belirti **ENGINEERING & CONSULTING CO.**

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ENGINEERING & CONSULTING CO.

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Belirti has been founded in 1987. Main working fields cover overall geosciences in order to explore underground. These are soil investigation, groundwater investigation, mine study, geology, engineering geology, geophysical exploration, drilling, geotechnical instrumentation and geotechnical studies.

Belirti has signed many significant projects both in Turkey and abroad for numerous well known companies, joint ventures, municipalities, universities and cooperative unions.

Belirti also cooperates with high technology producers, especially with geotechnical instrumentation.

One of these is Geokon Instruments Inc. based in USA. Geokon is a well known geotechnical instrumentation company all over the world. More then a decade, Belirti has acted to supply, to install and to monitor geotechnical goods for significant projects. www.geokon.com

The Second firm is Smartec based in Switzerland. Smartec is the first producer who introduced fiber optic technology into instrumentation market. Belirti may serve supply, install and monitor of the instruments on these items individually or as a turkey project. www.smartec.ch

Another company is Nanometrics based in Canada who produces earthquake instrumentation. www.nanometrics.ca

Belirti may serve supply, install and monitor of the instruments on these items individually or as a turn key project.

APPLICATION

- Alignment Studies
- Energy Projects
- Engineering Geology
- Engineering Geophysics
- Environmental Geophysics
- Geotechnical Instrumentation
- Geotechnical Studies
- Geothermal Exploration
- Groundwater Investigation
- Landslide Investigation
- Microzonation Projects
- Mine Surveys
- Offshore Studies
- Settlement and Planning Studies – Zonation
- Site Investigations
- Soil Investigation
- Underground Surveys

GEOLOGY AND GEOTECHNICAL INVESTIGATION

- Drilling
- Earthquake Hazard
- Field Test
- Geology And Engineering Geology
- Geotechnical Report
- Groundwater
- Soil and Rock Laboratuary Tests

GEOPHYSICAL SURVEY

SURFACE GEOPHYSICS

SEISMIC

- S-Wave Velocity (ReMI ve MaSW)
- 2D S-Wave Velocity (2D-ReMi)
- P-Wave Velocity (Seismic Refraction)
- Seismic Reflection
- Microtremor
- Vibration and Overpressure Monitor

RESISTIVITY

- 3D Resistivity Imaging
- 2D Resistivity Imaging
- 1D Resistivity Sounding

BOREHOLE GEOPHYSICS

SEISMIC

- PS Logging
- Downhole
- Crosshole Seismic Refraction
- Crosshole Seismic Tomography

RESISTIVITY

- Crosshole Resistivity Tomography

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OFFSHORE GEOPHYSICS

RESISTIVITY

- 2D Resistivity Imaging

GEOTECHNICAL INSTRUMENTATION

- Piezometers
- Dataloggers
- Extensometers
- Inclinometers
- Pressure Cells
- Load Cells
- Readout Boxes
- Settlement Sensors
- Strain Gages
- Tape Extensometers
- Tiltmeters
- Casing
- Stressmeters
- Miscellaneous

INSTRUMENTATION

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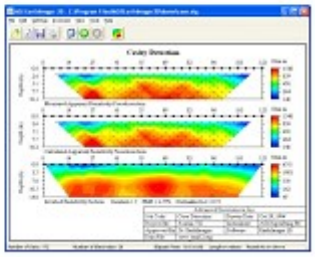
SEISMIC

RESISTIVITY

AGI Advanced Geosciences, Inc.



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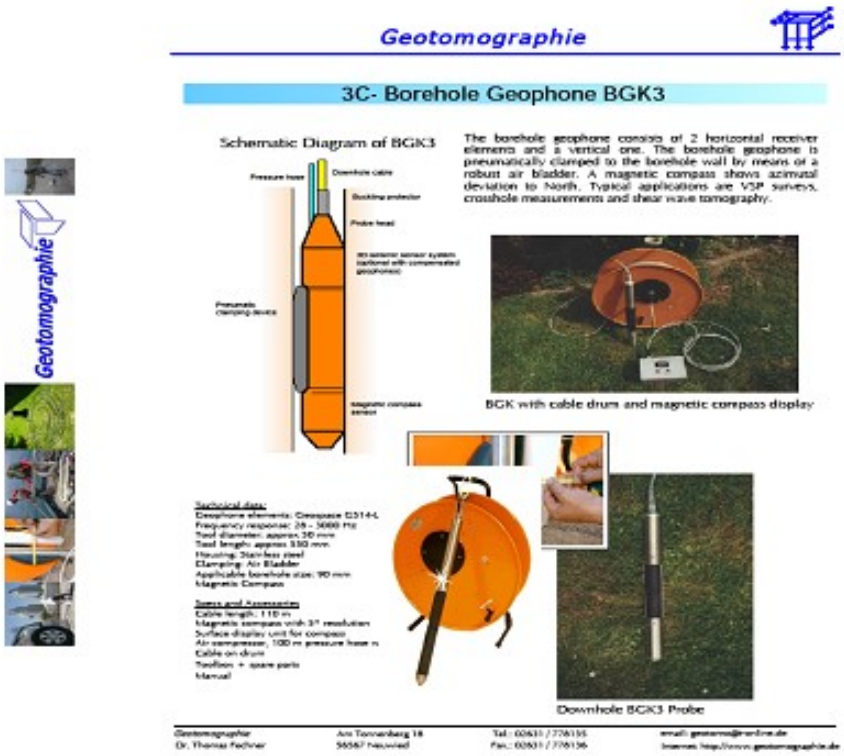
PS LOGGING

DOWNHOLE



CROSSHOLE SEISMIC

Geotomographie

MICROTREMOR

GURALP SYSTEMS

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VIBRATION AND OVERPRESSURE MONITOR

Instantel

The World's Most Trusted Vibration Monitors

INCLINOMETER

GEOKON

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P WAVE VELOCITY (Vp)

The system included a digital recorder, laptop PC, cable and geophones. The recorder, Geometrics Geode-24 signal enhanced digital seismograph, collects the data with a 24-bit A/D conversion under SEG-2 format.

SOFTWARE

- Single OS Seismodule Controller
- Pickwin95 – Plotrefa
- SeisOptPicker -SeisOpt@2D
- Interpex IXRefrax

STANDARTS

ASTM 5777

SAMPLE PROJECTS

- AKKUYU NUCLEAR POWER PLANT GEOPHYSICAL INVESTIGATION
- MICROZONATION REPORT AND MAPPING FOR ISTANBUL EUROPIAN AND ANATOLIAN SIDE GEOPHYSICAL INVESTIGATION
- SINOP NUCLEAR POWER PLANT SEISMIC REFRACTION SURVEY
- ISTANBUL SABIHA GOKÇEN AIRPORT NEW TERMINAL CONSTRUCTION SEISMIC REFRACTION SURVEY
- ISTANBUL ATATURK AIRPORT THY TECHNIC STORAGE CONSTRUCTION SEISMIC REFRACTION SURVEY

INSTRUMENTATION

The Geometrics equipments and geophones are used in seismic surveys.

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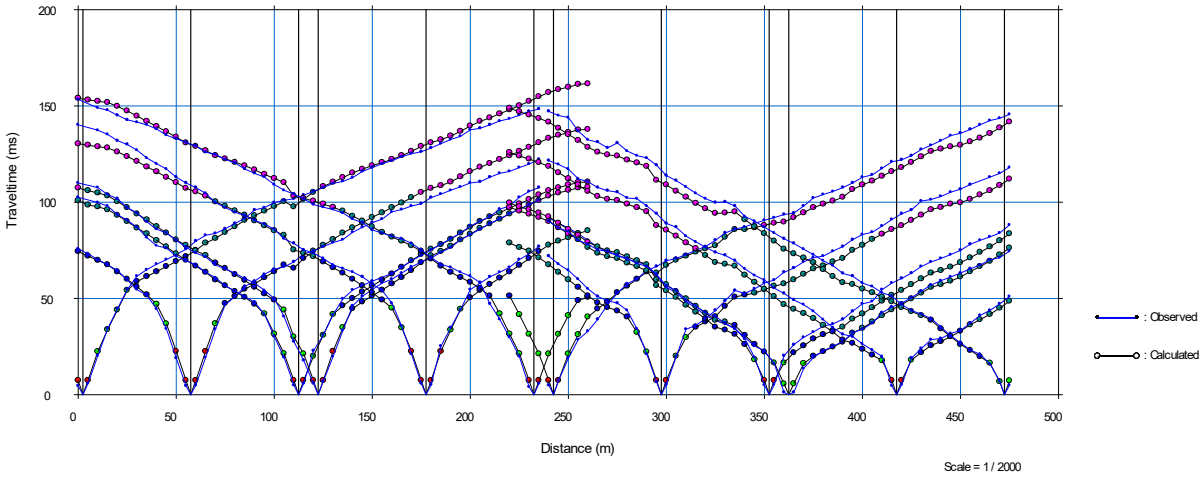
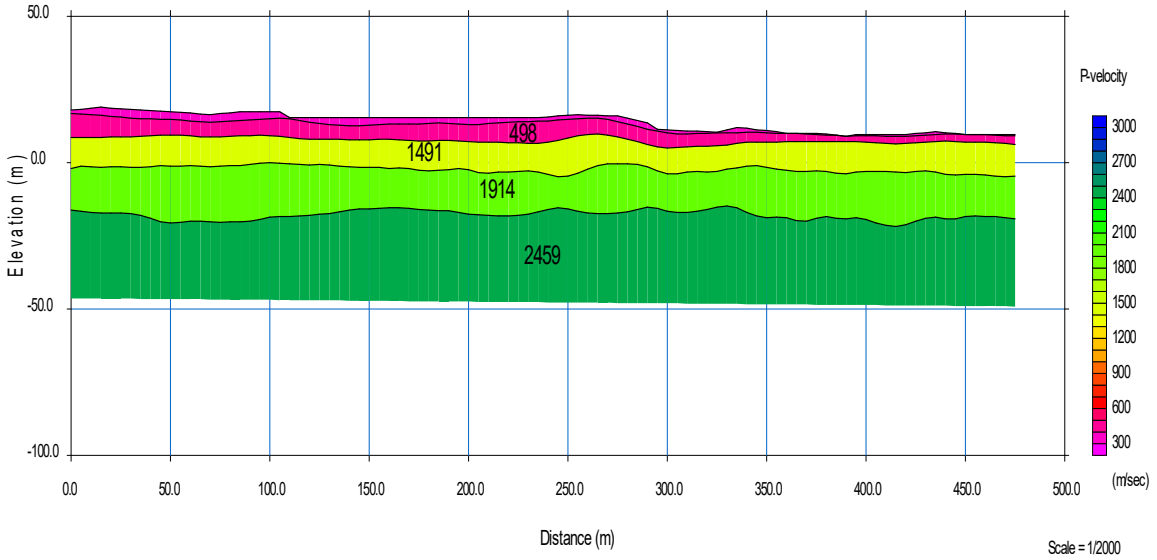
SAMPLE P WAVE VELOCITY EVALUATION





FIELD PICTURES

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S-WAVE VELOCITY
SURFACE WAVE METHODS (ReMi / MASW)

The surface-wave methods are commonly used for S-wave velocity measurement. The surface-wave method refers to the seismic surveys, which adopt dispersion of surface-wave to obtain S-wave velocity profile. ReMi does not need source based records, on the other hand MASW method requires sourced records to determine S-wave velocity. Also conventional S-wave records are taken and evaluated.

The system consists of a digital recorder, laptop PC, cable and 4.5 Hz geophones. The recorder, Geometrics Geode-24 signal enhanced digital seismograph, collects the data with a 24-bit A/D conversion under SEG-2 format.

SOFTWARE

- Seismodule controller
- Pickwin95
- SW
- SeisOpt_ReMiDisper – ReMiVspect

STANDARTS

ASTM 5777

SAMPLE PROJECTS

- AKKUYU NUCLEAR POWER PLANT GEOPHYSICAL INVESTIGATION
- MICROZONATION REPORT AND MAPPING FOR ISTANBUL EUROPEAN AND ANATOLIAN SIDE GEOPHYSICAL INVESTIGATION
- SINOP NUCLEAR POWER PLANT REMI AND MASW SURVEY
- ISTANBUL SABIHA GOKCEN AIRPORT NEW TERMİNAL CONSTRUCTION ReMi SURVEY
- ISTANBUL ATATURK AIRPORT THY TECHNIC STOROGE CONSTRUCTION ReMi SURVEY

INSTRUMENTATION

The Geometrics equipments and geophones are used in seismic surveys.

