Draft Minutes for the 1594th meeting of the Geological Society of Washington
November 8th, 2023
Cosmos Club

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

Attendance
There were 55 attendees.

Minutes
The meeting began with the approval of the minutes from the previous meeting (1593rd). The minutes of the 1593rd meeting had been posted online and a Minute's Minute was read aloud at the 1594th meeting.

Guests and New Members
No new members were announced. Fifteen guests were introduced: Elisa Alonso, USGS; Dalton McCaffery, USGS; John Ryder, USGS; Max Frenzel (HZDR); Laura Buarque Andrade (HZDR); Carola Emkou (U. Kansas); Claudia Carabajal, NASA; Ross Salerno, USGS; Joshua Martin, GSA; Damien Gaul DOE; Allen Lunsford, NASA; Kumiko Matsui, Smithsonian; Robert Whitten; Carina Poulin, NASA; Pierre-Phillipe Racine, Michelin.

Announcements
One announcement was made about the reinvigoration of the Association for Women Geoscientists - DMV Chapter. Please contact Bev Walker.

Obituaries
No obituaries were read.

Informal Communication
Dan Doctor read an informal communication about the GSW fall field trip to the Richmond area, including the North Anna Battlefield Park and other geological points of interest.

Formal Program
The formal program commenced at 20:16 EDT and consisted of three speakers: Jason Dworkin (NASA); Jack Connerney (NASA); and Anna Behrensmeyer (Smithsonian Institution).

Jason Dworkin presented, "OSIRIS-REx delivered a sample of asteroid Bennu to Earth." NASA's New Frontiers mission OSIRIS-REx was selected in May 2011 and launched in September 2016. It arrived at near-Earth asteroid Bennu in December 2018 and spent two years studying the small asteroid before collecting a sample in October 2020. OSIRIS-REx returned the sample to Earth in September 2023 to begin decades of scientific analysis of this organic-rich ancient fragment of the early solar system. The presentation described the mission implementation, what it found, what the sample has started to tell us, and what the plans are for the future.

Talk length: 20 minutes.

Questions were asked by: Bill Burton, USGS; Mong-Han Huang, UMD; Victor Zabielski, NVCC; Mike Purucker, NASA; John Christoph, Smithsonian; Keith McLaughlin, Leidos; Mark Tyra, NIST; Karen Leonard, Georgia Tech; John Rapetski, USGS.

Jack Connerney presented "The Juno Magnetic Field Investigation: Dust from Mars, the Zodiacal Light, and a Comet Discovered in Flight." The Juno Magnetic Field Investigation carries dedicated non-

magnetic star cameras with the boom-mounted magnetic sensors to provide accurate attitude information at the sensor. One of our star cameras was programmed to look for luminous objects traveling across the field of view that were not among those in the on-board star catalog. This functionality serendipitously allowed the Juno spacecraft traveling from Earth to Jupiter to record the impact of interplanetary dust particles throughout its journey to Jupiter. This provided the first measurement of the dust population responsible for the Zodiacal light and identified a surprising source of these particles. We also recorded a singular burst of interplanetary dust impacts attributed to passage through the extended tail of a comet. That comet has now been identified as the recently discovered Jupiter family comet P/2019 S3 Pan-STARRS (SPKID 1003641), affording a unique opportunity to characterize the dynamical motion of the dust tail. Dust impacting the spacecraft orbits under the influence of radiation pressure forces and gravity (ratio b = ~0.05), escaping the comet nucleus ~2 years prior to impact and ~1 year post comet perihelion. Impacting dust, with an implied radius of ~10 microns, escaped the comet nucleus with a radial velocity of ~120 ms-1 , appropriate to a comet with a radius of a few km.

Talk length: 22 minutes.
Questions were asked by: Mike Purucker, NASA; Mike Ackerson, Smithsonian; Kori Newman, STR; John Christoph, Smithsonian;

Anna K. Behrensmeyer presented “What is Taphonomy, and why does it matter?” Nearly all the organisms that have ever lived were recycled into new life rather than fossilized. How do paleontologists turn limited samples into broad understanding of evolution and ecology over time? Taphonomy was originally defined as the study of the “transition from the biosphere to the lithosphere”, with the larger goal of using knowledge of fossil preservation to reconstruct plant and animal communities through geological time. Since its beginnings in the 1940’s, the field has generated a wealth of new understanding about taphonomic processes and biases in both modern ecosystems and fossil-bearing strata through 3.5+ billion years of life on our planet and is contributing to the search for life on Mars. In human evolution, taphonomy provides evidence and perspectives on how and where our ancestors lived and died, their changing ecological roles, and our recent emergence as a global-scale ecosystem engineer.

Talk length: 20 minutes.
Questions were asked by: Bill Burton, USGS; Graham Lederer, USGS; Mike Purucker, NASA.

President Newman adjourned the meeting at 19:45 EDT.

Respectfully submitted,

Graham Lederer