

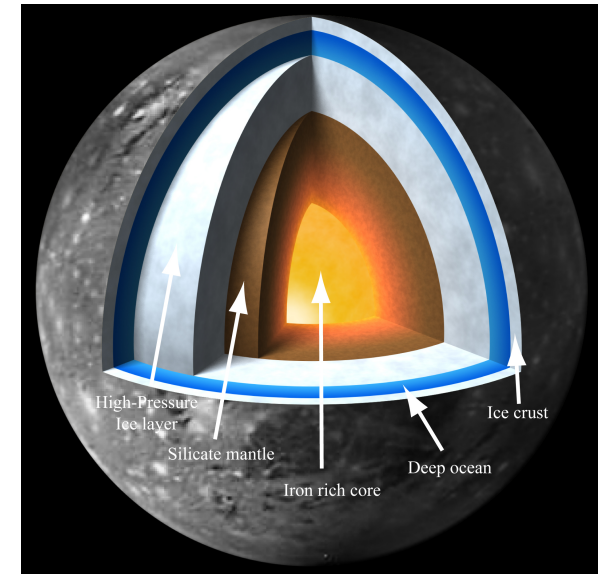
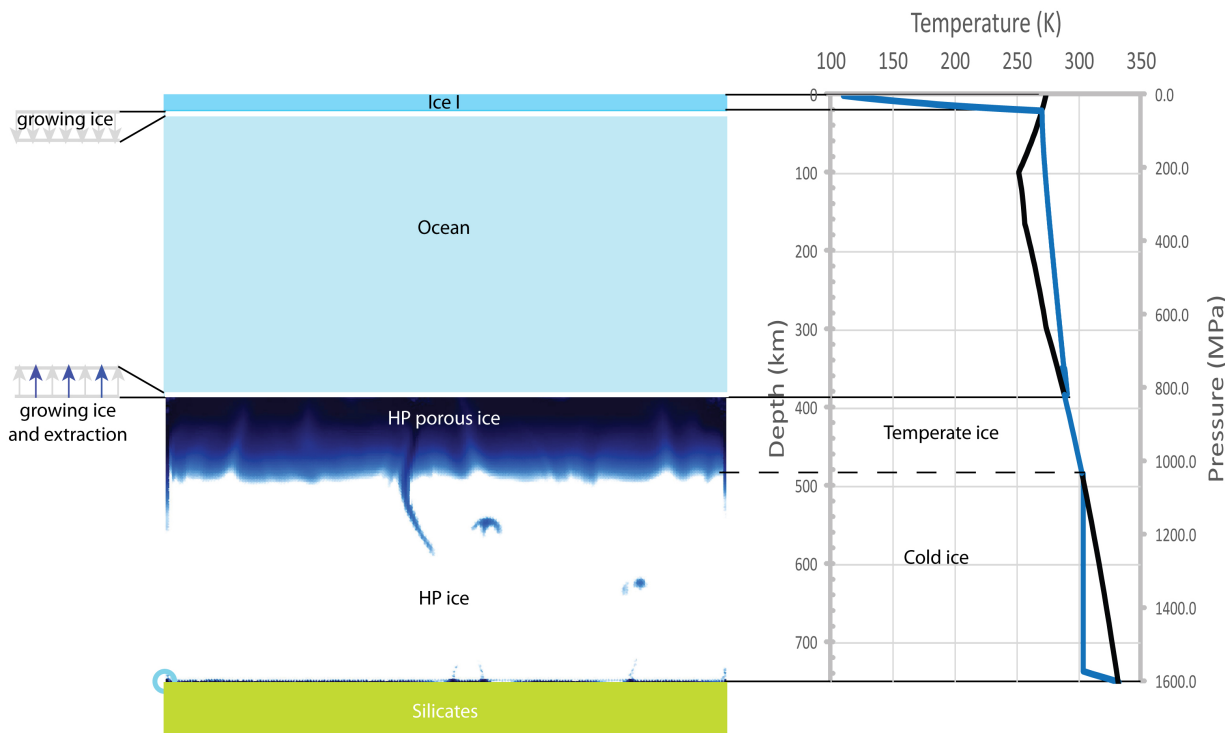
# Two-phase convection in Ganymede's high-pressure ice layer - Implications for its geological evolution

K. Kalousová<sup>(1,2)</sup> and C. Sotin<sup>(2)</sup>

e-mail: kalous@karel.troja.mff.cuni.cz

<sup>(1)</sup> Department of Geophysics, Charles University, Prague, Czech Republic,

<sup>(2)</sup> Jet Propulsion Laboratory-California Institute of Technology, Pasadena, USA.



- no direct contact between silicates and water
- is water/material exchange between the silicates and the ocean possible ?
- two-phase mixture numerical model of the HP ice layer

- Results:**
1. silicate/HP ice interface: generation of meltwater → facilitates upwelling of convective plumes
  2. cold convective interior ( $T < T_{\text{melt}}$ ): meltwater transported by convection → freezing
  3. top temperate lid ( $T = T_{\text{melt}}$ ): generation of meltwater → extraction into the ocean

**Meltwater transport through HP ice layer is not supported by our results.**