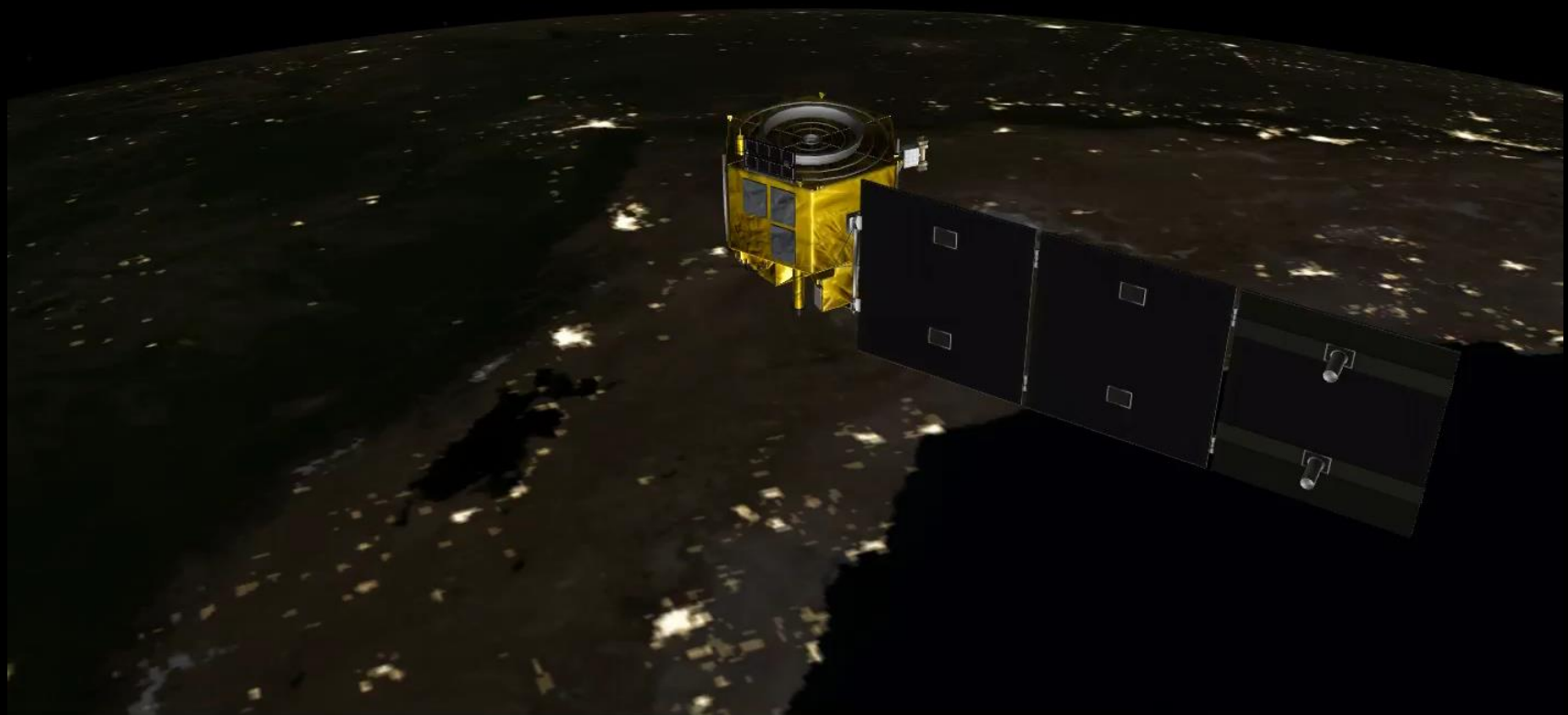


Why we need a curious AI for space exploration

Steve Chien
Jet Propulsion Laboratory
California Institute of Technology

ai.jpl.nasa.gov ml.jpl.nasa.gov dus.jpl.nasa.gov

To date AI in Space has focused on increasing the efficiency of specific types of exploration



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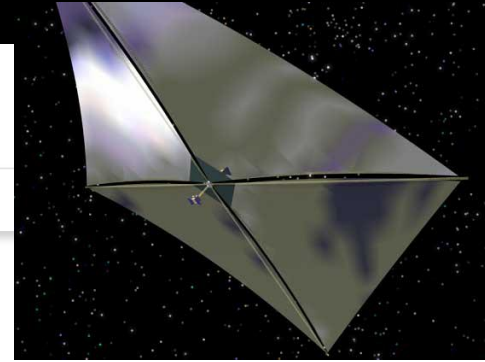
Manam Volcano viewed from EO-1 on June 28th 2010  ALAMY

<https://www.wired.com/2017/03/say-farewell-eo-1-nasas-smartest-satellite/>



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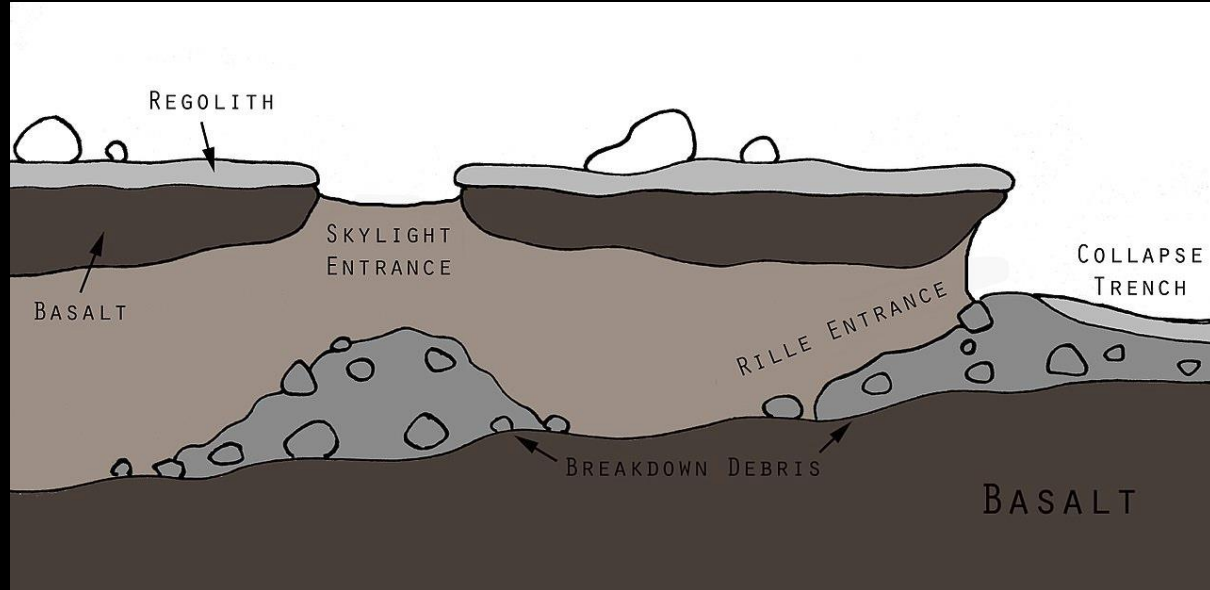
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How NASA's Search for ET Relies on Advanced AI