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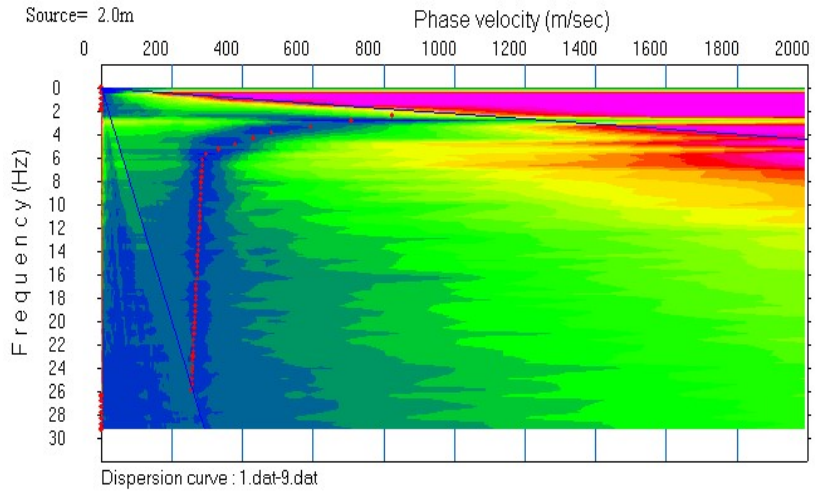
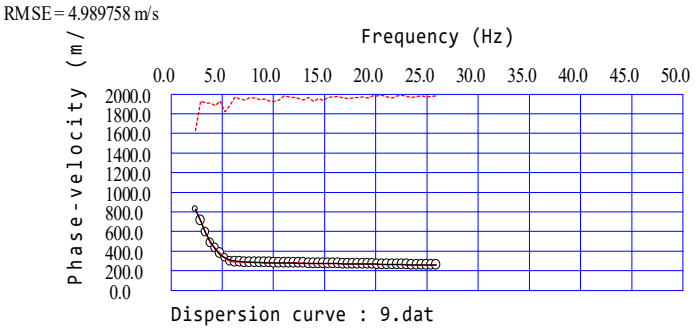
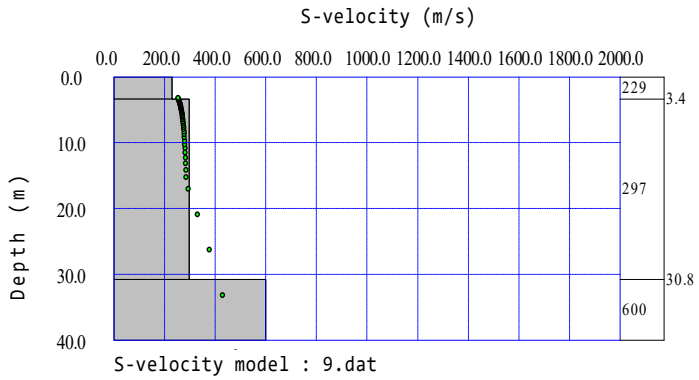
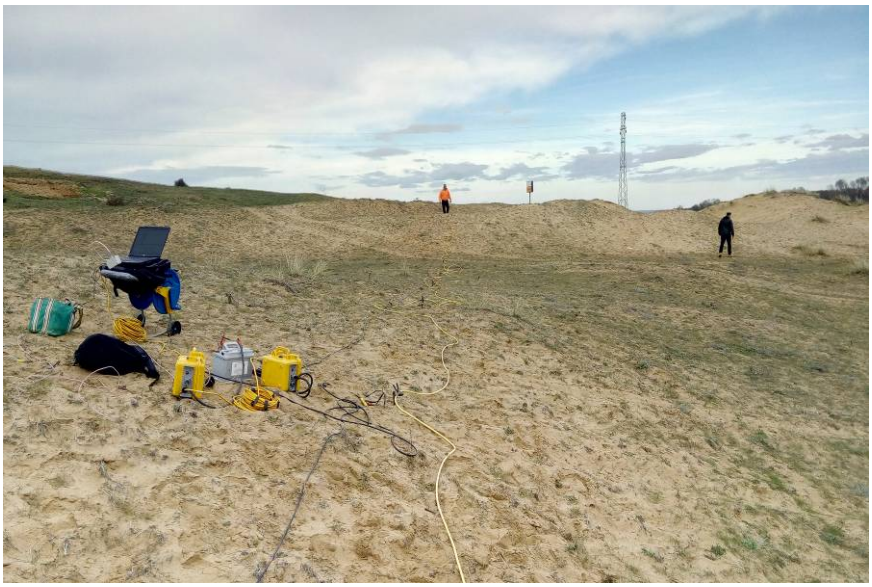
SAMPLE S-WAVE VELOCITY EVALUATION







FIELD PICTURES



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2D-ReMi / 2D-MASW

The system consists of a digital recorder, laptop PC, cable and 4.5 Hz geophones in 2D-ReMi measurements. The recorder, Geometrics Geode-24 signal enhanced digital seismograph, collects the data with a 24-bit A/D conversion under SEG-2 format. The basic aim of this method is to reveal two dimensional S-wave velocity profile of the ground by using microtremor records. This method is fairly new method all over the world.

SOFTWARE

- Seismodule controller
- Pickwin95
- SW

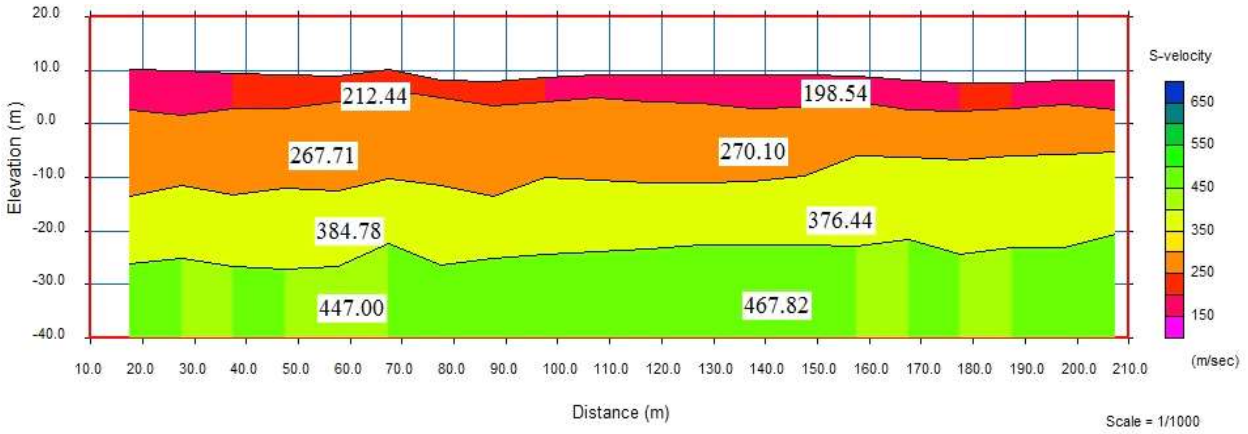
SAMPLE PROJECTS

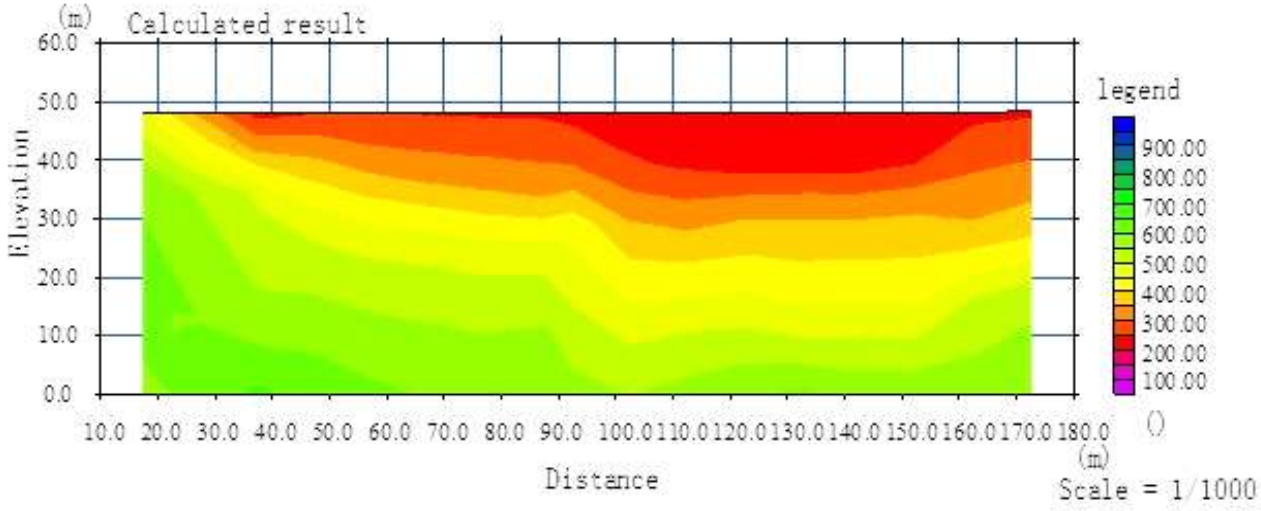
- MICROZONATION REPORT AND MAPPING FOR ISTANBUL ANATOLIAN SIDE GEOPHYSICAL INVESTIGATION
- ISTANBUL 3. AIRPORT METRO STATIONS PROJECT

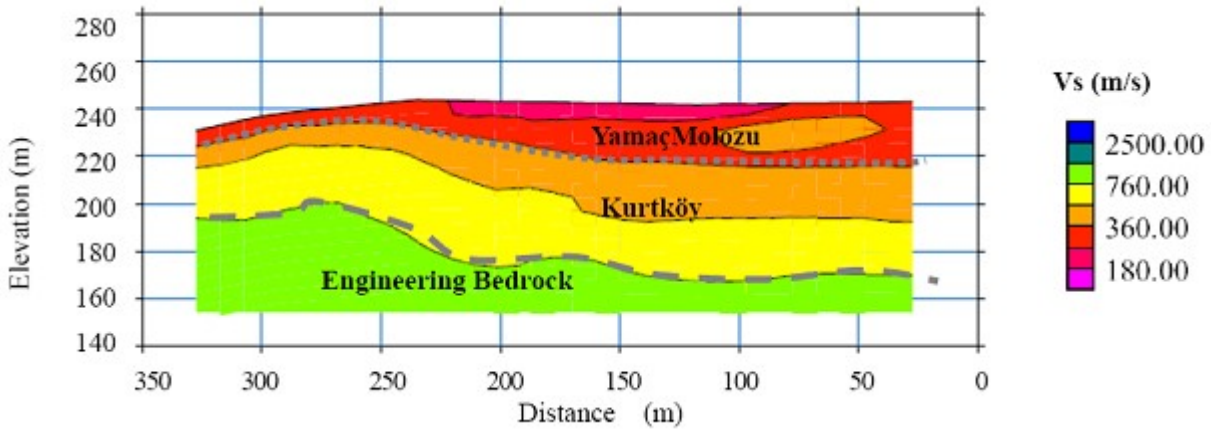
INSTRUMENTATION

Geometrics equipments and geophones are used in seismic surveys.

SAMPLE EVALUATIONS







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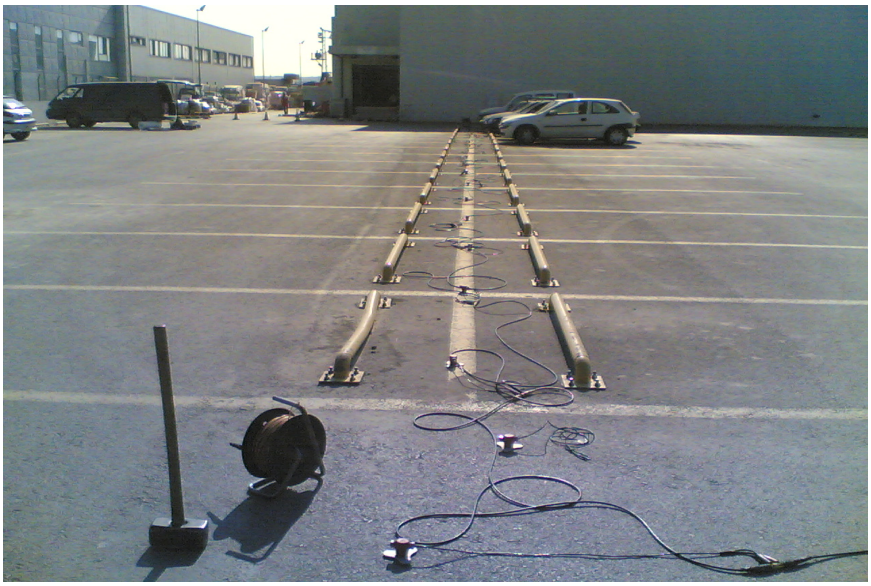
FIELD PICTURES



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SEISMIC REFLECTION

The system included a digital recorder, laptop PC, cable and geophones. The recorder, Geometrics Geode-24 signal enhanced digital seismograph, collects the data with a 24-bit A/D conversion under SEG-2 format. Natural frequency of geophones we use is 40 Hz. Geophone spacing and shot spacing chosen depending on the specification of the survey. Geophone channels are selected as 12 or 24 and folds generally.
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SOFTWARE

- Multiple OS Seismodule Controller
- Pickwin95 – Plotrefa

STANDARTS

ASTM D6429

SAMPLE PROJECTS

- MICROZONATION REPORT AND MAPPING FOR ISTANBUL ANATOLIAN SIDE SEISMIC REFLECTION SURVEY
- CANAKKALE EZINE ENERJISA WIND ENERGY POWER PLANT SEISMIC REFLECTION SURVEY
- IZMIR ALIAGA STAR RAFINERY GEOPHYSICAL STUDIES

INSTRUMENTATION

The Geometrics Geode-24 systems and high frequency geophones are used in seismic reflection.

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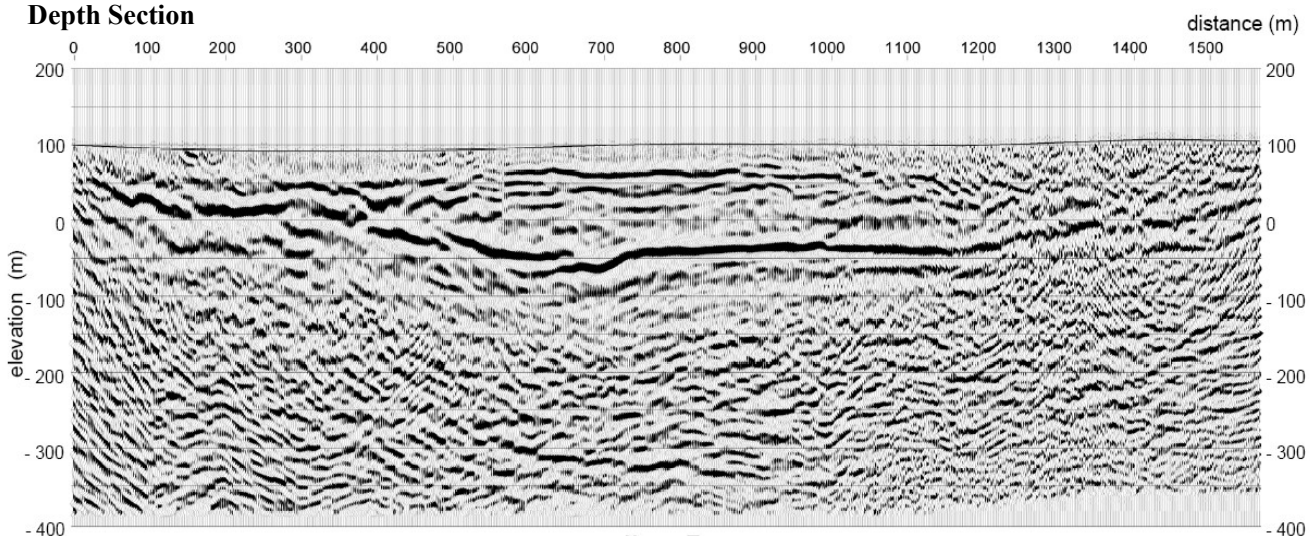
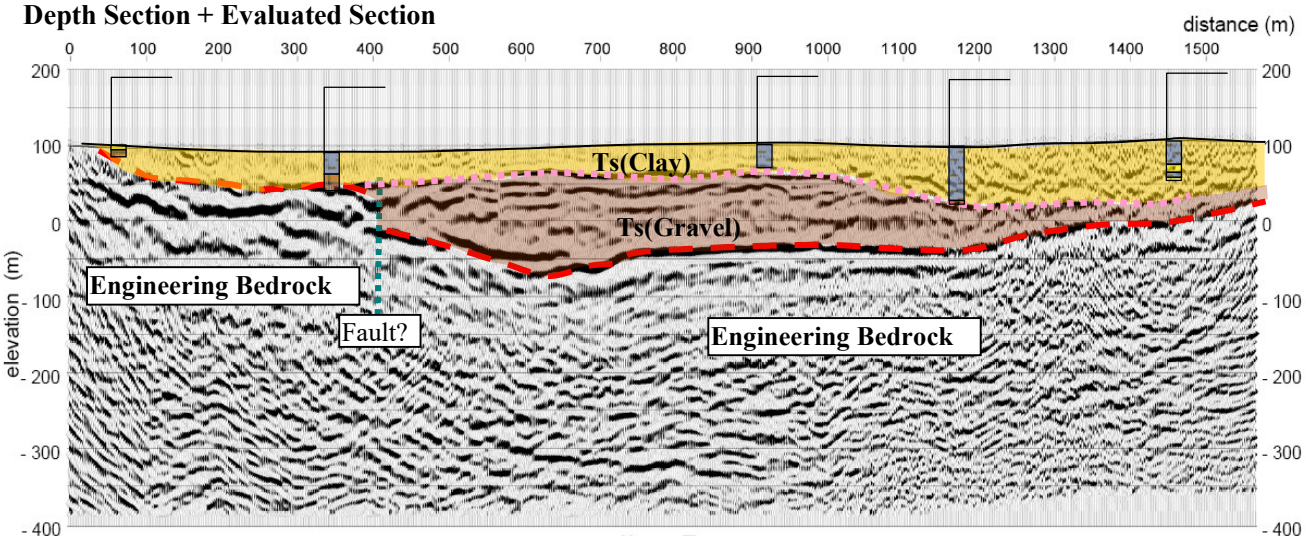
SAMPLE SEISMIC REFLECTION EVALUATION

