

Short presentation of an expertise profile for the 5th call Space in FP7

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TÜBİTAK EU Framework Programmes
National Coordination Office



COSMOS FP7 Space Information Day
19th July 2011, Riga, Latvia

Call Topics that we are interested in

Space-based applications at the service of European Society (GMES)

9.1.1 Pre-operational validation of GMES services and products

- SPA.2012.1.1.-01 Testing and validating the intelligence-driven and high time –critical scenarios of the CONOPs
- SPA.2012.1.1.-02 testing and validating the low time-critical components of the CONOPS
- SPA.2012.1.1.-03 GMES Security – Support to EU External Actions
- SPA.2012.1.1.-04 Support to emergency response management
- SPA.2012.1.1.-05 Preparing takeup of GMES Sentinel data

9.1.3 Support to the coordinated provision of observation data

- SPA.2012.1.3.-01 Research and development for In-situ component
- SPA.2012.1.3.-02 GMES Climate change – Coordination of Earth bserveation data validation for reanalysis
- SPA.2012.1.3.-03 GMES Climate Change – Data archiving and exchange
- SPA.2012.1.3.-04 Consolidation of user requirements for GMES

Call Topics that we are interested in

Strengthening the foundations of Space science and technology (SSF)

9.2.1 Research to support space science and exploration

- SPA.2012.2.1.-01 Exploitation of space science and exploration data

9.2.2 Research to support space transportation and key technologies

- SPA.2012.2.2.-01 Key technologies enabling observations in and from space
- SPA.2012.2.2.-02 Key technologies for in-space activities

Cross-cutting activities

9.3.1 SME Specific research

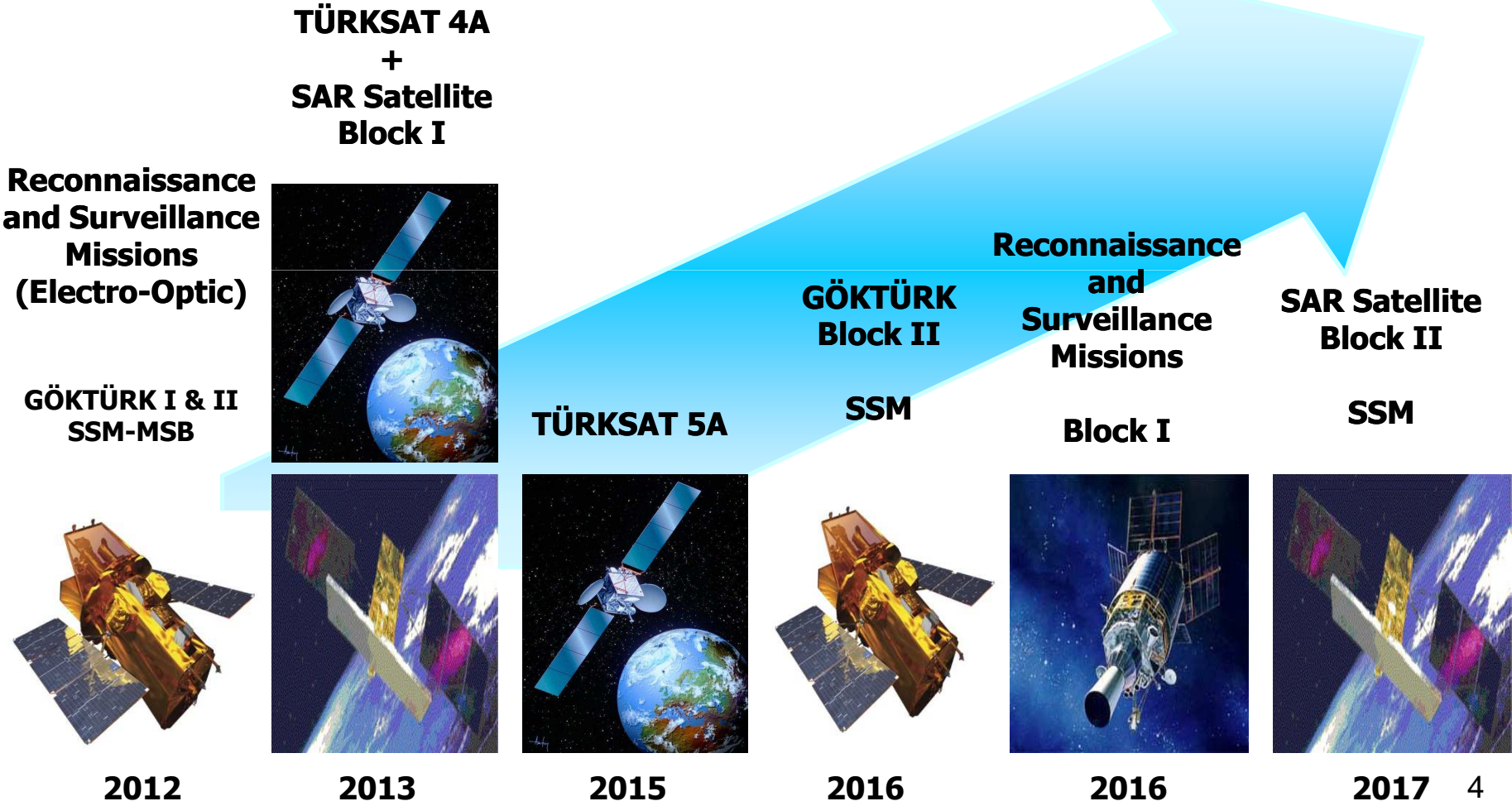
- SPA.2012.3.1-01 Bringing terrestrial SME research into the space domain

