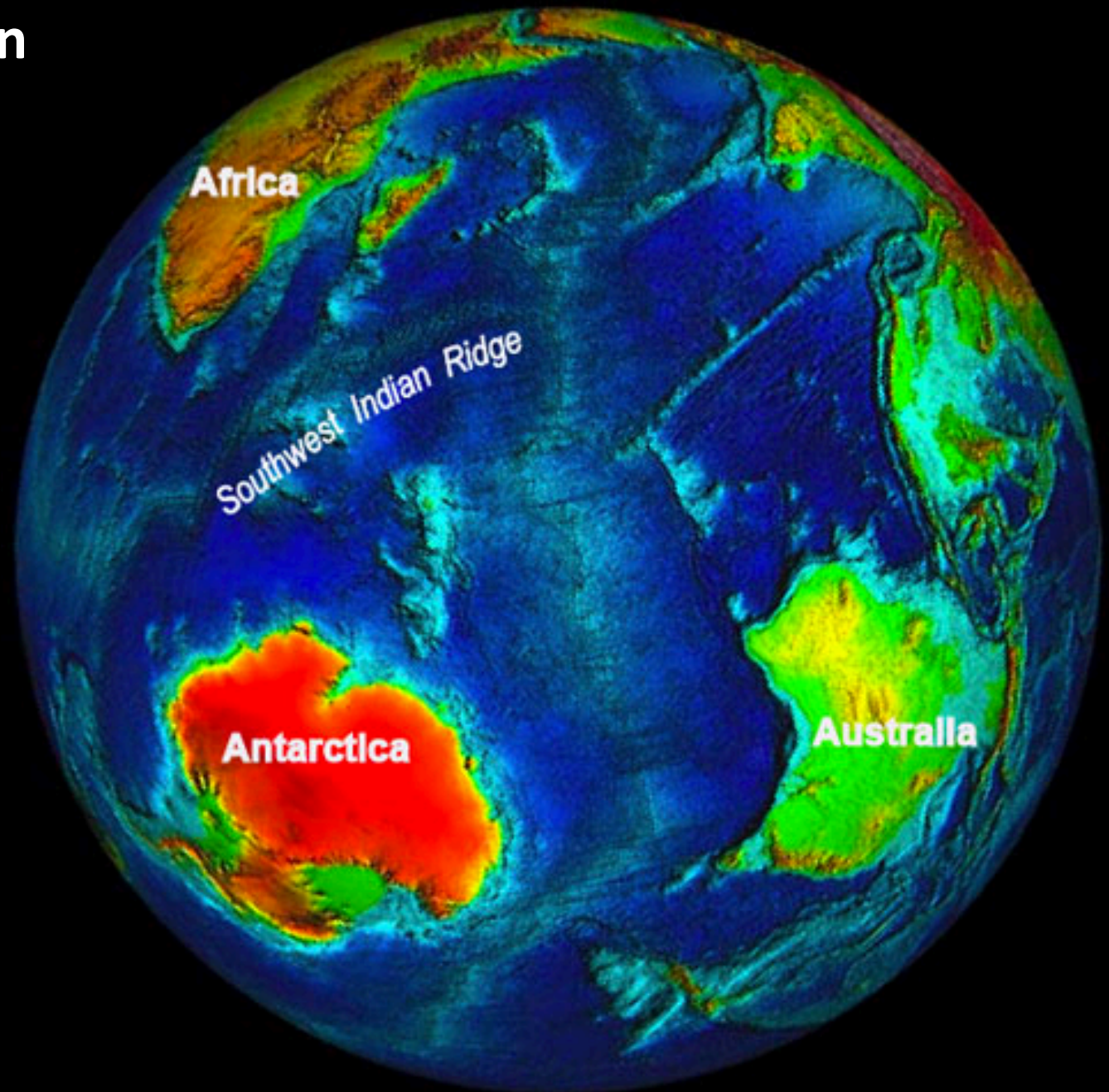


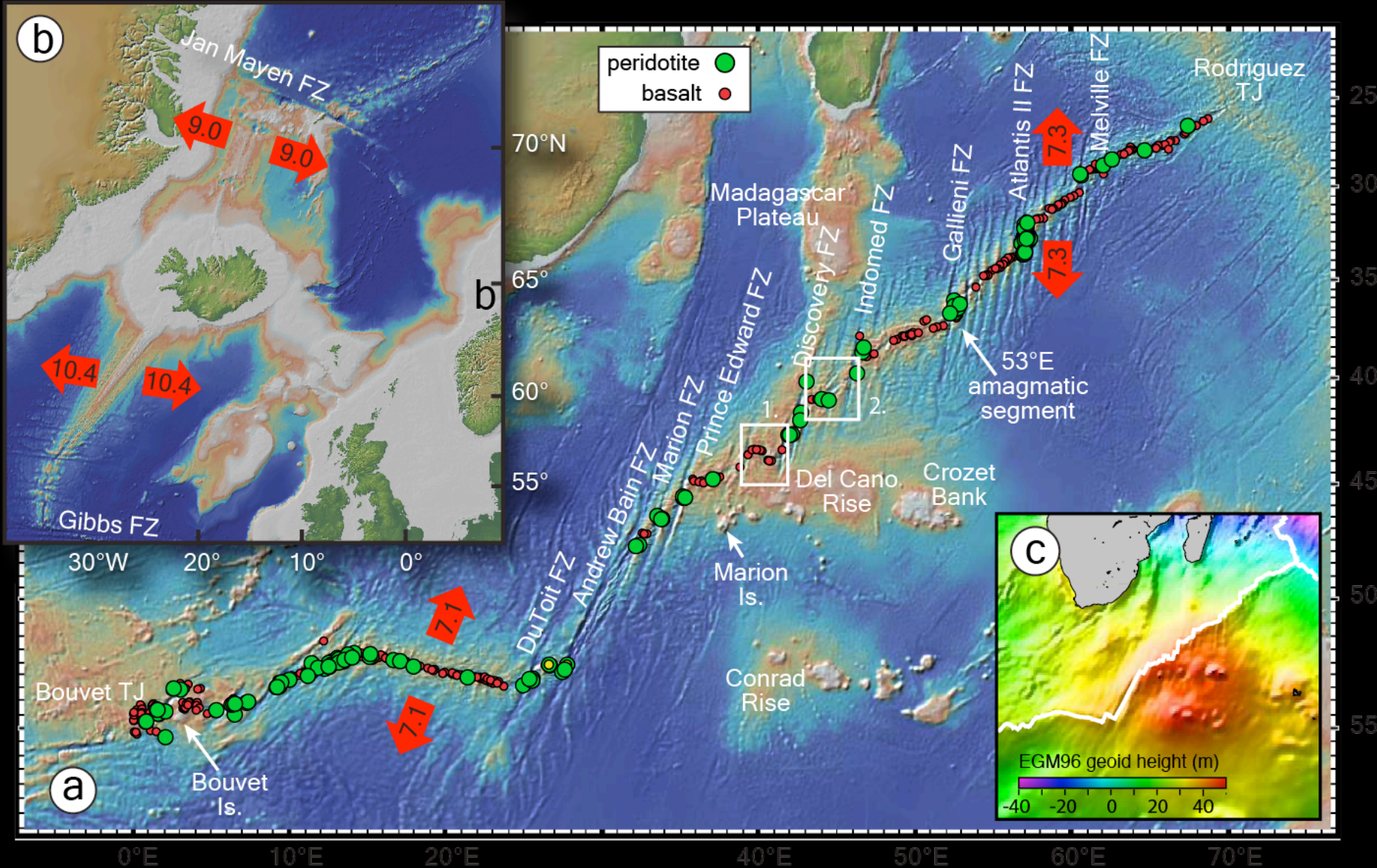
Status and plans for IODP, MG&G, research in the Indian Ocean

