



# UZAY

## GEO infrastructure and capacities in Central Asian Countries



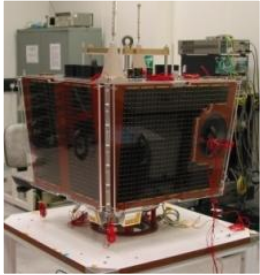
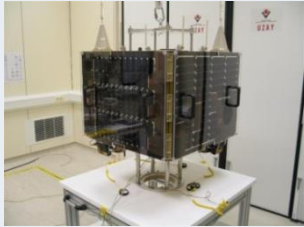
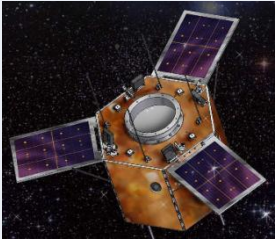
Rukiye Özcivelek

**GEO EUROPEAN PROJECTS' WORKSHOP**

ROME 7 & 8 May 2012

- TÜBİTAK, The Scientific and Technical Research Council of Turkey, coordinates space R&D activities in Turkey.
- Space Technologies Research Institute, established in 1984 as “Ankara Electronics R&D Institute”
- Became “Space Technologies Research Institute” in 2006 and initiated satellite technologies in Turkey.
  - Space Technologies: Satellite systems, satellite sub-systems, satellite ground station sub-systems, satellite test and integration systems.
  - Electronics: Communication systems, electronics system design, electro-optic mission payload, high-speed digital design, IC design



SATELLITE PROJECTS	BİLSAT	RASAT	GÖKTÜRK-2
			
Launch Date	September-2003	August-2011	Planned 2012



## FP7 PROJECTS

- **SEOCA-GEO Capacity Building Initiative in Central Asia, 2010-2012**
- **P<sup>2</sup>-ROTECT: Prediction, Protection & Reduction of Orbital Exposure to Collision Threats, 2011-2013**
- **COGSENSE-Cognitive and Cooperative Signal Processing Technologies for Remote Sensing Application, 2011-2014**
- **THOR- Innovative Thermal Management of High Temperature Structures, 2012-2015**
- **GAMALINK-Generic SDR-based Multifunctional spAce LINK, 2012-2014**



## ESA-ESRIN PROJECT

- **CONTROLS-COMparisons to MaiNtain TRaceability of Optical Sensors**

Aimed at building GEO- related capacity in the domain of Earth Observation in the CA countries

-Duration 2 years (2010-2012)

-14 project partners

- Represent all countries of Central Asia





•TU Berlin (Coordinator), ECM-Office, GIRAF PM



•ARATOS Technologies



•TÜBİTAK UZAY  
•JeoDijital Technologies Company



•Uzbekistan Hydrometeorological Research Institute  
•The Remote Sensing and GIS Technologies Center  
•Abu Raikhman Beruni Technical University



•The National Center of Space Research and Technologies  
•Kazakhstan Gumilyov Eurasian National University



•Tajikistan State Agency of Hydrometeorology



•Kyrgyzstan State Agency of Hydrometeorology



•National Institute of Deserts, Flora and Fauna (only 1st year)

- National White Books “National needs and capacities in the domain of Earth Observations”.
- Strategic Roadmaps „GEO Capacity building activities for the period 2010-2020”.
- Training workshops “EO information and policy-making”, “Modern technologies for Space and Satellite data processing”, “Micro- and nano-satellite technologies for EO”.
- Brokerage Event “EU-Central Asia cooperation in the domain of Earth Observation information exchange”.
- Regional University Conference “Towards new Curricula in the field of Earth Observation and Geo-information technologies”.
- National GEO offices.
- Pilot Regional GEONETCast Network and Regional GEONETCast pilot database of waters resource observations
- Central Asian GEO website (combined with the project website).

- CA has developed significant capacities to participate in the EO data exchange providing in situ observations data and receiving data of space observations.
- The Centre of space monitoring in Astana, Kazakhstan, has taken-up the technology of receiving, storing and processing the streaming remote EO data from the satellites IRS-1C, IRS-1D, IRS P6 (India), RADARSAT-1 (Canada), AQUA (USA).

