

SeamountsOnline and its application to ISA concerns

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Outline

- SeamountsOnline
- Coming Improvements
- Overview of Seamount Biological Data



(images throughout this presentation are courtesy of NOAA Ocean Exploration)

SeamountsOnline: a resource for distribution data on seamounts species

- Species Observation Records. Minimum is taxon with a seamount name
- Accessory information about that record: lat, lon, date, depth, expedition, collection/observation method, identifier, source, etc.
- Seamount Literature References


Data Sources

- Published literature
- Unpublished datasets from researchers, research institutions and museum collections
 - ⇒ The highest quality, and fastest entry, comes from digital datasets directly from researchers.

SeamountsOnline – seamounts.sdsc.edu

SEAMOUNTS ONLINE

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Welcome to *SeamountsOnline*
The Online Seamount Information System

What is SeamountsOnline?

SeamountsOnline is a NSF-funded project designed to gather information on species found in seamount habitats, and to provide a freely-available online resource for searching, downloading, mapping, and analyzing patterns of biogeography in these data. It is designed to facilitate research into seamount ecology, and to act as a resource for managers. For more information, see the [project proposal](#).

Data Content Notes

SeamountsOnline is in active development, and data content is being expanded continually. At present, the data holdings primarily cover the fish and crustacea of the Hawaiian/Emperor chain and the Nasca/Sala-y-Gomez chain, and all metazoan taxa from the Norfolk Ridge. Please refer to the [data introduction page](#) for full information.

To Start Getting Data:

- Search for [species distributions](#)
- Search for [sample effort](#) information
- Search for [literature](#)

New: Workshop

The Census of Marine Life is organizing a workshop on Seamounts and Undersea Canyons - more details [here](#)

What is the current status of SeamountsOnline? updated 10 March 2003

Search by Taxonomic name

GENUS	<input type="text" value="Beryx"/> <input type="button" value="v"/>
SPECIES	<input type="text" value="splendens"/>

Tips: - you may search on just a genus name, just a species name, or a combination of both. - this is a substring search, so it will return all names containing your entry. If you only know the first few letters of a name, you can enter just that. - Important: Many species in the ocean have been renamed/revised multiple times. Names are entered into this database as they were published in the original data source; they may not be the current valid name or the only name for that taxa. In the future we hope to allow automated searching of known synonyms; in the meantime we strongly recommend that you check your name of interest for synonyms in a source such as species2000 (www.sp2000.org) or ITIS (www.itis.usda.org) and then search on all synonyms.

Search by Location

Search by Seamount name:

Seamount name	Seamount Latitude Longitude
	Academician: 28.83 N, 178.88 E
	Agassiz: 17.85 N, 178.41 E
	Al (R): 44.32 S, 147.27 E
	Albert: 23.86 S, 85 W
	Allison: 18.58 N, 179.61 W
	Amber: 24.96 S, 88.51 W
	Andy's: 44.19 S, 146.98 E
	Antarctic Unnamed 1: 54.81 S, 129.8 W
	Antarctic Unnamed 2: 53.93 S, 140.31 W

Tips: you may select multiple seamounts.

OR

Search by geographic location:

<input type="text"/>	<input type="button" value="N"/> v	
	Northern-most Latitude	
<input type="text"/>	<input type="button" value="E"/> v	<input type="text"/>
	Western-most Longitude	
		<input type="text"/>
		Eastern-most Longitude
	<input type="text"/>	<input type="button" value="N"/> v
	Southern-most Latitude	



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Results from your search in SeamountsOnline

Please cite both SeamountsOnline and the original data source when using these data.

Click on any field title to see a definition of that field.

[Back to Search for Species Page](#)

Genus	Species	Subspecies	Authority	Seamount Name	Sample ID	Latitude	Longitude	Lat/Lon Precision	Min Depth	Max Depth	Data Source
Beryx	splendens		Lowe, 1834	Ecliptic	1727	-22.1	-81.31	0.5	230	770	Parin et al., 1997
Beryx	splendens		Lowe, 1834	Ecliptic	535663	-22.1	-81.31	0.5			Golovan and Pakhorukov, 1987
Beryx	splendens		Lowe, 1834	Ecliptic	535667	-22.1	-81.31	0.5	319	925	Golovan and Pakhorukov, 1987
Beryx	splendens		Lowe, 1834	Equator	535712	+29.7	+179.36	0.5			Borets, 1986
Beryx	splendens		Lowe, 1834	Kammu	534616	+32.04	+173.1	0.01	350	350	JAMARC (Japan Marine Fishery Resource Research Center), 1973
Beryx	splendens		Lowe, 1834	Kammu	534626	+32.2	+172.77	0.01	370	370	JAMARC (Japan Marine Fishery Resource Research Center), 1973
Beryx	splendens		Lowe, 1834	Kammu	534625	+32.22	+172.77	0.01	383	383	JAMARC (Japan Marine Fishery Resource Research Center), 1973
Beryx	splendens		Lowe, 1834	Kammu	534622	+32.02	+173.1	0.01	365	365	JAMARC (Japan Marine Fishery Resource Research Center), 1973
Beryx	splendens		Lows	Kammu	535415	+32.16	+173	0.5	375	520	Chen, 1980
Beryx	splendens		Lows	Kammu	535440	+32.16	+173	0.5	366	366	Chen, 1980
Beryx	splendens		Lows	Kammu	535434	+32.16	+173	0.5	355	360	Chen, 1980
Beryx	splendens		Lows	Kammu	535403	+32.16	+173	0.5	366	366	Chen, 1980
Beryx	splendens		Lows	Kammu	535405	+32.16	+173	0.5	380	384	Chen, 1980
Beryx	splendens		Lows	Kammu	535423	+32.16	+173	0.5	366	366	Chen, 1980



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Sample/Effort Search

Enter a seamount name (or choose from the drop-down list) to return the details of all sampling events from which species have been recorded at that seamount. Returned will be details about when, where and how each sample was taken, and what taxonomic groups it covers. This facility is designed to allow users to evaluate which seamounts have been well sampled (and thus the species list should be relatively complete) and which are little sampled. The sample ID number given here correlates with the Sample ID number given with the species occurrence data returned through the main data portal.

