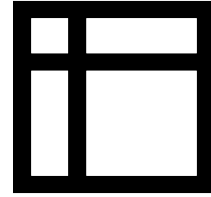
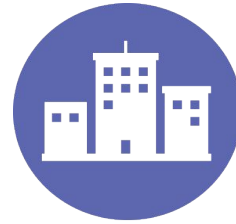
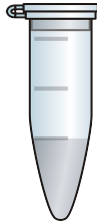


# Persistent identification of instrumentation

Markus Stocker



# PID Types



Y-A-PID

Universität Bremen

**10058845**

Inventarisierungsnummer



service@pac-bremen.de

**Personal- und Allgemeine  
Computer Vertriebs GmbH**

Osterfeuerberger Ring 21  
28219 Bremen  
Tel: (04 21) 3 89 19-0  
Fax: (04 21) 3 89 19 99



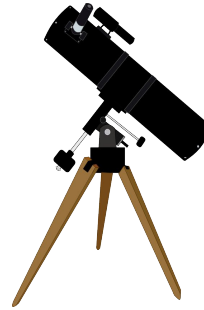
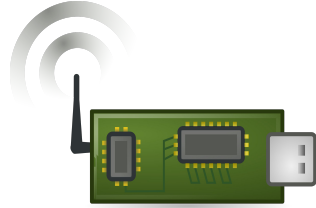
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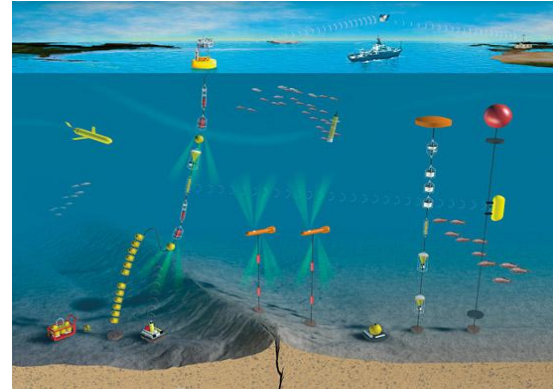
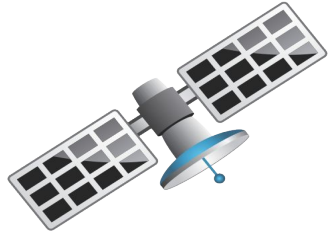
## **Journal of large-scale research facilities**

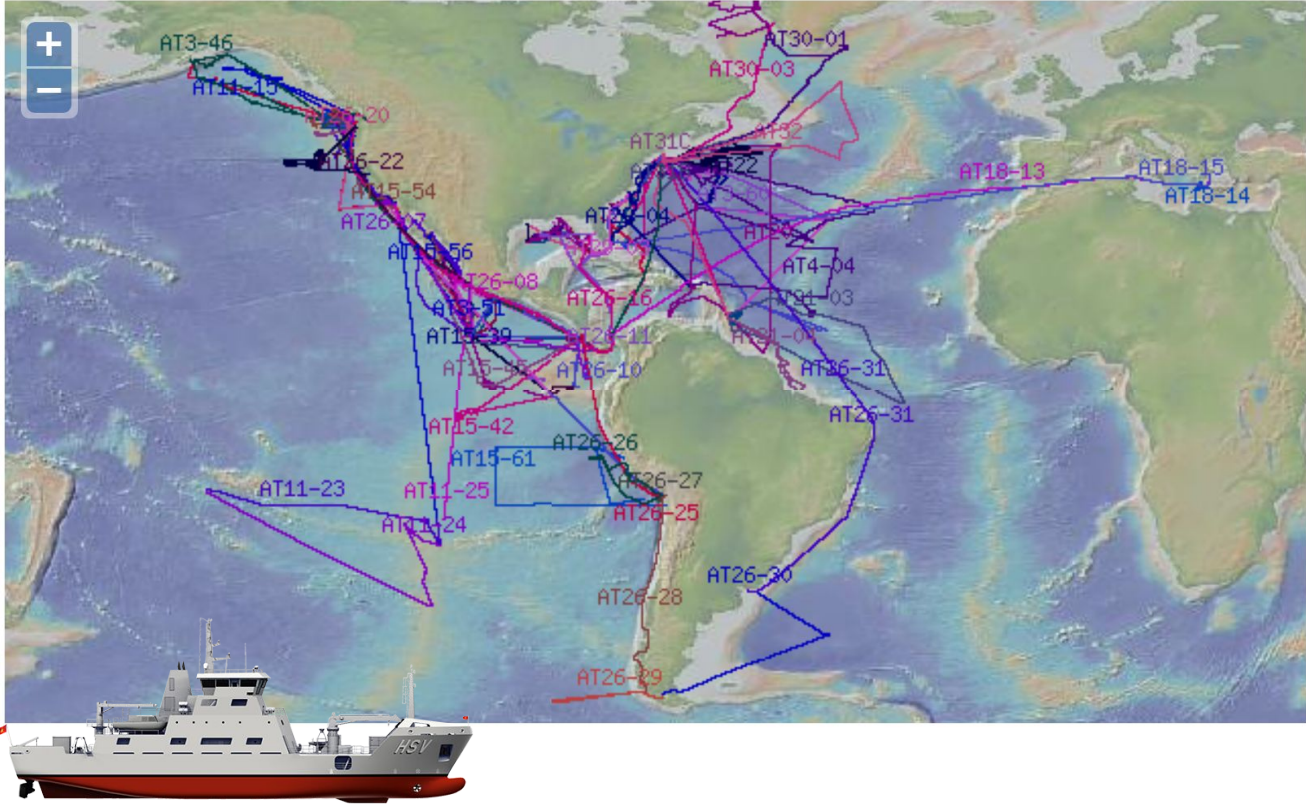
... articles describing large-scale scientific equipment

