OCEAN OBSERVATORIES INITIATIVE FACILITY BOARD
OOIFB

Lightning Talk Presenters

Karen Bemis, Rutgers, The State University of New Jersey

Bill Chadwick, Oregon State University

Greg Koman, Woods Hole Oceanographic Institution

Liz Ferguson, Ocean Science Analytics

Artash Nath, Monitor My Ocean

Heather Furey, Woods Hole Oceanographic Institution

Using acoustic imaging to monitor focused and diffuse hydrothermal venting

RUTGERS

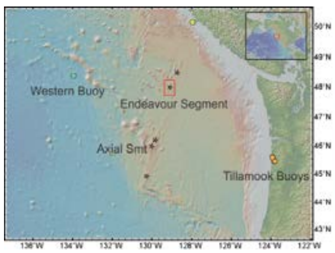
Karen G. Bemis (Rutgers) and many, many more

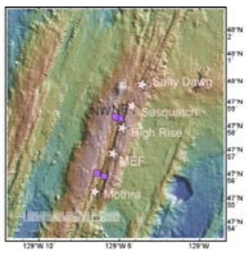
(especially Guangyu Xu (APL-UW), Darrell Jackson (APL-UW), Anatoliy Ivakin (APL-UW), Dax Soule (Queens), Michael Zhao (Rutgers))

QUEENS COLLEGE

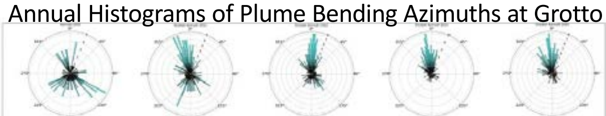
CUNY The City University of New York

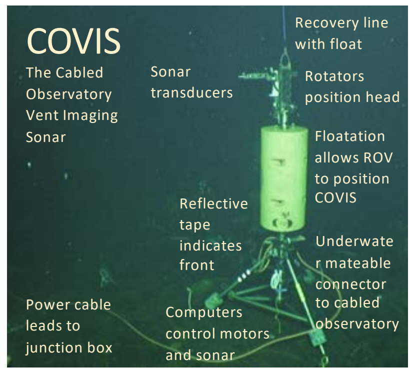
Monitoring Grotto Vent on NEPTUNE



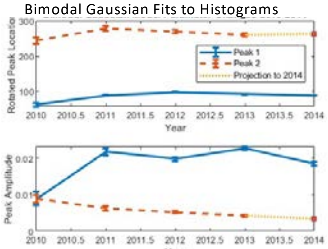


Annual Histograms of Plume Bending Azimuths at Grotto

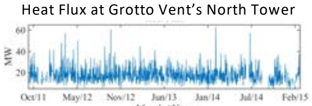




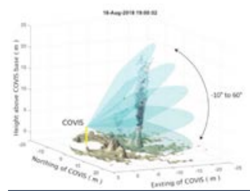
Bimodal Gaussian Fits to Histograms



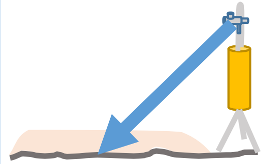
Heat Flux at Grotto Vent's North Tower



COVIS at Grotto Vent imaged several plumes above the sulfide mound, capturing vertical velocity and heat flux for the largest plume. Recent work tracks changes in the azimuth of plume bending. Bending shifted from balanced N-S bending in 2010-2011 to dominantly N bending in 2013-2014. Increased venting at High Rise and decreased venting in MEF or Mothra seems the most likely explanation.

