Minutes for the 1615th meeting of the Geological Society of Washington

Carnegie Earth and Planets Laboratory

November 12th, 2025

The 1615th GSW meeting was preceded by a poster session. Approximately ten members and guests from various institutions presented posters showcasing their research.

President Ved Lekić called the meeting to order at 20:04 EST.

Attendance

There were 40 attendees in person and 20 participants online.

Minutes

The meeting began with the reading and approval of the minutes from the previous meeting, the 1614th meeting, which was held on Oct 29th.

Guests and New Members

One guest was announced, visiting from the UMD. One new member was announced: Kevin Wong (Carnegie).

Obituaries

None.

Announcements

President Lekić thanked the nominations committee for their work assembling next year's officers, and announced they are still looking for a meeting secretary and a council member - email Ved if interested for more information on the nomination process.

President Lekić thanked the team at Carnegie Science for hosting the meeting, including Mike Walter, program chair Anne Pommier, Joshua Skrine, Barry Hall, Robert Carter and the EPL facilities team (including Louis, Kelis, and Fatima).

Informal Communications

Mark Tyra (NIST*) shared that a solar flare was underway and suggested attendees look north for possible auroras on their way home.

Formal Program

The formal program commenced at 20:14 EST and consisted of three speakers: Conel Alexander (Carnegie), Matt Clement (JHU), and Zoë Wilbur (Smithsonian). The theme of the formal program was Extraterrestrial Materials.

1st formal talk: Connel Alexander presented, “What Meteorites and Sample Return Missions Have Taught Us about Conditions and Processes in the Early Solar System.” Alexander discussed how meteorites retain records of the conditions and processes that shaped the early Solar System. He outlined

ongoing debates over the origins of insoluble organic matter (IOM) and showed how both bulk and grain-scale analyses reveal complex formation pathways. He emphasized Earth's volatile-element depletion patterns and the competing hypotheses for volatile delivery, including scattering of water-rich material from the outer Solar System versus nebular ingassing. Chondrules and chondrites were highlighted as key contributors to early volatile budgets and to making the early Earth habitable through delivery of H, C, N, and other essential species. *Talk length: 23 minutes.*

Four questions were asked by: John Christoph (GW), Mike Walter (Carnegie), Jonathan Tucker (National Academies), and Ved Lekić (UMD). Topics included: CB chondrites and their implications for early Solar System mixing, whether scattering models and ingassing models are mutually exclusive, spatially dependent isotopic signatures in disk planetesimals, and how to contextualize inner-outer Solar System boundaries in relation to ^{26}Al heterogeneity and chronology.

2nd formal talk: Matt Clement presented, "Long Term Bombardment of the Habitable Zone at Home and Abroad." Clement discussed the formation and dynamical evolution of planets from dust to planetesimals, Moon- and Mars-sized bodies, and eventually giant planets. He highlighted how leftover planetesimals in the modern Solar System provide constraints for calibrating accretion histories and dynamical models. He focused on prolonged bombardment of the inner Solar System, including the late veneer. He discussed the implications for exoplanet systems, including whether late bombardment could help replenish atmospheres that are stripped on planets orbiting M-dwarfs. *Talk length: 24 minutes.*

Four questions were asked by: Mark Czerniak (retired), Mike Walter (Carnegie), Keith McLaughlin ("semi-retired"), and Dan Doctor (USGS*). Topics included mechanisms that impart spin to protoplanetary disks, how pebbles stick together inside the snow line rather than fragmenting, detection limits for low-mass exoplanets, and constraints on dynamical modeling from geochemical or astronomical observations.

3rd formal talk: Zoë Wilbur presented "Exploring Inner Solar System Volatiles with Bennu Samples." Wilbur discussed the mineralogical and chemical evidence for water-bearing phases in Bennu samples returned by OSIRIS-REx. While remote sensing indicated hydrated phyllosilicates, sample analyses revealed additional unexpected water-bearing phases and textures consistent with an evaporative brine sequence. She compared these signatures to terrestrial analogs such as Searles Lake evaporites and discussed how isotopic measurements inform Bennu's aqueous alteration history and volatile evolution. *Talk length: 20 minutes.*

Two questions were asked by: Ved Lekić (UMD) and Mark Tyra (NIST*). Topics included the origin and evolution of evaporative brines on Bennu's parent body.

**Furloughed members (mere hours before the shutdown ended) attended and participated in a personal capacity, not as representatives of their institutions.*

President Lekić adjourned the meeting at 21:58 EST.

Submitted by Jessie Bersson (Smithsonian), GSW meeting secretary