# CA Earth Observation Capacities

- The region possesses relevant research facilities (like the Institute of Space Research, Kazakhstan) and Universities granting degrees in this field (e.g. the MSc programme "Remote EO and GIS" in Eurasian National University, Kazakhstan).
- The countries have started the development of their own national plans of EO capacities development.
- Uzbekistan has adopted "The Programme of Earth and space peaceful explorations for 2007-2013" .



- Central Asian organizations had a chance to get a practical insight in operation of GEONETCAST terminals during Turkish State Meteorological Service visit and interested in uptaking GEONETCAST.
- Awareness among major relevant stakeholders of the European GEONETCAST system.
- Tajikistan joined GEO starting from 01/01/2011.
- The project team has established direct and intensive contacts with the operator of GEONETCAST (EUMETSAT).

- The first GEONETCAST demonstration site was installed in Tashkent (Uzbekistan).
- All partner organizations registered as GEONETCast users.
- All users installed terminals using the Tashkent site as reference and local support.
- Training workshops & University conference

- A joint regional pilot database of water pollution index is created.
- The data from 4 countries along the trans-boarder rivers Syr-Darja and Amu-Darja (Uzbekistan, Kazakhstan, Kyrgyzstan, Tajikistan) is collected.
- Regional conference with 3 other project participants.

# Reference to GEO Work Plan 2012-2015

GEO 2012-2015 Work Plan	FP7 SEOCA Contribution
<p><b>Infrastructure,</b>  <b>IN-01 Earth Observing Systems</b>            IN-01, C1..Support the collection, analysis and archiving of water-cycle in-situ measurements  <b>IN-04 GEOSS Communication Networks</b>            C2, GEONETCast</p>	<p>A pilot regional GEONETCast database of surface waters quality observations is established.            Index of water pollution (WPI) is calculated using dataset of Hydrometeorology Agencies ..  <i>e.g. Uzhydromet monitors surface water quality of 57 objects, at 109 gauges on 84 water bodies on 50 components.</i></p>
<p><b>Information For Societal Benefits</b>  <b>WA-01, C4 Global Water Quality Products and Services</b></p>	
<p><b>Institutions and Development</b>            ID-02 Developing Institutional and Individual Capacity</p>	<p><i>Implemented the Capacity Building and Brokerage Programme: 3 training workshop organized, GEO Offices are established.</i></p>
<p><b>WA-01, C5 Information System Development and Capacity Building</b></p>	<p>Developed initial information systems.</p>
<p>C5, .. infrastructure to promote integrated water resources management (IWRM), transboundary river basin management, and water information sharing</p>	<p><i>e.g. Chu river flows over territory of Kyrgyzstan and Kazakhstan,.. Amudarya river flows along the border between Afghanistan and Uzbekistan, then flows along Turkmenistan, afterwards, flows back to Uzbekistan and inflows to the Aral Sea</i></p>

GEO 2012-2015 Work Plan	FP7 SEOCA Contribution
<p><b>WA 01, C2 Information Systems for Hydro-meteorological Extremes</b></p>	<p>Developed initial information systems with the collected data from Hydrometeorology Agencies of the Central Asian countries..</p> <p><i>e.g.3100 river flood basins on the territory of Kyrgyzsan.</i></p>
<p><b>WA01-C1, ..Collect standardized observations on glacier fluctuations and develop glacier inventories</b></p> <p><b>WA01-C3, Information Service for Cold Regions</b></p>	<p>Developed initial information service with the dataset of Hydrometeorology Agencies of Tajikistan&amp; Kazakhstan</p> <p><i>e.g. the glaciers of Tajikistan occupy about 6% of the country ..there is a state program of glacier conservation for the years 2010-2030.</i></p>

THANK YOU !

[www.geo-seoca.net](http://www.geo-seoca.net)

[www.uzay.tubitak.gov.tr/seoca/](http://www.uzay.tubitak.gov.tr/seoca/)

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