... reference large-scale facilities in publications

<https://jlsrf.org/index.php/lrf>









Why should we care

---



*“To interpret a digital dataset, much must be known about the hardware used to generate the data, whether sensor networks or laboratory machines.”*

*“When questions arise [...] about calibration [...], they sometimes have to locate the departed student or postdoctoral fellow most closely involved.”*

-- Christine L. Borgman  
*Big Data, Little Data, No Data*  
MIT Press, 2015

# Examples

---





- Incorporated Research Institutions for Seismology
- Discovery, research, and education in seismology
- Data Management Center with Meta Data Aggregator

<http://www.iris.edu/>

<http://ds.iris.edu/mda/>

## Permanent Network List (400) :: Click column title to sort :: Jump to [temporary networks](#) or [virtual networks](#) or [assembled data](#)

Network ▲▼	Description ▲▼	Start Year ▲▼	End Year ▲▼	Stations ▲▼	Reports ▲▼	DOI ▲▼
<a href="#">A</a>	Generic Asian Strong Motion Network	1970	2500	0	N	
<a href="#">A1</a>	Southern African Co-located Academic Network	2014	2500	0	N	
<a href="#">AA</a>	Anchorage Strong Motion Network	1995	2500	0	N	
<a href="#">AB</a>	National Seismic Network of Azerbaijan	2003	2500	0	N	
<b>R</b> <b>A</b> <a href="#">AC</a>	Albanian Seismological Network :: <a href="#">Network Map</a>	2002	2500	8	N	
<a href="#">AD</a>	ACROSS Strong Motion Network	2015	2500	0	N	
<b>R</b> <b>A</b> <a href="#">AE</a>	Arizona Broadband Seismic Network :: <a href="#">Network Map</a>	2009	2500	8	N	<a href="#">DOI</a>
<b>R</b> <b>A</b> <a href="#">AF</a> <b>P</b>	Africa Array :: <a href="#">Network Map</a>	2004	2500	52	N	<a href="#">DOI</a>
<b>R</b> <b>A</b> <a href="#">AG</a>	Arkansas Seismic Network :: <a href="#">Network Map</a>	2009	2500	9	N	
<a href="#">AH</a>	Arkhangelsk Seismic Network	2002	2500	0	N	
<b>R</b> <b>A</b> <a href="#">AI</a>	Antarctic Seismographic Argentinean Italian Network (ASAIN) :: <a href="#">Network Map</a>	1992	2500	6	N	<a href="#">DOI</a>
<b>R</b> <b>A</b> <a href="#">AK</a>	Alaska Regional Network :: <a href="#">Network Map</a>	1990	2500	127	N	<a href="#">DOI</a>
<a href="#">AL</a>	Alaskan Long Period Array :: <a href="#">Network Map</a>	1946	1979	19	N	
<a href="#">AM</a>	Public Seismic Network	1960	2000	16	N	
<a href="#">AN</a>	Altay-Sayan Regional Seismic Network	1963	2500	0	N	
<a href="#">AO</a>	Arkansas Seismic Observatory :: <a href="#">Network Map</a>	2011	2500	1	N	
<a href="#">AP</a>	APS Free Field Array	2015	2045	0	N	<a href="#">DOI</a>
<a href="#">AQ</a>	Central Queensland Seismic Network	2003	2500	0	N	<a href="#">DOI</a>
<b>R</b> <b>A</b> <a href="#">AR</a>	Northern Arizona Network :: <a href="#">Network Map</a>	2000	2500	19	N	
<a href="#">AS</a>	Modified High Gain Long Period Observatory :: <a href="#">Network Map</a>	1976	1993	6	N	<a href="#">DOI</a>
<b>R</b> <b>A</b> <a href="#">AT</a>	National Tsunami Warning System :: <a href="#">Network Map</a>	1999	2500	14	N	<a href="#">DOI</a>