Seamount Name

[Help?](#)

OR

[Seamount](#) | [Latitude](#) | [Longitude](#)

- Academician and/or Zapadnaya: 28.88 N, 179.33 W
- Academician Berg: 28.85 N, 178.86 W
- Agassiz Seamount: 17.86 N, 178.2 E
- Al (R) Seamount: 44.32 S, 147.27 E
- Albert Seamount: 24.66 S, 85.46 W
- Alfa-II Bank: 32.9 S, 2.6 E
- Allison Guyot: 18.51 N, 179.6 W
- Amber Seamount: 24.96 S, 88.51 W
- Ampere Seamount: 35.08 N, 13 W

[Seamount map and list by region](#)

Tips: you may select multiple seamounts by holding down the Ctrl key.

Search Reset



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The following samples have been recorded from the seamount(s) you selected

Blank fields indicate missing information.

Click on any field title to see a definition of that field.

Comma Text Delimited

[Back to Search for Sample Page](#)

<u>Seamount Name</u>	<u>Sample ID</u>	<u>Sample Verbatim</u>	<u>Station Verbatim</u>	<u>Data Source</u>	
Aztec	534491		DW 186	Richer De Forges, 2001	
<u>Start Date (mm/dd/yyyy)</u>	<u>End Date (mm/dd/yyyy)</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Lat/Lon Precision</u>	
1/31/1993		-23.41	+168.09	0.01	
<u>Min Depth (m)</u>	<u>Max Depth (m)</u>	<u>Seamount Zone</u>	<u>Water Zone</u>	<u>Quantitative?</u>	<u>Species Found</u>
57	59		Unknown	No	Click Here
<u>Method/Effort</u>	1 Warren Drag				
<u>Taxa Covered</u>	Comprehensive for most invertebrates and fish, particularly Brachiopods, Bryozoans, Chelicerata, Cnidarians, Crustaceans, Sponges, Molluscs, Tunicates and Vertebrates				
<u>Cruise</u>	Smib 8				
<u>Vessel</u>	Alis				
<u>Taken By</u>	Noumea Research Station (ORSTOM)				
<u>Notes</u>					



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Bibliography

In the course of developing SeamountsOnline, over 1,000 literature citations have been collected relating to seamounts. The coverage is most comprehensive for biological sampling on seamounts. Geology, hydrology, chemistry, etc. are also represented, but the coverage is not as thorough.

To [download the entire bibliography](#) as a text file, right-click your mouse button on the desired link below:

- text file: [bibliography-style without abstracts](#) (205 KB, updated 09/21/02)
- text file: [bibliography-style with abstracts](#) (651KB, updated 09/21/02)

To [search the database](#) for particular references, enter a word or phrase in the box below and hit the submit button. All fields will be searched, so you can enter an author, a seamount name, a keyword, etc. Select either **and** or **or** for separate multiple words. You may enter partial words for searching. For example, if the input is "cano" the phrase "Volcano", "canonical", and "Chascanopsetta" will all be found.

Search for [Help?](#)

Include Abstract?

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Your search has returned the following matches

Author: Berrisford, C.D.

Year: 1969

Title: Biology and Zoogeography of the Vema Seamount: a Report on the First Biological Collection Made on the Summit

Source: Transactions of the Royal Society of South Africa 38: 387-398

Author: Chistenko, V.M.

Year: 1986

Title: Spatial Distribution of Protein in Suspended Organic Matter From the Southeast Atlantic. [Prostranstvennoe Raspredelenie Belka Vzveshennogo Organicheskogo Veshchestva v Yugo-Vostochnoj Atlantike.]

Source: Ekologiya morya(23): 16-23

Author: Heydorn, A.E.

Year: 1969

Title: The South Atlantic Rock Lobster Janus Tristani at Vema Seamount, Gough Island and

New Data Content

- Taxonomic Quality Control – checking for misspellings and revised names
- Better quantitative sample information
- Connections to physical and environmental information (World Ocean Atlas Temp., Sal., DO, nutrients initially)
- Additional Seamount information: age, size, tectonic origin, hydrological features, links to the Seamount Catalog for geology and morphology (earthref.org)
- Potential addition of taxonomic data and images – would require funding.

Seamount Catalog

Database development and maintenance by the PACER Team

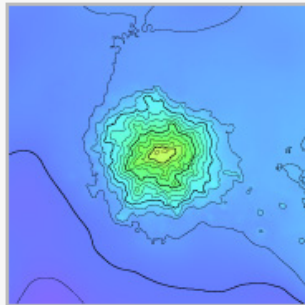
Home | Search | Register

Detailed Seamount Information

Ava Seamount

[VIEW](#) [ADD FILE](#) [ADD MULTIBEAM](#)

Ava Seamount is located at 2° 16.3' S, 174° 57.2' E and is part of the Gilberts Ridge region on the Pacific Plate. It is 2973 m high with the top at -1700 m and ocean bottom at -4673 m. The seamount has a volume of 941 km³ and is fairly round with very little elongation. The edges are slightly irregular and there are a lot of small radial like ridges on the seamount. Ava is the western most volcano in a cluster on a common platform, which includes Tuba Seamount. Dredge number AVON2-D18 was taken off the western trending rift.



