


Earth Sciences Department

Effective and Creative
Senior Project for Geophysics

Ali O. Oncel

KING FAHD UNIVERSITY OF PETROLEUM & MINERALS
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Earth Sciences Department

- Equipment**
- Software**
- Project Results**
- Collaboration**



Geode Earth Sciences Department

Ultra-Light Exploration Seismograph



2006


Last year, it was purchased and tested, not open for use of any kind of research





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New Instruments

GPR
Resistivity
3D Seismometer





MEMS Force-Balance Accelerometers
Series 131A/B


Seismic Applications

- Free Field Reference
- Building Arrays
- Structural Monitoring
- Aftershock Studies

Features

- State-of-the-Art MEMS Force-Balance Accelerometer
- Low Noise
- Sensitivity and offset stable over wide temperature range
- Available in triaxial, uniaxial, and borehole models

REFRACTION TECHNOLOGY: Providing Solutions That Work



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Equipment
 Software
 Project Results
 Collaboration



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Software


<ol style="list-style-type: none"> 1. Aqtesolv, 95, v2.12 2. AquiferTest, 98, v.3.0 3. ArcView GIS, 2000, v.3.2a 4. Canvas 9, 2003 5. ChemWindows, 1991, v.2.0 6. Dragon, 2001, v.4.1d 7. Earth Quest, 98 8. Earth Sciences Courseware, 99 9. Encom ModelVision Pro., 2002, v.5.0 10. Encom Profile Analyst, 2002, v.5.0 11. Explore the Planets, 95, v.1.0 12. FORTRAN, 2002, v.6.6 13. Geomedia, 2000, v.4.0 	<ol style="list-style-type: none"> 13. Geomedia, 2000, v.4.0 14. GMAplus, 96, v.1.0.5 15. GMS, v.3.1 16. Grapher, 2004, v.5.01 17. GraphPad Prism, 2002, v.3.0. 18. GS+, 98, v.3.1 19. GSLIB, 1998, v.2 20. Harvard Graphics Advanced Presentations, 2002, v.7.02 21. Idrisi, 2000, v.32.11 22. Mocha, 93, v.1.20 23. Introduction to Topographic Maps, 98, v1.0 24. LogPlot98, 99 25. MapViewer 26. MATLAB, 2001, Release 12 27. MESA Software
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Software

<p>37. Planets Earth, 1996</p> <p>38. PSI-PLOT 2002, v.7.01</p> <p>39. R2V, 2000</p> <p>40. RADAN for Windows NT, v.4.0.0.1</p> <p>41. RESIX IP, 93, v.2.14</p> <p>42. Risk*Assistant, 95, v.1.1</p> <p>43. RockPIX (Dos)</p> <p>44. RockWare Utility, v.3.0.</p> <p>45. RockWork99</p> <p>46. SEISTRIX 3, 93</p> <p>47. SeisView, 98</p> <p>48. SigmaPlot 2001,</p> <p>49. SigmaScan, 99,v.5.0</p> <p>50. Stanford Graphics, 95, v.3.ob</p> <p>51. SigmaStat, 2001, v.2.03</p>	<p>52. SIP, 96, v.4.1</p> <p>53. Splot (Dos)</p> <p>54. StaTable, 94, v. 1.0</p> <p>55. Surfer, 2003, v.8.04</p> <p>56. TableCurve2D, 2000, v.5.0</p> <p>57. The Study of Minerals, 98, v.1.5</p> <p>58. The Theory of Plate Tectonics, 99, v.1.0</p> <p>59. The Wonders of Rocks & Minerals, 96</p> <p>60. Topcad, 2000, v.5.0.1</p> <p>61. Understanding Earth 2.0, 1998</p> <p>62. UN-SCAN-IT, 95</p> <p>63. Visual Groundwater, 98,v2.3</p> <p>64. Visual Modflow, 2002, v3.1</p> <p>65. Visual SUNT, V.6</p> <p>66. VS2DT, V2.0</p> <p>67. WinGSLIB. 2001. v.1.3</p>
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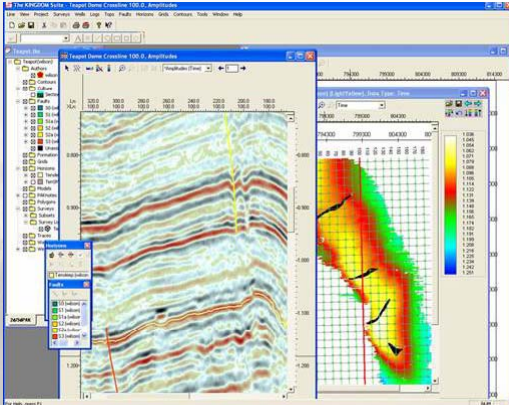



