

Summary of Ocean Worlds Meeting



MAY 21-23, 2018

HOUSTON, TEXAS

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Ocean Worlds Series

- Third in a series of meetings
 - First meeting focused on state of technology
 - Second meeting: specific focus on bridging the scientific and technological exploration of Earth's ocean to oceans beyond Earth
- Stated goal of building a cross-fertilization of ideas and expertise by soliciting contributions from both the Ocean Sciences and Planetary Sciences communities

General Information

- Held May 21st – 23rd 2018
- ~ 55 attendees
- 34 oral sessions
 - Many of the full talks are on YouTube though the LPI channel
<https://www.youtube.com/channel/UChgE23-ld15qQ5vgabS31hQ>
- Each session also included one hour of discussion

Theme

- The focus was on the potential for silicate-water interactions to occur on Ocean Worlds beyond Earth
 - Multi-disciplinary and inter-disciplinary perspective.
- Broad water-rock interaction themes:
 - Geophysics
 - Geology
 - Geochemistry
 - Biology.

Geophysics

- What does modeling of circulation of hydrothermal systems on Earth tell us about heat/fluid/mineral transfer? A. Fisher
- How will ocean circulations influence the ocean-rock topography and the ocean-ice shell topography? J. Goodman

Geology

- Do the mechanics of rocks allow for fracturing in a manner similar to the Earth at the seafloor? P. Byrne
- Can we combine machine learning and data from AUV's to isolate parameters by which we can use less data to identify hydrothermal vents? S. White

Geochemistry

- What are the explicit kinetics of the formation of abiotic methane in hydrothermal systems?
J. Seewald
- Is ultramafic serpentinization possible? T. Mccollom

Biology

- What are the habitats (depths, Ph) that are capable of supporting life on Earth and how is that applicable? B. Orcutt
- Does there current exist enough technological development to study the optimal locations of potential life on the ocean worlds?

Summary

- Small technical meeting
- Productive conversations and discussion about current knowledge and where to go next
- Some concerns about number of meetings
 - Four meetings on similar topics within 6 months
- Incorporation of more oceanographers for developing upcoming missions
- Topic for Ocean Worlds Four is TBD

Unrelated but related

- Next month Oct. 9-11th have the Europa Deep Dive 2 meeting focused on the chemical composition of the crust

Europa Deep Dive 2:
Composition

October 9-11, 2018
Houston, Texas

