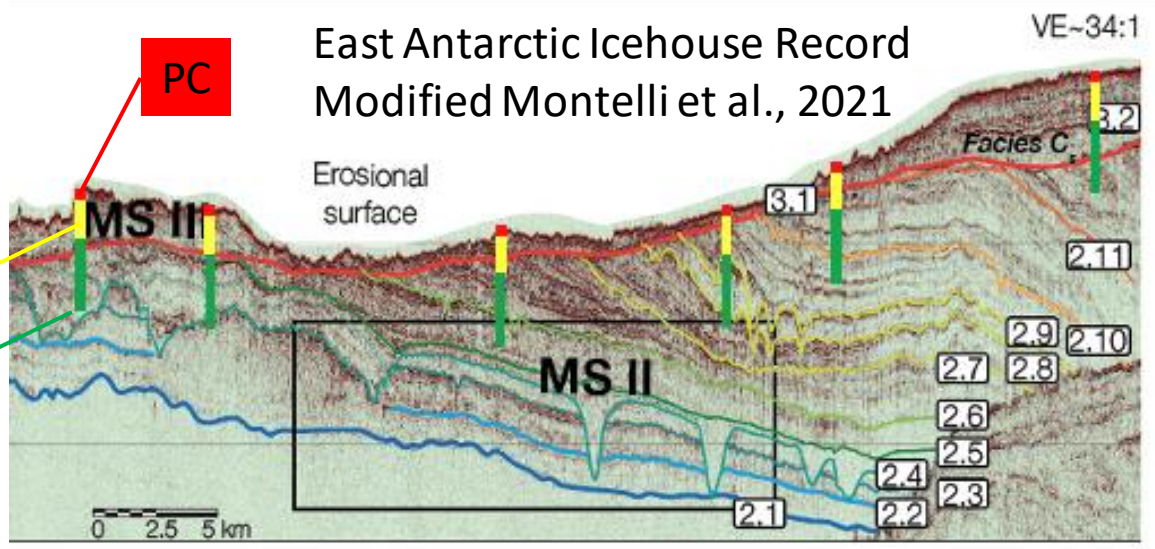
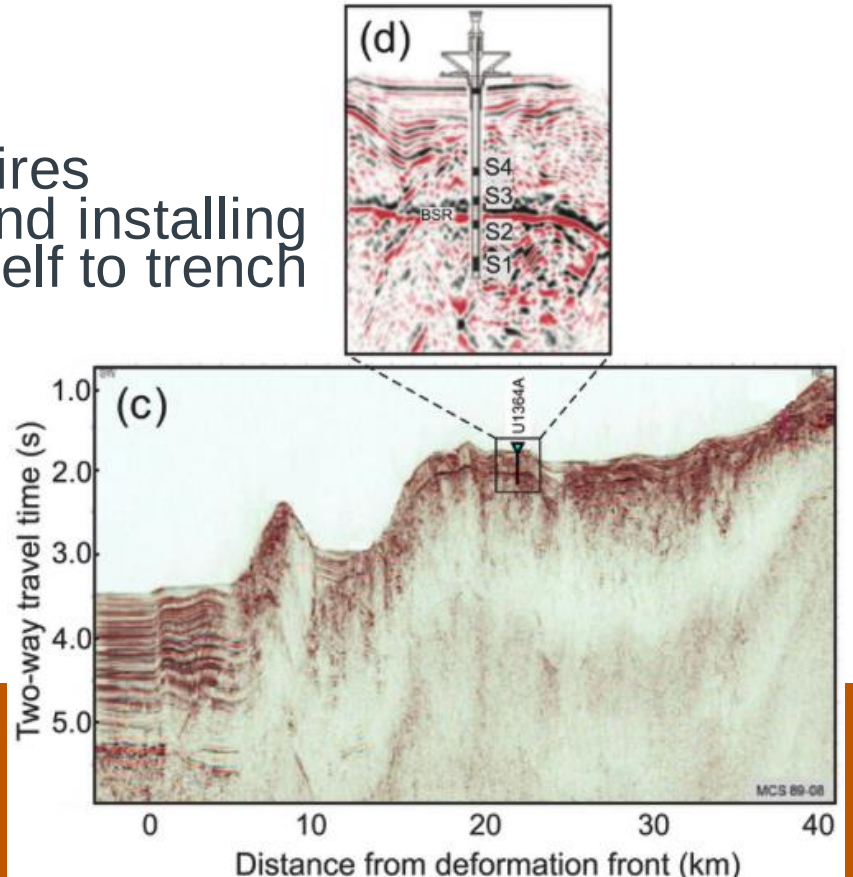
National Science Priorities & Scientific Ocean Drilling

Climate Change: Requires cores from past warm periods and climate transitions at a range of ocean and subseafloor depths

Geohazards: Requires sampling failures and installing observatories at shelf to trench depths





Davis et al., 2023

Habitability and Life: Requires hard rock drilling in deep water or 100s m to >1 km subsurface depths

Dreamer, 2014

Partnerships

- Mission Earth in Collaboration with NASA, etc.
- Opportunity for US to join IODP3 Mission Specific Writ Large
- Across NSF (TIP?, EAR?,…)

