

The place of Schema.org in Linked Ocean Data

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1. Marine Institute, Ireland

**2. Woods Hole Oceanographic
Institution, USA**

**3. Consortium for Ocean Leadership,
USA**

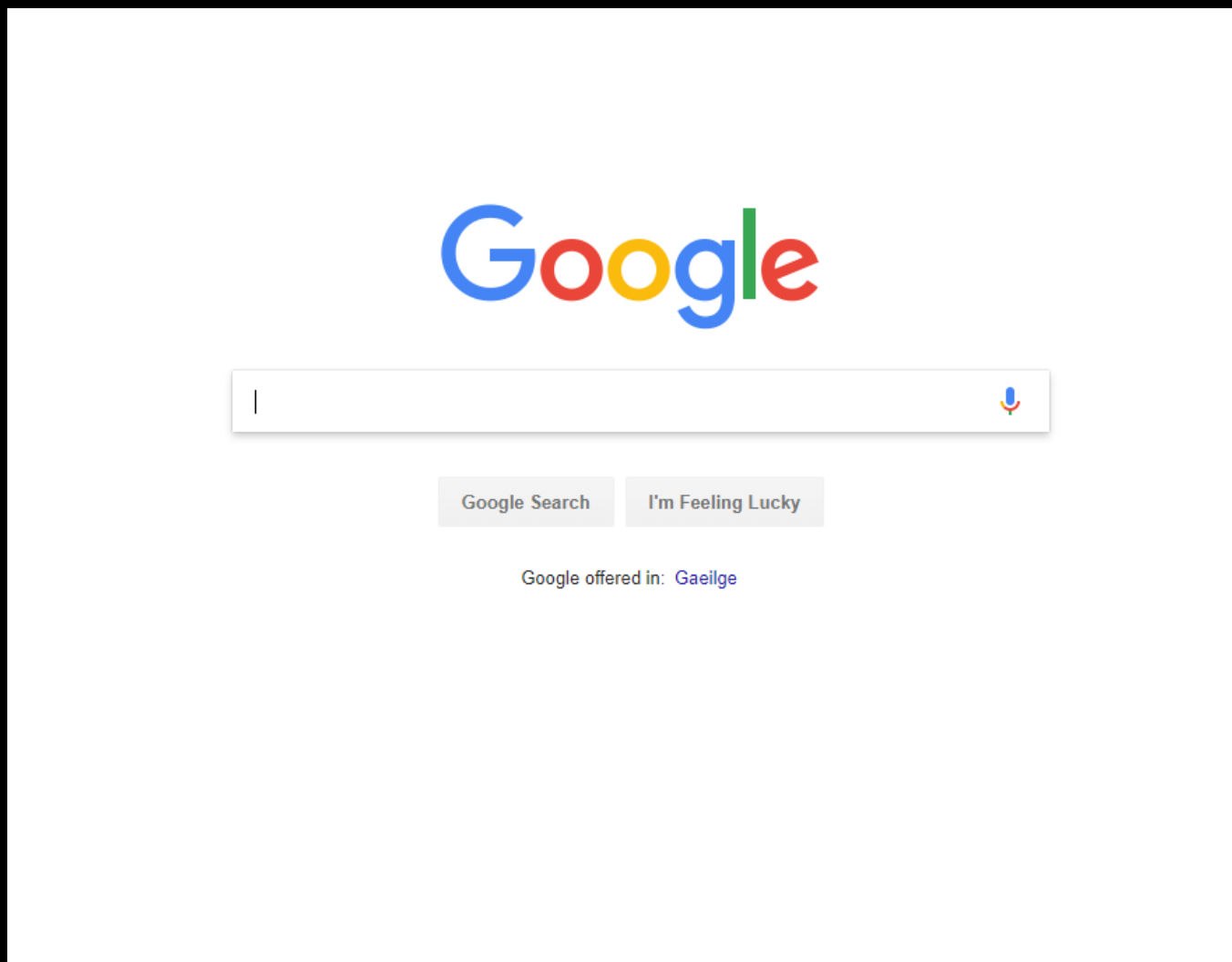
**4. National Oceanic and Atmospheric
Administration, USA**

Why?

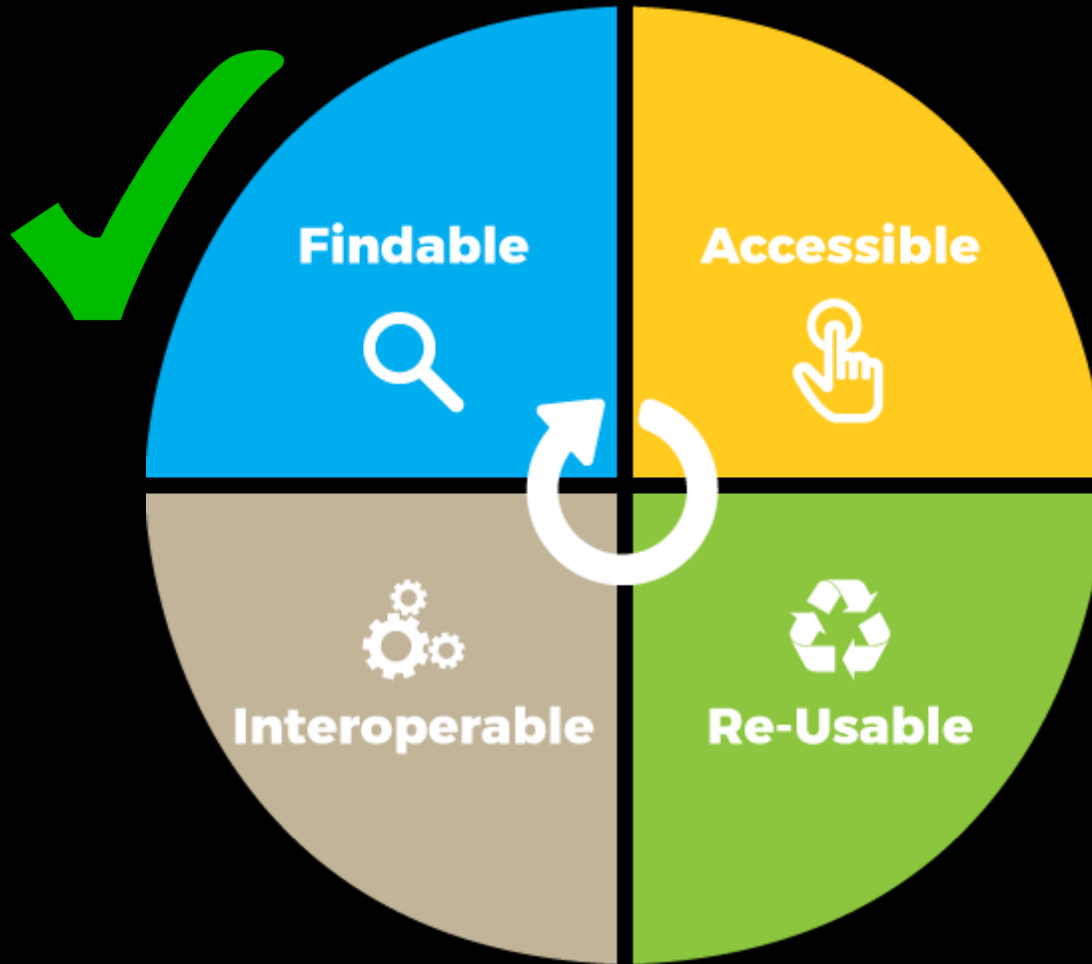
Why?



Why?



Why?



Why?



Why?

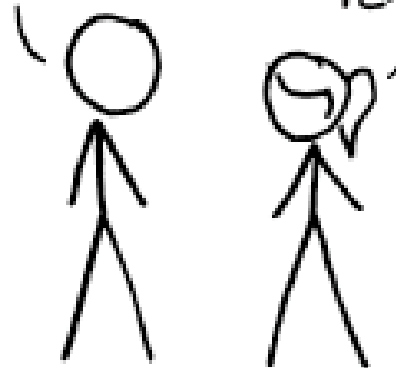


Why?

HOW STANDARDS PROLIFERATE:
(SEE: A/C CHARGERS, CHARACTER ENCODINGS, INSTANT MESSAGING, ETC.)

SITUATION:
THERE ARE
14 COMPETING
STANDARDS.

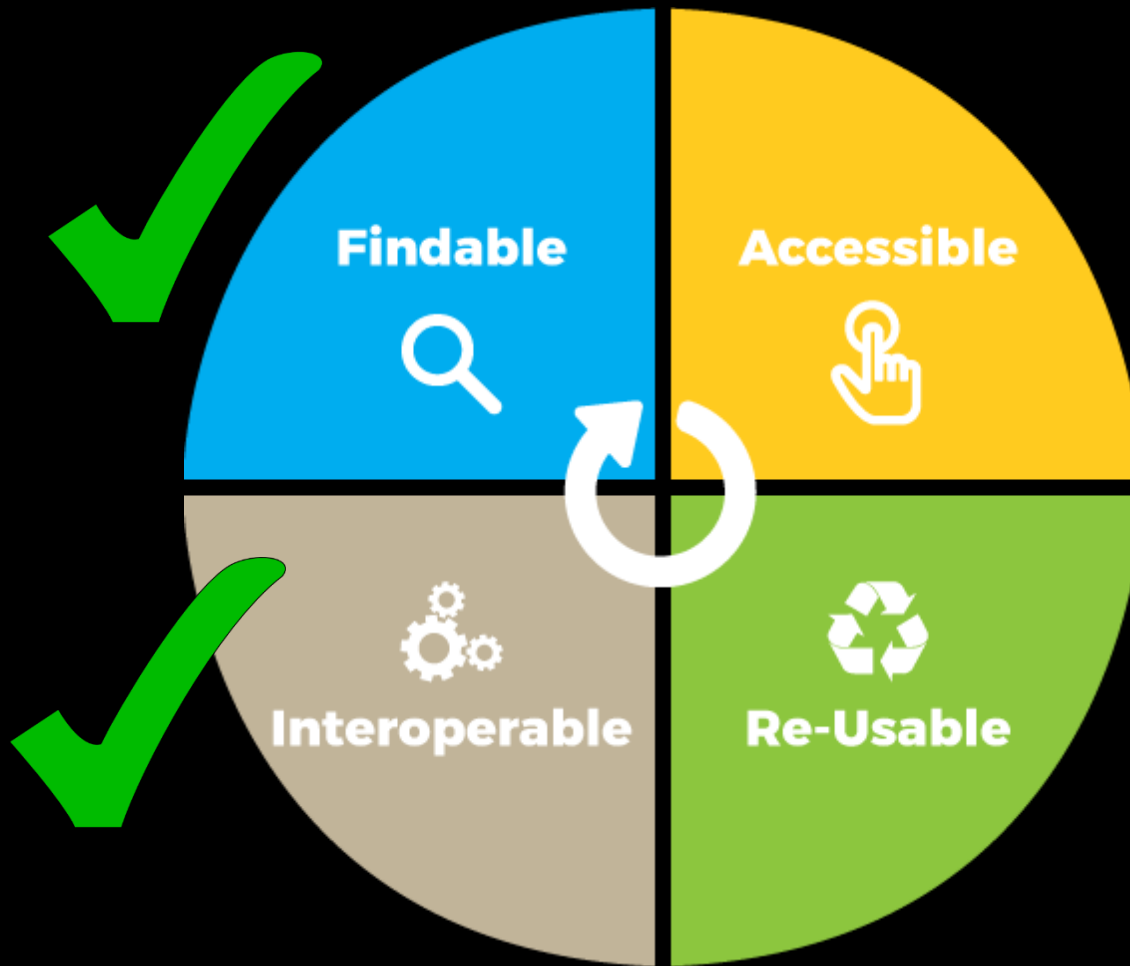
14?! RIDICULOUS!
WE NEED TO DEVELOP
ONE UNIVERSAL STANDARD
THAT COVERS EVERYONE'S
USE CASES.



