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Ways of interaction between WoRMS and PANGAEA® to improve biodiversity data discovery and re-use

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hdl:10013/epic.46014

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What is PANGAEA® ?

Pangaea is an open access **data library** for earth system research. Data are stored georeferenced in space and time in a relational database and a tape archive.

The data content is accessible on the internet via a search engine, a data warehouse and web services.

The system is open to any scientist or project to archive and publish data.

PANGAEA hosts

ALFRED-WEGENER-INSTITUT
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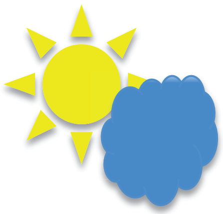
marum
Center for Marine
Environmental Sciences

Both institutions have committed to long-term operate PANGAEA

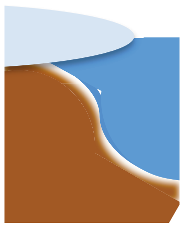
Data model

where?

Latitude/Longitude



Air

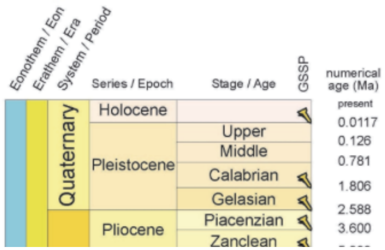


Ice

Water

Sediment

when?



Date/Time or *geol. Age*

what?

Parameter [unit]

numerical

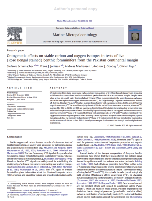
16 B. dilatata [#]
178
17
4

text

3 Lithology
Aleuritic clay
Aleuritic clay
Nannofossil clays

object

who?



Investigator/Reference

how?

Method

Data in PANGAEA

Logged in as **sschumacher** (log out, profile)

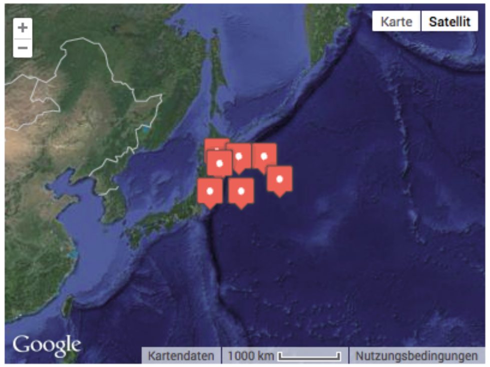
PANGAEA®
Data Publisher for Earth & Environmental Science

Always quote citation when using data!

Data Description

Show Map | Google Earth | RIS | BibTeX

Citation: Koizumi, I; Yamamoto, H (2010): Vertical distribution of diatoms in North Pacific sediments. doi:10.1594/PANGAEA.776366,
Supplement to: **Koizumi, Itaru; Yamamoto, Hirofumi (2010):** Paleoceanographic evolution of North Pacific surface water off Japan during the past 150,000 years. *Marine Micropaleontology*, **74(3-4)**, 108-118, doi:10.1016/j.marmicro.2010.01.003



Abstract: Hydrographic variability in the Mixed Water Region of the Northwest Pacific Ocean at latitudes 35°-40°N, between the Kuroshio Extension and Oyashio Front, causes complex upwelling, leading to large primary productivity and thus great fishery resources. We reconstructed the periodicity of the variability in North Pacific Intermediate Water upwelling and surface ocean hydrography based on the high-resolution analysis of diatom assemblages in seven cores, representing the last 150,000 years. We derived annual sea surface temperatures (SSTs) through a diatom-based proxy (Td'). The Td'-derived annual SSTs (°C) are controlled by orbital forcing, and show a reversed saw-tooth in southern cores, in contrast to a normal saw-tooth pattern in the northern cores. Oceanic diatom abundances along the northern margin of the Mixed Water Region are twice times as high as beneath the axis of the Kuroshio Extension, and fluctuated in a revised saw-tooth pattern with higher overall abundances interglacials. After the last deglaciation, annual SSTs declined markedly during Heinrich and Bond events in the northern North Atlantic, when ice-rafted detritus transported by icebergs was abundant. Wavelet analyses of the record of oceanic diatom abundances show significant variability at 2.0-kyr, 2 to 5.6-kyr and 3.2 to 9.6-kyr periods. Wavelet analyses of the annual SST records show significant periodicity at 1.4 to 2.6-kyr, 3.3 to 4.0-kyr, 7.2 to 12.8-kyr cycles.

