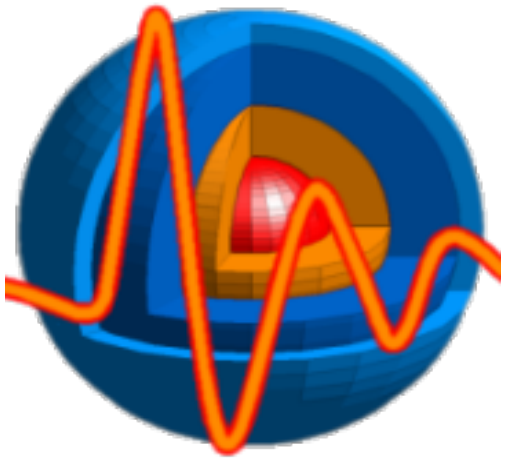
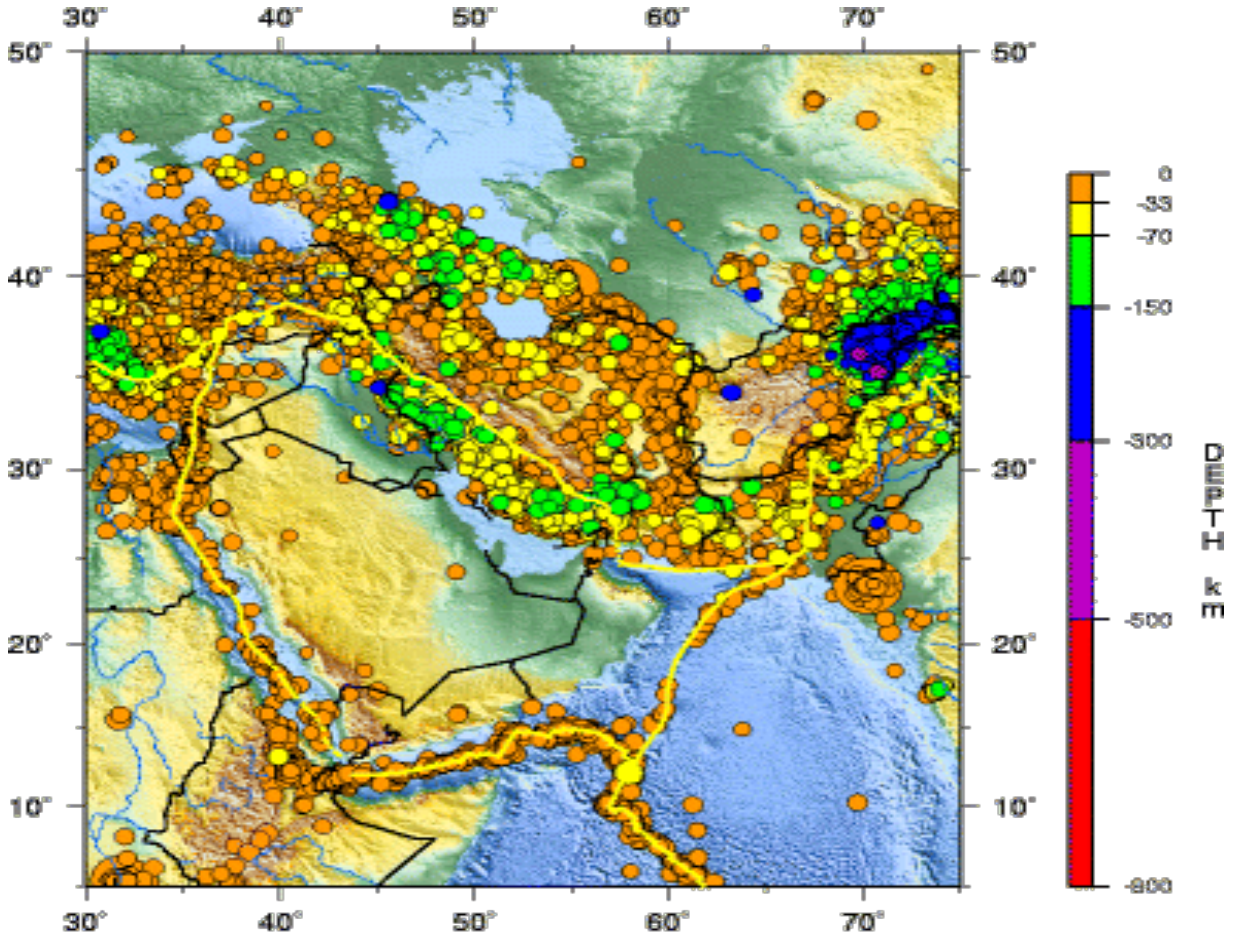
Building Seismological Expertise in the Middle East and North Africa: A Case Study of Technical Collaboration in Kuwait



