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## HEMERIA to implement ESA's first space weather nanosatellite mission

**On 20 November, the European Space Agency signed with Hemeria (France) a contract to develop the Agency's first space weather nanosatellite mission: Swing (Space Weather Ionosphere Nanosat Generation). The spacecraft will monitor the ionosphere, a layer of the atmosphere which affects communications and navigation services, and provide data for operational space weather applications.**

"Individually, nanosatellites provide an innovative opportunity to implement cost-effective, targeted space missions. As a constellation, they have the potential to form an effective part of the European space weather monitoring system. With Swing, we will demonstrate the suitability of nanosatellites as part of a space weather system and also as a way to bring commercial industry into space weather monitoring," says Juha-Pekka Luntama, Head of the Space Weather Office in the Space Safety Programme at ESA.

"Understanding the behaviour of the ionosphere is crucial to build reliable navigation and communication services. Its electrically charged particles can have a critical effect on high-precision GNSS services by causing positioning or timing errors. Swing's data will help to further understand the effects of space weather and provide accurate nowcasts of the state of the ionosphere," says Melanie Heil, Space Segment Coordinator in ESA's Space Weather Office and Swing Project Manager.

"Space weather is a major risk on our infrastructure on Earth and in space," notes Holger Krag, ESA Space Safety Programme Manager. "Developing space weather capability that can provide actionable information to European operators of critical infrastructure is one of the main objectives of the Programme".

"Hemeria is thrilled to accompany the European Space Agency's first space weather mission. I am also pleased to see that our move towards data services is being celebrated in this way, in line with the rapid emergence of our 'Intelligence and Data' division, which will supply space data to ESA," says Nicolas Multan, Hemeria CEO.

## Swing, the spacecraft and its instruments

Swing will adopt a Sun-synchronous orbit (SSO), a particular type of polar orbit which allows the satellite to always visit the same spot at the same local time. At an altitude of between 500 and 600 km, the nanosat will perform consistent in-situ measurement of the ionosphere and trace how it evolves over time.

The spacecraft will be designed by Hemeria based on their HP-IOT nanosatellite platform line. The payload will consist of the following four instruments:

- DREAM - Radiation monitor - CNES, Steel Electronique (France);
- XFM-NS - X-ray monitor - Isaware (Finland);
- mNLP – Langmuir Probe - EIDEL (Norway);
- Aquila – GNSS RO instrument - Syntony (France).

The spacecraft's data will be ingested into numerical space weather models that will provide accurate ionospheric weather nowcasts and forecasts to the user community. Data from the Swing mission will also be valuable for scientific research of the upper atmosphere.

The spacecraft will be built by Hemeria as its prime contractor, including procurement of instruments, development, integration, test, launch campaign, in-space commissioning of the satellite platform as well as the satellite operations. The spacecraft will be assembled at Hemeria's facilities in Toulouse. The Mission Operations Centre, delivering the processed space weather data to ESA, is sub-contracted to Planetek (Italy).

Swing is planned for launch in 2026 and start of its data service from 2027.

# About

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As a major and recognized player in the space industry, with long-standing partnerships with CNES and major contractors, HEMERIA designs, manufactures, and provides state-of-the-art space systems and vehicles for commercial, institutional, and scientific clients at the national, European, and international levels. As a leader in the small satellite and stratospheric balloon industry, HEMERIA facilitates access to space for new entrants through optimized and competitive solutions based on French technical expertise. HEMERIA also supports its clients from the design of their solution to the deployment of the operational system into orbit and is one of the top three European providers of structures, thermal protections, and interconnection devices.

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