Jet Propulsion Laboratory's artificial intelligence chief describes the "ultimate" test for AI in space exploration

By Larry Greenemeier on December 28, 2017

Cave Exploration



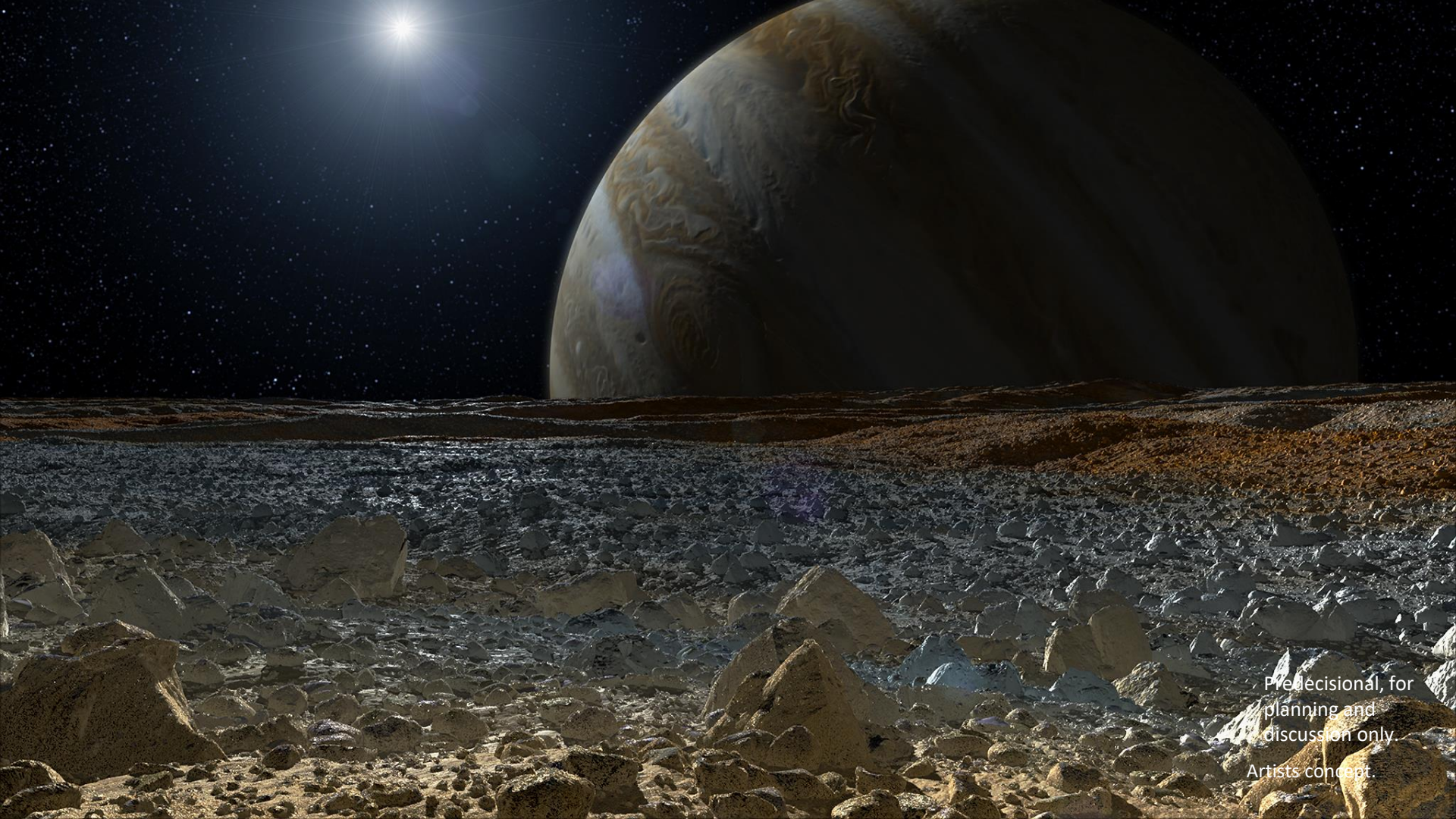
Artists concept.

Predecisional, for
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time: 17.000



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Visualization.