Project(s): **Ocean Drilling Program** (ODP)

Coverage: *Median Latitude:* 38.477916 * *Median Longitude:* 146.055987 * *South-bound Latitude:* 36.000000 * *West-bound Longitude:* 141.780000 * *North-bound Latitude:* 40.560000 * *East-bound Longitude:* 152.000000

Minimum Age: 0.000 ka BP * *Maximum Age:* 152.580 ka BP

Event(s): **186-1150A** * *Latitude:* 39.181910 * *Longitude:* 143.331910 * *Date/Time Start:* 1999-06-22T18:30:00 * *Date/Time End:* 1999-06-26T22:15:00 * *Elevation:* -2680.8 m * *Recovery:* 566.40 m * *Penetration:* 722.60 m * *Location:* North Pacific Ocean * *Campaign:* Leg186 * *Basis:* Joides Resolution * *Device:* Drilling * *Comment:* 76 cores; 722.6 m cored; 0 m drilled; 78.4 % recovery

MD01-2421 (MD012421) * *Latitude:* 36.023500 * *Longitude:* 141.780000 * *Date/Time:* 2001-06-16T04:33:00 * *Elevation:* -2286.0 m * *Recovery:* 45.84 m * *Location:* Japan Trench * *Campaign:* MD122 (IMAGES VII - WEPAMA) * *Basis:* Marion Dufresne * *Device:* Giant piston corer

MR00-05-2PC * *Latitude:* 40.000000 * *Longitude:* 146.000000 * *Elevation:* -5177.0 m * *Location:* Northwest Pacific * *Device:* Piston corer

Size: 7 datasets

Download Data

Download **ZIP** file containing all datasets as tab-delimited text (*use the following character encoding:* ISO-8859-1: ISO Western (PANGAEA default))

Datasets listed in this Collection

1. **Koizumi, I; Yamamoto, H (2010):** (Table A1) Diatom abundance in sediment core MD01-2421. doi:10.1594/PANGAEA.775547
2. **Koizumi, I; Yamamoto, H (2010):** (Table A2) Diatom abundance in sediment core MR02-03-2. doi:10.1594/PANGAEA.776118

PANGAEA linked with Elsevier

ELSEVIER

Marine Micropaleontology

Volume 74, Issues 3–4, April 2010, Pages 108–118

Paleoceanographic evolution of North Pacific surface water off Japan during the past 150,000 years

Itaru Koizumi[a], Hirofumi Yamamoto[b]

Show more

DOI: 10.1016/j.marmicro.2010.01.003

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Abstract

Hydrographic variability in the Mixed Water Region of the Northwest Pacific Ocean at latitudes 35°–40°N, between the Kuroshio Extension and Oyashio Front, causes complex upwelling, leading to large primary productivity and thus great fishery resources. We reconstructed the periodicity of the variability in North Pacific Intermediate Water upwelling and surface ocean hydrography based on the high-resolution analysis of diatom assemblages in seven cores, representing the last 150,000 years. We derived annual sea surface temperatures (SSTs) through a diatom-based proxy (*Td′*). The *Td′*-derived annual SSTs (°C) are controlled by orbital forcing, and show a reversed saw-tooth in southern cores, in contrast to a normal saw-tooth pattern in the northern cores. Oceanic diatom abundances along the northern margin of the Mixed Water Region are twice times as high as beneath the axis of the Kuroshio Extension, and fluctuated in a revised saw-tooth pattern with higher overall abundances interglacials. After the last deglaciation, annual SSTs declined markedly during Heinrich and Bond events in the northern North Atlantic, when ice-rafted detritus transported by icebergs was abundant. Wavelet analyses of the record of oceanic diatom abundances show significant variability at 2.0-kyr, 2 to 5.6-kyr and 3.2 to 9.6-kyr periods. Wavelet analyses of the annual SST records show significant periodicity at 1.4 to 2.6-kyr, 3.3 to 4.0-kyr, 7.2 to 12.8-kyr cycles.