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New Softwares

Seismic Micro-Technology's Kingdom Suite

SMT Kingdom Suite Donated to King-Fahd University Petroleum&Minerals. Houston-based Seismic MicroTechnology (SMT) has donated their Kingdom Suite seismic software package to the Department of Earth Sciences at King-Fahd University Petroleum & Minerals. The software, valued at more than \$700,000, will be used in the department's computer lab, where up to 10 computers can access it at one time.....

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New Softwares
2D Mapping Velocity: P wave and S-wave

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Equipment

Software


Project Results

Collaboration




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Field Team



Instructor
Technician






Students



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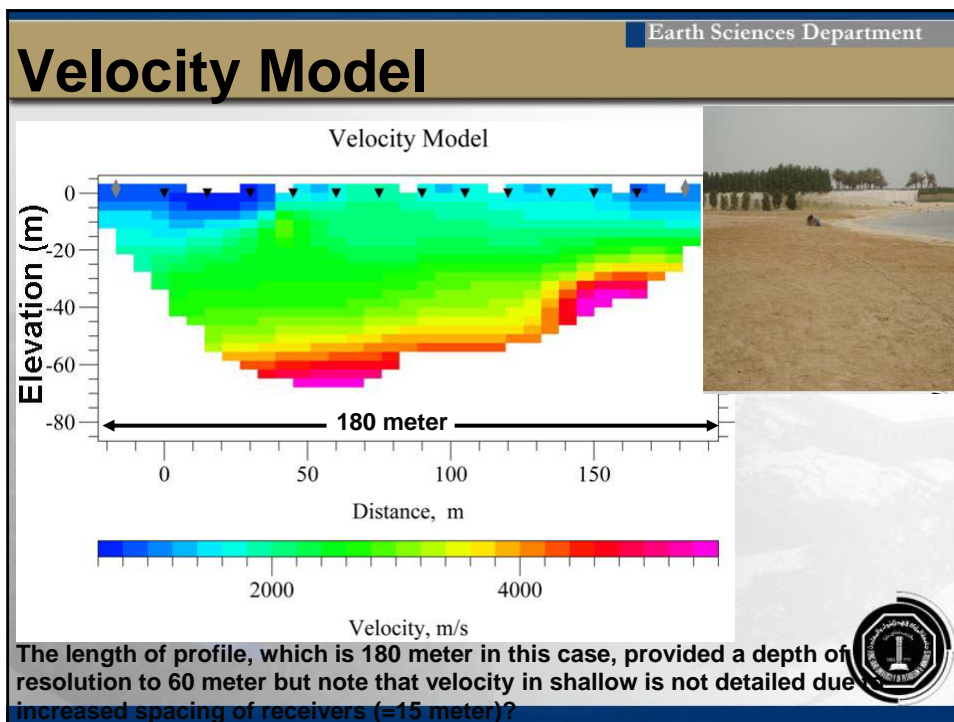
Field Works