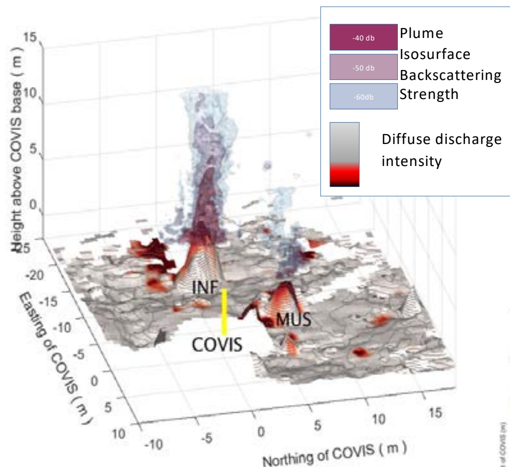


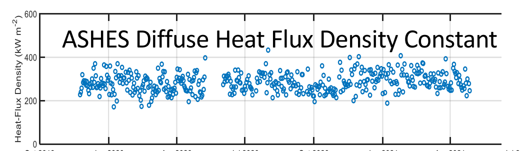
Imaging mode scanning

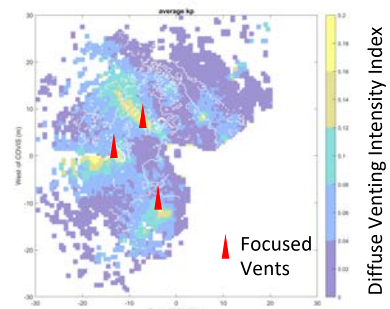


COVIS Diffuse mode

Monitoring ASHES diffuse venting on OOI







COVIS at ASHES has imaged several plumes and detected hydrothermal discharge. We estimate Inferno heat flux as of the order of 10 MW and the diffuse discharge heat flux density as the order of 200-400 kW/m2. Spatial analysis of the diffuse discharge maps suggests aureoles of enhanced diffuse discharge surround focused vents (which in some cases are miniature focused vents with clear discharge).

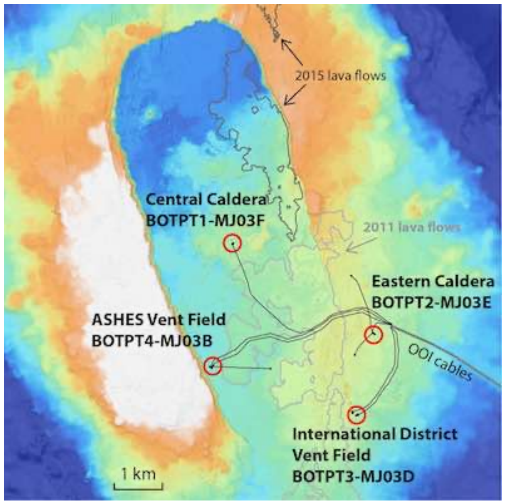
NSF Supported by NSF

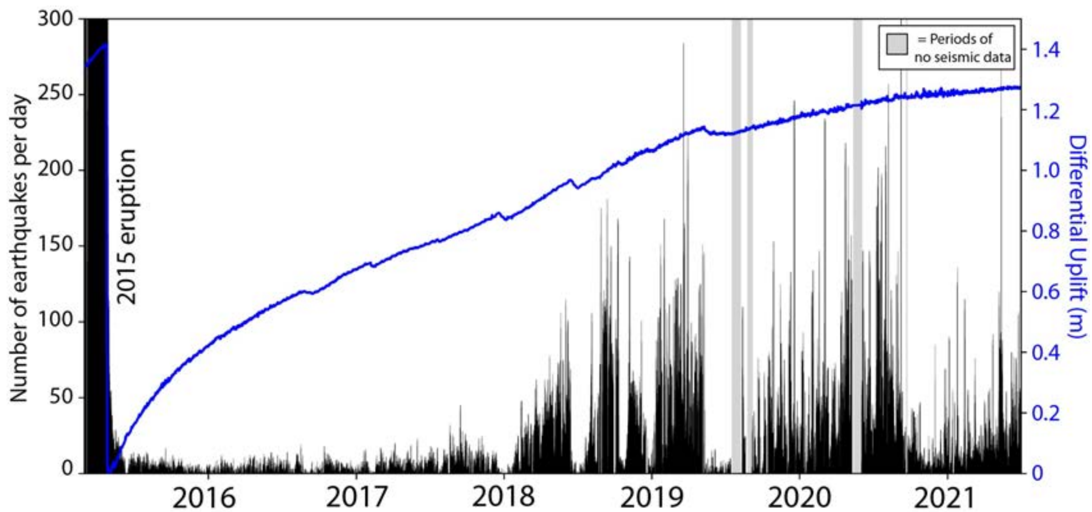
Vist our iPosters: V43B-07 and V43B-08

OOI monitoring at Axial since its 2015 eruption reveals tightly linked rates of deformation and seismicity

