



A Career in the National Interest —Working at SNL

“In my opinion, you have here an opportunity to render an exceptional service in the national interest...”

— President Truman, 1949

Brian Young

CTBT Young Professionals Network

2021 Nov 09



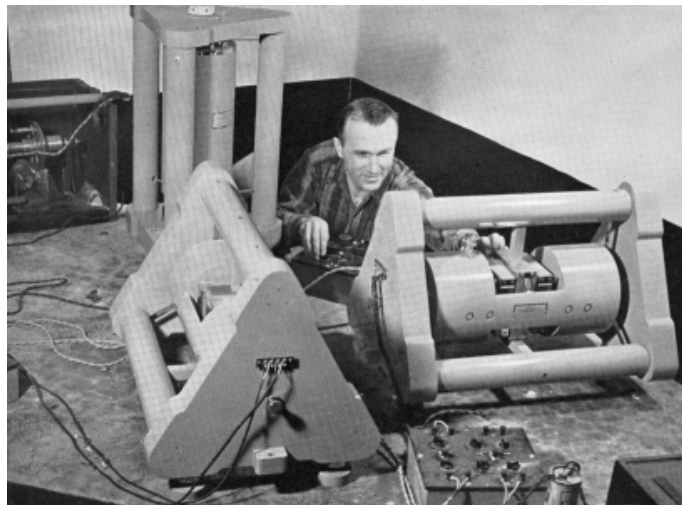
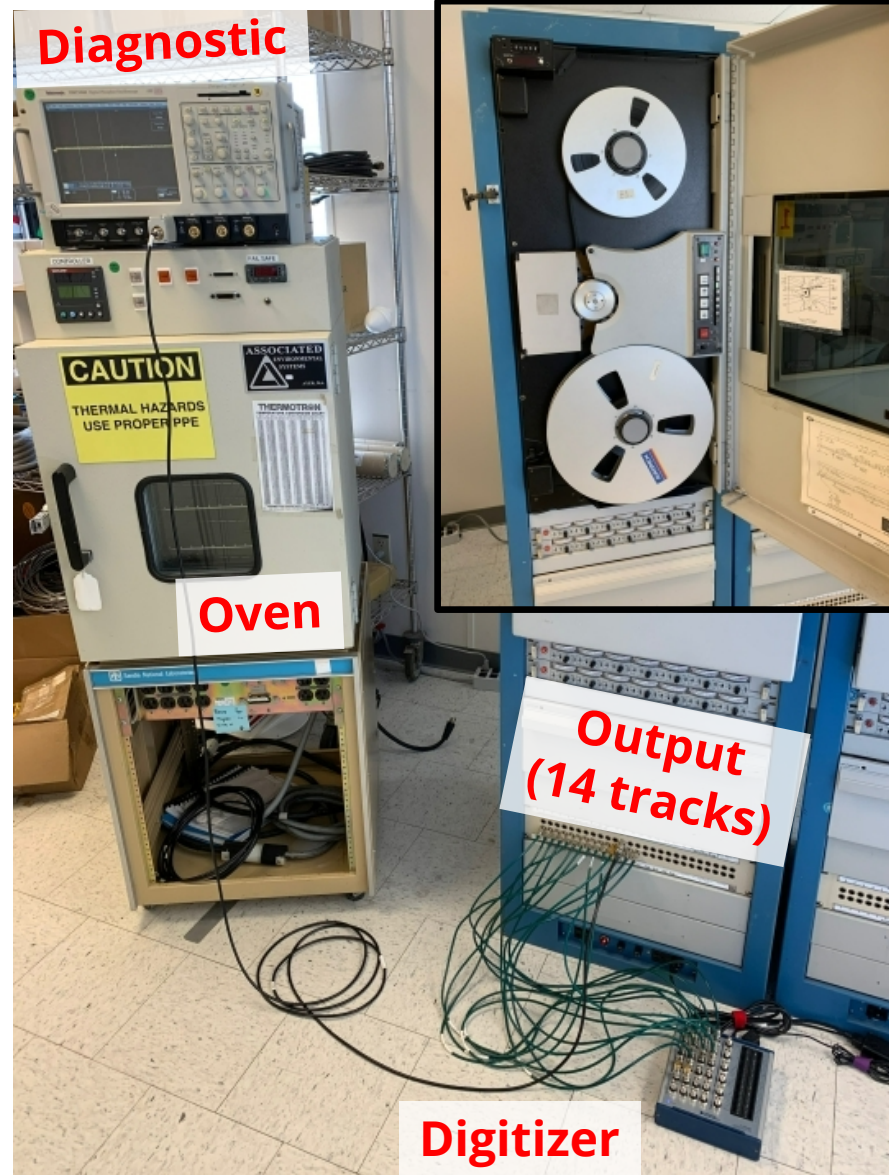
Sandia National Laboratories is a multimission laboratory managed and operated by National Technology & Engineering Solutions of Sandia, LLC, a wholly owned subsidiary of Honeywell International Inc., for the U.S. Department of Energy's National Nuclear Security Administration under contract DE-NA0003525.

