

**Short presentation of an expertise profile for the  
5<sup>th</sup> call Space in FP7**

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**COSMOS Matchmaking Event  
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# Draft Call Topics that we are interested in\*

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

### ➤ *Pre-operational validation of GMES services and products*

- Testing and validating the intelligence-driven and high time-critical scenarios of the CONOPS
  - Tracking vessels on the high seas
  - Punctual monitoring of selected neighbouring third-country ports and coasts
- GMES Security – Support to EU External Actions
- Support to emergency response management
- Preparing take-up of GMES Sentinel data

### ➤ *Support to the coordinated provision of observation data*

- Climate Change – GMES service coordination
- Consolidation of user requirements for GMES

## Strengthening the foundations of Space science and technology (SSF)

### ➤ *Research to support space science and exploration*

- Exploitation of space science and exploration data

## Presentation of **ITU-CSCRS**

- ITU-CSCRS has five antenna systems with different capabilities and all the hardware and software needed for a complete ground receiving station for remote sensing.
- The mission of ITU-CSCRS is to develop an advanced capability in remote sensing and satellite communications to meet the scientific needs and operational requirements.
- ITU-CSCRS team have gained considerable experience at ground station operation and critical remote sensing applications such as disaster monitoring, ship detection for monitoring illegal fishing activities, ice monitoring for oil platform navigation, water quality monitoring, agricultural monitoring, climate change and deformation analysis by interferometric techniques in collaboration with international partner institutions.

# Competencies

- The center has direct downlinking capability from the satellites for a geographical location extending from Sweden in the North to Sudan in the South and from Ireland in the West to Kazakhstan in the East covering the Earth's surface within a radius of 3000 km. We are providing real-time satellite images from Radarsat-1, SPOT 4, SPOT 5 and NOAA AVHRR within the coverage area.
- We have been developing decision-support system to monitor crop yield and crop diseases for Ministry of Agriculture of Turkey (Project Budget is 7 Million Euro). Decision-support systems can be developed for other applications.
- We have a well-qualified workforce with seven engineers (PhD) degrees, six engineers (MSc) and two engineers (BSc) coming from different disciplines from different disciplines like Geomatic Engineering, Telecommunication Engineering, Meteorology, Hydrogeology, Computer Science, Electronics Engineering, Aeronautics and Geology. Our staff has strong knowledge and project experience about their professions which let us to work at multidisciplinary projects with their academic, research and operational backgrounds.

# REFERENCE PROJECTS:

- The Caspian Sea Project (2003-2006; with AgipKCO (Agip Kazakhstan North Caspian Operating Company) and Danish Meteorological Institute (DMI)),
- IMPAST (Improving fisheries monitoring through integrating Passive and Active satellite-based Technologies) Project (2004; with EC-JRC, Italy),
- InSAR Project (2004-2007; with Euroimage SpA, Italy),
- Giant Field Project (2006; EU Donation Project),
- Water Quality Monitoring in Salt Lake, Turkey using multi-temporal SPOT Imagery and ground surveys (2005-2007, TUBITAK Project),
- Agricultural Monitoring & Yield Estimation System (2008-ongoing, DPT Project)
- Monitoring of Vineyard Areas using remote sensing and GIS techniques (2010-ongoing, TUBITAK Project)

# Intended Role in a Consortium

- Partner

- Work package leader

- Earth Observation Data Acquisition and Analysis,

- Decision Support Systems (GIS),

- Remote Sensing Related Applications

## Contact and further information (if any)

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<b>Number of researchers:</b> 14	<b>Tel:</b> 00902122856813- Ext.122
<b>Number of employees in total:</b> 21	<b>Web site:</b> <a href="http://atlas.cc.itu.edu.tr/~sertele/">http://atlas.cc.itu.edu.tr/~sertele/</a>

# PUBLICATIONS

- Sertel, E., A. Robock, and C. Ormeci, "Impacts of land cover data quality on regional climate simulations," *Int. J. Climatol.* 29: 000–000 (2009), DOI: 10.1002/joc.2036
- Sertel, E., "Identification of Earthquake Induced Damage Areas Using Fourier Transform and SPOT HRVIR Pan Images," *Sensors*, 9(3), 1471-1484, DOI:10.3390/s90301471 (2009).
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- Ekercin, S. and Ormeci, C, "Estimating soil salinity using satellite remote sensing data and real-time field sampling," *Environmental Engineering Science* 25(7), 981-988 (2008).
- Sertel, E., N. Findik, S. Kaya, D. Z. Seker and A. Samsunlu, "Assessment of Landscape Changes in the Kizilirmak Delta, Turkey Using Remotely Sensed Data and GIS," *Environmental Engineering Science*, 25(3), 353-362 (2008).
- Demirel, H., E. Sertel, S. Kaya and D.Z. Seker, "Exploring Impacts of Road Transportation on Environment: A Spatial Approach," *Desalination*, 226(1-3), 279-288 (2008).
- Sertel, E., H. K. Cigizoglu and D. U. Sanli, "Estimating Daily Mean Sea Level Heights Using Artificial Neural Networks," *Journal of Coastal Research*, 24(3), 727-735 (2008).
- Ormeci, C. and Ekercin, S, "An assessment of water reserve changes in Salt Lake, Turkey, through multi-temporal Landsat imagery and real-time ground surveys", *Hydrological Processes*, 21(11), 1424-1435 (2007).
- Sertel, E., S. Kaya and P. J. Curran, "Use of Semi-variograms to Identify Earthquake Damage in an Urban Area," *IEEE Transactions on Geoscience and Remote Sensing*, 45(6), 1590-1594 (2007).