



**Press  
release**

## **THE SPACE DEBRIS RADAR DEVELOPED BY INDRA PASSES ESA TESTS**

- **The technology used by the radar offers the necessary degree of development to be integrated in the future European surveillance system**
- **The demonstrator was able to observe events such as the undocking of the Cygnus supply ship from the International Space Station**
- **The prototype's performance surpassed ESA expectations**

The demonstrator radar developed by Indra for detecting objects in space has successfully passed the validation tests performed within the European Space Agency's Space Situational Awareness (SSA) preparation programme.

The first phase of this programme aims to establish the basis for building the future European system that will monitor the waste from other missions that is floating freely in space. There are an estimated 700,000 objects orbiting our planet in an uncontrolled manner, and this poses a serious risk to our missions and operational satellites.

The tests performed at Santorcaz (Madrid) had the aim of verifying that the technology used by the radar system is mature enough to be used in the design of a definitive surveillance system.

The tests were focused on observing and detecting known objects for which orbital information is already available. This made it possible to verify the data collected by the demonstrator. Various radar parameter configurations were tested during the exercises in order to optimise the results.

Among other events, the system precisely noted the undocking of the CYGNUS supply ship from the International Space Station (ISS). This event is of special interest since it shows the demonstrator's ability to differentiate--at a distance as well as at an angle--two objects of very different sizes, located relatively close to each other in the same orbit.

The system also detected and differentiated the ESA's three SWARM satellites--whose mission will be to measure the Earth's magnetic field--directly after their launch and when their orbital separation was minimal.



In two of the other exercises carried out, the radar tracked the re-entry into the Earth's atmosphere of the GOCE satellite and also detected the *tumbling* of the Envisat satellite, which is currently unable to manoeuvre.

The performance shown by this radar prototype has surpassed the ESA's expectations and objectives for this phase of the project. On the other hand, throughout the tests, it was also verified that the modular and scalable architecture of this system is the most appropriate for building the future surveillance system.

After successfully completing the test campaign, the demonstrator was accepted by the ESA and formally delivered to the agency by Indra. Long-duration operating tests are currently being performed with the system to verify its ability to detect small objects in low altitude orbits.

As far as the final architecture, the SSA/SST (Space Situational Awareness / Space Surveillance and Tracking) system will have at least one surveillance radar sensor--significantly larger than the demonstrator--that will work with other tracking radars and telescopes in order to observe objects in higher orbits. The system will be completed with a processing and services centre that will use the data collected by the sensors.

## **Indra**

Indra is Spain's number 1 consulting and technology multinational and one of the main multinationals in Europe and Latin America. Innovation and sustainability are the cornerstone of its business, having assigned over €570 million to R&D&I in the last three years, a figure that places it among the top European companies in its sector in terms of investment. With approximate sales of €3,000 M, 61% of its sales revenue is from the international market. It has 42,000 employees and customers in over 138 countries.