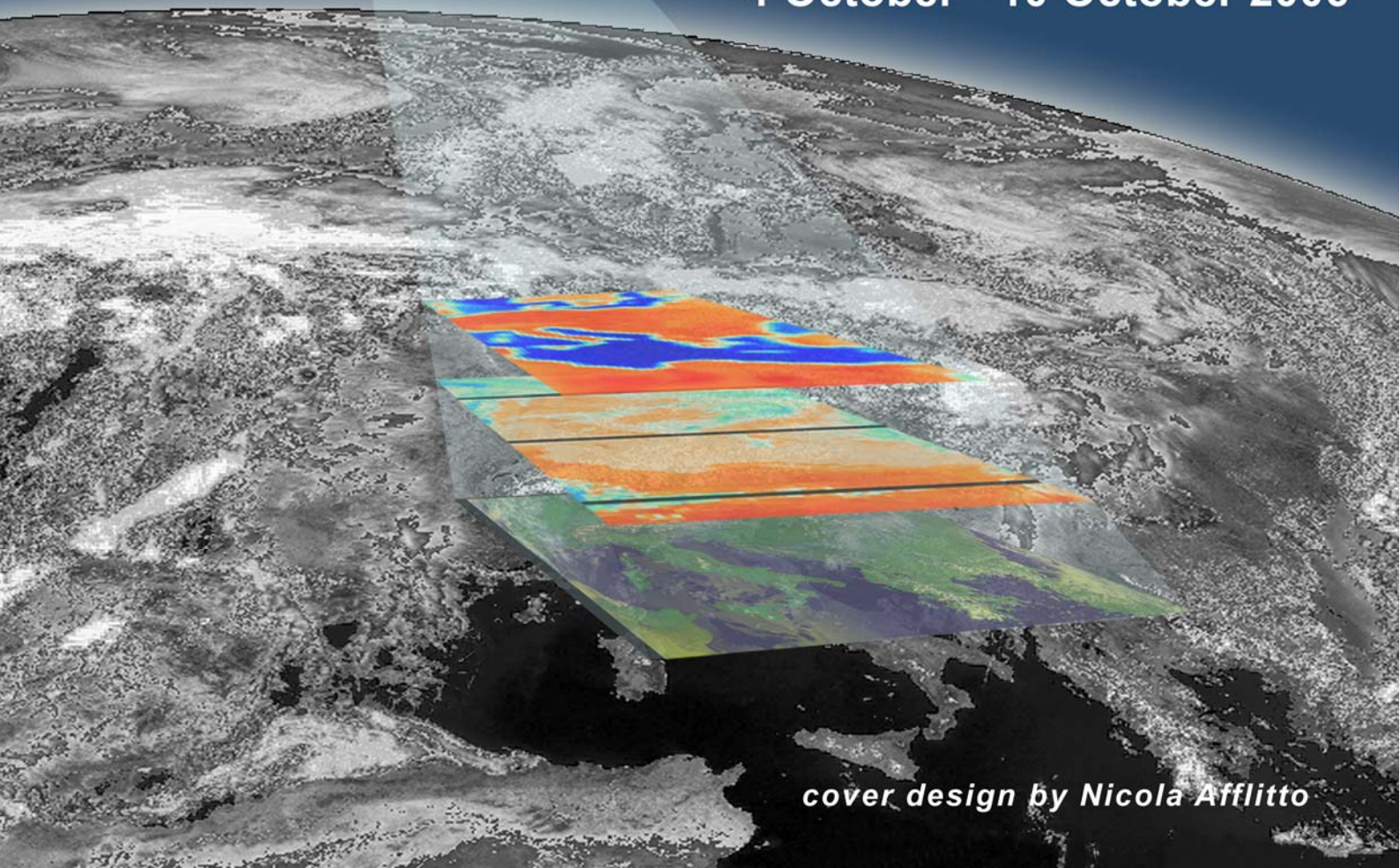
*using space-based observations*



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