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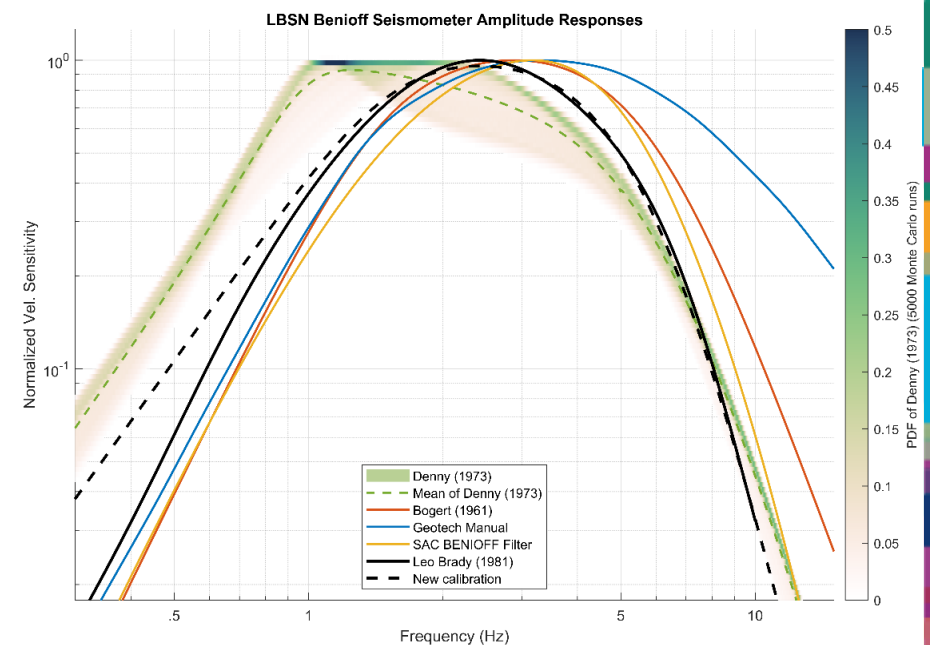
2

