

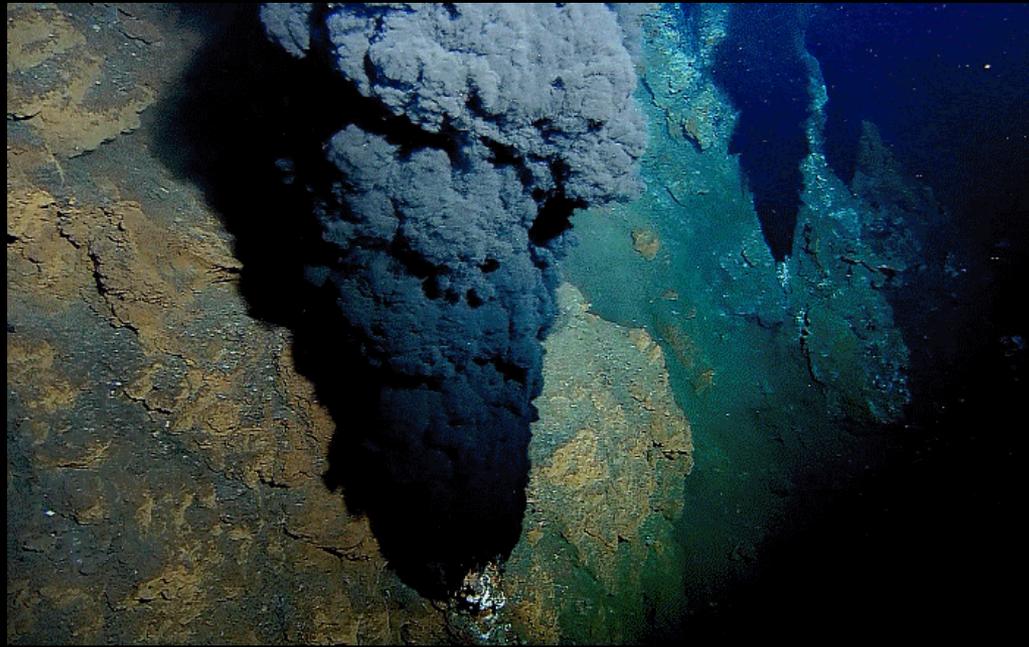
Exploration of Ocean Worlds

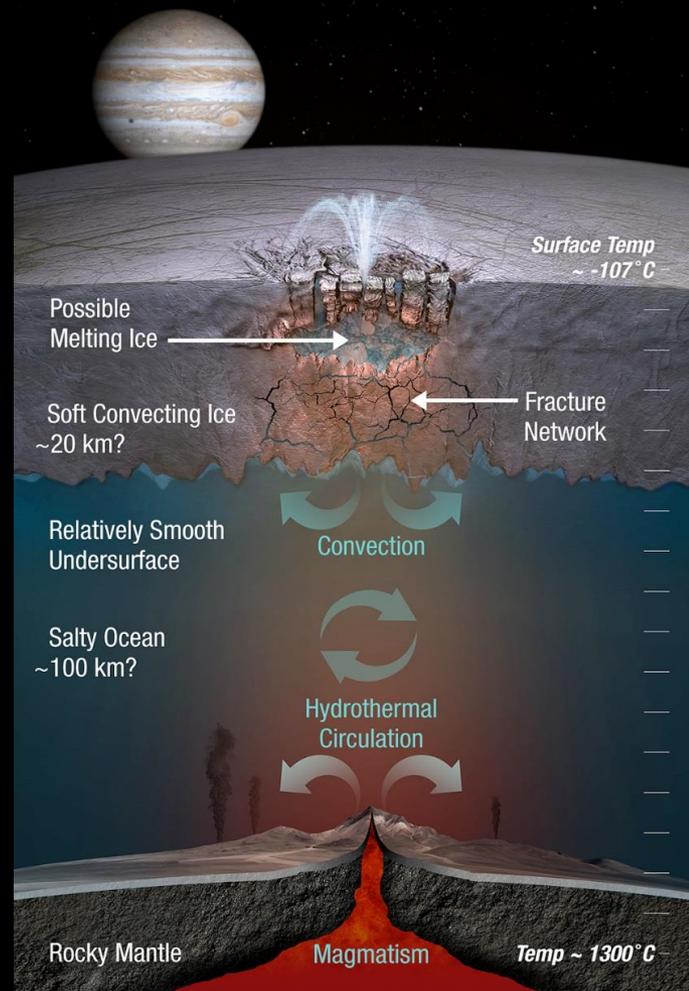