SOON:

SITUATION:
THERE ARE
15 COMPETING
STANDARDS.

Why?

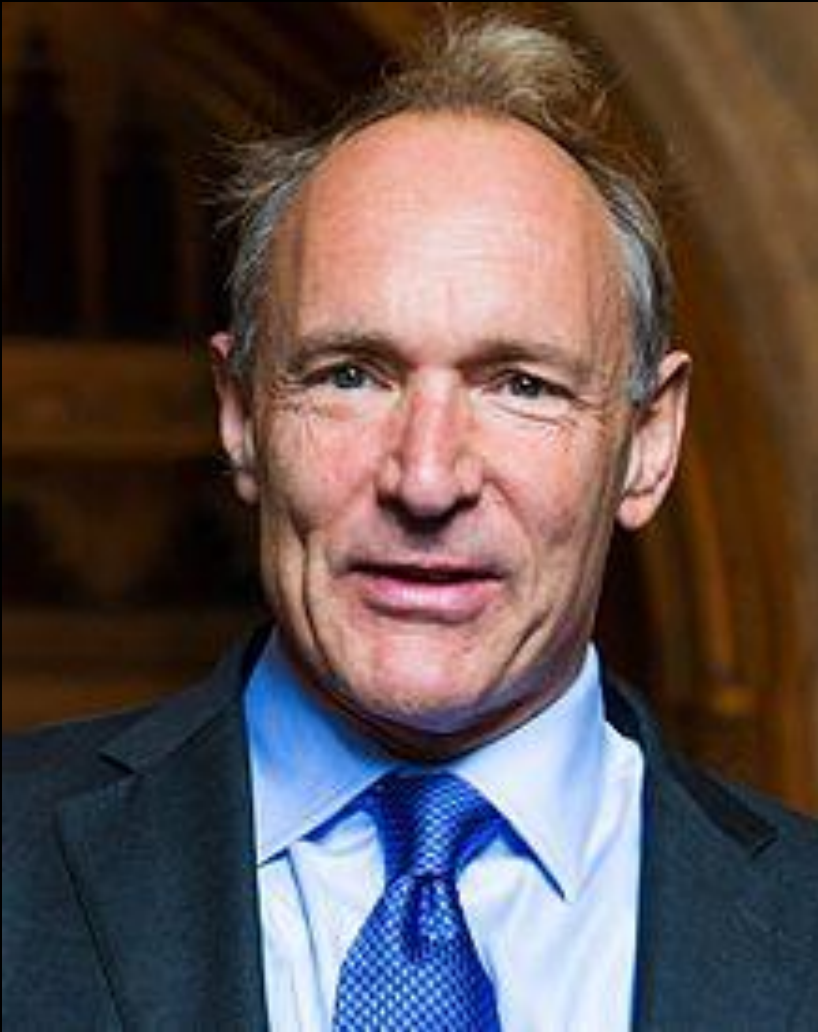


Why?



Background

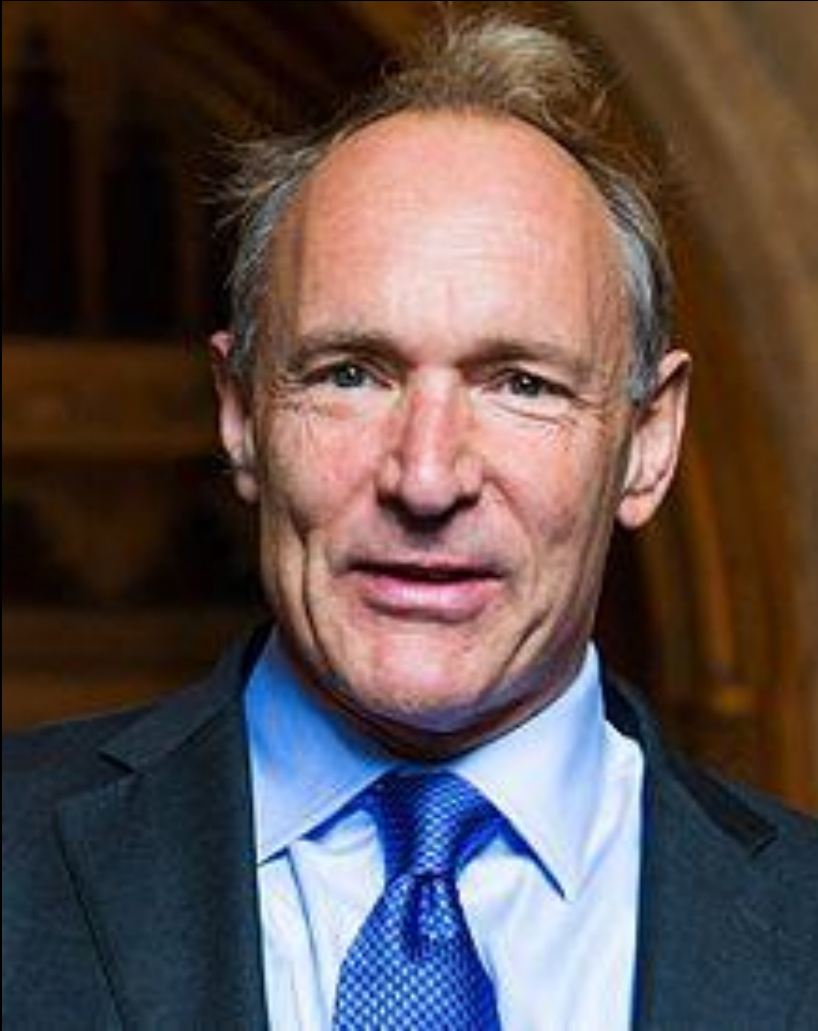
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“The Semantic Web isn't just about putting data on the web. It is about making links, so that a person or machine can explore the web of data. With Linked Data, when you have some of it, you can find other, related, data.”

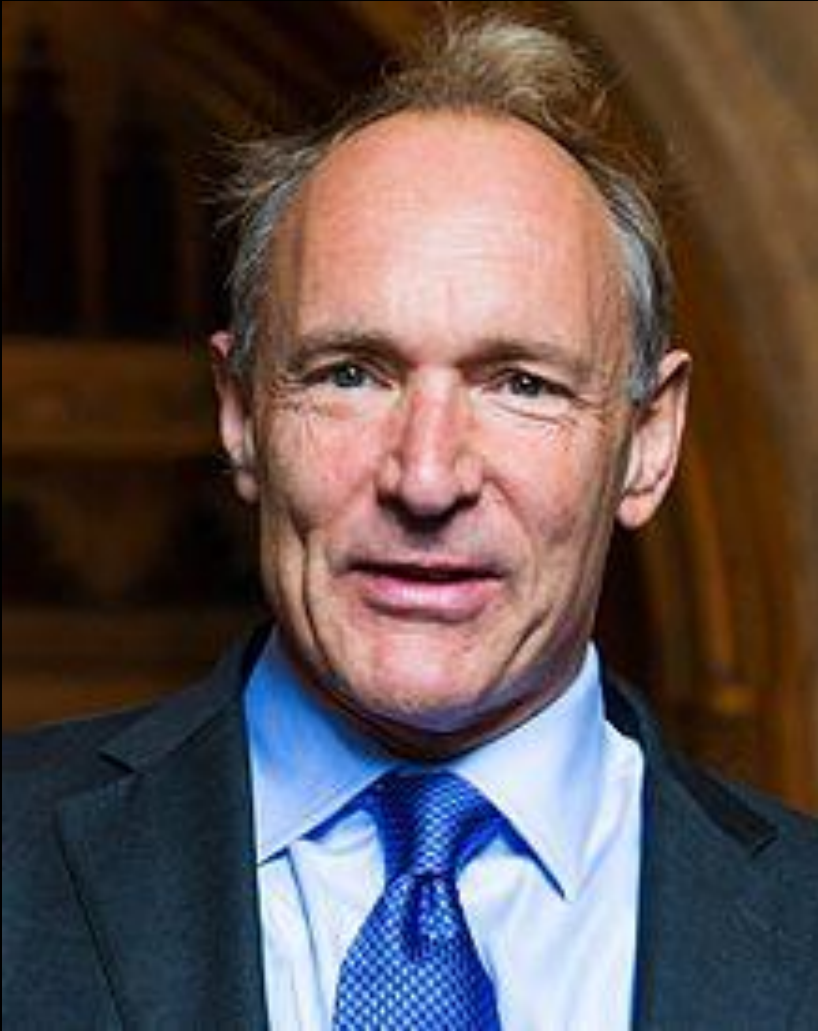
Sir Tim Berners-Lee, 2006

Background



1. Use web addresses to name things
2. Allow those addresses to be looked up
3. Use web standards when the addresses are looked up
4. Include links to other web resources

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Things to do in Barcelona

Sagrada Família
Gaudi-designed landmark church

Park Güell
Park with Gaudi's sculptural buildings

La Rambla, Barcelona
Cultural hub for ...