Bill Chadwick, Oregon State University, bill.chadwick@oregonstate.edu

PREVIEW of AGU poster **V45B-0137**





On first glance, the rates of uplift and seismicity at Axial Seamount don't appear to correlate in time …

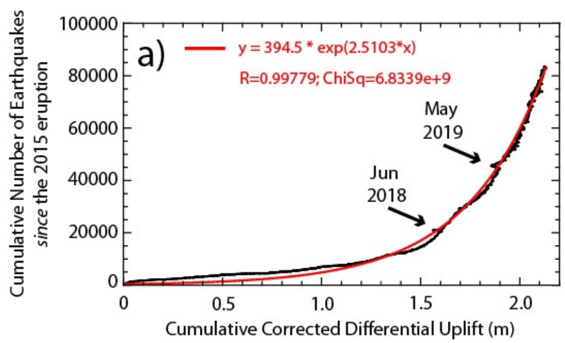
… but in fact, the number of earthquakes since the 2015 eruption has increased exponentially with the amount of total uplift.

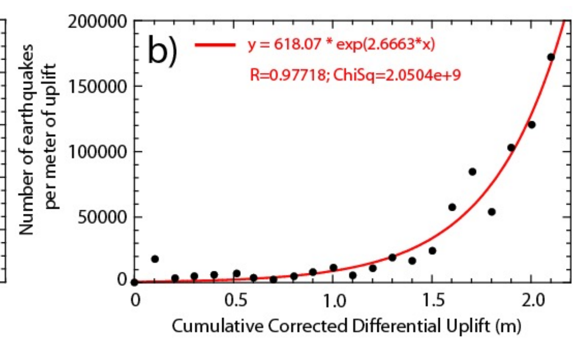
This is consistent with the mechanical model of Kilburn (2018).

Related presentations at AGU this year:

V45B-0136 - *Cabaniss et al.* - Modeling the Fault Modulated Eruptions of Axial Seamount, Juan de Fuca Ridge

V45B-0138 - *Hefner et al.* - Deformation Models for the 2015-Eruption and Post-Eruption Inflation at Axial Seamount from Repeat AUV Bathymetry





Plots of real-time BOTPT data available on-line at: www.pmel.noaa.gov/eoi/rsn/

Overturning in the Subpolar North Atlantic Program (OSNAP)

Greg Koman(gregory.koman@whoi.edu), Amy Bower & Heather Furey
Woods Hole Oceanographic Institution

