

# Schmidt Ocean Institute

SCUFN-30 – Genoa, Italy

Leighton Rolley – Lead Technician  
leighton.r@soi-team.org

<https://schmidtocean.org/>





# About Me

- Lead Marine Technician
- Joined Schmidt Ocean Institute (December 2011)
- Prior to joining SOI I worked for the Natural Environment Research Council (NERC) at the National Oceanography Centre, UK – Team leader RRS *James Cook*
- Apprentice at Southampton Oceanography Centre
- Computer Science – Technical aspects of cruise support
- Participated in over 100 expeditions – 6 years at sea





# About Schmidt Ocean Institute



- **2009** - Founders Eric and Wendy Schmidt establish Schmidt Ocean Institute as a 501 (c)(3) private non-profit foundation.
- *Lone Ranger*
- established to advance oceanographic research, discovery, and knowledge, and catalyze sharing of information about the oceans.
- **2009-2012** Schmidt Ocean Institute purchases a German fisheries protection vessel, and undergoes an extensive refit to convert the ship to a state-of-the-art oceanographic research vessel, now known as *Falkor*.
- **2012** – *Falkor* undergoes extensive verification cruises in Germany, Norway and the Atlantic
- **2013** – *Falkor's* first year of science





# Vision & Mission

- **Vision:** The world's oceans understood through technological advancement, intelligent observation, and open sharing of information.
- **Mission:** We combine advanced science with state-of-the-art technology •
  - to achieve lasting results in ocean research,
  - to catalyse open sharing of the information,
  - and to communicate this knowledge to audiences around the world