Index	SMNT-023S-1750E	Classification	Very Small B1 Seamount
Location	2° 16.39' S 174° 57.22' E	Elongation	1.12 ± 0.07
Plate Age	127.1 - 127.4 Ma	Irregularity	1.31 ± 0.05
Region	Gilberts Ridge	Oceanic Province	Abyssal Plain
Plate	Pacific Plate	Alternative Names	
Tectonic Setting	Hotspot Trail	Age	
Volume	680 km ³	Seamount Top	1650 m
Shelf Edge		Ocean Bottom	4600 m
		Volcanic Activity	Extinct

BATHYMETRIC MAPS [4 SEAMOUNT MAPS AND 4 REGIONAL MAPS]

- Ava Seamount -- Multibeam data merged with Smith & Sandwell bathymetry v8.2
- Ava Seamount -- Multibeam bathymetry
- Ava Seamount -- Predicted bathymetry
- Ava Seamount -- Residual bathymetry
- Gilberts Ridge -- Multibeam data merged with Smith & Sandwell bathymetry v8.2
- Gilberts Ridge -- Multibeam bathymetry
- Gilberts Ridge -- Predicted bathymetry Smith & Sandwell v8.2
- Gilberts Ridge -- Residual bathymetry

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GRID FILES [4 SEAMOUNT FILES AND 4 REGIONAL FILES]

SeamountsOnline Prototype Interface



Current Extent: (-112.5, 64.16810689799152) (112.5, -64.16810689799152)

Legend: -1.76 to 1.37 to 4.50 to 7.62 to 10.75 to 13.88 to 17.01 to 20.14 to 23.20

Genus	Species	Authority	SeamountName	Latitude
Habrocidaris	scutata	A. Agassiz, 1880	Cruiser Tablemount	32
Habrocidaris	scutata	A. Agassiz, 1880	Cruiser Tablemount	32
Habrocidaris	scutata	A. Agassiz, 1880	Great Meteor Tablemount	30
Habrocidaris	argentea	Agassiz and Clark,	Ichthyologists	-25.1166666666667

Seamount Data

Taxonomic Name:

Habrocidaris

Seamount:

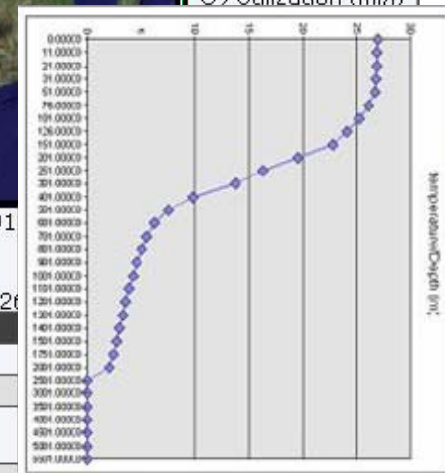
- Academician Berg
- Agassiz Seamount
- Al (R) Seamount
- Albert Seamount

- Species
- Location
- Samples
- None

Physical Data

Depth (m)

	Lower	Upper	Output
Temperature (C)	<input type="text" value="10"/>	<input type="text"/>	<input checked="" type="checkbox"/>
Salinity (psu)	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>
Dissolved O ₂ (ml/l)	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>
O ₂ Saturation (%)	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>
O ₂ Utilization (ml/l)	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>



StartDate	EndDate
1993	
1993	
1982	
1979	1987

Data Overview



Status of SeamountsOnline

Currently ~16000 records data from 294 seamounts and 4000+ taxa (not all yet online)

far from complete

- 86 papers in the "in box" and several digital datasets, with more being solicited

Dataset Versions

Online data has

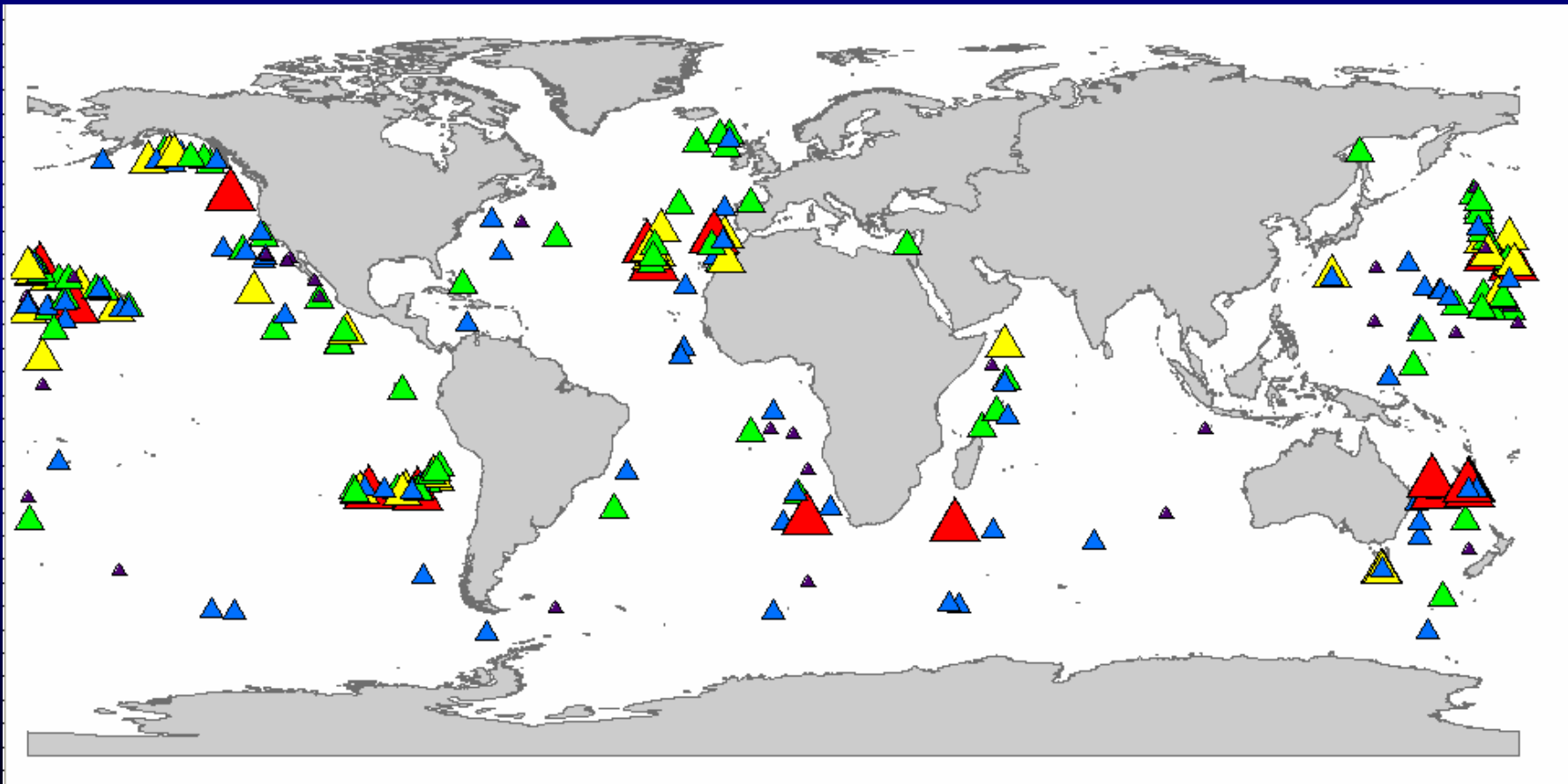
- Entry checked
- Location checked
- Some taxonomy checking (new version)

My internal dataset has additional data that is in the entry progress – depending on the use, we can decide which to use.

