

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

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GEO STATIONARY OPTICAL OBSERVATION FROM THE MEDIUM TO THE HIGH RESOLUTION

Abstract

COMS satellite has been built by Astrium for the Korea Aerospace Research Institute (KARI of South Korea) with KARI support. The satellite has been launched on June 26 2010, and is now successfully operated from the geo stationary orbit (GEO). This 3 axis stabilized satellite implements medium resolution meteorology and ocean colour imagery missions; it is the first of its kind to be developed in Europe, and the first milestone which paves the way for the high resolution geostationary observation roadmap for the coming decade.

Relying on accessible technologies and monolithic mirror concepts, Astrium proposes a roadmap for higher resolution optical GEO observation, based on an incremental approach which encompasses various categories of missions, from the demonstrated 350m nadir resolution, down to 3m high resolution missions for surveillance and security.

This paper proposes a short review of the following GEO observation missions along this roadmap, including enabled applications and relevant satellite performance:

- The flight proven super spectral Ocean Colour Imagery mission, providing 350m nadir resolution
- A potential successor, the CNES GEO-Ocapi mission, improving the resolution down to 100m
- GEOAfricaSAT-1, a candidate super spectral mapping mission which implements large swath high imaging capacities combined with a 25m ground resolution
- A GEO SurvMar mission, dedicated to optical Maritime Surveillance applications enabled by a 10 to 15 m resolution
- An ultimate 3m resolution HR GEO project which relies on a controlled large diameter monolithic mirror, enabling security and surveillance missions operations from the geostationary orbit. HR GEO hence allows innovative product and operational concepts like real time video surveillance for mobile targets detection and reconnaissance.