

RVTECH 2015

OSU Marine Sediments Sampling
Group (MARSSAM Group)



The MARSSAM people

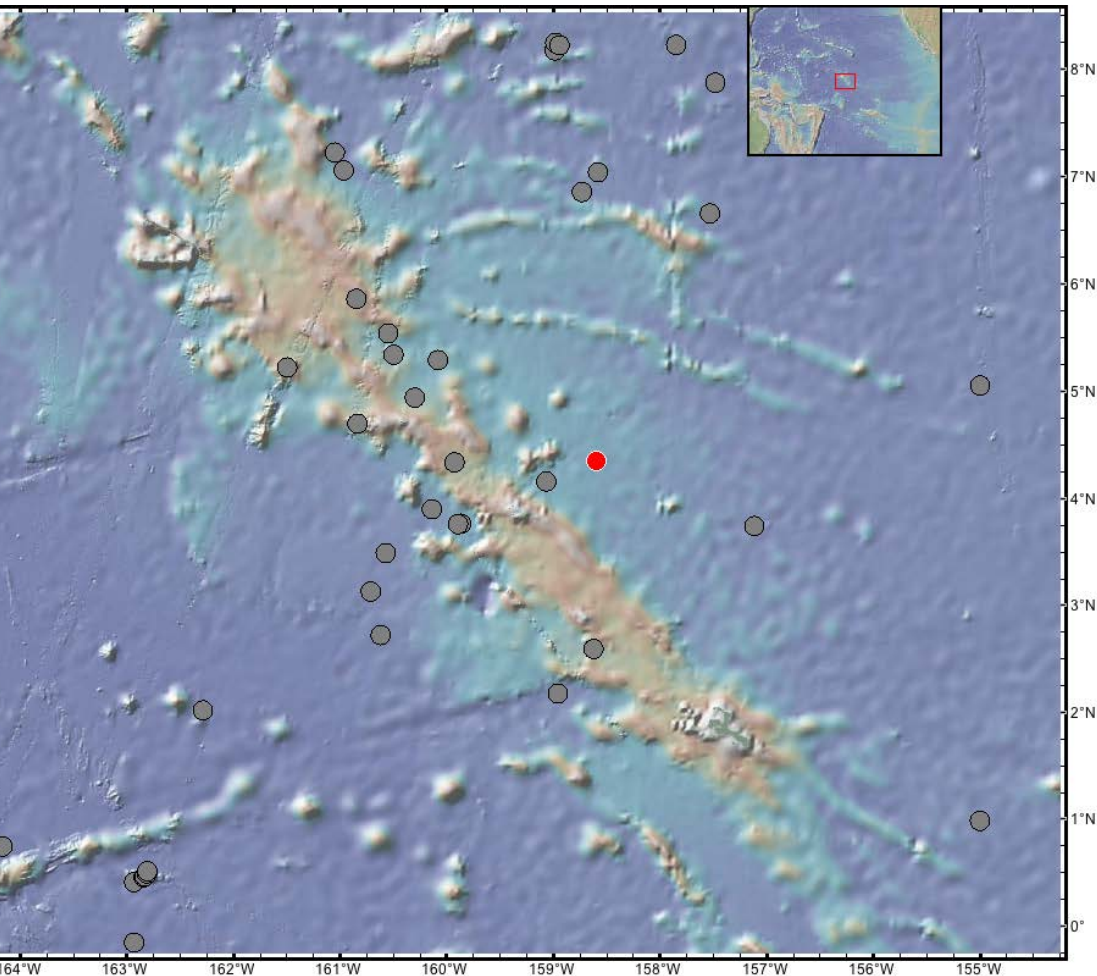
- Mitch Lyle: director
- Chris Moser: Coring tech (halftime retired)
- Paul Walczak: Coring logistics and Tech
- Additional techs as needed from other groups



Why core?