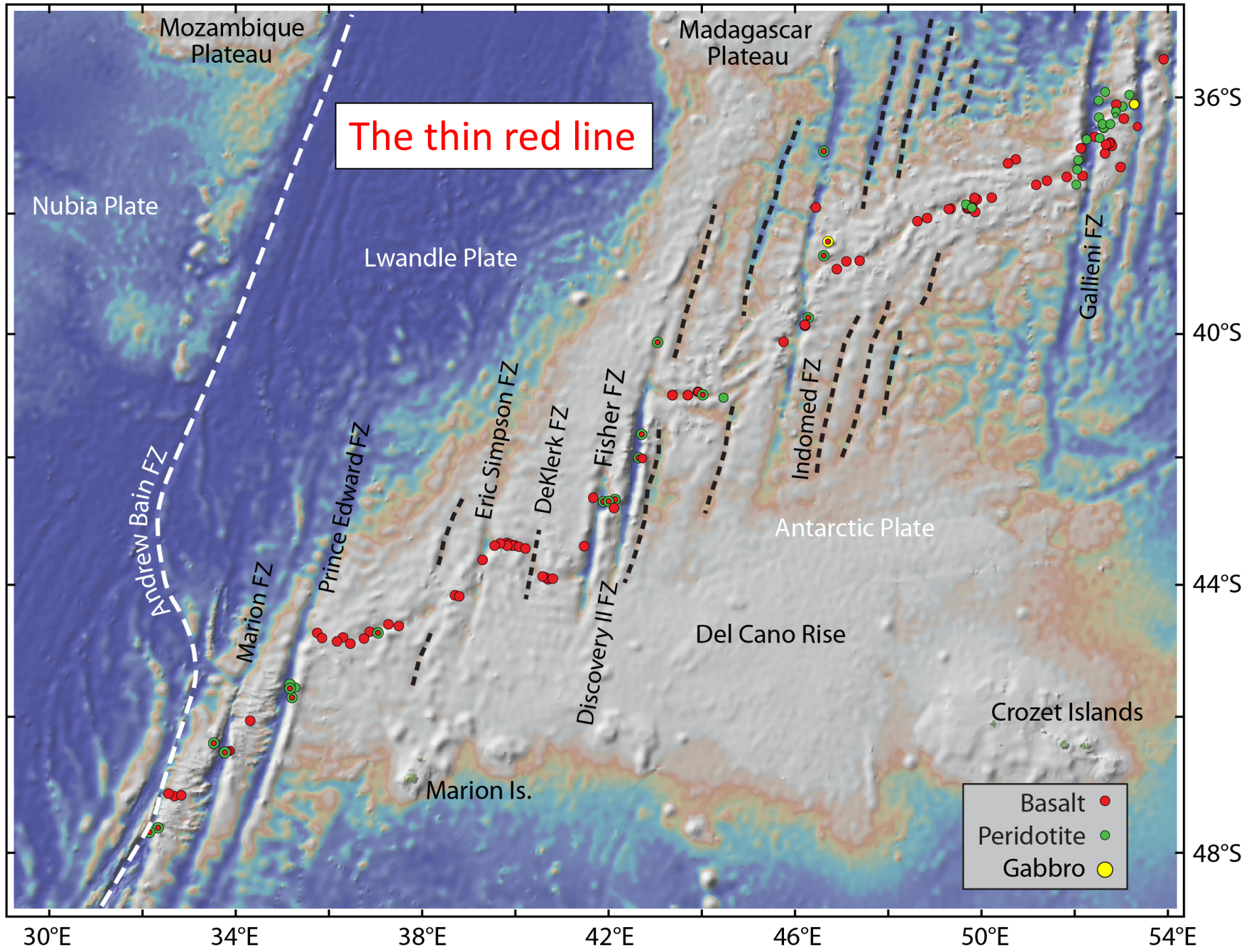
Henry Dick

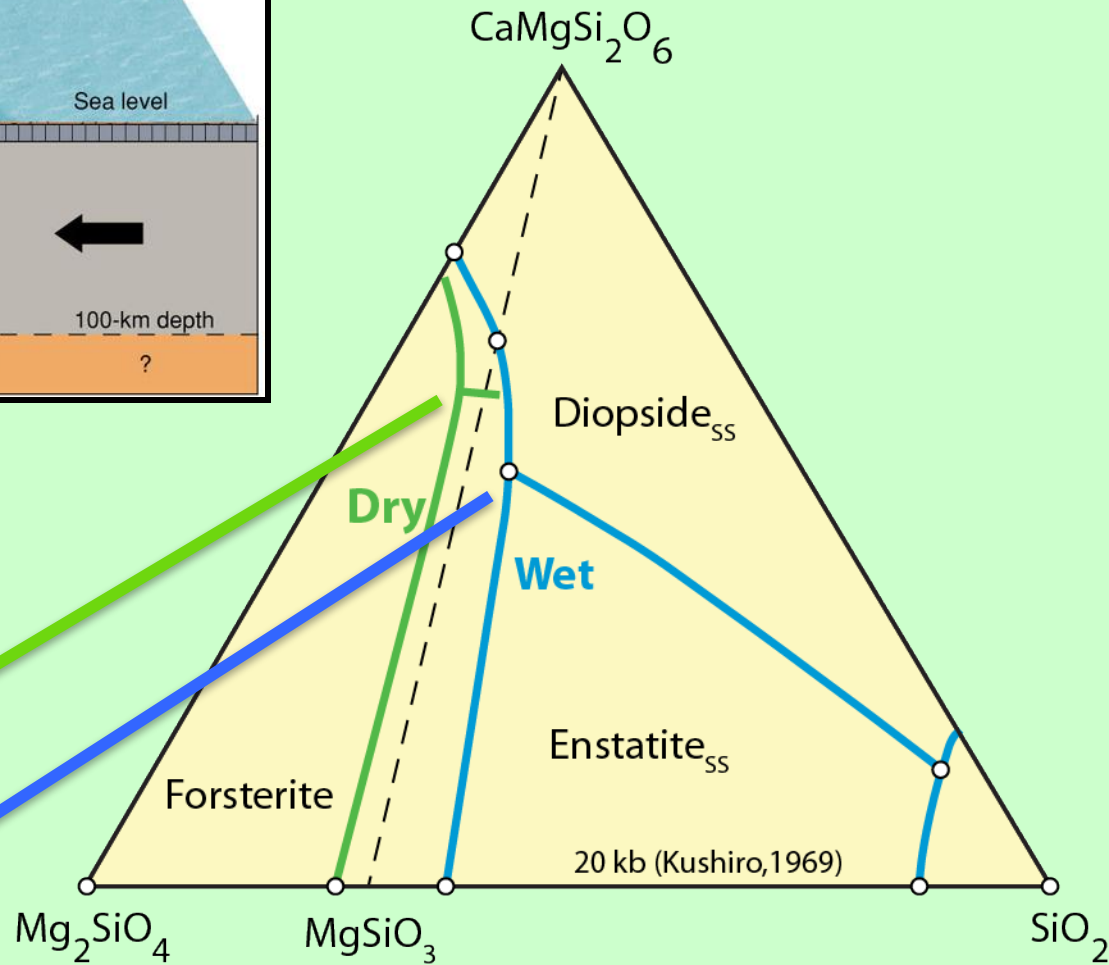
