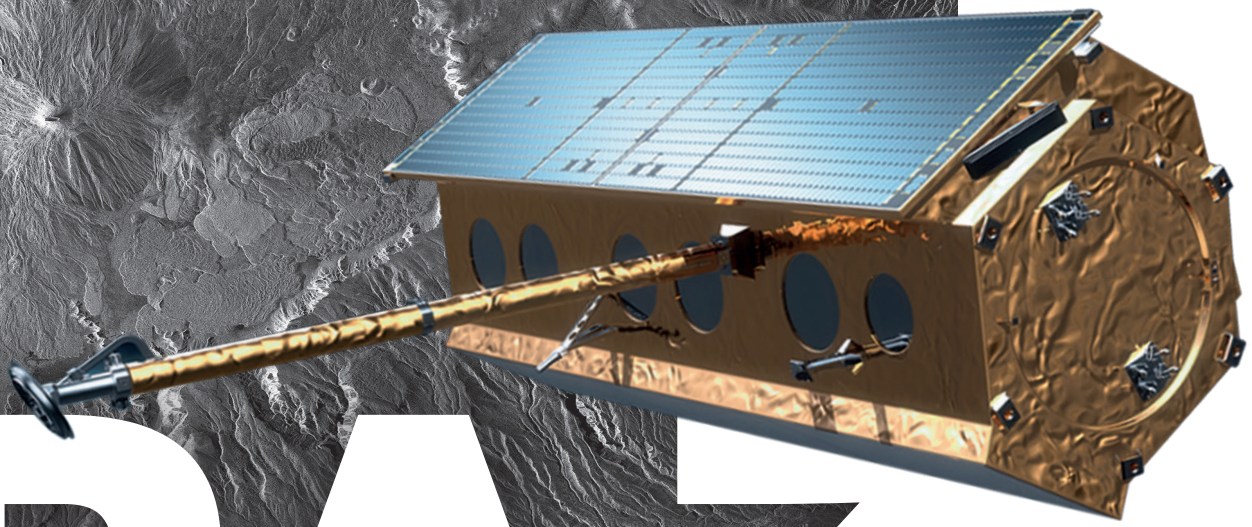
SATELLITE

PAZ

SERVICES



Mount Teide (Canary Islands, Spain)
Acquisition Date and Time: 9 May 2018, 19:03:52 UTC
Mission: PAZ | Image Mode: StripMap | Product Type: EEC
Resolution Type: SE | Polarization: HH

paz
hisdeSAT

About Hisdesat

Hisdesat is a governmental services operator, in Space and other strategic domains. The company has a fleet of satellites for Telecommunications, Earth Observation and Maritime Traffic information monitoring with AIS (Automatic Identification System).

Hisdesat also has Ground Control Centers that are equipped with Tracking, Telemetry and Command antennas operating 24/7 and featuring state of the art systems to monitor and control the satellites.

The Company shareholder model relies on the joint use of public and private capital (PPP) to provide strategic services based on efficiency and excellence. The shareholders are Hispasat (43%), ISDEFE - a state owned public company belonging to the Ministry of Defense - (30%), Airbus Defence & Space (15%), Indra (7%) and SENER (5%).

Business lines

Secure Communications

A governmental communications system relying on two satellites that offers coverage over two-thirds of the Earth. The Xtar-Eur and SpainSAT satellites provide flexibility and security to satellite communications in the military X and Ka bands.

Earth Observation

PAZ and INGENIO satellites feature two Earth Observation techniques, radar and optical, respectively, responding to Defense and Civilian needs. PAZ was launched in February 2018 and INGENIO is expected to be launched in early 2020.

Satellite-based AIS

A large constellation of 58 satellites receives AIS signals from all the vessels that are equipped with this system. They provide an accurate picture of the world's maritime traffic in near real time.

Space Surveillance and Tracking

Member of the Spanish consortium for the development of the National Space Surveillance and Tracking Operations Center.