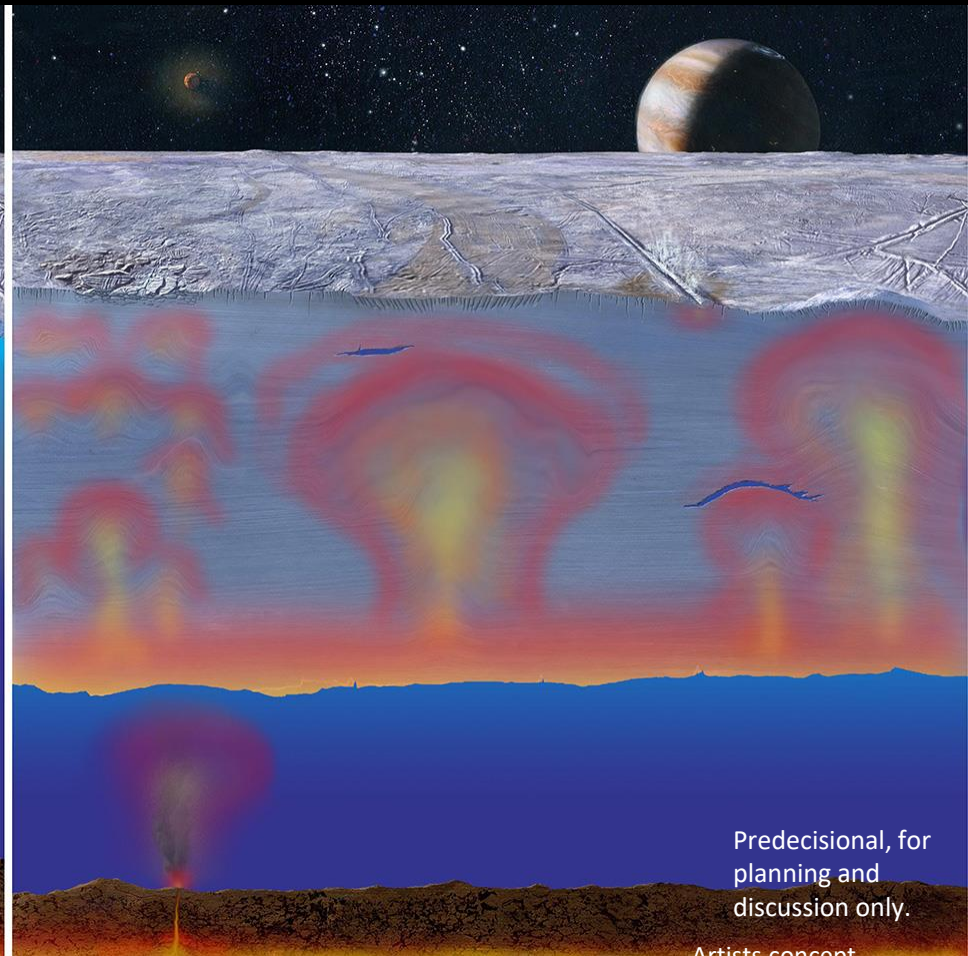
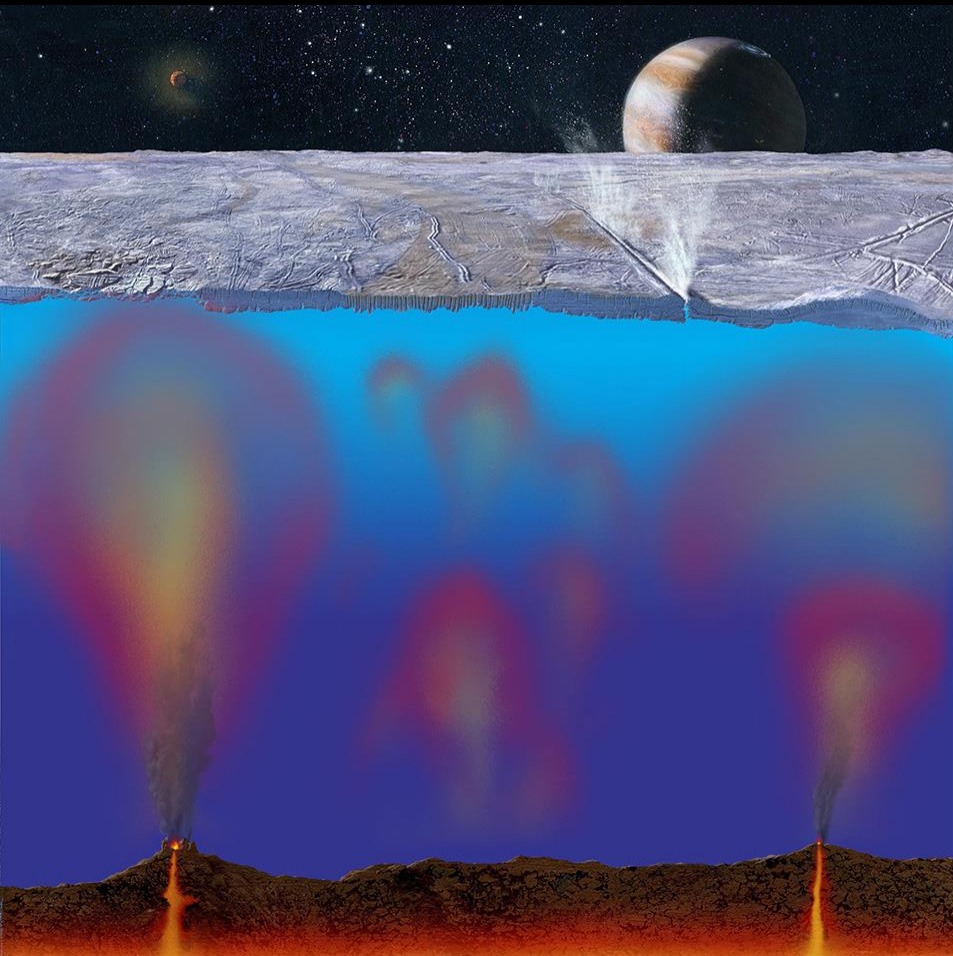


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Artists concept.



Predecisional, for
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discussion only.

Artists concept.



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discussion only.
Artists concept.



Predecisional, for
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Ocean Worlds
submersible
concept.

Deployment May 2017 (KISS)

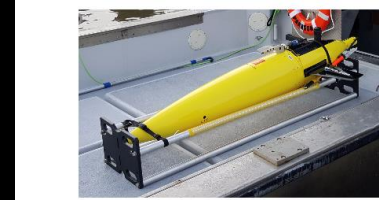
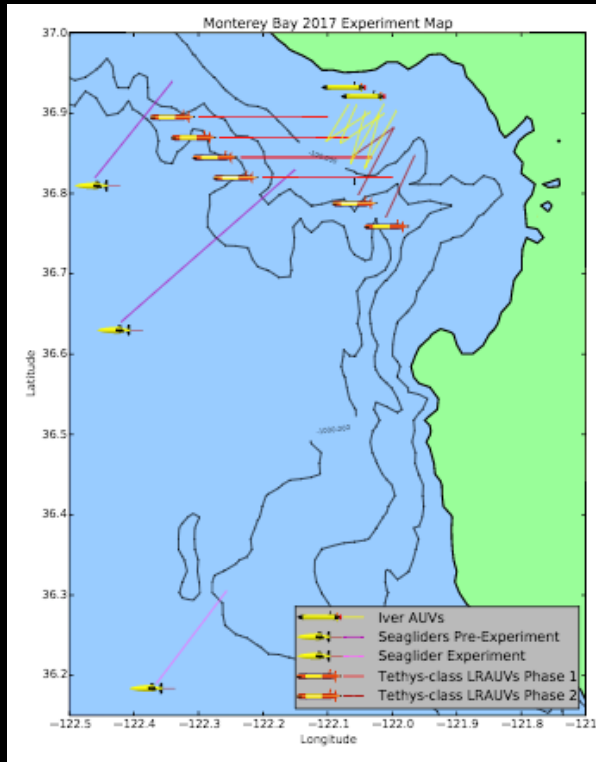