Casa Milà
Gaudi masterpiece housing arts venue

Barcelona

City in Spain

Barcelona, the cosmopolitan capital of Spain's Catalonia region, is known for its art and architecture. The fantastical Sagrada Família church and other modernist landmarks designed by Antoni Gaudí dot the city. Museu Picasso and Fundació Joan Miró feature modern art by their namesakes. City history museum MUHBA, includes several Roman archaeological sites.

Weather: 19 °C, Wind NW at 18 km/h, 58% Humidity

Local time: Wednesday 10:37

Population: 1.609 million (2016) Instituto Nacional de Estadística

Number of airports: 2

Plan a trip

Barcelona travel guide

3-star hotel averaging €93, 5-star averaging €200

2 h 20 min flight, from €106

Designers: Jean Nouvel, David Kohn

Colleges and Universities: University of Barcelona, MORE

Did you know: Barcelona is the fourth-most densely populated European Union city proper (15,991 people per km²). [wikipedia.org](https://en.wikipedia.org)

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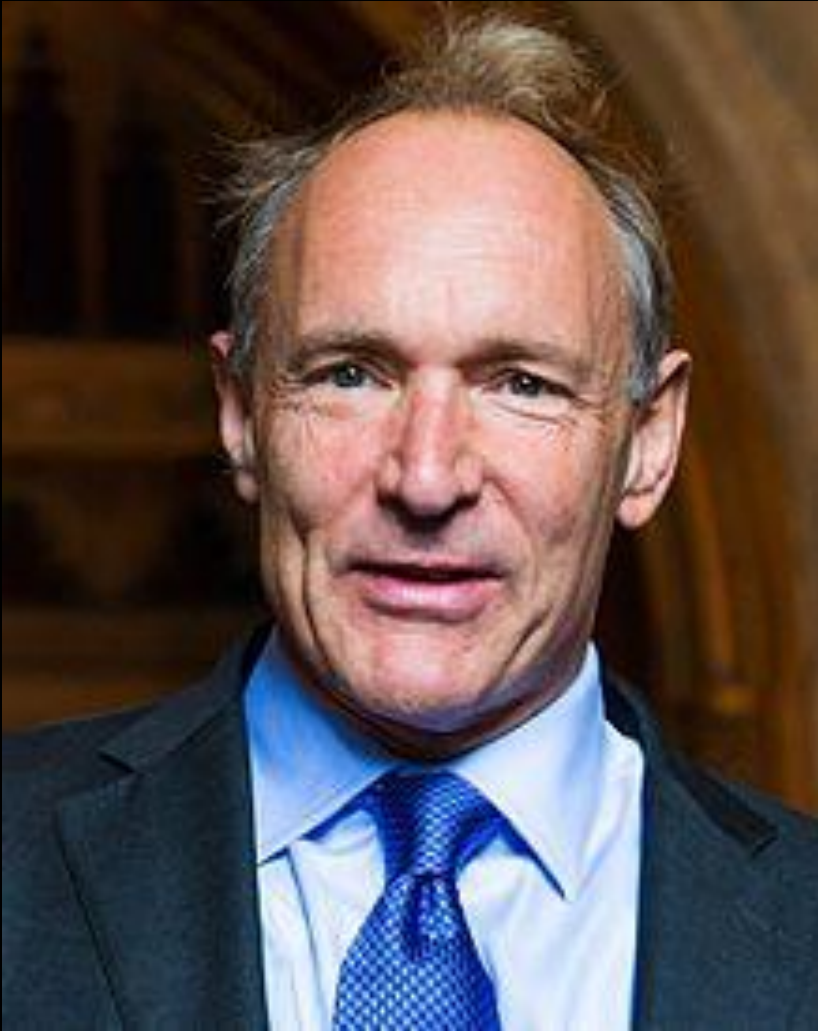
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Barcelona

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Coordinates: 41°23′N 2°11′E﻿ / ﻿41.383°N 2.183°E﻿ / 41.383; 2.183

This article is about the city in Spain. For other uses, see [Barcelona \(disambiguation\)](#).

Barcelona (/ˌbɑːrsəˈloʊnə/ *BAR-sə-LOH-nə*, Catalan: [bərseˈlonə], Spanish: [barθeˈlona]) is a city in Spain. It is the capital and largest city of Catalonia, as well as the second most populous municipality of Spain. With a population of 1.6 million within city limits,^[5] its urban area extends to numerous neighbouring municipalities within the Province of Barcelona and is home to around 4.8 million people,^{[3][7]} making it the sixth most populous urban area in the European Union after Paris, London, Madrid, the Ruhr area and Milan.^[3] It is one of the largest metropolises on the Mediterranean Sea, located on the coast between the mouths of the rivers Llobregat and Besòs, and bounded to the west by the Serra de Collserola mountain range, the tallest peak of which is 512 metres (1,680 feet) high.

Founded as a Roman city, in the Middle Ages Barcelona became the capital of the County of Barcelona. After merging with the Kingdom of Aragon, Barcelona continued to be an important city in the Crown of Aragon as an economic and administrative centre of this Crown and the capital of the Principality of Catalonia. Barcelona has a rich cultural heritage and is today an important cultural centre and a major tourist destination. Particularly renowned are the architectural works of Antoni Gaudí and Lluís Domènech i Montaner, which have been designated UNESCO World Heritage Sites. The headquarters of the Union for the Mediterranean are located in Barcelona. The city is known for hosting the 1992 Summer Olympics as well as world-class conferences and expositions and also many international sport tournaments.

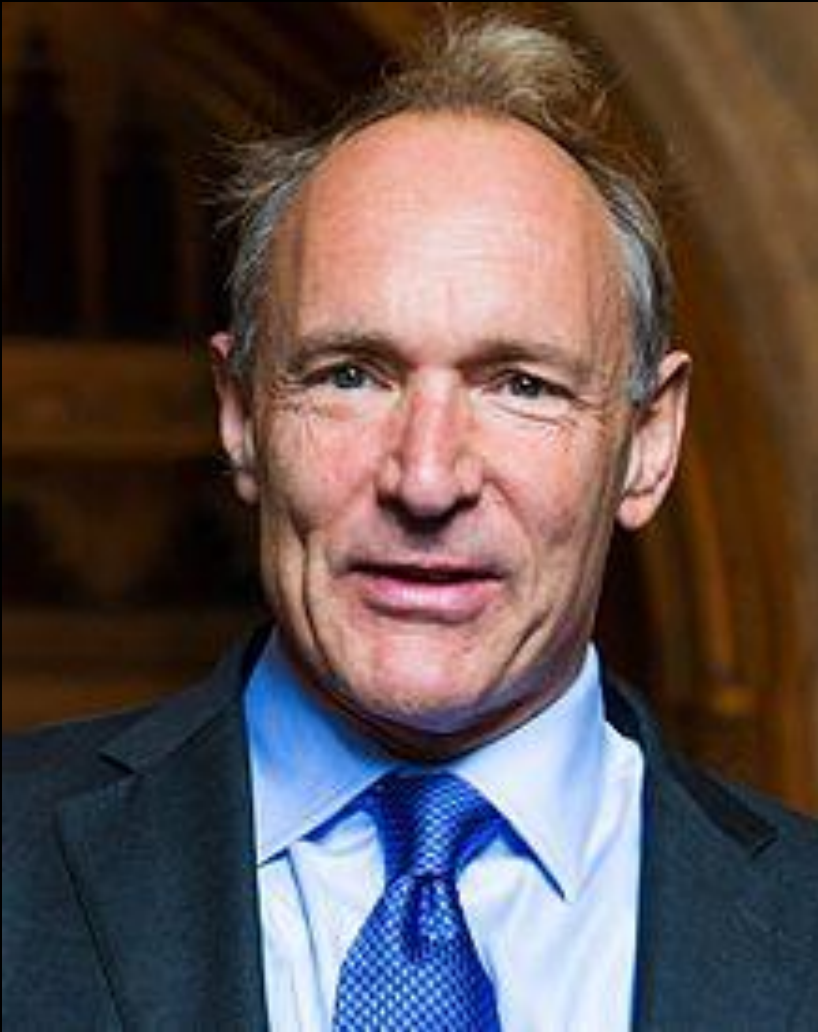
Barcelona is one of the world's leading tourist, economic, trade fair and cultural centres, and its influence in commerce, education, entertainment, media, fashion, science, and the arts all contribute to its status as one of the world's major global cities.^{[8][9]} It is a major cultural and economic centre in southwestern Europe, 24th in the world (before Zürich, after Frankfurt)^[10] and a financial centre. In 2008 it was the fourth most economically powerful city by GDP in the European Union and 35th in the world with GDP