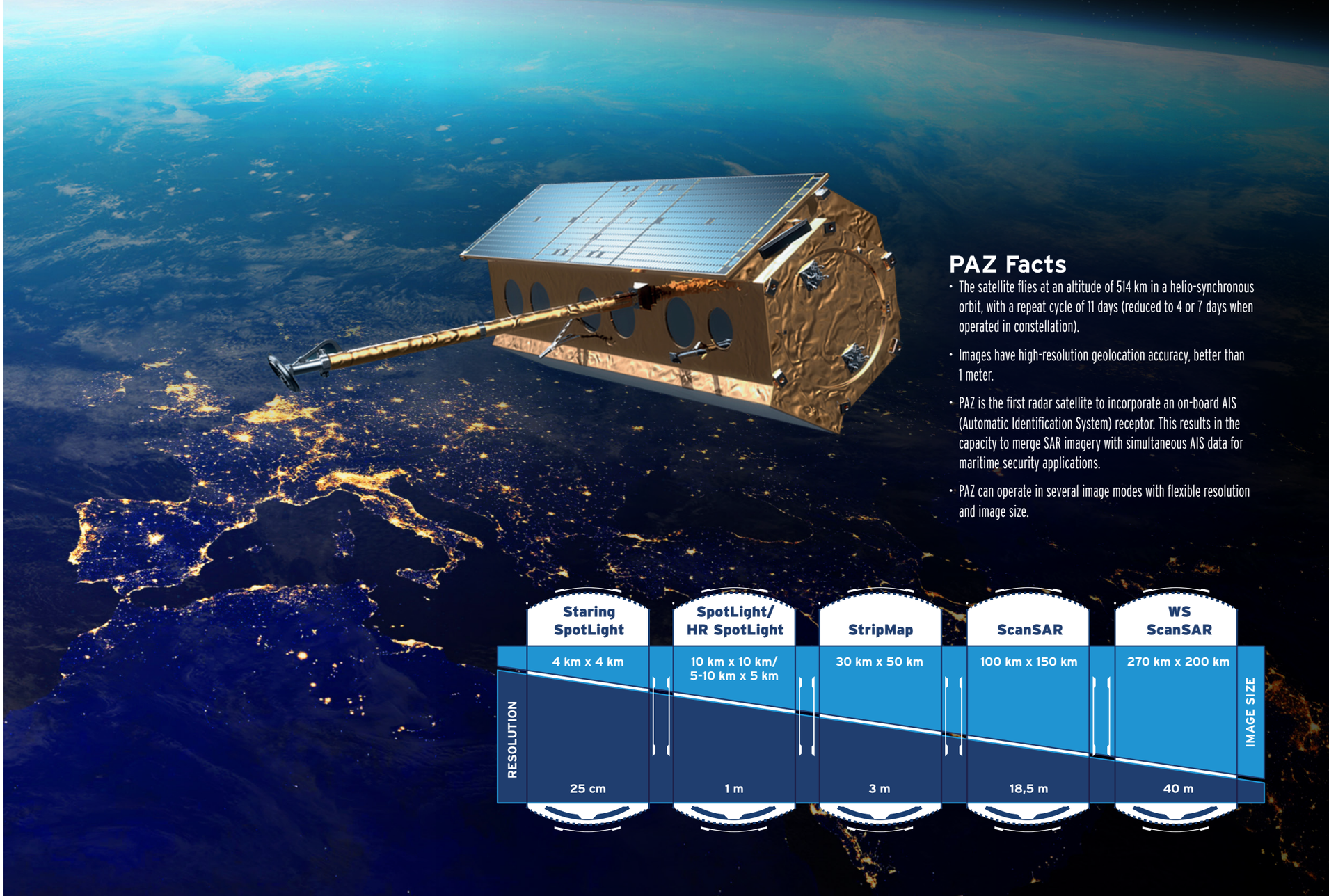
PAZ Mission

PAZ satellite, operated by Hisdesat, is the first Spanish radar Earth Observation satellite, which is included within the National Earth Observation Programme.

PAZ was launched on 22nd February 2018 on-board of a Falcon 9 rocket from Vandenberg Air Force Base (California).

The satellite collects high-resolution radar imagery for applications in Defense and Civilian domains. The 1,400-kilogram satellite carries an X-Band Synthetic Aperture Radar (SAR) capable of delivering imagery with ground resolution up to 25 cm, capturing around 100 scenes per day under all-weather conditions.

PAZ satellite is positioned in the same orbit than TerraSAR-X and TanDEM-X satellites, from Airbus Defence & Space, in order to operate in constellation with them. This results in significant reduction of the revisit time and an increase in the daily acquisition capacity.



PAZ Facts

- The satellite flies at an altitude of 514 km in a helio-synchronous orbit, with a repeat cycle of 11 days (reduced to 4 or 7 days when operated in constellation).
- Images have high-resolution geolocation accuracy, better than 1 meter.
- PAZ is the first radar satellite to incorporate an on-board AIS (Automatic Identification System) receptor. This results in the capacity to merge SAR imagery with simultaneous AIS data for maritime security applications.
- PAZ can operate in several image modes with flexible resolution and image size.

Portfolio


Maritime
Surveillance


Risks &
Emergencies


Mapping


Urban Planning,
Civil Engineering
& Infrastructures


Defense
& Security


Environmental
Monitoring

Maritime Surveillance

Maritime areas cover 71% of the Earth's surface and carry over 90% of the world's trade. Continuous monitoring of the sea maritime routes has become a priority to many national and international organizations. These maritime route networks are the basis of global trade and they are used for the transportation of all types of equipment, including dangerous goods.

The discharges of oil into the sea, due to accidents or inadequate practices, catastrophically damage the marine fauna, fishing activities and coastline environments whilst having enduring effects on a long-term basis.

