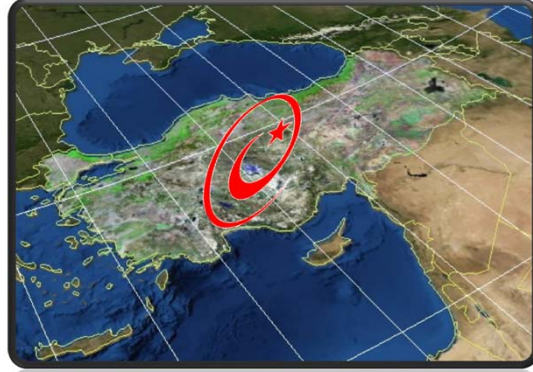




GENERAL DIRECTORATE OF LAND REGISTRY AND
CADASTRE (GDLRC) OF TURKEY

1

CORS-TR in TURKEY



SEDAT BAKICI, ÖMER YILDIRIM, ÖMER SALGIN
19.05.2011 Marrakech FIG WW 2011



Tapu ve Kadastro
Genel Müdürlüğü

TUSAGA-Aktif (CORS-TR)



AIM

3

- To provide **cm-level accuracy** position information in **real time** with RTK GPS network, covering Turkey and Northern Cyprus Turkish Republic.
- To define **datum transformation** between ED50-ITRFxx



CORS_TR (Turkish National Permanent RTK-GPS Network)

4

STARTED: MAY 2006
FINISHED: JLY 2010
COST : 5 M. USD



PROJECT IMPLEMENTATION

5

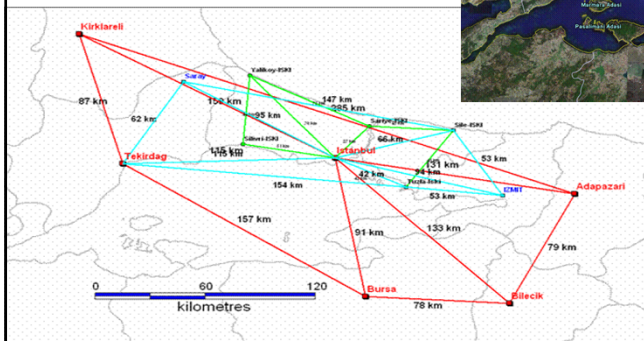
- Benchmark Testing
- Design of CORS-TR
- CORS Site Selection
- Hardware / Software Selection
- CORS-TR Installation and Operation
- Determining Common ED50 – ITRFyy Points and GPS Surveys (About 10x10 km spacing)
- Determining national datum transformation surface



BENCHMARK TESTING (WITH 13 POINTS)

6

To test GS receivers & antenna
, Control Center Software,
optimum interstation ranges
and communication and other
relevant infrastructure in TR.



CORS_TR STATIONS -147

7



CORS_TR MONUMENTS

8



Erzurum



Diyarbakir



Igdir



Cabinet

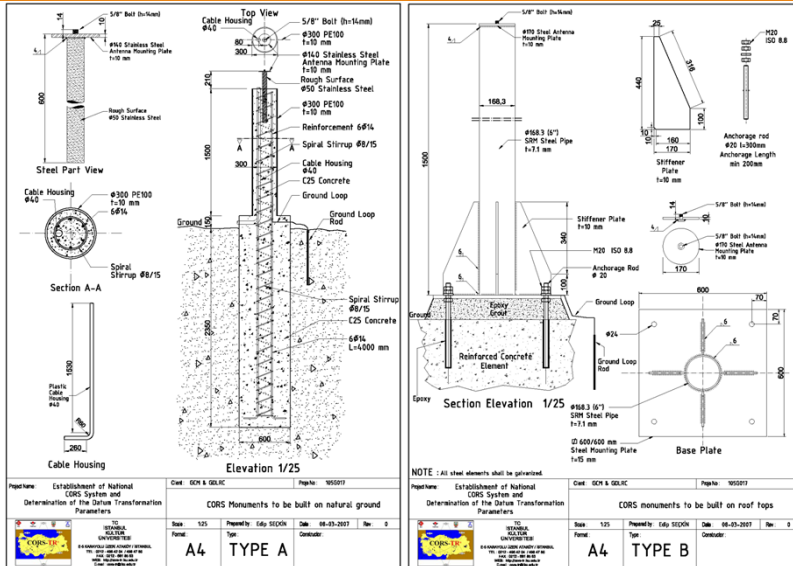


Viransehir



CORS_TR MONUMENTS

9



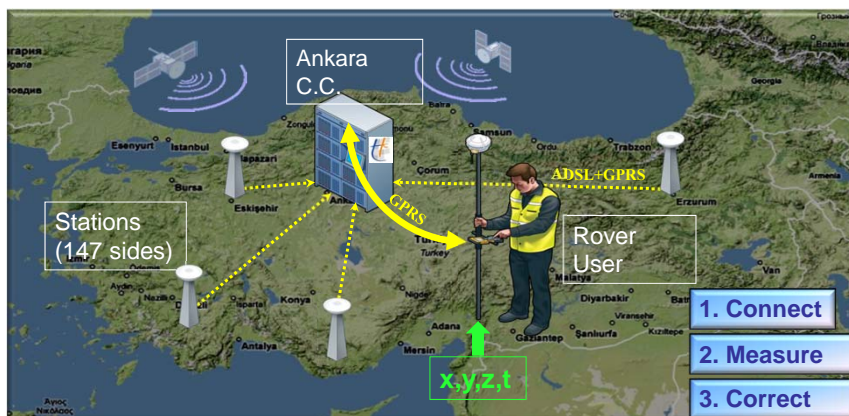
CORS_TR CONTROL AND OPERATION CENTER (ANKARA)

10



HOW IS IT WORKING ?