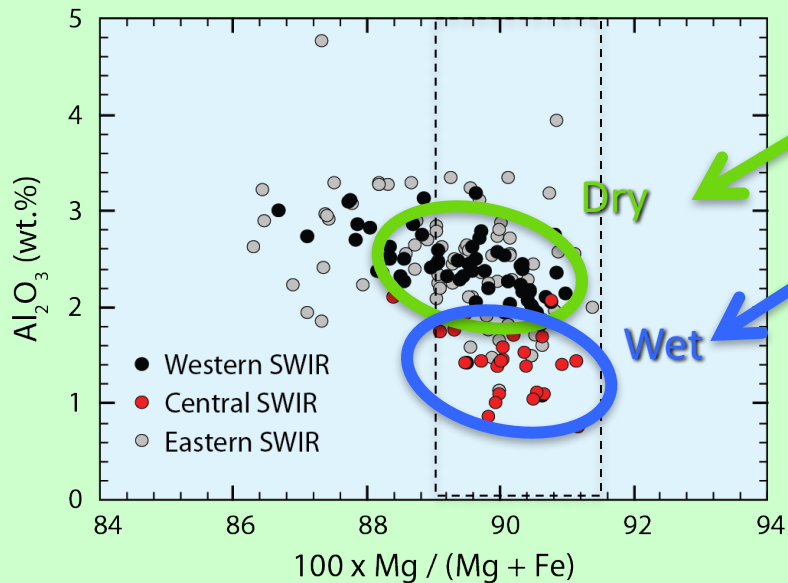
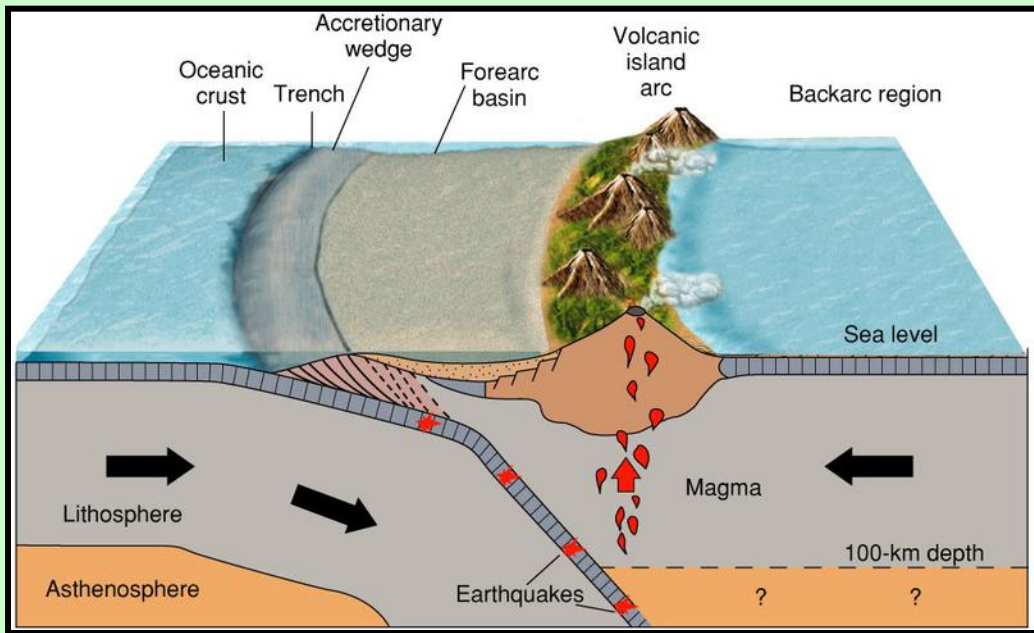
WHOI