Service description

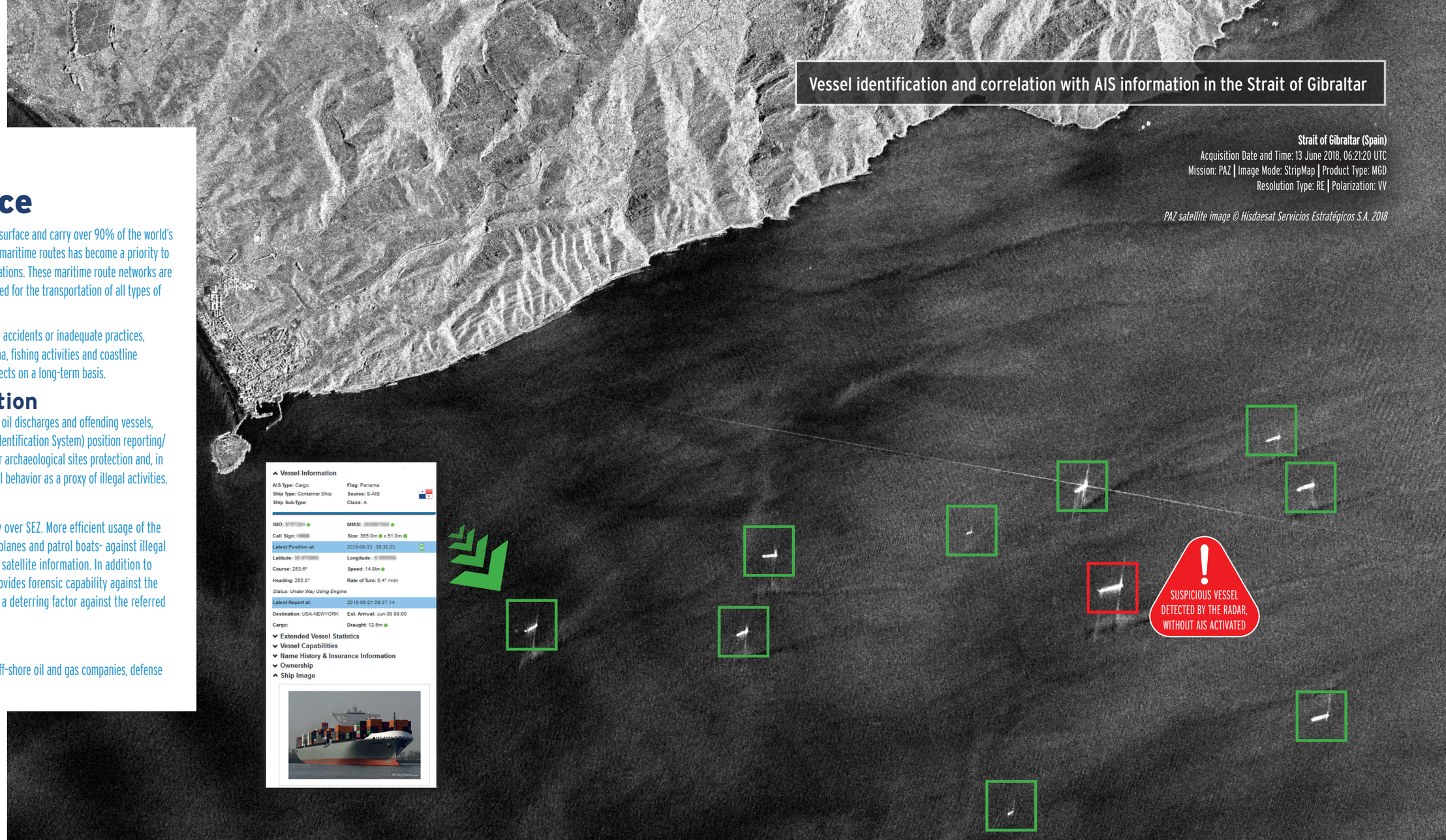
Maritime traffic monitoring, detection of oil discharges and offending vessels, detection of fraudulent AIS (Automatic Identification System) position reporting/ disconnection, illegal fishing, underwater archaeological sites protection and, in general, assessment of anomalous vessel behavior as a proxy of illegal activities.

Benefits

General enforcement of the sovereignty over SEZ. More efficient usage of the sea patrolling resources -including airplanes and patrol boats- against illegal activities, since now they are driven by satellite information. In addition to the monitoring capacity, the service provides forensic capability against the offenders and it is strongly valuable as a deterring factor against the referred illegal activities.

Customers

Maritime safety and security agencies, off-shore oil and gas companies, defense agencies, etc.



City and Port of Barcelona (Spain)
Acquisition Date and Time: 26 April 2018, 05:53:59 UTC
Mission: PAZ | Image Mode: StripMap | Product Type: MGD
Resolution Type: RE | Polarization: VV

IMINT information extracted from Madrid Airport

Adolfo Suárez Madrid-Barajas Airport (Spain)
Acquisition Date and Time: 13 March 2018, 18:06:42 UTC
Mission: PAZ | Image Mode: StripMap | Product Type: MGD
Resolution Type: SE | Polarization: HH

Defense & Security

Provide to the defense and security decision-makers with the right information and decision tools to anticipate and respond to specific events and missions.