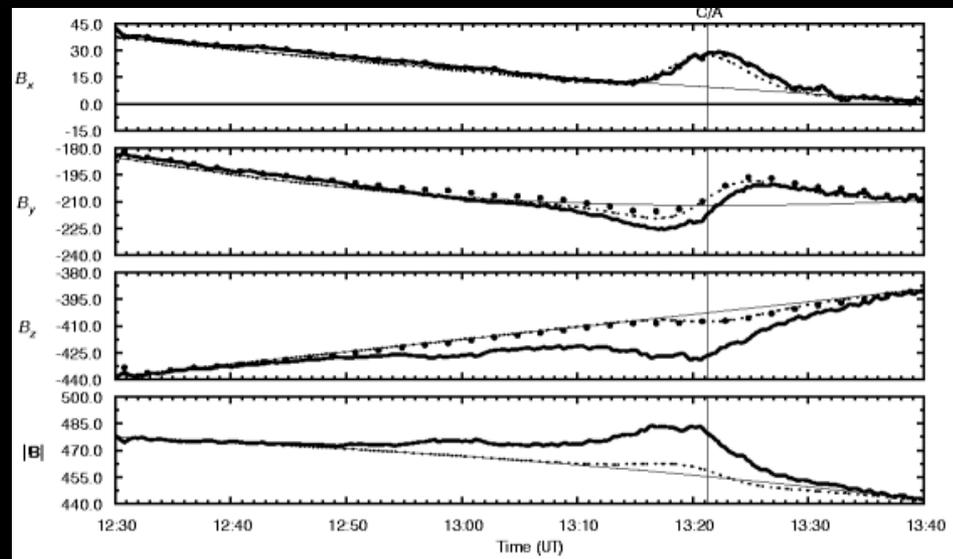
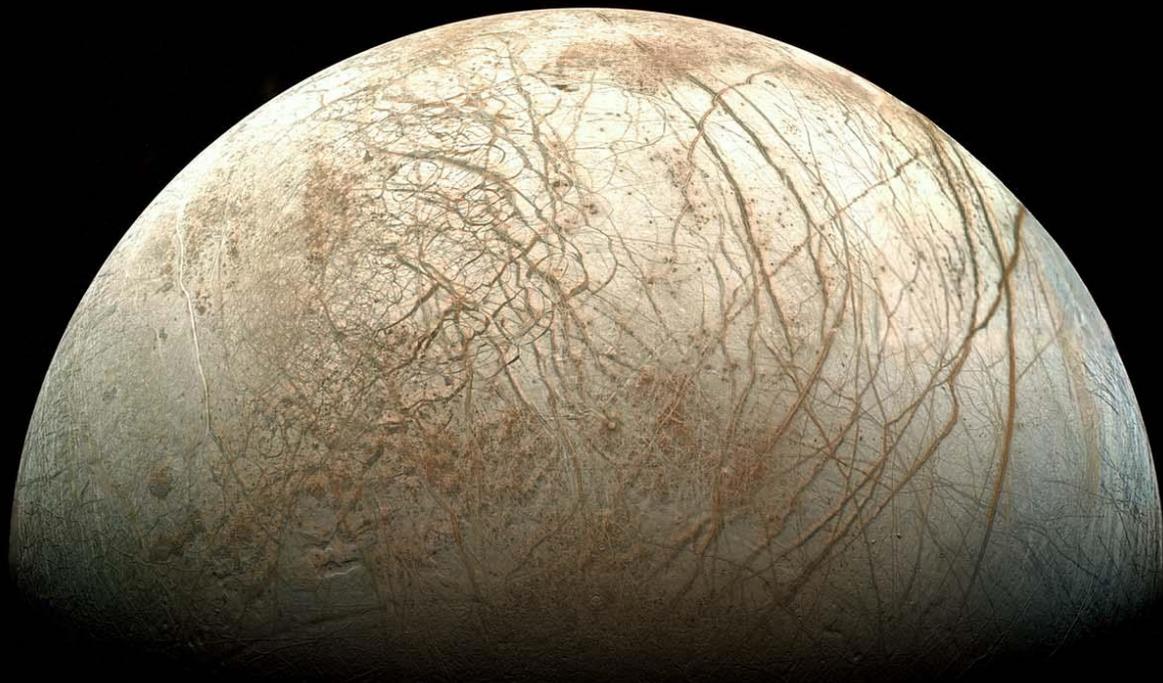