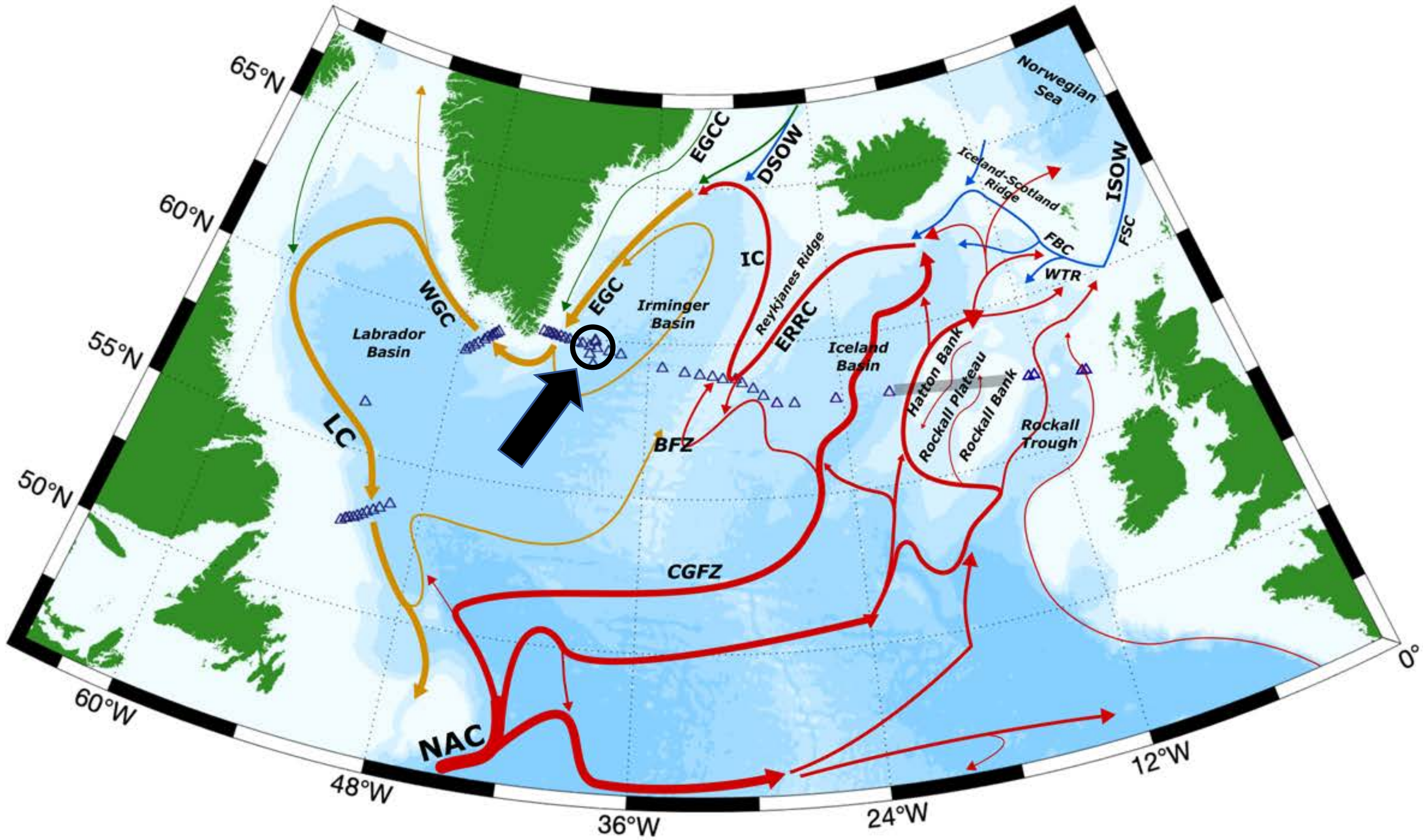
OSNAP
OVERTURNING IN THE SUBPOLAR NORTH ATLANTIC PROGRAM

-International observing collaboration maintained since 2014

-Observes fluxes of heat, freshwater and mass

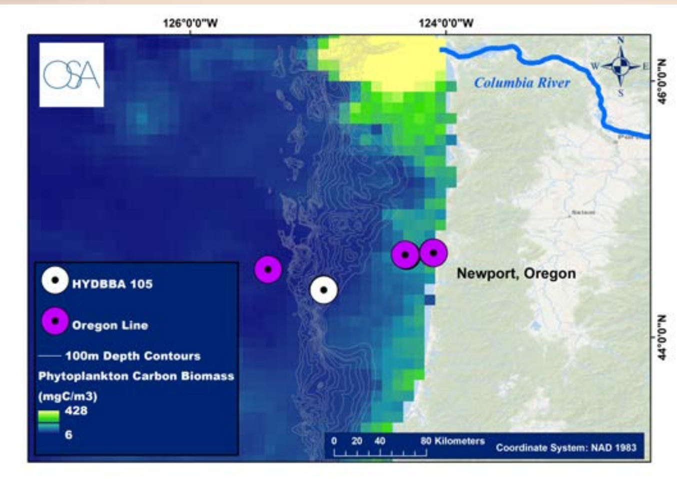
-Incorporates four OOI moorings from the Global Irminger Sea Array

