

EGU23 Media Tip Sheet: Space science across our solar system

From the sun to the moon and beyond, scientists are making great strides in understanding distant worlds. Such efforts include missions in which probes to sample celestial entities, as well as modeling done on Earth to illuminate how these places behave, and how we can create better tools to study them.

Prediction of even and odd sunspot cycles: implications for cycles 25 and 26

Sunspots have a cycle that can be numbered. Even and odd numbers indirectly indicate different solar phenomena like coronal mass ejections and solar flares. Such events affect Earth's geomagnetic field, and can cause problems with satellite communications and electrical grids. Predicting sunspot cycle numbers — particularly the end of the current cycle and what might happen during the next — could help protect against such disruptions.

Mon, 24 April 09:25–09:35 CEST

Session [ST1.1](#)

Solar Orbiter: The Sun up close

The European Space Agency and NASA Solar Orbiter mission performed its first close encounters with the sun in March 2022 (0.32 astronomical units) and October 2022 (0.29 astronomical units). These close passes enable scientists to study the sun's corona in great detail and better understand the source of solar winds. Scientists will provide a status update of the mission, and summarize early science results.

Tue, 25 April 10:45–10:55 CEST

Session [ST1.3](#)

The resonant tidal evolution of the Earth-Moon distance

Around 4.5 million years ago, the Moon formed close to Earth. Since then, tidal interactions have been causing the Moon to slowly drift away. Geological data provide information about lunar orbital history back about 3.2 billion years, but a complete reconstruction of the lunar orbit has been missing, until now.

Tue, 25 April 14:25–14:35 CEST

Session [OS4.2](#)

The Age of Saturn's Rings Constrained by the Meteoroid Flux Into the System

In 2019, scientists announced that Saturn's rings were young — on the order of 100 million years — as opposed to as ancient as our 4.5 billion year old solar system. This finding rests on observations made by the Cassini spacecraft. Three crucial tests of Cassini data are required to

confirm the young-ring hypothesis, and the findings of the third test — the mass flux of non-icy meteoroids falling onto the rings— will be presented in this talk.

Wed, 26 April 11:20–11:22 CEST

Session [PS6.2](#)

Botany on The Moon

Can people grow plants on the moon? A diverse group of scientists aims to find out, proposing a suite of instruments to investigate this question. The potential mission would include two single-species plant growth modules and two environmental monitoring instruments that will help address questions about, for instance, plant behavior in the moon's reduced gravity.

Thu, 27 April 14:45–14:55 CEST

Session [GI3.1](#)

Ice Transit and Performance Analysis for Cryorobotic Subglacial Access Missions on Earth and Europa

Icy moons of our outer solar system could contain extraterrestrial life. A conclusive survey to detect living organisms will require the ability to penetrate and traverse the icy sheath that shroud these moons. Scientists are working toward developing a robust, autonomous cryobot for such a mission, and will present models that can help estimate the efficiency of such probes.

Thu, 27 April 16:15–18:00 CEST (Onsite Poster)

Session [PS5.4](#)