

# Accepted Manuscript

Two-phase convection in Ganymede's high-pressure ice layer -  
Implications for its geological evolution

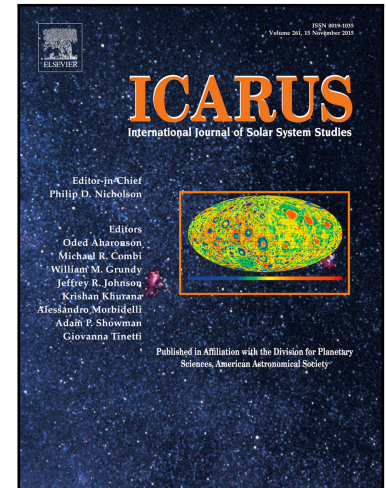
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**Highlights**

- Melting of ice plays an important role in the dynamics of Ganymede's HP ice layer.
- For Rayleigh numbers up to  $1e10$ , water is generated at the interface with silicates.
- Temperate layer with small amount of water is established at the ocean interface.
- Water is advected through the layer by convection and then extracted into the ocean.
- HP ice layer permeability decreases in time with increasing layer thickness.

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