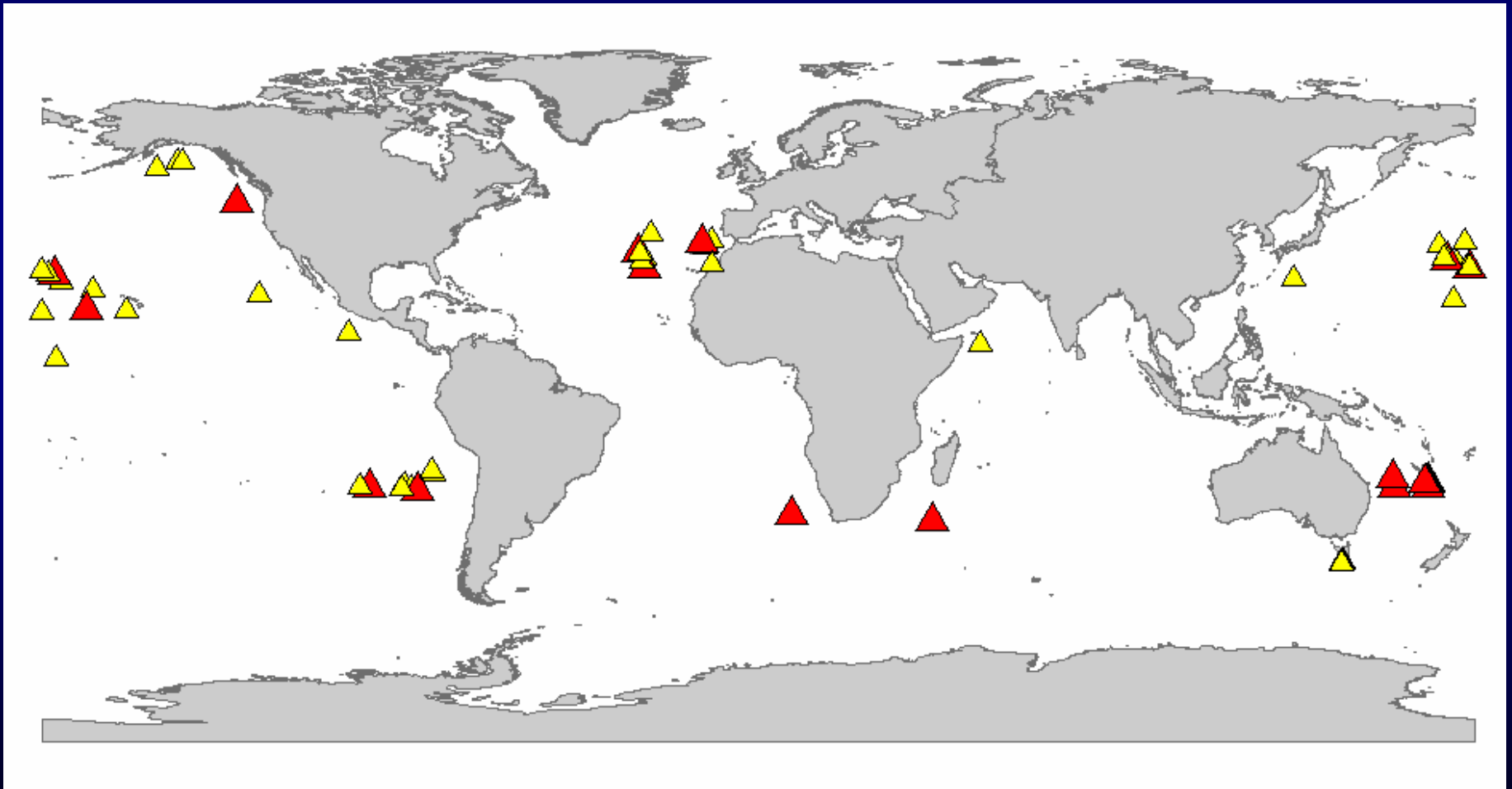
Data Currently in SeamountsOnline

num_obs

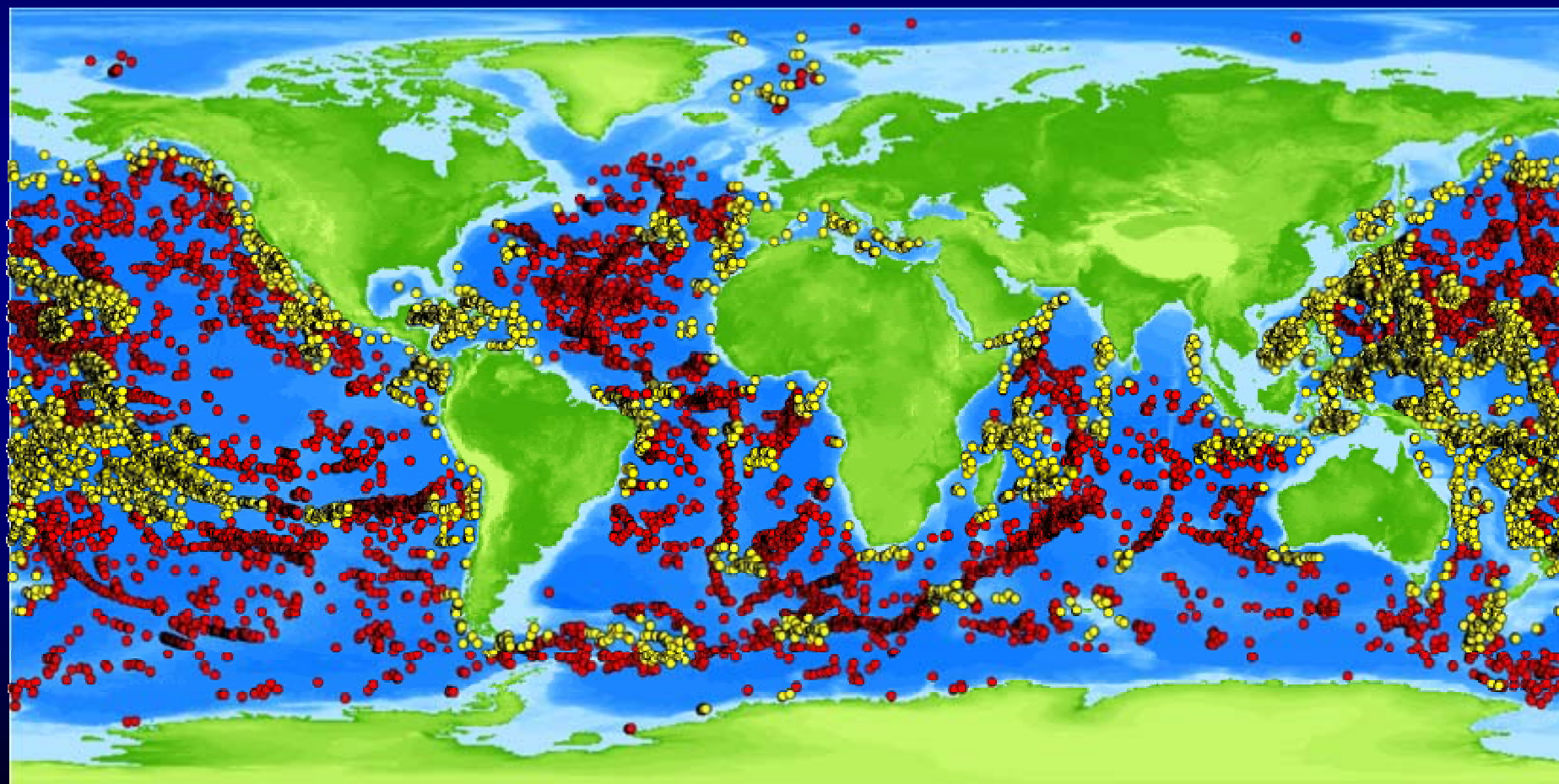
#	1
#	11-50
#	2-10
#	51-200
#	200+