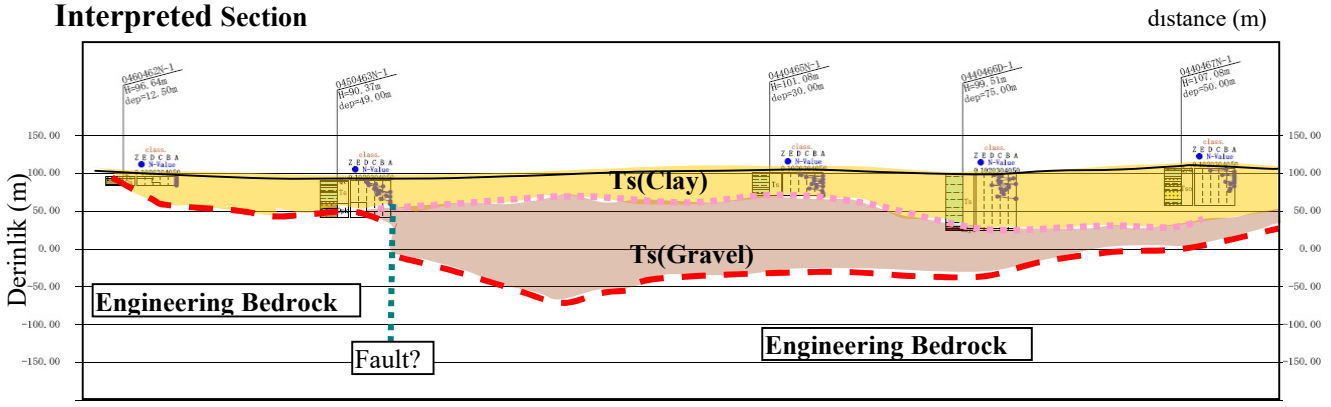
Depth Section



Depth Section + Evaluated Section



Interpreted Section



FEILD PICTURES

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RESISTIVITY SOUNDING (VES)

Resistivity values of material depends on composition, structure and liquid inside the body. Therefore, this method is very often used to determine subsurface layers. AGI SUPERSTING R1 and AGI SUPER STING R8 IP Earth Resistivity Meters are used.

SOFTWARE

- EarthImager 2D-3D Resistivity Software
- IPI2Win

STANDARTS

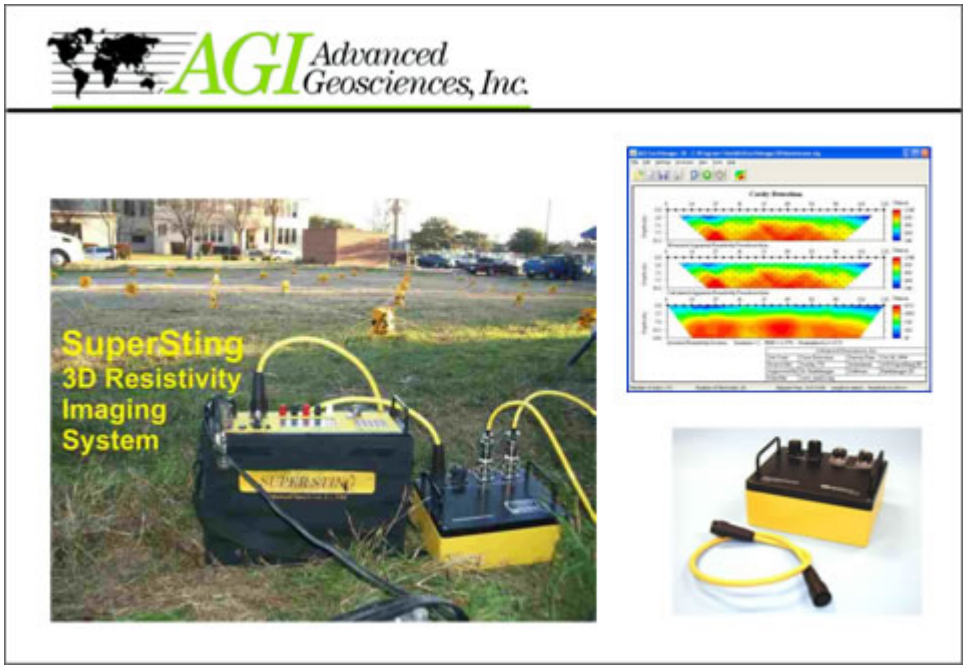
ASTM D6431

SAMPLE PROJECT

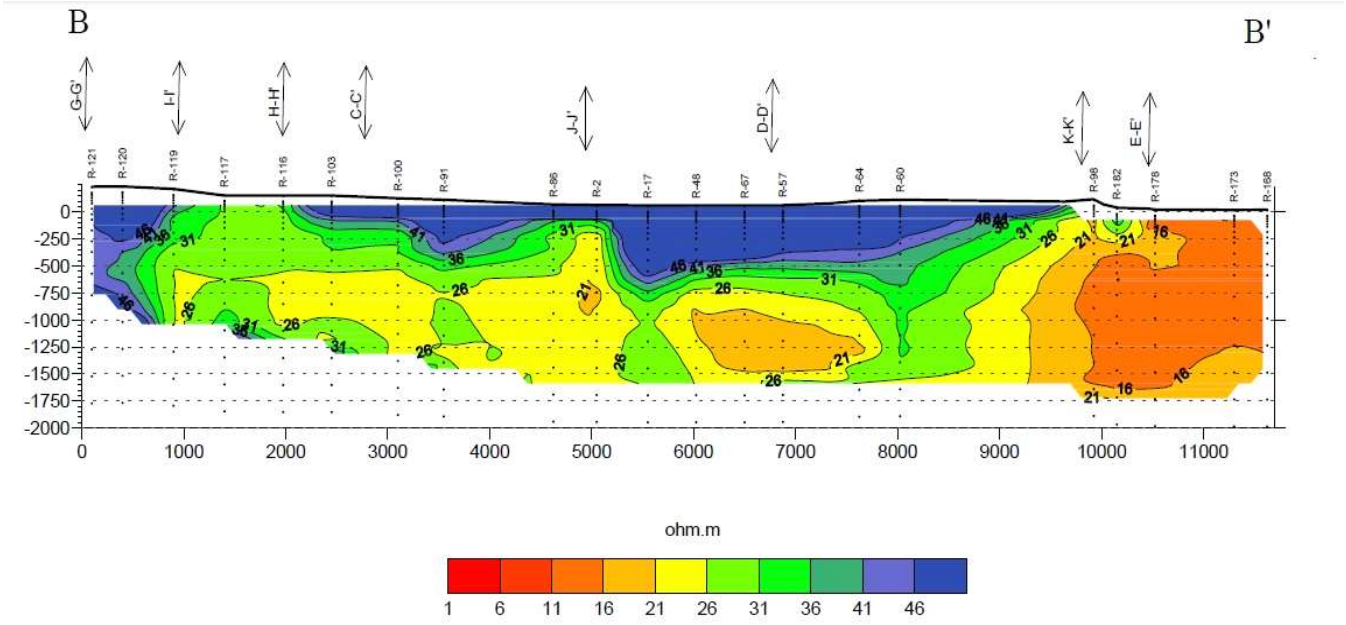
- AYDIN GERMENCIK ELECTRIC RESISTIVITY SOUNDING (VES) FOR GEOTHERMAL STUDIES
- MANISA SALIHLI ELECTRIC RESISTIVITY SOUNDING (VES) FOR GEOTHERMAL STUDIES
- MICROZONATION REPORT AND MAPPING FOR ISTANBUL EUROPIAN SOUTH SIDE
- SPECIAL PROVINCIAL ADMINISTRATION OF ISTANBUL GAZIOSMANPAŞA SCHOOL BUILDING CONSTRUCTION
- AZMAK II VE KIRPILIK REGULATOR
- AKKUYU NUCLEAR POWER PLANT GEOPHYSICAL INVESTIGATION

INSTRUMENTATION

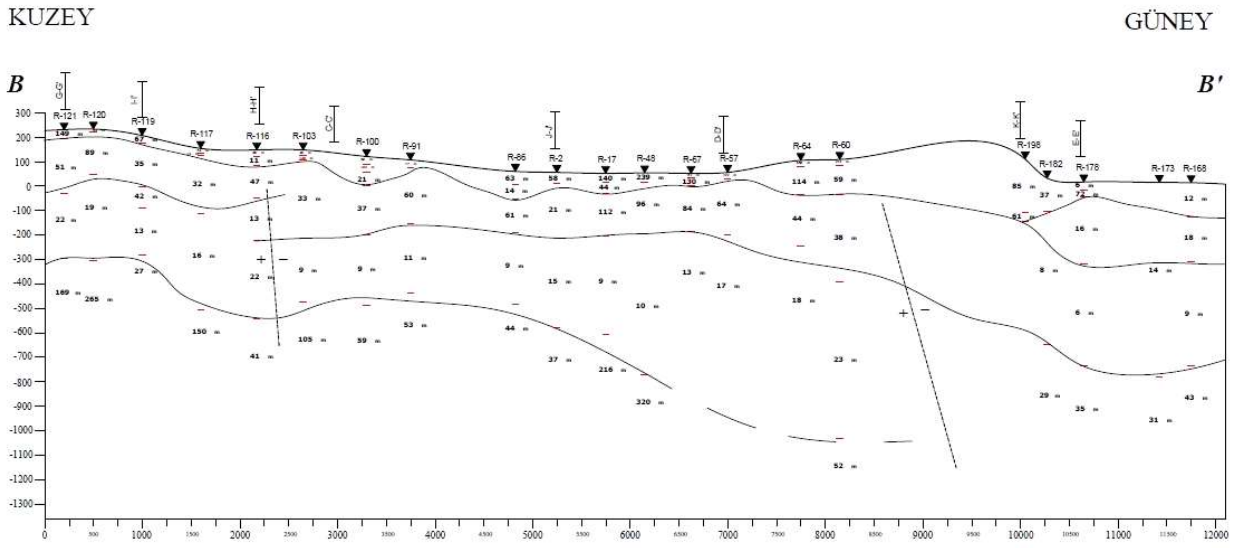
AGI SUPERSTING R1 and R8 resistivity meters are used.



SAMPLE VES EVALUATION



Example of Apparent Resistivity Section



Example of Resistivity Section

FIELD PICTURES

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ELECTRIC RESISTIVITY (2D IMAGING)

Multi-electrode system is a system where a large number of electrodes are attached to the instrument. We employ eight-channel instrument in projects. AGI SuperStingR8 IP Earth Resistivity and IP Meter is specifically designed for resistivity imaging studies. This type of instrumentation is called as "Multi-Electrode System" and measurements are often referred as "2D-Resistivity" or "Electrical Tomography" measurements.

Types of electrical resistivity measurements achieved via multielectrode systems are 2D resistivity imaging, borehole resistivity, resistivity monitoring (time lapse surveys) and offshore measurements.

We have deployed multi electrode system in gap, karst investigations, landslide surveys, fault detection, fill applications, geothermal studies, groundwater investigation and sea bottom studies.

SOFTWARE

- EarthImager 2D Resistivity and IP Inversion Software

STANDARTS

ASTM D6431

SAMPLE PROJECTS

- AKKUYU NUCLEAR POWER PLANT GEOPHYSICAL INVESTIGATION
- ADANA TUFANBEYLI THERMAL POWER PLANT 2D IMAGING SURVEY
- BURSA-ANKARA HIGHWAY 5. SPLIT LANDSLIDE STUDIES RESISTIVITY IMAGING SURVEY
- ADAPAZARI SAPANCA FACTORY AREA GROUNDWATER STUDIES RESISTIVITY IMAGING SURVEY
- MICROZONATION REPORT AND MAPPING FOR ISTANBUL ANATOLIAN SIDE RESISTIVITY IMAGING SURVEY

INSTRUMENTATION

The Advanced Geosciences Inc. (AGI) Supersting R8 and 112 channel switch box are used by electric resistivity.

