

Video Workshop Project

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Lamont-Doherty Earth Observatory

Video Workshop

- Pre-workshop Community survey
 - > 130 participants
- Held at URI in June 2016
 - > 40 in-person participants
 - ~ 30 remote participants
- Recommendations



WORKSHOP REPORT:

Establishing Community Standards for Underwater Video Acquisition, Tagging, Archiving, and Access

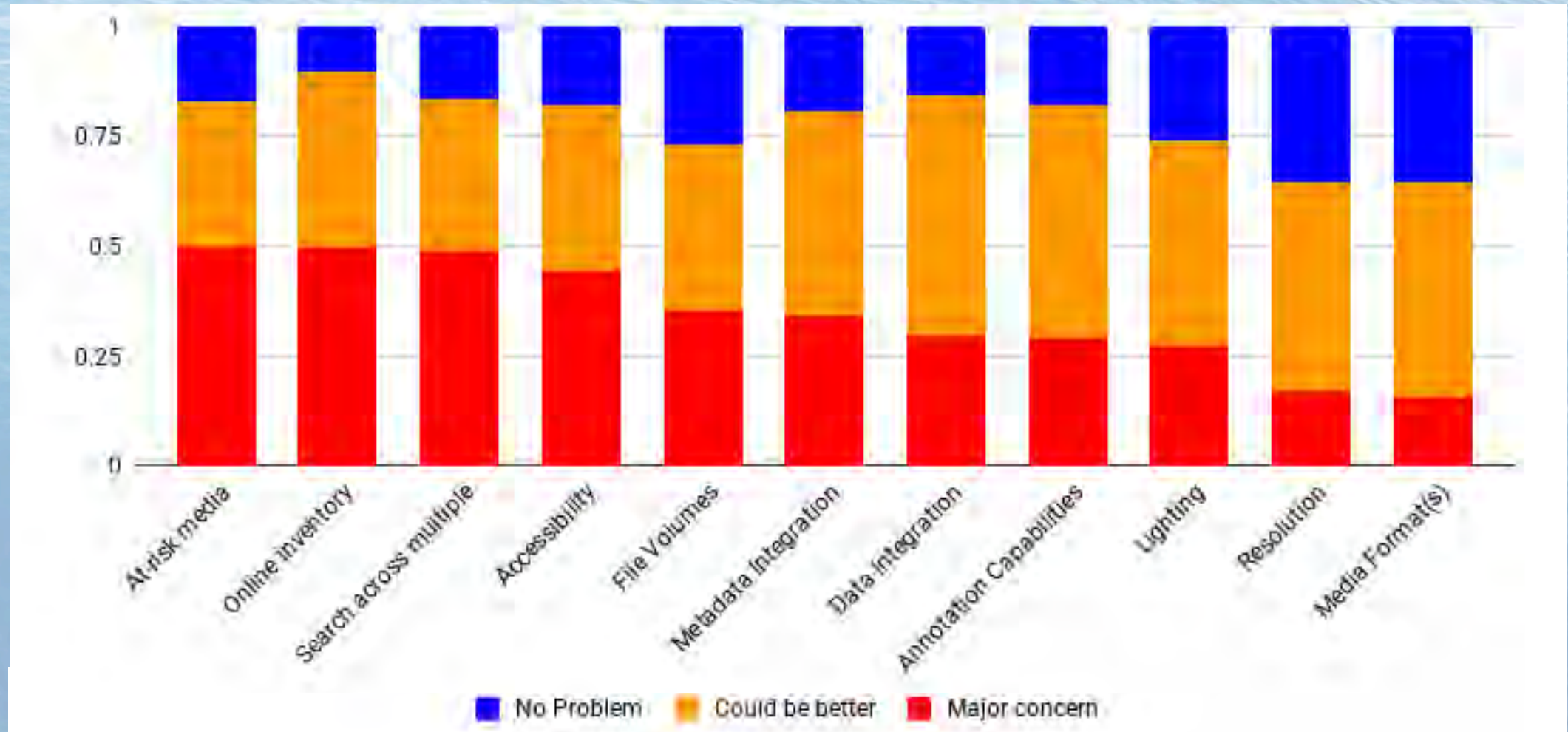
1 | Introduction & Motivation

Video imagery is an integral part of underwater operations conducted with ROVs, HOVs, and AUVs. These data are critical for sampling, exploration, and observation activities during seafloor operations and are key records for immediate post-dive and post-cruise research by the shipboard participants. In addition, video imagery is essential to subsea engineering activities including operations and maintenance of seafloor infrastructure for documenting and developing training materials. Video archives have the potential to provide broad significant scientific and educational benefits long after data acquisition and have tremendous potential for engaging the public in exciting ocean science research.

