

Satellite Telecommunications for Global Monitoring for Environment and Security (GMES) applications

November 2006: The TANGO project led by Astrium and gathering 23 complementary partners has been selected for co-funding by the European Commission in the 3rd Call for proposals of the Aeronautics and Space priority of the Sixth Framework Programme (FP6).

The TANGO “Telecommunications Advanced Networks for GMES Operations” project is the first project under FP6 bringing satellite telecommunications to serve the needs of the whole GMES community. The project addresses key environment and security applications in domains such as marine services and emergency response including risk & crisis management and humanitarian aid.

The project will mobilise key GMES players (GMES service providers, GMES data providers and end-users representatives) as well as Satellite Communication’s leading expertise in the area with an overall budget of 8.9 M€, of which 5 M€ will be funded by the European Commission.

Through this project, Astrium and its associated research and industrial partners aim at developing and providing operational telecommunications solutions to the immediate GMES services needs. They also prepare the definition of optimised satellite telecommunications infrastructures to expand the future GMES services.

The GMES (Global Monitoring for Environment & Security) services are currently being developed to support public policy makers’ needs in the domain of environment and security, and rely on a comprehensive Earth observing system, using space borne and in situ techniques. The satellite telecommunications will be a key component of the future GMES architecture, improving the GMES service area (dissemination of GMES applications wherever this is needed, deployment of Ad hoc networking for crisis management), the reactivity and freshness of the data through faster data collection, and the product quality through the improvement of data volume and data rate.

TANGO aims at providing the GMES community with the access to satellite telecommunications solutions in order to meet their needs and to fulfil their missions.

The 3 years TANGO project, launched on the 1st of November 2006, will define, adapt, integrate, and initiate services of satellite communications adapted to GMES requirements. With the involvement of actors from the whole value chain, upgrades of the most recent satellite telecommunication techniques will be researched, proposed and developed for final integration with on-going GMES developments in the framework of security and crisis management, fisheries management, maritime surveillance and humanitarian aid. One of the principal targets is the integration of satellite communications services with terrestrial networks, including combination of GSM, PMR, Bluetooth with satellite solutions at network level, covering transport aspects to facilitate the inclusion of such satellite services within GMES applications. Thanks to the involvement of key telecom players, several satellite solutions including DVB-RCS, SATMODE, Argos satellites system, Satellite Digital Radio, are dealt with to cope adequately with various needs.



TANGO will facilitate the access of the GMES service providers to the satellite communications means in particular through the development of its “Common Telecommunications Services Platform”. The TANGO platform will offer a privileged interface to the GMES community and will provide an optimised access to the satellite capacity.

Through this project, Astrium and its associated partners prepare the definition of optimised satellite telecommunications infrastructures to answer to growing needs in terms of data collection, early warning and GMES products dissemination: optimised data relay infrastructure, enhanced mobile satellite telecommunications, improved satellite capability in terms of coverage, capacity and delay.

The TANGO consortium led and coordinated by Astrium (responsible for risk & crisis management theme and data relay solutions provider) consists in 24 partners representing the whole value chain with GMES players, GMES end-users, Earth observation satellite operators, Geographic Information Systems (GIS) actors & developers, research institutes, space agencies, telecommunications operators, equipment manufacturers, host spacecraft & aircraft manufacturers, as well as cost & benefits analysis experts.

Astrium is the leading satellites company in Europe. Its activities cover complete civil and military Telecommunications and Earth Observations systems, Science and Navigation programmes, and all spacecraft avionics and equipment as well as the corresponding ground segments. It is wholly owned by EADS. The project is one additional step in Astrium developments in the provision of satellite communications solutions for environment security applications, in line with EADS involvement. Through its subsidiary Infoterra Global, Astrium has developed key expertise and achievements in GMES products and services.

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TANGO consortium

Participant name	Country	Domain of activity
ASTRIUM SAS	France	World leader in the design and manufacture of satellite systems including ground segments. Earth observation, Telecommunications and data relay satellite system designer and manufacturer
United Nations Office for Project Services	Switzerland	Operator of the UNOSAT Operational Satellite Applications Programme. Contributor to products & service (inc. rapid Mapping Services) in support to humanitarian relief, disaster management & sustainable development planning
European Union Satellite Centre	Spain	Provider of geospatial intelligence services for the Common Foreign Security Policy (CFSP) and the European Security and Defence Policy (ESDP)
Joint Research Centre	Belgium	European Commission Joint Research Centre supporting the conception, implementation and monitoring of EU policies
Avanti Communications Ltd	United Kingdom	Satellite communications service and applications provider
Synoptics Integrated Remote Sensing & GIS applications BV	The Netherlands	Geographic Information services and GMES related solutions provider
Centre National d'Etudes Spatiales	France	National Space Research agency. Contributor to the International Charter on Space and Major Disaster.
Infoterra GmbH	Germany	Earth observation satellite products provider – Commercial exploitation of TerraSAR system
SES Astra S.A.	Luxemburg	Telecommunication satellite operator and service provider
SPOT IMAGE S.A.	France	Worldwide distributor of geographic information products and services derived from Earth observation satellites
Politecnico Di Torino (Turin Polytechnic University)	Italy	Public scientific and technical university. Design , manufacturing & flight test of UAVs
Collecte Localisation Satellites SA	France	Operation of satellite systems (Argos for collection of environmental data), environmental studies (operational oceanography, meteorology) and development of space ground segment
Worldspace France	France	Satellite Radio operator and service provider
Univerzita Karlova v Praze (Charles University)	Czech Republic	University in Prague, faculty of science, advanced digital image processing, GIS integration and information extraction
EADS Secure Networks	France	Supplier of secured digital telecommunications networks (PMR) for Defence, Public safety and civil secure applications
NEWTEC CY N.V.	Belgium	Manufacturer of satellite communications equipment and systems (SATMODE, DVB-RCS)
Netherlands Organisation for Applied Scientific Research (TNO)	The Netherlands	Europe's third largest Research & Technology Organisation with expertise on development and operations of radar, optical, and underwater sensors for defence, industry and public applications
SkyCat Group Limited	United Kingdom	Lighter-than-air & stratospheric platforms manufacturer
SpaceChecker N.V.	Belgium	Network Operator and Provider of Narrowband Data Services over L-band Satellite
Navigs SARL	France	Specialist in communications solutions for the fishing industry
INESC INOVACAO Instituto de Novas Tecnologias	Portugal	Largest Portuguese technological infrastructure in the areas of Communications, electronics and Information technologies.
INFOTERRA France SAS	France	Information services and applications based on remote sensing, including risk and crisis management
POLITECHNIKA POZNANSKA (Poznan University of Technology)	Poland	One of the biggest Universities of technologies in Poland, supporting Cost & Benefits analysis
Space Research Centre	Poland	Expertise centre in the field of space applications for the polish government