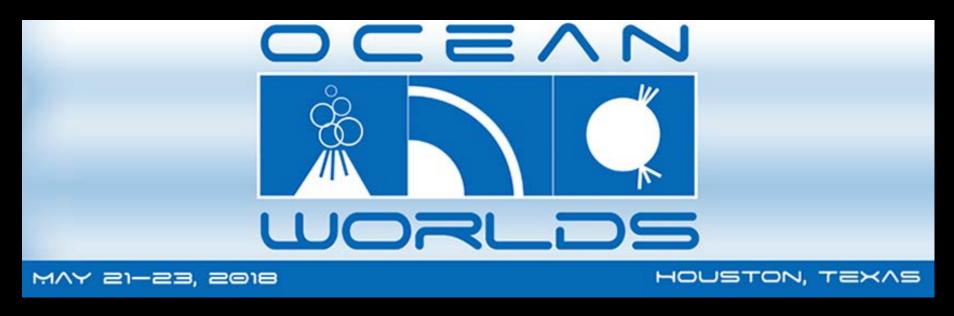
# Summary of Ocean Worlds Meeting



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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 21<sup>st</sup> 23<sup>rd</sup> 2018
- ~ 55 attendees
- 34 oral sessions
  - Many of the full talks are on YouTube though the LPI channel

https://www.youtube.com/channel/UChgE23-Id15qQ5vgabS31hQ

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 serpentization possible? T.
   Mcollom

## 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. 9-11<sup>th</sup> have the Europa Deep Dive 2 meeting focused on the chemical composition of the crust