Seamounts with >50 Observations



Modeled locations of ~14,000 seamounts

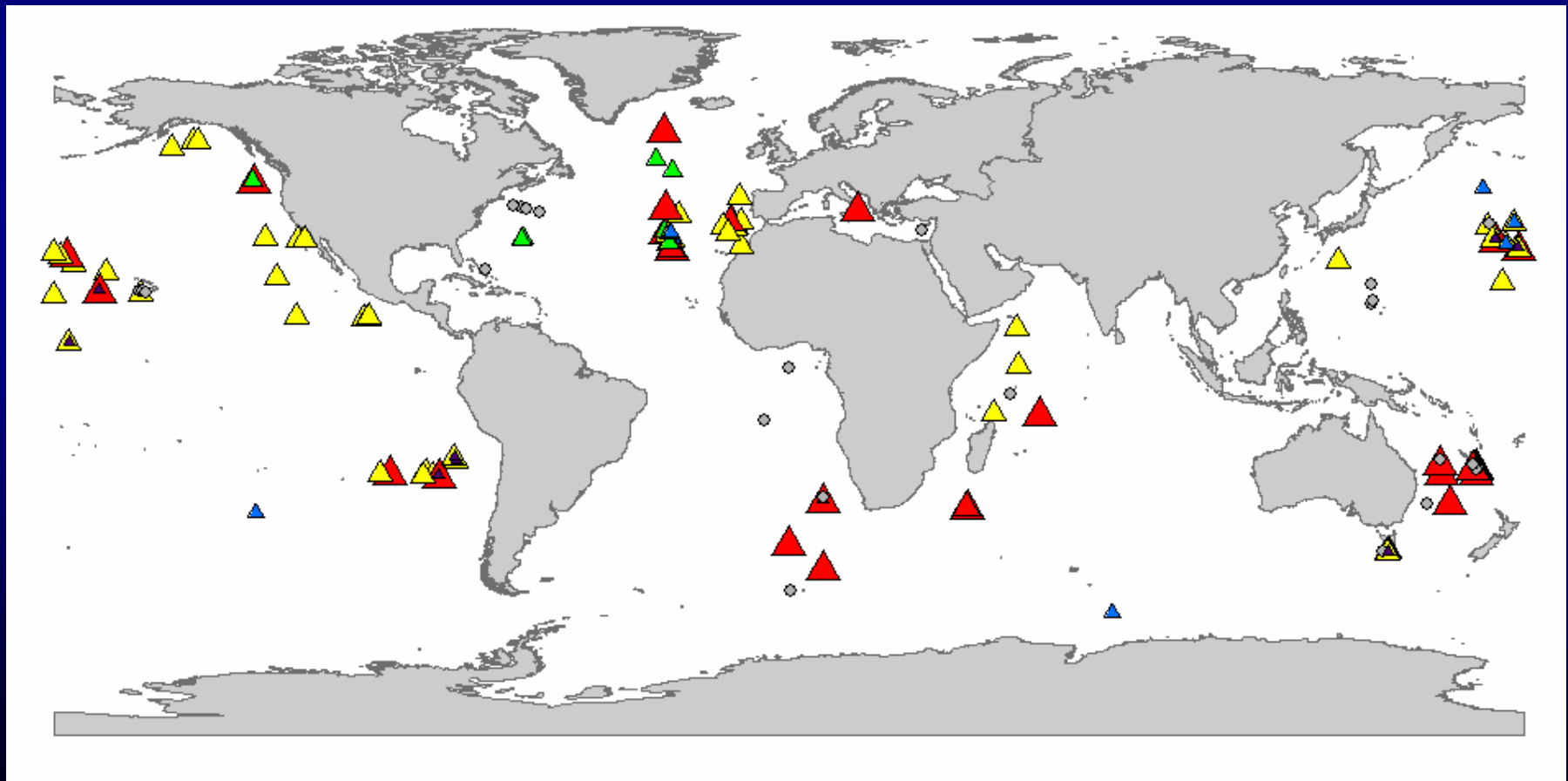


From Kitchingman and Lai, 2004