US — German — China Marion Rise Expedition

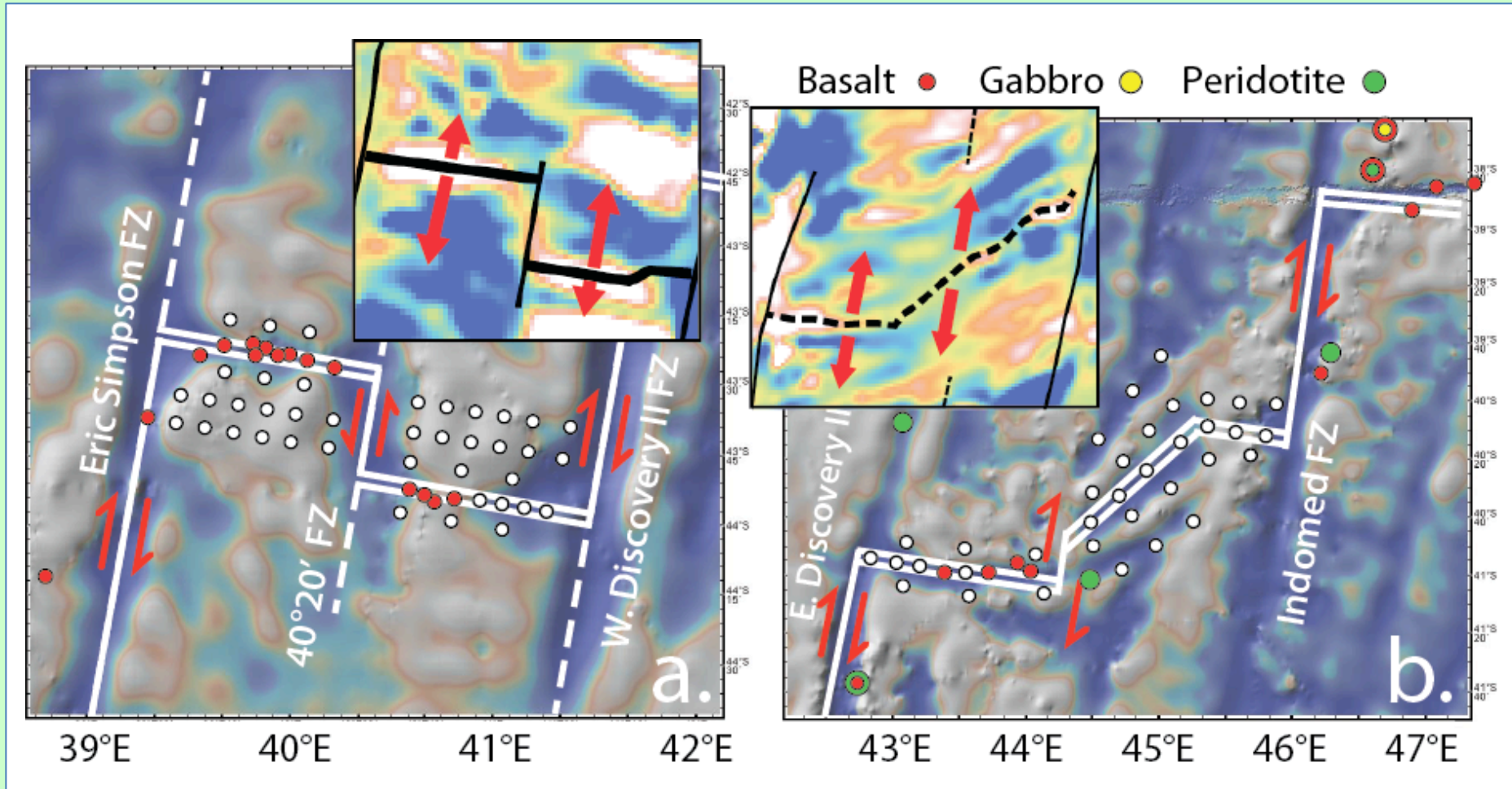






US — China Focus Sites

Multibeam, gravity, and Magnetics Survey with Dredging and Near Bottom Mapping with Sentry



Scheduled for 36 days port to port on Thomas G. Thompson
February – March 2019

Follow on Sonne Program

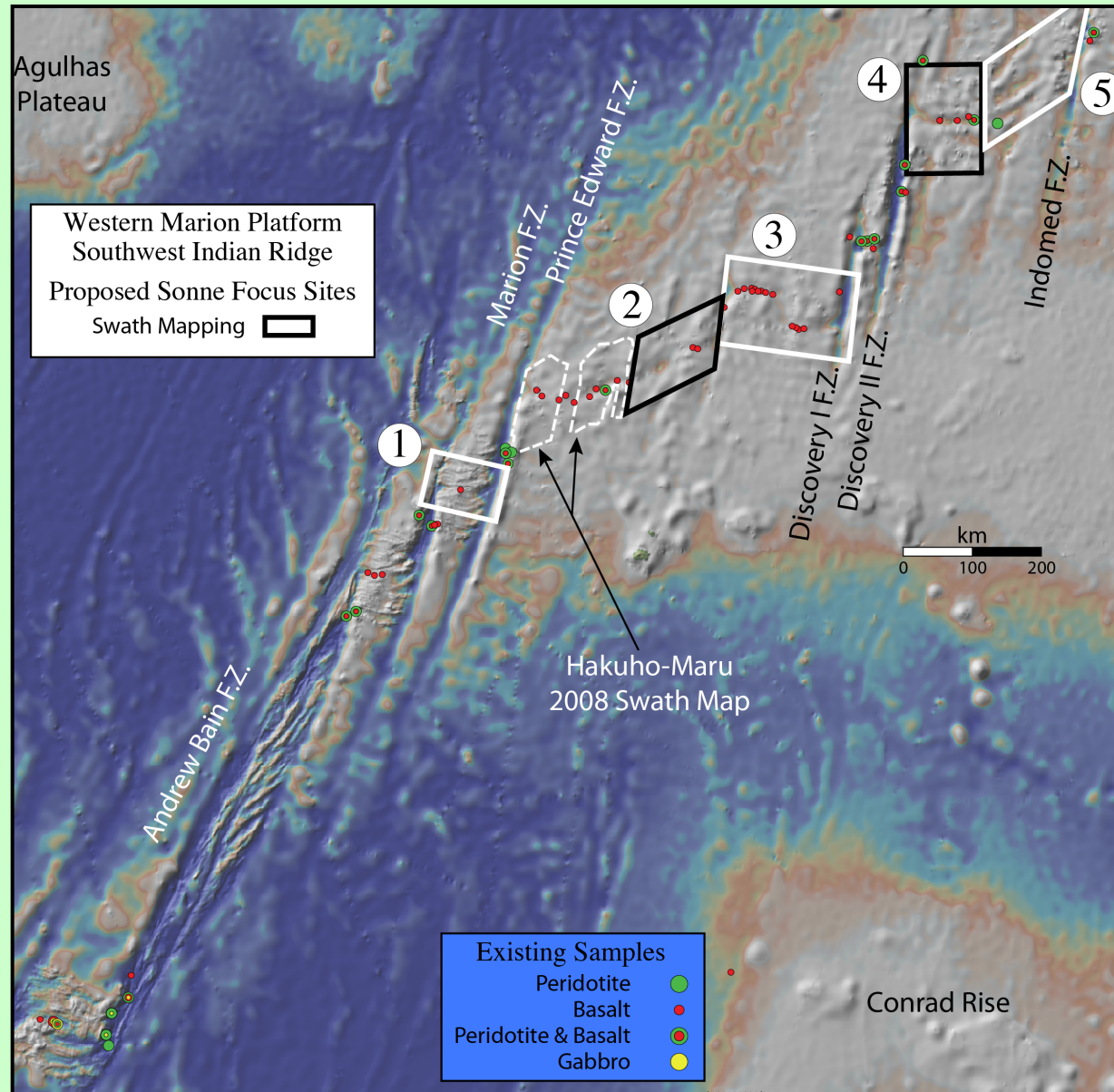
Juergen Koepke, Leibniz University Hanover, Chief Scientist