Stephen Herzog
U.S. Department of Energy

Rengin Gök
Lawrence Livermore National Laboratory

High Regional Seismicity



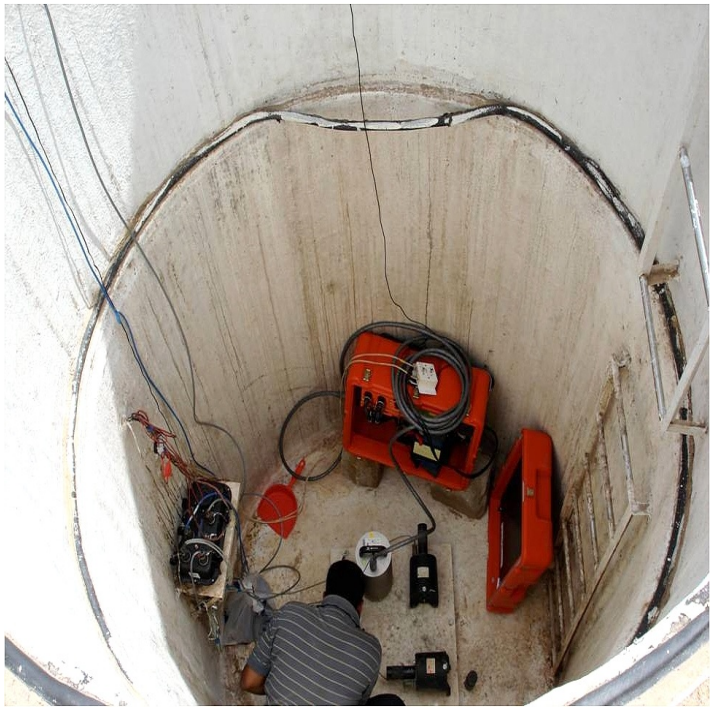
Seismicity of the Middle East, 1990 - 2006

Seismic Cooperation Program: Objectives and Tools

- Joint scientific projects that enhance capacity to address seismological problems:
  - Earthquake hazard mitigation
  - Tsunami warning
  - Civil nuclear reactor siting
  - Comprehensive Nuclear-Test-Ban Treaty (CTBT)

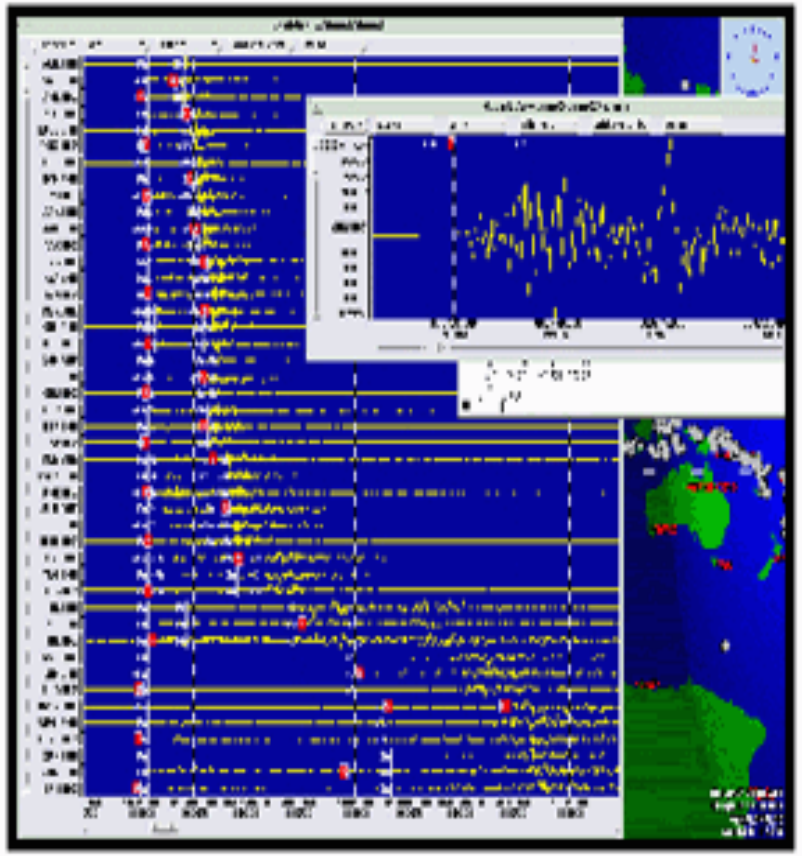
- Projects Include:
  - Probabilistic seismic hazard assessment and seismic hazard map development
  - Attenuation, source, and velocity models
  - Induced seismicity studies
  - Joint station/array deployment
  - Bilateral and multilateral workshops

