

Soil moisture and ocean salinity satellite ready for launch

October 29 2009

A new European Earth observation satellite will be launched in the early hours of Monday morning (2 November 2009) from the Plesetsk Cosmodrome in northern Russia.

The [European Space Agency Soil Moisture](#) and [Ocean Salinity](#) (SMOS - pronounced SMOSS) satellite aims to measure both moisture levels in the Earth's soils and the saltiness (salinity) of the surface waters of the world's oceans from space for the very first time. British scientists and engineers have been involved in the mission from the start.

Global measurements of salinity and soil moisture will improve our understanding of how water is transported around the Earth, and how it circulates around the oceans, and lead to more accurate weather forecasts and climate simulations.

Professor Meric Srokosz from the National Oceanography Centre in Southampton, who was part of the international team that first proposed the mission in 1998, says: "The temperature and salinity of the water in the oceans determine its density, variations in which are important in driving ocean currents. We've been making salinity measurements from ships for many years, but with SMOS we will be able to get a global picture every few days."

"The oceans play a major role in the [climate system](#) and possible future changes in currents are important as the oceans interact with the atmosphere, taking up, releasing and re-distributing heat and freshwater.

These interactions are key processes affecting both weather and climate," he adds.

Professor Robert Gurney from the University of Reading and the National Centre for Earth Observation, who is working on the mission, says: "SMOS will give us global measurements of soil moisture for the very first time. The mission itself is very challenging because it is the first of its type, and allows us to look at a key area of the planet's water cycle. Soil moisture is important for understanding and predicting floods and droughts, and for predicting the future climate."

Dr Phil Newton, Director of Science Delivery at the Natural Environment Research Council, says: "The great advances in understanding weather, climate and environmental change promised by a successful SMOS mission cannot be achieved by single European nations acting alone. The European Space Agency provides an essential framework for pooling our intellectual, technological and financial resources, so making possible this sort of big science."

The launch of SMOS comes during the build-up to the crucial climate change talks in Copenhagen in December. Director General of BNSC, Dr David Williams says: "SMOS is an important mission with key UK involvement. Satellites such as SMOS are vital for predictions of how our climate is changing and British scientists and engineers are world leaders in using data from space to improve our understanding of the Earth. The recently-opened ESA research facility at Harwell in Oxfordshire will reinforce the UK's focus on climate change research."

SMOS is the second of ESA's Earth Explorer missions and follows the successful launch of the GOCE (Gravity field and steady state Ocean Circulation Explorer) satellite earlier this year.

Source: Natural Environment Research Council

Citation: Soil moisture and ocean salinity satellite ready for launch (2009, October 29) retrieved 25 April 2024 from <https://phys.org/news/2009-10-soil-moisture-ocean-salinity-satellite.html>

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