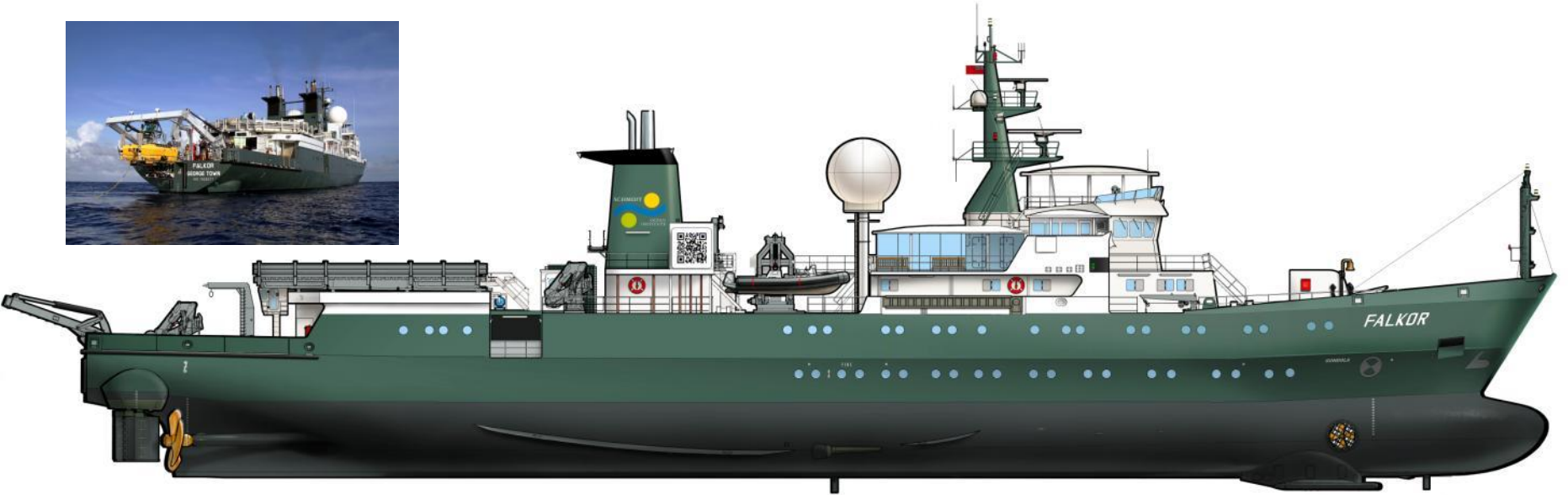
# Funding Science



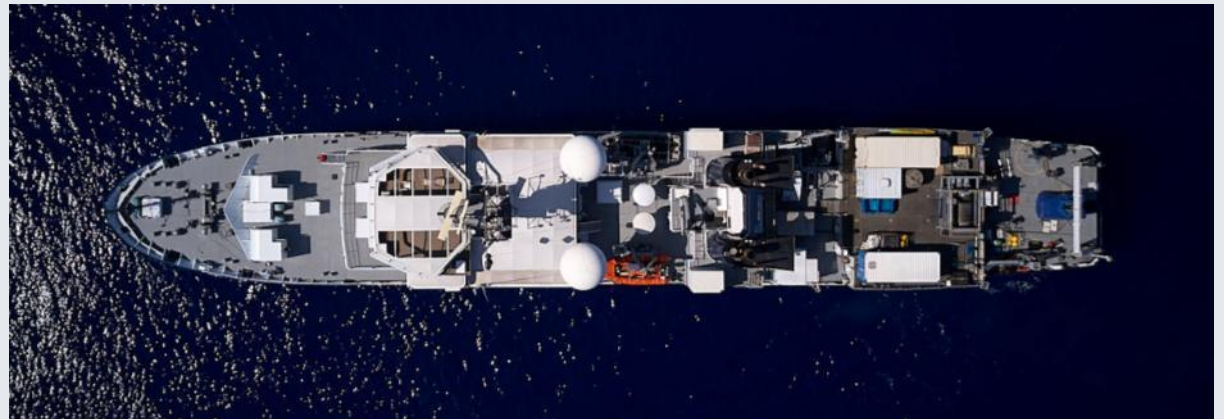
- Single page expression of interest/proposal overview
- Full proposal request
- Science proposals are peer reviewed by a Science Advisory Committee
- Successful proposals will be funded by the Schmidt Ocean Institute



# About RV *Falkor*



**Length:** 82.9m  
**Beam:** 13.00 Meters  
**Draft:** 5.8m  
**Endurance:** 36 Days  
**Max Speed:** 17kts  
**20 Crew/21 Scientists**