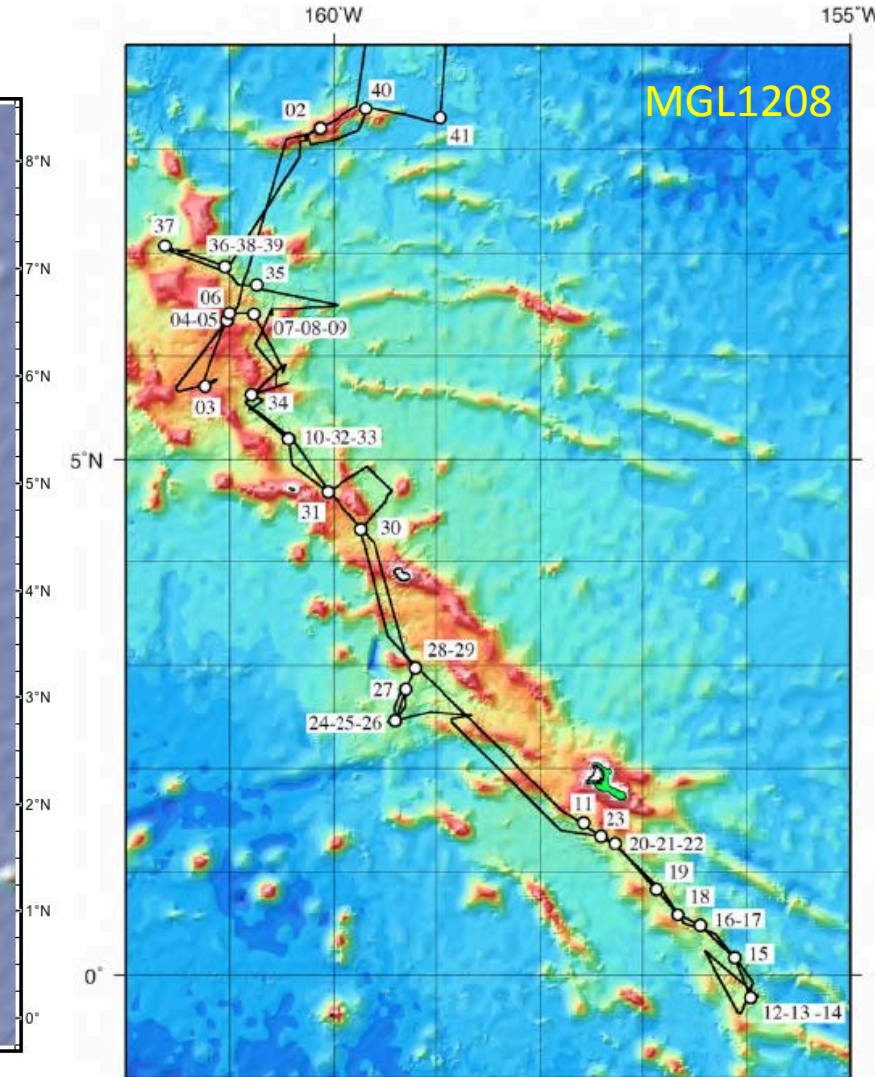
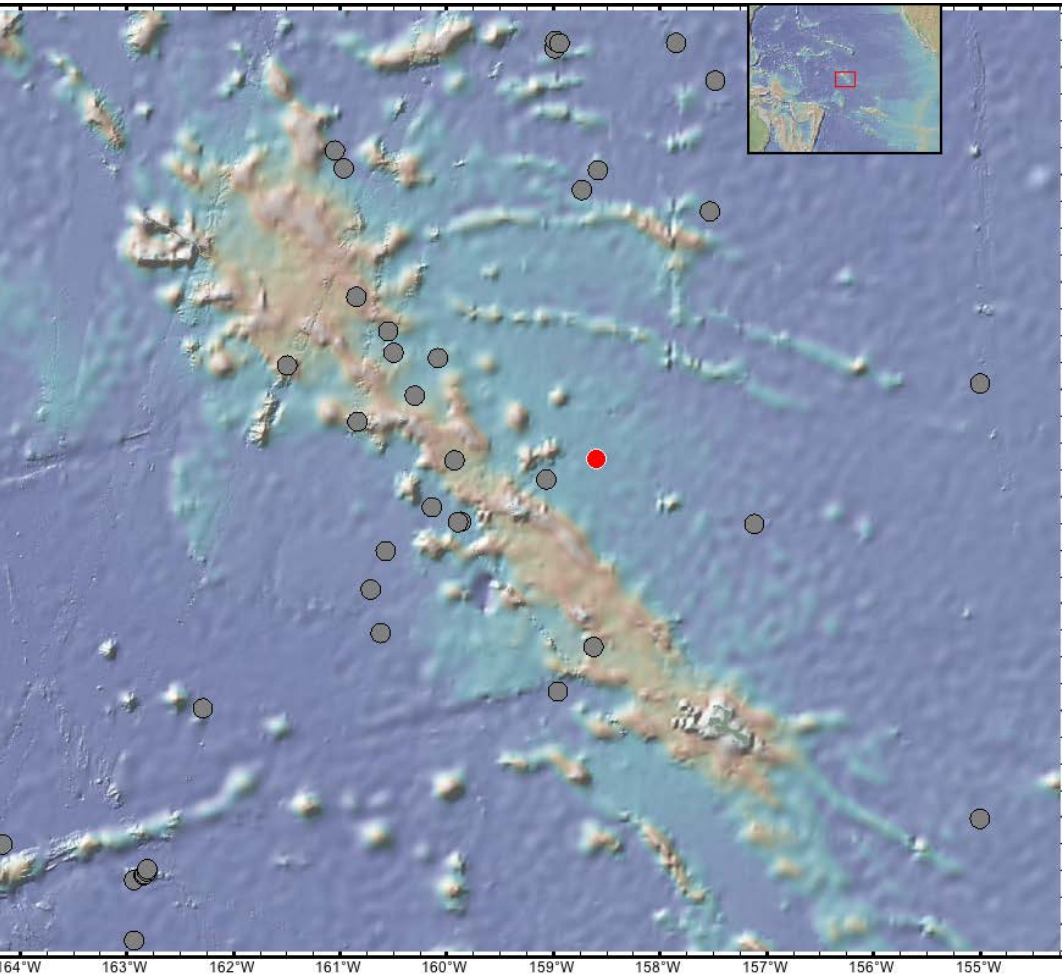
Don't we have plenty in core repositories?

