



## **LETTER OF INTENTION**

### **IKU-GEOMER PARTNERSHIP FOR FP7-SPACE PROJECTS**

#### **Introduction**

Istanbul Kultur University- Geomatic Application Research Center (IKU-GEOMER) was established in July 2009 after the completion of one of the most significant research projects in Turkey, namely, “The Establishment of National Continuously Operating Reference Stations (CORS-TR) System and Determination of Datum Conversion Parameters (105G017)”. The research was funded by The Scientific and Research Council in Turkey (TUBITAK). The total budget of the project was about 5 Million Euro. The objective of the project was (i) to design and establish CORS-TR (ii) carry out atmospheric studies and (iii) determine cellular datum transformation models.

As part of the project, 150 GNSS CORS-TR stations were established in the entire Turkey and North Cyprus together with three Control Centers (CC) located in General Directorate of Land Registry and Cadastre (GDLRC), General Command of Mapping (GCM) and IKU. *CORS-TR* (called TUSAGA-AKTIF in Turkish) system is the 6<sup>th</sup> biggest national GNSS reference network in the world and the 1<sup>st</sup> among the developing countries. The project started in May 2006 and completed in three years. The system have been effectively in operation since September 2008. Figures 1-4 in the Appendix show the sites, RTK users, CORS station and CC in IKU.

Currently, the system is being managed collaboratively by GDLRC and GCM for commercial and military purposes. The mission of the CC in IKU is to store the static GNSS data as gateway to the academic institutions for research purposes on precise geodetic positioning such as tectonic plate monitoring, modeling of the atmosphere, navigation, precise farming etc..

The main missions of IKU-GEOMER are enlisted as;

- (i) Education; IKU-GEOMER offers graduate courses (M.Sc. and Ph.D.) in Geomatics Engineering. The lecturers are from IKU and other prominent universities in Istanbul.
- (ii) Research; The primary goal of IKU-GEOMER is to carry out research in geomatics engineering, including multidisciplinary projects such as tectonic plate monitoring, structural deformation, remote sensing (SAR, InSAR), modeling of the atmosphere (Ionosphere and troposphere) etc.

## **IKU - GEOMER Staff**

At the present, the Center has three academicians / researchers, namely, Turgut Uzel, Kamil Eren and Ahmet Anil Dindar.

Prof. T. Uzel has very extensive academic and research experience. He carried out numerous research projects since 1965. He also served as the President of Yildiz Technical University and the Director of IKU Graduate School. He served as the Coordinator in the CORS-TR Project.

Prof. K. Eren, who is a graduate of Ohio State University, also has national and international academic and research experience as post-doctorate researcher, Humboldt Fellow, United Nations expert and Professor in Middle East Technical University. He served as the Project Manager in the CORS-TR Project.

Dr. Ahmet Anil Dindar recently completed his Ph.D. study after completing a successful research on "Energy-Based Seismic Analysis and Design of RC columns". He served as the Deputy Project Manager in the CORS-TR Project.

## **Research**

IKU-GEOMER is very much interested in participating research projects together with the European partners. The Center is ready to share the data, experience and knowledge in studies related to plate tectonics, earthquake studies, subsidence's, etc. using CORS-TR and InSAR techniques.

IKU-GEOMER currently is involved in two research projects (i) Precise Farming Using CORS-TR (for Ministry of Agriculture) and (ii) Monitoring Crustal Deformation and Modeling of the Regional Ionosphere Activities by using CORS-TR, both are funded by TUBITAK. As seen in the first project, IKU-GEOMER has the ability and the initiative to participate diverse programs while the latter gives the opportunity to increase the experience in the understanding the fault characteristics in the Eastern Mediterranean region as well as North Anatolian Fault line.

IKU-GEOMER has been in close association with Istanbul Technical University- Center of Satellite Communication and Remote Sensing (ITU-CSCRS) in Istanbul. This partnership really extends the project capacity of GEOMER into the Remote Sensing, including the use of InSAR techniques for vertical deformations.

## **Collaboration**

IKU-GEOMER has the potential of conducting extensive research projects in geomatics engineering in general and CORS and InSAR applications in particular. So the Center is ready to be part of GMES in Turkey and as well as in North Cyprus.