Keywords

Recommended articles

Oceanographic variations over the last 150,000yr ...
2011, Journal of Asian Earth Sciences more

Rapid warming and ostracods mass extinction at t...
2010, Marine Micropaleontology more

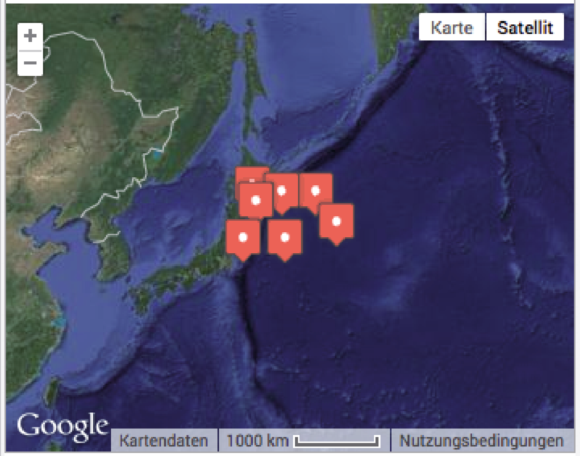
Age and significance of Miocene diatoms and diat...
2009, Palaeogeography, Palaeoclimatology, Palaeoecology more

View more articles »

Citing articles (2)

Related book content

PANGAEA® – Related Data
Vertical distribution of diatoms in North Pacific sediments



Parameter

Current status: fixed parameter term combined with unit

Cibicidoides wuellerstorfi, d13C

[per mil PDB]

combined with a method, e.g. Mass spectrometer

all relevant information about e.g., live (Rose Bengal stained), size fractions, multi chamber or single chamber measurements in comments