Barcelona

City and municipality



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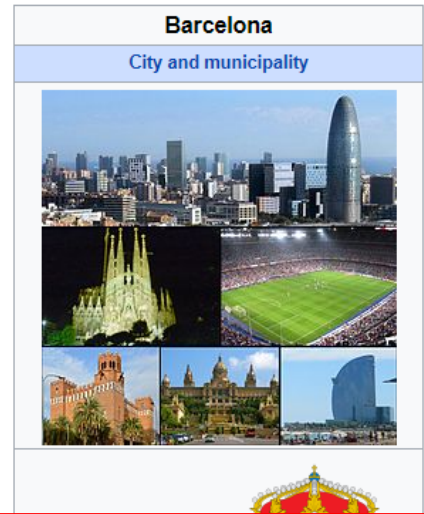
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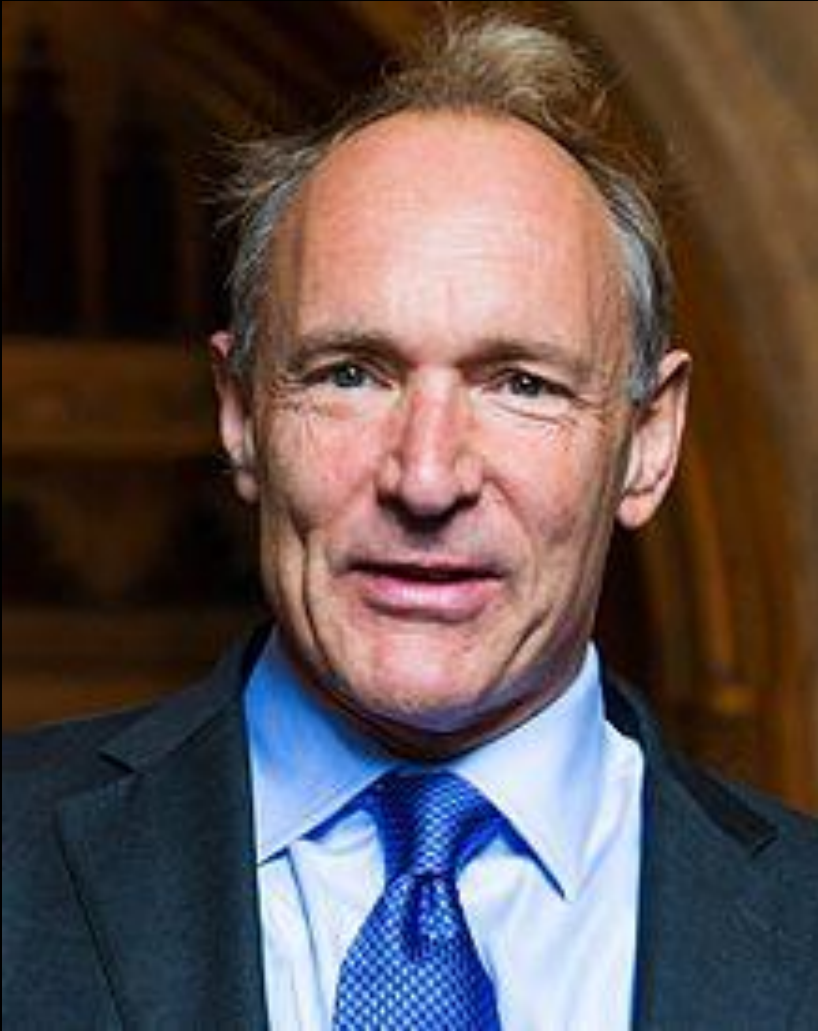
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Things to do in Barcelona

			
Sagrada Família Gaudi-designed landmark church	Park Güell Park with Gaudi's sculptural buildings	La Rambla, Barcelona Cultural hub for	Casa Milà Gaudi masterpiece housing arts venue



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 City in Spain

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Travel x



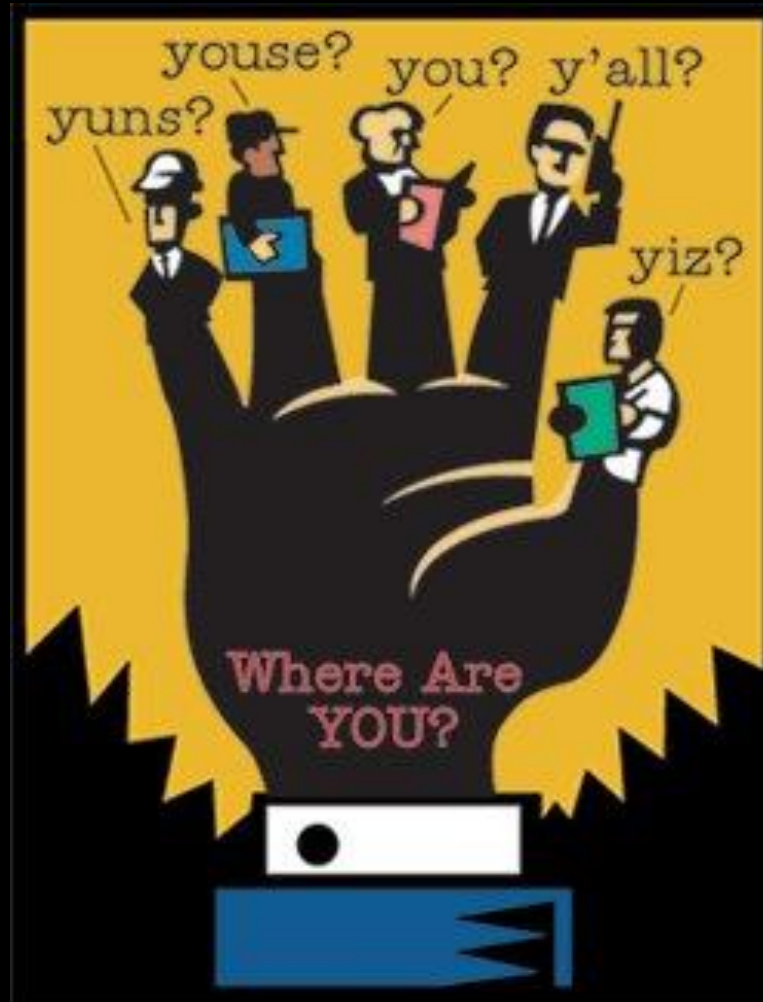
Norwegian Flight 7015
Sep 25 - Confirmation #ZKO9UP

London LGW New York JFK
6:00 PM ✈️ 9:00 PM

Norwegian 7015 LGW to JFK Sep 25, 6:00 PM	Norwegian 7016 JFK to LGW Oct 10, 10:30 PM
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from: **Norwegian.com** <noreply@norwegian.com>
to: ██████████@gmail.com
date: Thu, Feb 12, 2015 at 8:00 PM
subject: Travel documents, 25 sep 2015, Ref. ZKO9UP, London-Gatwick - New York
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Background



Background



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Background



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YAHOO!

What about marine data?

What about marine data?

schema.org

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Dataset
 Canonical URL: <http://schema.org/Dataset>

[Thing](#) > [CreativeWork](#) > [Dataset](#)

A body of structured information describing some topic(s) of interest.

Usage: Between 100 and 1000 domains [more...]

Property	Expected Type	Description
Properties from Dataset		
distribution	DataDownload	A downloadable form of this dataset, at a specific location, in a specific format.
includedInDataCatalog	DataCatalog	A data catalog which contains this dataset. Supersedes catalog , includedDataCatalog . Inverse property: dataset .
issn	Text	The International Standard Serial Number (ISSN) that identifies this serial publication. You can repeat this property to identify different formats of, or the linking ISSN (ISSN-L) for, this serial publication.
	Text or URL	A technique or technology used in a Dataset (or DataDownload , DataCatalog), corresponding to the method used for measuring the corresponding variable(s) (described using variableMeasured). This is oriented towards scientific and scholarly dataset publication but may have broader applicability; it is not intended as a full representation of measurement, but rather as a high level

What about marine data?

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Introduction

Structured data

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- Enhance your site's attributes
- Mark up your content items
- Build, test, & release structured data
- Structured data general guidelines
- Feature guides
 - Enhancements
 - Breadcrumb
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- Content Types
 - Article
 - Book
 - Course
 - Dataset**
 - Employer Aggregate Rating
 - Event
 - Fact Check
 - Job Posting
 - Local Business
 - Media
 - Occupation
 - Paywalled content

Dataset ☆☆☆☆☆

Datasets are easier to find when you provide supporting information such as their name, description, creator and distribution formats as structured data. Google's [approach](#) to dataset discovery makes use of schema.org and other metadata standards that can be added to pages that describe datasets. The purpose of this markup is to improve discovery of datasets from fields such as life sciences, social sciences, machine learning, civic and government data, and more.

★ This feature is in pilot, and you may not see rich results for datasets yet. However, we recommend that you add dataset structured data to your site in preparation for new dataset features in Search results.

Here are some examples of what can qualify as a dataset:

- A table or a CSV file with some data
- An organized collection of tables
- A file in a proprietary format that contains data
- A collection of files that together constitute some meaningful dataset
- A structured object with data in some other format that you might want to load into a special tool for processing
- Images capturing data
- Files relating to machine learning, such as trained parameters or neural network structure definitions
- Anything that looks like a dataset to you

Our approach to dataset discovery


We can understand structured data in Web pages about datasets, using either [schema.org Dataset markup](#), or equivalent structures represented in W3C's [Data Catalog Vocabulary \(DCAT\) format](#). We also exploring experimental support for structured data based on [W3C CSVW](#), and expect to evolve and adapt our approach as best practices for dataset description emerge. For more information about our approach to dataset discovery, see [Facilitating the discovery of public datasets](#).

Contents

- Our approach to dataset discovery
- Examples
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 - Sitemap best practices
 - Source and provenance best practices
- Known Errors and Warnings
- Structured data type definitions
 - Dataset
 - DataCatalog
 - DataDownload
 - Tabular datasets
- Help and tools

What have we done so far?

What have we done so far?



ERDDAP

ERDDAP is a data server that gives you a simple, consistent way to download subsets of scientific datasets in common file formats and make graphs and maps. This particular ERDDAP installation has oceanographic data (for example, data from satellites and buoys).

Easier Access to Scientific Data

Our focus is on making it easier for you to get scientific data.


Different scientific communities have developed different types of data servers.

For example, OPeNDAP, WCS, SOS, OBIS, and countless custom web pages with forms. Each is great on its own. But without ERDDAP, it is difficult to get data from different types of servers:

- Different data servers make you format your data request in different ways.
- Different data servers return data in different formats, usually not the common file format that you want.
- Different datasets use different formats for time data, so the results are hard to compare.

ERDDAP unifies the different types of data servers so you have a consistent way to get the data you want, in the format you want.

- ERDDAP acts as a middleman between you and various remote data servers. When you request data from ERDDAP, ERDDAP reformats the request into the format required by the remote server, sends the request to the remote server, gets the data, reformats the data into the format that you requested, and sends the data to you. You no longer have to go to different data servers to get data from different datasets.
- ERDDAP offers an easy-to-use, consistent way to request data: via the OPeNDAP standard. Many datasets can also be accessed via ERDDAP's Web Map Service (WMS).
- ERDDAP returns data in the common file format of your choice. ERDDAP offers all data as .html table, ESRI .asc and .csv, Google Earth .kml, OPeNDAP binary, .mat, .nc, ODV .bt, .csv, .tsv, .json, and .xhtml. So you no longer have to waste time and effort reformatting data.
- ERDDAP can also return a .png or .pdf image with a customized graph or map.
- ERDDAP standardizes the dates+times in the results. Data from other data servers is hard to compare because the dates+times often are expressed in different formats (for example, "Jan 2, 1985", "2 Jan 85", "02-JAN-1985", "1/2/85", "2/1/85", "1985-01-02", "days since Jan 1, 1900"). For string times, ERDDAP always uses the ISO 8601:2004(E) standard format, for example, "1985-01-02T00:00:00Z". For numeric times, ERDDAP always uses "seconds since 1970-01-01T00:00:00Z". ERDDAP always uses the Zulu (UTC, GMT) time zone to remove the difficulties of working with different time zones and standard time vs. daylight saving time. ERDDAP has a [service to convert a string time to/from a numeric time](#).



