**Astronomy Open Night, Friday, November 3, 2017**

ESS 001; 7:30PM
For more information: [http://www.astro.sunysv.edu/openight/opennite.html](http://www.astro.sunysv.edu/openight/opennite.html)

Donald Willcox

**“Saturn in 13 Years: the Cassini-Huygens Mission”**

On September 15, 2017, NASA operations staff terminated the NASA/ESA Cassini-Huygens mission to study the rings, atmosphere, and moons of Saturn after the Cassini spacecraft exhausted its fuel supplies. During its 13 year mission, Cassini-Huygens revealed the potential for life on Saturn's moon Enceladus with striking imagery of ice plumes breaking out from the moon's surface and studied the atmosphere and surface of Saturn's moon Titan. The Cassini probe has also returned detailed imagery that showed Saturn's unique atmospheric dynamics, including its characteristic hexagonal storm at the northern pole and the evolution of storms within the atmosphere at lower latitudes. In this talk, we will look back on these and other exciting scientific observations from the Cassini-Huygens mission and the feats of engineering that enabled these discoveries.

**Living World Open Night, Friday, November 10, 2017**

ESS 001; 7:30PM

Dr. Jeroen Smaers

**“How the Brain Evolved: New Insights from Dinosaurs, Birds, Mammals and Humans”**

Elucidating the evolution of the brain is arguably one of the most challenging endeavors in biology. The central importance of the brain to evolutionary biology is incontrovertible. As the substrate of all behavior, the brain is closely linked to an animal's ability to adapt to changing environments. Because very few neurobiological features fossilize, hereby limiting direct observations of changes in deep time, the main strategy employed by evolutionary neurobiologists is to deduce evolutionary changes from comparisons across species. This approach has provided remarkable new insights into the evolutionary history of the brain. In this lecture we will make a journey through time, discussing how the brain has changed over more than 150 million years of evolution. We will start our journey with the brains of dinosaurs, then discuss how the brain has changed in birds and mammals, and end with the evolution of the brain in primates and in our own species, Homo sapiens.

Jeroen B. Smaers is an assistant professor at the Department of Anthropology, Stony Brook University. He holds graduate degrees in Psychology, Archaeology, Social Anthropology, and Biological Anthropology, and obtained his PhD in Biological Anthropology at the University of Cambridge in 2010. His research focuses on unravelling large scale patterns of evolution in vertebrates, with a principal focus on the evolution of the brain. He has published several data sets detailing newly mapped brain areas in primates and developed new statistical approaches to study large scale patterns of evolution. He has received funding from the Natural Environment Research Council (UK), the Leakey Foundation, and the Wenner-Gren foundation.
Greg Henkes

“Stable isotopes, their Intermolecular Distributions, and why it Matters”

In high school chemistry you (hopefully) learned what an isotope is. Isotope geochemistry is the science of studying natural variations in isotopes of various elements to understand process, mass balance, and the physical chemistry of our present world, as well as past ones. Exciting developments in stable isotope geochemistry are underway that allows scientists to peer into the isotope structure of molecules in gases, minerals, and organic compounds. These developments have been primarily driven by improvements in mass spectrometry — the tool of choice for isotope geochemists. Currently, the most studied Earth material using these improved instruments are carbonate minerals, which precipitate in a variety of interesting environments, including the surface of the ocean, in oil and gas reservoirs, and in volcanoes. Much like an astronomer showing you the interesting objects they’ve seen in there, or their colleagues, telescopes, I will summarize some of the most recent important discoveries made about carbonate rocks and their intermolecular isotope geochemistry.

Gregory Henkes is an Assistant Professor in the Department of Geosciences at Stony Brook. His research interests are the light stable isotope (e.g., H, C, N, O, S) geochemistry of sedimentary rocks and organic materials. This work is largely focused on making accurate and highly precise isotope ratio measurements in his gas source mass spectrometry laboratory, with an eye towards novel and technically challenging isotope systems. These observations are employed to answer a number of questions in Earth science, but mainly paleoclimatology and paleoenvironmental reconstruction, and marine biogeochemistry.

Directions to SUNY Stony Brook and ESS Building
☞ from exit 62 of the Long Island Expressway (LIE, I-495) follow Nicolls Road (Route 97) north for nine miles. Pass the South and Main entrances to the University.
☞ Enter the North entrance which will be on your left.
☞ at the top of the small hill, turn right on Circle Road.
☞ Proceed about 1 mile.
☞ Turn left onto Campus Drive and then immediately turn left again onto John S. Toll Drive.
☞ Proceed about 50 yards then turn right into the large paved parking lot.
☞ The Earth and Space Sciences building is the large concrete building at the northeast end of the parking lot.

Map of campus is on the web at: http://www.stonybrook.edu/sb/map/

TEACHER IN SERVICE CREDITS
NYS teachers who wish to receive CTLE credit for any of these lectures must register here: https://goo.gl/forms/pfdNLyevMT08VfpoJQ. You must register for each lecture you attend and sign-in at the lecture. The Graduate School will send a CTLE certificate about six weeks after each lecture.