Next step: Feature Catalogue, components

Cibicidoides wuellerstorfi — WoRMS

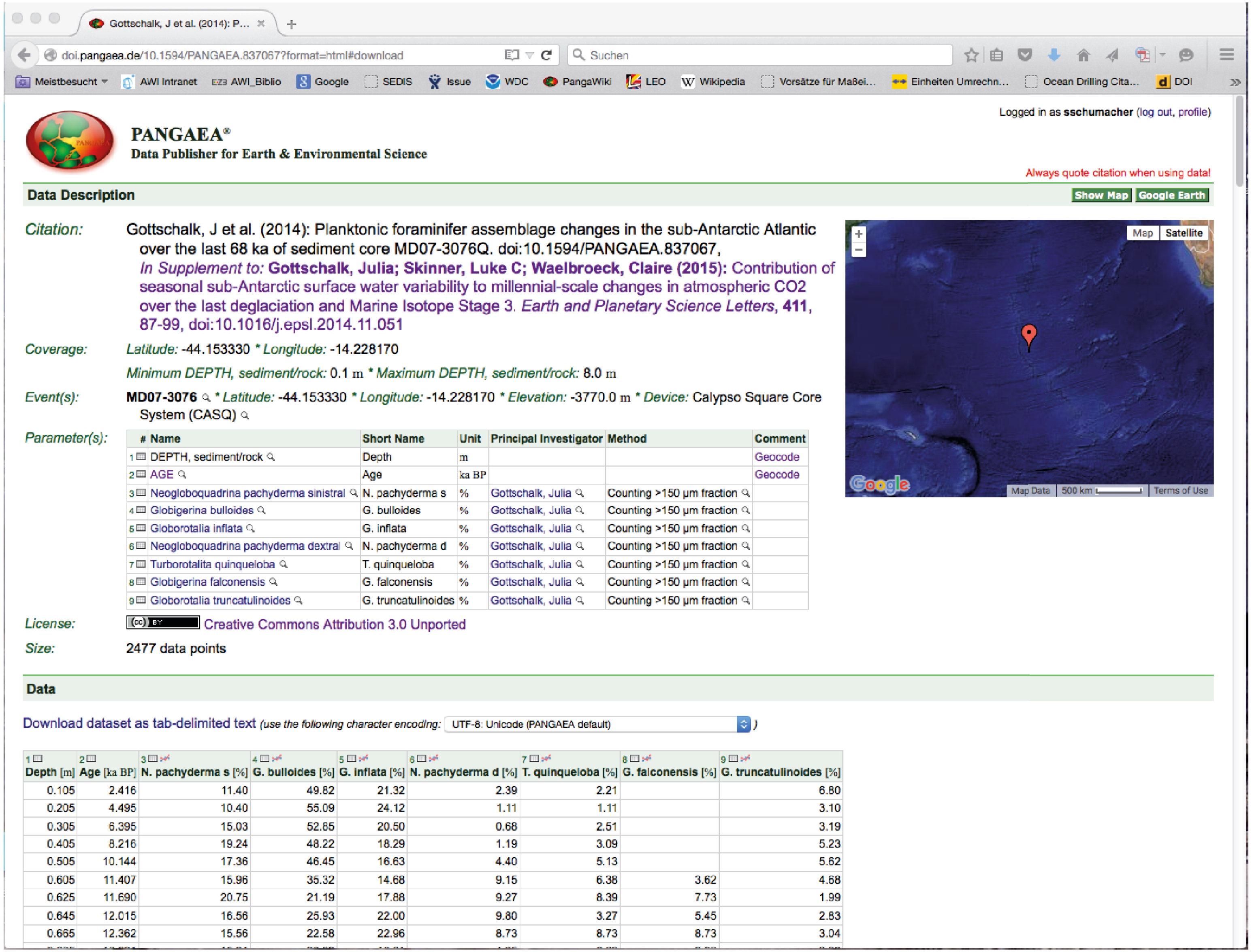
measurement of delta 13C — ChEBI

[per mil PDB]

further components for relevant information can be added

→ **facetted search**

Semantic relation



Logged in as **sschumacher** (log out, profile)

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Data Publisher for Earth & Environmental Science

Always quote citation when using data!

Data Description

Show Map | Google Earth

Citation: Gottschalk, J et al. (2014): Planktonic foraminifer assemblage changes in the sub-Antarctic Atlantic over the last 68 ka of sediment core MD07-3076Q. doi:10.1594/PANGAEA.837067,
In Supplement to: **Gottschalk, Julia; Skinner, Luke C; Waelbroeck, Claire (2015):** Contribution of seasonal sub-Antarctic surface water variability to millennial-scale changes in atmospheric CO2 over the last deglaciation and Marine Isotope Stage 3. *Earth and Planetary Science Letters*, **411**, 87-99, doi:10.1016/j.epsl.2014.11.051

Coverage: *Latitude:* -44.153330 * *Longitude:* -14.228170
Minimum DEPTH, sediment/rock: 0.1 m * *Maximum DEPTH, sediment/rock:* 8.0 m

Event(s): **MD07-3076** * *Latitude:* -44.153330 * *Longitude:* -14.228170 * *Elevation:* -3770.0 m * *Device:* Calypso Square Core System (CASQ)

Parameter(s):

#	Name	Short Name	Unit	Principal Investigator	Method	Comment
1	DEPTH, sediment/rock	Depth	m			Geocode
2	AGE	Age	ka BP			Geocode
3	Neogloboquadrina pachyderma sinistral	N. pachyderma s	%	Gottschalk, Julia	Counting >150 µm fraction	
4	Globigerina bulloides	G. bulloides	%	Gottschalk, Julia	Counting >150 µm fraction	
5	Globorotalia inflata	G. inflata	%	Gottschalk, Julia	Counting >150 µm fraction	
6	Neogloboquadrina pachyderma dextral	N. pachyderma d	%	Gottschalk, Julia	Counting >150 µm fraction	
7	Turborotalita quinqueloba	T. quinqueloba	%	Gottschalk, Julia	Counting >150 µm fraction	
8	Globigerina falconensis	G. falconensis	%	Gottschalk, Julia	Counting >150 µm fraction	
9	Globorotalia truncatulinoides	G. truncatulinoides	%	Gottschalk, Julia	Counting >150 µm fraction	

