

Draft Minutes for the 1588th meeting of the Geological Society of Washington

March 22, 2023

Video Conference via Zoom

President Kori Newman called the meeting to order at 20:00 EST.

Attendance

There were 35 attendees online.

Minutes

The meeting began with the approval of the minutes from the previous meeting (1587th). The minutes of the 1587th meeting had been posted online and a Minute's Minute was read aloud at the 1588th meeting. One correction was noted, and the minutes were accepted as amended.

Guests and New Members

No new members were announced.

Four guests were introduced: Dave Sheppard, NASA; Gordan Bjoraker, NASA; Rachel Maxwell, NASA; and Matt Purucker.

Announcements

One announcements were made. Kori Newman asked for volunteers for local science fairs. Michael Purucker invited GSW members to participate in a meeting with Dr. Watkins of NASA.

Obituaries

No obituaries were read.

Informal Communication

One informal communication was shared by Scott Johnson about the UNAVCO and IRIS merging to become the Earthscope Consortium.

Formal Program

The formal program commenced at 20:22 EST and consisted of three speakers: James Head, Brown University; Joseph Kirschvink, Caltech/ELSI; and Devin Smith, Ohio State University.

James Head presented “China’s Lunar and Planetary Exploration Program: Past Accomplishments and the Road Ahead.” Unlike other countries, China’s space program consists of hundreds of individual organizations that operate efficiently. The Chang’e-5 through Chang’e-8 lunar missions were discussed as a prelude to human landing in 2030.

Talk length: 18 minutes.

Questions were asked by: Michael Purucker, NASA; and Cynthia Ebinger, Tulane University.

Joseph Kirschvink presented “The Archean Origin of Magnetofossils.” Magnetite was first recognized as a biomineral in the 1970s by studying molluscan teeth in chitons that have hardness greater than limestone rock. Magnetite crystals have been observed in many different animal cells, including human brain cells. Magnetofossils have characteristic such as being chemically pure, defect-free lattice, and other properties. Recent genomic evidence suggests that magnetite-generating bacteria are among the oldest type of bacteria, likely evolving before the great oxidation event. A chert unit from the Barberton greenstone belt dated at 2.47 Ga contains magnetite with characteristic biological origin and overlaps in age with Martian specimens.

Talk length: 20 minutes.

Questions were asked by: George Helz, University of Maryland; James Head, Brown University; and Courtney Wagner, Smithsonian;

Devin Smith presented, “The Biogeochemistry of Intact, Degraded, and Deforested Irish Blanket Bog.” A blanket bog is a peatland with more organic matter deposition than decomposition. Peatlands store about 30% of global soil carbon despite representing less than 3% of land area. The study catchment in Ireland contains intact, degraded, and afforested portions. After a rainfall event, the intact catchment experiences a prolonged period of flow, compared to the degraded catchment that experiences a shorter pulse of high flow. From upstream to downstream in the Fiddanduff River, bog water influence in the water chemistry changes to bedrock influence, as shown in Ca, Mg concentrations. The afforested catchment was

Talk length: 20 minutes.

Questions were asked by: President Newman

President Newman adjourned the meeting at 21:40 EST.

Respectfully submitted,

Graham Lederer