The technology for streaming and searching for video content on a variety of platforms (e.g. desktop computers, mobile devices, smart TVs) has become mainstream (e.g., within consumer markets for the broadcast entertainment sector), and the oceanographic research community has an opportunity to capitalize on these technologies. While some individuals and organizations within the ocean science community have successfully addressed aspects of developing online video archives, there has not been a coordinated effort to establish community standards and guidelines for managing the entire video data life cycle. Even though fully accessible online underwater video archives may lie far in the future, there is significant benefit to laying the groundwork for such archives now in order to mitigate costs, gain efficiencies, and facilitate interoperability.

<https://goo.gl/Sqpn6d>

Community Concerns from Pre-workshop Survey



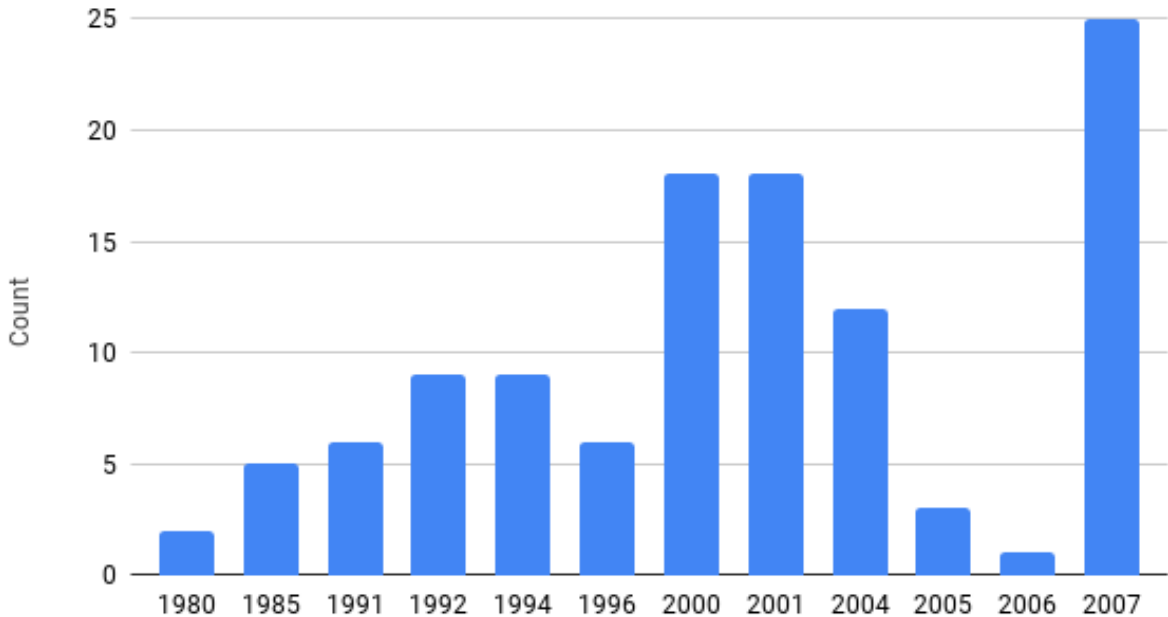
Goals

- Assess cost of digitizing at-risk legacy video content
- Consider different ages, media formats, cameras
 - Differences in Quality
- Assess utility of digitized content for data analysis
- Gather data to inform a potential larger-scale digitization effort

