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巨大氷衛星内部の鉱物脱水作用がもたらす分化史の転換点
Turning point in differentiation history of giant icy satellites induced by dehydration of pristine hydrous rock

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Jovian moon Ganymede’s interior appears to be clearly differentiated and has a metallic core, while Callisto has incompletely differentiated interior in spite of the similarity in their sizes. These bodies possibly contain a significant proportion of hydrated silicate like CI chondrite because of their H_2O-rich bulk composition. Here we propose that dehydration of pristine hydrous rock-metal-mixed core would trigger complete differentiation in the larger moon during the thermal evolution over the geological time, because of drastic change of rock rheology through the dehydration of rock. This may also explain the geological records on Ganymede showing the occurrence of global extension after the period of heavy bombardment.