*- Research projects often involve joint analysis of data made available through IRIS-DMC



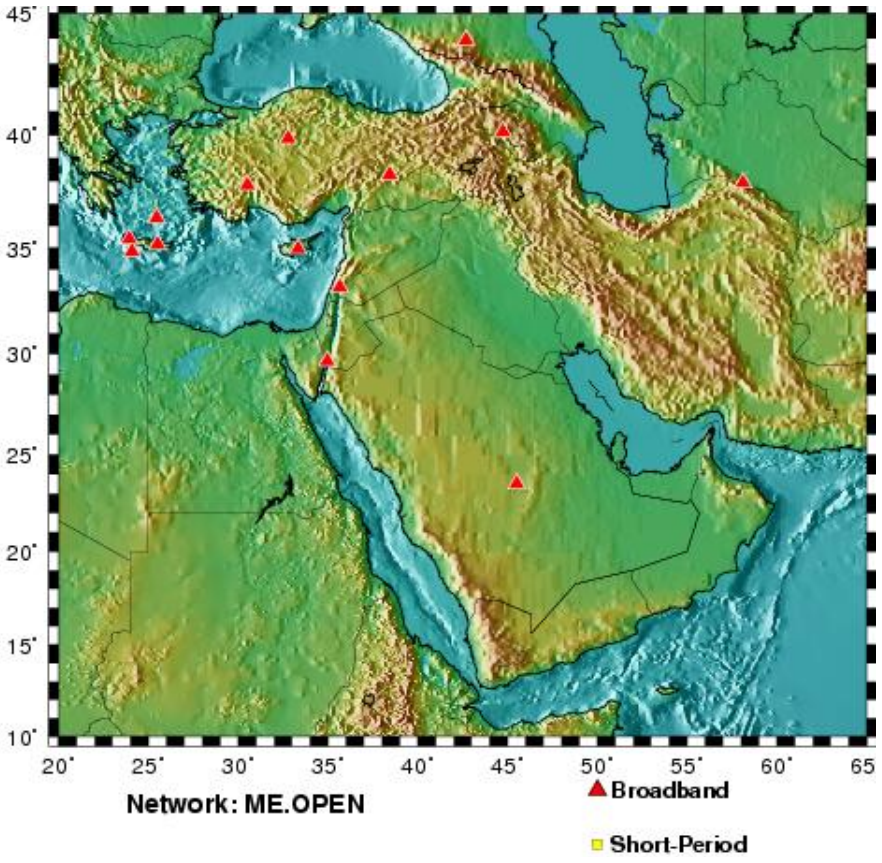
Software and Instrumentation Training

- Selected expertise:
  - SEISAN, SeisComp3, Earthworm, Antelope, etc.
  - Qanterra, Guralp, Nanometrics, Kinemetrics, etc.
  - Facilities for testing and comparatively evaluating software, sensors, and digitizers
  - Technical support for real-time data-streaming via wireless telemetry, cabling, or alternative options
  - Seismic array geometry
  - Projects designed to support CTBT Cooperating National Facilities



Regional Data-Sharing is Critical

IMS and GSN Stations



National Networks