Legacy data

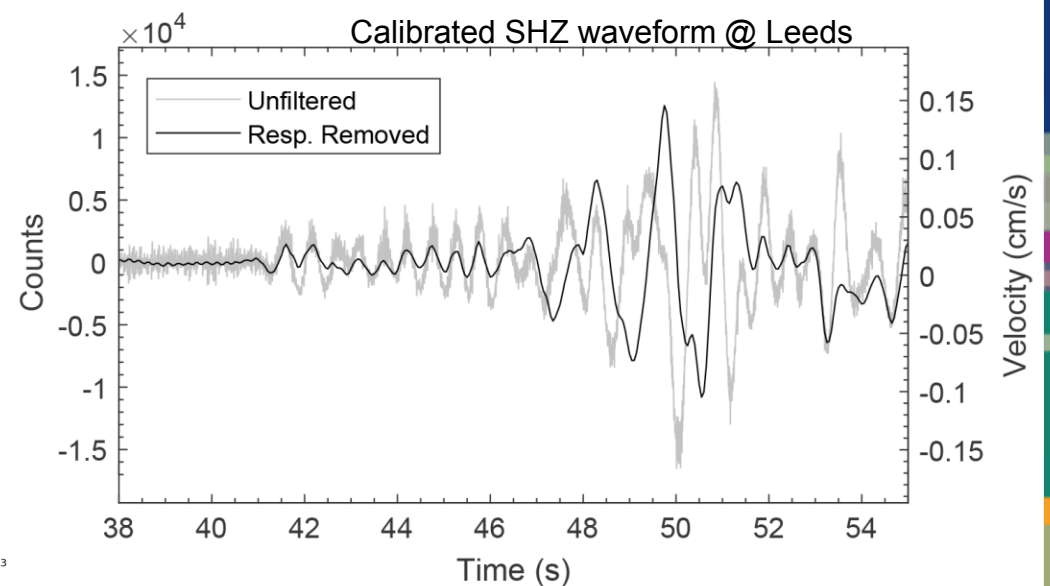
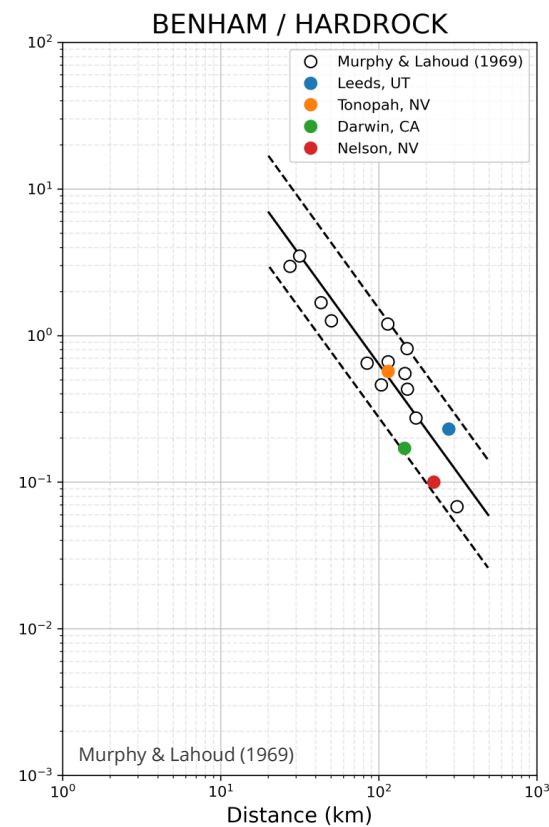
Diagnostic



<http://www.seismology.harvard.edu/hrv.html>



Young, B. A. and R. E. Abbott (2020). Recovery and Calibration of Legacy Underground Nuclear Test Seismic Data from the Leo Brady Seismic Network. *Seismol. Res. Lett.*, 91(3), 1488–1499. doi: 10.1785/0220190341