11



Cm-level coordinates in a few seconds ..



PROJECT GAINS-SURVEYING&GIS

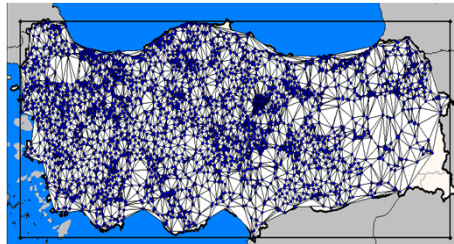
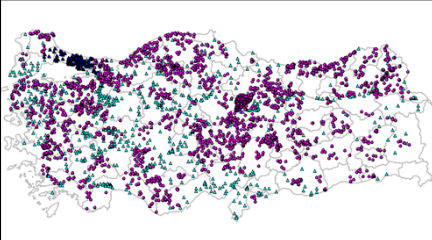
12

- Almost no GCP needed for surveying and GIS works.
- Saves more than 50 million USD every year in Turkey (reduces 30% in all Surveying&GIS projects)



PROJECT GAINS-SURVEYING&GIS

13



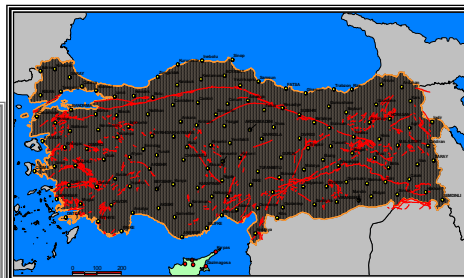
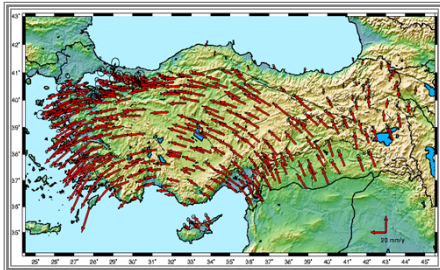
DATUM TRANSFORMATION BETWEEN ED-50 AND ITRFxx



PROJECT GAINS-TECHTONICS

14

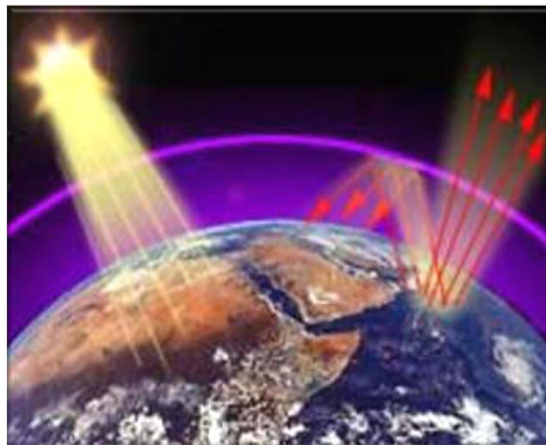
Monitoring techtonic movements on-line



PROJECT GAINS-ATMOSPHERE

15

Modelling ionosphere&trophospare



CORS_TR TEST MEASUREMENTS

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CORS_TR TEST	NORTH (m)	EAST (m)	HEIGHT (m)
# OF POINTS	808	808	808
STANDART DEVIATION	0.042	0.039	0.09

- Membership for CORS-Tr visit ; www.tkgm.gov.tr/tusaga-aktif/indeks.htm
- 3400 + Users (296 GDLRC Users)
- ITRF 96 Datum, 2005.0 Epok
- 100 USD mountly fee per receiver



CORS-TR USERS

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Engineering Applications

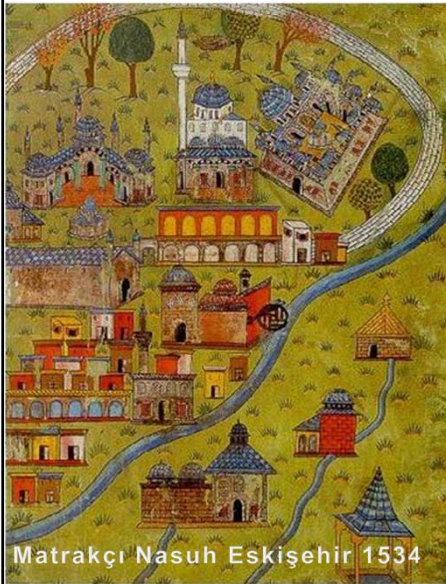
- All spatial IT (geoinformation) Projects
- Geodetic engineering surveys
- Mapping and cadastral surveys, GIS activities, etc.
- Planning and environmental activities
- Monitoring engineering structures (displacement, deformation ..)
- Utility surveys
- E-government, e-municipality, e-commerce activities
- Other spatial projects

Scientific Applications

- Earthquake engineering and seismic activities
- Modeling troposphere and ionosphere
- Meteorological predictions
- Deformation, monitoring tectonic plate movements
- Transportation, navigation, vehicle tracking, etc.



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