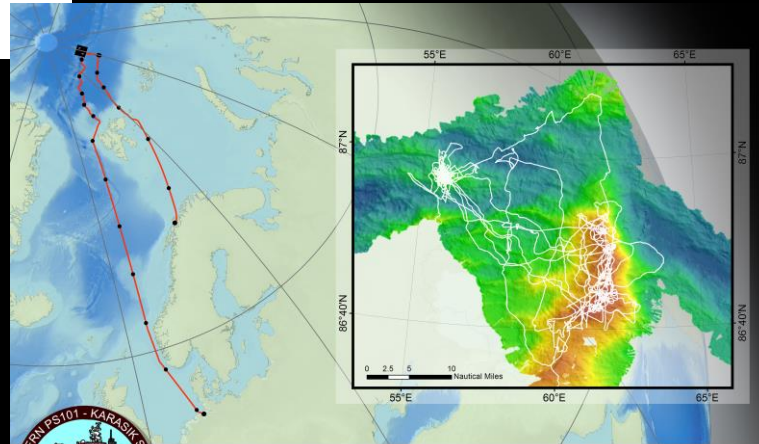
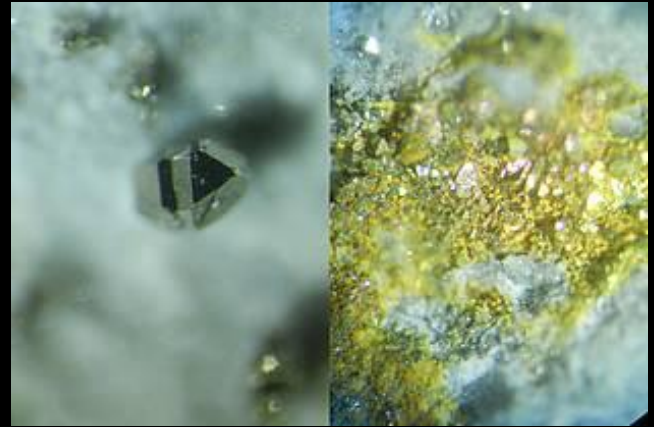
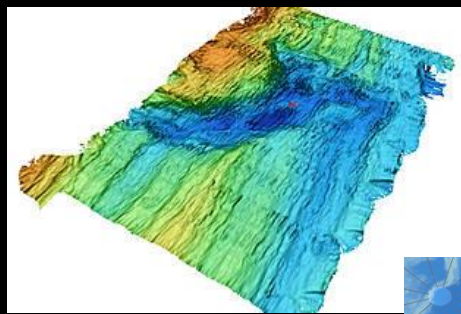
Figure 7: Kongsberg Underwater Technology, Inc. Seaglider onboard the R/V Paragon



Figure 6: OceanServer Technology, Inc. Iver2 AUVs onboard the R/V Shana Rae



From the Polarstern Cruise, Karasik Massif 85 N



PS101 **Tromsø - Bremerhaven**
09.09.2016 - 23.10.2016

AWI ALFRED-WEGENER-INSTITUT
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HeliService

SENCKENBERG
world of biodiversity

NASA **EPFL** **KITEC**

REEDEREI F. LARIZ **FIELAX** **Universität Bremen**

Images courtesy of A. Boetjius/AWI, C. German/WHOI, K. Hand/JPL

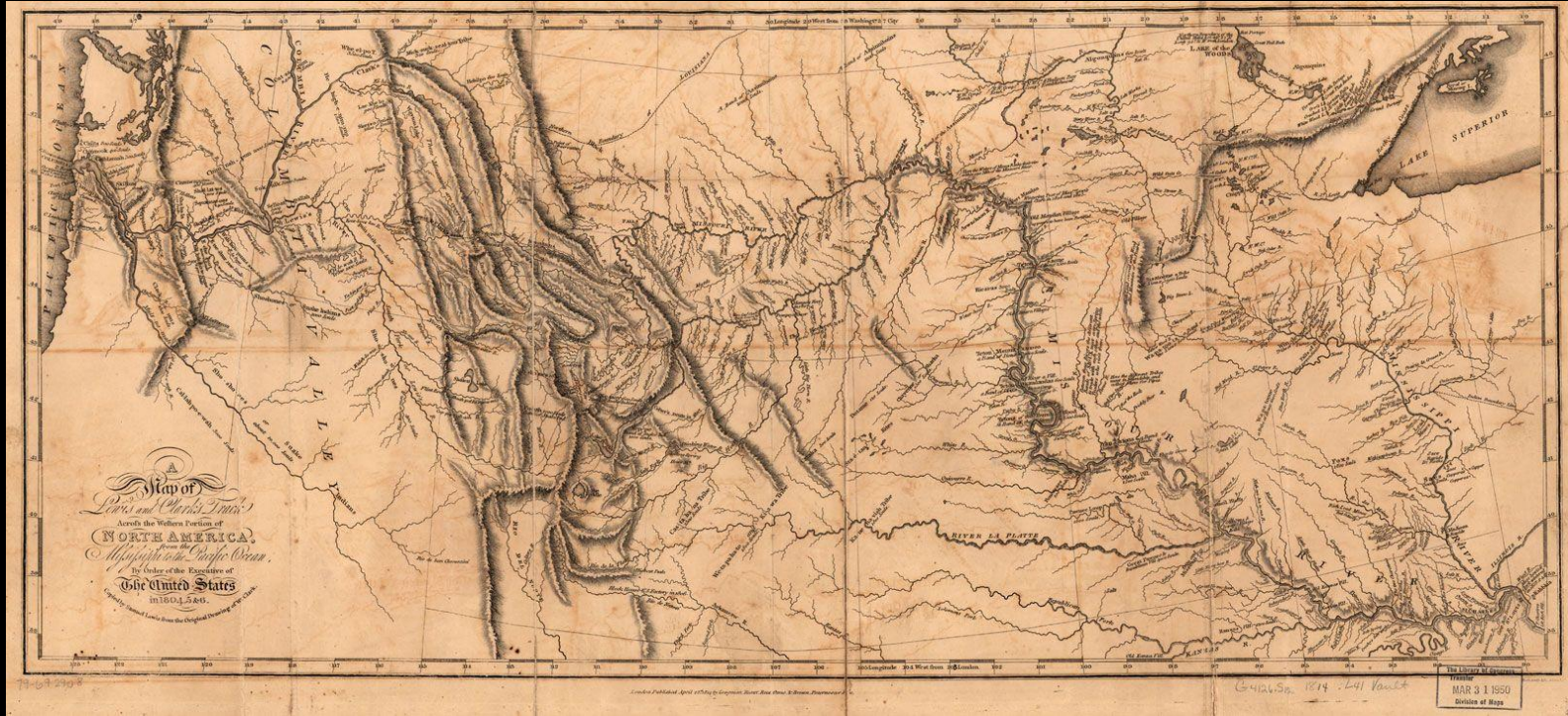
Why we need curiosity?