Service description

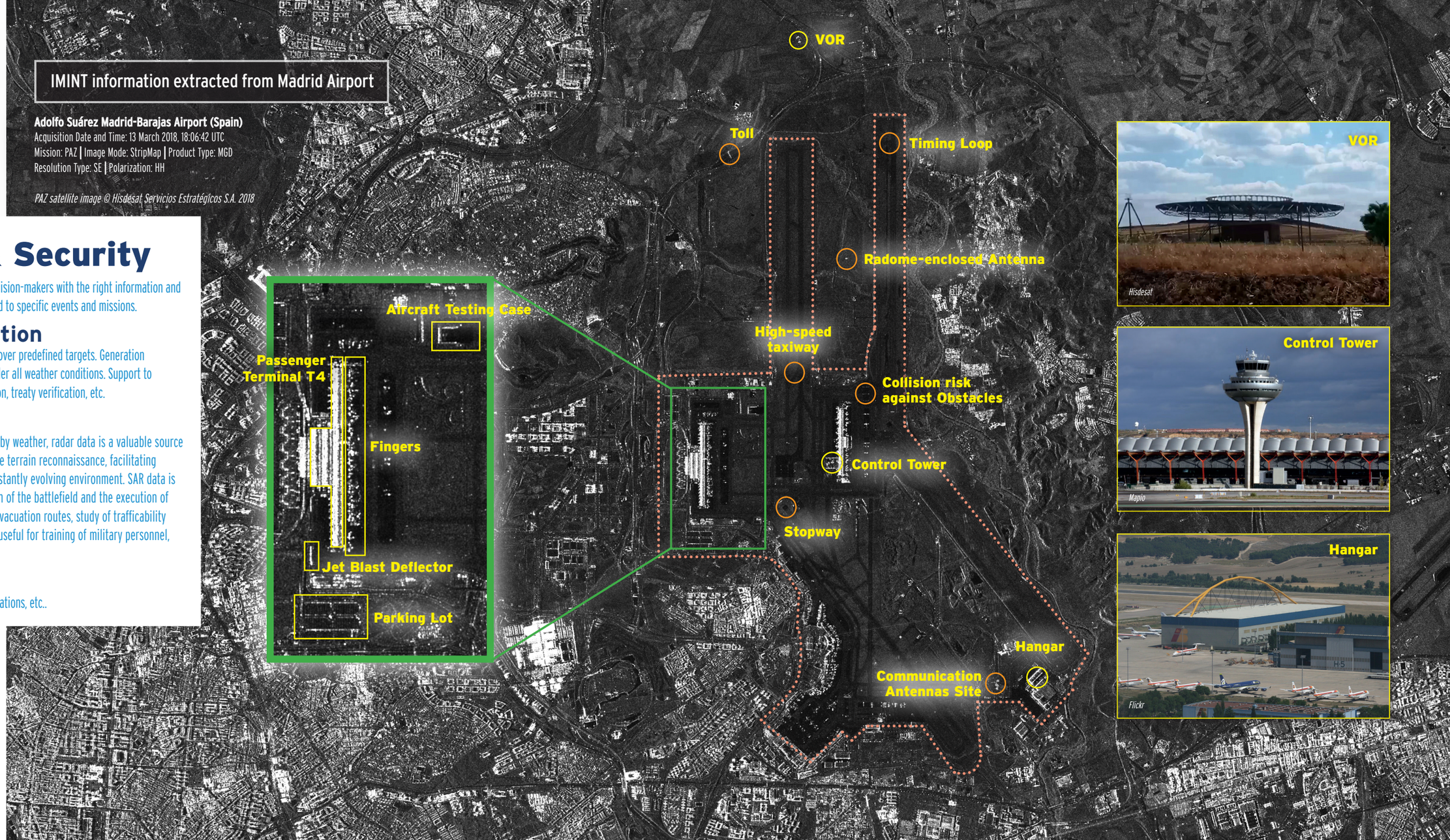
Recurrent automatic change detection over predefined targets. Generation of GEOINT and/or IMINT information under all weather conditions. Support to international missions, border protection, treaty verification, etc.