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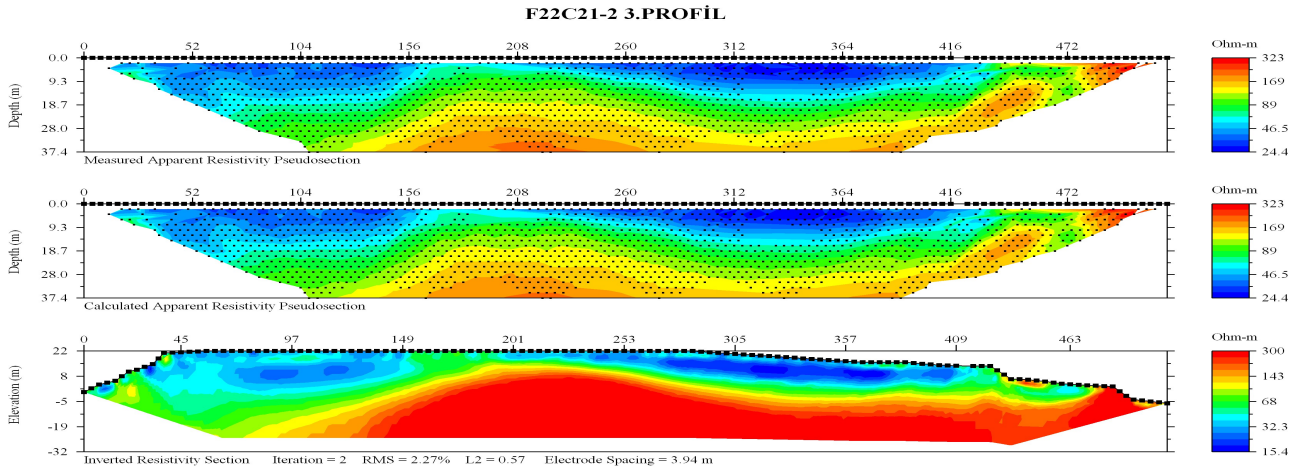
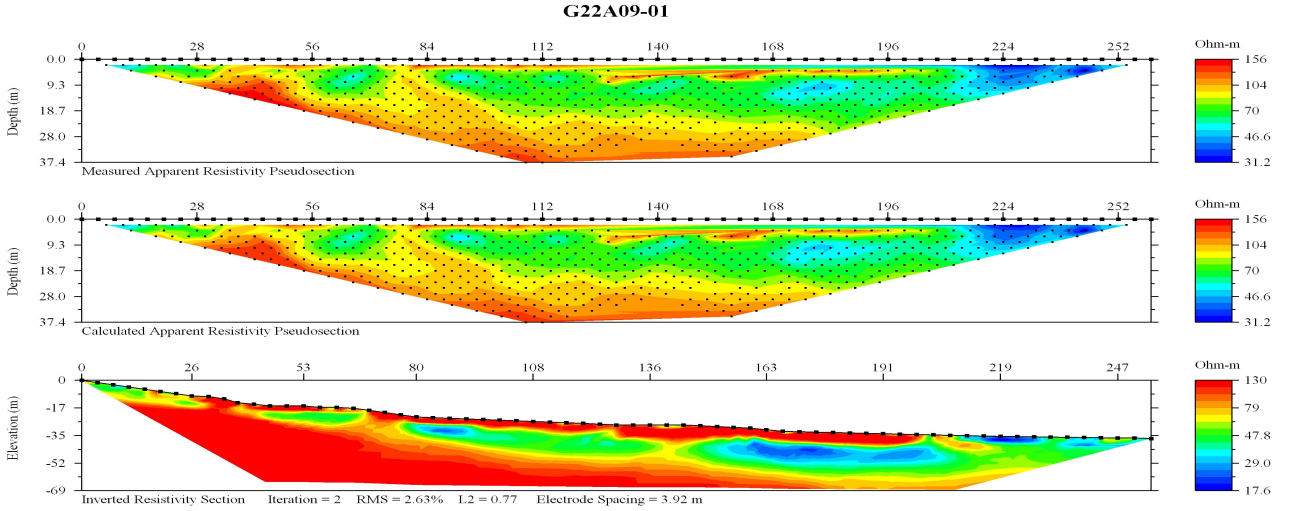
SAMPLE 2D IMAGING EVALUATIONS

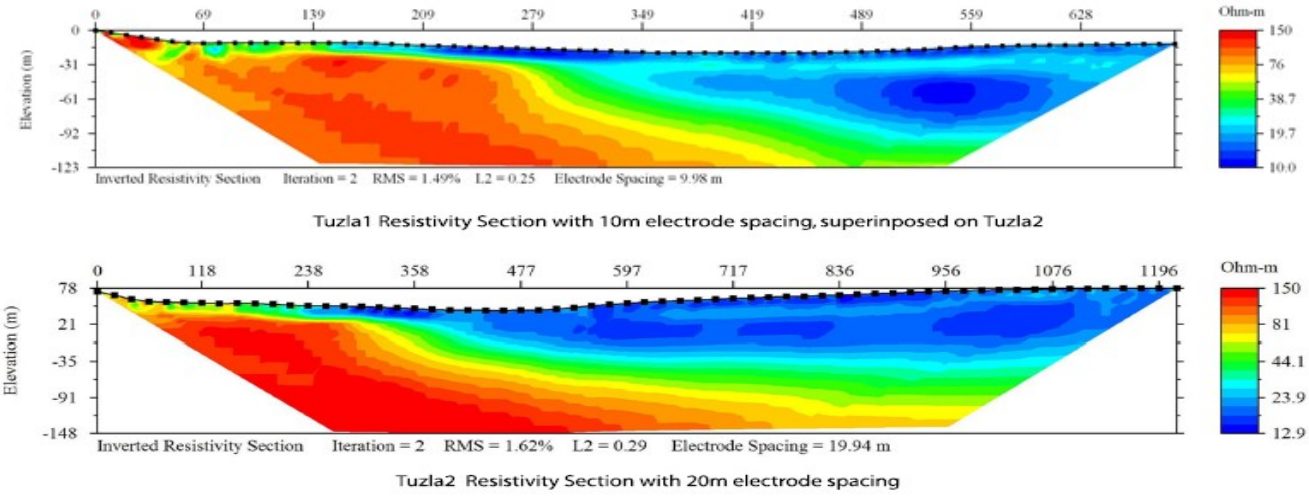
FIIL AREA



LAND SLIDE



FAULT LOCALIZATION



Tuzla1 Resistivity Section with 10m electrode spacing, superinposed on Tuzla2

Tuzla2 Resistivity Section with 20m electrode spacing

FIELD PICTURES

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PS LOGGING

PS Logging (suspension type PS Log) is widely expanding sytem in determining the seismic velocities. Method based on the double sensors recording seismic waves with three axial geophones generated by the source which was lowered into borehole via armored suspension cable.
With this technique, it is possible to acquire high resolution P and S-wave data till quite deep depths. Reliable P and S-wave velocities can be assessed down to depths which were almost impossible from surface methods.
The PS Logging System manufactured by Robertson Geologging is consisted of a probe, driver, a source and two receivers spaced 1 meter apart, filter tubes and cable components. Field records are processed by special software for assessing velocities for each level.

SOFTWARE

- Winlogger SUSP
- GEOLOG Processing Software

SAMPLE PROJECTS

- AKKUYU NUCLEAR POWER PLANT GEOPHYSICAL INVESTIGATION
- ADANA TUFANBEYLI THERMAL POWER PLANT GEOPHYSICAL INVESTIGATION
- İSTANBUL STRAIT ROAD TUNNEL CROSSİNG PROJECT GEOPHYSICAL INVESTIGATION
- MICROZONATION REPORT AND MAPPING FOR ISTANBUL EUROPIAN AND ANATOLIAN SIDE GEOPHYSICAL INVESTIGATION
- ISTANBUL ATATURK AIRPORT THY TECHNIC STOROGE CONSTRUCTION PSLOGGING TEST
- ISTANBUL SABIHA GOKCEN AIRPORT NEW FACILITIES CONSTRUCTION PSLOGGING TEST
- ISTANBUL STRAIT ROAD TUNNEL CROSSING PROJECT HAYDARPASA HARBOUR PSLOGGING TEST
- GECOL OBARI 4*160 MW GAS TURBINE POWER PLANT PROJECT GEOPHYISICAL INVESTIGATION

INSTRUMENTATION

The PSlogging Systems manufactured by Robertson Geologging.

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SAMPLE EVALUATION

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CONTRACTOR / YÜKLENİCİ FİRMA	PS Logging / PS Log	HOLE / KUYU	
BELİRTİ MÜHENDİSLİK		PS TYPE / PS LOG TİPİ	Suspension / Askılı
		MEASURED BY / ÖLÇÜYÜ ALAN	
PROJECT / PROJE			
PS DATE / PS ÖLÇÜ TARİHİ		PAGE OF / SAYFA	
ELEVATION / SONDAJ KOTU		COORDINATE / KOORDİNAT (N)	
BH. DEPTH / SON. DERİNLİĞİ	35.00	COORDINATE / KOORDİNAT (E)	

DERİNLİK / DEPTH (m)	N_{30}	10	20	30	40	50	DESCRIPTION / TANIMLAMA
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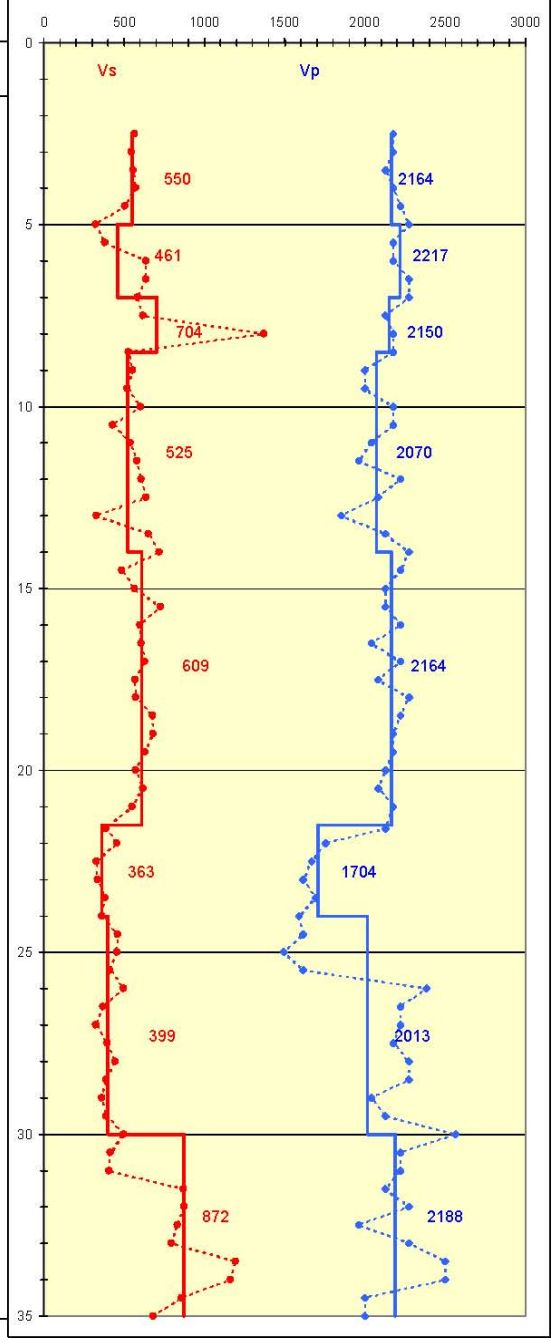
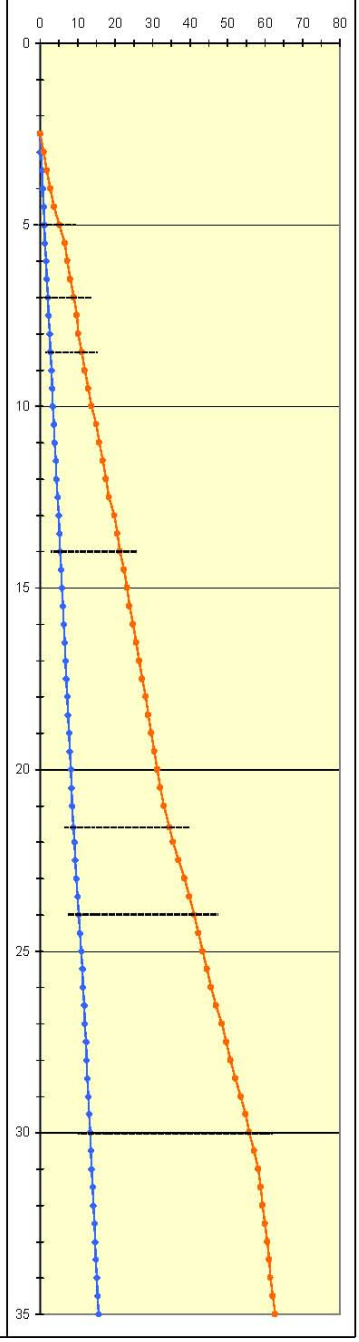
SPT GRAFİK / SPT GRAPHICS





FIELD PICTURES

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DOWNHOLE

Seven-component BGK-7 or three-component BGK-3 borehole geophone by Geotomographie is used in downhole seismic surveys. The borehole geophone is consisted of vertical (P-wave) and horizontal (S-wave) components. Seismic recorder is Geode-24 by Geometrics. We have a specifically manufactured source system for penetrating extreme depths.

SOFTWARE

- Seismodule controller
- Pickwin95 – Plotrefa
- SeisOptPicker - SeisOpt@2D
- Interpex IXRefrax

STANDARTS

ASTM D7400

SAMPLE PROJECTS

- DRAGON OIL FEED FOR GAS DEVELOPMENT FACILITIES GEOPHYISICAL INVESTIGATION DOWNHOLE TEST-TURKMENISTAN
- ZONE 22 TRIPOLI GATE PROJECT DOWNHOLE TEST – LIBYA
- MICROZONATION REPORT AND MAPPING FOR ISTANBUL EUROPIAN SOUTH SIDE DOWNHOLE TEST
- MICROZONATION REPORT AND MAPPING FOR ISTANBUL ASIAN SIDE DOWNHOLE TEST
- TUBITAK MICROZONATION PROJECT FOR IZMIT - DOWNHOLE TEST
- AKKUYU NUCLEAR POWER PLANT GEOPHYSICAL INVESTIGATION

INSTRUMENTATION

The Geotomographie BGK-7 or BGK-3 borehole geophones are used in downhole tests along with digital seismic recorder.