Legacy data

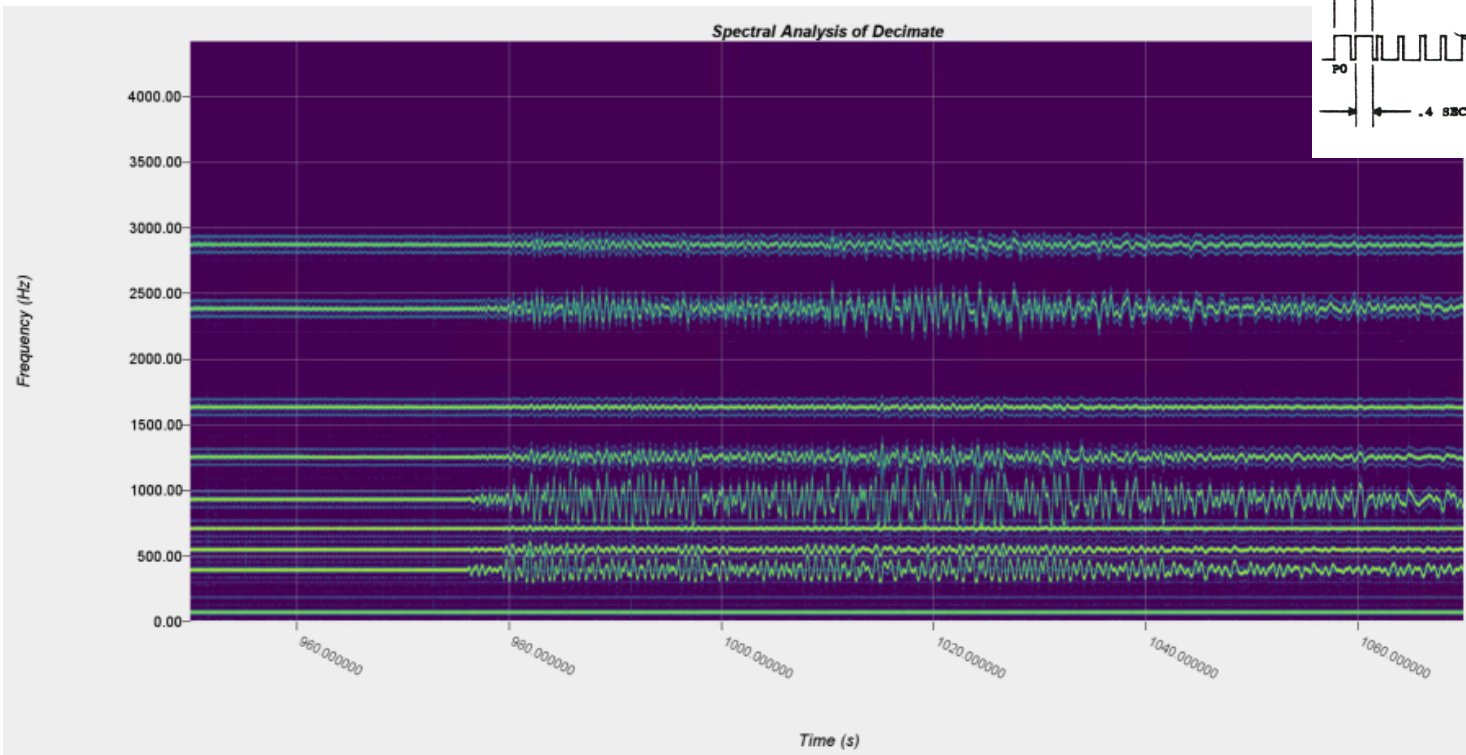
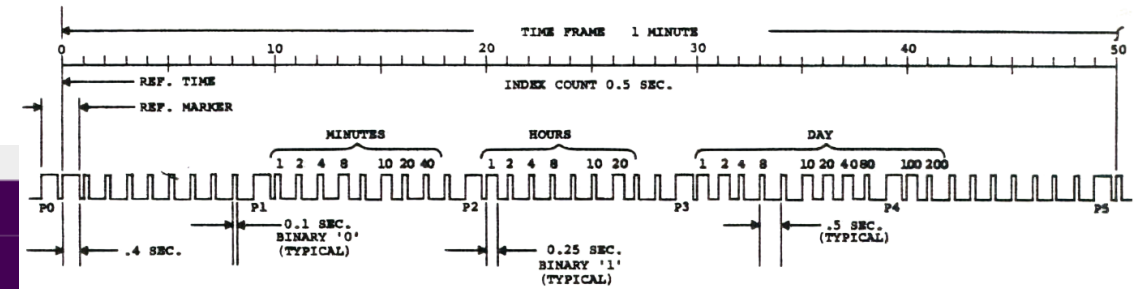
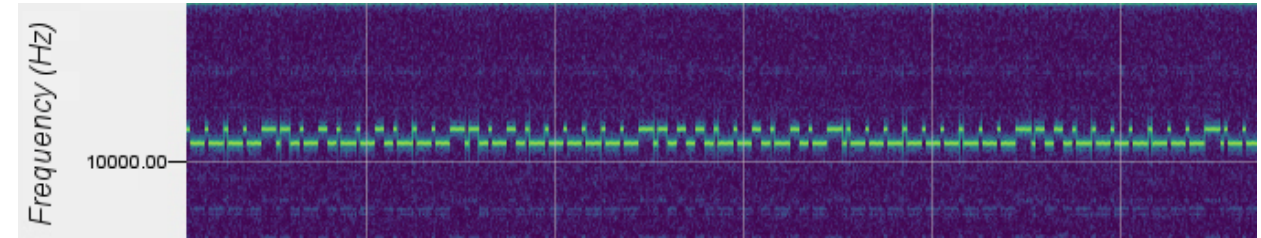
(Inter-Range Instrumentation Group)

