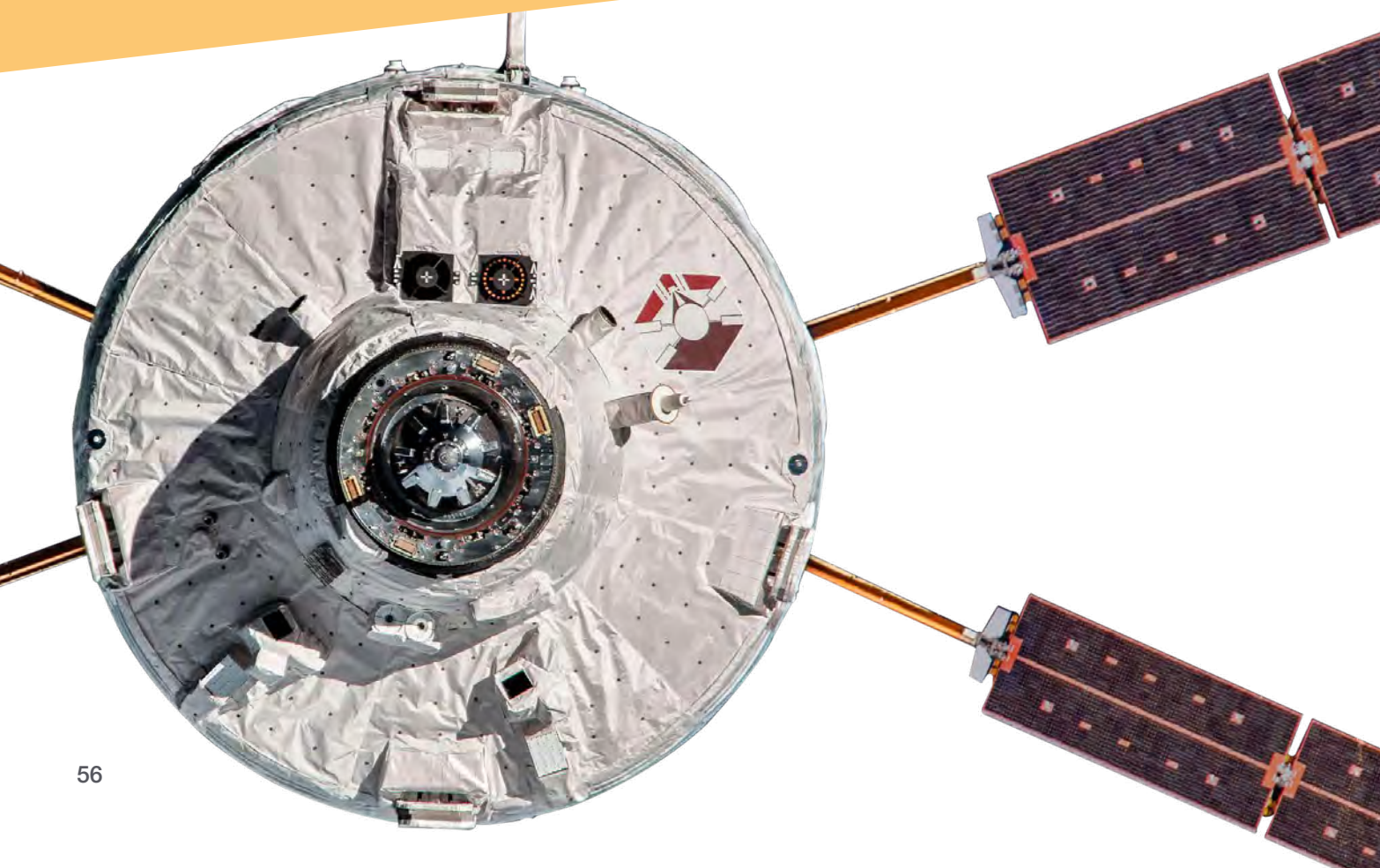


Space Sector

2.2

Isdefe develops specialised engineering and technical support activities in the space sector, in the field of navigation and satellite communications, earth observation and Space Situational Awareness (SSA) for the Spanish administration, the European Commission and various international space agencies.

It also carries out management, operation and maintenance activities of the space communication centres and complexes in Spain, both for the National Institute of Aerospace Technology (INTA), as well as for the European Space Agency (ESA) and the North American agency National Aeronautics and Space Administration (POT).





Space stations and infrastructures

We provide engineering services and technical support for satellite communications and monitoring, and for space exploration missions from space stations in Spain. We also manage the operations and maintenance of space complexes.

Ministry of Defence / Secretary of State for Defence (SEDEF) / National Technical Institute Aerospace (INTA)

INTA Torrejón Spatial Infrastructures:

Comprehensive support to all the activity carried out from the **CEIT (INTA Torrejón Space Centre)**. Multidisciplinary team with specialists in Ground Segment, Control Centre, Mission Analysis and contribution to the search for new business opportunities with INTA. Success of the CHEOPS mission.

Collaboration with ESA and Swedish and Norwegian national agencies for the use of the INTA Station Network. Despite the pandemic situation, critical activity has continued and all PAZ services have been secured.