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SAMPLE DOWNHOLE EVALUATION

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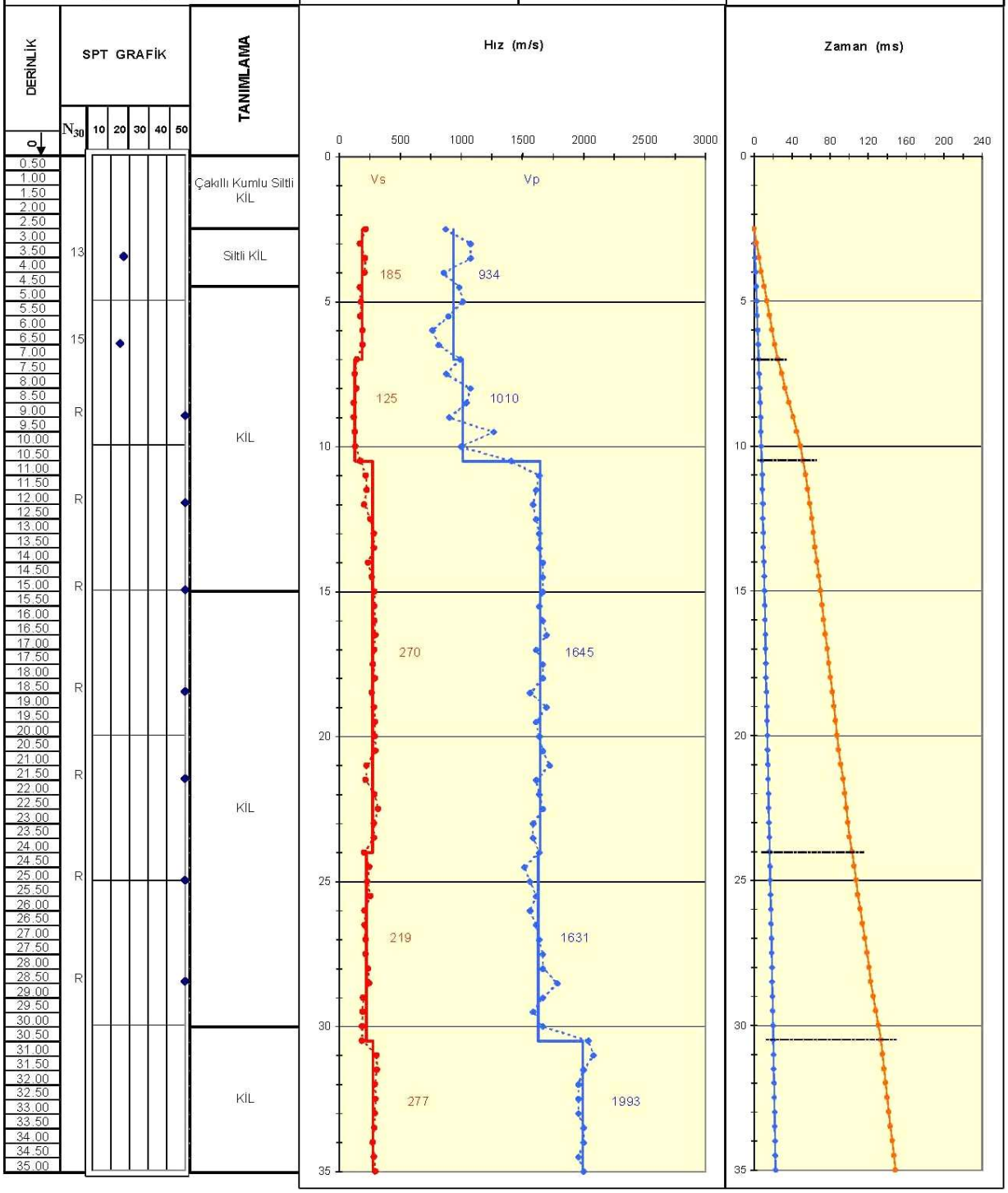
YÜKLENİCİ FİRMA	DOWNHOLE	KUYU	CS3
BELİRTİ MÜHENDİSLİK			
		ÖLÇÜYÜ ALAN	Sonat ÜÇER
PROJE			
ÖLÇÜ TARİHİ	10/10/2010	SAYFA	1 / 1
SONDAJ KOTU		KOORDİNAT (K)	
SON. DERİNLİĞİ	35 m	KOORDİNAT (G)	



FIELD PICTURES

belirti

CROSSHOLE SEISMIC REFRACTION

One borehole is used for geophone (Geotomographie BGK-7) and one borehole used for seismic source (Geotomographie BIS-SH, S-wave). Seismic data is collected with digital recorder system.

SOFTWARE

- Seismodule controller
- Pickwin95 - Plotrefa
- SeisOptPicker - SeisOpt@2D
- Interpex IXRefrax
- GeoTomCG

STANDARTS

ASTM D4428/4428M

SAMPLE PROJECT

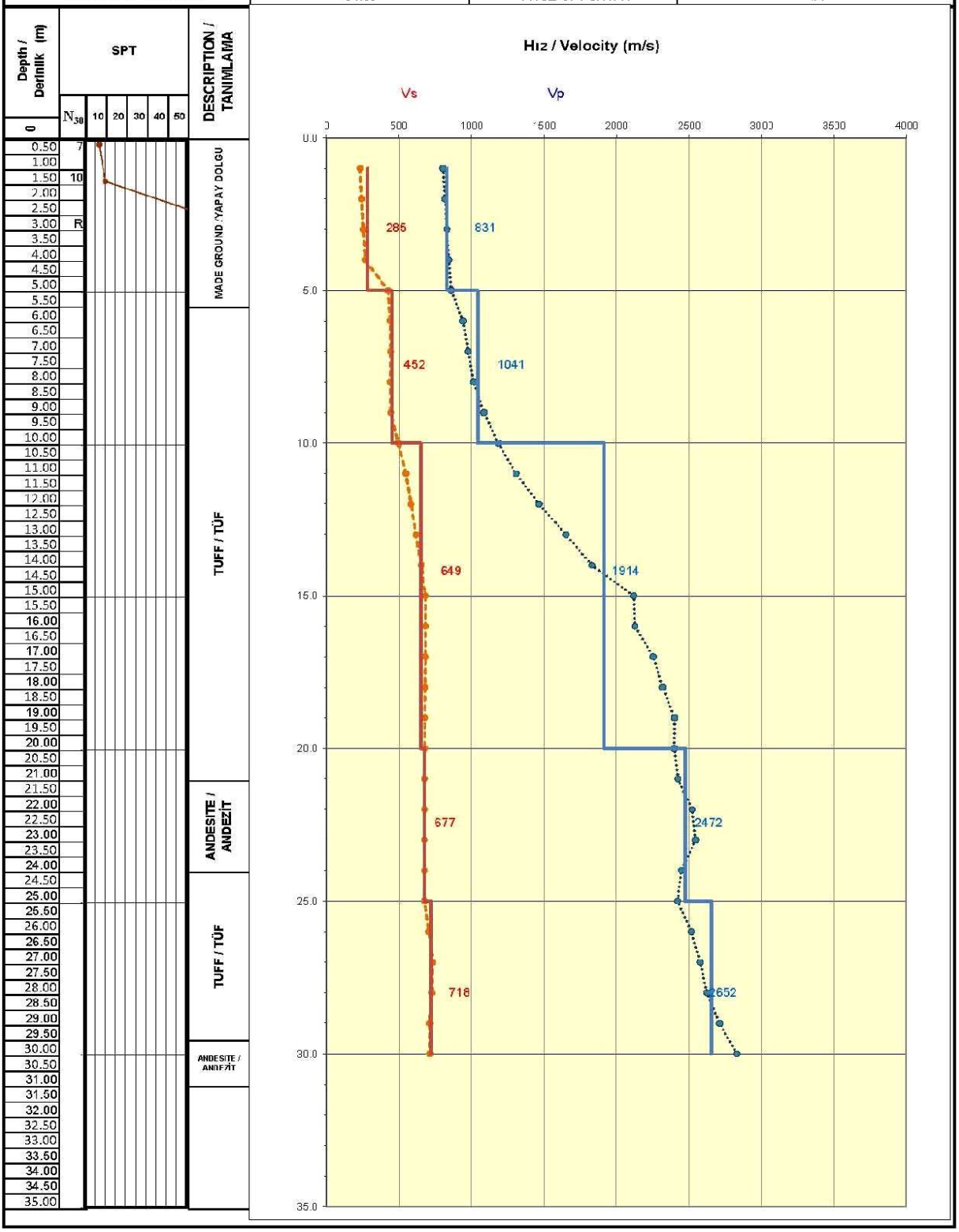
- AKKUYU NUCLEAR POWER PLANT GEOPHYSICAL INVESTIGATION
- YUSUFELI DAM GEOPHYSICAL INVESTIGATION
- IZMIR ALIAGA STAR RAFINERY GEOPHYSICAL INVESTIGATION

INSTRUMENTATION

In crosshole test Geotomgraphie 7-component BGK-7 geophone, Geotomographie BIS-SH borehole source, Geotomographie SBS-42 and Geometrics Geode seismic recorder are used together.

CROSSHOLE SEISMIC TEST

CONTRACTOR / YÜKLENİCİ	CROSSHOLE SEISMIC TEST / KARŞI KUYU SİSMİK	BOREHOLE / KUYU	BH-526
Belirti Mühendislik		MEASURED BY / ÖLÇEN	Taner AKSU
PROJECT / PROJE	A		
DATE / TARİH	08/07/2013	COORDINATE N KOORDİNAT	0.00
ELEVATION / KOT	34.83	COORDINATE E KOORDİNAT	0.00
BH DEPTH / DERİNLİK	31.00	PAGE OF / SAYFA	1/1



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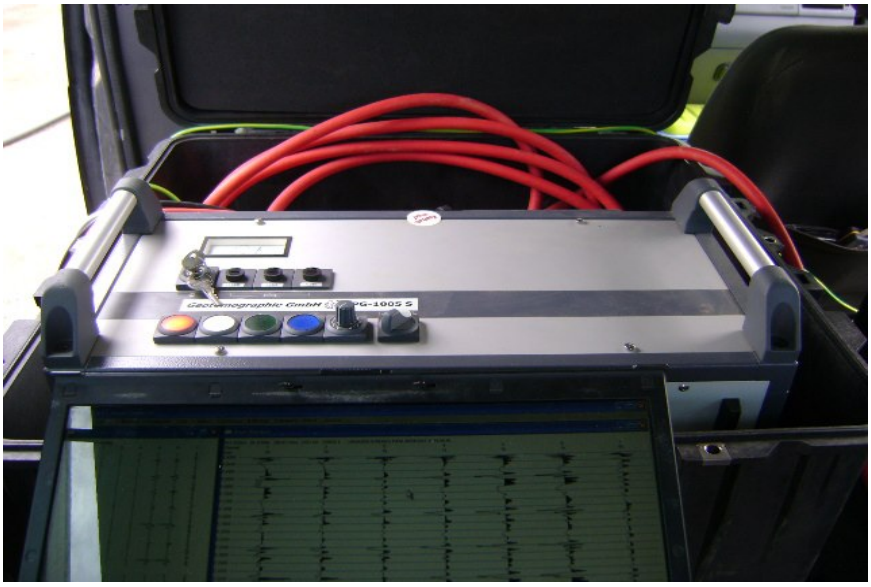
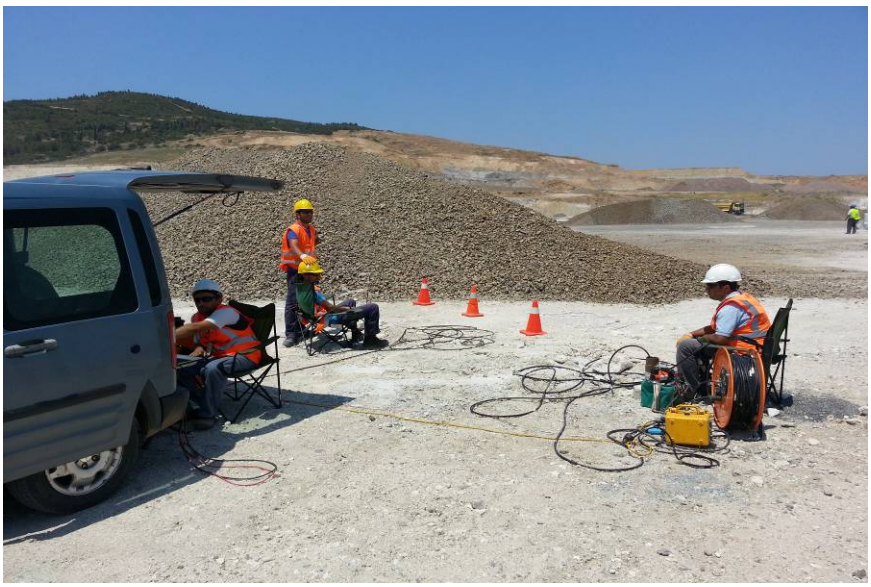
FIELD PICTURES





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CROSSHOLE SEISMIC TOMOGRAPHY

One borehole is used for geophone string (Geotomographie BHC4-24) and one borehole used for seismic source (Geotomographie SBS-42, P-wave) Also S-wave tomography is applicable by using Geotomographie BIS-SH, S-wave source and BGK-7 borehole geophone. Seismic data is collected with digital recorder system. With this respect, sucesfully 2D and 3D results are achieved.

SOFTWARE

- Seismodule controller
- Pickwin95 - Plotrefa
- SeisOptPicker - SeisOpt@2D
- Interpex IXRefrax
- GeoTomCG
- Rayfract

STANDARTS

ASTM D4428/4428M

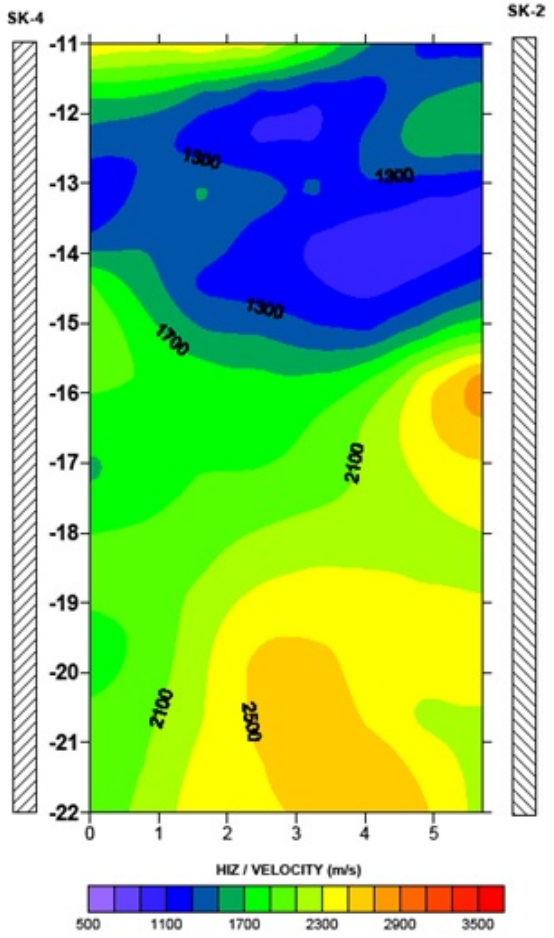
SAMPLE PROJECT

- AKKUYU NULAR POWER PLANT GEOPHYSICAL INVESTIGATION
- GEOPHYSICAL WORKS OF MICROZONATION STUDIES IN BURSA – TUBITAK
- YUSUFELİ DAM GEOPHYSICAL INVESTIGATION

