

Draft Minutes for the 1586th meeting of the Geological Society of Washington
February 8, 2023
Cosmos Club and Video Conference via Zoom

President Kori Newman called the meeting to order at 20:03 EST.

Attendance

There were 26 attendees in person and 28 attendees online.

Minutes

The meeting began with the approval of the minutes from the previous meeting (1585th). The minutes of the 1585th meeting had been posted online and a Minute's Minute was read aloud at the 1586th meeting. No corrections were noted, and the minutes were accepted.

Guests and New Members

Four new members were announced: Margo Regier, National Academy of Sciences; Isabel Baker, U.S. Naval Research Laboratory; Madison Sanders, STR; and Courtney Wagner, Smithsonian Museum of Natural History.

Several guests were introduced: Dennis Askew, Amazon; Allen Lunsford, American University; Eni Awowale, NASA Goddard; Francesco Civilini, NASA Goddard; Wendy Panero, NSF; Neal Sofge, NASA Goddard; Frank Lemoine, Nasa Goddard; Kabeer Hassan, Capital One Financial; Steve Baedke, James Madison University; and Zoe Wai, NASA Goddard.

Announcements

No announcements were made.

Obituaries

No obituaries were announced.

Informal Communication

An informal communication was presented by Tammy Bravo, Earthscope about the recent earthquakes in Turkey. A presentation is available at the Earthscope teachable moments (<https://www.iris.edu/hq/retm>). A question was asked by Michael Purucker, Nasa Goddard.

Formal Program

The formal program commenced at 20:20 EST and consisted of three speakers: Jay Pulli, Raytheon BBN Technologies/Weston Observatory; Jingchuan Wang, University of Maryland; and Danielle Sumy, EarthScope.

Jay Pulli presented "Citizen Seismology: How a \$400 Seismometer Led to a 4600 Station Global Network." Ordinary citizens can participate in science. Seismometers are expensive (\$7,000), however recently developed hardware (for example the Raspberry Shake) can be much cheaper to deploy (\$400 to \$1,200). Beginning with a prototype in 2016, there were 4700 operating seismometers globally in 2022, including in many high schools and in urban areas, such as Washington D.C. The quality of these instruments is comparable to more expensive traditional seismometers and capable of detecting the recent earthquakes in Turkey, blasting from local quarries, and lightning strikes. Using this data, several citizen seismology projects could be attempted such as measuring doppler shift from passing helicopters.

Talk length: 20 minutes.

Questions were asked by: Michael Purucker, Nasa Goddard; Joseph Kanney, NRC; Ved Lekic, University of Maryland; and Neal Sofge, NASA Goddard.

Jingchuan Wang presented “Passive Seismic Monitoring Using Microseismic Noise Sources: Two Case Studies from Alberta, Canada.” Oil and gas production and wastewater disposal contributes to induced seismicity in the Western Canada sedimentary basin. Continuous (passive) seismic monitoring offers a cheaper alternative to active seismic and higher quality data than intermittent sensors. This technique was used to identify a seismic source that coincided with hydraulic fracturing in the Duverney East shale basin. A second case study focused on monitoring a CO₂ injection well experiment designed to test carbon storage and leakage in a shallow (300 m deep) reservoir.

Talk length: 21 minutes.

Questions were asked by: Keith McLaughlin, Leidos; and Francesco Civilini, Nasa Goddard.

Danielle Sumy presented “Geocoding Applications for Social Science to Improve Earthquake Early Warning.” Earthquake early warning, such as the ShakeAlert system for the United States, relies on the velocity differences between P- and S-waves to determine the location and likely magnitude of an earthquake and issue warnings. When presented with a warning, the general public requires knowledge of what actions to take (drop, cover, and hold on), but appropriate actions are not always taken. Videos of the 2018 Alaska earthquake illustrate ideal and less ideal behaviors. Video data of earthquakes sourced from social media and elsewhere can be geocoded using open access resources to derive precise coordinates (within 10 m). These locations can be cross-referenced with USGS “Did you feel it?” data to improve earthquake early warning methods and evaluate public response.

Talk length: 19 minutes.

Questions were asked by: Michael Purucker, Nasa Goddard; Keith McLaughlin, Leidos; Frank Lemoine, Nasa Goddard; Ved Lekic, University of Maryland; and Kori Newman, STR.

President Newman adjourned the meeting at 21:47 EST.

Respectfully submitted,

Graham Lederer