Recent Improvements to Earthquake Reporting at the USGS National Earthquake Information Center
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Background

The U.S. Geological Survey National Earthquake Information Center (USGS NEIC) is the U.S. seismic monitoring system federally mandated to provide earthquake information worldwide. NEIC and its predecessors have produced authoritative global earthquake locations and magnitudes since the 1930s.

Operational Functions

- Maintains 24/7 facility (since January 2006)
- Staffed by 15 analyst and support personnel for response operations maintaining a minimum of 2 people at NEIC at all times
- Response coordination duties shared by 5 senior scientists
- Maintains redundant processing systems on-site and off-site warm-backup with plans for hot-backup facilities at 2 sites

Monitoring

- Response time standards:
  - Wilde-felt in the United States (10 minutes from origin time)
  - Magnitude 4.0 in the Western U.S. and 3.0 in Eastern U.S. (10 minutes)
  - Magnitude 5.0 worldwide (20 minutes from origin time)
- for United States earthquakes, NEIC builds database for events of magnitude 2.5 and greater in coordination with USGS/ANSS supported regional networks
- For earthquakes outside the United States, NEIC builds an independent bulletin (the PDE) complete for events of magnitude 4.0 and greater. Lower magnitudes are included in special cases of wide public or scientific interest.

Response products and services

- Earthquake Summary Posters
  - Maps of estimated ground shaking (M 5.5 and greater globally and felt earthquake).
  - Rapid assessment of potential societal impact of an earthquake.
- Event Summary Posters
  - Include lists of the latest earthquakes, P, S, and body wave info.

Future Capabilities

- PAGGER: Prompt Assessment of Global Earthquakes for Response
- Other Capabilities
  - Continuous beamforming of IMS
  - Reliance on Bayesian information for pick association and auto discovery and confidence
  - M7.0+ regional Moment Tensor

Data acquisition and distribution

- Advanced National Seismic System (ANSS)
- Auxiliary stations of the International Monitoring System (IMS)
- More than 970 stations (~3,700 channels)
- PDE, REB, and additional bulletins provide a basis for critically examining the transition from research idea to operational system. Examples include:
  - PDE - Provincial and National Earthquake Data Centers
  - REB - Regional Earthquake Bulletins
- Other response critical networks include:
  - NetServe, Ring Request Protocol, and Seedlink
- Support a wide range of real-time and nearly real-time tsunami warning systems.

Research to results

- The NEIC maintains an active research staff and strong ties to the academic seismological community. In fact, technological transfer to facilitate technology transfer, we maintain public access to non-proprietary real-time seismic data and station metadata. These systems allow our outside producers to develop and test new techniques and data products for research and operational use. Examples include:
  - PAGGER
  - Earthquake Response System (ERS)