

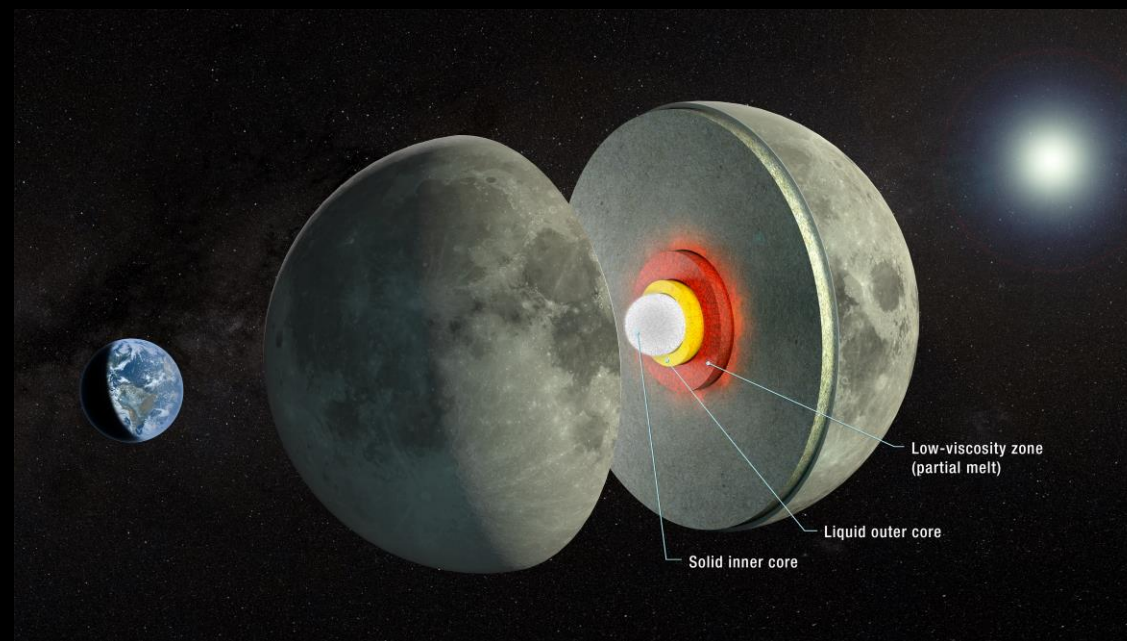
A layer of softer material inside the Moon: Results from an analysis of GRAIL and LRO data

New research from a team of Goddard scientists, using data from the Gravity Recovery and Interior Laboratory (GRAIL) and the Lunar Reconnaissance Orbiter (LRO), has provided fresh insights into the Moon's interior, indicating the existence of a softer layer on top of the core.

This finding is significant because maintaining such a soft layer requires an active heat source beneath the Moon's surface. These results offer an opportunity to study in more detail the formation and evolution of the Moon.

The Earth and Sun create tidal forces on the Moon that alter its shape and gravity over time. These changes offer valuable clues about the Moon's internal structure: a hot Moon responds differently from a cold, stiff Moon. By studying how the Moon responds to these forces at different timescales, scientists can obtain an even more detailed understanding of what's happening beneath its surface.

Until now, scientists had limited insights into the Moon's response to tides over monthly and yearly cycles and most modeling of the Moon's interior could not answer the question of whether a softer, partially molten layer exists on top of the lunar core.



*The likely interior structure of the Moon, highlighting the softer layer (low-viscosity zone).
Image credit: T. Britt Griswold (NASA/GSFC) and the authors.*