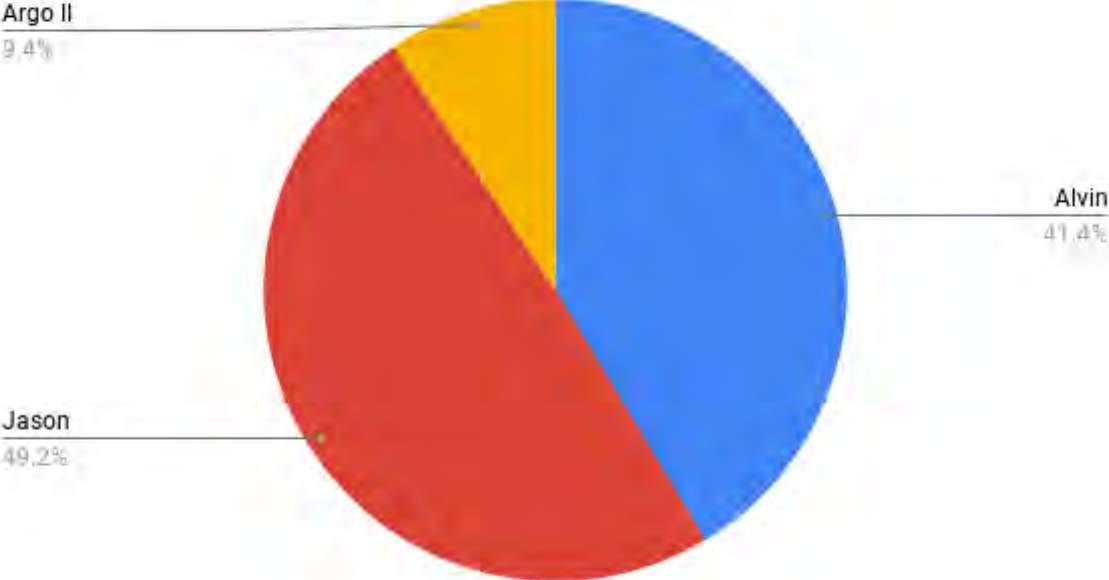


Media supplied by
Dan Fornari

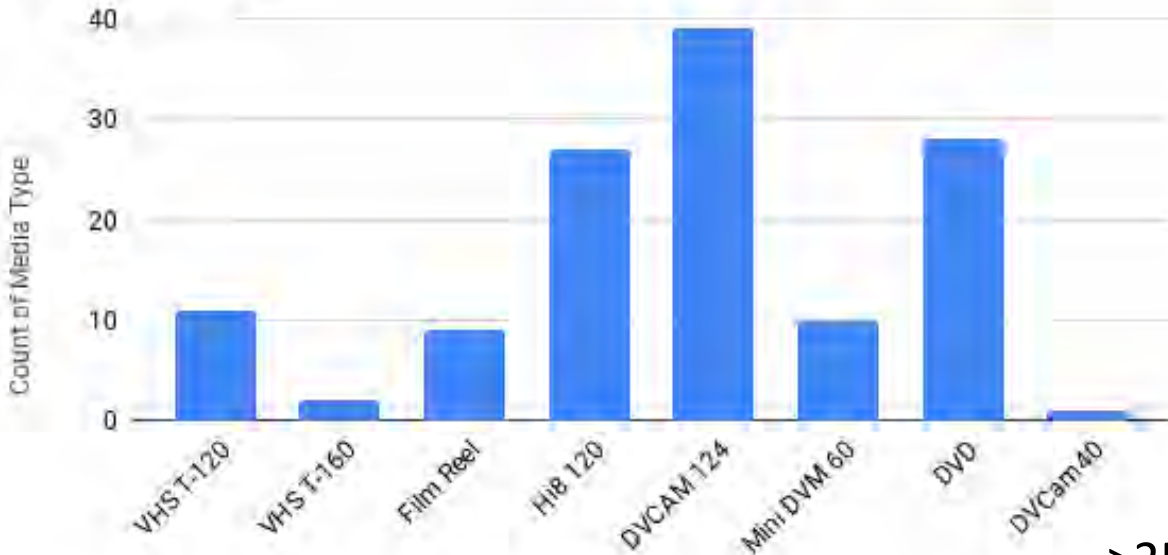
Media by Year



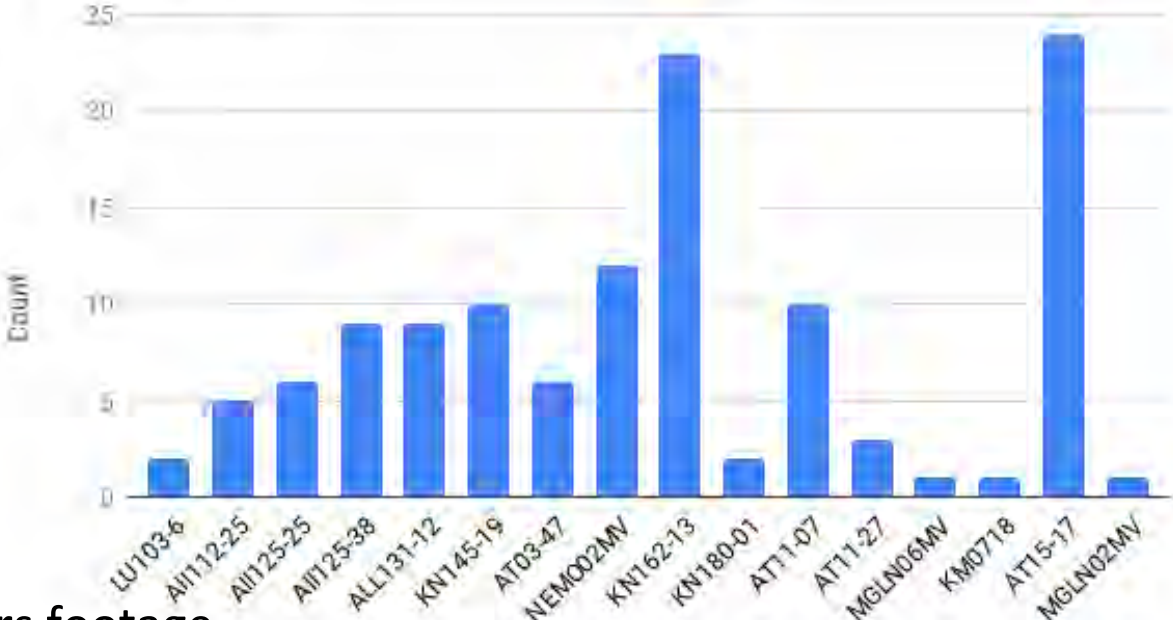
Media by Vehicle



Media by Type