<b>R</b> <b>A</b> <a href="#">AU</a>	Geoscience Australia :: <a href="#">Network Map</a>	1994	2500	155	N	
<b>R</b> <b>A</b> <a href="#">AV</a>	Alaska Volcano Observatory :: <a href="#">Network Map</a>	1971	2500	227	N	
<a href="#">AW</a>	AWI Network Antarctica	2006	2500	0	N	
<b>R</b> <b>A</b> <a href="#">AX</a>	Aruba :: <a href="#">Network Map</a>	2012	2500	1	N	
<a href="#">AY</a>	Haitian Seismic Network :: <a href="#">Network Map</a>	2010	2500	8	N	
<b>R</b> <b>A</b> <a href="#">AZ</a>	ANZA Regional Network :: <a href="#">Network Map</a>	1982	2500	92	N	<a href="#">DOI</a>
<a href="#">BA</a>	UniBAS	2005	2500	0	N	
<a href="#">BB</a>	Brunei Darussalam National Seismic Network	2013	2500	0	N	
<b>R</b> <b>A</b> <a href="#">BC</a>	Red Sismica del Noroeste de Mexico :: <a href="#">Network Map</a>	1980	2500	36	N	
<a href="#">BD</a>	Bakun Dam Micro-Seismic Monitoring Network	2007	2500	0	N	
<b>R</b> <b>A</b> <a href="#">BE</a>	Belgian Seismic Network :: <a href="#">Network Map</a>	1998	2500	3	N	<a href="#">DOI</a>
<a href="#">BF</a>	Black Forest Observatory :: <a href="#">Network Map</a>	1979	1995	1	N	
<a href="#">BG</a>	Berkeley Geysers Network	1989	2500	0	N	
<a href="#">BH</a>	Bay Area Urban Hazards	1991	2500	0	N	
<a href="#">BI</a>	University of Dhaka Seismographic Network-Bangladesh :: <a href="#">Network Map</a>	2008	2500	1	N	

<http://doi.org/10.7914/SN/AF>

## AF: AfricaArray

### FDSN Network Information

 Are you the operator of this network? [Update this information.](#)

FDSN code	AF	Operated by	Penn State University
Network name	AfricaArray	Deployment region	United States
Start date	Jan. 1, 2004	End date	-
Network Website	<a href="http://www.africaarray.psu.edu/">http://www.africaarray.psu.edu/</a>		
Short description	A new Pan-African network of permanent broadband stations being developed by Penn State University in coordination with several local network operators in Africa. Initially, most of the stations will be in southern African countries, and the stations will be operated and maintained by the Seismology unit at the Council for Geoscience, Pretoria, South Africa. More information about AfricaArray can be found at <a href="http://africaarray.psu.edu/default.htm">http://africaarray.psu.edu/default.htm</a>		

### Citation Information

Digital Object Identifier (DOI)	<a href="https://doi.org/10.7914/SN/AF">doi:10.7914/SN/AF</a>
Citation	Penn State University (2004): AfricaArray. International Federation of Digital Seismograph Networks. Other/Seismic Network. doi:10.7914/SN/AF

### Data Access

Data Availability	Data available from IRISDMC (IRIS Data Management Center) using FDSN Web Services. See <a href="http://ds.iris.edu">http://ds.iris.edu</a> for more information including data access tools.
Additional Notes	The data from the closed stations is embargoed for 3 years. All data should be open after 3 years.