IRIG "C" Timing Signals



KLICKITAT

- Earliest data recovered so far
- 1964-02-20, 70 kt*, Plowshare



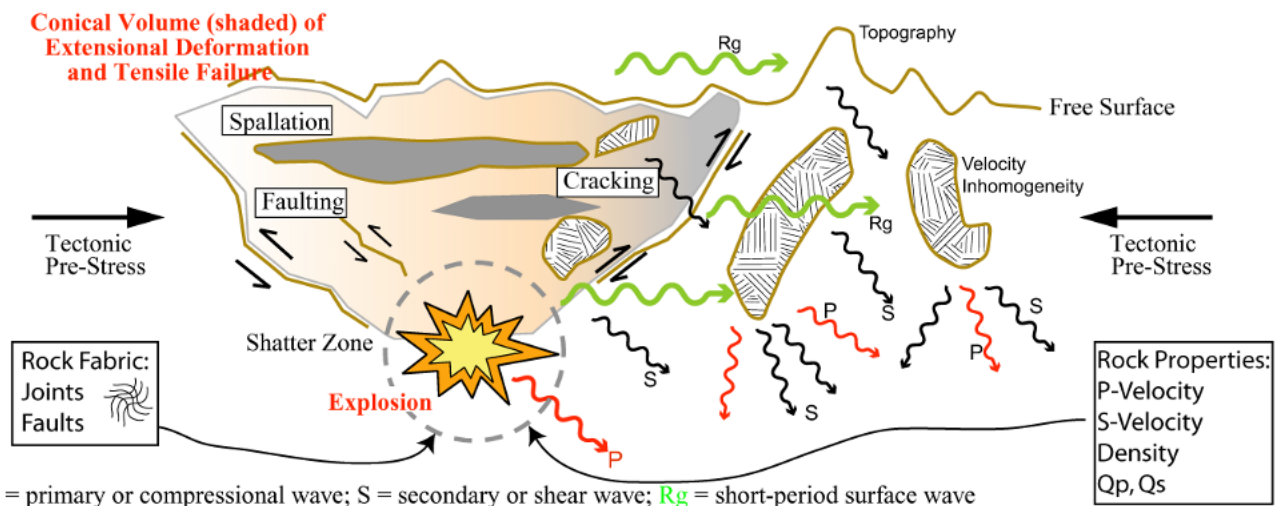
Sample of
Recovered Audio



Chemical Explosive Experiments

Cross-section of Explosion Source Region
(within 10 - 20 km of the explosion; not to scale)

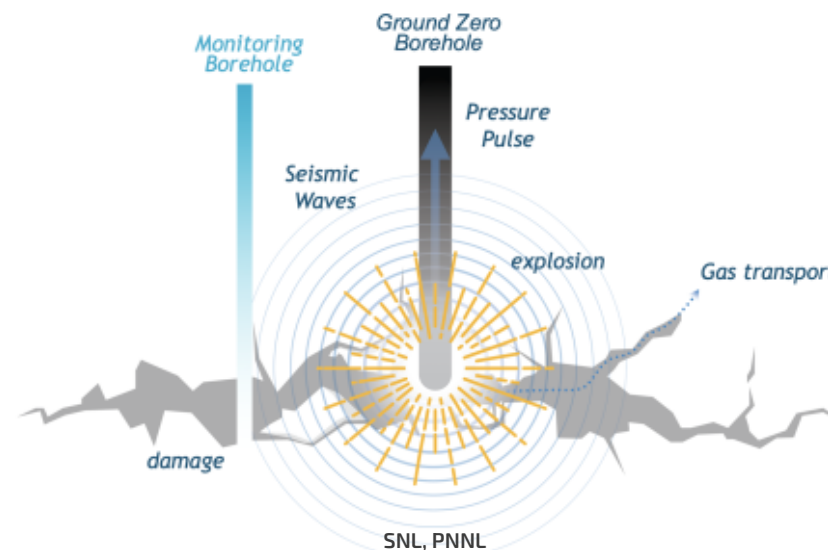
After Patton, LANL



SNL, PNNL, EMRTC



Mellors, R., C. Snelson, A. Pitarka, T. Chen, E. Matzel, W. Walter, and the SPE team (2016). A Large N Array at the Nevada National Security Site. IRIS: USArray Short Course, Presentation. LLNL-PRES-694105.