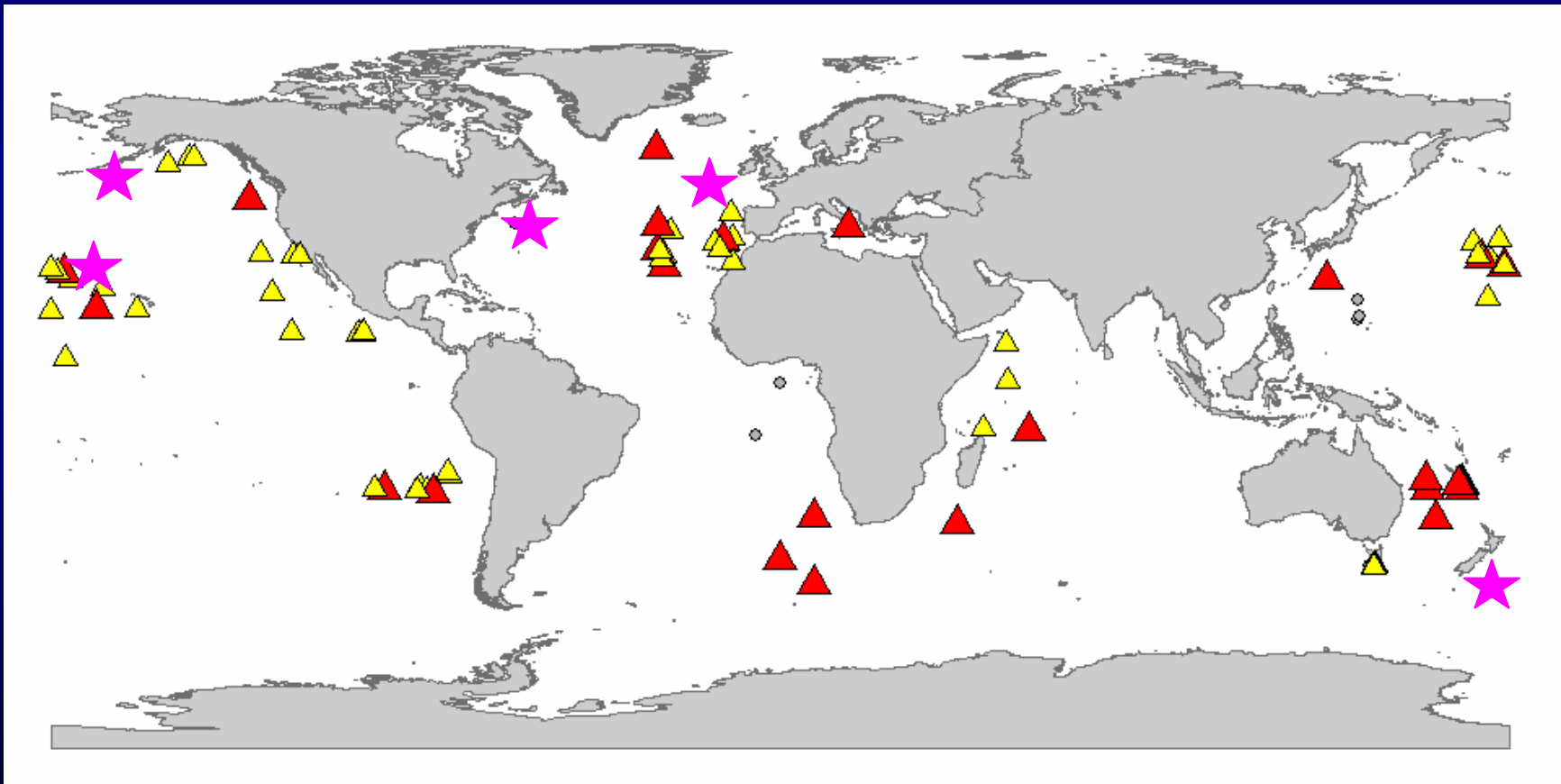
Coming Data

num_obs

#	1
#	11-50
#	2-10
#	51-200
#	200+

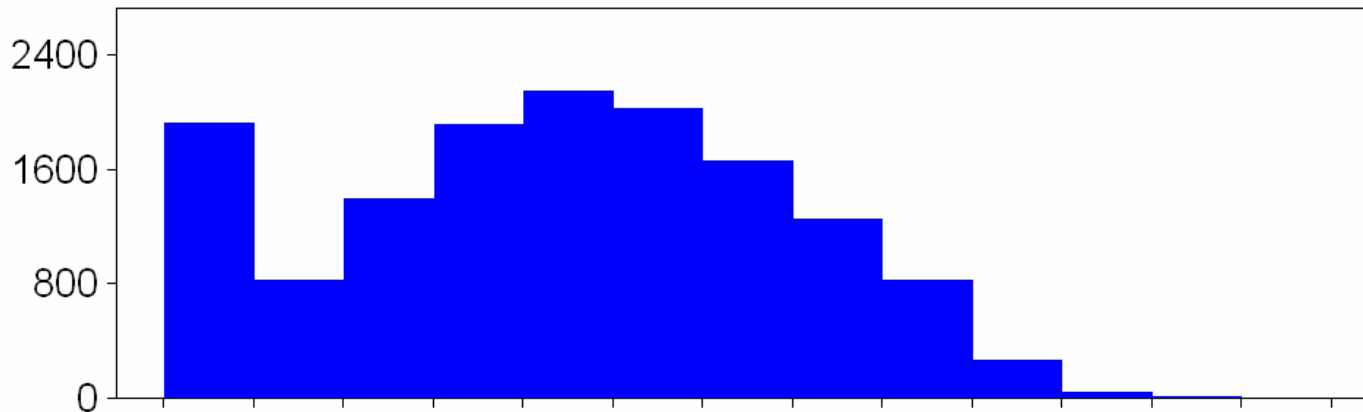


Potential Data Foundation