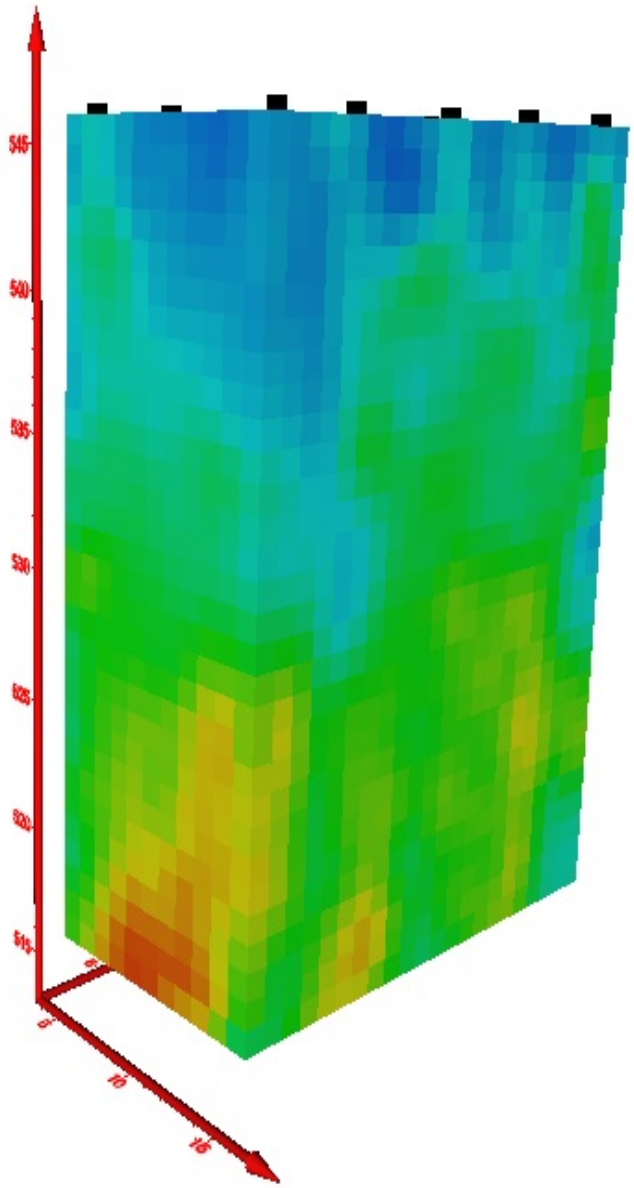
INSTRUMENTATION

In crosshole seismic tomography 24-channel BHC4 hydrophome string and borehole source with Geometrics Geode recorder components are used together for reliable data acquisition. In S-wave tomography borehole source and borehole geophone are employed.

SAMPLE CROSSHOLE SECTIONS

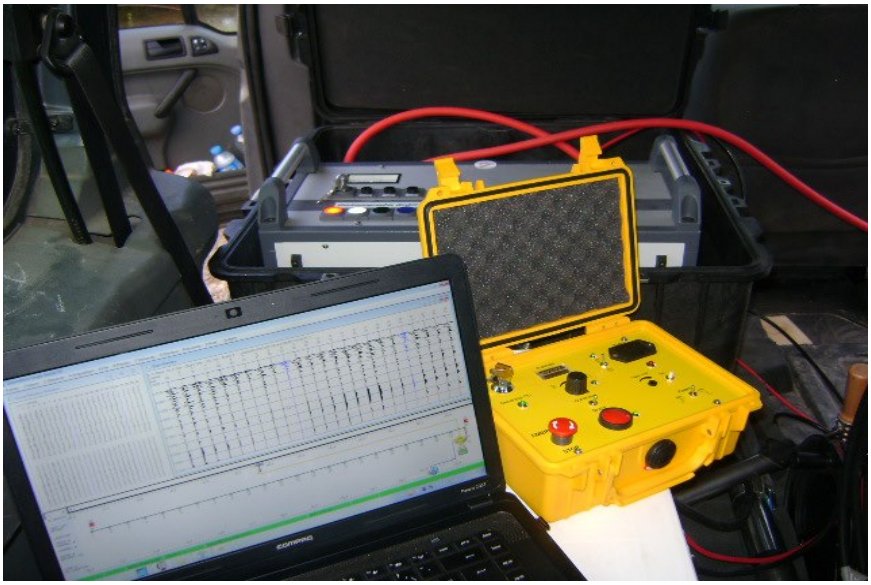


Example of Crosshole Seismic Tomography



Example of 3D Crosshole Seismic Tomography

FIELD PICTURES



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CROSSHOLE RESISTIVITY TOMOGRAPHY

Boreholes are equipped with special type resistivity cables. Selected measurement is taken between the boreholes through transmitter and receiver electrodes in the wells. Method is taken with multi electrode resistivity meter.

SOFTWARE

- EarthImager 2D-3D Resistivity and IP Inversion Software

SAMPLE PROJECT

- AKKUYU NUCLEAR POWER PLANT GEOPHYSICAL INVESTIGATION

STANDARTS

ASTM D6431

INSTRUMENTATION

The Advanced Geosciences Inc. (AGI) Supersting R8 and 112 channel instrument and special cable are used in crosshole resistivity tomography.

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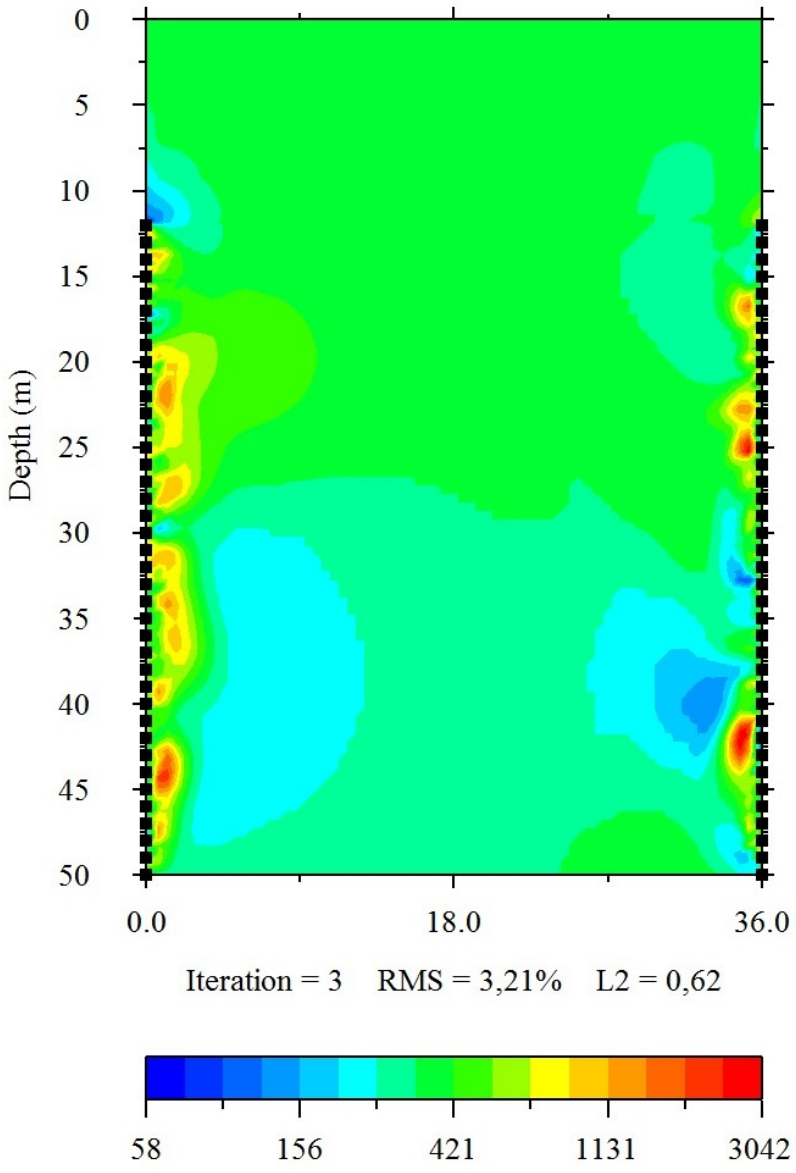
SAMPLE CROSSHOLE RESISTIVTY TOMOGRAPHY EVALUATION



FIELD PICTURES

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OFFSHORE RESISTIVITY

We employ eight-channel multi electrode instrument in projects. AGI SuperStingR8 IP Earth Resistivity and IP Meter is specifically designed for resistivity imaging studies. This type of instrumentation is called as "Multi-Electrode System" and measurements are often referred as "2D-Resistivity" or "Electrical Tomography" measurements.

Types of electrical resistivity measurements achieved via multielectrode systems are 2D resistivity imaging in offshore resistivity. In application specifically manufactured cables are used.

SOFTWARE

- EarthImager 2D-3D Resistivity and IP Inversion Software

SAMPLE PROJECT

- OFFSHORE TEST MEASUREMENT IN MERSIN-GULNAR
- IZMIR ALIAGA PETLIM PORT GEOPHYSICAL STUDIES
- TEKIRDAG ASYAPORT GEOPYHSICAL STUDIES

INSTRUMENTATION

The Advanced Geosciences Inc. (AGI) Supersting R8 and 112 channel instrument and special cables are used in offshore studied.

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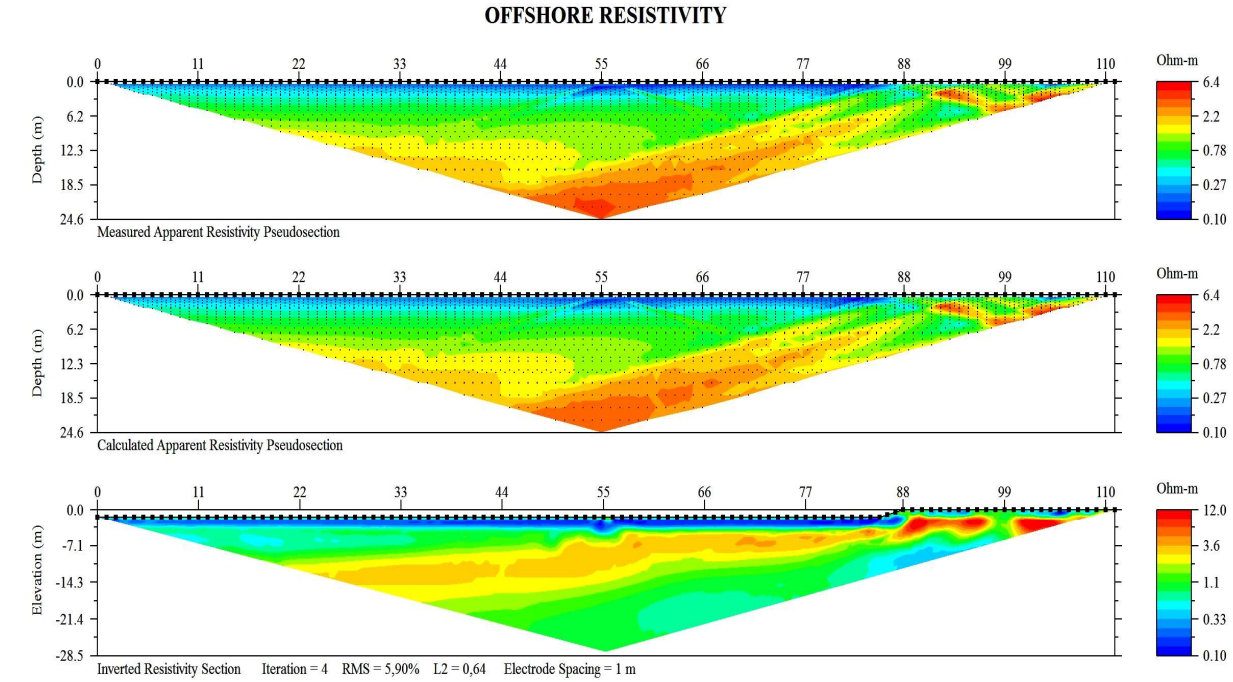
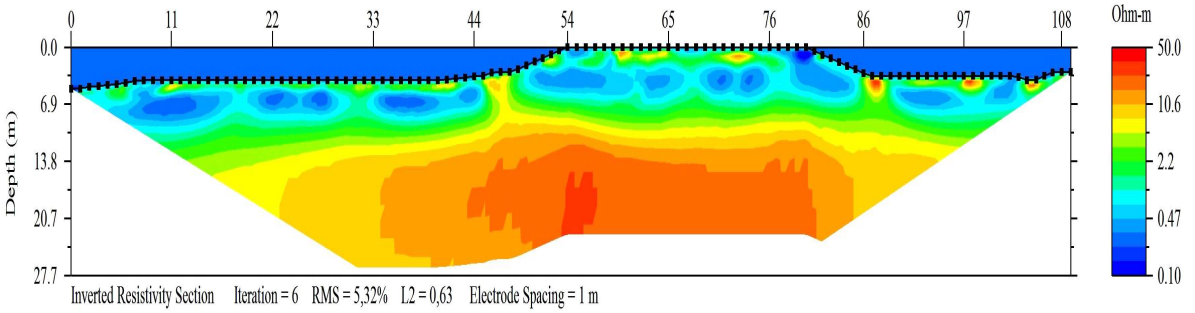
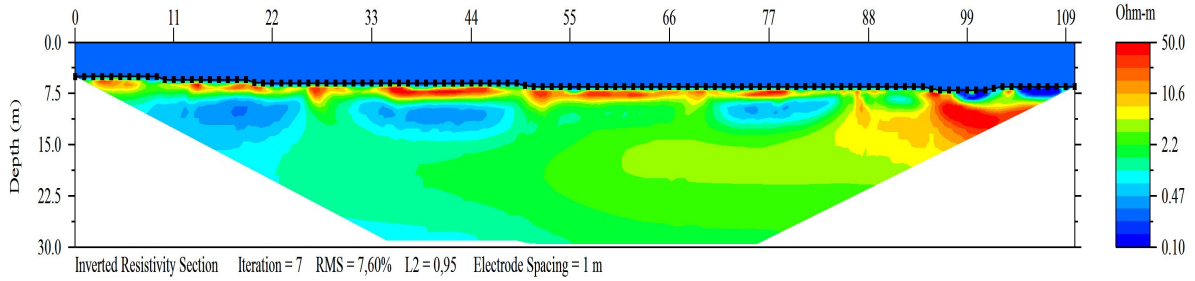
SAMPLE OFFSHORE RESISITIVITY EVALUATIONS







FIELD PICTURES

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MICROTREMOR

The CMG-6TD is an ultra-lightweight digital three-axis seismometer consisting of three sensors in a sealed case, which can measure the north/south, east/west and vertical components of ground motion simultaneously. Each sensor is sensitive to ground vibrations over a wide frequency range (0.033 – 50 Hertz as standard). This frequency response is made possible by advanced force-balance feedback electronics. A built-in 24-bit digitiser converts ground movements to digital data at source with maximum fidelity.