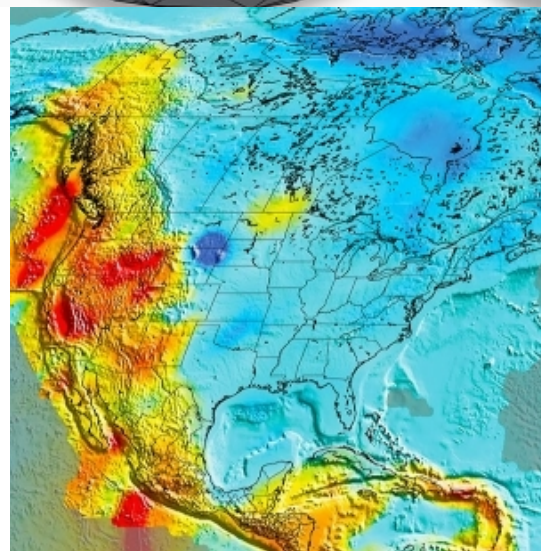
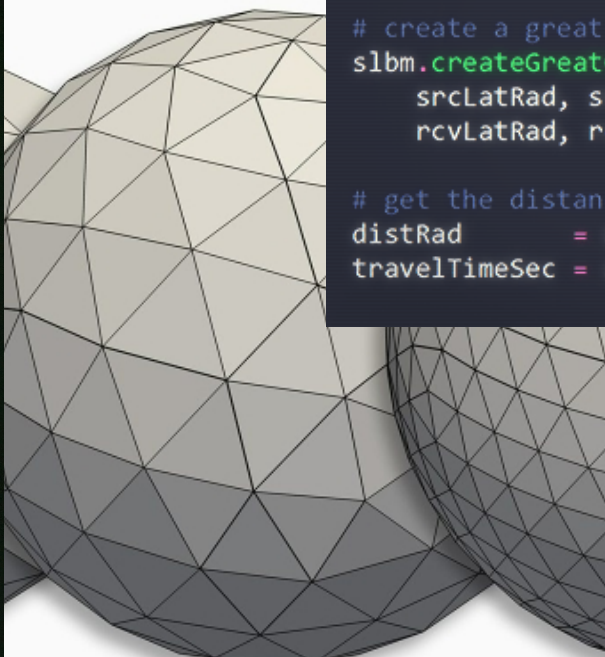
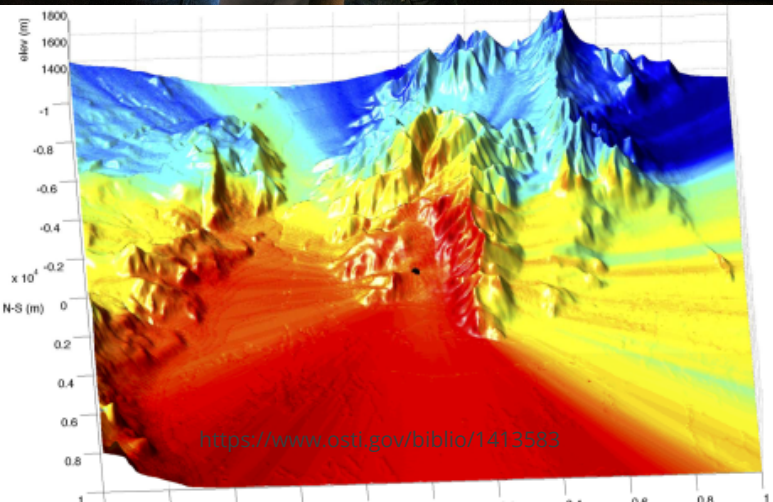
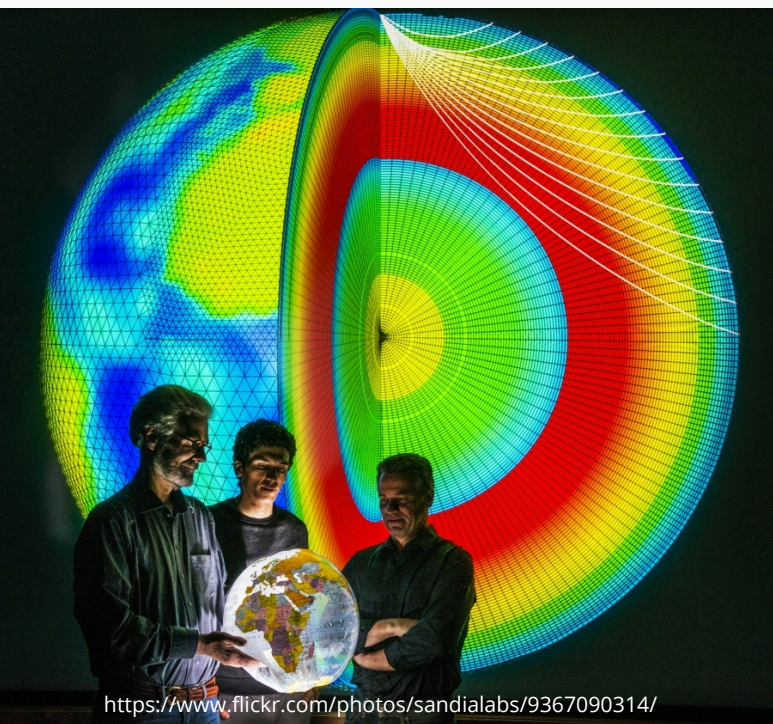