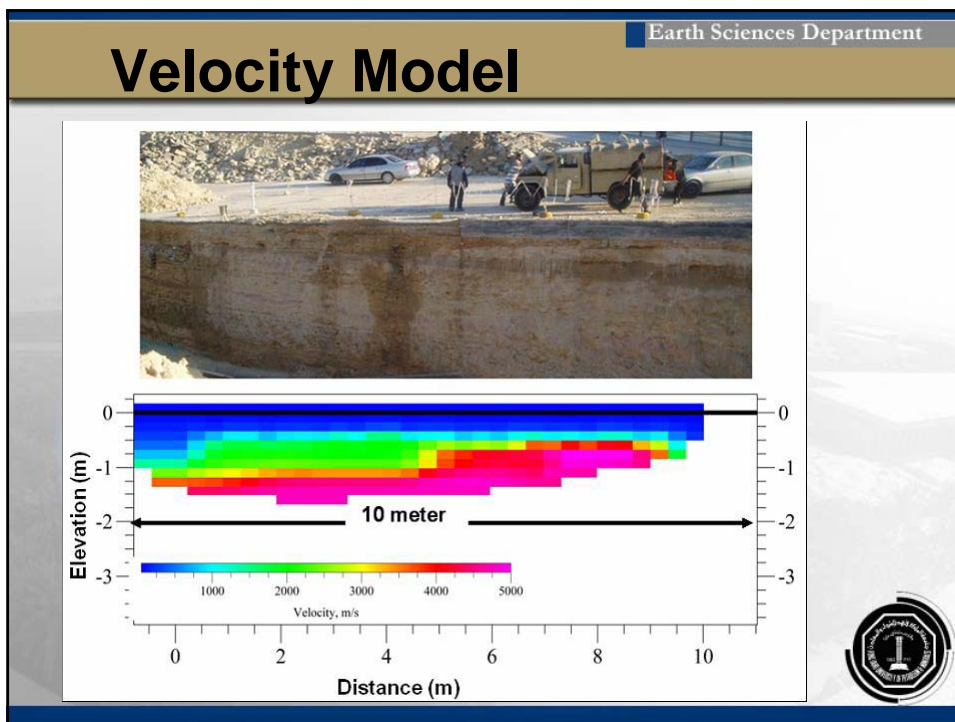
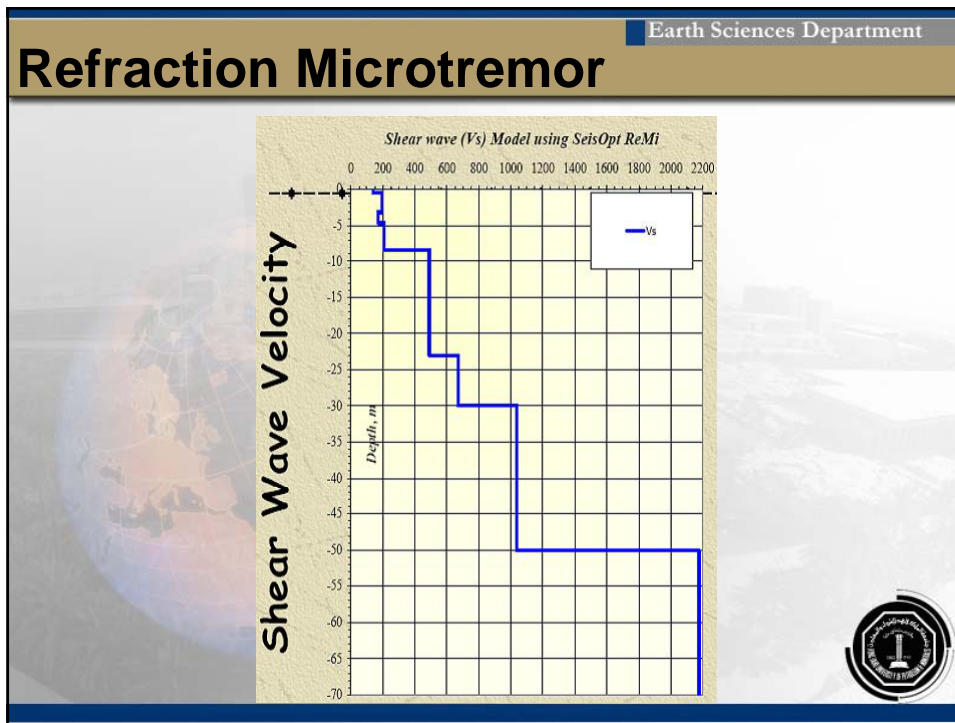