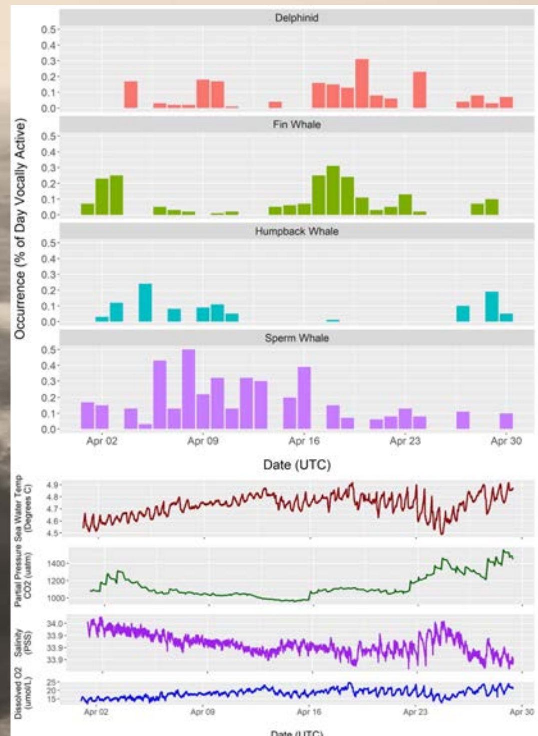
- Supported



Coastal and Offshore Oregon Marine Mammal Ecological Study

AGU Poster: B25E-1522



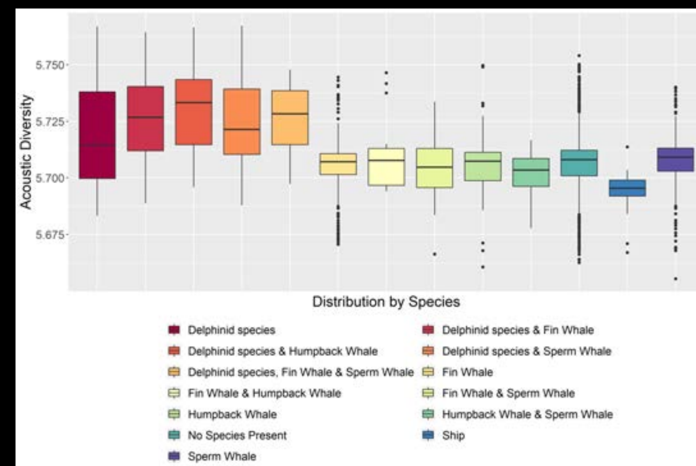


Liz Ferguson, CEO & Marine Ecologist
eferguson@oceanscienceanalytics.com

www.oceanscienceanalytics.com

Related Efforts

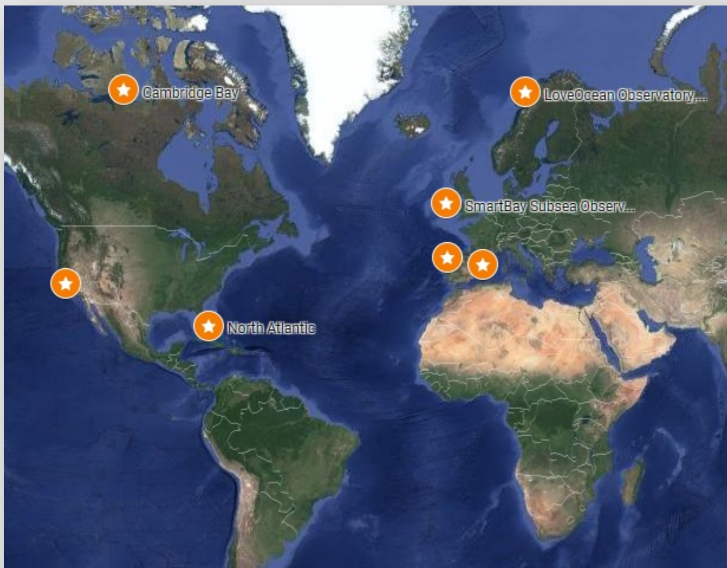
Acoustic Indices: Evaluating the influence of marine mammal call parameters on a suite of metrics