### Stations in this Network

Found 52 stations





Station Code	Station Name	Latitude	Longitude
AAUS	Addis Ababa University, Ethiopia	9.0349	38.7665
ANKE	Ankober, Ethiopia (near Debra Birhan)	9.5827	39.7418
BLWY	Bulawayo, Zimbabwe	-20.143	28.611
BLWY	Bulawayo, Zimbabwe	-20.143	28.611
BLWY	Bulawayo, Zimbabwe	-20.143	28.6113
BOBN	Bobandana, DRC, Africa	-1.66	29.23666
CNG	Changalane Maputo Province Mozambique	-26.2917	32.1883
CRLN	Carolina, Mapumpalanga, South Africa	-25.9949	30.0227
CVNA	Calvinia KS2000 Earth data Low gain	-31.482	19.762
CVNA	Calvinia KS2000 Earth data Low gain	-31.482	19.762
DESE	Dese, Ethiopia	11.118	39.635
DODT	Dodoma, Tanzania	-6.186	35.748



# Rolling Deck to Repository

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- Fleet-wide management of underway data
- Provide data documentation for each expedition
- Cruise-level metadata record
- Ensure preservation and access to data

<http://www.rvdata.us/>





Catalog Status

(In Service) Vessels: 24

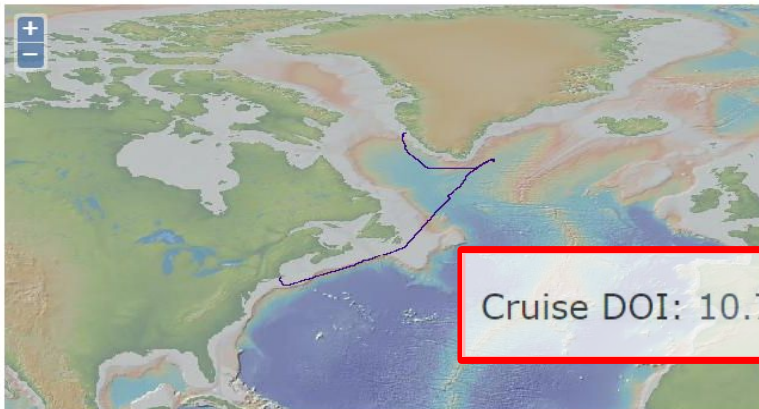
Cruises: 6292

Archived Files: 24153789

November 1, 2016

Home

# Cruise Catalog: AT30-01



Cruise DOI: 10.7284/906342 [↗](#)

Operator: Woods Hole Oceanographic Institution  
Vessel: Atlantis

Cruise DOI: 10.7284/906342 [↗](#)

Cruise ID	Start Date	Start Port	End Date	End Port																				
Details																								
AT30-01	2015-08-05	Woods Hole, Massachusetts	2015-09-01	Nuuk (Godthab), Greenland																				
Project: Ocean Observatories Initiative (OOI): Irminger Sea Array, Leg 2 (Info <a href="#">↗</a> )																								
<ul style="list-style-type: none"> <li>▣ SCIENCE PARTY</li> <li>FILE MANIFEST</li> <li>▣ UNDERWAY DATA SETS (ORIGINAL FIELD DATA)</li> </ul>																								
<table border="1"> <thead> <tr> <th>Device Type</th> <th>Make-Model [Location]</th> <th>Files</th> <th>DOI</th> <th>Archive Status</th> </tr> </thead> <tbody> <tr> <td>adcp</td> <td>Hawaii UHDAS</td> <td>List</td> <td>10.7284/118786</td> <td>R2R Download <a href="#">↗</a></td> </tr> <tr> <td>acqsys (primary)</td> <td>WHOI Callope</td> <td>List</td> <td>10.7284/118793</td> <td>R2R Download <a href="#">↗</a></td> </tr> <tr> <td>ctd</td> <td>Sea-Bird SBE-911plus</td> <td>List</td> <td>10.7284/118787</td> <td>R2R Download <a href="#">↗</a></td> </tr> </tbody> </table>					Device Type	Make-Model [Location]	Files	DOI	Archive Status	adcp	Hawaii UHDAS	List	10.7284/118786	R2R Download <a href="#">↗</a>	acqsys (primary)	WHOI Callope	List	10.7284/118793	R2R Download <a href="#">↗</a>	ctd	Sea-Bird SBE-911plus	List	10.7284/118787	R2R Download <a href="#">↗</a>
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adcp	Hawaii UHDAS	List	10.7284/118786	R2R Download <a href="#">↗</a>																				
acqsys (primary)	WHOI Callope	List	10.7284/118793	R2R Download <a href="#">↗</a>																				
ctd	Sea-Bird SBE-911plus	List	10.7284/118787	R2R Download <a href="#">↗</a>																				