Curiosity is a quality related to inquisitive thinking such as exploration, investigation, and learning -- Wikipedia

Filling in the blanks versus investigation of the *true unknown*.

Lewis and Clark 1804-1806

Pacific
Ocean



8000 miles Over 2 years

Modern Day St. Louis, MO

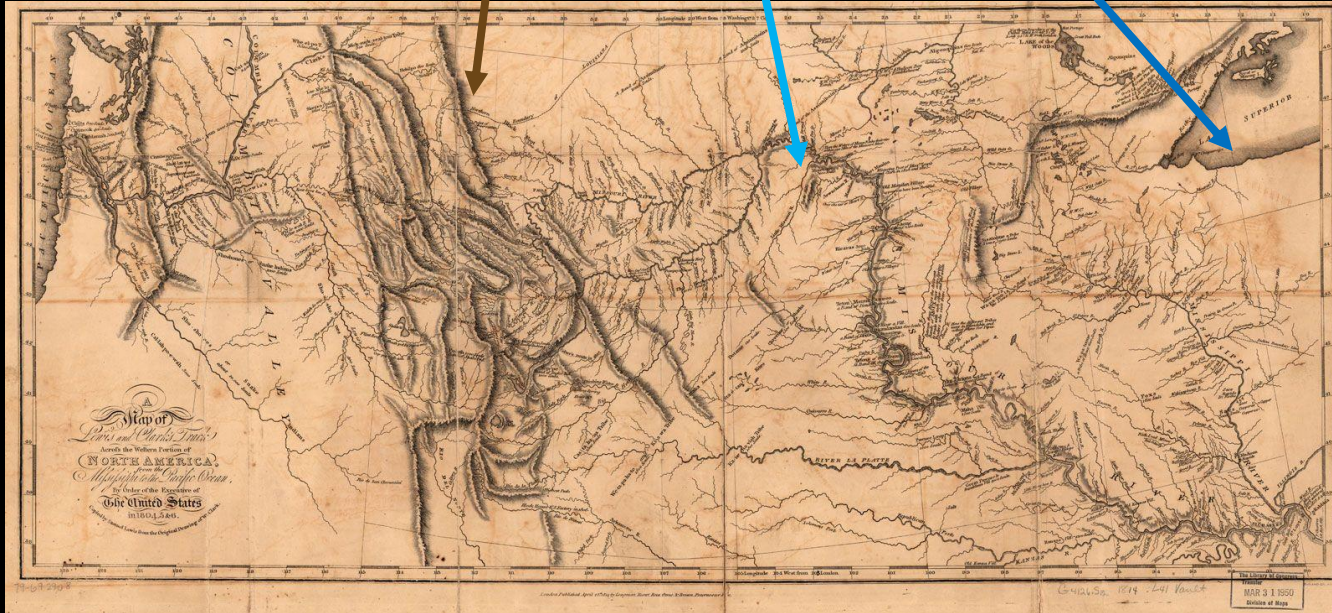