9.3.5 Studies and events in support of European Space Policy

- SPA.2012.3.5-01 Studies and events in support of European Space Policy
- SPA.2012.3.5-02 Research agenda definitions and research activity road-maps for a European Research framework programme (workshop activities)
- SPA.2012.3.5-03 New emerging research needs – reduction of vulnerability of space infrastructure

Satellite Roadmap of Turkey

Satellite Technologies

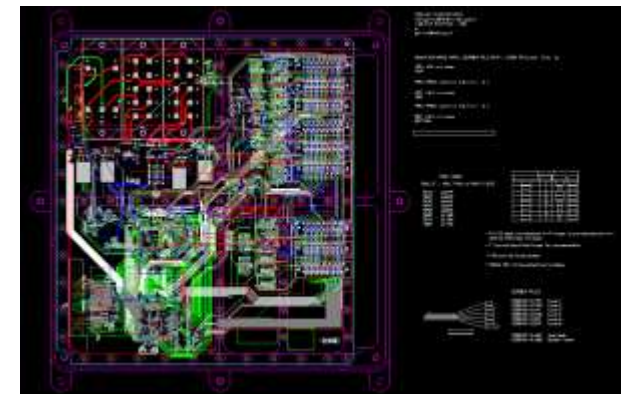
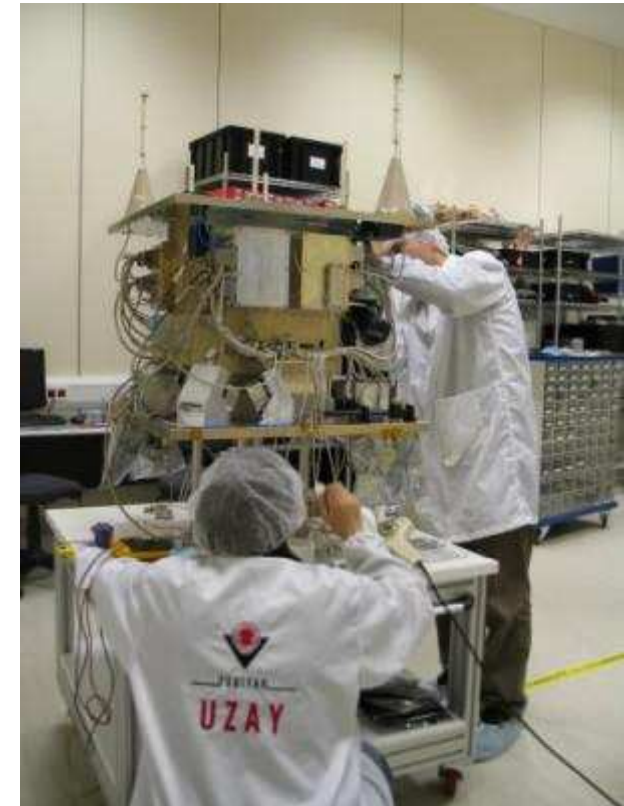


