

Cooling sequence of terrestrial planets after giant impact: Implications to the formation of oceans on early Venus.

*Keiko Hamano¹, Hidenori Genda¹

1. Earth-Life Science Institute (ELSI), Tokyo Institute of Technology

Venus is the closet planet to Earth. It also has a similar size and bulk composition to those of Earth. According to N-body simulations, early Venus could have acquired some amount of water comparable to early Earth, but the present Venus lacks water. Whether it once had oceans, and how and when it lost its water have been long-standing questions in planetary science.

Theoretical studies on planet formation suggest that Earth-sized planets, Earth and Venus, should form as a result of giant impacts between protoplanets, and probably start their lives in a globally molten state. In this talk, we will discuss about possible evolutionary paths of early Venus, based on recent progress of theoretical modeling on cooling sequence after giant impact. Also, important parameters for the formation of oceans on early Venus and relevant issues will be addressed.