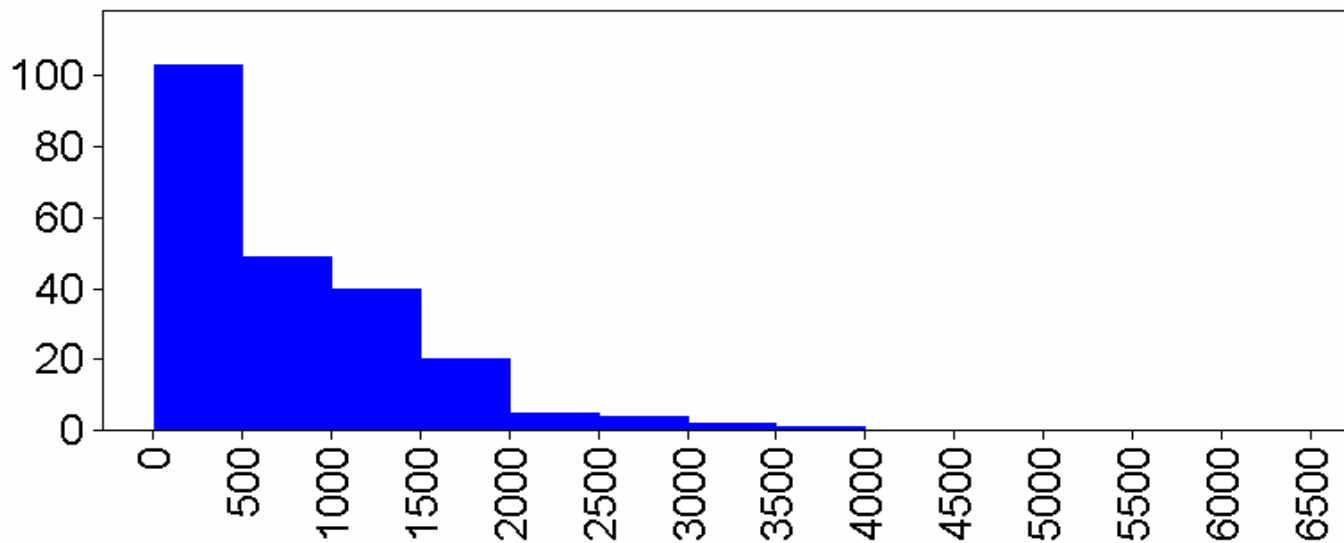


Depth Bias

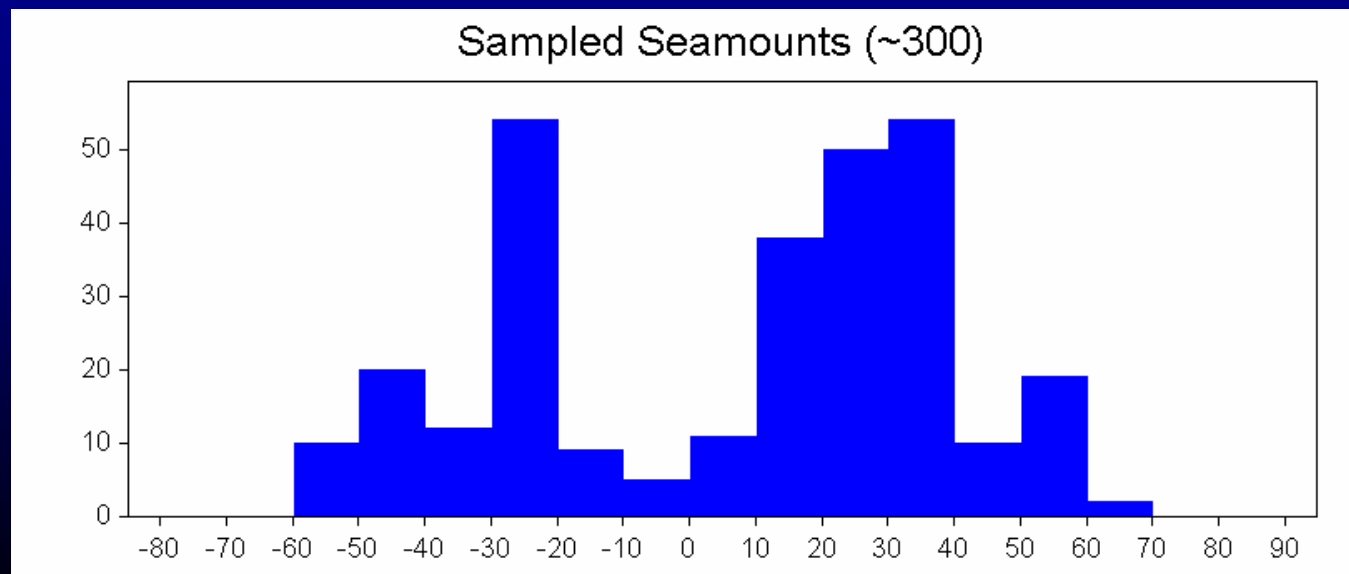
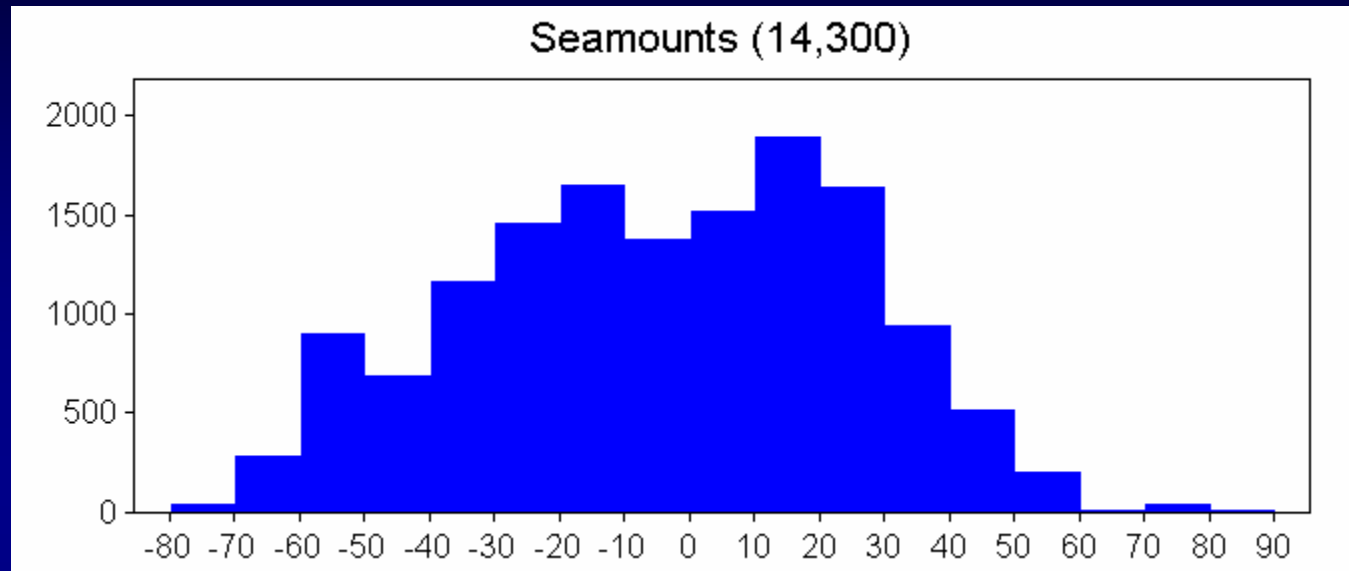
Seamounts (14,300)