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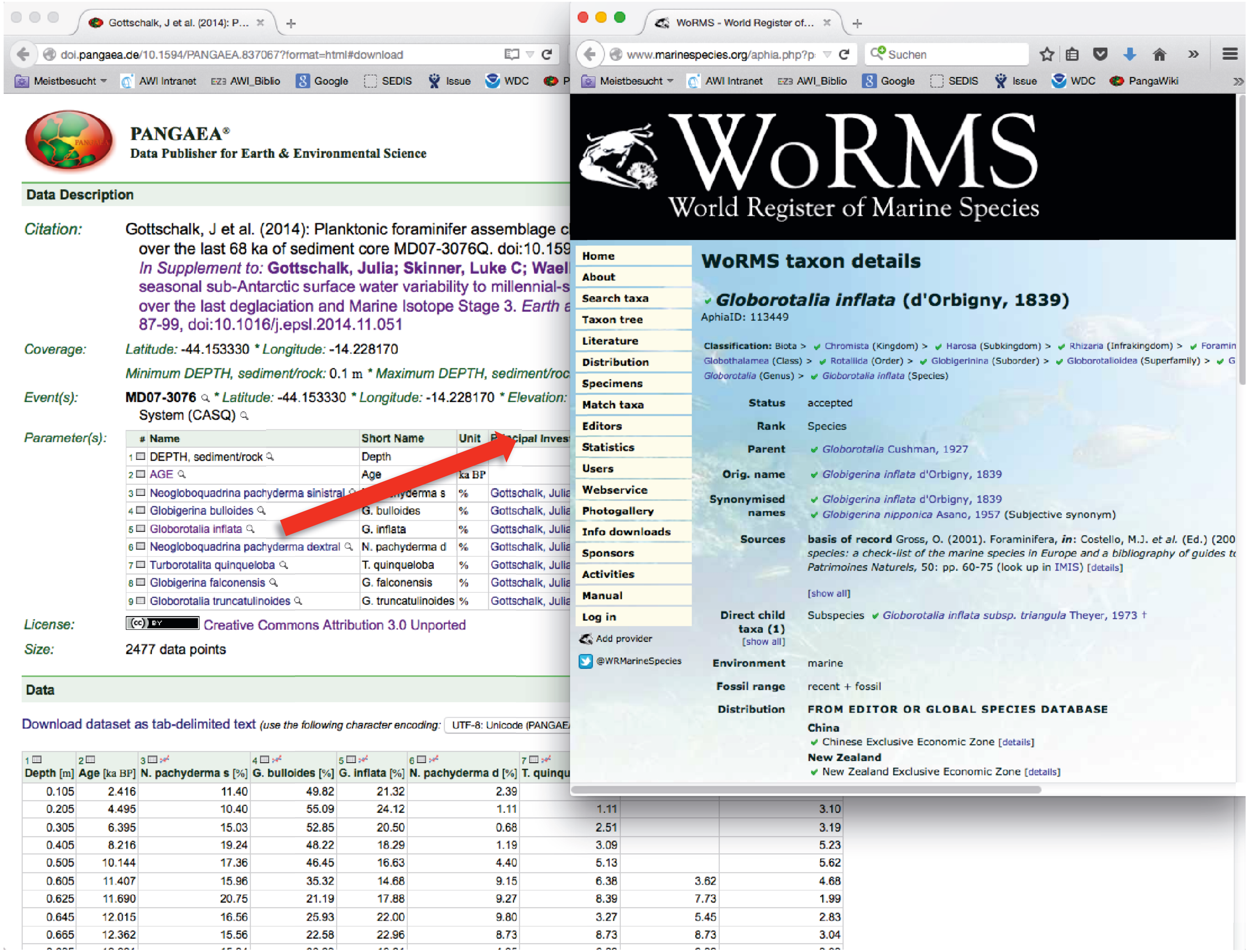
Size: 2477 data points

Data

Download dataset as tab-delimited text *(use the following character encoding:* UTF-8: Unicode (PANGAEA default) *)*

1 Depth [m]	2 Age [ka BP]	3 N. pachyderma s [%]	4 G. bulloides [%]	5 G. inflata [%]	6 N. pachyderma d [%]	7 T. quinqueloba [%]	8 G. falconensis [%]	9 G. truncatulinoides [%]
0.105	2.416	11.40	49.82	21.32	2.39	2.21		6.80
0.205	4.495	10.40	55.09	24.12	1.11	1.11		3.10
0.305	6.395	15.03	52.85	20.50	0.68	2.51		3.19
0.405	8.216	19.24	48.22	18.29	1.19	3.09		5.23
0.505	10.144	17.36	46.45	16.63	4.40	5.13		5.62
0.605	11.407	15.96	35.32	14.68	9.15	6.38	3.62	4.68
0.625	11.690	20.75	21.19	17.88	9.27	8.39	7.73	1.99
0.645	12.015	16.56	25.93	22.00	9.80	3.27	5.45	2.83
0.665	12.362	15.56	22.58	22.96	8.73	8.73	8.73	3.04