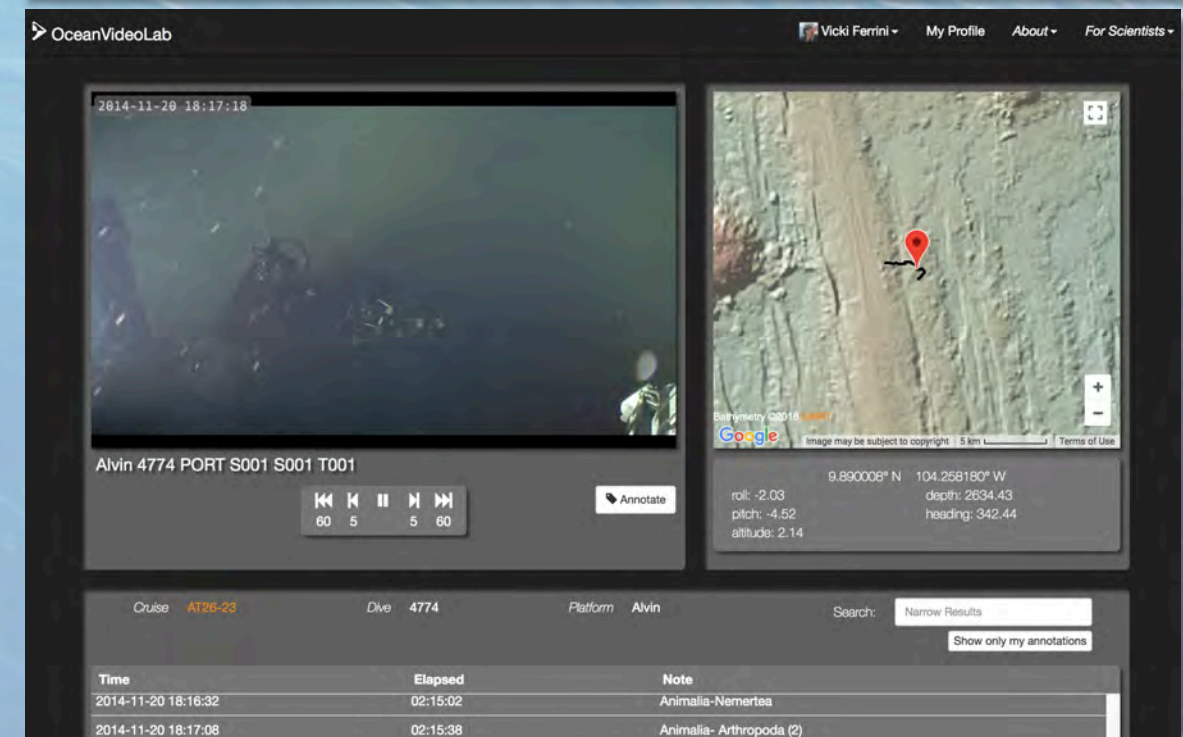
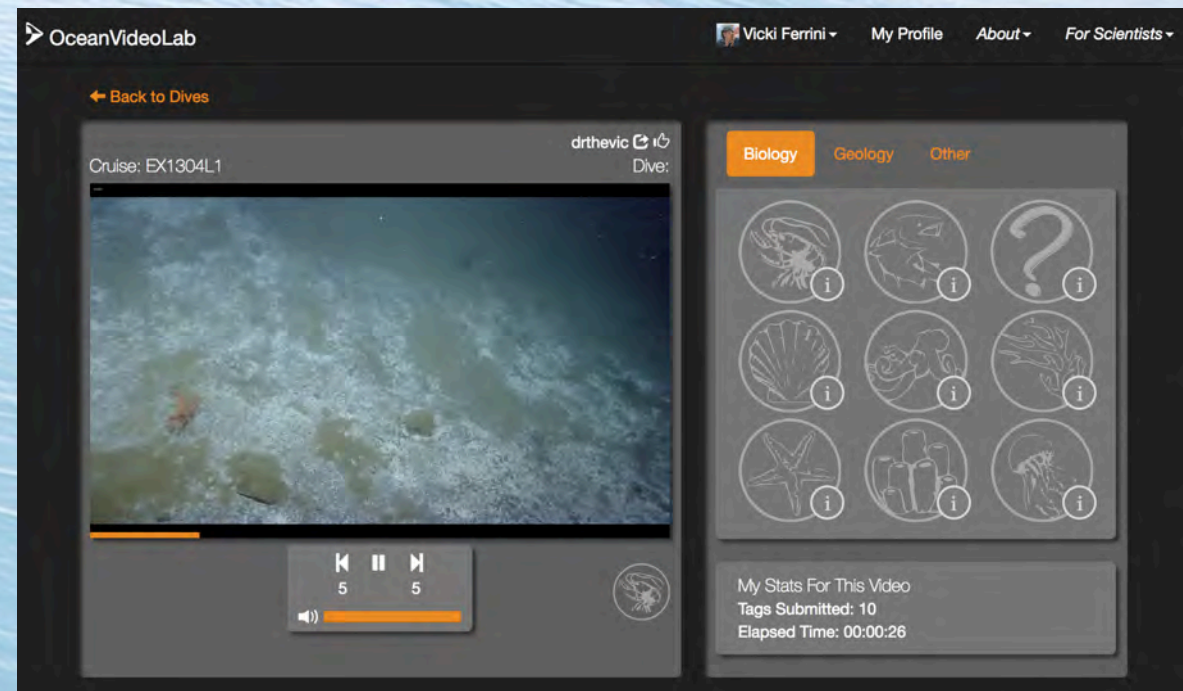
Media by Cruise



>250 hours footage

Status and Next Steps...

- Digitization completed
- Digital content being delivered next week on 3 hard drives:
 - 1 will remain at LDEO
 - 1 to WHOI Data Library
 - 1 to Dan Fornari
- Upload content to Ocean Video Lab
 - Citizen Scientist Tagging
 - Scientific Annotation