Vessel: Atlantis

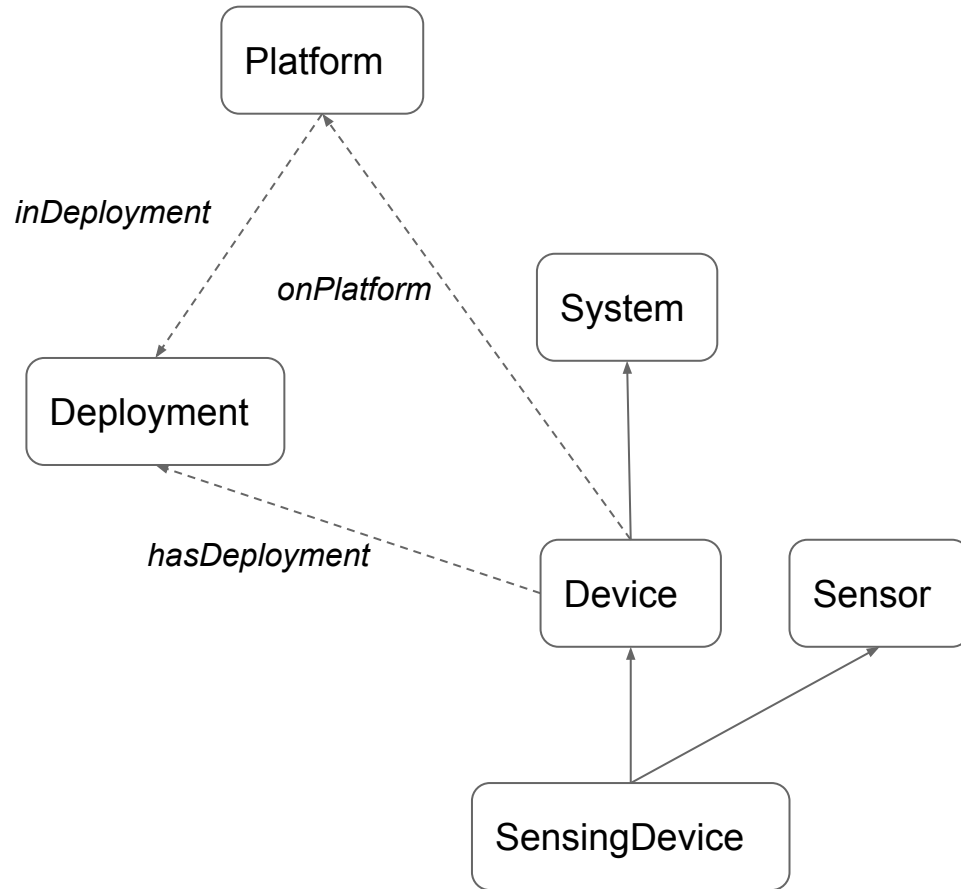
Cruise ID	Start Date	Start Port	End Date	End Port
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<i>Project:</i> Ocean Observatories Initiative (OOI): Irminger Sea Array, Leg 2 ( <a href="#">Info</a> <a href="#">🔗</a> )				
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acqsys (primary)	WHOI Calliope	List	10.7284/118793	R2R <a href="#">Download</a> <a href="#">🔗</a>
ctd	Sea-Bird SBE-911plus	List	10.7284/118787	R2R <a href="#">Download</a> <a href="#">🔗</a>
fluorometer	WET Labs WETStar	List	10.7284/118785	R2R <a href="#">Download</a> <a href="#">🔗</a>
gnss	C&C C-Nav 2050G	List	10.7284/118784	R2R <a href="#">Download</a> <a href="#">🔗</a>
metstation	Vaisala WXT520 [stbd]	List	10.7284/118789	R2R <a href="#">Download</a> <a href="#">🔗</a>
metstation	Vaisala WXT520 [port]	List	10.7284/118790	R2R <a href="#">Download</a> <a href="#">🔗</a>
multibeam	Kongsberg EM122	List	10.7284/118788	NCEI <a href="#">Download</a> <a href="#">🔗</a>
radiometer	Eppley PIR	List	10.7284/118791	R2R <a href="#">Download</a> <a href="#">🔗</a>
radiometer	Eppley PSP	List	10.7284/118792	R2R <a href="#">Download</a> <a href="#">🔗</a>

What metadata should be captured?

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## Future work

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- The PID community is going to explore equipment identification
- Requires strong collaborations with
  - Science communities
  - Research infrastructures
  - Manufacturers
  - Possibly others
- Open issues (selected)
  - What PID type and resolution (DOI names or something else)
  - Metadata schema, required core and extensions
  - Who does the registration, manufacturer or technicians
  - Who maintains landing pages