The Making of
"40 Years of Digital Recording at the Albuquerque Seismological Laboratory"

Andy Frassetto (IRIS HQ) and Manoch Bahavar (IRIS DMC)

Using data available from its DMC, IRIS produced a four-decade (1972-2011) "seismogram" showing the complete record of digital data recorded at the US Geological Survey's Albuquerque Seismological Laboratory under the station names ALQ and ANMO.

Raw Data
Data were extracted from the DMC waveform archive using BREQ_FAST data requests:
- These represented all available records from the LHZ channel.
- 2,346 waveform segments were extracted spanning 1972-08-31 to 2011-06-01.
- Waveforms were visually inspected and 698 were edited to remove calibration signals and segments of otherwise poor data.
- 244 waveform time windows were unusable and rejected.

Pre-processing
Waveform segments were modified before plotting:
- Band-pass filtered from a period of 250 to 50 seconds
- Decimated by factor of 10

Display
The seismogram was plotted "helicorder-style" via a customized MATLAB script:
- Each line of the plot represents one month of recording.
- Amplitudes were allowed to span over several traces without clipping.
- Segments less than one hour in length were automatically skipped.
- Data gaps were filled using flat lines.
- Instrument response equalization was performed by using a smaller scaling for the ALQ data and data from 1970s and 1980s that had larger gains.
- A white vertical marker line was plotted every 5th day.

GSN Data Quality
Station ANMO operates in a well-insulated, quiet borehole and benefits from being co-located with one of the world's premier seismological laboratories. Like many GSN stations it delivers very high quality data while recording a vast number of local, regional, and teleseismic earthquakes. Here, the occurrences of several prominent, societally impacting earthquakes are highlighted along the margin. In addition to showing the quality and continuity of the data recorded at ASL, this presentation demonstrates the observational power of the GSN in a unique teaching tool to stimulate discussion of the earthquakes occurring over almost a half century. The relative amplitude of the largest, most globally significant earthquakes is a reminder of the continuing importance of the work undertaken by the seismological community.