TÜBİTAK UZAY

- SPA.2012.1.1.-01 Testing and validating the intelligence-driven and high time –critical scenarios of the CONOPs
- SPA.2012.1.3.-01 Research and development for In-situ component
- SPA.2012.2.1.-01 Exploitation of space science and exploration data
- SPA.2012.2.2.-01 Key technologies enabling observations in and from space
- *SPA.2012.3.1-01 Bringing terrestrial SME research into the space domain*

TÜBİTAK UZAY

- Real-time JPEG2000 image compression system
- X-BAND Communication System
 - 100 Mb/s downlink at 7W output using an efficient solid state power amplifier
- New Generation Flight Computer; OBC, off-line data processor, data recorder



TÜBİTAK UZAY

- Strong electronic system development know-how
- Satellite technologies infrastructure, Reliability Laboratory
- ESA certified staff for assembly of space systems
- AIT (Assembly Integration and Test) Laboratory
- Satellite Projects
- Satellite sub-system development



Clean room



Thermal chamber



ASELSAN

Communication and Information Technologies Division

Satellite Systems and Satellite Communication Systems

- Satellite Communication System Design
- Satellite Communication System Hardware and Software
- Design, Development and Production of
 - Network Control Stations
 - Flyaway
 - Shipborne
 - Submarine
 - Vehicular
 - Manpack
 - Fixed Ground Terminals
- Platform Assembly, Integration and Set to Work
- Customization of the Systems to meet the National Security compatibility requirements
- Satellite Communication Systems Integrated Logistics Support

ASELSAN

Communication and Information Technologies Division

Satellite Systems and Satellite Communication Systems

FLYAWAY X-Band Satcom Terminal

- Easy Deployable
- Easy Transportable
- Compact 4 transportable case design
- 2,4 m diameter antenna
- 2 Mbps aggregate data rate



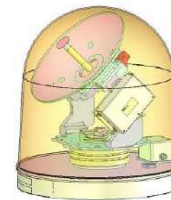
MILGEM X-Band Satcom Terminal

- 2-off radome antenna (1m)
- 3-Axis Stabilized Automatic Tracking
- Configurable 256 Kbps aggregate voice/data rate



SUBMARINE X-Band Satcom Terminal

- 1-off radome antenna (0,38m)
- 2-Axis Stabilized Automatic Tracking
- Radome tolerance up to 60 Bar water pressure
- Configurable 64 Kbps aggregate voice/data rate



LIGHTWEIGHT SHIP X-Band Satcom Terminal

- 1-off radome antenna (1m)
- 3-Axis Stabilized Automatic Tracking
- Compact design
- Configurable 128 Kbps aggregate voice/data rate



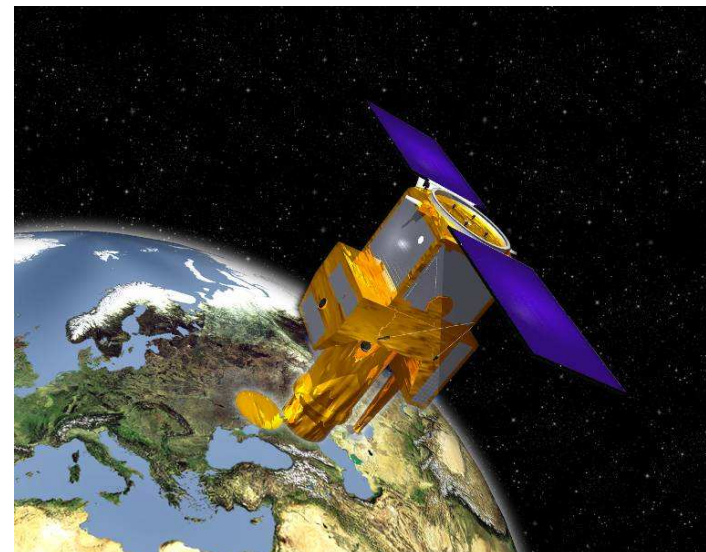
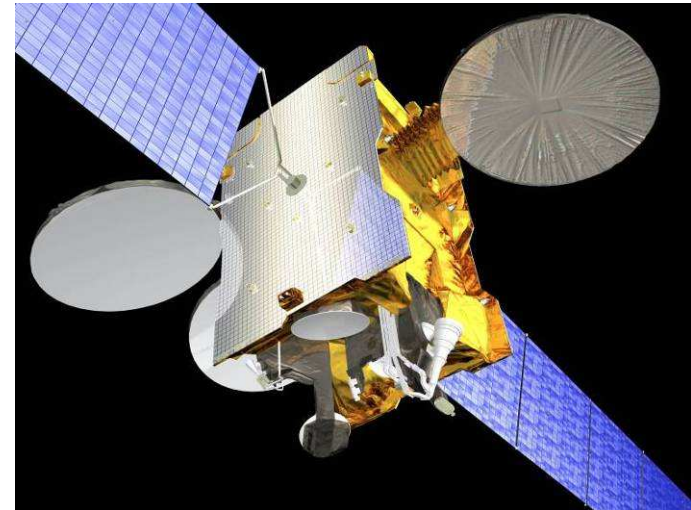
ASELSAN