Lewis and Clark 1804-1806

mountains

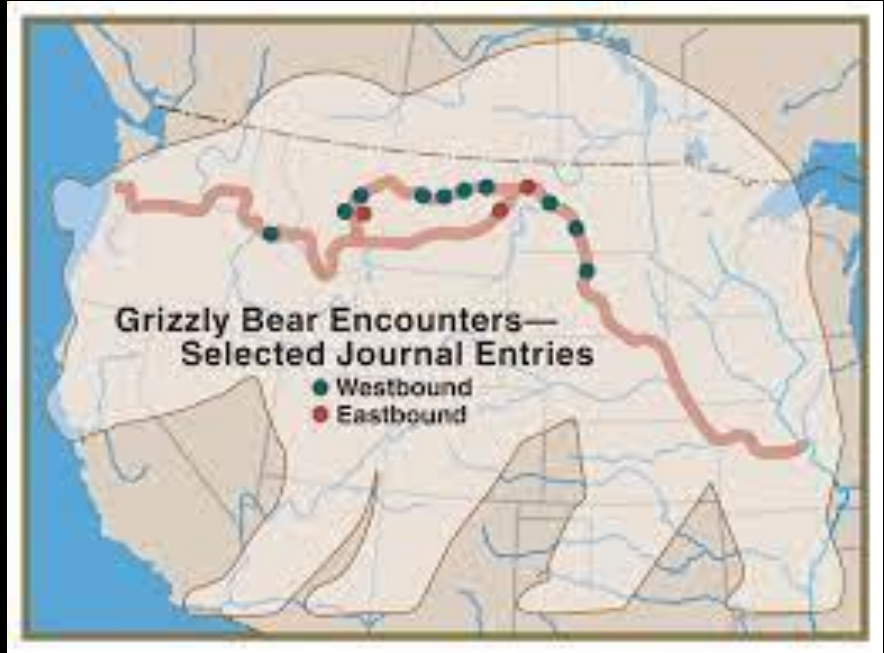
rivers

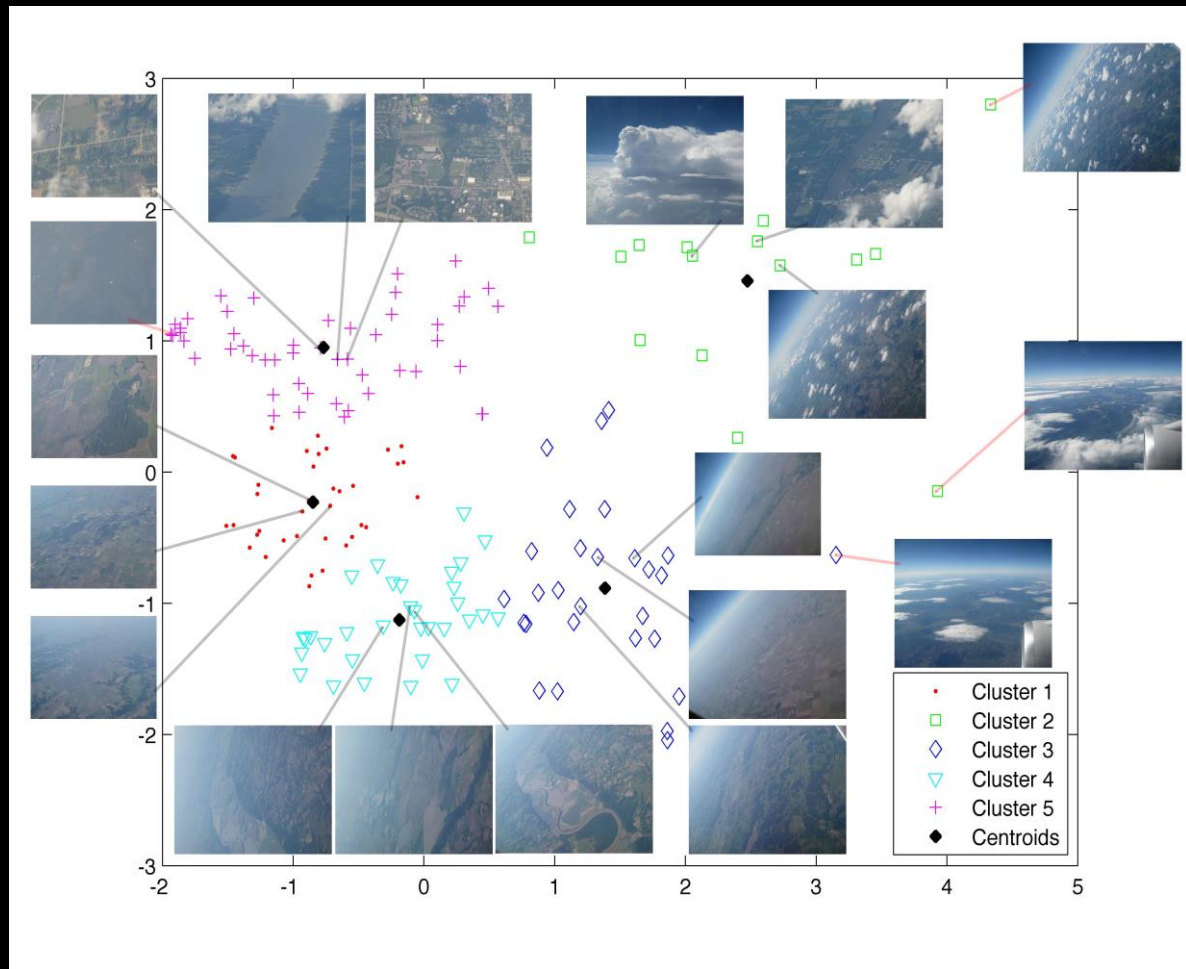
lake

wildlife

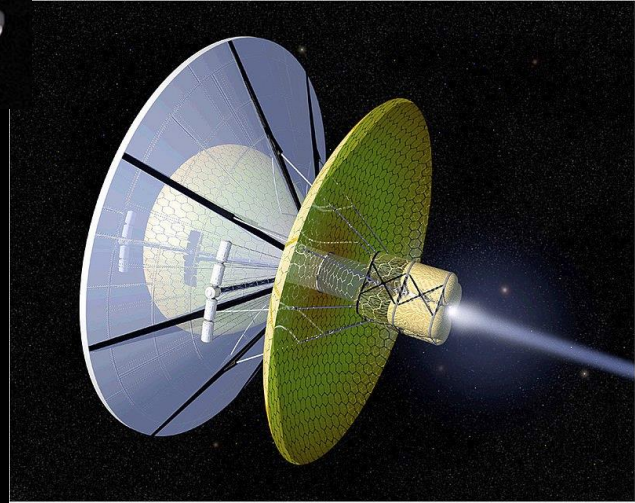
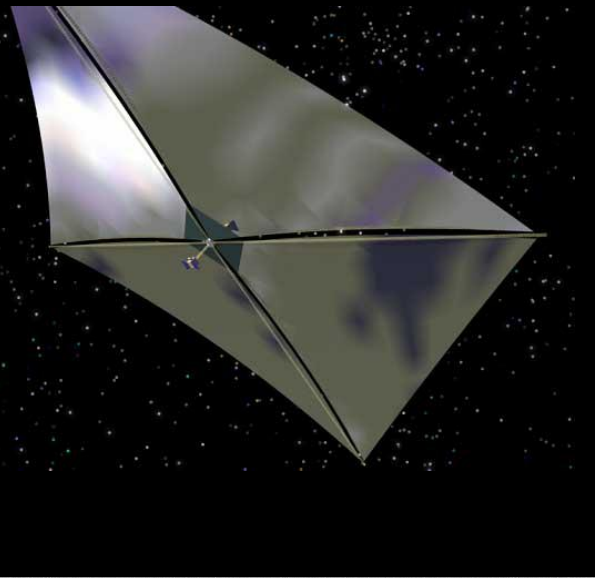
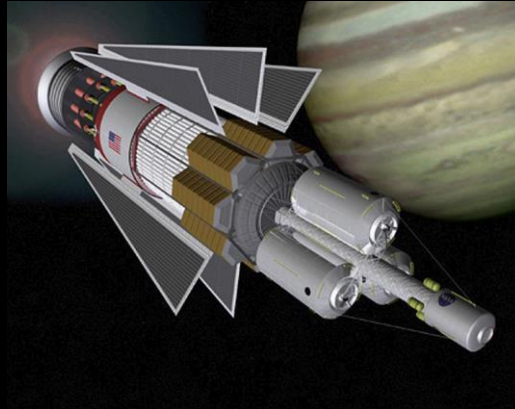
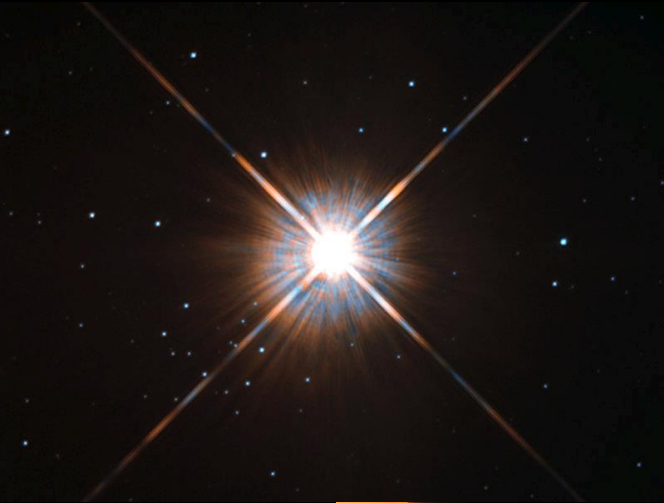






