

Toward a new crater chronology for the Galilean satellites

Simone Marchi
Southwest Research Institute, Boulder, CO

Crater chronologies provide the primary means to constrain absolute ages of planetary surfaces in absence of samples. This tool has been originally developed for the Moon—thanks to the combination of radiometric ages from lunar rocks and detailed geological information (e.g. crater spatial densities)—and it has been subsequently extrapolated to other objects in the solar system, including the Galilean satellites. Proposed chronologies for the Galilean satellites significantly differ in approach and implications, thus hampering our ability to fully interpret available geological data. The advent of new missions, such as ESA/JUICE and NASA/Europa Clipper, has revived the interest in the crater chronologies produced so far. In this talk, I will review current crater chronologies for the Galilean satellites, and in particular, I will highlight their pros and cons. I will also discuss new lines of research that may lead to improved crater chronologies for the outer solar system.