Core search on GeoMapApp



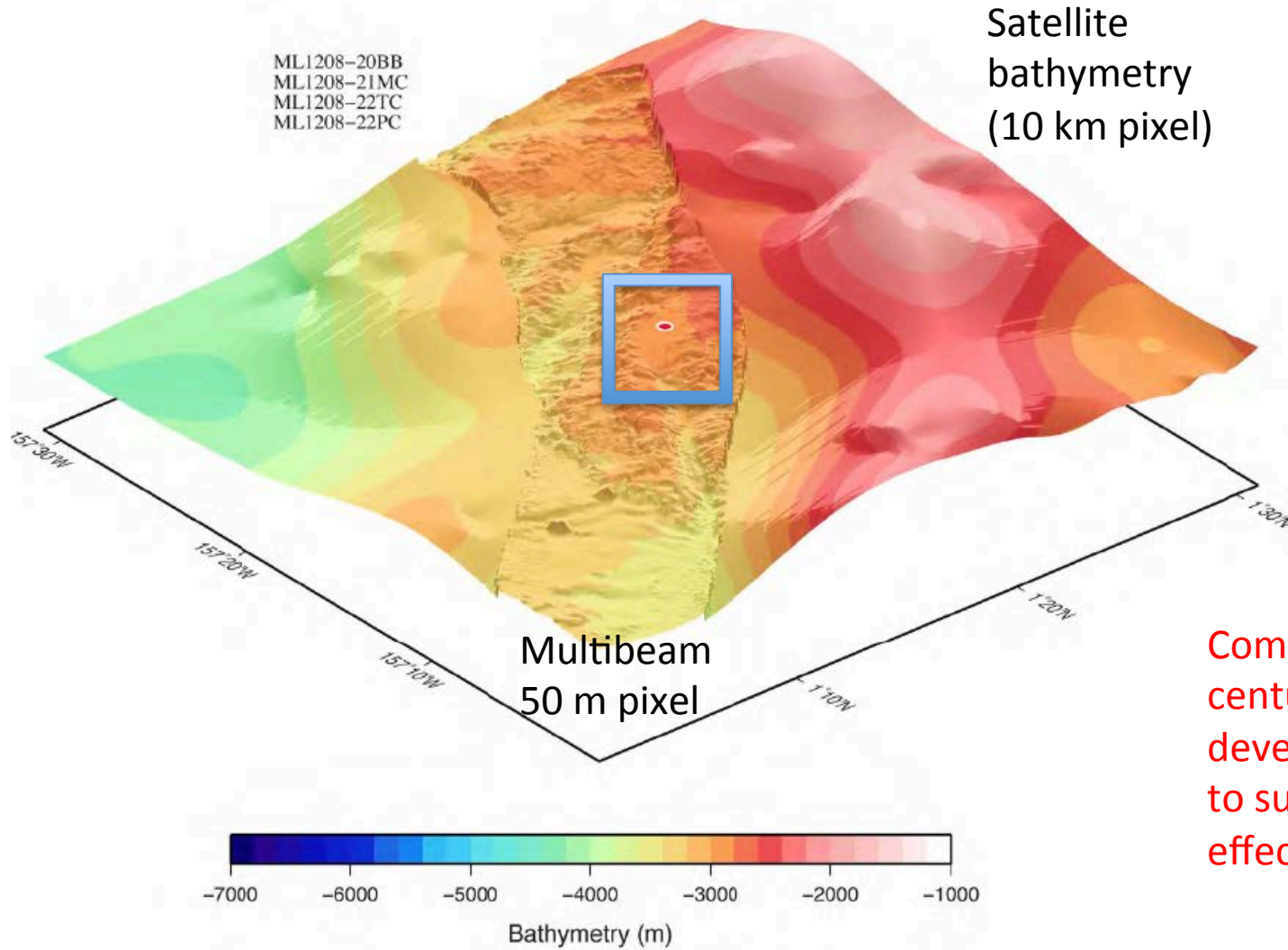
Why core?