Start Using ERDDAP:

Search for Interesting Datasets

- [View a List of All 32 Datasets](#)
- [Do a Full Text Search for Datasets](#)

- [Search for Datasets by Category](#)


Datasets can be categorized in different ways by the values of various metadata attributes. Click on an attribute ([cdm_data_type](#), [institution](#), [ioos_category](#), [keywords](#), [long_name](#), [standard_name](#), [variableName](#)) to see a list of categories (values) for that attribute. Then, you can click on a category to see a list of relevant datasets.

- [Search for Datasets with Advanced Search](#)
- [Search for Datasets by Protocol](#)

Protocols are the standards which specify how to request data. Different protocols are appropriate for different types of data and for different client applications.

Protocol	Description
griddap datasets	Griddap lets you use the OPeNDAP hyperslab protocol to request data subsets, graphs, and maps from gridded datasets (for example, satellite data and climate model data). griddap documentation
tabledap datasets	Tabledap lets you use the OPeNDAP constraint/selection protocol to request data subsets, graphs, and maps from tabular datasets (for example, buoy data). tabledap documentation
"files" datasets	ERDDAP's "files" system lets you browse a virtual file system and download source data files. WARNING! The dataset's metadata and variable names in these source files may be different than

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- Different data servers return data in different formats, usually not the common file format that you want.
- Different datasets use different formats for time data, so the results are hard to compare.

ERDDAP unifies the different types of data servers so you have a consistent way to get the data you want, in the format you want.

- ERDDAP acts as a middleman between you and various remote data servers. When you request data from ERDDAP, ERDDAP reformats the request into the format required by the remote server, sends the request to the remote server, gets the data, reformats the data into the format that you requested, and sends the data to you. You no longer have to go to different data servers to get data from different datasets.
- ERDDAP offers an easy-to-use, consistent way to request data: via the OPeNDAP standard. Many datasets can also be accessed via ERDDAP's Web Map Service (WMS).
- ERDDAP returns data in the common file format of your choice. ERDDAP offers all data as .html table, ESRI .asc and .csv, Google Earth .kml, OPeNDAP binary, .mat, .nc, ODV .bt, .csv, .tsv, .json, and .xhtml. So you no longer have to waste time and effort reformatting data.
- ERDDAP can also return a .png or .pdf image with a customized graph or map.
- ERDDAP standardizes the dates+times in the results. Data from other data servers is hard to compare because the dates+times often are expressed in different formats (for example, "Jan 2, 1985", "2 Jan 85", "02-JAN-1985", "1/2/85", "2/1/85", "1985-01-02", "days since Jan 1, 1900"). For string times, ERDDAP always uses the ISO 8601:2004(E) standard format, for example, "1985-01-02T00:00:00Z". For numeric times, ERDDAP always uses "seconds since 1970-01-01T00:00:00Z". ERDDAP always uses the Zulu (UTC, GMT) time zone to remove the difficulties of working with different time zones and standard time vs. daylight saving time. ERDDAP has a [service to convert a string time to/from a numeric time](#).



Start Using ERDDAP:

Search for Interesting Datasets

- [View a List of All 32 Datasets](#)
- [Do a Full Text Search for Datasets](#)

- [Search for Datasets by Category](#)

Datasets can be categorized in different ways by the values of various metadata attributes. Click on an attribute ([cdm_data_type](#), [institution](#), [ioos_category](#), [keywords](#), [long_name](#), [standard_name](#), [variableName](#)) to see a list of categories (values) for that attribute. Then, you can click on a category to see a list of relevant datasets.

- [Search for Datasets with Advanced Search](#)
- [Search for Datasets by Protocol](#)

Protocols are the standards which specify how to request data. Different protocols are appropriate for different types of data and for different client applications.

Protocol	Description
griddap datasets	Griddap lets you use the OPeNDAP hyperslab protocol to request data subsets, graphs, and maps from gridded datasets (for example, satellite data and climate model data). griddap documentation
tabledap datasets	Tabledap lets you use the OPeNDAP constraint/selection protocol to request data subsets, graphs, and maps from tabular datasets (for example, buoy data). tabledap documentation
"files" datasets	ERDDAP's "files" system lets you browse a virtual file system and download source data files. WARNING! The dataset's metadata and variable names in these source files may be different than

What have we done so far?



ERDDAP > List of All Datasets

32 matching datasets, listed in alphabetical order.

Grid DAP Data	Sub-set	Table DAP Data	Make A Graph	W M S	Source Data Files	Title	Summary	FGDC, ISO, Metadata	Back-ground Info	RSS	Institution	Dataset ID
	set	data	graph			* The List of All Active Datasets in this ERDDAP *	?	M	background		Marine Institute ...	allDatasets
	set	data	graph			AIS Met Hydro	?	F I M	background	RSS	Marine Institute	ais_met_hydro
	set	data	graph			Argo Float Vertical Profiles	?	F I M	background	RSS	Argo	argoFloats
data			graph	M		Bantry Bay model particle track analysis	?	F I M	background	RSS	Irish Marine Inst...	BANTRY_PARTICLES
	set	data	graph			Coastal Temperature Network	?	F I M	background	RSS	Marine Institute	ICTempNetwork
	set	data	graph			Coastal Temperature Network - Freshwater sites	?	F I M	background	RSS	Marine Institute	ICTempNetworkFreshwater
data			graph	M		East Atlantic SWAN Wave Model	?	F I M	background	RSS	Irish Marine Inst...	IMI_EATL_WAVE
	set	data	graph			EPA Beaches Model Predicted Tide Level	?	F I M	background	RSS	Marine Institute	IMI-TidePrediction_epa
	set	data	graph			Furnace Weather Station Daily averages	?	F I M	background	RSS	Met Eireann	imiFurnaceWSdaily
	set	data	graph			Galway Bay Observatory ADCP data	?	F I M	background	RSS	Irish Marine Inst...	spiddal_obs_adcp
	set	data	graph			Galway Bay Observatory CTD data	?	F I M	background	RSS	Marine Institute	spiddal_obs_ctd
	set	data	graph			Galway Bay Observatory Fluorometer Data	?	F I M	background	RSS	Marine Institute	galway_obs_fluorometer
	set	data	graph			GFS weather forecast at selected locations	?	F I M	background	RSS	NOAA/NCEP	GFS-WeatherTimeSeries
	set	data	graph			IBTS Trawl Surveys	?	F I M	background	RSS	Marine Institute	milbts
data			graph	M		Irish Marine Institute Connemara Model CONN2D	?	F I M	background	RSS	Irish Marine Inst...	IMI_CONN_2D
data			graph	M		Irish Marine Institute Connemara Model CONN3D	?	F I M	background	RSS	Irish Marine Inst...	IMI_CONN_3D
data			graph	M		Irish Marine Institute Northeast Atlantic Model	?	F I M	background	RSS	Irish Marine Inst...	IMI_NEATL
	set	data	graph			Irish National Tide Gauge Network	?	F I M	background	RSS	Marine Institute	IrishNationalTideGaugeNetwork
	set	data	graph			Irish National Tide Gauge Network River Gauges	?	F I M	background	RSS	Marine Institute	IrishNationalTideGaugeNetworkRiverGauges
	set	data	graph			Irish Wave Buoys	?	F I M	background	RSS	Marine Institute	IWaveBNetwork
	set	data	graph			Irish Wave Buoys 30 Min	?	F I M	background	RSS	Marine Institute	IWaveBNetwork30Min
	set	data	graph			Irish Wave Buoys Spectral Data	?	F I M	background	RSS	Marine Institute	IWaveBNetwork_spectral
	set	data	graph			Irish Wave Buoys Zero crossing Data	?	F I M	background	RSS	Marine Institute	IWaveBNetwork_zerocrossing
	set	data	graph			Irish Weather Buoy Network	?	F I M	background	RSS	Marine Institute	IWBNetwork
	set	data	graph			MESTECH Multiparameter Sonde data	?	F I M	background	RSS	Dublin City Unive...	mestech
	set	data	graph			MI Tide Prediction	?	F I M	background	RSS	Marine Institute	IMI-TidePrediction
	set	data	graph			MI Wave Forecast at buoy locations	?	F I M	background	RSS	Marine Institute	IMI-WaveBuoyForecast
	set	data	graph			MI Wave Forecast at undefined Atlantos project locations	?	F I M	background	RSS	Marine Institute	waveatlantos00
data			graph	M		Model Monthly Means	?	F I M	background	RSS	Irish Marine Inst...	IMI_Model_Stats
	set	data	graph			Newport Buoys hiRes	?	F I M	background	RSS	Marine Institute	IMINewportBuoys

What have we done so far?



ERDDAP > List of All Datasets

32 matching datasets, listed in alphabetical order.

