

SMOS ready to ship to launch site

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The SMOS satellite in the cleanroom at Thales Alenia Space in Cannes, France on 24 April 2009. The satellite, which has just come out of storage, will soon be prepared for shipment to the Plesetsk Cosmodrome in northern Russia. The three antenna arms, which form the measuring instrument are currently folded up but once launched they unfold into a Y-shape. The instrument that carries 69 separate antenna-receivers which measure radiation emitted from Earth at L-band where the frequency is about 1.4 GHz/21 cm wavelength to derive information on soil moisture and ocean salinity. Credits: ESA

ESA's next Earth Explorer, SMOS, has just passed the all-important Flight Acceptance Review, signifying that all the elements that make up the mission are in place for launch later this year. The satellite can now be prepared for its journey to the Plesetsk Cosmodrome in northern Russia.

The Flight Acceptance Review is a formal procedure to ensure that all

the mission elements are in order and ready for launch. These elements not only include the satellite, but also the readiness of the launcher and interfaces with the satellite, flight operations to control the satellite in orbit and carry out calibration activities, data processing for the handling and distribution of data products to the users, and also plans and preparations for the launch campaign.

Following the final review, the Flight Acceptance Review Board, which comprised senior managers from ESA and the French Space Agency CNES, were satisfied that all these elements are in good order and have signed the 'consent to ship' documentation. After being in storage for around a year, the SMOS (Soil Moisture and Ocean Salinity) satellite can now be prepared for its long journey from Thales Alenia Space's facilities in Cannes in the south of France to the launch site in Russia.

SMOS, also known as ESA's Water Mission will make global observations of soil moisture over Earth's landmasses and salinity over the oceans. Through the use of a novel instrument called MIRAS (Microwave Imaging Radiometer using Aperture Synthesis), SMOS will provide global information on surface soil moisture every three days within an accuracy of 4% at a spatial resolution of 50 km - comparable to being able to detect one teaspoonful of water mixed into a handful of soil. In parallel, SMOS will also observe ocean salinity down to 0.1 psu (practical salinity unit) for a 30-day average over an area of 200x200 km, which is about the same as detecting 0.1 g of salt in a litre of water.

Data from SMOS will result in a better understanding of the water cycle and, in particular, the exchange processes between Earth's surfaces and the atmosphere. This data will help improve weather and climate models, and also have practical applications in areas such as agriculture and water resource management.

Passing the Flight Acceptance Review marks another significant

milestone for the SMOS mission bringing our understanding of Earth's [water cycle](#) one step closer.

Source: European Space Agency ([news](#) : [web](#))

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