THE UNIVERSITY OF ALABAMA IN HUNTSVILLE

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Enhancing the Science Return of Lunar Surface Studies: Analysis of Rediscovered Data from Apollo 17's Lunar Seismic Profiling Experiment

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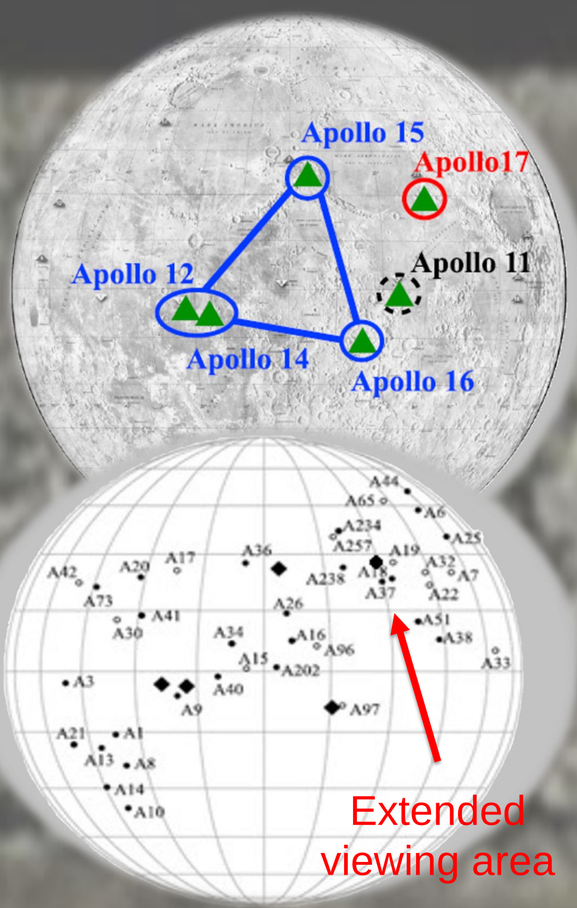
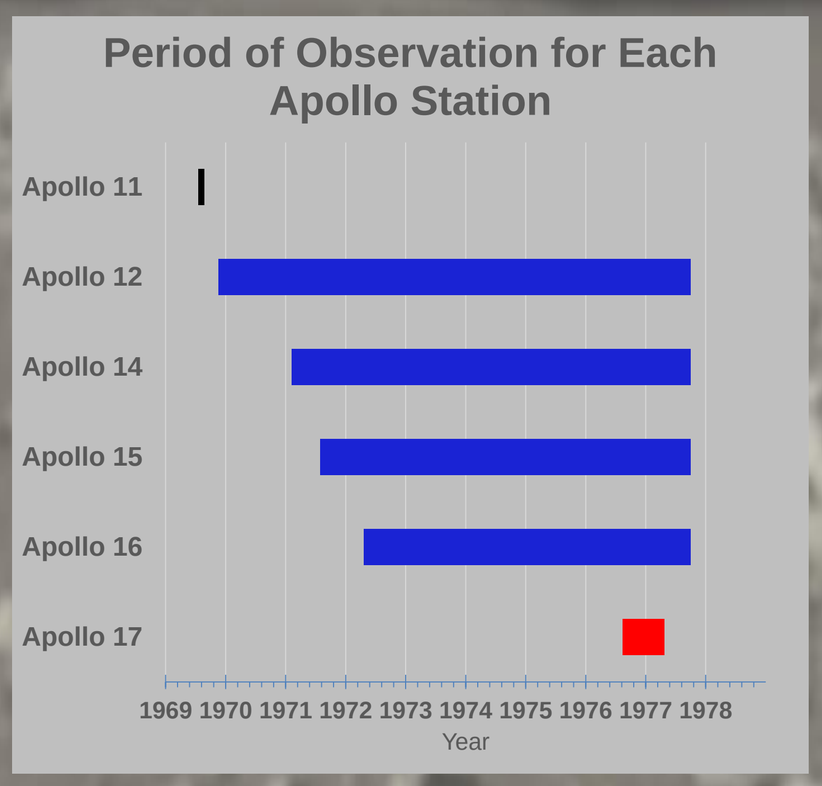


Overview

- The seismic instrumentation deployed by Apollo 17 was different than Apollo 12-16.
- Apollo 17 data has NEVER been analyzed.
- Data from Apollo 12-16 led to the Lunar Seismic Event Catalog
- Currently: 13,058 events
- Event types include:
  - Deep moonquakes
  - Meteorite impacts
  - Shallow moonquakes
  - Short-period events
  - Impacts from Apollo missions