Approved for
Scheduling, likely late
2019 or 2020

Multibeam, and
surfaced towed
magnetics and gravity
Dredging
ROV Dives

Map and sample areas
2 & 4

Follow on Diving in
US-China Focus Sites



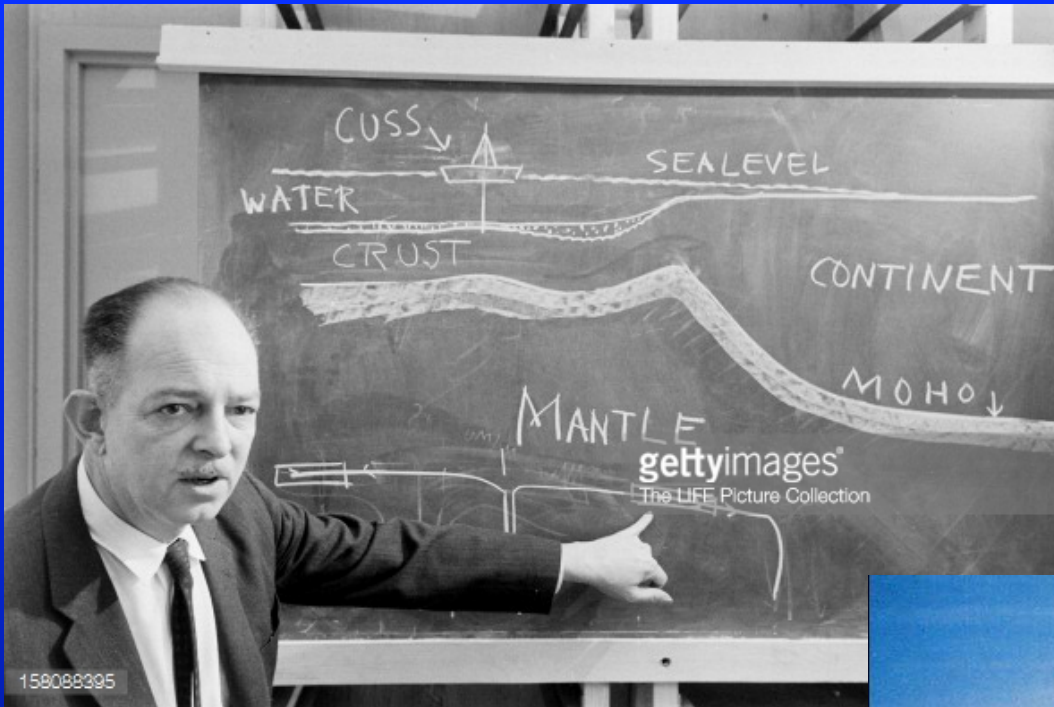
Atlantis Bank
Indian Ocean
&
The
Journey to
Moho



Project Mohole

Walter Munk, Harry Hess
&

The American Miscellaneous Society



1961

CUSS 1 Drilled 601 m into seismic layer 2, 40 miles from Guadalupe, Mexico

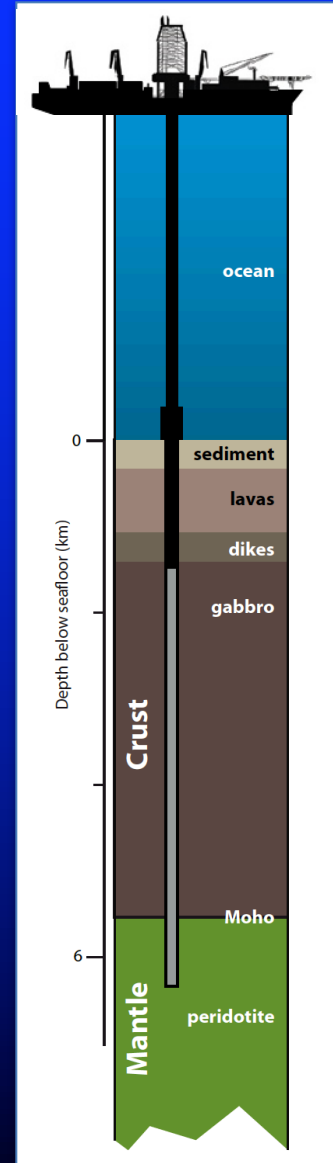
MoHole in the 21st Century

SloMo (Moho at a Slow Spreading Ridge) - The Atlantis Bank gabbro massif on the SW Indian Ridge – Expedition 360, 789-m hole, leg 2 approved.

Phase 1: JOIDES Resolution to drill 3 km to determine if the crust-mantle boundary lies above Moho the crust-mantle boundary.

Phase 2: Chikyu to drill 6 km through Moho ~5.5 km.

M2M (MoHole To the Mantle) – intact East Pacific Rise Crust in the Pacific – 2023?



SloMo Objectives:

1) Test the hypothesis that the Moho may not be the Crust-Mantle boundary

Is Moho a serpentinization front at slower spreading ridges?

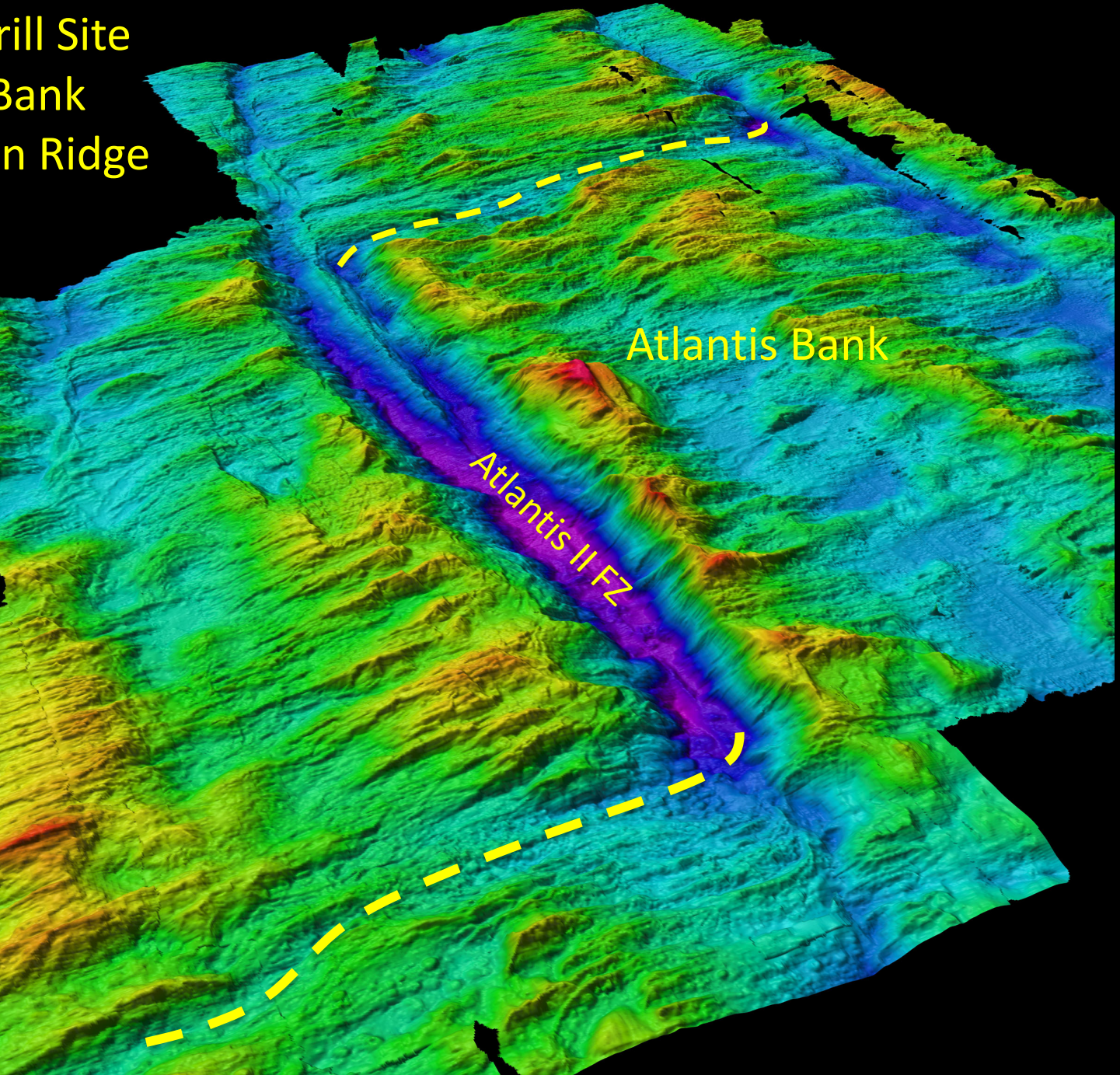
2) Recover a full section of the oceanic lower crust