	Division	Research Emphasis	Ocean Drilling Research: 2050 Science Framework
NASA Science Mission Directorate	Earth Science	Climate Variability & Change	FI: Ground Truthing Future Climate Change; SO: Earth's Climate System
		Carbon Cycle & Ecosystems	SO: Global Cycles of Energy & Matter
		Earth Surface and Interior	FI: Probing the Deep Earth; FI: Assessing EQ & Tsunami Hazards; SO: Natural Hazards Affecting Society
	Planetary Science	Origin & Evolution of Life	FI: Exploring Life & it's Origin; SO: Habitability & Life on Earth
		Origin & Evolution of Planetary Bodies	FI: Probing the Deep Earth; EE Terrestrial to Extraterrestrial
FI = Flagship Initiative; SO = Strategic Objective; EE = Enabling Element			

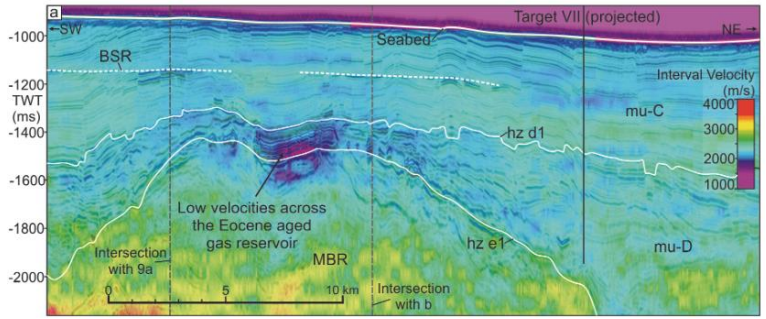



Mission Specific

- US could conduct MSP type expeditions either as an additional place for IODP3 expeditions to be scheduled or in a standalone mode
- But, key needs exist: Programmatic

Program to Propose to

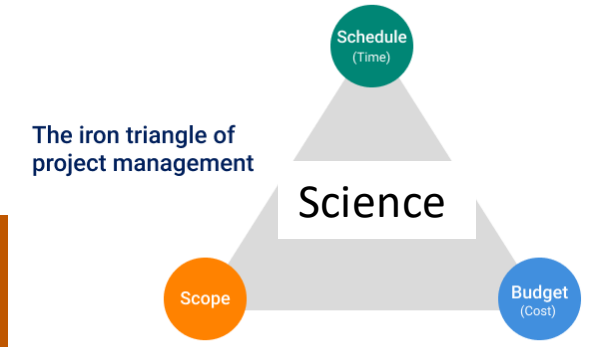
Safety Review



Office to Enable Science Parties

Mechanism for Contracting

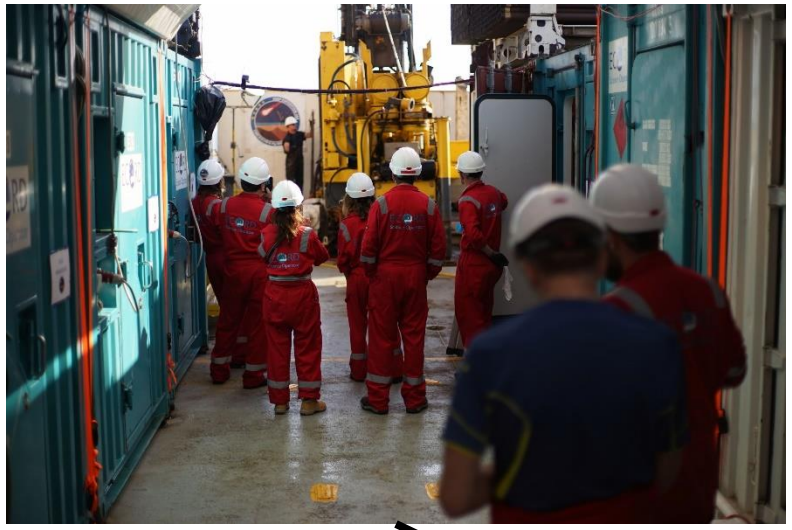
Facility Board for Scheduling



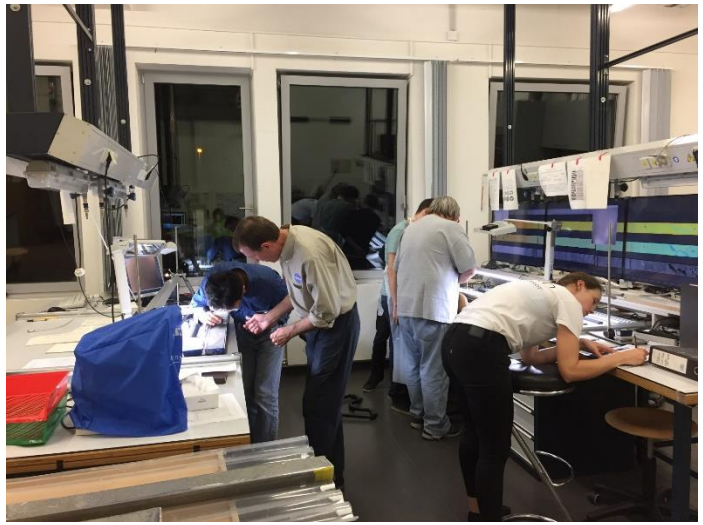
Mission Specific

- But, key needs exist: Infrastructure and Workforce

Ephemeral Measurements & Core Curation at Sea



Facility for Onshore Science & Sampling Party



Core Repository & Data Management

Technical Experts Workforce