Communication and Information Technologies Division

Satellite Systems and Satellite Communication Systems

Design, Development and Production of

- Satellite Payloads
 - Communications Transponders
 - Electro-Optical Payloads
 - Synthetic Aperture Radar Payloads
- Satellite Subsystems
 - Telemetry and Telecommand Transceiver
 - High Data Rate Transmitters
- Satellite Ground Stations

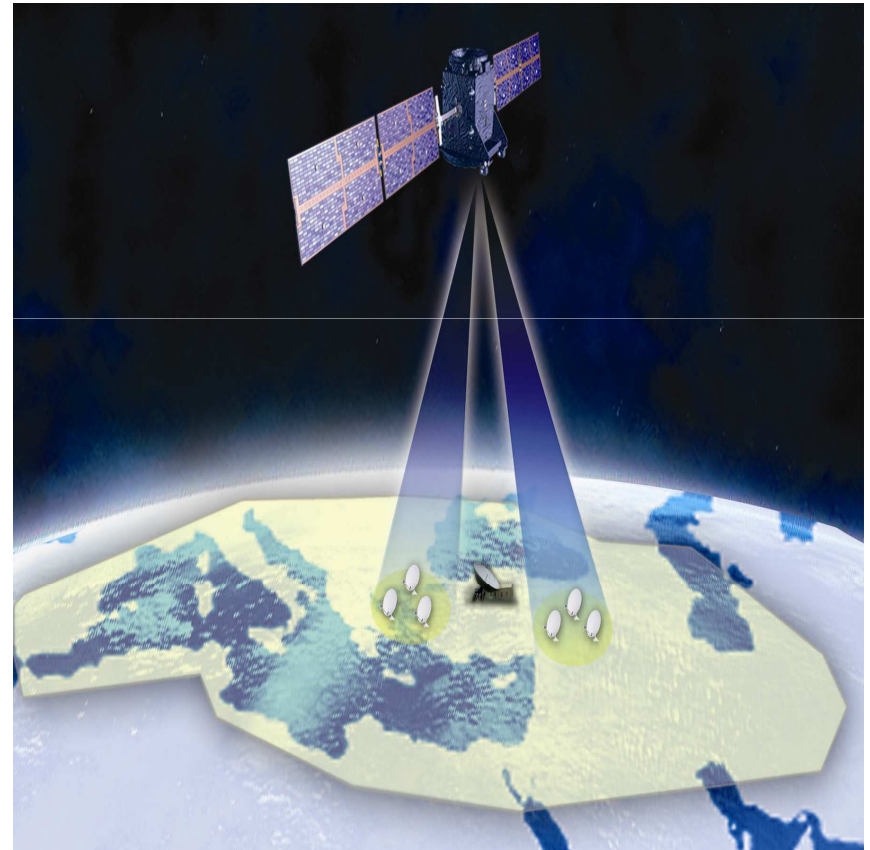


ASELSAN

Communication and Information Technologies Division

Satellite Systems and Satellite Communication Systems

- R&D Project - Supported by Scientific and Technological Research Council (TÜBİTAK) of Turkey
- Project Duration - 50 Months
- Main Contractors - ASELSAN - Bilkent Üniversitesi
- Scope of Work:
 - On-board Processing EHF satellite transponder
 - Transponder Antenna
 - Testbed
- Technical Features
 - Uplink 43,5 - 45,5 GHz,
 - Downlink 20,2 - 21,2 GHz
 - 1GHz Bandwidth
 - 2 Spot Beams
 - 1 Mbps Transmission Rate