Grid DAP Data	Sub-set	Table DAP Data	Make A Graph	W M S	Source Data Files	Title	Summary	FGDC, ISO, Metadata	Back-ground Info	RSS	Institution	Dataset ID
	set	data	graph			* The List of All Active Datasets in this ERDDAP *	?	M	background		Marine Institute ...	allDatasets
	set	data	graph			AIS Met Hydro	?	F I M	background	RSS	Marine Institute	ais_met_hydro
	set	data	graph			Argo Float Vertical Profiles	?	F I M	background	RSS	Argo	argoFloats
data			graph	M		Bantry Bay model particle track analysis	?	F I M	background	RSS	Irish Marine Inst...	BANTRY_PARTICLES
	set	data	graph			Coastal Temperature Network	?	F I M	background	RSS	Marine Institute	ICTempNetwork
	set	data	graph			Coastal Temperature Network - Freshwater sites	?	F I M	background	RSS	Marine Institute	ICTempNetworkFreshwater
data			graph	M		East Atlantic SWAN Wave Model	?	F I M	background	RSS	Irish Marine Inst...	IMI_EATL_WAVE
	set	data	graph			EPA Beaches Model Predicted Tide Level	?	F I M	background	RSS	Marine Institute	IMI-TidePrediction_epa
	set	data	graph			Furnace Weather Station Daily averages	?	F I M	background	RSS	Met Eireann	imiFurnaceWSdaily
	set	data	graph			Galway Bay Observatory ADCP data	?	F I M	background	RSS	Irish Marine Inst...	spiddal_obs_adcp
	set	data	graph			Galway Bay Observatory CTD data	?	F I M	background	RSS	Marine Institute	spiddal_obs_ctd
	set	data	graph			Galway Bay Observatory Fluorometer Data	?	F I M	background	RSS	Marine Institute	galway_obs_fluorometer
	set	data	graph			GFS weather forecast at selected locations	?	F I M	background	RSS	NOAA/NCEP	GFS-WeatherTimeSeries
	set	data	graph			IBTS Trawl Surveys	?	F I M	background	RSS	Marine Institute	milbts
data			graph	M		Irish Marine Institute Connemara Model CONN2D	?	F I M	background	RSS	Irish Marine Inst...	IMI_CONN_2D
data			graph	M		Irish Marine Institute Connemara Model CONN3D	?	F I M	background	RSS	Irish Marine Inst...	IMI_CONN_3D
data			graph	M		Irish Marine Institute Northeast Atlantic Model	?	F I M	background	RSS	Irish Marine Inst...	IMI_NEATL
	set	data	graph			Irish National Tide Gauge Network	?	F I M	background	RSS	Marine Institute	IrishNationalTideGaugeNetwork
	set	data	graph			Irish National Tide Gauge Network River Gauges	?	F I M	background	RSS	Marine Institute	IrishNationalTideGaugeNetworkRiverGauges
	set	data	graph			Irish Wave Buoys	?	F I M	background	RSS	Marine Institute	IWaveBNetwork
	set	data	graph			Irish Wave Buoys 30 Min	?	F I M	background	RSS	Marine Institute	IWaveBNetwork30Min
	set	data	graph			Irish Wave Buoys Spectral Data	?	F I M	background	RSS	Marine Institute	IWaveBNetwork_spectral
	set	data	graph			Irish Wave Buoys Zero crossing Data	?	F I M	background	RSS	Marine Institute	IWaveBNetwork_zerocrossing
	set	data	graph			Irish Weather Buoy Network	?	F I M	background	RSS	Marine Institute	IWBNetwork
	set	data	graph			MESTECH Multiparameter Sonde data	?	F I M	background	RSS	Dublin City Unive...	mestech
	set	data	graph			MI Tide Prediction	?	F I M	background	RSS	Marine Institute	IMI-TidePrediction
	set	data	graph			MI Wave Forecast at buoy locations	?	F I M	background	RSS	Marine Institute	IMI-WaveBuoyForecast
	set	data	graph			MI Wave Forecast at undefined Atlantos project locations	?	F I M	background	RSS	Marine Institute	waveatlantos00
data			graph	M		Model Monthly Means	?	F I M	background	RSS	Irish Marine Inst...	IMI_Model_Stats
	set	data	graph			Newport Buoys hiRes	?	F I M	background	RSS	Marine Institute	IMINewportBuoys

What have we done so far?




ERDDAP > info > ais_met_hydro

Grid DAP Data	Sub-set	Table DAP Data	Make A Graph	W M S	Source Data Files	Title	Summary	FGDC, ISO, Metadata	Back-ground Info	RSS	Institution	Dataset ID
	set	data	graph			AIS Met Hydro		F I M	background		Marine Institute	ais_met_hydro

The Dataset's Variables and Attributes

Row Type	Variable Name	Attribute Name	Data Type	Value
attribute	NC_GLOBAL	cdm_data_type	String	Point
attribute	NC_GLOBAL	Conventions	String	COARDS, CF-1.6, ACDD-1.3
attribute	NC_GLOBAL	creator_name	String	Marine Institute
attribute	NC_GLOBAL	creator_type	String	person
attribute	NC_GLOBAL	creator_url	String	http://www.digitalocean.ie
attribute	NC_GLOBAL	featureType	String	Point
attribute	NC_GLOBAL	geospatial_lat_units	String	degrees_north
attribute	NC_GLOBAL	geospatial_lon_units	String	degrees_east
attribute	NC_GLOBAL	infoUrl	String	http://www.digitalocean.ie
attribute	NC_GLOBAL	institution	String	Marine Institute
attribute	NC_GLOBAL	keywords	String	accuracy, airtemp, ais, array, array-data, atmosphere, atmospheric, cdepth2, cdepth3, cdir, cdir2, cdir3, class, comprehensive, cspeed, cspeed2, cspeed3, currents, dac, data, density, device, dew, dew point, dewpoint, direction, earth, Earth Science > Atmosphere > Atmospheric Winds > Surface Winds, Earth Science > Oceans > Ocean Waves > Significant Wave Height, Earth Science > Oceans > Ocean Waves > Swells, Earth Science > Oceans > Ocean Waves > Wave Period, Earth Science > Oceans > Ocean Waves > Wave Speed/Direction, Earth Science > Oceans > Salinity/Density > Salinity, fid, flowtimestamp, gust, height, humidity, hydro, institute, large, latitude, level, leveltrend, longitude, marine, met, meteorology, mmsi, ocean, oceans, period, point, practical, preciptype, pressure, pressuretend, recordedtime, repeat, salinity, scaled, science, sea, sea level, sea_surface_swell_wave_period, sea_surface_wave_significant_height, sea_surface_wave_to_direction, sea_water_practical_salinity, seastate, seawater, significant, speed, stewardship, surface, surface waves, swell, swelldir, swellheight, swellperiod, swells, system, temperature, time, timestamp, type, visgreater, visibility, water, waterlevel, watertemp, wave, wavedir, waveheight, waveperiod, waves, wdir, wgust, wgustdir, wind, wind_speed_of_gust, winds, wspeed
attribute	NC_GLOBAL	keywords_vocabulary	String	GCMD Science Keywords
attribute	NC_GLOBAL	license	String	Creative Commons Attribution 4.0 (https://creativecommons.org/licenses/by/4.0/)
attribute	NC_GLOBAL	sourceUrl	String	(Cassandra)
attribute	NC_GLOBAL	standard_name_vocabulary	String	CF Standard Name Table v29
attribute	NC_GLOBAL	subsetVariables	String	mmsi
attribute	NC_GLOBAL	summary	String	Met Hydro data collected from Marine Institute AIS antenna

What have we done so far?



Marine Institute
Foras na Mara

ERDDAP > info > ais

Grid DAP Data	Sub-set	Table DAP Data	Make A Graph	W M S	Source Data Files
	set	data	graph		

The Dataset's Variables and Attributes

Row Type	Variable Name	Attribute Name
attribute	NC_GLOBAL	cdm_data_type
attribute	NC_GLOBAL	Conventions
attribute	NC_GLOBAL	creator_name
attribute	NC_GLOBAL	creator_type
attribute	NC_GLOBAL	creator_url
attribute	NC_GLOBAL	featureType
attribute	NC_GLOBAL	geospatial_lat_units
attribute	NC_GLOBAL	geospatial_lon_units
attribute	NC_GLOBAL	infoUrl
attribute	NC_GLOBAL	institution
attribute	NC_GLOBAL	keywords
attribute	NC_GLOBAL	keywords_vocabulary
attribute	NC_GLOBAL	license
attribute	NC_GLOBAL	sourceUrl
attribute	NC_GLOBAL	standard_name_vocabulary
attribute	NC_GLOBAL	subsetVariables
attribute	NC_GLOBAL	summary

Structured Data Details Back

Dataset Copy No Errors or Warnings

Attribute	Value
@type	Dataset
name	ais_met_hydro
headline	AIS Met Hydro
description	Met Hydro data collected from Marine Institute AIS antenna cdm_data_type=Point Conventions=COARDS, CF-1.6, ACDD-1.3 featureType=Point geospatial_lat_units=degrees_north geospatial_lon_units=degrees_east infoUrl=http://www.digitalocean.ie institution=Marine Institute keywords_vocabulary=GCMD Science Keywords sourceUrl=(Cassandra) standard_name_vocabulary=CF Standard Name Table v29 subsetVariables=mmsi
url	https://erddap.marine.ie/erddap/tabledap/ais_met_hydro.html
keywords	accuracy
keywords	airtemp
keywords	ais
keywords	array
keywords	array-data

String | Met Hydro data collected from Marine Institute AIS antenna

What have we done so far?

Google Dataset Search

site:marine.ie

About

Feedback

spiddal_obs_ctd
erddap.marine.ie
erddap.digitalocean.ie

mestech
erddap.marine.ie

IMI_CONN_2D
erddap.marine.ie

IMINewportBuoys
erddap.marine.ie
erddap.digitalocean.ie

ais_met_hydro

ERDDAP Data Server at Marine Institute Ireland

ERDDAP Data Server at Marine Institute Ireland

Authors
Marine Institute

License
Creative Commons Attribution 4.0 (<https://creativecommons.org/licenses/by/4.0/>)

Description
Met Hydro data collected from Marine Institute AIS antenna cdm_data_type=Point Conventions=COARDS, CF-1.6, ACDD-1.3 featureType=Point geospatial_lat_units=degrees_north geospatial_lon_units=degrees_east infoUrl=<http://www.digitalocean.ie> institution=Marine Institute keywords_vocabulary=GCMD Science Keywords sourceUrl=(Cassandra) standard_name_vocabulary=CF Standard Name Table v29 subsetVariables=mmsi

What have we done so far?



What have we done so far?

Marine Institute Data Catalogue Search Map About

Search ...

Sorted by relevancy

1 - 20 on 396

CV17018 Celtic Sea Nephrops Underwater TV (UWTV) Survey Categories

Annual underwater television (UWTV) survey of abundance and distribution of Nephrops in the Celtic Sea Nephrops Grounds. The prawn (*Nephrops norvegicus*) are common in the Celtic Sea occurring in geographically distinct sandy/muddy areas where the sediment is suitable for them to construct their burrows. The Celtic Sea area supports a large multi-national targeted Nephrops fishery mainly using otter trawls. This survey was carried out by the Marine ...

ATMOSPHERE FISHERIES AND AQUACULTURE ENVIRONMENT

CV17019 INFOMAR Seabed Survey Categories

The INtegrated Mapping FOR the Sustainable Development of Ireland's MARine Resource (INFOMAR) programme is a joint venture between the Geological Survey of Ireland (GSI) and the Marine Institute (MI). The programme is a successor to the Irish National Seabed Survey (INSS) and concentrates on creating a range of integrated mapping products of the physical, chemical and biological features of the seabed in the near-shore area. This cruise took place ...

