

AUTOMATIC AND SUPERVISED GEO-REFERENCING OF BIRD REMOTE SENSING DATA

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ABSTRACT:

BIRD (Bi-spectral Infra-Red Detection) is a new experimental small satellite, which was launched in October 2001 for recognition and quantitative characterisation of high temperature events (HTE) on the Earth surface. The main payload consists of two Infrared push-broom sensors (with spectral bands at 3.4-4.2 μm and 8.5-9.3 μm) and a push broom imager for the visible and near infrared.

One of the final objectives of the mission is the generation of thematic maps in a common map projection. This will be achieved by an automatic geo-referencing algorithm using the attitude data delivered by the onboard measurements of the GPS-based navigation system (ONS), the BIRD Attitude Control System (ACS) and the two star sensors.

Using these data and the geometric on ground sensor calibration the absolute orientation of the satellite will be calculated within the World Geodetic System WGS84.

Defining dedicated control points in the images it possible to verify and, if necessary, to improve the accuracy of automatic method applying a supervised geo-referencing.

Further more, the pixel co-registration of the IR images required for the bi-spectral method will be achieved by a re-sampling of the images to a unique map grid.