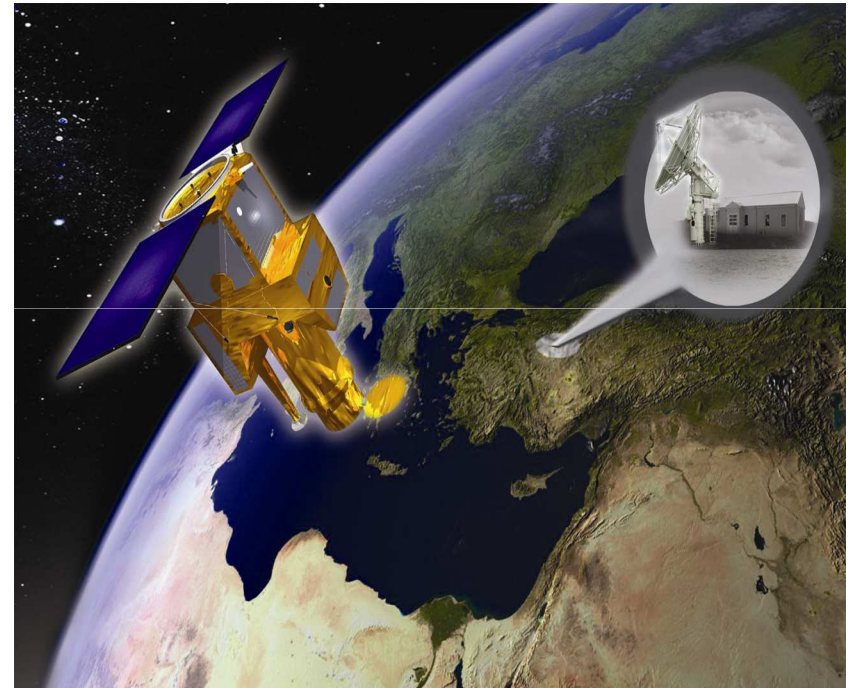


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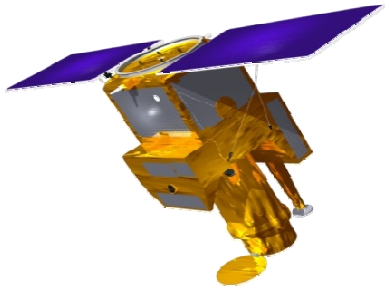
Communication and Information Technologies Division

Satellite Systems and Satellite Communication Systems

- Low Orbit Electro (LEO) Optical Reconnaissance and Surveillance Satellite with a resolution $< 1\text{m}$
- Project Duration - 46 Months
- Main Contractor - Telespazio (Italy)
- Scope of Work:
 - GÖKTÜRK Main and Mobile Ground Station System Development, Production, Integration and Test
 - Participation to Communication Subsystem and Electro-Optic Payload Subsystem development, production, qualification and test activities
 - Production, Qualification and Test of selected boards/modules and qualification of Aselsan's production line



Turkish Aerospace Industries (TAI)



- **Observation Satellite with a 2.5 meter resolution (development)**
- **Observation Satellite with a 1 meter resolution (co-production)**

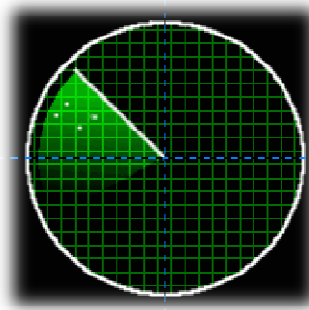


**Satellite Assembly
Integration and Test Center**

SDT Space & Defence Technologies



- Synthetic Aperture Radar Technologies and Applications
- Image Processing
- Pattern Recognition
- Sonar Technologies and Applications
- Radar & IR EW (RF Signal Analysis System)



- SAR Payload
- Software & Algorithm Development on SAR Images
- Ground Station Software and Hardware
- On board data memory

SDT Space & Defence Technologies

- SAR Modes
 - SAR Stripmap Mode
 - SAR Spotlight Mode
 - ISAR Mode
 - ScanSAR Mode
- Analysis and Processing of raw SAR data (airborne and spaceborne)
- End-to-end simulation of SAR System and environment
- Satellite SAR feasibility analysis
- Multi-functional simulation environment
- End-to-End SAR Simulation
- Scenario based simulation
- Modeling of
 - Environmental Scattering
 - Moving and Stationary Targets
 - Signal Processing Algorithms
 - Radar Electronics
 - Satellite and Airborne SAR Geometry



**Please contact with me for more information about
Turkish researchers working in the field of space ...**



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