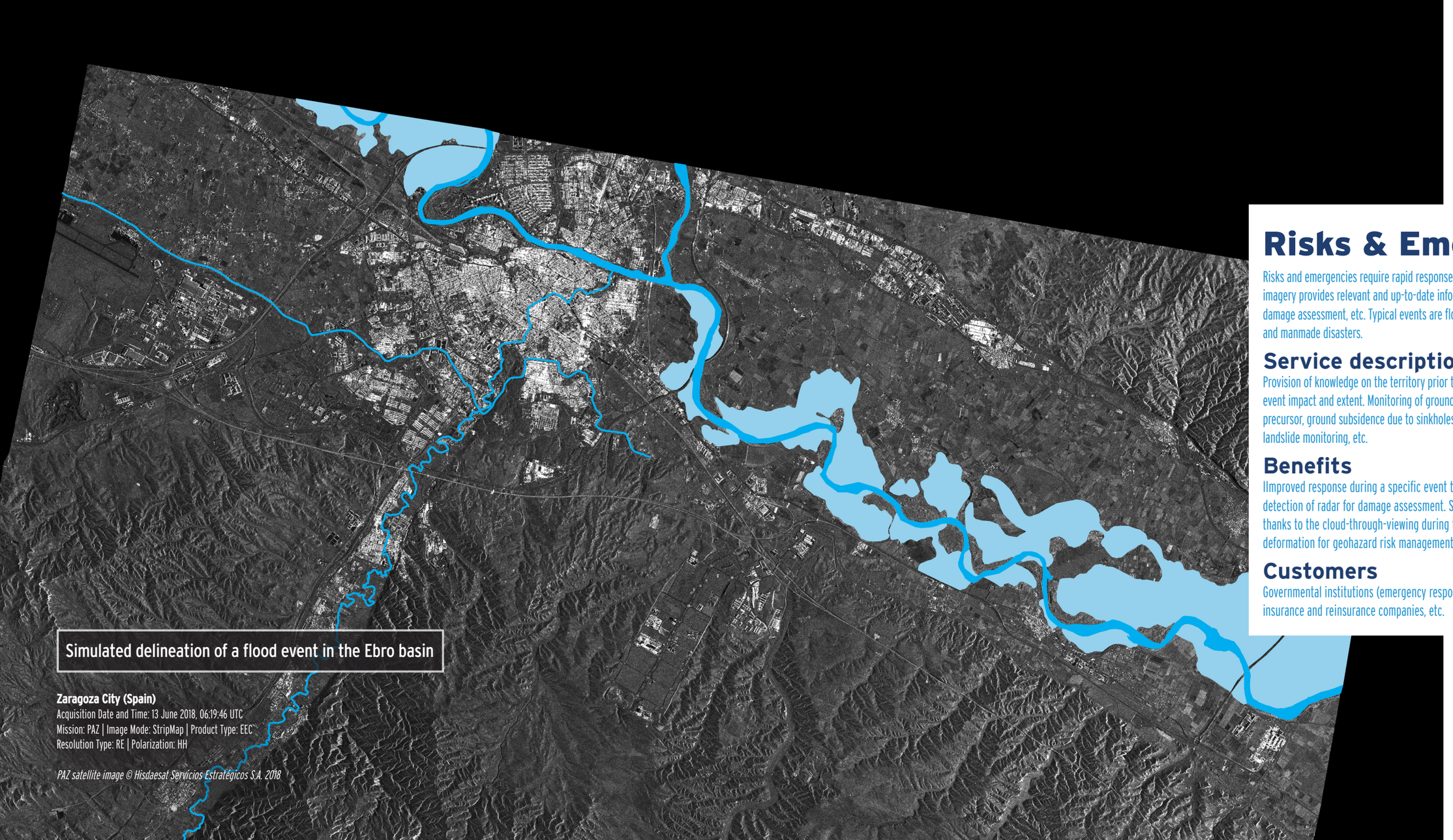
Benefits

With image availability unconstrained by weather, radar data is a valuable source for the detection of changes to provide terrain reconnaissance, facilitating autonomous decision making in a constantly evolving environment. SAR data is also helpful to support the preparation of the battlefield and the execution of an offensive attack, identification of evacuation routes, study of trafficability and vulnerability, etc.; and obviously, useful for training of military personnel, generation of digital simulations, etc.

Customers

Defense agencies, international organizations, etc..





Simulated delineation of a flood event in the Ebro basin

Zaragoza City (Spain)
Acquisition Date and Time: 13 June 2018, 06:19:46 UTC
Mission: PAZ | Image Mode: StripMap | Product Type: EEC
Resolution Type: RE | Polarization: HH

Risks & Emergencies

Risks and emergencies require rapid response and planning. High-resolution radar imagery provides relevant and up-to-date information to monitor staging areas, damage assessment, etc. Typical events are floods, earthquakes, volcanic eruptions and manmade disasters.

Service description

Provision of knowledge on the territory prior to the disaster. Assessment of the event impact and extent. Monitoring of ground displacement as a volcanic risk precursor, ground subsidence due to sinkholes or underground manmade activities, landslide monitoring, etc.

Benefits

IImproved response during a specific event thanks to the advanced change detection of radar for damage assessment. Specially fitted for flood mapping thanks to the cloud-through-viewing during the event. High resolution ground deformation for geohazard risk management.

Customers

Governmental institutions (emergency response teams and civil protection), insurance and reinsurance companies, etc.

Urban Planning, Civil Engineering & Infrastructures

Engineering projects require constant monitoring from the design to the construction and operation phases. This includes ground stability analysis, work progress tracking, etc.

