

## **Broadband Seismic Station Deployment at Hadabat Al-Mahri, Halban, Saudi Arabia**

**Arthur Rodgers , Abdullah Al-Amri , Jon P. Lewis**

### **Abstract**

A broadband three-component seismic station was deployed on the Arabian Shield near the town of Halban in central Saudi Arabia. This site is near the proposed site of a primary seismic array (PS38) of the International Monitoring System (IMS) of the Comprehensive Nuclear Test-Ban Treaty (CTBT). The purpose of this deployment was to collect calibration data for the primary array to be deployed in the future.

The International Monitoring System (IMS) of the Comprehensive Nuclear Test-Ban Treaty Organization (CTBTO) will rely on seismic stations and arrays to monitor nuclear explosions. An IMS primary seismic array is being planned near the town of Halban on the Arabian Shield in central Saudi Arabia. Figure 1 shows a map of the Middle East with existing and planned IMS seismic stations.

A Department of Energy (DOE) Research Opportunity Announcement (ROA) project was funded to collect calibration data for explosion monitoring of the Arabian Peninsula. A major part of this project ("Ground Truth Event and Waveform Data Collection for Seismic Calibration of the Arabian Peninsula and Surrounding Regions - Project #35) is to collect calibration data for the primary array near Halban, Saudi Arabia. During the week of January 21-27, 2002 Lawrence Livermore National Laboratory (LLNL) and King Saudi University (KSU) seismologists deployed an autonomous broadband seismic station near Halban. This deployment took advantage of the vault built for station HALM by the 1995-1997 University of California, San Diego (UCSD) Saudi Broadband Deployment (Vernon and Berger, 1998; also funded by DOE). Noise characteristics from the UCSD Deployment indicate that the HALM site was very quiet (Mellors, 1997; Al-Amri et al., 1999). Table 1 summarizes seismic station deployments near Halban. Directions to the site are included in the appendix.