Data Management Summary

Submersible Data Available @MGDS

- ~2.5 TB data
- > 160,000 files
- > 15 vehicles
- >1,000 dives
- > 100 cruises

Vehicle Name	Vehicle Type	Total File Size	Total Files	Total Dives	Total Cruises
ABE	AUV	5.6GB	143	52	8
Alvin	HOV	85.9GB	21470	370	35
Comanche	ROV	160.5MB	31	9	1
D. Allan B.	AUV	568.9GB	4751	5	6
Isis	ROV	485.8MB	596	0	2
Jason I	ROV	15.9MB	24	6	1
Jason II	ROV	221.2GB	8991	245	25
Kraken2	ROV	791.4MB	986	0	1
Not Named	ROV	6.0GB	42756	5	1
REMUS 600	AUV	393.9GB	9537	8	1
REMUS 6000	AUV	463.3GB	14153	122	2
ROPOS	ROV	172.4GB	24321	28	4
Sentry	AUV	609.3GB	31677	86	11
Sirius	AUV	6.4MB	6	1	1
SuBastian	ROV	6.8GB	555	59	6
Tiburon	ROV	31.8MB	44	18	2

Data Stewardship

- Data preservation
- Data Discovery & Access
 - Custom display and search
- Comprehensive metadata
 - Cruise & Dive
 - Scientists
 - Project Info
 - Related publications
- Data Data publication
 - Data DOI
 - Citation Information

Data Type	Total Files	Total Data Sets	Total Cruises
Navigation	3,154	173	71
Bathymetry	24,774	126	40
Backscatter:Acoustic	22,431	41	13
Sidescan	11,161	30	11
Photograph	107,585	25	19
Temperature	389	24	21
Chemistry:Fluid	60	15	10
Pressure	271	13	11
Conductivity	266	11	10
Photograph:Mosaic	319	11	5
Seismic:Active:Subbottom	1,324	10	4

Bi-annual Data Download Reports

- Scientists
- Facility Operators

Data Download Report for Vicki Ferrini

Data Download Reports are prepared bi-annually and are sent to all Scientists associated with downloaded data including Chief/Co-Chief Scientists of field programs, project PIs and Co-PIs, and data set Investigators. Please [contact us](#) with any questions or concerns.



MGDS Data Downloads

Report covers July 01, 2017 to December 31, 2017

<u>Collection ID</u>	<u>Chief Scientist</u>	<u>Data Set Investigator(s)</u>	<u>Device Info</u>	<u>Total Size</u>	<u>Total File Downloads</u>	<u>Data Type(s)</u>	<u>Download Purpose(s)++</u>
TUIM05MV	Tivey	Ferrini, Tivey	ROV: Jason II Sonar:Multibeam	963 MB	8	Bathymetry:Swath doi: 10.1594/IEDA/300014	
AT11-10	Lutz	Ferrini	HOV: Alvin Sonar:Scanning	37 MB	24	Bathymetry (Grid) doi: 10.1594/IEDA/305176	
AT11-13	Kelley	Ferrini, Kelley	HOV: Alvin Sonar:Scanning	26 MB	10	Bathymetry (Image)	
			HOV: Alvin Sonar:Scanning	94 MB	16	Bathymetry (Grid) doi: 10.1594/IEDA/305180	
			HOV: Alvin Sonar:Scanning	56 MB	15	Bathymetry doi: 10.1594/IEDA/306207	

Data Download Report for Jason II

Data Download Reports are prepared bi-annually and are sent to all Scientists associated with downloaded data including Chief/Co-Chief Scientists of field programs, project PIs and Co-PIs, and data set Investigators. Please [contact us](#) with any questions or concerns.