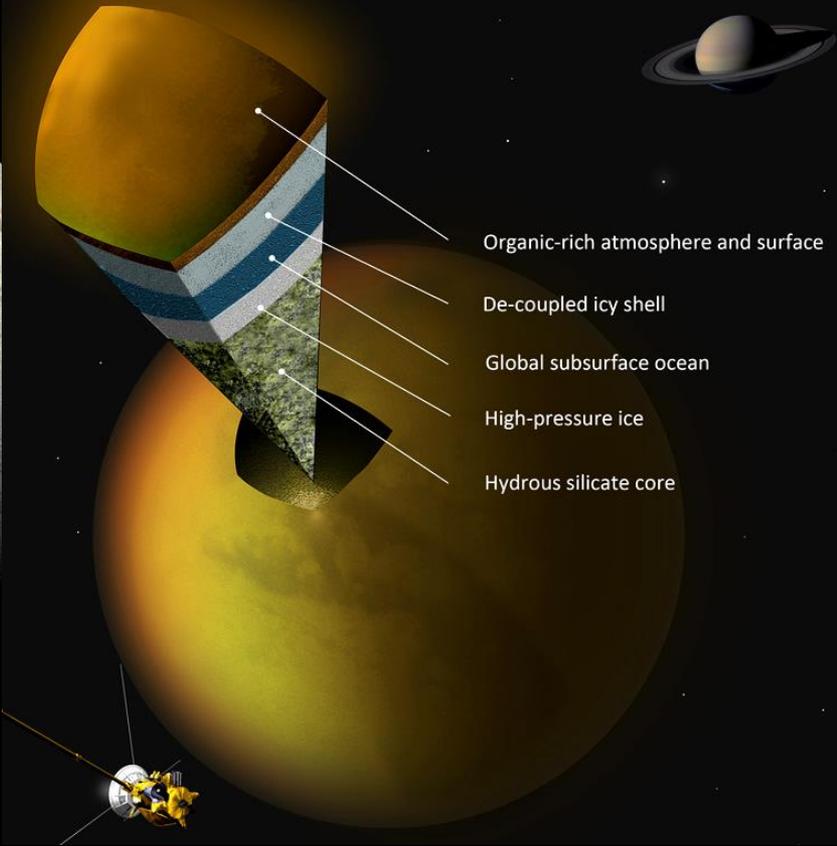
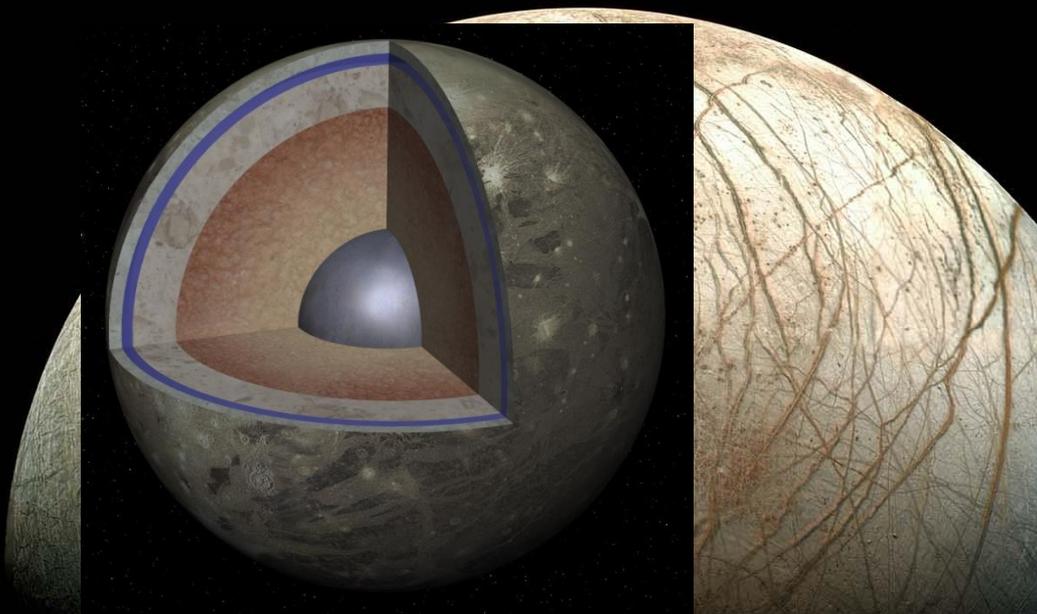
Dr. Curt Niebur
Lead Program Scientist, Outer Planets and Ocean Worlds
NASA Headquarters
September 12, 2016