ATMOSPHERE

CV17021 Nephrops Underwater TV (UWTV) Celtic Sea Survey - Leg 2 Categories

Annual second leg underwater television (UWTV) survey of abundance and distribution of Nephrops in the Celtic Sea Nephrops Grounds. The prawn (*Nephrops norvegicus*) are common in the Celtic Sea occurring in geographically distinct sandy/muddy areas where the sediment is suitable for them to construct their burrows. The Celtic Sea area supports a large multi-national targeted Nephrops fishery mainly using otter trawls. This survey was carried out by the ...

ATMOSPHERE FISHERIES AND AQUACULTURE ENVIRONMENT PHYSICAL OCEANOGRAPHY

No Records Pinned

Filter

Expand Collapse

ORGANISATION

- Galway-Mayo Institute of Technology (25)
- Marine Institute (298)
- Petroleum Affairs Division (10)
- Ryan Institute, National University of Ireland, Galway (8)
- Sustainable Energy Authority of Ireland (9)

15 more

PROGRAMME

- SalSea (2)
- Science Foundation Ireland (SFI) Investigators Pro... (1)
- SEADATANET-PAN-EUROPEAN INFRASTRUCTU... (100)
- Strategic Marine Alliance for Research and Traini... (24)
- Working Group on Nephrops Surveys (WGNEPS) (5)

16 more

TOPICS

- Biota (96)
- Climatology, meteorology, atmosphere (272)
- Elevation (277)
- Location (299)
- Oceans (132)

PARAMETER

- Meteorology (272)
- Nutrients (1)
- Other physical oceanographic measurements (1)
- Water column temperature and salinity (127)
- Waves (5)

4 more

DEVICE TYPE

Map showing the location of the survey area in the Celtic Sea, near the coast of Ireland and the United Kingdom. The map includes labels for the United Kingdom, London, Paris, France, and the Golfo de Vizcaya / Golfe de Gascogne. A yellow box highlights the survey area in the Celtic Sea.

What have we done so far?

Marine Institute Data Catalogue Search Map About

Back to search

Download record

Display mode

CV17019 INFOMAR Seabed Survey

The INtegrated Mapping FOR the Sustainable Development of Ireland's MARine Resource (INFOMAR) programme is a joint venture between the Geological Survey of Ireland (GSI) and the Marine Institute (MI). The programme is a successor to the Irish National Seabed Survey (INSS) and concentrates on creating a range of integrated mapping products of the physical, chemical and biological features of the seabed in the near-shore area.

This cruise took place on board the R.V. Celtic Voyager in 2017 from 14th-22nd of July in the Celtic Sea.

Surveys conducted include:

- Multibeam Echo Sounder (MBES) hydrographic survey to International Hydrographic Organisation (IHO) Order 1a standard.
- Bathymetry survey: to produce bathymetry shaded relief and backscatter mosaic products which provide depth, seabed features and seabed hardness information.
- Sub Bottom Profiler (SBP) survey: to acquire data of the shallow (up to 30 metres) sub seabed to determine the existence of buried objects and ascertain the sub-seabed character.
- A magnetometer was used to acquire data on sub seabed geology to provide information on manmade seafloor debris.

No wrecks were mapped or no groundtruthing took place.

An area of 300km² was covered during this survey.

Share on social sites

Twitter Facebook LinkedIn Email Link

About this resource

Categories

- Datasets
- Climatology, meteorology, atmosphere
- Elevation
- Location

GEMET - INSPIRE themes, version 1.0

- Atmospheric conditions
- Elevation
- Oceanographic geographical features
- Geographical grid systems
- Meteorological geographical features

SeaDataNet Parameter Discovery Vocabulary

- Air pressure
- Air temperature
- Vertical spatial coordinates

Location

What have we done so far?

Marine Institute

Q Back to search

CV17019

The INtegrated Mapping and the Marine Institute the physical, chemical

This cruise took place

Surveys conducted incl Multibeam Echo Sound Bathymetry survey: to p Sub Bottom Profiler (SE character. A magnetometer was u No wrecks were mappe

An area of 300km2 was

Share on social sit

[t](#) [f](#) [in](#)

About this re

Categories

GEMET - INSPIRE themes, version 1.0

SeaDataNet Param Discovery Vocabula

Attribute	Value
@type	Dataset
name	CV17019 INFOMAR Seabed Survey
description	The INtegrated Mapping FOR the Sustainable Development of Ireland's MARine Resource (INFOMAR) programme is a joint venture between the Geological Survey of Ireland (GSI) and the Marine Institute (MI). The programme is a successor to the Irish National Seabed Survey (INSS) and concentrates on creating a range of integrated mapping products of the physical, chemical and biological features of the seabed in the near-shore area. This cruise took place on board the R.V. Celtic Voyager in 2017 from 14th-22nd of July in the Celtic Sea. Surveys conducted include: Multibeam Echo Sounder (MBES) hydrographic survey to International Hydrographic Organisation (IHO) Order 1a standard. Bathymetry survey: to produce bathymetry shaded relief and backscatter mosaic products which provide depth, seabed features and seabed hardness information. Sub Bottom Profiler (SBP) survey: to acquire data of the shallow (up to 30 metres) sub seabed to determine the existence of buried objects and ascertain the sub-seabed character. A magnetometer was used to acquire data on sub seabed geology to provide information on manmade seafloor debris. No wrecks were mapped or no groundtrutting took place. An area of 300km2 was covered during this survey.
url	https://data.marine.ie/dataset/1928
temporalCoverage	2017-07-14T06:00:00/2017-07-22
keywords	Atmosphere
keywords	Meteorology
variablesMeasured	Pressure (measured variable) exerted by the atmosphere

What have we done so far?

Catalogue	Schema.org schema
Organisations (EDMO)	
Datasets (EDMED)	
Projects (EDMERP)	
Common Data Inventory	
Cruise Summary Reports	
Observing Systems (EDIOS)	



What have we done so far?

Catalogue	Schema.org schema
Organisations (EDMO)	Organization
Datasets (EDMED)	
Projects (EDMERP)	
Common Data Inventory	
Cruise Summary Reports	
Observing Systems (EDIOS)	



What have we done so far?

Catalogue	Schema.org schema
Organisations (EDMO)	Organization
Datasets (EDMED)	Datasets
Projects (EDMERP)	
Common Data Inventory	
Cruise Summary Reports	
Observing Systems (EDIOS)	



What have we done so far?

Catalogue	Schema.org schema
Organisations (EDMO)	Organization
Datasets (EDMED)	Dataset
Projects (EDMERP)	Project (<i>pending Schema</i>)
Common Data Inventory	
Cruise Summary Reports	
Observing Systems (EDIOS)	



What have we done so far?

Catalogue	Schema.org schema
Organisations (EDMO)	Organization
Datasets (EDMED)	Dataset
Projects (EDMERP)	Project
Common Data Inventory	Dataset
Cruise Summary Reports	
Observing Systems (EDIOS)	



What have we done so far?

Catalogue	Schema.org schema
Organisations (EDMO)	Organization
Datasets (EDMED)	Dataset
Projects (EDMERP)	Project
Common Data Inventory	Dataset
Cruise Summary Reports	Event
Observing Systems (EDIOS)	

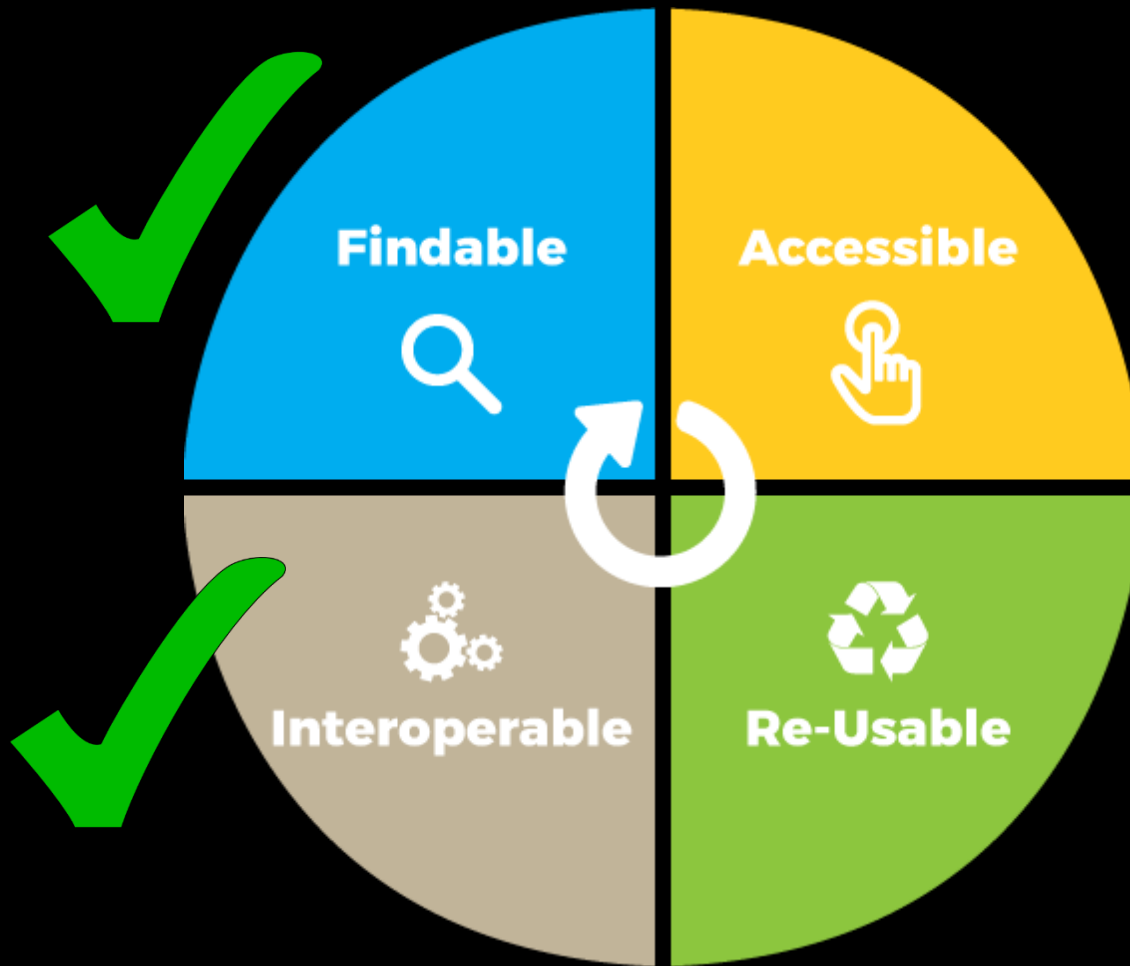


What have we done so far?