# Research Vessel *Falkor*





# RV *Falkor* - Sonar Suite



**EM302** – (400-9000m)

**EM710** – (5m – 1800m)

ADCP 75 & 300kHz

Knudsen 12kHz

EK60 – 18,38,70,120,200,710

EA600 – 12, 38, 200

Hydrophones

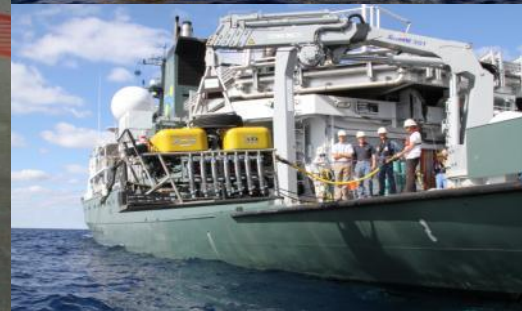
Cameras

- UNH Checks
- Noise Level Checks





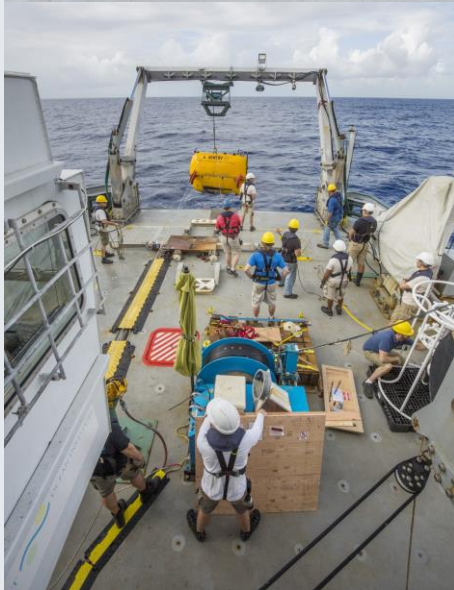
# ROV SuBastian – 4500m







# Science Tools





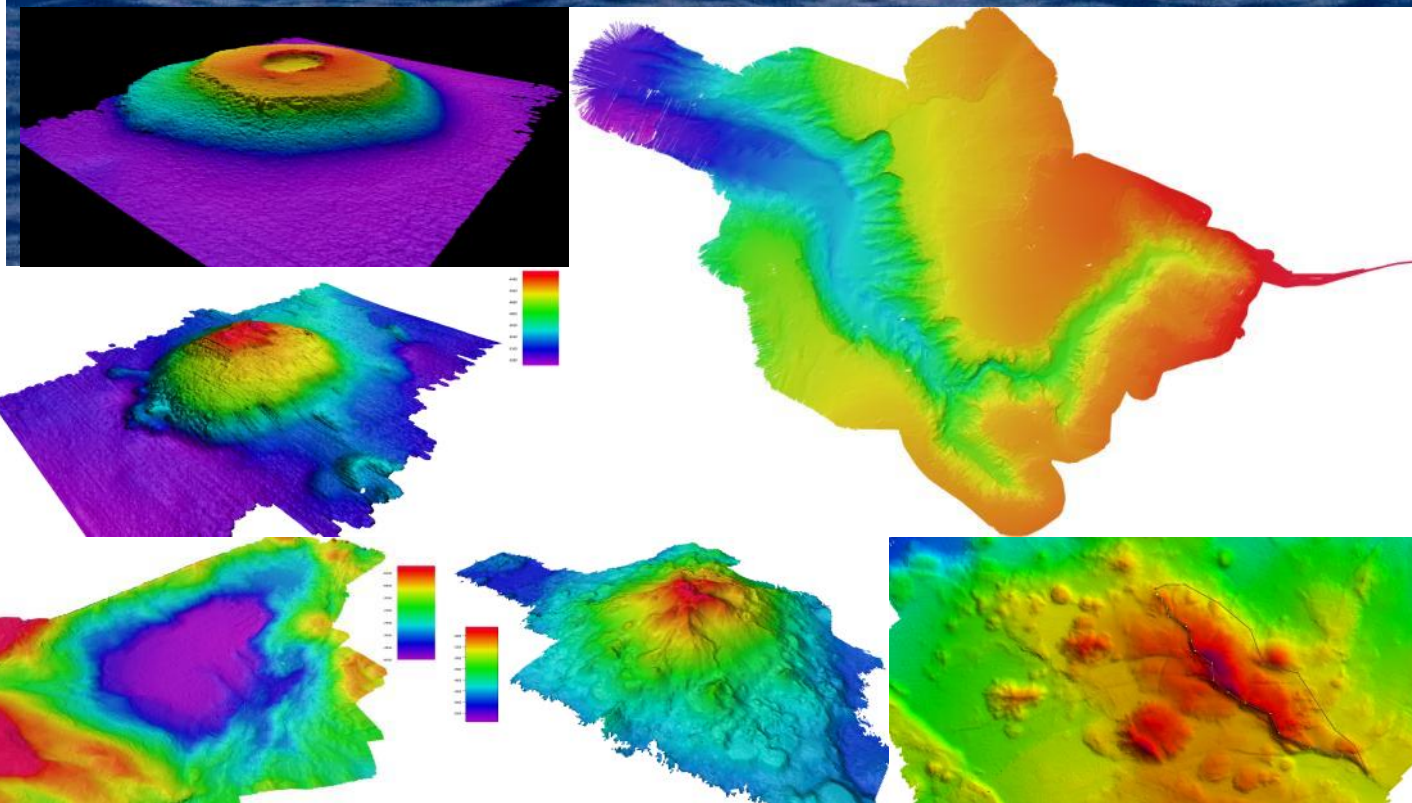


Schmidt Ocean  
Institute

-

IHO  
Submissions

- First Submission May 2014 – Loss of Nereus - TGT
  - *Crean Deep, Tāwhatiwhati Guyot, Thompson-Eclipse Knoll* – not the best submission
    - “give it go”
  - Since 2014 we have made 14 naming submissions
  - Continually improving our submissions as we go
  - Highlighting the unexplored ocean
  - Student involvement in the naming process
- Great exercise for students....