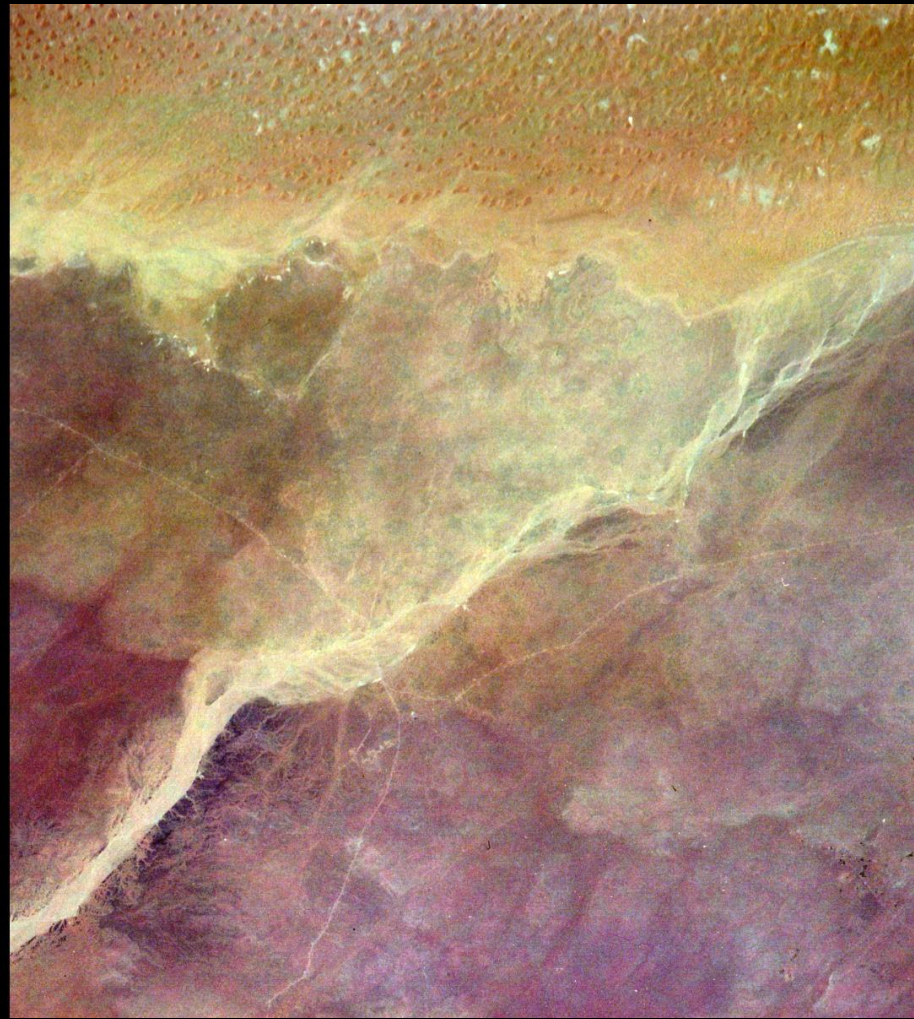
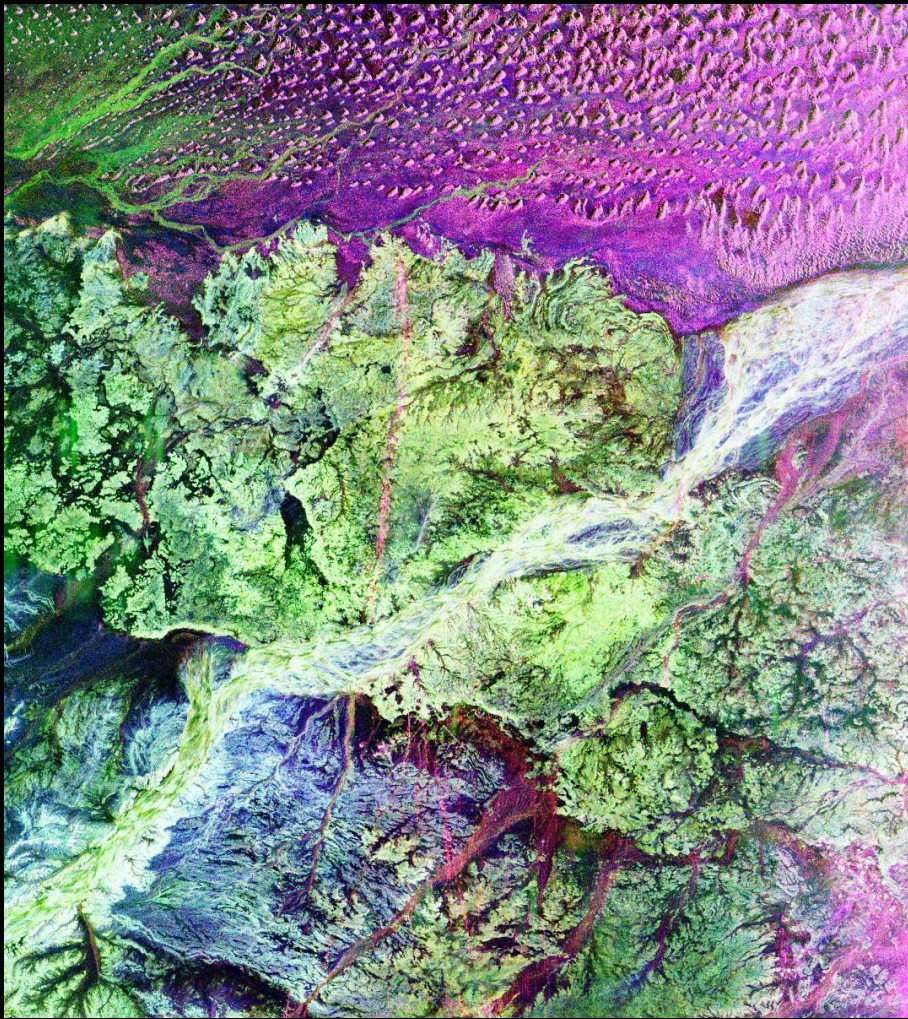