3) What is the carbon budget in the lower crust & shallow mantle

4) What is the microbiological inventory of the crust and shallow mantle

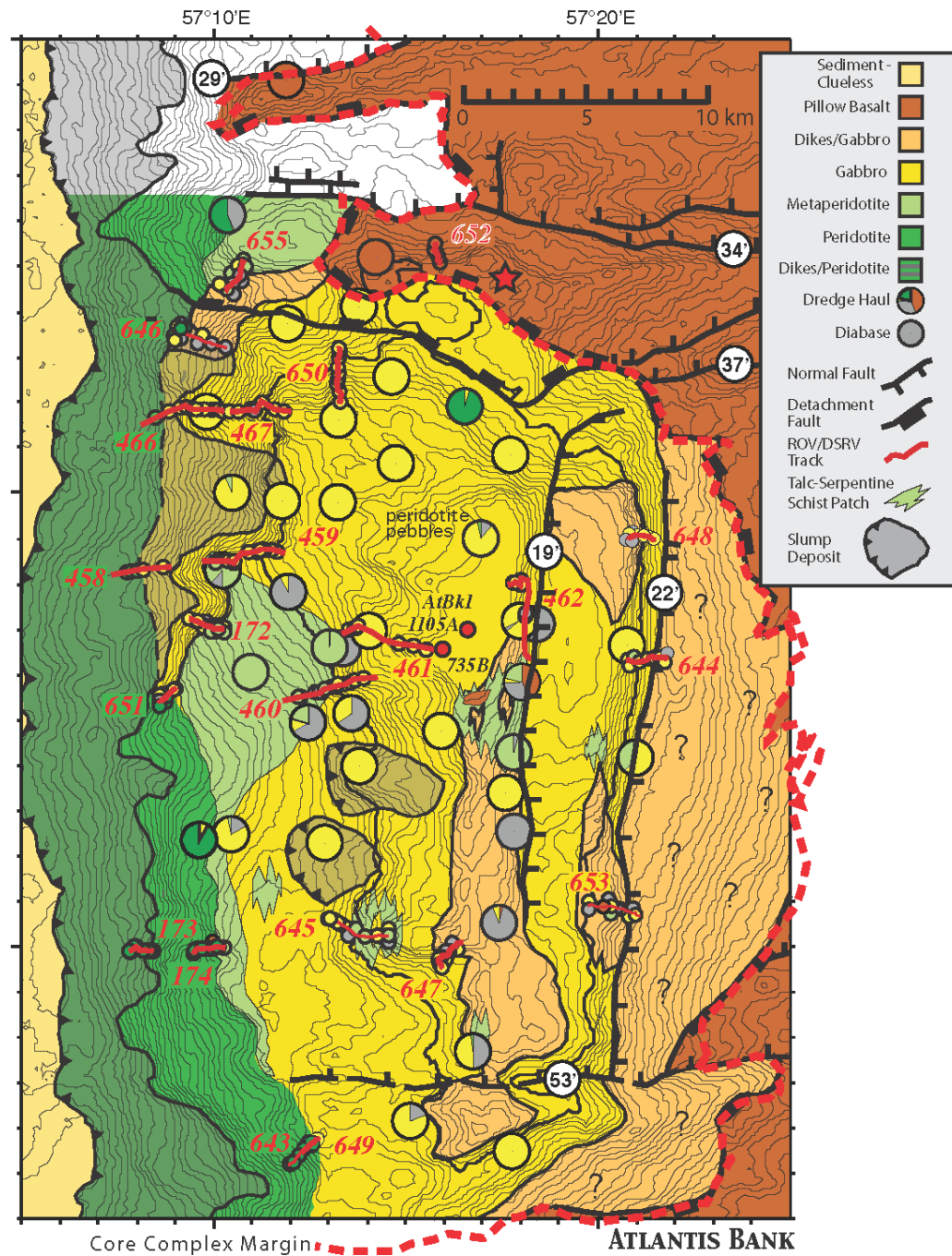
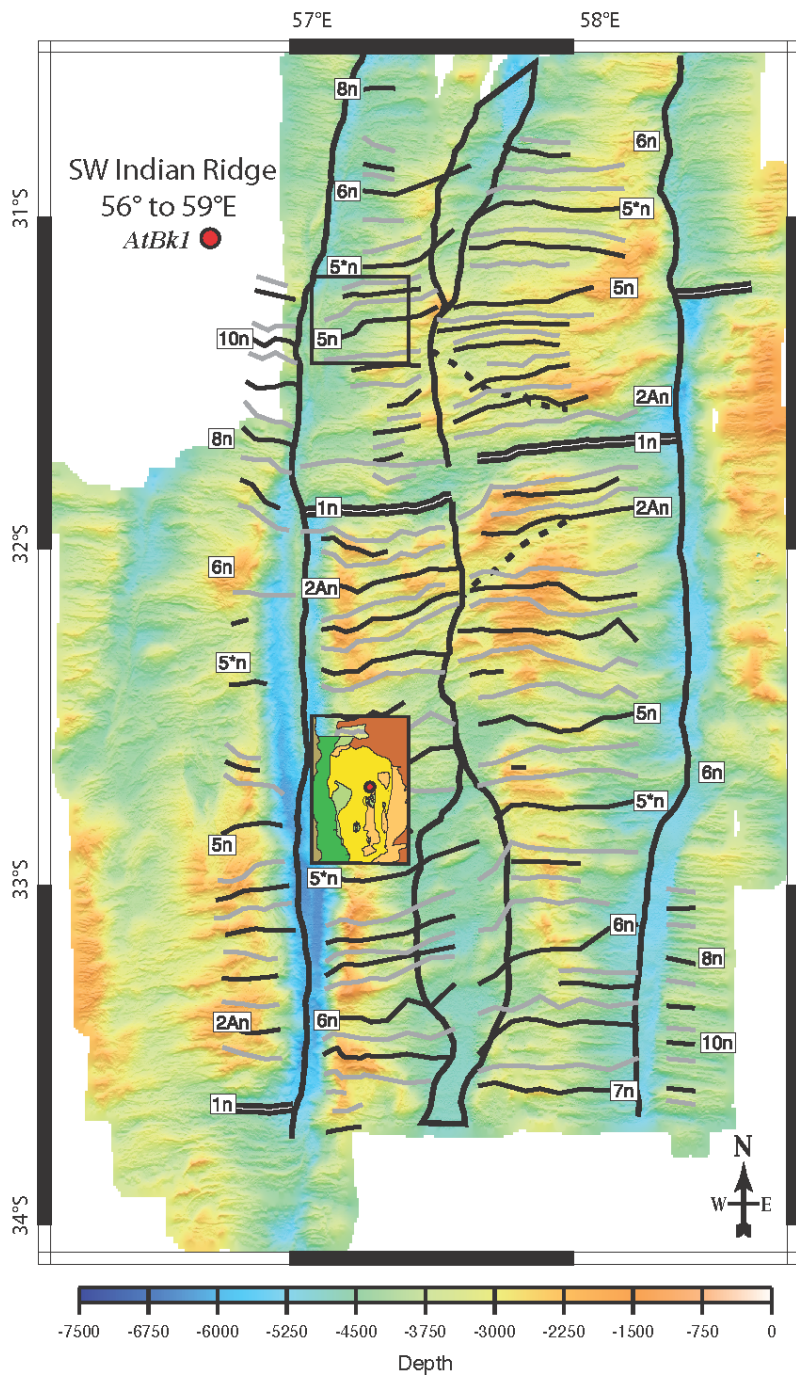
Is there a new planetary biosphere between the crust-mantle boundary and the Moho?