In addition, IKU-GEOMER is also interested in research projects related to the disaster management since earthquakes are the fact of life in Turkey. Therefore, there is a great merit in the cooperation with the European Institutions in the Hazard Mitigation and Disaster Management projects using such extensive and very precise positional data.

### **Intention**

In very near future, IKU-GEOMER intends to participate FP7-Space programs (i) SPA.2010.1.1.-01 Stimulating the development of downstream GMES services, (ii) SPA.2010.1.1.-04 Stimulating the development of services or (iii) SPA.2010.1.1.-06 Coordination of national activities for land monitoring.

### **Contact People**

Prof.Dr. Kamil Eren (Director of IKU-GEOMER) - [keren@ags-group.com](mailto:keren@ags-group.com),

Mob: +90-532-364-35 95, Office: +90-212-498-42 91, Fax:+90-212-498-42 68

Dr. Ahmet Anil Dindar – [adindar@iku.edu.tr](mailto:adindar@iku.edu.tr),

Mob: +90-532-548-63 93 , Office: +90-212-498-42 71, Fax:+90-212-498-42 68,

Address: IKU GEOMER Atakoy Campus D220 Bakirkoy 34156, Istanbul- Turkey,

Web page: <http://cors-tr.iku.edu.tr>

Appendix



Figure 1. 150 CORS-TR stations in Turkey and North Cyprus

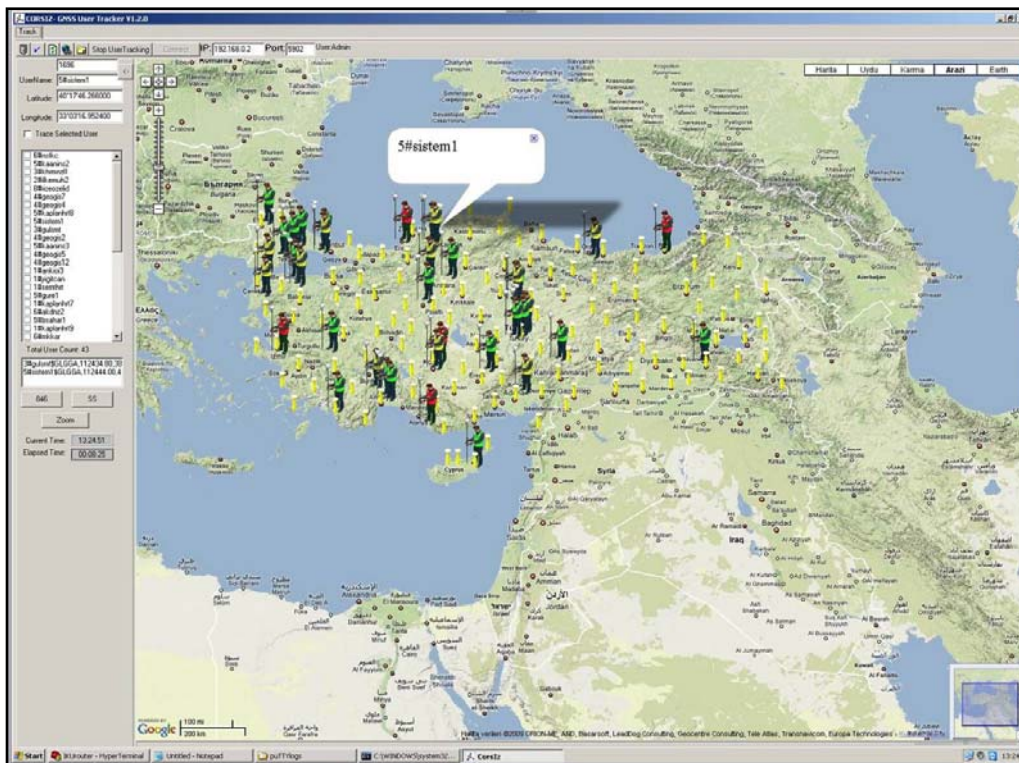


Figure 2. The users of CORS-TR in a typical day



**Figure 3. The CORS-ISTN station**



**Figure 4. IKU-GEOMER CORS-TR Control Center**