Service description

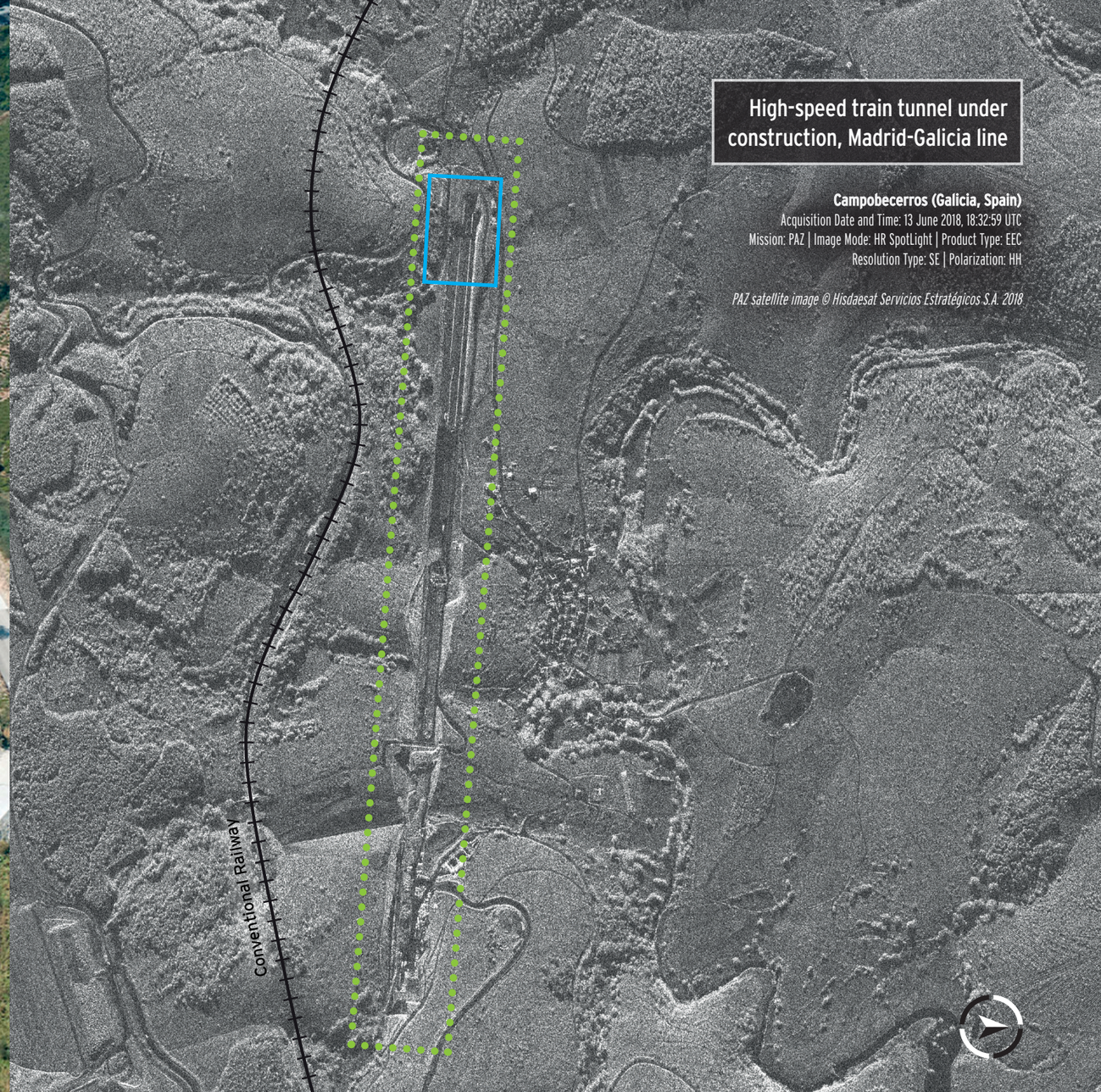
High resolution ground deformation monitoring over building sites, critical infrastructures such as bridges, railways, oil/gas ducts, dams, etc. and overall urban areas affected by underground natural or manmade activities (tunneling, aquifer charge/discharge, karstic processes, etc.). Measurement of deformation speed in mm/year. Work progress monitoring, specially over remote areas.

Benefits

Monitoring of ground deformation, as a complement to site surveying. Assessment of oil/gas infrastructures and exploitation history. Non-collaborative monitoring. Forensic analysis.