Majority of cores taken before 1972; poorly sited, poorly navigated and 'reconnaissance' in nature



Why core?

Modern GPS Navigation, digital subbottom profiling, multibeam mapping, station keeping means that we can hit 1 km targets

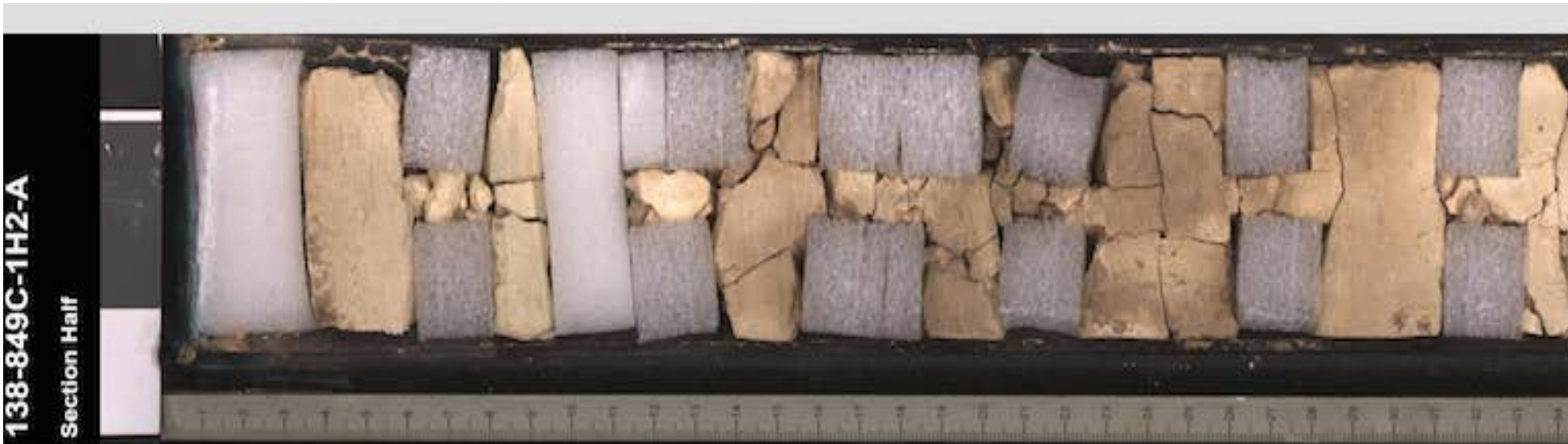


Coming into the 21st century we finally developed all the tools to survey and core effectively

Why core?

Good Cores don't last forever—sampling is usually destructive

Cores dry out and lose stratigraphic integrity over time—majority of cores have been in repositories for >40 years.



MARSSAM specialties

- Piston coring/'big Bertha' gravity coring: sampling 5-20 m sediment sections
- Gravity coring from large and small platforms: sampling 2-3 m sediments
- **Multicoring:** sampling the top 0.5 m
- Ability to stage multiple coring operations at the same time.

MARSSAM Aspirations

- Provide piston/gravity/multicoring capabilities on UNOLS global, ocean, and regional class vessels
- Provide expertise on how to retrieve marine sediments safely under a variety of sea states.
- Stage coring cruises worldwide in a variety of environments

Changes in the UNOLS coring environment 2014-2015

- NORCOR changes name to MARSSAM
- Mitch Lyle takes over MARSSAM from Nick Piasias
- Jim Broda ships WHOI Jumbo Piston coring equipment to OSU; all 'standard' piston coring now from MARSSAM
- Long core facility is mothballed