SNL, PNNL



SNL, PNNL, EMRTC

5 Modeling & Software



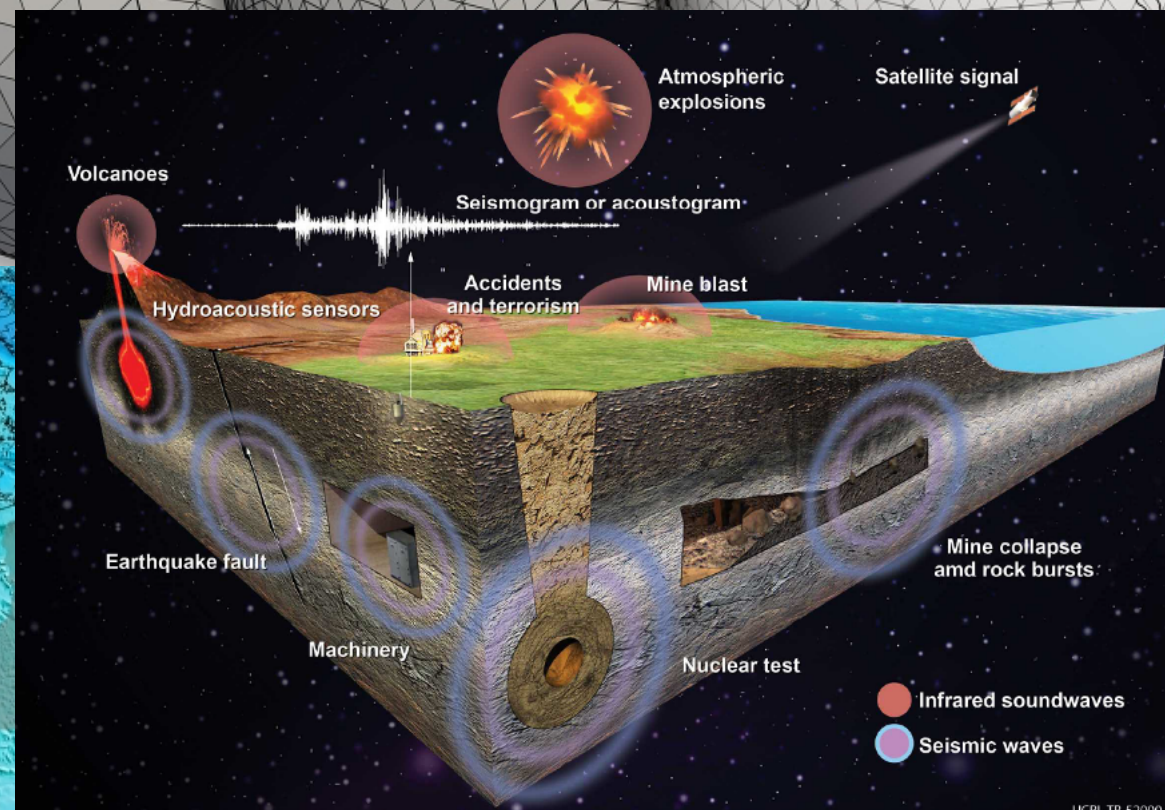
```
# instantiate an RSTT object
slbm = SlbmInterface()

# load the velocity model
slbm.loadVelocityModel(modelPath)

# create a great circle
slbm.createGreatCircle(phase,
    srcLatRad, srcLonRad, srcDepKm,
    rcvLatRad, rcvLonRad, rcvDepKm)

# get the distance and travel time
distRad = slbm.getDistance()
travelTimeSec = slbm.getTravelTime()
```

<https://www.sandia.gov/rstt/>





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https://share-ng.sandia.gov/news/resources/news_releases/fragment_tracking/



https://www.sandia.gov/news/publications/labnews/articles/2020/02-14/building_Sandia_part2.html



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https://www.sandia.gov/news/publications/labnews/articles/2020/02-14/building_Sandia_part2.html