Catalogue	Schema.org schema
Organisations (EDMO)	Organization
Datasets (EDMED)	Dataset
Projects (EDMERP)	Project
Common Data Inventory	Dataset
Cruise Summary Reports	Event
Observing Systems (EDIOS)	Thing



What have we done so far?



What have we done so far?



Project 418: Goals

Worked with NSF data facilities to leverage schema.org for dataset *description, indexing* and *discovery*

What have we done so far?



Project 418: Goals

GOAL

Describing



Publishing



Indexing



Serving



STATUS

P418 Vocabulary approaches developed, now working with ESIP on governance and evolution

What have we done so far?



Project 418: Goals

GOAL

Describing



Publishing



Indexing



Serving



STATUS

P418 Vocabulary approaches developed, now working with ESIP on governance and evolution

Worked with facilities to adapt approach to their existing metadata workflow and software.

What have we done so far?



Project 418: Goals

GOAL

Describing



Publishing



Indexing



Serving



STATUS

P418 Vocabulary approaches developed, now working with ESIP on governance and evolution

Worked with facilities to adapt approach to their existing metadata workflow and software.

Code developed to collect and index the descriptions. Indexes include: text, spatial and graph.

What have we done so far?



Project 418: Goals

GOAL

Describing



Publishing



Indexing



Serving



STATUS

P418 Vocabulary approaches developed, now working with **ESIP** on governance and evolution

Worked with facilities to adapt approach to their existing metadata workflow and software.

Code developed to collect and index the descriptions. Indexes include: text, spatial and graph.

Geodex.org, example notebooks and **APIs.**

What have we done so far?



Project 418: Goals

Data Facilities

- * sitemap
- * landing pages
 - JSON-LD
 - schema.org
 - domain vocs

http

Summoner

Millers

- * text
- * graph
- * spatial
- * time

Web Services

Search

Tools

Workflows

indexes

How to do it?

How to do it?

- **Add some JSON to your web pages**

How to do it?

- Add some JSON to your web pages

```
1     |<script type="application/ld+json">
2     {
3       "@context":"http://schema.org/",
4       "@type":"Dataset",
5       "name":"NCD&C Storm Events Database",
6       "description":"Storm Data is provided by the National
7       Weather Service (NWS) and contain statistics on...",
8       "url":"https://catalog.data.gov/dataset/ncdc-storm-
9       events-database",
10      "sameAs":"https://gis.ncdc.noaa.gov/geoportal/catalog
11      /search/resource/details.page?id=gov.noaa.ncdc:C00510",
12      "keywords":[
13        "ATMOSPHERE > ATMOSPHERIC PHENOMENA > CYCLONES",
14        "ATMOSPHERE > ATMOSPHERIC PHENOMENA > DROUGHT",
15        "ATMOSPHERE > ATMOSPHERIC PHENOMENA > FOG",
16        "ATMOSPHERE > ATMOSPHERIC PHENOMENA > FREEZE"
17      ],
18      "creator":{
19        "@type":"Organization",
```

How to do it?

- **Add some JSON to your web pages**
- **Make sure the pages are in your sitemap**

How to do it?

- **Add some JSON to your web pages**
- **Make sure the pages are in your sitemap**
- **Submit your sitemap to Google...**

Thoughts for the future

Thoughts for the future



Thoughts for the future



Thoughts for the future

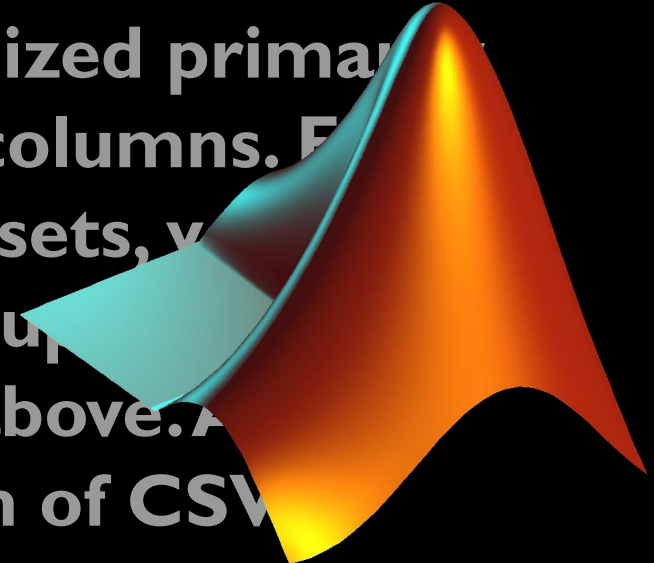
‘A tabular dataset is one organized primarily in terms of a grid of rows and columns. For pages that embed tabular datasets, you can also create more explicit markup, building on the basic approach described above. At this time we understand a variation of CSVW (“CSV on the Web”), provided in parallel to user-oriented tabular content on the HTML page.’

Thoughts for the future

‘A tabular dataset is one organized primarily in terms of a grid of rows and columns. For pages that embed tabular datasets, you can also create more explicit markup, building on the basic approach described above. At this time we understand a variation of CSVW (“CSV on the Web”), provided in parallel to user-oriented tabular content on the HTML page.’

Thoughts for the future

Ocean Data View



python



organized primary
and columns. F
pages that embed tabular datasets, v
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Thoughts for the future

The screenshot shows a GitHub repository page. At the top, there are navigation tabs for Code, Issues (1), Pull requests (2), Projects (0), Wiki, and Insights. Below this is the repository name: "Encoding standard to enable RDF graphs to be encoded in and interpreted from netCDF Classic files" with the URL <http://www.github.com/opengeospatial/...>. A statistics bar shows 68 commits, 2 branches, 0 releases, 5 contributors, and a View license link. Below the statistics are buttons for "Branch: master", "New pull request", "Create new file", "Upload files", "Find file", and "Clone or download". A recent commit by user 'marqh' is shown, titled "Merge pull request #10 from jyucsiro/referenced_and_front_material", with the latest commit hash 9bfd5f0 and a date of 3 days ago. Below the commit list are three files: "standard_template" (finishing sentence in front matter, 22 days ago), "LICENSE" (license, readme, 10 months ago), and "README.md" (license, readme, 10 months ago). The "README.md" file is selected, showing its content: "NetCDF Classic Standard for Encoding RDF Graphs netCDF-Classic-LD". The README text states: "This is a draft encoding standard enabling RDF graphs to be encoded in netCDF Classic encoded files, and enabling netCDF Classic encoded files to be interpreted as RDF graphs."

<> Code Issues 1 Pull requests 2 Projects 0 Wiki Insights

Encoding standard to enable RDF graphs to be encoded in and interpreted from netCDF Classic files
<http://www.github.com/opengeospatial/...>

68 commits 2 branches 0 releases 5 contributors View license

Branch: master New pull request Create new file Upload files Find file Clone or download

marqh Merge pull request #10 from jyucsiro/referenced_and_front_material Latest commit 9bfd5f0 3 days ago

standard_template	finishing sentence in front matter	22 days ago
LICENSE	license, readme	10 months ago
README.md	license, readme	10 months ago

README.md

NetCDF Classic Standard for Encoding RDF Graphs netCDF-Classic-LD

This is a draft encoding standard enabling RDF graphs to be encoded in netCDF Classic encoded files, and enabling netCDF Classic encoded files to be interpreted as RDF graphs.

Thoughts for the future

↑ -- **Sigma-theta of the water body by CTD and computation from salinity and potential temperature using UNESCO algorithm** --

URI	http://vocab.nerc.ac.uk/collection/P01/current/SIGTPR01/
Identifier ()	SDN:P01::SIGTPR01
Preferred label (en)	Sigma-theta of the water body by CTD and computation from salinity and potential temperature using UNESCO algorithm
Alternative label (en)	SigTheta
Definition (en)	This is the preferred term for this definition. Alternative term SIGTPR02 is included to cover cases where there are two sensors of the same type contributing to the data set and referential integrity considerations prevent a usage of a single code.
Version Info ()	1
Has Current Version	http://vocab.nerc.ac.uk/collection/P01/current/SIGTPR01/1/
PAV Version ()	1
PAV Authored On ()	2009-11-03 16:19:38.0
Deprecated()	false
Same as	http://vocab.nerc.ac.uk/collection/OG1/current/SIGTHETA/
Broader	http://vocab.nerc.ac.uk/collection/P02/current/SIGT/
Broader	http://vocab.nerc.ac.uk/collection/S26/current/MAT00640/
Broader	http://vocab.nerc.ac.uk/collection/P07/current/CFSN0333/
Related	http://vocab.nerc.ac.uk/collection/P06/current/UKMC/
Related	http://vocab.nerc.ac.uk/collection/L22/current/TOOL0002/
Related	http://vocab.nerc.ac.uk/collection/L22/current/TOOL0040/
Related	http://vocab.nerc.ac.uk/collection/L22/current/TOOL0041/
Related	http://vocab.nerc.ac.uk/collection/L22/current/TOOL0042/
Related	http://vocab.nerc.ac.uk/collection/L22/current/TOOL0058/
Related	http://vocab.nerc.ac.uk/collection/L22/current/TOOL0144/
Related	http://vocab.nerc.ac.uk/collection/L22/current/TOOL0149/
Related	http://vocab.nerc.ac.uk/collection/L22/current/TOOL0035/
Related	http://vocab.nerc.ac.uk/collection/L22/current/TOOL0451/
Related	http://vocab.nerc.ac.uk/collection/S02/current/S032/
Related	http://vocab.nerc.ac.uk/collection/L22/current/TOOL0018/
Date ()	2009-11-03 16:19:38.0

Thoughts for the future



Useful Links

Google Dataset Search

- <https://toolbox.google.com/datasetsearch>

Schema.org Datasets

- <https://schema.org/Dataset>
- <https://developers.google.com/search/docs/data-types/dataset>

Structured Data Testing Tools

- <https://search.google.com/structured-data/testing-tool>
- <http://linter.structured-data.org/>

Project 418

- Code: <https://github.com/earthcubearchitecture-project418>
- Implementation: <https://geodex.org/>

The place of Schema.org in Linked Ocean Data

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