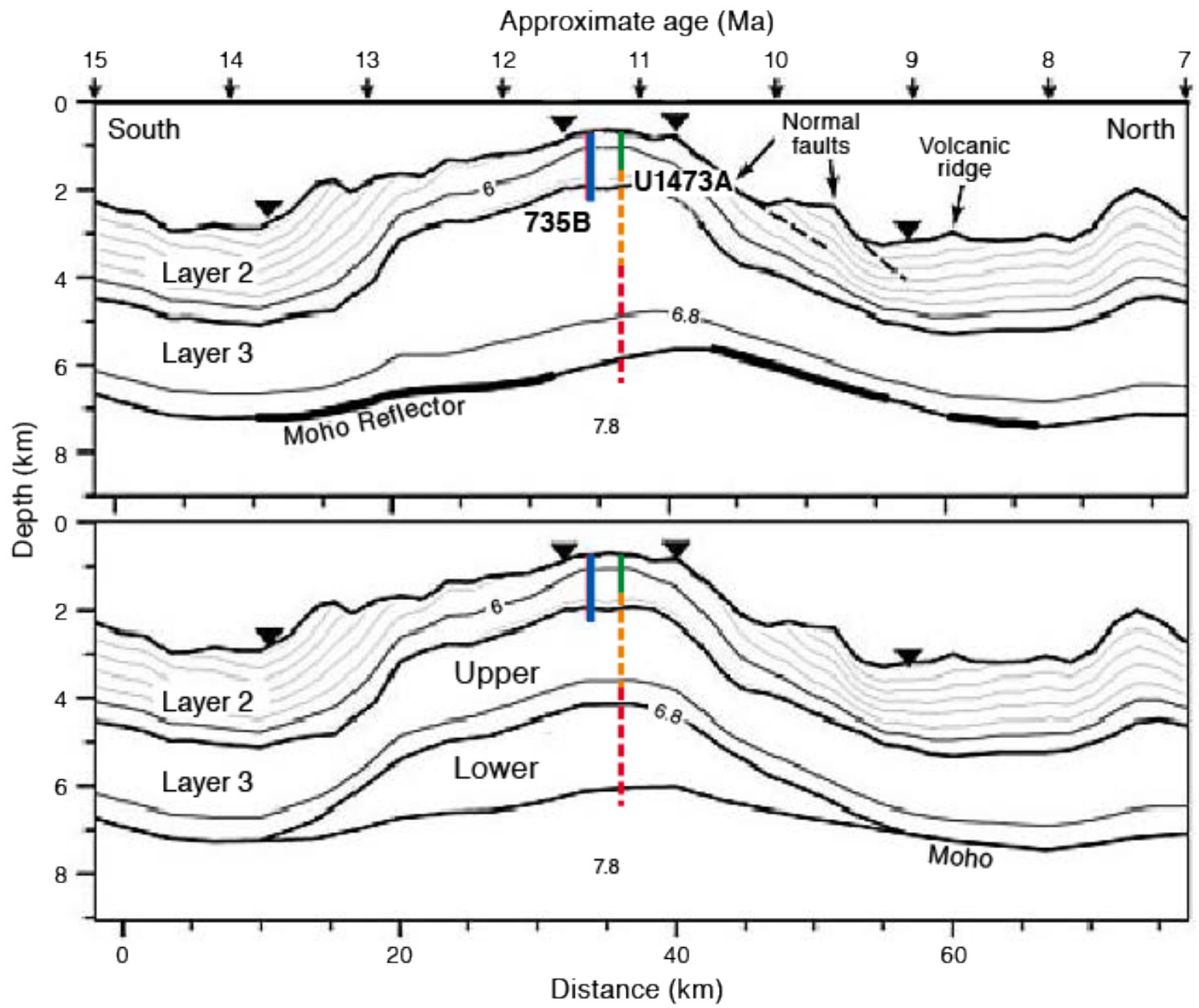
SloMo Drill Site
Atlantis Bank
SW Indian Ridge



Atlantis Bank

Atlantis II FZ





SloMo — Current Status

Leg 1 of Phase 1 is complete – Hole U1473A is open and can be reoccupied and deepened.

However, the hole is compromised by an unstable fault zone in the upper 500-m an attempt on Expedition 362T failed to cement the fault zone, and it remains unstable.

Option 1: Return to Hole U1473A, finish cementing if possible, and then attempt to drill to 3-km to meet the Phase 1 objective of reaching the crust-mantle boundary.

Option 2: Return to Site 735 where Hole 735B was drilled to 1508 m with no significant problems or obstacles.

