

Institut für Geophysik
Geophysikalisches Kolloquium
Wintersemester 2024/2025

Montag, 20.01.2025

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Magma ocean dynamics and evolution on Earth and Moon

The dynamics and evolution of magma oceans that once existed on the Moon and Earth are of great interest in planetary science. During a later stage of Earth's accretion, around 4.5 billion years ago, a collision with a Mars-sized body resulted in almost complete melting of the Earth, forming a deep, global terrestrial magma ocean. This impact is also believed to have led to the formation of the Moon, which then contained its own magma ocean.

Understanding the solidification and the degassing behavior of the magma oceans on Earth and Moon are essential for determining their chemical structure, as well as their subsequent evolution and the composition of their primordial atmospheres. Volatiles, delivered during planetary accretion and initially stored within a magma ocean, are released into the surrounding environment as the magma ocean cools and solidifies. The amount and composition of these outgassed volatiles are significantly affected by the convective state of the magma ocean.

In this talk, I will present preliminary findings on the solidification and outgassing efficiency of magma oceans on Earth and Moon. Through numerical modeling, we aim to gain insights into the early stages of planetary formation and the origins of primordial atmospheres.

Das Kolloquium findet um 16:00 Uhr im Seminarraum GEO 315, Corrensstr. 24, 48149 Münster statt. Alle an dem Thema Interessierten sind hierzu herzlich eingeladen.

Die Dozenten des Instituts für Geophysik