Goals

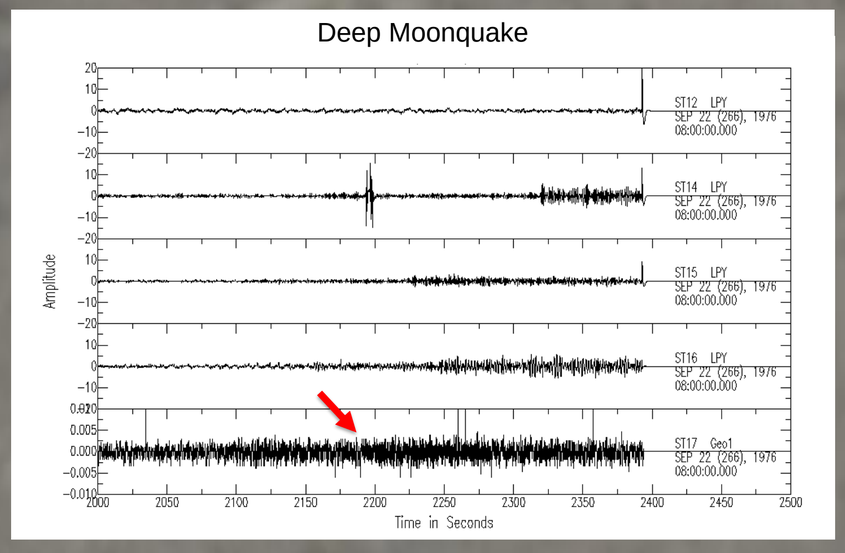
- Compare known catalog events with Apollo 17 data in order to compare instrument responses to different events
- Compare known deep moonquake clusters to Apollo 17 in order to characterize an average waveform
- Complete a blind search in Apollo 12-17 data in order to find:
  - Local events with no catalog event correlation
  - Short period events on all channels
  - Other interesting features

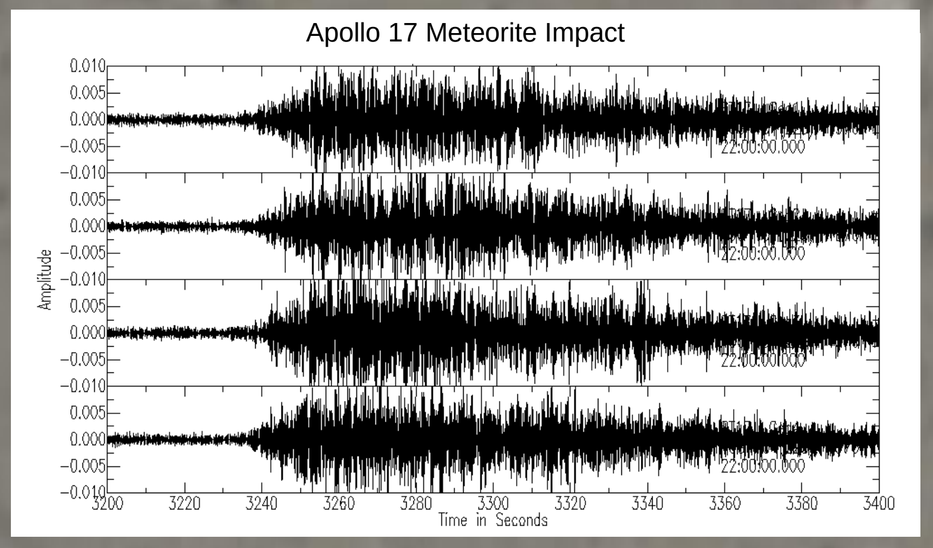
Impact

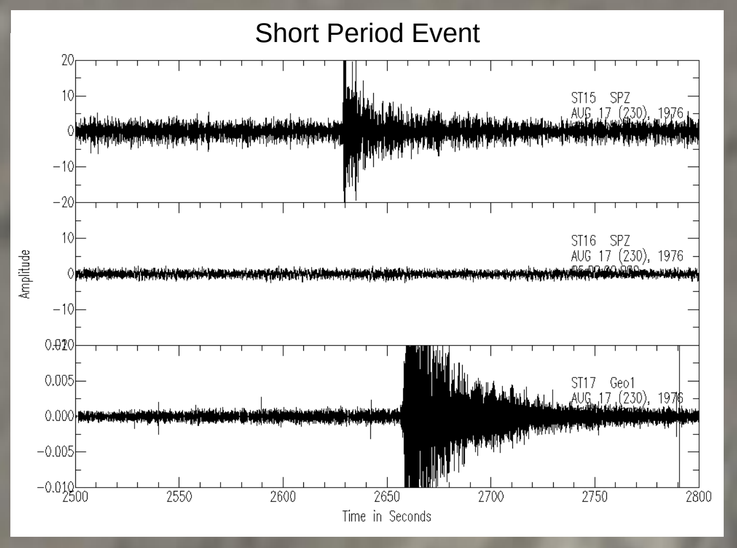
Immediate Impacts
- Better localization of moonquake clusters
- Localization of meteorite impacts
- Local region depth study
- Classify new events

Broader Impacts
- Improve understanding of how planets form
- Correlate geological features and seismic events such as lunar tides
- Understand different planetary seismology
  - Example: InSight Mission to Mars

Selected Results







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