MGDS Data Downloads

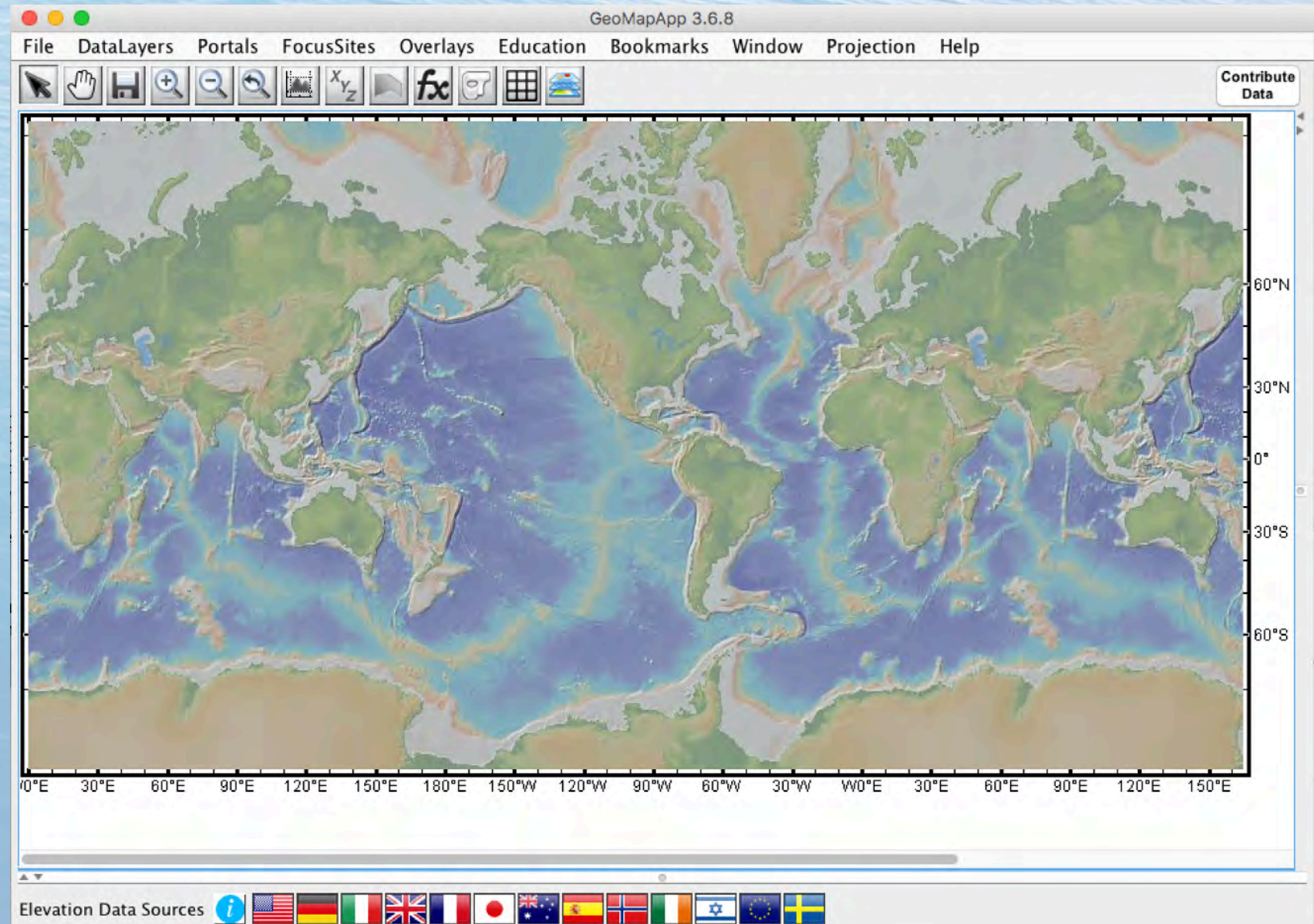
Report covers July 01, 2001 to December 31, 2017

<u>Collection ID</u>	<u>Chief Scientist</u>	<u>Data Set Investigator(s)</u>	<u>Device Info</u>	<u>Total Size</u>	<u>Total File Downloads</u>	<u>Data Type(s)</u>	<u>Download Purpose(s)++</u>
TUIM05MV	Tivey	Ferrini, Tivey	ROV: Jason II Sonar:Multibeam	11 GB	97	Bathymetry:Swath doi: 10.1594/IEDA/300014	
KN180-01	Sohn	Roman	ROV: Jason II Sonar:Multibeam	493 MB	34	Bathymetry:Swath (Grid)	
KN180-01	Sohn	Ferrini	ROV: Jason II Navigation	18 MB	9	Navigation doi: 10.1594/IEDA/306315	
			Navigation				

Total Volume Downloaded:
~4.3 TB

GeoMapApp

- Global bathymetry (GMRT) for cruise and dive planning
- Near-bottom bathymetry
- Now deployed with NDSF Ops Groups for at-sea use



NDSF Dive Metadata

- Early attempts in 2006
- New effort through EarthCube Project
 - Development/Deployment
 - Database
 - API
 - Proof of Concept UI
- Next step: curated metadata from WHOI
 - 2018 NDSF Summer Student Research Assistant Sawyer Newman

