The map

This Bouguer gravity anomaly map of the Dead Sea rift supercedes U.S.G.S. Open-File Report 98-516, "Bouguer gravity anomaly map of the Dead Sea fault system, Jordan and Israel" by ten Brink et al., 1998. It includes many new measurements within the Dead Sea rift and its surrounding highlands as well as recalculated values from the marine gravity survey in the Dead Sea.

The map is based on approximately 39,000 gravity stations, measured during the past 25 years by Natural Resources Authority (NRA), Jordan, the Geophysical Institute of Israel (GII), and the Lamont-Doherty Earth Observatory marine surveys of the Dead Sea and Sea of Galilee (ten Brink et al., Journal of Geophysical Research, vol. 98, pp. 21,877-21,894, 1993; Ben-Avraham et al., Journal of Geophysical Research, vol. 101, pp. 533-544, 1996). The data bases of Jordan and Israel were mutually tied by measurements made at the Aqaba - Elat and Bet-Shean border crossings. The data were tied to absolute gravity base station 9002, Amman, Jordan, and were reduced according to the 1971 Reference Ellipsoid. Bouguer correction with a density of 2.67 g/cc was applied to all land data. Bouguer correction was also applied to the submarine areas of the Sea of Galilee and Gulf of Aqaba replacing water density with rock density of 2.67 g/cc. The map was produced by gridding and contouring the data with a kriging algorithm using Surfer™ software. The map is plotted without projection, and is annotated with geographic coordinates and the Cassini Palestine coordinates.

The background is a shaded topographic relief image courtesy of Dr. John Hall (J. Hall, Israel Geological Survey Current research, v. 8, pp. 47-60).

Acknowledgments:

These maps were produced as a continuation of the U.S.-AID project #TA-MOU-96-C15-165, "Geophysical Framework studies of the Dead Sea rift, Jordan and Israel". We gratefully acknowledge the Minister of Energy and Mineral Resources of Jordan, General Directors of the Natural Resources Authority (NRA) and the Geophysical Institute of Israel (GII), and the U.S. Geological Survey, Coastal and Marine Geology Program, for their continued support. We thank Dr. Radwan El-Kelani, Al-Najah University for his gravity measurements in the Jericho area, and the NRA and GII staff for their gravity surveys.

BOUGUER GRAVITY ANOMALY MAP OF THE DEAD SEA FAULT SYSTEM, JORDAN AND ISRAEL
Contour interval 2 mGal

By

Uri ten Brink¹, Abdallah Al-Zoubi², and Michael Rybakov³

MAY 2001

¹ U.S. Geological Survey, Woods Hole Field Center, 384 Woods Hole Road, Woods Hole, MA, 02543-1598, USA.
² Woods Hole Oceanographic Institution, Woods Hole, MA, 02543, USA. On leave from the Natural Resources Authority, P.O. Box 7, Amman 11844, Jordan.
³ Geophysical Institute of Israel, P.O. Box 2286, Holon, Israel.

This map is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards. Any use of trade, product, or firm names is for descriptive purposes only and does not imply any endorsement by the U.S. Government.