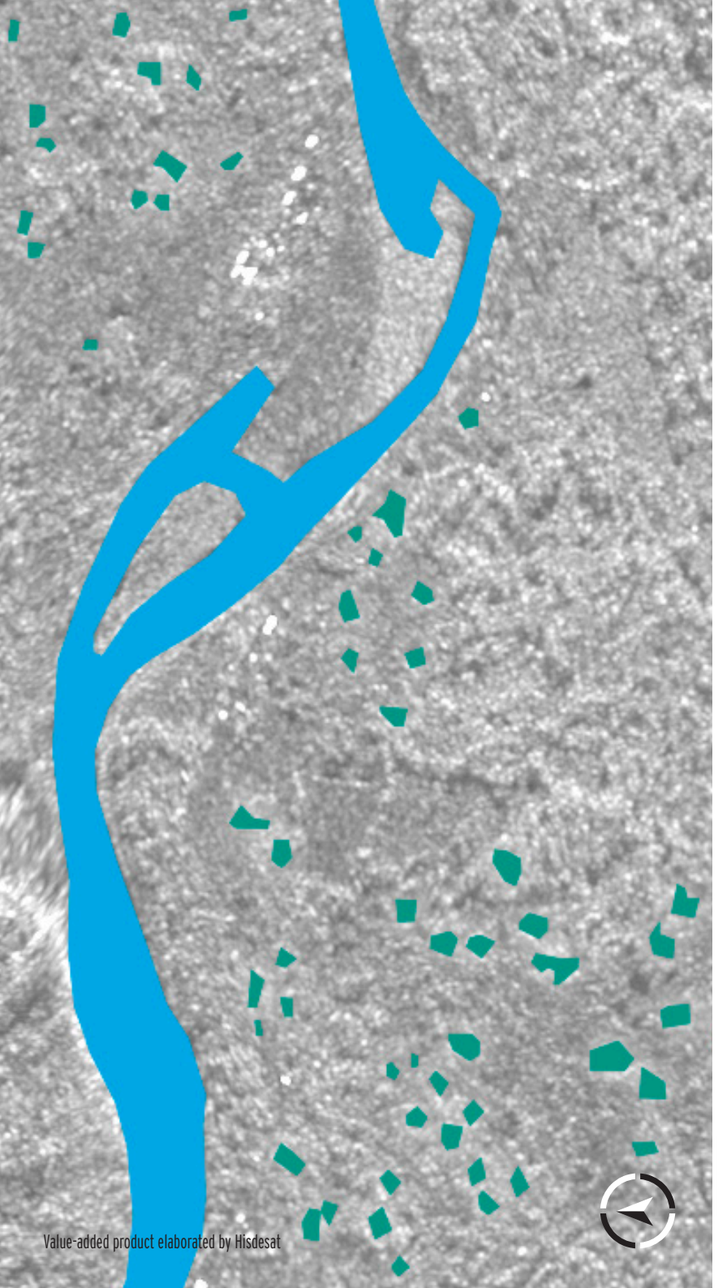
Customers

Civil engineering and mining companies, railway operators, urban authority managers, utility companies, etc..



High-speed train tunnel under construction, Madrid-Galicia line

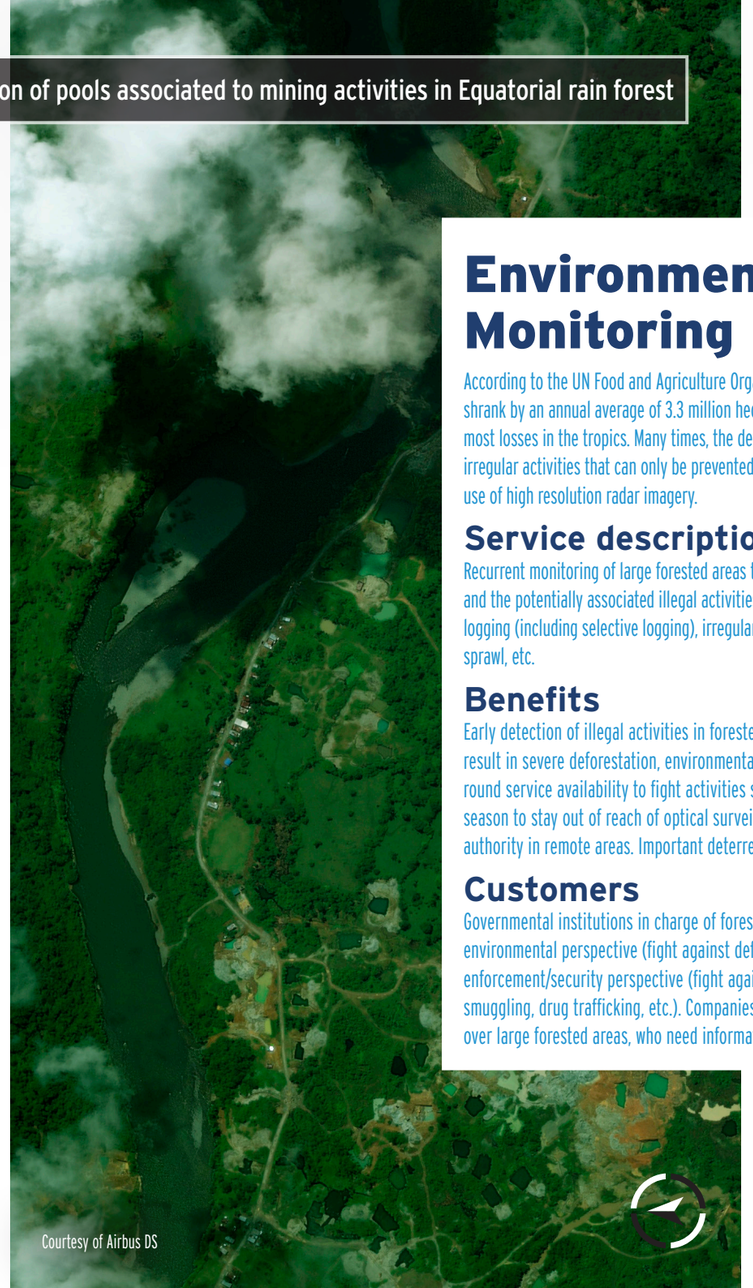
Campobecerros (Galicia, Spain)
Acquisition Date and Time: 13 June 2018, 18:32:59 UTC
Mission: PAZ | Image Mode: HR SpotLight | Product Type: EEC
Resolution Type: SE | Polarization: HH



Value-added product elaborated by Hisdesat

Acquisition Date and Time: 30 June 2018, 11:06:24 UTC
Mission: PAZ | Image Mode: StripMap | Product Type: SSC
Resolution Type: SE | Polarization: VV

PAZ satellite image © Hisdaesat Servicios Estratégicos S.A. 2018



Identification of pools associated to mining activities in Equatorial rain forest

Courtesy of Airbus DS

Environmental Monitoring

According to the UN Food and Agriculture Organization (FAO), the global forest area shrank by an annual average of 3.3 million hectares between 2010 and 2015, with most losses in the tropics. Many times, the deforestation process is associated to irregular activities that can only be prevented with recurrent observation with the use of high resolution radar imagery.