## Student Participation & Training



- Berths of opportunity for students with limited sailing and research experience – advertised on our website & social media
- Encouraging the next generation of ocean scientists
- B6 as an aid for both students and technical staff
  - survey planning, execution, data cleaning, contouring, profiles, and presentation
- Real world results – visible achievement and legacy of the science
- Promoting exploration and community interest in the oceans





## Engagement & Legacy



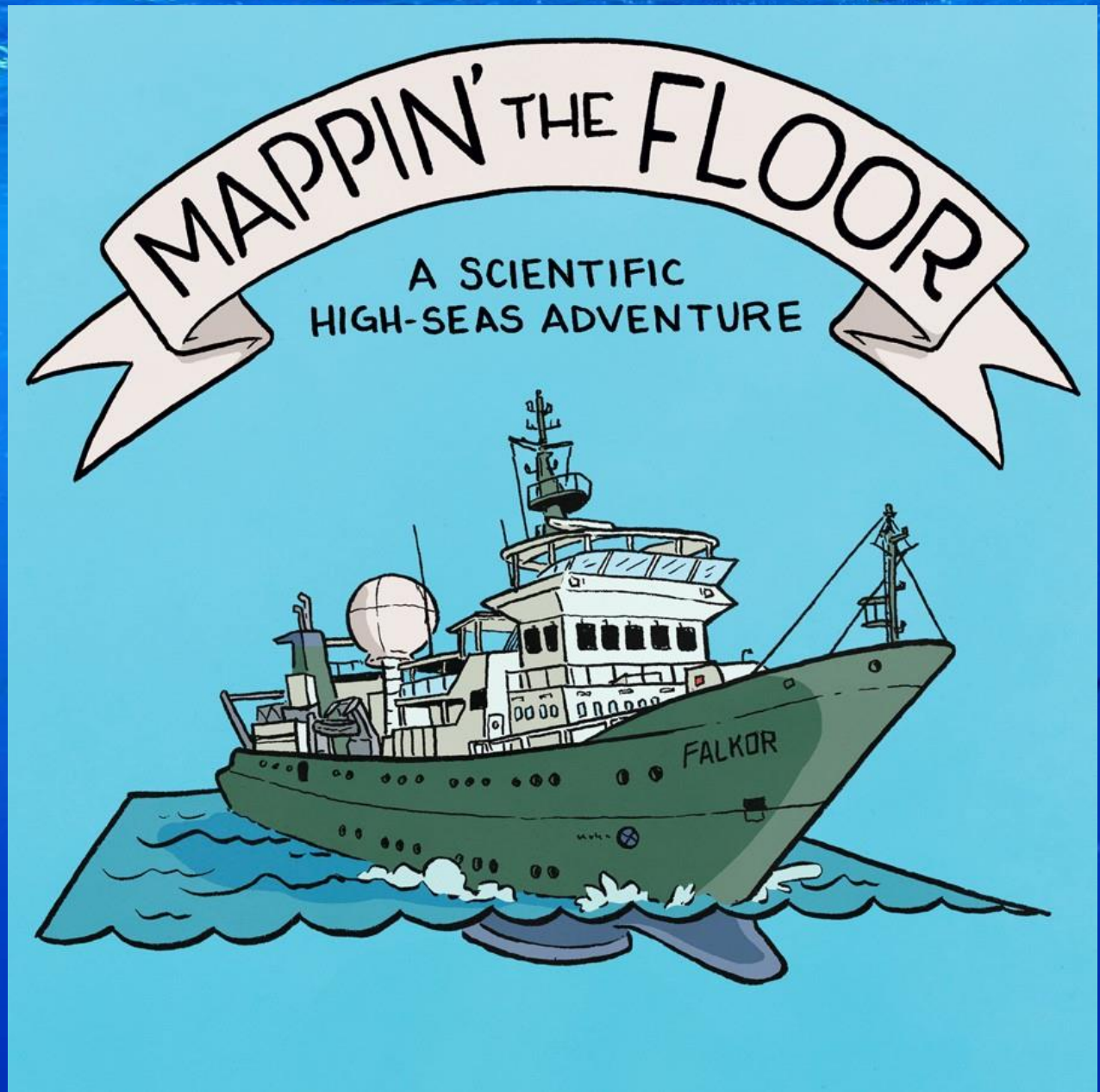
### •Communications, Education, and Outreach Program