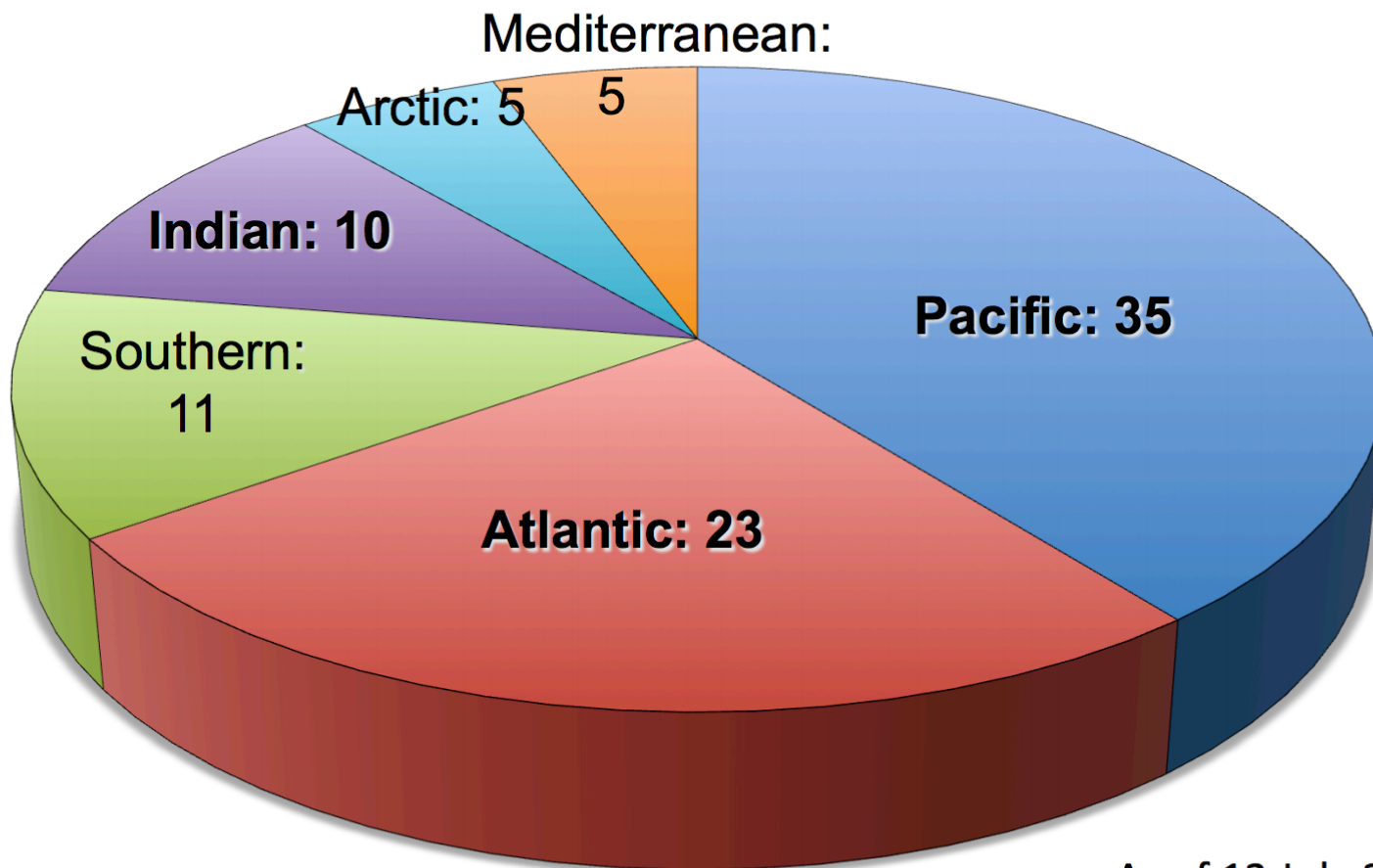
Leg 1: Drill to 1500-m with new hard rock drill bits provided by industry

Leg 2: Core ahead to 3,000 m

A decision on which approach will be made at the Deep Hard Rock Drilling Working Group meeting at TAMU this fall in October

Likely date for return is 2020.

Active proposal status: 89 by target ocean



As of 12 July 2017

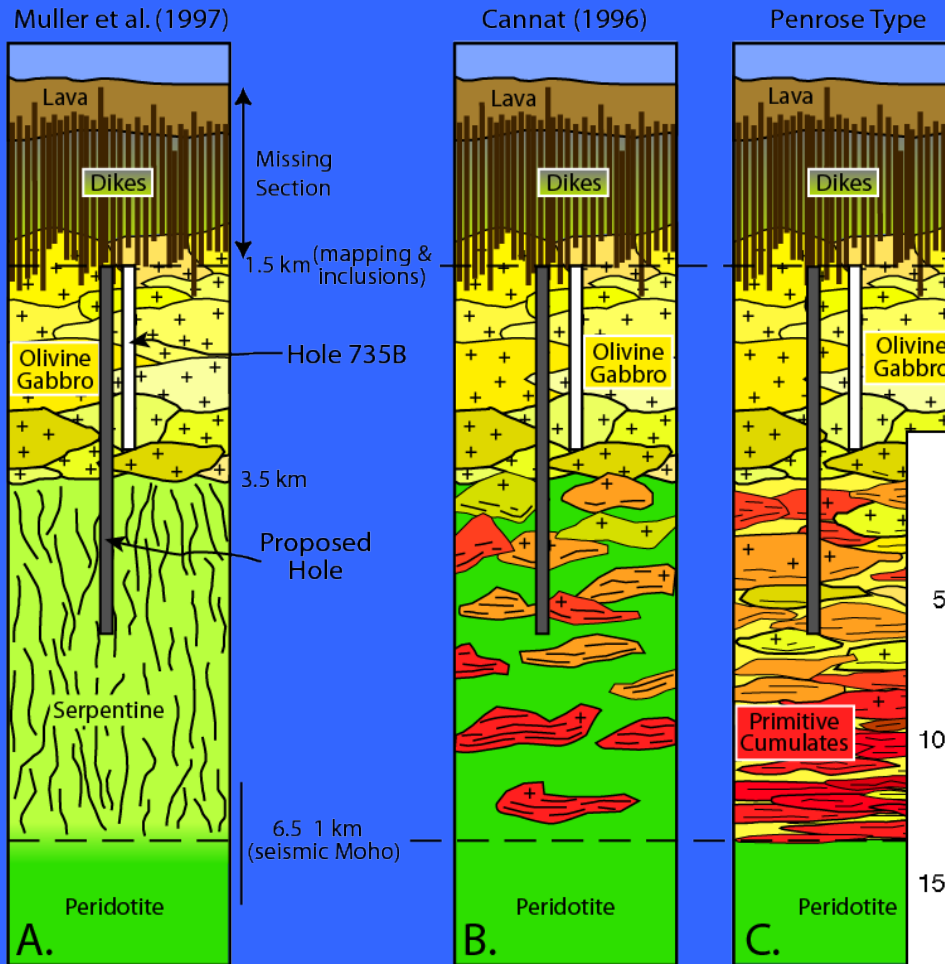
Active Indian Ocean Drilling Proposals

	Number	Type	Title	Proponent	Stage
1	549	Full6	North Arabian Sea Monsoon	Luckge	JRFB
2	595	Full4	Indus Fan & Murray Ridge	Clift	JRFB
3	724	Full	Gulf of Aden Faunal Evolution	de Menocal	JRFB
4	760	Full2	SW Australia Margine K-Climate	Hobbs	Exp 369
5	778	Full2	Tanzania Margin Paleoclimate Transect	Wade	JRFB
6	819	APL2	Arabian Sea OMZ	Singh	HB
7	830	APL2	Scott Plateau Microbial	D'Hondt	JRFB
8	834	Full2	Agulhas-Transkei Transect	Uenzelmann-Neben	JRFB
9	836	APL	Continental Margin Methane Cycling	Malinverno	HB

SloMo – Possible Outcomes:

+ the one we haven't thought of.

A.



B.

