EARTH OBSERVATION SYMPOSIUM (B1)
International Cooperation in Earth Observation Missions (1)

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PAZ AND TERRASAR-X CONSTELLATION, INNOVATION THROUGH INTERNATIONAL COOPERATION

Abstract

The Spanish and German partners of the TerraSAR-X and PAZ programmes are working together to establish a constellation between the two missions. The cooperation has been fostered by the commercial entities, Astrium GEO-Information Services and Hisdesat, who signed a framework agreement in 2012 to perform the related technology developments.

It is the first international collaboration to bring together two national X-band radar remote sensing satellites in an effort to improve revisit and acquisition capabilities, enhance service levels and application

opportunities for both public and commercial customers. The major technological, scientific and commercial benefits have convinced key industrial and public stakeholders in Germany and Spain to support this long-term cooperation.

The German satellite TerraSAR-X, developed and operated under a public-private-partnership between the German Aerospace Centre (DLR) and Astrium GmbH, has been delivering since 2007 reliable high-resolution radar data for numerous applications to worldwide customers. The exclusive commercial exploitation rights are held by Astrium GEO-Information Services.

PAZ is the first Spanish radar satellite developed and implemented by Hisdesat under the request and sponsorship of the Spanish Ministry of Defence and the financing of the Ministry of Industry, Trade and Tourism. Scheduled for launch in first quarter of 2014, PAZ will be owned and operated by Hisdesat, which also holds the commercial exploitation rights for the mission. INTA (Spanish Aerospace Technology Institute) is commissioned to develop and operate the satellite ground segment.

Operating these two virtually identical satellites in a constellation will enhance performance and service levels thanks to improved revisit time, service reliability and increased data acquisition capabilities. A wide range of time-critical and data-intensive applications will benefit from the constellation:

- Defence and security: reduced lead times and reliable, faster coverage of critical areas of interest worldwide will support operational missions.
- Surface movement monitoring: engineering and mining companies will be able to efficiently monitor and manage their operations.
- Maritime surveillance: applications such as ship detection, oil spill and sea ice monitoring will benefit from improved revisit times and acquisition capabilities.
- Humanitarian organisations and crisis intervention: faster and guaranteed access over affected areas will support management of rescue and relief activities.

The paper presents the innovative approach of this new type of international collaboration. First of all, the conceptual and technical feasibility of the constellation mission will be presented. In the second part, implementation challenges of such collaboration (contractual framework, responsibilities distribution, organisation aspects) will be described.