“The purpose of this ship, as she leaves on her various missions, is to communicate about the science of the oceans to people so that they can care about it. We can’t take care of something that we don’t understand and we can’t care if we don’t know.” – Wendy Schmidt, March 6, 2012.





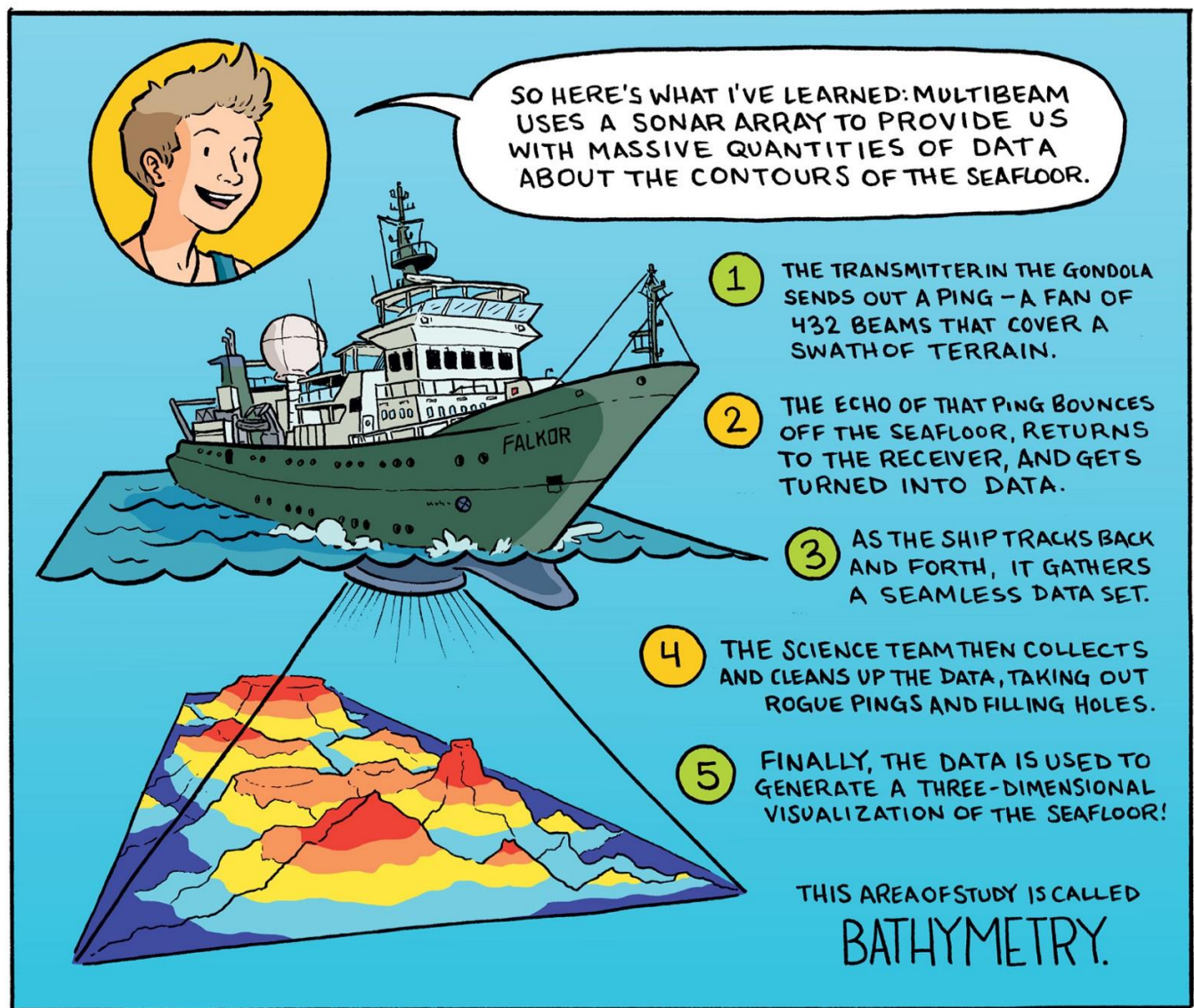
Engagement  
&  
Legacy







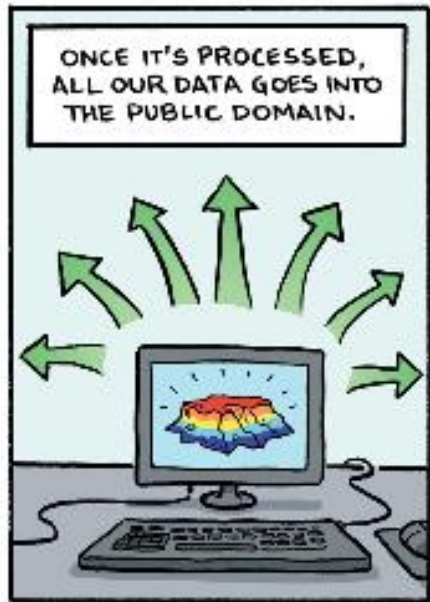