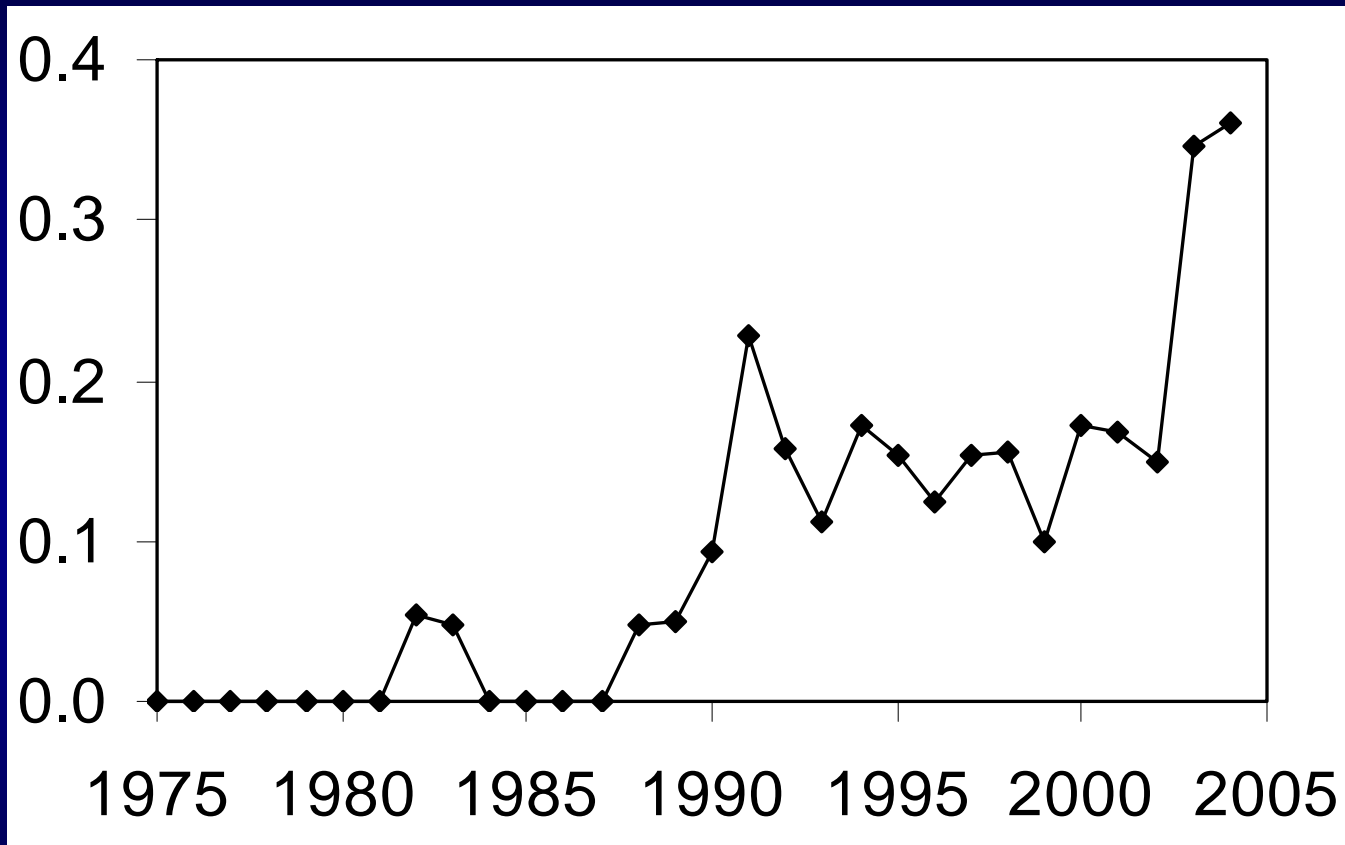
Sampled Seamounts (~225)



Latitude Bias



Active Research



ISI publications on seamount
biology/ecology as % of total

How can SeamountsOnline
serve you?



Application to ISA concerns

- Indicate the occurrence of species of concern. Some ability to indicate areas of high diversity.
 - Assess level of knowledge – what are the data adequate to support?
 - Investigate spatial scales
- ⇒ Support modeling efforts
- Integrate with additional datasets
 - Data can be kept confidential

Homework Assignments?