

# Accepted Manuscript

Laboratory measurements of nitrogen dissolution in Titan lake fluids

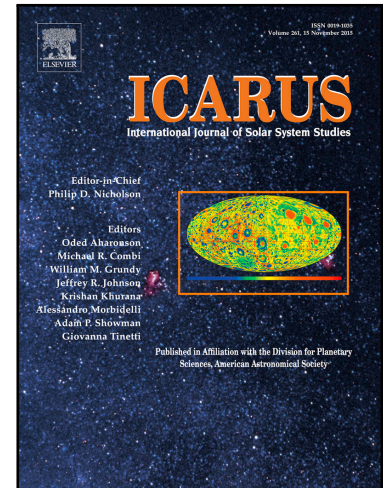
Michael J. Malaska , Robert Hodyss , Jonathan I. Lunine ,  
Alex G. Hayes , Jason D. Hofgartner , Gigja Hollyday ,  
Ralph D. Lorenz

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**Highlights**

- Nitrogen dissolution in liquid methane and ethane was measured
- Nitrogen dissolution increases at lower temperature, higher methane concentration, and higher pressure.
- Heating Titan lake fluids will release gaseous nitrogen.
- The amount of nitrogen absorbed will affect density gradients and could strengthen lake turnover.
- Compositional mixing of two fluids can lead to gaseous nitrogen release.

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