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Field Work

- Area: Excavation Site behind the Bld. 26
- Tool: Seismic Refraction
- Objectives:
 - 2D P-wave estimate
 - 1D S-wave estimate
- Class: Senior Project
- Instructor: Dr. Ali Osman Oncel
- Date: December 21, 2006



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- ❑ Equipment
- ❑ Software
- ❑ Project Results
- ❑ Collaboration



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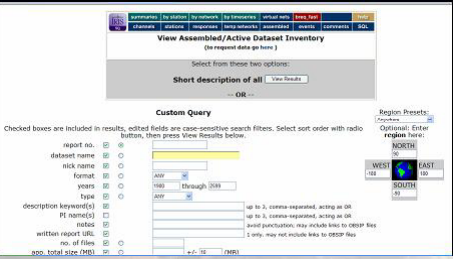
Collaboration

- Senior Project of Students can :
 - Be a part of any ongoing project
 - Have a technical support for using software
 - Use research facilities for analysis of geophysical data from, **if any data is not released for their use**, to have an experience for interpreting with present state-art-software



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Released Global Data

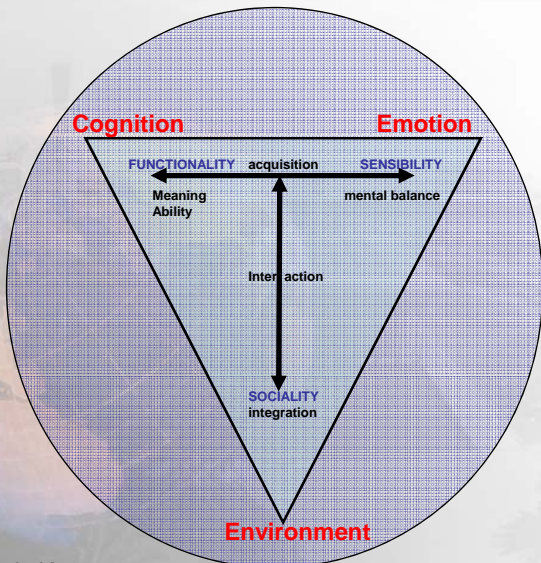


Example:
Wide-Angle Reflection Data

report no.	06-008
name	GEO-DESIRE Wide-Angle Reflection / Refraction experiment, Israel and Jordan 2006
nickname	GEODESIRE
format	SEGY
start year	2006
end year	2006
type	PASSCAL
description	seismic wide-angle reflection / refraction (WRR) experiment was completed in March 2006 across the Dead Sea Transform (DST) in the region of the southern Dead Sea basin. The DST with a total of about 105 km multi-stage left-lateral shear since about 18 Ma ago, accommodates the movement between the Arabian and African plates. It connects the spreading centre in the Red Sea with the Taurus collision zone in Turkey over a length of about 1100 km. With a sedimentary infill of about 10 km in places, the southern Dead Sea basin is the largest pull-apart basin along the DST and one of the largest pull-apart basins on Earth. PASSCAL ID 0605
PI(s)	James Mechie, Michael Weber
notes	restricted until March 26, 2008
report URL	http://www.iris.edu/data/reports/2006/GEODESIRE
num files	12
approx size (MB)	187
restricted?	Y
max lon	36.40446
min lon	34.46267
max lat	31.32716
min lat	31.19976

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Contemporary Theory of Learning



Modified after Illeris, K, 2003.

