Draft Minutes for the 1589th meeting of the Geological Society of Washington
April 12, 2023
Cosmos Club

President Kori Newman called the meeting to order at 20:02 EDT.

Attendance
There were 35 attendees.

Minutes
The meeting began with the approval of the minutes from the previous meeting (1588th). The minutes of the 1588th meeting had been posted online and a Minute's Minute was read aloud at the 1589th meeting. corrections were noted, and the minutes were accepted.

Guests and New Members
Five new members were announced: Sam Scher, ; Deborah Glickson, Rachel Maxwell, Katherine Peterson; Cynthia Ebinger, Tulane University/State Department.

Six guests were introduced: Darcy McPhee, USGS; Robert Tyler, NASA Goddard; Suzanne Kopich, NASA Goddard; Carsten Oertel, Mitre; Anna Bidgood, Carnegie Institute; and Jenny Riker, USGS.

Announcements
No announcements were made.

Obituaries
No obituaries were read.

Informal Communication
No informal communications were read.

Formal Program

The formal program commenced at 20:10 EDT and consisted of three speakers: Joshua Elliott, DARPA; Thomas Pratt, USGS; and Maria Honeycutt, ATKINS.

Joshua Elliott presented "AI for Critical Minerals Assessment." Secure supplies of critical minerals needed for national and economic security motivated the Defense Advanced Projects Agency (DARPA) to work with the USGS to identify opportunities for Artificial Intelligence and Machine Learning (AI/ML) to enhance mineral resource assessment workflows. The goal was to reduce the time required to conduct an assessment and enable scientists to make their analysis more transparent and reproducible. Georeferencing and digitizing geologic maps was identified as a major time constraint and formed the basis for two machine learning competitions. External performers competed for cash prizes and submitted solutions. The next steps of implementing proofs on concepts were discussed.

Talk length: 20 minutes.
Questions were asked by: Michael Purucker, Nasa Goddard; Cindy Ebinger, Tulane/State Dept; Kevin Marvel, American Astronomical Society; Ved Lekic, UMD; Mong-Han Huang, UMD; Linda Rowan, CRS

Thomas Pratt presented "Rocking and rolling in the east: Using precariously balanced rocks to constrain earthquake ground motions in the eastern U.S." Seismic records and written historical accounts extend

only to a limited period of recent history. Precariously balanced rocks, or boulders that are susceptible to toppling during strong group motion, serve as natural instruments sensitive to seismic events that can be used to extend a seismic hazard record to the Pleistocene. The slenderness angle, or angle between contact points of a rock and its substrate, represents a key variable that can be calculated using three-dimensional photogrammetry. Peak ground velocity and peak ground acceleration are strong predictors of whether a boulder will topple and can be related to earthquake magnitude and distance from the epicenter. By measuring boulders across the Northeast, including a study site at the Peaks of Otter in Virginia, and modeling the ground motion required to topple it, a contour map of maximum earthquake magnitude experienced over the last 15,000 to 20,000 years was generated.

Talk length: 20 minutes.
Questions were asked by: Cynthia Ebinger, Tulane/State Department; Mong-Han Huang, UMD; Ved Lekic, UMD; Madison Sanders, STR; Larry Meinert, USGS (retired); Rosalind Helz, USGS; Dan Doctor, USGS; Graham Lederer, USGS.

Maria Honeycutt presented "Playing the Long Game: The Fits and Starts (Mostly Fits) of Transforming National Flood Policy." Science ambassadors serve an important function in bridging the technical information scientists provide with the complex needs decision-makers have for information. Floodplain management represents an illustrative example, where 100-year floodplain maps are recognized as insufficient for policy-making needs owing to their inherent dependence on retrospective data and underestimation of risk associated with climate change. Simplistic recommendations, such as adding 2 to 3 feet of freeboard to 500-year floodplain maps are not easily implemented and do not utilize current science. From recent experience, there remains a need for maps and decision-support tools that consider the latest science data and projections to help organization such as HUD and FEMA implement informed policy.

Talk length: 22 minutes.
Questions were asked by: Keith Mclaughlin, Leidos; Cynthia Ebinger, Tulane/State Department; Ved Lekic, UMD; Sasha Malu, U.S. House of Representatives; and Dan Doctor, USGS.

President Newman adjourned the meeting at 21:56 EDT.

Respectfully submitted,

Graham Lederer