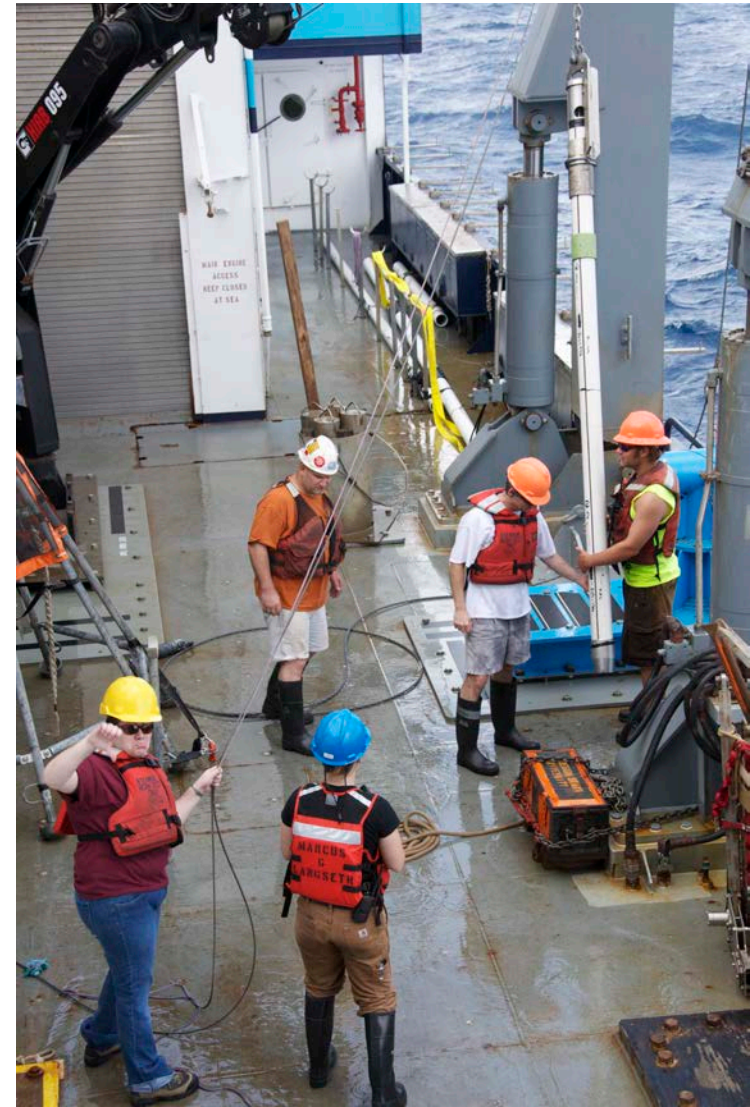
UNOLS coring 2016

- Coring test Sikuliaq; February
- Coring test Armstrong; June
- Coring test Ride; August
- Jamaica coring: Holocene hurricane history; September, Atlantis



UNOLS Challenges: next 5 years

- Turnover in Technician pool: retirements and replacements
- Turnover in UNOLS fleet: new ships coming on line
- Turnover among scientists: Loss of experienced chief scientists
- Fewer field operations: money available low, costs going up



MARSSAM : Turnover in Technician pool

MARSSAM will need a new coring tech in 2016 to cross over with (and eventually replace) Chris Moser



MARSSAM : Turnover in UNOLS fleet

2012: first coring off R/V Langseth

Position of A-Frame limits cores to 50 feet long
(15 m)



MARSSAM : Turnover in UNOLS fleet

- February 2016: Sikuliaq coring test: rail system



MARSSAM : Turnover in UNOLS fleet

2016, Coring tests off Armstrong and Ride:

Short fantail limits rail system coring to about 40 feet.

Fantail clutter when coring



Armstrong Sept 2015

MARSSAM : Armstrong and Ride

Starboard OCRV rail has 70' (21 m) length, and could potentially be used to rig longer cores.

Challenge for 2016: develop load transfer system to move piston core barrels from rail to centerline A-frame in stern.



MARSSAM : RCRV coring, 2019

More fantail room than OCRV.

Use same load transfer system to make use of starboard rail?



MARSSAM Challenge: Deep water coring

Synthetics: same or greater strength, neutrally buoyant.

RCRV's spec'd to have synthetic cable



Swedish solution, Oden,
Petermann Fjord
Greenland:

plug and play portable
winch in 20' container

Winch plus 10k m of
synthetic: roughly \$500k

MARSSAM Challenge: maximize core data while at sea

Working with OSU geological repository to scan, describe, sample and archive cores while at sea



Working with cores at sea allows scientists to compare stratigraphy, see if cores fit objectives for later analysis

