Draft Minutes for the 1579th meeting of the Geological Society of Washington
May 11, 2022
John Wesley Powell Auditorium, Cosmos Club, Washington, D.C.

President Larry Meinert called the meeting to order at 20:04 EDT.

Attendance
There were 69 attendees, 19 in-person and 50 on Zoom.

Minutes
The meeting began with the approval of the minutes from the previous meeting (1578th). The minutes of the 1578th meeting had been posted online and a Minute's Minute was read aloud at the 1579th meeting. No corrections were noted, and the minutes were accepted.

New Members and Guests

No new members were introduced.

Six guests were introduced: Caroline Kenney (PVCC), Daisy Dudley (PVCC), Jordan Harris (US Senate), Tiffany Ge (US Senate), Josie Hammon (US Senate) and Celia Merzbacher (SRI).

Announcements
1) Larry Meinert announced that the 2022 GSW Spring Field Trip: "The Proterozoic and Paleozoic Evolution of the Blue Ridge Geologic Province in Northern Virginia" is this Saturday, May 14th. Bill Burton and Steve Schindler will lead this trip and Alan Pitts will provide logistical support. Details can be found on the GSW website.

2) Liz Cottrell announced openings on GSW's Finance Committee. Early career members interested in investments or how the Society manages funds are especially encouraged to email Liz and apply.

Informal Communication
There were no informal communications.

Obituaries
1) Liz Cottrell gave an appreciation of geologist Carter Hearn.

2) Mike Walter gave an appreciation of geochemist Charlie Prewitt.

A moment of silence was observed.

Formal Program
The formal program commenced at 20:18 EDT and consisted of three speakers: Dr. Matt Jones (Department of Paleobiology, Smithsonian National Museum of Natural History), Dr. Munazza Alam (Earth and Planets Laboratory, Carnegie Institution for Science) and Dr. Bryan Killingsworth (United States Geological Survey).

Matt Jones presented "Voyage to the Submarine Agulhas Plateau: A New 95-million-year Geologic History from the Southwest Indian Ocean." Matt transported us to the Agulhas Plateau, an expansive bathymetric high roughly 500 kilometers offshore of South Africa. Here, in the spring of 2022 the International Ocean Discovery Program (IODP) Expedition 392 recovered the first continuous cores from the plateau spanning in age from the Late Cretaceous to modern. He explained that the Plateau's debated origin is hypothesized to be linked to previous continental rifting or large igneous province volcanism. The new cores will provide the first detailed

insights into the tectonic formation of the Agulhas Plateau, as well as major climatic and oceanographic events in the region, which is located at a critical oceanic gateway between the Indian and south Atlantic basins. In addition to an overview of initial scientific findings, Jones outlined how shipboard scientists employed a broad set of geoscience skills to interpret cores in real time. He also described the unique logistical trials of drilling in remote marine settings during a pandemic, along with the future challenges and opportunities that face international initiatives to explore the geologic history of the ocean. *Talk Length: 18'40"*

Questions were asked by: Patrick Taylor (NASA), Carl-Henry Geschwind (Independent Researcher, retired), Callan Bentley (PVCC) and Bill Burton (USGS Emeritus).

Munazza Alam presented "Exotic Exoplanets and How to Find Them." Munazza opened her talk by giving an overview on the status of planet discoveries outside of the Solar System in recent decades. She noted that many of these planets are nothing like our own. As planets pass in front of (transit) their host stars, a small fraction of starlight filters through the planet's atmosphere. Alam shared how she precisely measures the spectrum of this filtered starlight and what it reveals about the makeup of a planet's atmosphere and how the planet formed and evolved. *Talk Length: 19'07"*

Questions were asked by: Celia Merzbacher (SRI) and John Counts (USGS).

Bryan Killingsworth presented "Triple Oxygen Isotopes of Sulfate and the Rise of Oxygen." Bryan explained the multiple lines of geochemical proxies that support the initial rise of Earth's atmospheric O_2 around 2.5 to 2.3 billion years ago. He noted that the causes, precise timing, and tempo have yet to be fully resolved and that perhaps surprisingly, direct records of oxygen itself are rarely used for probing the early rise of O_2. On the other hand, sedimentary sulfates can incorporate oxygen from atmospheric O_2 during sulfide oxidation processes, making them a useful archive for studying Earth's ancient O_2. He said that for further insight on the rise of O_2, the triple oxygen isotope compositions of sulfates from around 2.3 billion years ago from the Kazput Formation, Turee Creek Basin, W. Australia were measured. Killingsworth reported that unique oxygen isotope signatures of Turee Creek sulfates, with $\delta^{18}O$ down to -19.5‰ and $\Delta^{17}O$ down to -0.30‰, suggest their origin in sulfide oxidation in the presence of glacial meltwater and atmospheric O_2 oxygen sources and concluded that the Turee Creek sulfates evaluated in a new oxygen isotope systematics and model framework support estimates of near-modern O_2 and highly elevated bioproductivity at ~2.3 billion years ago. *Talk Length: 20'56"*

Questions were asked by: Mike Ackerson (NMNH), Larry Meinert (Economic Geology & CSM) and Patrick Taylor (NASA).

President Meinert announced the tentative fall schedule and said that the next meeting will be at the Cosmos Club on September 14. He then adjourned the 1579th meeting at 21:39 EDT.

Respectfully submitted,

Beth Doyle