Sofware

- Scream
- Geopsy

SAMPLE PROJECTS

- BURSA MICROZONATION PROJECT GEOPHYSICAL STUDIES
- BALIKESIR MICROZONATION PROJECT GEOPHYSICAL STUDIES
- ISTANBUL 3. AIRPORT METRO STATIONS PROJECT GEOPHYSICAL STUDIES
- IZMIR BAYRAKLI PUBLIC HOSPITAL GEOPHYSICAL STUDIES

EQUIPMENT

Guralp System CMG-6TD

GURALP SYSTEMS

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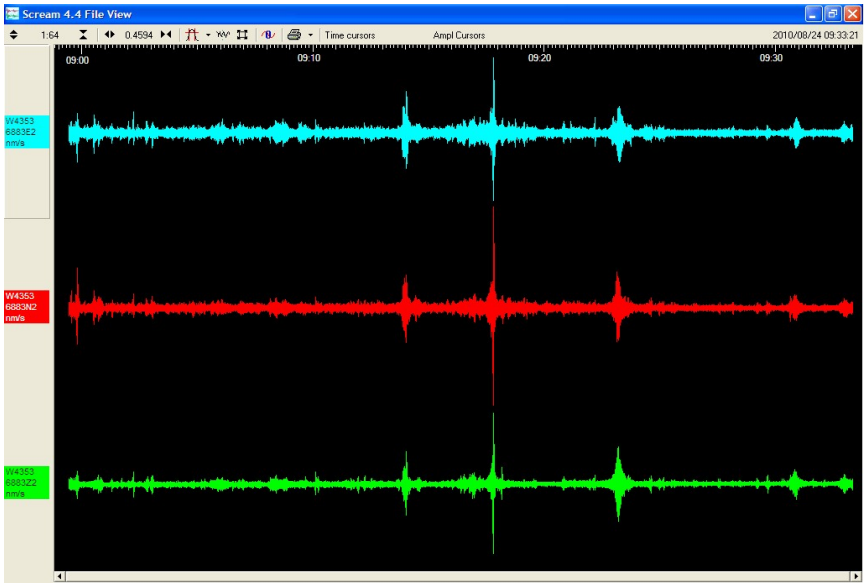
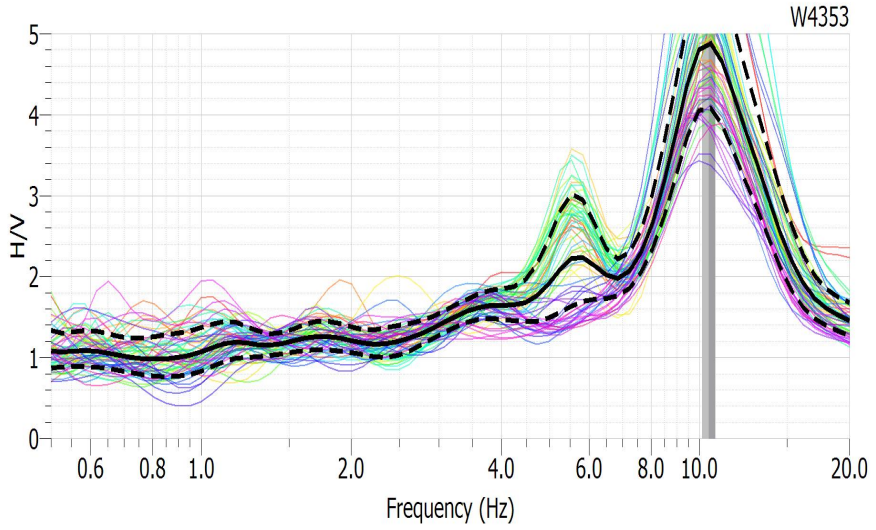
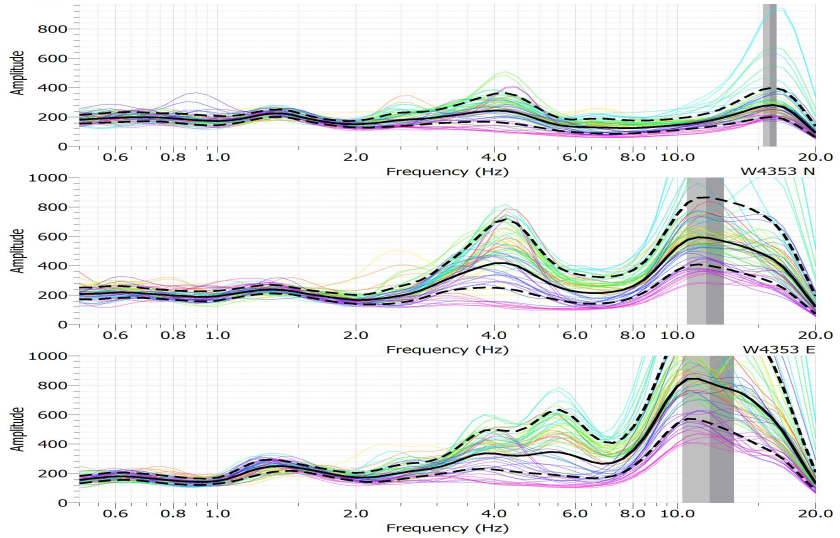
Example of Microtremor Interpretation







FIELD PICTURES

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VIBRATION AND OVERPRESSURE MONITOR

Instantel Minimate Plus is used in vibration monitoring projects.

Usage Fields

- Blast reporting
- Near and far monitoring to blasts
- Underground blasts
- Construction monitoring projects
- Heavy vehicle vibration
- Pile activity monitoring
- Dynamic compaction
- Structural monitoring and analaysis
- Peak Particle Velocity monitoring (PPV)

SOFTWARE

- Blastware Advanced Module
- Event Management, Reporting and Advanced Analysis Software

SAMPLE PROJECTS

- BURSA GREEN MAUSOLEUM VIBRATION MEASUREMENTS
- PPV TEST OF GEOFIZYKA KRAKOW ZILLAH 3D SEISMIC STUDY- LIBYA
- ISTANBUL 3. BRIDGE CONSTRUCTION SIDE VIBRATION MONITORING

INSTRUMENTATION

The Instantel minimate plus monitors are used.

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SAMPLE VIBRATION AND OVERPRESSURE MONITOR EVALUATION

Instantel

Event Report

Date/Time	Vert at 18:51:39 March 21, 2003
Trigger Source	Geo: 12.7 mm/s, Mic: 69.0 pa.(L)
Range	Geo : 254 mm/s
Record Time	1.0 sec at 1024 sps
Job Number:	1
Notes	
Location:	North Pole Quarry
Client:	Best Blasting
User Name:	Dave Best
General:	Production Blast, Snowing.

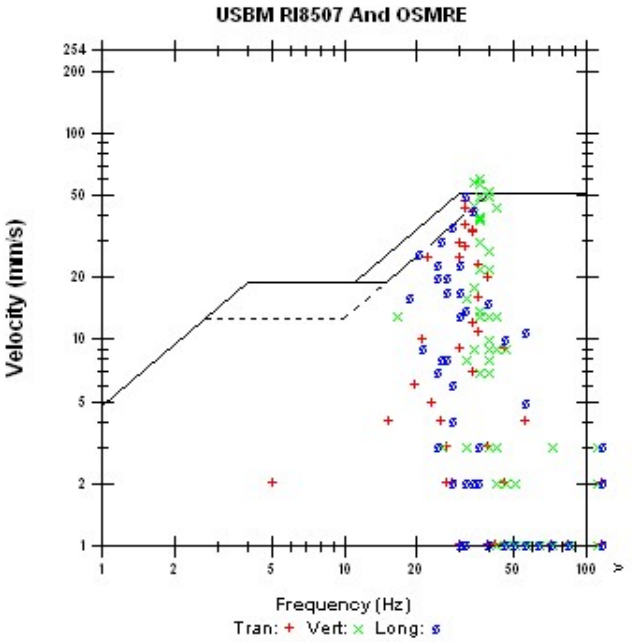
Serial Number	BE6178 V 7.0-4.37 BlastMate III
Battery Level	7.0 Volts
Unit Calibration	January 10, 2003 by Instantel Inc.
File Name	C0075EJB.230

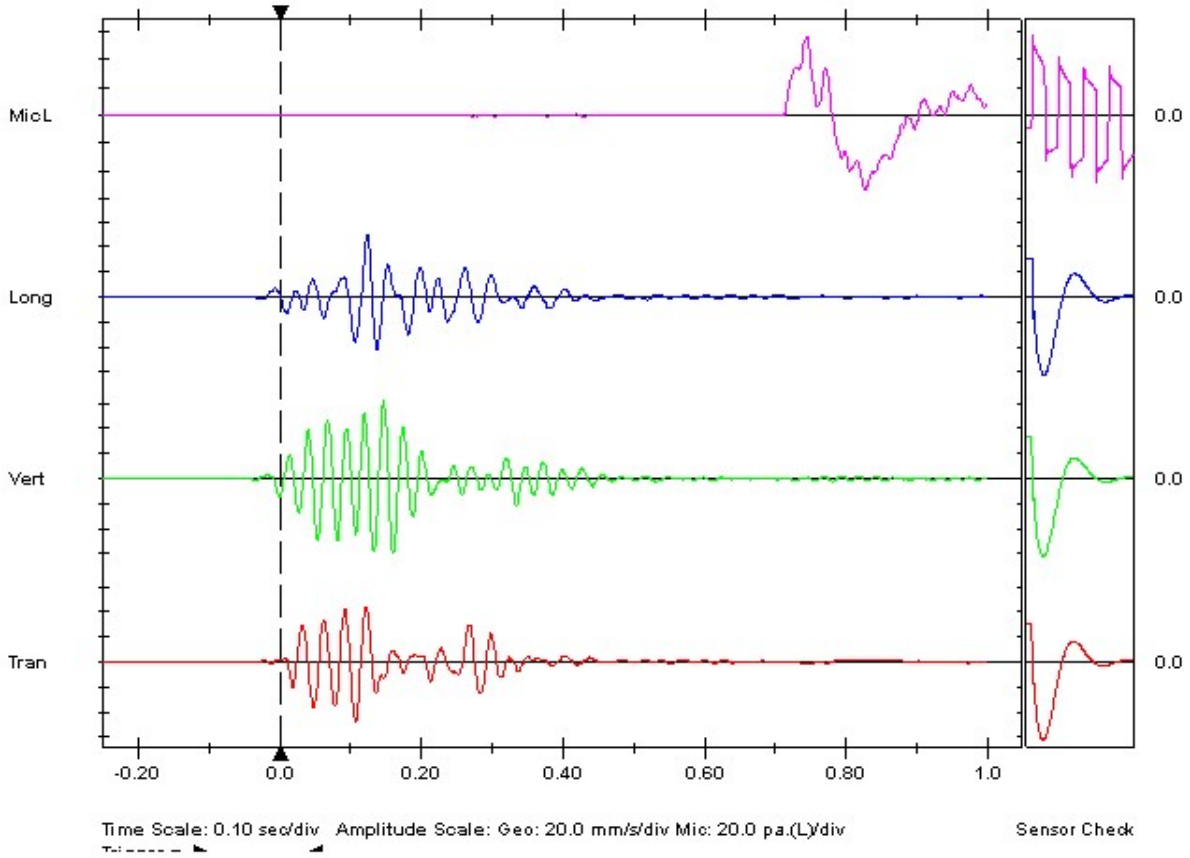
Extended Notes
GPS Coordinates
N45 20 28.2 W75 54 16.7

Microphone	Linear Weighting
PSPL	55.5 pa.(L) at 0.744 sec
ZC Freq	7.2 Hz
Channel Test	Passed (Freq = 17.1 Hz Amp = 832 mv)

	Tran	Vert	Long	
PPV	47.6	62.0	49.8	mm/s
ZC Freq	32	37	32	Hz
Time (Rel. to Trig)	0.106	0.146	0.123	sec
Peak Acceleration	0.968	1.48	1.06	g
Peak Displacement	0.226	0.273	0.230	mm
Sensor Check	Passed	Passed	Passed	
Frequency	7.4	7.2	7.3	Hz
Overswing Ratio	4.0	4.0	3.6	

Peak Vector Sum 77.4 mm/s at 0.121 sec





FIELD PICTURES

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Health Safety and Environment Policy

Belirti adopts health, safety, and environment management as a part of his activities, and follows these policies

- Comply with laws in practice, and national and international standards and regulations
- Evaluate risks and avoid hazards and incidents
- Make his staff conscious of health, safety and environment
- Provide health, safety, and environment management at high standards
- Utilize methodologies to avoid environmental contamination
- OHSAS 18001 Occupational Health and Safety Management systems comply and continuous improvement

Belirti, aims to minimize incident risks, provide acceptable working conditions for employee health and safety, and avoid any harms to environment.

Quality Policy

Belirti follows several policies in order to satisfy his clients;

- National and international standards congruity
- Scientific and technological mastery
- Effective project management and resource usage
- Fast and punctual service and practical solutions
- Sensitivity to public health and environment
- ISO 9001 Total quality management standards comply and continuous improvement

Belirti complies with these quality policies while providing engineering services to his clients, and proposes to share his experiences with the clients in energy and environment industries.

