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ORFEO, THE PLEIADES ACCOMPANIMENT PROGRAM AND ITS USERS THEMATIC COMMISSIONING

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Abstract. ORFEO, the PLEIADES Accompaniment Program, was set up by CNES, the French Space Agency, to prepare, accompany and promote the use and the exploitation of the images acquired by this Very High Resolution optical sensor. It was initiated in 2004 and will last until the end of the first year of the satellite life (launched in December 2011) .

The Thematic part of the ORFEO accompaniment program covers a large range of applications, and aims at specifying and validating products and services required by users. An in-depth work of user needs assessments in eight thematic domains (sea and coastline, risks and humanitarian aid, cartography and urban planning, geophysical hazards, hydrology, forestry, agriculture and defence) has given rise to a large number of feasibility studies from 2006 to 2011.

The Methodological Part of the ORFEO accompaniment program aims at preparing the use and exploitation of these submetric images. CNES decided to develop Orfeo Toolbox (OTB), an open source library capitalising the methodological know-how as a set of image processing and algorithmic components. Among other, OTB provides a number of heavily documented image processing functionalities such as filtering, feature extraction, segmentation, classification, change detection, 3D extraction, GIS links,....

As a conclusion to the ORFEO program, the PLEIADES Users Thematic Commissioning (UTC) started three months after the satellite launch and will last until mid 2013. It covers a large number of specific interest ORFEO sites, on which PLEIADES images are being intensively acquired and processed. These ORFEO sites have been chosen according to the expectations expressed by the users in terms of their interest for dedicated thematic, their geographic location and their multi-thematic content.

This paper presents the ORFEO program achievements (thematic and methodology) and the organisation of the Users Thematic Commissioning (sites, studies). The paper is illustrated with some examples of multi-thematic studies, lead through ORFEO, covering a large range of applications, and aiming at validating value added products and services provided to end users from PLEIADES imagery.

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