

Accepted Manuscript

Nonlinear tidal dissipation in the subsurface oceans of Enceladus and other icy satellites

Hamish C.F.C. Hay, Isamu Matsuyama

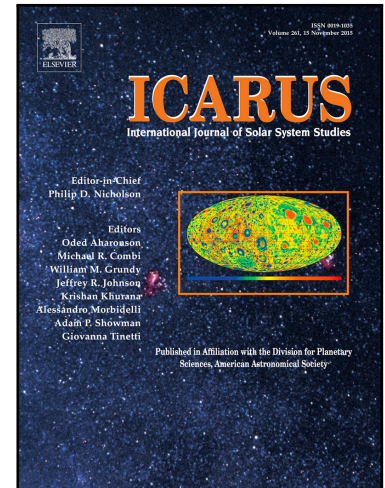
PII: S0019-1035(18)30447-0
DOI: <https://doi.org/10.1016/j.icarus.2018.09.019>
Reference: YICAR 13025

To appear in: *Icarus*

Received date: 6 July 2018
Revised date: 11 September 2018
Accepted date: 17 September 2018

Please cite this article as: Hamish C.F.C. Hay, Isamu Matsuyama, Nonlinear tidal dissipation in the subsurface oceans of Enceladus and other icy satellites, *Icarus* (2018), doi: <https://doi.org/10.1016/j.icarus.2018.09.019>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



1 Highlights

- 2 • Oceanic tidal heating from eccentricity forcing is strongly suppressed on Enceladus and other small
3 satellites by the ice shell's mechanical forcing.
- 4 • For large satellites, oceanic tidal heating from eccentricity forcing is enhanced due to the ice shell's
5 self-gravity.
- 6 • An ice shell increases oceanic obliquity tide heating on most satellites, except Triton, due to self-
7 gravity and the flow properties of Rossby-Haurwitz waves.
- 8 • Non-linear tidal heating in barotropic ocean tides is still found to be small compared to radiogenic
9 decay, except for Triton.
- 10 • Dynamic tidal forcing drives a time-varying pressure excess at the ocean surface due to the restrictive
11 nature of the ice shell.

Download English Version:

<https://daneshyari.com/en/article/10156429>

Download Persian Version:

<https://daneshyari.com/article/10156429>

[Daneshyari.com](https://daneshyari.com)