INTERNATIONAL PROJECTS PARTICIPATED

ASSYSTEM ENVY	**AKKUYU POWER PLANT 00UGD AND 07UBG BUILDING SOIL IMPROVEMENT PROJECT CROSSHOLE SEISMIC TESTS**	**2022**
LIMAK A.Ş	**ARTVIN YUSUFELI DAM GEOPHYSICAL INVESTIGATION**	**2022**
ASSYSTEM ENVY	**AKKUYU POWER PLANT 4. POWER UNITS PROJECT AND WATER TREATMENT FACILITY CROSSHOLE SEISMIC TESTS**	**2021**
KASKTAS	**AKKUYU POWER PLANT 1, 2, 3, AND 4 POWER UNITS PROJECT 10 UQA MAIN PUMP STATION CROSSHOLE SEISMIC TESTS**	**2021**
LIMAK A.Ş	**ARTVIN YUSUFELI DAM GEOPHYSICAL INVESTIGATION**	**2021**
KASKTAS	**AKKUYU POWER PLANT 1, 2, 3, AND 4 POWER UNITS PROJECT 10 UQA MAIN PUMP STATION CROSSHOLE SEISMIC TESTS**	**2020**
LIMAK A.Ş	**ARTVIN YUSUFELI DAM GEOPHYSICAL INVESTIGATION**	**2020**
LIMAK A.Ş	**ARTVIN YUSUFELI DAM GEOPHYSICAL INVESTIGATION**	**2019**
ENVY	**MERSIN AKKUYU NUCLEAR POWER PLANT 6. AREA CROSSHOLE, UPHOLE AND DOWNHOLE GEOPHYSICAL INVESTIGATION**	**2019**
ENVY	**MERSIN AKKUYU NUCLEAR POWER PLANT PROJECT 2. , 3. AND 4. REACTOR GEOPHYSICAL INVESTIGATION**	**2019**
ENVY	**MERSIN AKKUYU NUCLEAR POWER PLANT PROJECT GEOPHYSICAL INVESTIGATION**	**2019**
LIMAK A.Ş	**ARTVIN YUSUFELI DAM GEOPHYSICAL INVESTIGATION**	**2018**
ECETUR A.Ş	**MELEN DAM GEOPHYSICAL INVESTIGATION**	**2018**
ECETUR A.Ş	**MELEN DAM GEOPHYSICAL INVESTIGATION**	**2017**
ENVY	**MERSIN AKKUYU NUCLEAR POWER PLANT PROJECT GEOPHYSICAL INVESTIGATION**	**2017**
SUYAPI	**ARTVIN YUSUFELI DAM GEOPHYSICAL INVESTIGATION**	**2017**
DOGA SONDAJ	**ISTANBUL 3RD AIRPORT PS LOGGING STUDY**	**2017**
GEOSAN	**CANAKKALE BRIDGE PS LOGGING STUDY**	**2016**
SUYAPI	**ARTVIN YUSUFELI DAM GEOPHYSICAL INVESTIGATION**	**2016**
SUYAPI	**ARTVIN YUSUFELI DAM GEOPHYSICAL INVESTIGATION**	**2015**
STFA-TEMEL INV.	**IZMIR-ALIAGA ARP ADDITIONAL GEOTECHNICAL INVESTIGATIONS (DOWNHOLE-SEISMIC AND PS LOGGING)**	**2015**
YUKSEL PROJE	**TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT (TANAP) GEOPHYSICAL DOWNHOLE INVESTIGATIONS**	**2015**
ENVY	**MERSIN AKKUYU NUCLEAR POWER PLANT PROJECT GEOTECHNICAL INVESTIGATION FOR MARINE HYDROTECHNICAL STRUCTURE PS LOGGING INVESTIGATION**	**2015**

INTERNATIONAL PROJECTS PARTICIPATED

TOKER	**SINOP NUCLEAR POWER PLANT PROJECT ENGINEERING GEOPHYSICAL INVESTIGATION**	**2015**
TOKER	**SINOP NUCLEAR POWER PLANT PROJECT ENGINEERING GEOPHYSICAL INVESTIGATION**	**2014**
STATKRAFT	**CETIN DAM GEOPHYSICAL INVESTIGATIONS**	**2014**
TUBITAK	**KONYA KARAPINAR CAVITY INVESTIGATION GEOPHYSICAL STUDIES**	**2014**
TOKER	**MANISA SOMA THERMAL POWER PLANT GEOPHYSICAL INVESTIGATION**	**2014**
HYUNDAI-SKEC	**ISTANBUL 3RD BOSPHORUS BRIDGE PROJECT**	**2013**
STFA-TEMEL INVESTIGATION	**IZMIR ALIAGA SOCAR&TURCAS EGE REFINERY GEOTECHNICAL INVESTIGATION GEOPHYSICAL REPORT**	**2013**
ENVY	**MERSIN AKKUYU NUCLEAR POWER PLANT PROJECT DESIGN STAGE ENGINEERING-GEOLOGICAL STUDY GEOPHYSICAL INVESTIGATION**	**2012**
TOKER	**ADANA TUFANBEYLI THERMAL POWER PLANT GEOPHYSICAL REPORT**	**2012**
ENVY	**MERSIN AKKUYU NUCLEAR POWER PLANT PROJECT ENGINEERING-GEOLOGICAL STUDY GEOPHYSICAL INVESTIGATION**	**2011**
STFA-TEMEL INVESTIGATION	**IZMIR ALIAGA SOCAR&TURCAS EGE REFINERY GEOTECHNICAL INVESTIGATION GEOPHYSICAL REPORT**	**2011**
TOKER	**ADANA TUFANBEYLI THERMAL POWER PLANT GEOPHYSICAL REPORT**	**2011**
TOKER	**KIRIKKALE-LULEBURGAZ GAMA&EUROSTAR NATURALGAS POWER PLANT GEOPHYSICAL REPORT**	**2011**
MNG MAPA	**ISTANBUL THIRD HIGHWAY AND BRIDGE CONNECTION PRELIMIARY GEOPHYSICAL REPORT**	**2011**
GAMESA	**AYDIN-SOKE WINDFARM PROJECT GEOPHYSICAL INVESTIGATION**	**2011**
ENERJISA ENERGY	**ERZURUM-ISPIR ARKUN DAM HEPP GEOPHYSICAL REPORT**	**2011**
STFA-TEMEL INVESTIGATION	**ISTANBUL ZEYTINBURNU SEAPORT PROJECT GEOPHYSICAL REPORT**	**2011**
STFA-TEMEL INVESTIGATION	**ISTANBUL STRAIT ROAD TUNNEL CROSSING PROJECT HAYDARPASA HARBOUR PSLOG INVESTIGATION**	**2010**
KARKAS PROJECT	**SAKARYA TANK PALET FACTORY DEPOT AREAS OF LAND FORCES COMMAND GEOTECHNICAL REPORT**	**2010**
TURKISH ATOMIC ENERGY AUTHORITY	**SINOP NUCLEER POWERPLANT AREA GEOPHYSICAL REPORT**	**2009**
OYO INTERNATIONAL CO.-ACT	**MICROZONATION REPORT AND MAPPING FOR ISTANBUL ANATOLIAN SIDE (360 KM2)**	**2009 2007**
ENERJISA ENERGY	**BANDIRMA NATURAL GAS POWERPLANT AREA GEOPHYSICAL REPORT**	**2008**

INTERNATIONAL PROJECTS PARTICIPATED

ENERJISA ENERGY	**ADANA-TURFANBEYLI THERMAL POWERPLANT AREA GEOPHYSICAL REPORT**	**2008**
OYO INTERNATIONAL CO.-CEMRE	**MICROZONATION REPORT AND MAPPING FOR ISTANBUL EUROPIAN SOUTH SIDE (180 KM2)**	**2007 2006**
US ARMY CORPS OF ENGINEERS EUROPE DISTRICT	**UNDERGROUND GEOPHYSICAL SURVEY REPORT REPLACE AIR FORCE FAMILY HOUSING,EAGLE**	**2005**
US ARMY CORPS OF ENGINEERS EUROPE DISTRICT	**UNDERGROUND GEOPHYSICAL SURVEY REPORT CONSOLIDATED COMMUNICATIONS FACILITY**	**2005**
TEKFEN – IMPRESIT JV	**TAG MOTORWAY GEOPHYSICAL INVESTIGATION ON LANDSLIDE AREA AT KM 206**	**1998**
MELEN JV / SPEKTRA JEOTEK A.S.	**ISTANBUL WATER SUPPLY PROJECT STAGE II MELEN SYSTEM CONTRACT 2 GEOPHYSICAL WORKS**	**1997**
MELENJV /STFA TEMEL INVESTIGATION	**ISTANBUL WATER SUPPLY PROJECT STAGE II MELEN SYSTEM CONTRACT 1 GEOPHYSICAL WORKS**	**1997**
CARGILL A.Ş.	**GROUNDWATER INVESTIGATION AT CARGILL AREA - ARSLANBEY**	**1997**
CARGILL A.Ş.	**GROUNDWATER INVESTIGATION IN CLOSE VICINITY OF ŞEYHLI PLANT AREA**	**1995**
ISAKOY PROJESI IS ORTAKLIĞI	**GEOPHYSICAL WORKS ON YESILCAY WATER SUPPLY PROJECT**	**1995**
CARGILL A.S.	**UNDERGROUND WATER INVESTIGATION AT ŞEYHLI PLANT AREA**	**1994**
ASTALDI S.P.A.	**SEISMIC WORKS AT ASSARSUYU VALLEY**	**1993**
ASTALDI S.P.A.	**INVESTIGATION OF UNDERGROUND CONDITIONS WITH GEOPHYSICALMEASUREMENTS IN A LANDSLIDE AREA NEAR THE BRIDGE NO:1**	**1992**
ISKI	**INVESTIGATION OF WATERTABLE AT ELMALI AND ÖMERLI DAM WITH SEISMIC REFRACTION AND RESISTIVITY MEASUREMENTS**	**1990**
ZETAS	**INVESTIGATION OF BEDROCK TOPOGRAPHY IN BALTALIMANI PRE-TREATMENT SITE BY SEISMIC AND RESISTIVITY MEASUREMENTS**	**1989**

INTERNATIONAL PROJECTS PARTICIPATED

UNITEK LTD.	**FEASIBILITY STUDY FOR AN UNDERWATER ALERT SYSTEM AT THE BLACKSEA EXIT OF BOSPHORUS** **PART 1- SCOPE OF THE WORK** **PART 2- GEOLOGY** **PART 3- SEISMICITY** **PART 4- MAGNETIC FIELD CHANGES** **PART 5- GEOPHYSICAL REVIEW OF THE BLACKSEA** **PART 6- METEOROLOGY** **PART 7- BATHYMETRY, HYDROGRAPHY AND OCEANOGRAPHY OF THE AREA** **PART 8- ACUSTIC**	**1988**

ABROAD PROJECT

ZETAS-AGT MMC	AZERBAIJAN BAKU THE NEW HEADQUARTERS OF THE CENTRAL BANK OF AZERBAIJAN PROJECT PS LOGGING STUDY	2019
STFA-TEMEL INV.	TURKMENISTAN GARABOGAZ FERTILIZER FACTORY DOWNHOLE STUDY	2019
STFA-TEMEL INV.	JORDAN ARAB POTASH THE NEW BRINE INTAKE PUMPING STATION SI PS LOG STUDY	2019
STFA-TEMEL INV.	JORDAN ARAB POTASH THE NEW BRINE INTAKE PUMPING STATION SI PS LOG STUDY	2018
STFA-TEMEL INV.	TURKMENISTAN ASHGABAT TEPE GLASS FACTORY PROJECT GEOPHYSICAL INVESTIGATIONS (SEISMIC REFRACTION-RESISTIVITY)	2015
STFA-TEMEL INV.	OMAN AL HANA CULVERT PROTECTION PROJECT (SEISMIC 2D-RESISTIVITY STUDY)	2015
STFA-TEMEL INV.	TURKMENISTAN TURKMENBASHI SEAPORT PROJECT (RESISTIVITY-PSLOGGING STUDY)	2015
STFA-TEMEL INV.	GEORGIA KOROMKHETI HPP PROJECT (SEISMIC REFRACTION)	2015
STFA-TEMEL INV.	TURKMENISTAN GARABOGAZ TGF PROJECT GEOPHYSICAL INVESTIGATIONS (DOWNHOLE TEST-SEISMIC REFRACTION-RESISTIVITY-MICROTREMOR)	2015
STFA-TEMEL INV.	KHOMS FAST TRACK SIMPLE CYCLE POWER PLANT GEOPHYSICAL INVESTIGATION (DOWNHOLE TEST)-LIBYA	2013
STFA-TEMEL INV.	TURKMENISTAN-ASGHABAT NEW AİRPORT PROJECT GEOPHYSICAL INVESTIGATION	2013
GENC CONS.	TURKMENISTAN TURKMENBASHI OIL REFINERY RECONSTRUCTION PROJECT	2012
GEOTEKNIK	GECOL OBARI 4*160 MW GAS TURBINE POWER PLANT PROJECT GEOPHYSICAL INVESTIGATION (PSLOGGING TEST)	2010
STFA-TEMEL INV.	DRAGON OIL FEED FOR GAS DEVELOPMENT FACILITIES GEOPHYISICAL INVESTIGATIONS (DOWNHOLE TEST-RESISTIVITY) - TURKMENISTAN	2010
STFA-TEMEL INV.	GEOFIZKYA KRAKOW LIBYA-ZILLAH 3D SEISMIC PPV TEST	2010
STFA-TEMEL INV.	HYUNDAI DESULFURIZATION PLANT GEOPHYISICAL INVESTIGATIONS (DOWNHOLE TEST-RESISTIVITY) - TURKMENISTAN	2010
STFA-TEMEL INV.	DAEWOO HOTEL AND VILLA PROJECT GEOPHYISICAL INVESTIGATIONS (2D ELECTRIC TOMOGRAPHY)-LIBYA	2010
STFA-TEMEL INV.	DAEWOO 200 BED STATE OF THE ART HOSPITAL PROJECT GEOPHYISICAL INVESTIGATIONS(DOWNHOLE TEST-SEISMIC REFRACTION-RESISTIVITY) -LIBYA	2009
STFA-TEMEL INV.	ZONE 22 TRIPOLI GATE PROJECT GEOPHYISICAL INVESTIGATIONS(DOWNHOLE TEST) -LIBYA	2009
STFA-TEMEL INV.	KUFRA & AJDABIA LIFT_PUMP PROJECT GEOPHYISICAL INVESTIGATIONS(SEISMIC REFRACTION) -LIBYA	2009

ABROAD PROJECT

STFA-TEMEL INV.	AL KHALIJ POWER PLANT PROJECT GEOPHYISICAL INVESTIGATIONS-LIBYA	2009
CARGILL	DISCHARGE OPTIONS FOR WATER TREATMENT SUGAR REFINERY HOMS-SYRIA	2007
NATIONAL SUGAR COMPANY-SYRIA	RESISTIVITY STUDY FOR SUGAR REFINORY AT HOMS FACILITY-SYRIA	2006
STFA-TEMEL PILE CONSTRUCTION	BLOCK 1 FEED SURVEY&INVESTIGATION WORKS OF THE ONSHORE PIPELINE IN TURKMENISTAN	2005
ELC GROUP	CARGILL UNDERGROUND WATER POTANCIEL INVESTIGATION HOMS / SURIYE	2003
ELC GROUP	BAKU / AZARBEYCAN - DECK ALANI VIBRO COMPECTION TEST AREA SEİSMİC REFRACTION	2003
CARGILL	ASSESMENT OF GROUNDWATER POTENTIAL:HOMS SITE SYRIA	2003
CARGILL	GROUND POTENTIAL STUDY AT HOMS IN SYRIA	2003
STFA-TEMEL INV.	GREATMAN-MADE RIVER PROJECT PHASE II-LIBYA	1998
STFA-TEMEL INV.	GREATMAN-MADE RIVER PROJECT PHASE II - CONNECTIONS	1997
STFA-TEMEL INV.	GREATMAN-MADE RIVER PROJECT GEOPHYISICAL INVESTIGATIONS LIBYA	1995