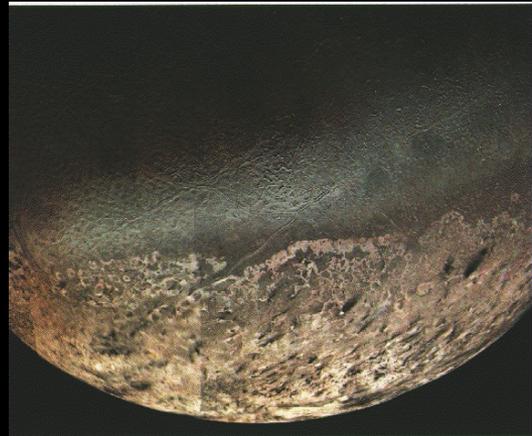
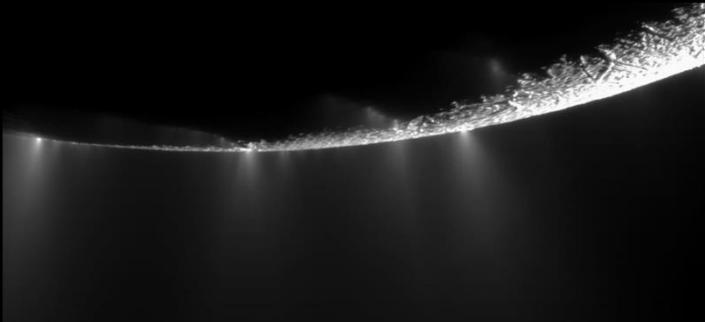
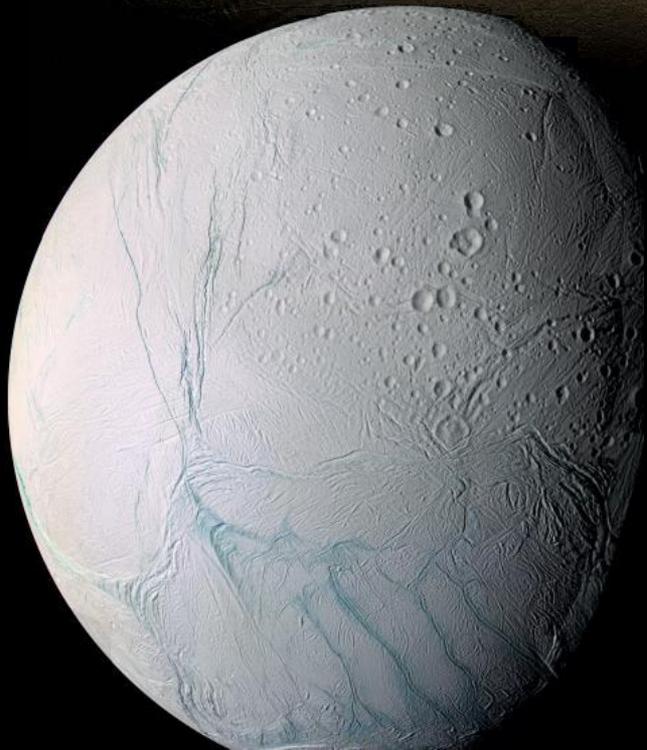
Organic-rich atmosphere and surface