Semantic relation



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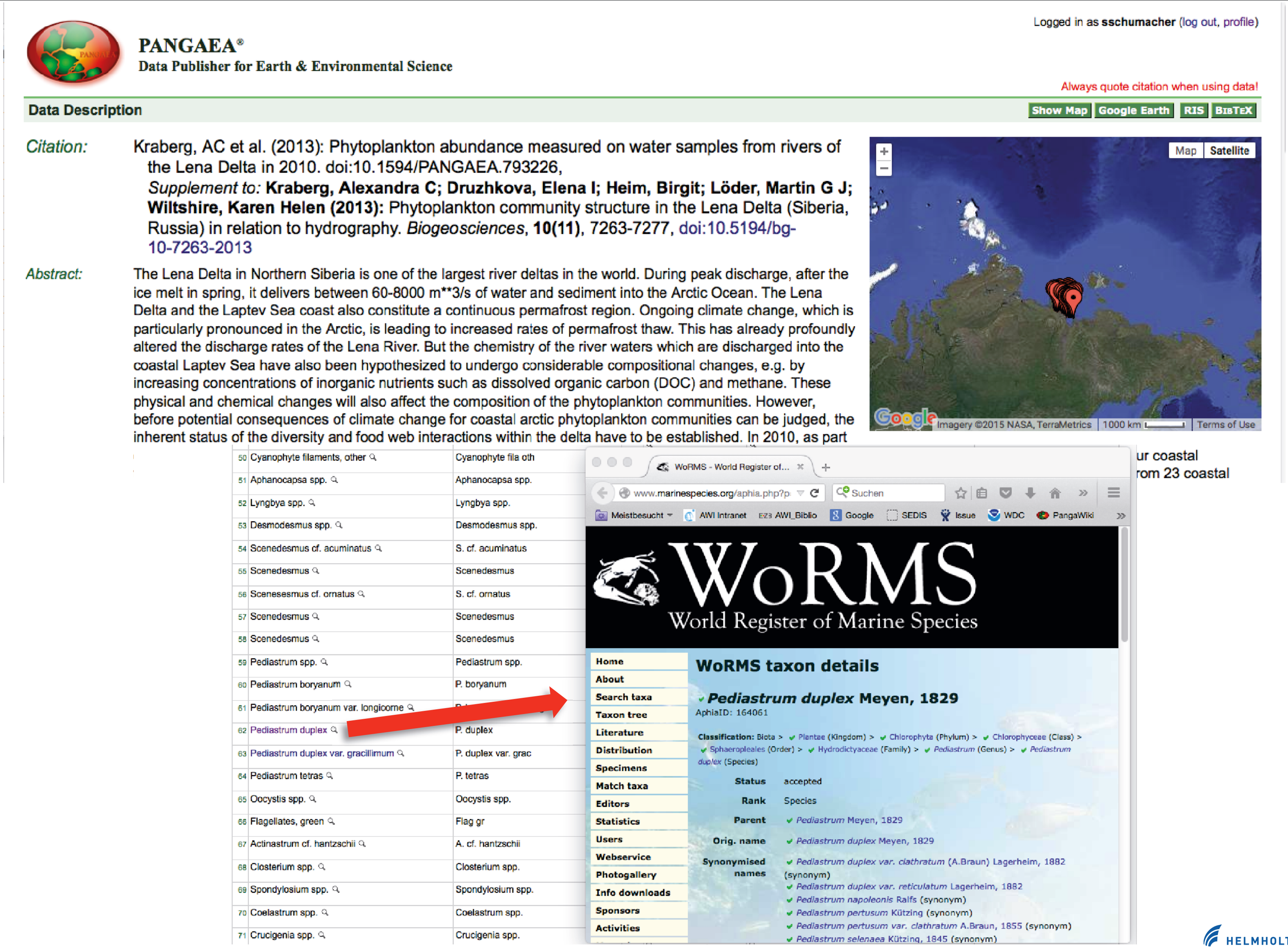
Semantic relation



Interaction PANGAEA ⟷ WoRMS

PANGAEA submits unrecognized species to WoRMS

Workflow?

WoRMS:
- Bundle size?
- What kind of support from PANGAEA? e.g., related datasets including references?
- Taxonomic concept from data-author/related publication/ AWI scientist?

PANGAEA:
- Filter the taxonomic list for undescribed taxa
- Check taxa for correct spelling
- List Taxa in georeferenced context?
- Recent/fossil?

Interaction PANGAEA ⟷ WoRMS

Open Discussion