

SPACE SYSTEMS

16 February 2015

Sentinel-3A satellite to study the world's oceans, successfully launched

- Airbus Defence and Space's microwave radiometer on board Sentinel-3A will correct measurement inaccuracies due to water vapour in the atmosphere
- Near-real-time ocean, ice and land monitoring satellite was orbited by a Rockot launcher

The first of the two flight models of the Sentinel-3 satellites, Sentinel-3A, primed by Thales Alenia Space, was launched on a Rockot launcher, from the Plesetsk cosmodrome in Russia.

On board Sentinel-3A is an Airbus Defence and Space-built microwave radiometer (MWR) used to remove signal errors caused by water vapour in the atmosphere. This allows accurate tracking over a variety of watery surfaces: open ocean, coastal sea zones, sea ice and inland waters. This 26 kg radiometer measures the thermal radiation emitted by Earth, enabling signal delays caused by moisture in the troposphere to be added to the altimeter pulses, to deliver more accurate data.

Airbus Defence and Space was also responsible for the thermal architecture of the service and payload interface module, which will ensure the correct performance under the extreme temperature variations to which the satellite will be subjected once in orbit, and a cryo-cooler system for the Sea and Land Surface Temperature Radiometer (SLSTR) instrument.

The Sentinel-3 mission is specifically designed to ensure long-term collection and operational delivery of high-quality measurements for ocean, land and atmospheric services. The satellites build upon the heritage and data from the Airbus-built missions of ERS, Envisat and SPOT, and include enhancements to meet the operational revisit requirements and to facilitate new products and an evolution of services. It will extend observations to inland waters and coastal zones.

The primary application of the Sentinel-3 mission is to monitor the world's oceans, measuring the temperature, colour and height of the sea surface and the thickness of sea ice. The data produced will allow scientists to monitor sea-level change and sea-surface temperature, manage water quality, track marine pollution and biological productivity.

Sentinel-3 will also provide a land-monitoring service with wildfire detection, land-cover mapping and vegetation health monitoring, providing complementary data to the multispectral optical mission of Sentinel-2.

Sentinel-3A is the size of a small car with a mass of 1150 kg and is designed for an operating life of seven years.

Eurockot Launch Services GmbH is the Bremen, Germany, based joint venture of Airbus Safran Launchers and Space Center Khrunichev. In addition to the Sentinel-3A launch Eurockot will orbit two more satellites for Europe's Copernicus programme.

Airbus Defence and Space

Airbus Defence and Space is a division of Airbus Group formed by combining the business activities of Cassidian, Astrium and Airbus Military. The new division is Europe's number one defence and space enterprise, the second largest space business worldwide and among the top ten global defence enterprises. It employs more than 38,000 employees generating revenues of approximately €13 billion per year.

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