Service description

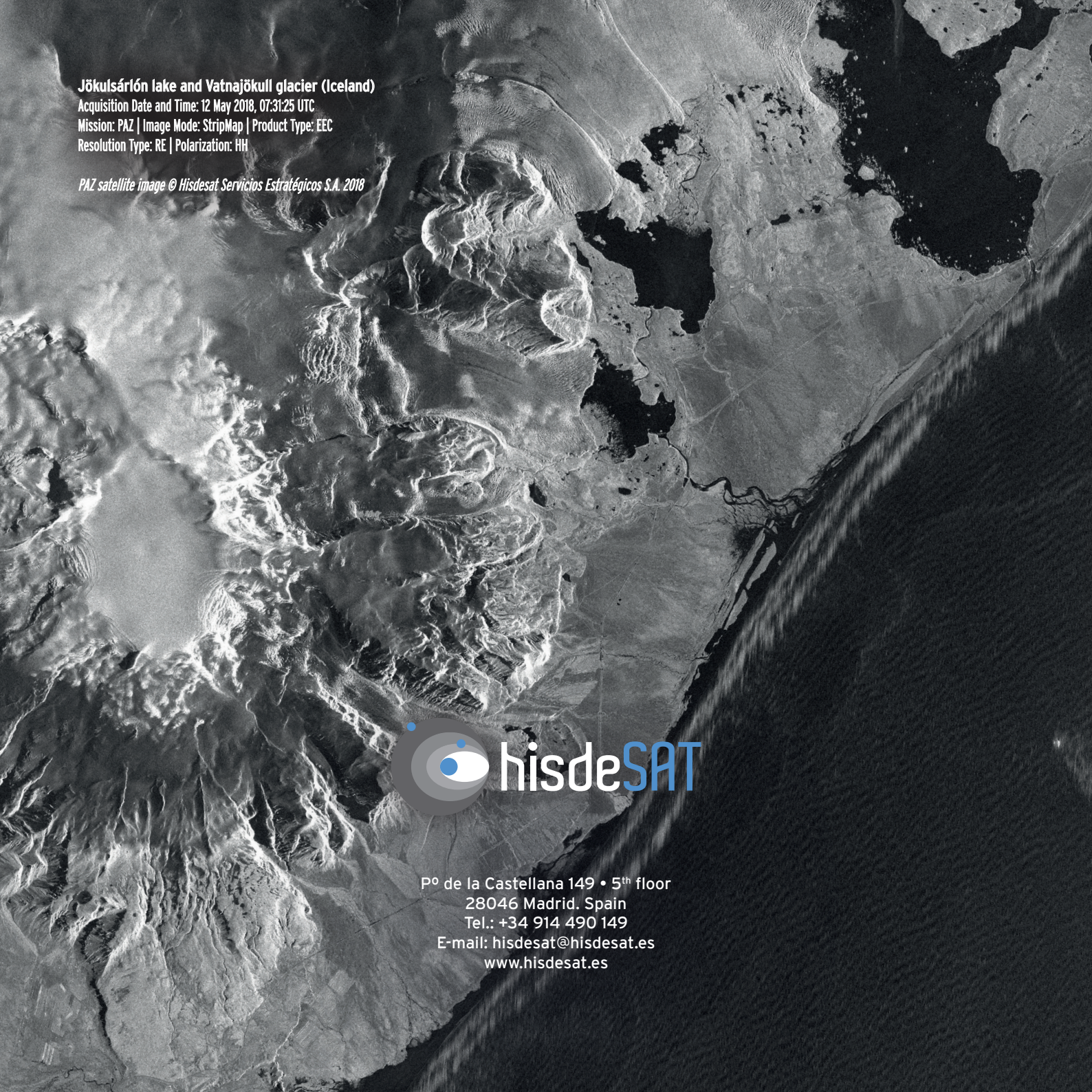
Recurrent monitoring of large forested areas to early detect deforestation processes and the potentially associated illegal activities, such as illegal mining, illegal logging (including selective logging), irregular colonization, illicit crops, urban sprawl, etc.

Benefits

Early detection of illegal activities in forested areas, which if unadverted might result in severe deforestation, environmental hazard or outlaw activities. All year round service availability to fight activities so far concentrated during cloudy season to stay out of reach of optical surveillance. Enforcement of government authority in remote areas. Important deterrent factor to reduce illegal activities.

Customers

Governmental institutions in charge of forest protection either from an environmental perspective (fight against deforestation in general) or from a law enforcement/security perspective (fight against illegal activities like mining, smuggling, drug trafficking, etc.). Companies who own legal exploitation rights over large forested areas, who need information on potential abuse.



Jökulsárlón lake and Vatnajökull glacier (Iceland)
Acquisition Date and Time: 12 May 2018, 07:31:25 UTC
Mission: PAZ | Image Mode: StripMap | Product Type: EEC
Resolution Type: RE | Polarization: HH

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