Burst Pulse Analysis: Collaborating with University of St Andrews to study the occurrence of patterned sequences of burst pulses from delphinid acoustic events

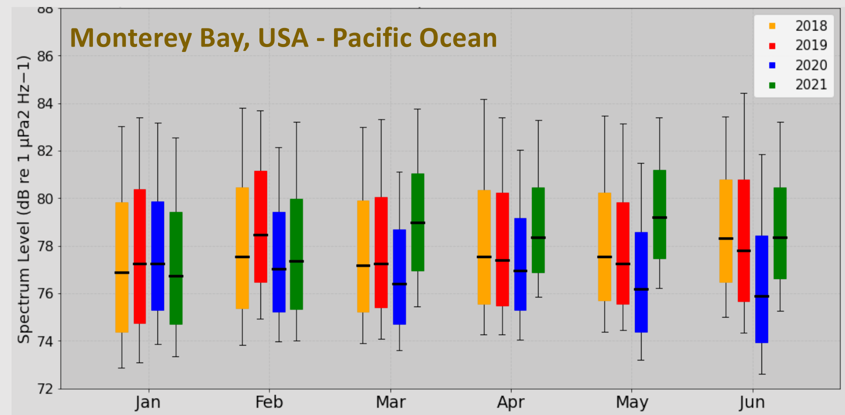
Silence of Global Oceans: Acoustic Impact of COVID-19 Pandemic

Global Hydrophone Locations:
Arctic, Pacific, North Atlantic, Mediterranean

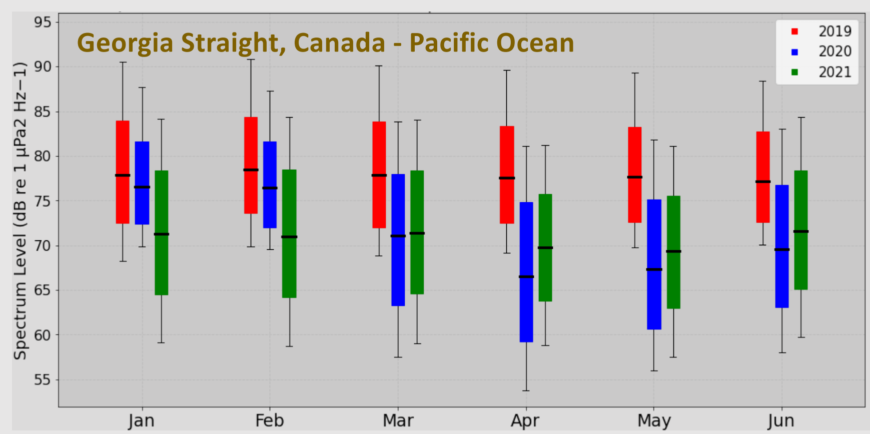


Decrease in Sound Spectrum: 1/3rd Octave Centred on 63 Hz
Median and 90% Percentile in early 2020

MBARI



OCEAN NETWORKS CANADA



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AGU FALL MEETING
New Orleans, LA & Online Everywhere
13–17 December 2021

Accessible Oceans: Exploring Ocean Data through Sound

Building knowledge about effective design and use of auditory display for inclusive inquiry in Ocean Science

Amy Bower[1], Jon Bellona[2], Carrie Bruce[3], Jessica Roberts[3], and Leslie Smith[4]

[1]Woods Hole Oceanographic Institution, [2]University of Oregon, [3]Georgia Tech, [4]Your Ocean Consulting, LLC

Contact: abower@whoi.edu

SONIFYING OOI DATA NUGGETS

Five OOI Data Nuggets will be selected to span disciplines and represent diverse data types.

WHY SOUND?

Data Literacy heavily relies on **visual learning tools**. This excludes those with vision impairments and those who do not learn visually. Using sound to explore data will facilitate participation and increase interest in STEM and data literacy.

WHAT IS SONIFICATION?

Data Sonification is the mapping of data to an audio signal to communicate information.

Listen to the Ocean Breathe ….