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crustal P-wave velocity model for Israel to improve IMS capabilities in the Middle East

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The Israeli National Data Center is responsible for monitoring and characterising the seismicity of the Eastern Mediterranean region. The accuracy of seismic locations is mostly affected by the velocity model used, and no clear picture of the variations in seismic velocities in Israel has emerged in the recent years. We gathered a large dataset of seismic travel times recorded in Israel and nearby countries. After quality control and joint relocation of over 30,000 natural and man-made seismic events, we produced a revised dataset of more than 500,000 arrivals. From this dataset, we inverted P_g and P_n travel times for a crustal velocity model of the area using the *FMTOMO* tomographic inversion package. In order to do this, we put together a 3-D starting model that consists of an ensemble of 1-D velocity profiles for the various tectonic settings observed in the region. We present images extracted from this model, as well as corresponding synthetic resolution tests to assess the quality of our results. This high-resolution model is to be integrated into the *Regional Seismic Travel Time* model and procedure in order to enhance the CTBT's International Monitoring System capabilities in the Middle East.

Promotional text

We build a new model for crustal seismic velocities in Israel using a local travel-time dataset we put together. The new model is to be integrated into the Regional Seismic Travel Time model and procedure in order to enhance the CTBT's monitoring capabilities in the Middle East.

Primary authors: Mr SCHARDONG, Lewis (Tel-Aviv University, Israel); Mr BEN-HORIN, Yochai (Soreq Nuclear Research Center, Yavne, Israel); Mr ZIV, Alon (Tel-Aviv University, Israel); Mr MYERS, Stephen (Lawrence Livermore National Laboratory (LLNL), Livermore, CA, USA); Mr WUST-BLOCH, Hillel (Tel-Aviv University, Israel); Mr BEGNAUD, Michael L. (Los Alamos National Laboratory (LANL), Los Alamos, NM, USA); Mr YOUNG, Brian (Sandia National Laboratories (SNL), Albuquerque, NM, USA); Mr RADZYNER, Yael (Soreq Nuclear Research Center, Yavne, Israel)

Presenter: Mr SCHARDONG, Lewis (Tel-Aviv University, Israel)

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