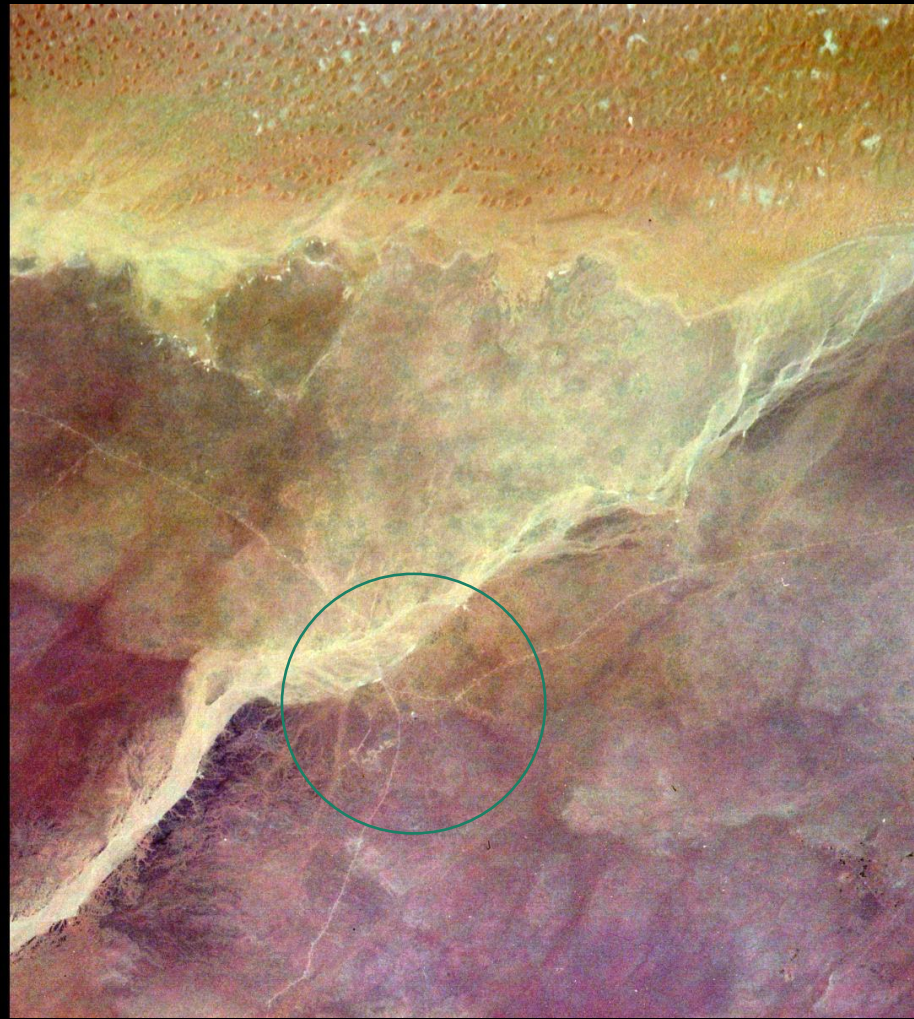
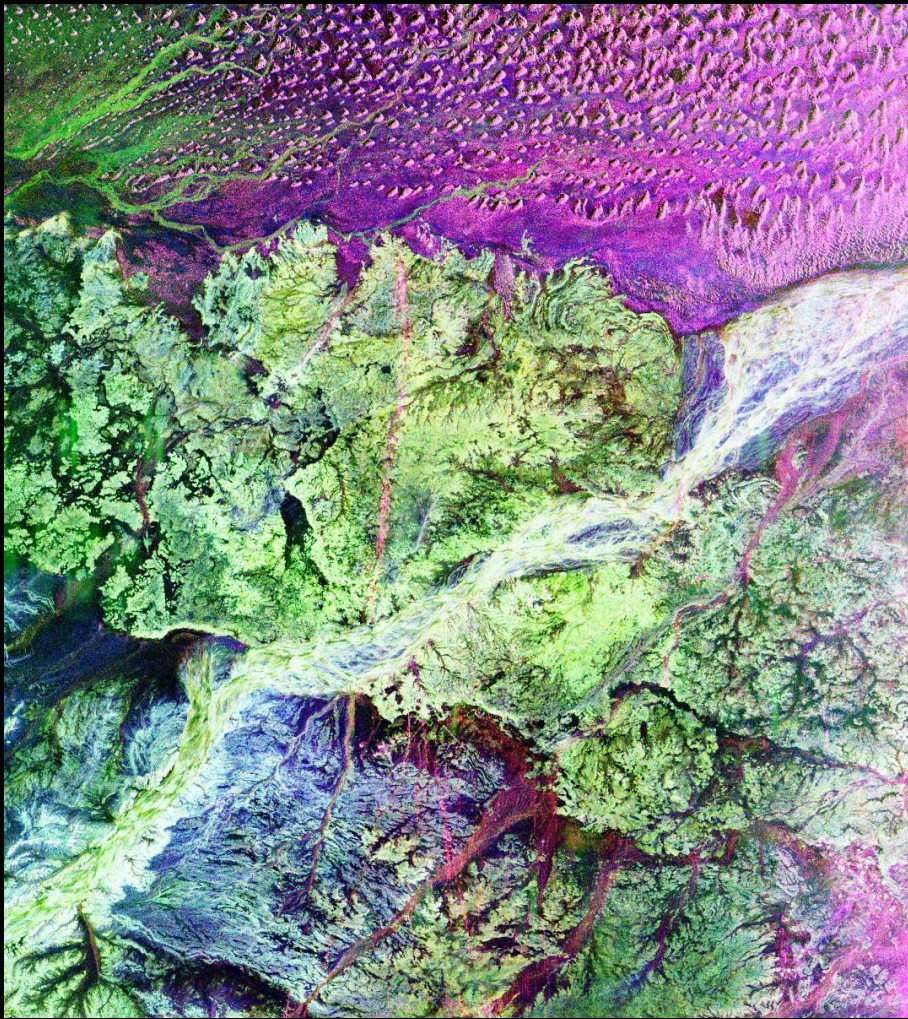
Interstellar Mission Concepts

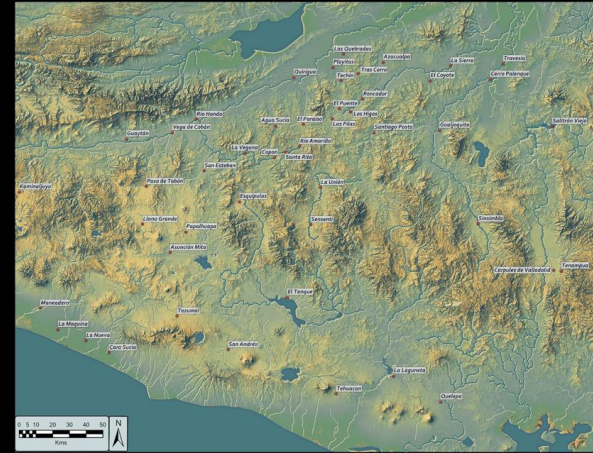
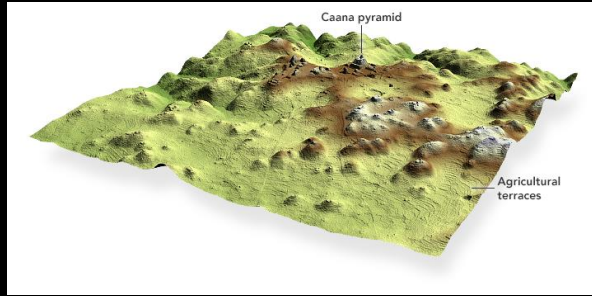


Artists concepts.

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