De-coupled icy shell

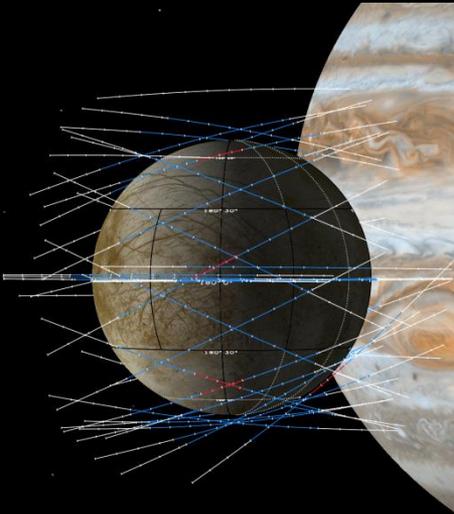
Global subsurface ocean

High-pressure ice

Hydrous silicate core



We need a new paradigm for exploration



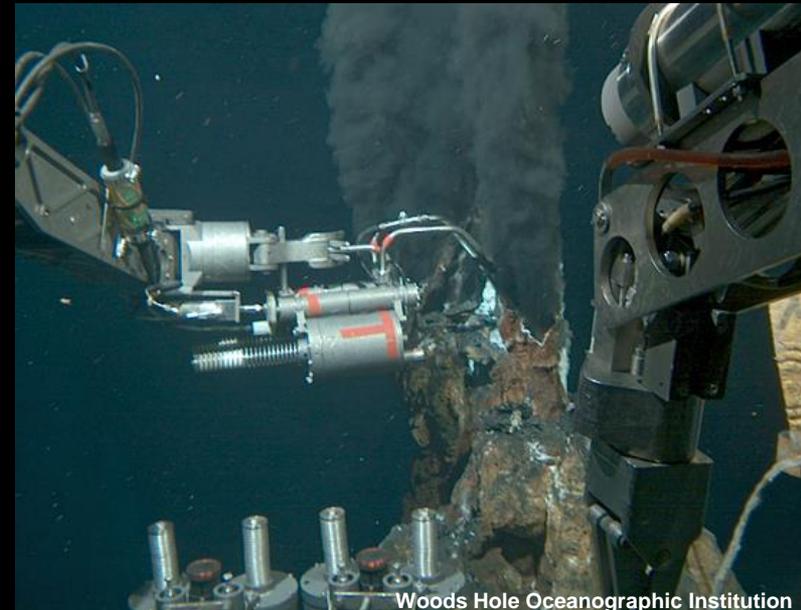
Regional-Global coverage of Europa achieved through 45 flybys



Photo by Mike Lucibella, ARTEMIS Team



Kevin Hand, BRUIE Team



Woods Hole Oceanographic Institution