

EARTH OBSERVATION SYMPOSIUM (B1)
Future Earth Observation Systems (2)

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PLEIADES HIGH RESOLUTION OPTICAL EARTH OBSERVATION SYSTEM STATUS AND
FUTURE MISSIONS PREPARATION IN THE FRAME OF CXCI CNES PROGRAM**Abstract**

France, under the leadership of the French Space Agency (CNES), has set up a cooperative program with Austria, Belgium, Spain, Sweden, in order to develop a space Earth Observation system called PLEIADES.

PLEIADES is a dual system, this means that it is intended to fulfill an extended panel of both civilian and Defense user's needs..

The first Pleiades satellite was launched on december 17th 2011 while the second Pléiades 1B satellite has been placed in orbit less than one year after on december 2nd 2012.

This paper reports the status of the satellite 1B after its launch and the in orbit commissioning. It describes the main mission characteristics and performances status. It exposes how the system, satellite and ground segment have been designed in order to be compliant with a dual exploitation between civilian and defense partners.

The system is based on the use of a set of newly European developed technologies to feature the satellite. In order to maximize the agility of the satellite, weight and inertia have been reduced using a compact hexagonal shape for the satellite bus. The optical mission consists in Earth optical observation composed of 0.7 m nadir resolution for the panchromatic band and 2.8 m nadir resolution for the four multi-spectral bands. The image swath is about 20 km.

PLEIADES delivers optical high resolution products consisting in a Panchromatic image, into which is merged a four multispectral bands image, orthorectified on a Digital Terrain Model (DTM).

Thanks to the huge satellite agility obtained with control momentum gyros as actuators, the optical system delivers as well instantaneous stereo images, under different stereoscopic conditions and mosaic images, issued from along the track thus enlarging the field of view.

System reactivity has been optimized with a chronology based on three mission planning activations per day. The mission plan is uploaded to the satellite just before flyby over East Asia , Europe and North America. In addition a Direct Tasking mode is available for commercial Image Receiving Stations.

After Pléiades, CNES is preparing the future of European high resolution optical Earth observation in the frame of a demonstrators program named CXCI. This paper will introduce this new program too.