## Engagement & Legacy



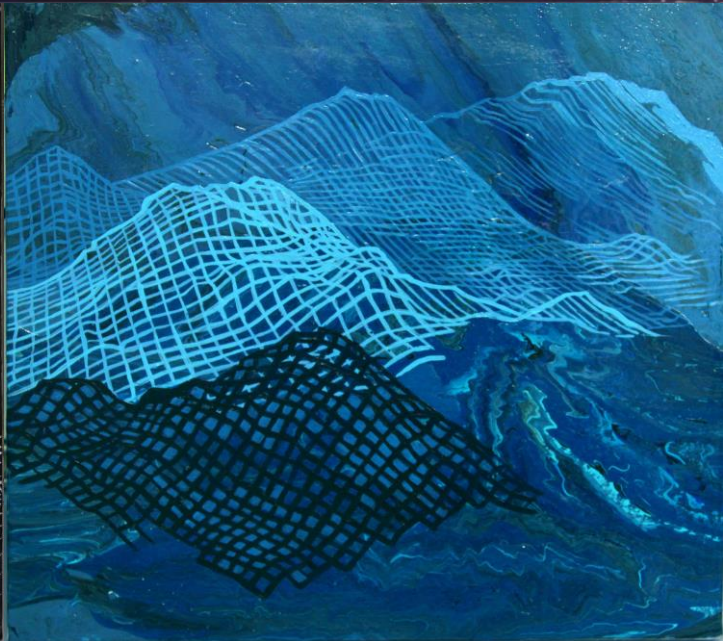
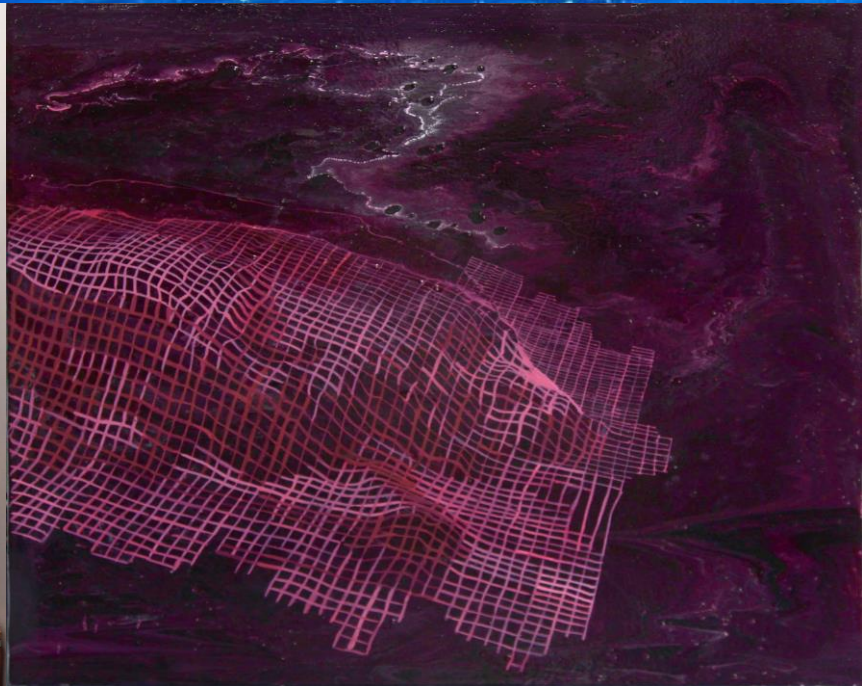
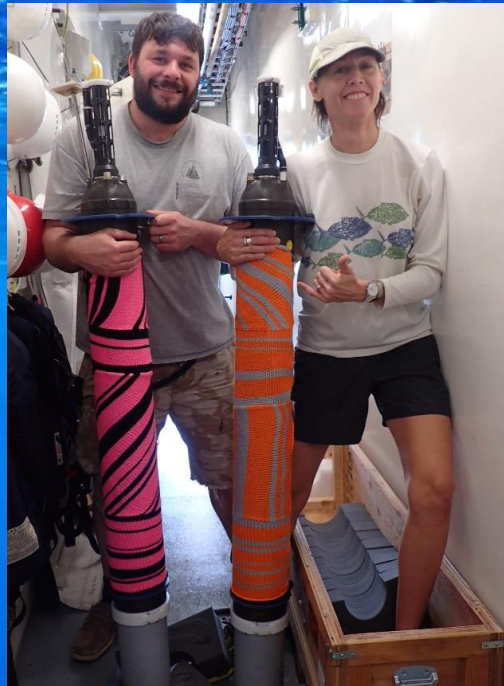
SO HERE'S WHAT I'VE LEARNED: MULTIBEAM USES A SONAR ARRAY TO PROVIDE US WITH MASSIVE QUANTITIES OF DATA ABOUT THE CONTOURS OF THE SEAFLOOR.

- 1 THE TRANSMITTER IN THE GONDOLA SENDS OUT A PING - A FAN OF 432 BEAMS THAT COVER A SWATH OF TERRAIN.
- 2 THE ECHO OF THAT PING BOUNCES OFF THE SEAFLOOR, RETURNS TO THE RECEIVER, AND GETS TURNED INTO DATA.
- 3 AS THE SHIP TRACKS BACK AND FORTH, IT GATHERS A SEAMLESS DATA SET.
- 4 THE SCIENCE TEAM THEN COLLECTS AND CLEANS UP THE DATA, TAKING OUT ROGUE PINGS AND FILLING HOLES.
- 5 FINALLY, THE DATA IS USED TO GENERATE A THREE-DIMENSIONAL VISUALIZATION OF THE SEAFLOOR!

THIS AREA OF STUDY IS CALLED  
**BATHYMETRY.**











Questions?