INTA Maspalomas Spatial Infrastructures:

Operation and Maintenance of the **CEC (Canary Islands Space Centre)**. Close collaboration with the CEIT to give INTA complete support in its Network of Earth Stations. The CEC has become the 24x7 operation centre for all INTA stations. Even in a pandemic situation, the station's activity and the 24x7 service have been maintained.



Ministry of Defence / Secretary of State for Defence (SEDEF) / National Institute Aerospace Technology (INTA) / NASA

Implementation of an action plan for the **management of the COVID-19 pandemic** at the Station. Throughout all the months of lockdown, with extreme restrictions on mobility and in totally uncertain health conditions, it has been possible to maintain the operation and maintenance service of the Station without interruption H24. This fact has been recognised by NASA **with the presentation of the 2020 NASA Group Achievement Award in a virtual ceremony.**

In these severe conditions, the daily support service to NASA missions has been maintained, and in particular the critical support to three L1s should be highlighted:

- The launch of the UAE EMM probe to Mars.
- The launch of NASA's MARS 2020 probe including the Perseverance robot and the Ingenuity helicopter.
- The “touch & go” manoeuvres of NASA's Osiris Rex probe to the Bennu asteroid to collect samples.

Maintenance of facilities and equipment, for updating and improving the antennas systems of the DSN network: DSS54 antenna and DAED project of two new DSS56 and DSS53 antennas.

Technical support in the maintenance of the facilities of the Station that has required an additional effort due to the application of COVID protection measures.



Image: www.inta.es / New Antenna in Robledo de Chavela



Ministry of Defence / Secretary of State for Defence (SEDEF) / National Aerospace Technical Institute (INTA) / Astrobiology Centre (CAB)

Astrophysics and Space Sciences:

Technical support to the CAB of INTA and ESA in the XMM mission at ESAC. Possible collaborations with public scientific research organisations underway.

During the pandemic and the months of lockdown, the service has been provided with a quality that is highly valued by the client.

European Union / ESA

Cebreros Spatial Infrastructures:

Technical support at Cebreros, which has become the reference station for ESA's deep space network. Multiple upgrades to the station as a pilot prior to deployment to the rest of ESA's deep space network.

SMOS project:

Specialised technical services for the continuity of the contract. In 2020, due to lockdown and the pandemic, many processes were redefined to be able to be developed remotely. The mission continued without incident and large data reprocessing campaigns were carried out.

Agreements with different companies to position Isdefe for the renewal of the Science framework contract at ESAC.

Security control services for space launcher and quality operations at the French Guiana Space Base, in KOUROU. The service has been provided on a nominal basis despite the pandemic.





2. OUR SECTORS

European Union / GALILEO

Implementation and process improvement activities for the instrument landing system, ILS, have been carried out, complying with the operational objectives established by the GSA.

European Union Agency for the Space Programme (EUSPA)

Support to the EU GNSS Security Accreditation Board (SAB) in the accreditation activities of the satellite navigation systems of the European Union (EU GNSS Systems):

- Independent audit of security documentation.
- System security technical tests.
- Open source analysis.
- Risk analysis.
- Development of safety standards.

European Union / European Union Satellite Centre (SatCen)

Information security consulting and accreditation of systems that handle classified information:

- Risk analysis.
- Analysis of security architectures.
- Secure configuration of information systems.
- Preparation of security documentation: SSRS, SecOPs, SISRS.
- Classified information system migration plans.





Satellite applications

We provide technical support in the field of development and implementation of new satellite communication and navigation applications. We offer technical support to scientific programmes in the space, earth observation, and space debris monitoring fields.

Ministry of Defence / Secretary of State for Defence (SEDEF) / National Institute Aerospace Technology (INTA)

Isdefe continues to support INTA in the different GNSS (Global Navigation Satellite System) activities in which it participates. Participation in the three Galileo infrastructures in Spain: Competent PRS Authority (CPA), GNSS Service Centre (GSC) and Backup Galileo Security Monitoring Centre (GSMC). In particular, the Isdefe team supports INTA in the technical management of the development and deployment of the CPA infrastructure for managing the PRS service at a national level.

Ministry of Transport, Mobility and Urban Agenda / Administrator of Railway Infrastructures (ADIF)

The satellite communications management and control service continues to support the ADIF-RAM (formerly FEVE) metric gauge network railway tracking system.



2. OUR SECTORS

European Commission / European GNSS Agency (GSA)

Participation in the GSC operations team is maintained, which this year has put in place a new operating infrastructure. The GSC is the interface with user communities and supports the Open Service, Commercial Service, Search and Rescue (SAR) services of the Galileo Programme.



Image: www.esa.int / ESA - P. Carril

European Union / European Space Agency (ESA)

Technical advice for the **accreditation process of the future version of the Ground Control Segment of the Galileo system**, responsible for tracking, monitoring and control of all satellites in the constellation. Security analysis to define the future and evolution of the Galileo system, called Second Generation (G2G), which optimises the performance and benefits of the satellite such as its reliability, availability, continuity, precision and integrity.