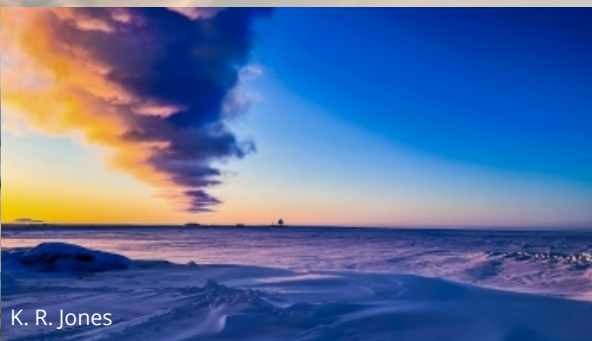
<https://imr.sandia.gov/27imr/>

Interesting places, interesting work

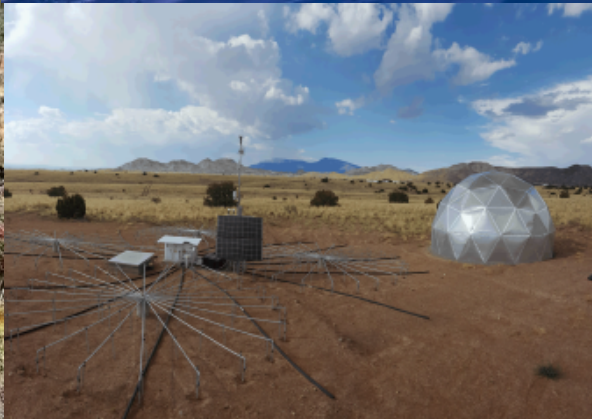
<https://energy.sandia.gov/programs/arctic/>



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K. R. Jones



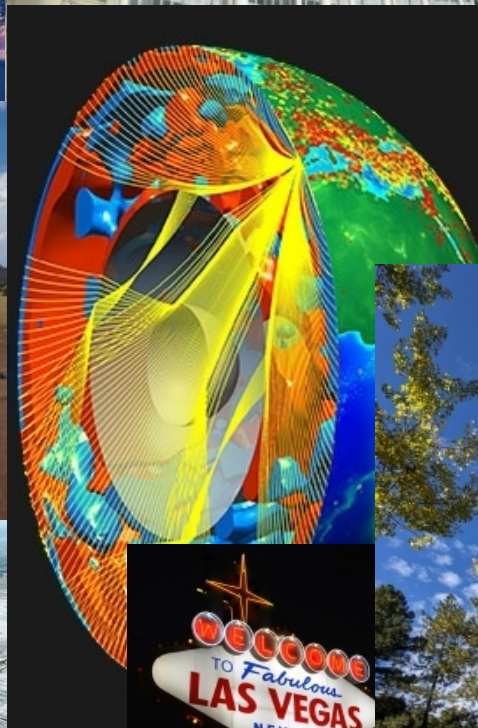
SNL



SNL, PNNL, EMRTC



<https://www.flickr.com/photos/nnsnevada/50639584087/>



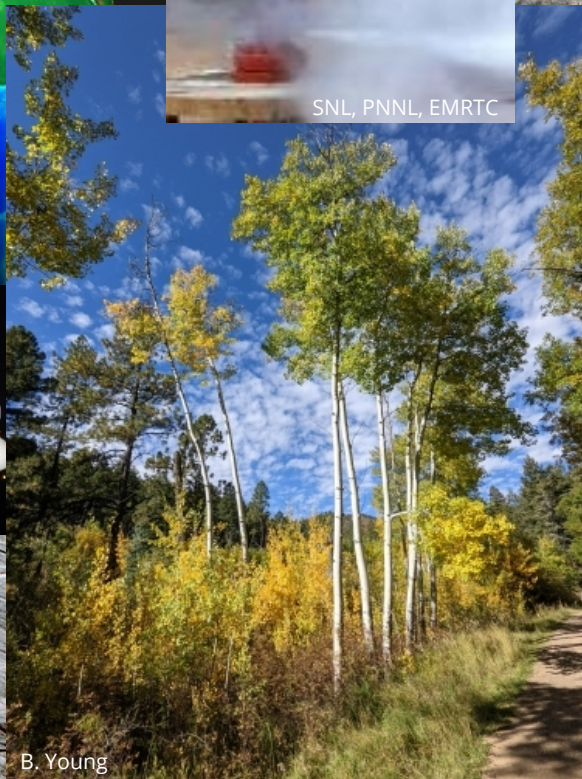
roadarch.com



<https://www.austria.org/international-vienna>



SNL, PNNL, EMRTC



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SNL, PNNL, EMRTC