September 24. 2021

A decade of science and exploration with the Lunar Reconnaissance Orbiter: Setting the stage for the next phase of robotic and human exploration of the Moon

Prof. Timothy Glotch

This talk will focus on the decade of science discoveries and exploration of the Moon made possible by the Lunar Reconnaissance Orbiter (LRO). LRO has enabled fundamentally new discoveries about the lunar surface environment and geologic history while providing the necessary high resolution data to begin planning for the return of robotic landers and rovers, and eventually humans to the Moon. This talk will cover some of the major discoveries made using data provided by LRO and look forward to the next generation of robotic landers through the Commercial Lunar Payload Services (CLPS) program and human exploration planned as part of the Artemis program.

Timothy Glotch is a Professor of Geosciences at Stony Brook University. He uses remote sensing techniques, statistical methods and laboratory spectroscopy to investigate planetary surface processes. Professor Glotch is the Principal Investigator (PI) of the Remote, In Situ, and Synchrotron Studies for Science and Exploration 2 (RISE2) node of NASA's Solar System Exploration Research Virtual Institute. The RISE2 team is composed of over 50 researchers and students utilizing state of the art laboratory, theory, and field techniques to further NASA's science and human exploration goals at the Moon, near Earth asteroids, and the Moons of Mars. In addition to his role as PI of RISE2, Professor Glotch is also a Co-Investigator on the Lunar Reconnaissance Orbiter Diviner Lunar Radiometer instrument and a Participating Scientist on the OSIRIS-REx asteroid sample return mission.

Friday, October 22. 2021

Ever-changing Earth and earthquake triggering

Prof. Lianxing Wen

Various geological hazards are known to be triggered by the internal stress change of the Earth, although the actual physical mechanisms are less clear and remain an area of active research. In this talk, I will present a map of Earth's stress change over time caused by various forces exerted on the Earth: ground water variation near the Earth's surface, atmospheric pressure change,

ocean water tide and nontidal variation, solid lunisolar tide, variation of Earth's rotation pole, and postglacial rebound of the Earth after the removal of last glacial ices. I will also discuss an example of stress triggering of earthquakes in one of the largest gas reservoirs in the world.

Professor Wen is a theoretical and observational seismologist and geodynamicist. His research is directed toward understanding the structure, dynamics, composition and evolution of the Earth and other planets. He uses seismic waves to probe the internal structure of the Earth and its change with time, combines seismic and mineral physics data to constrain the composition of the mantle, and develops geodynamical models of how Earth's internal processes govern the Earth's continental drift, surface uplift, surface large igneous province, geochemistry, intra-plate deformation and volcanism.

Professor Wen is a recipient of the James B. Macelwane Medal from the American Geophysical Union (AGU) and a fellow of the Union. Macelwane Medal honors "significant contributions to the geophysical sciences by a young scientist of outstanding ability" and AGU fellowship is a designation conferred upon not more than 0.1% of all AGU members in any given year.