

# QGIS MetaSearch

Lowering the barrier to geospatial data discovery in the  
desktop

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# Table of Contents

- Geospatial Metadata
- Search APIs
- QGIS and MetaSearch
- OGC API - Records
- MetaSearch updates
- Demo



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# Geospatial Metadata

Definition of common dataset properties

...

# Dublin Core FGDC ISO19115 GeoDCATap

...

```
<?xml version="1.0" encoding="UTF-8" ?>
- <gmd:MD_Metadata xmlns:gmd="http://www.isotc211.org/2005/gmd" xmlns:gml="http://www.opengis.net/gml" xmlns:gts="http://www.isotc211.org/2005/gts" xmlns:geonet="http://www.fao.org/geonetwork">
- <gmd:fileIdentifier>
- <gco:CharacterString xmlns:srv="http://www.isotc211.org/2005/srv">
- </gmd:fileIdentifier>
- <gmd:language>
- <gco:CharacterString>eng</gco:CharacterString>
- </gmd:language>
- <gmd:characterSet>
- <gmd:MD_CharacterSetCode codeListValue="utf8" codeList="http://www.isotc211.org/2005/characterSetCode">
- </gmd:characterSet>
- <gmd:contact>
- <gmd:CI_ResponsibleParty>
- <gmd:individualName>
- <gco:CharacterString>GIS unit</gco:CharacterString>
- </gmd:individualName>
- <gmd:organisationName>
- <gco:CharacterString>World Health Organization</gco:CharacterString>
- </gmd:organisationName>
- <gmd:positionName gco:nilReason="missing">
- <gco:CharacterString />
- </gmd:positionName>
- <gmd:contactInfo>
- <gmd:CI_Contact>
- <gmd:phone>
- <gmd:CI_Telephone>
- <gmd:voice>
- <gco:CharacterString>+41 22 791 1861 / 3836</gco:CharacterString>
- </gmd:voice>
- <gmd:facsimile>
- <gco:CharacterString>+41 22 791 1584</gco:CharacterString>
- </gmd:facsimile>
- </gmd:CI_Telephone>
- </gmd:phone>
- </gmd:CI_Contact>
- </gmd:contactInfo>
- </gmd:contact>
- </gmd:CI_ResponsibleParty>
- </gmd:contact>
- </gmd:MD_Metadata>
```

# OGC API - Records STAC

```
id: "CMC_glb_NSWRS_SFC_0_latlon.15x.15_2020041100_P000"
type: "Feature"
stac_version: "1.0.0-rc.2"
description: "pygeoapi test data"
links:
  0:
    rel: "parent"
    href: "https://demo.pygeoapi.io/master/stac/test-data/?f=json"
    type: "application/json"
  1:
    rel: "parent"
    href: "https://demo.pygeoapi.io/master/stac/test-data/"
    type: "text/html"
  2:
    type: "text/html"
    rel: "canonical"
    title: "information"
    href: "https://github.com/geopython/pygeoapi/tree/master/tests/data"
    hreflang: "en-US"
properties:
  GRIB_COMMENT: "Net short-wave radiation flux (surface) [W/(m^2)]"
  GRIB_DISCIPLINE: "0(Meteorological)"
  GRIB_ELEMENT: "NSWRS"
  GRIB_FORECAST_SECONDS: "0 sec"
  GRIB_IDS: "CENTER=54(Montreal) SUBCENTER=0 MASTER_TABLE=4 LOCAL_TABLE=0 SIGNF_REF_TIME=1(Start_of_Forecast) REF_TIME=2020-TYPE=2(Analysis_and_forecast)"
  GRIB_PDS_PDTN: "g"
  GRIB_PDS_TEMPLATE_ASSEMBLED_VALUES: "4 0 2 47 47 0 0 1 0 1 0 0 255 -127 -2147483647 2020 4 11 0 0 0 1 0 1 2 1 0 1 0"
  GRIB_PDS_TEMPLATE_NUMBERS: "4 0 2 47 47 0 0 0 1 0 0 0 0 1 0 0 0 0 255 255 255 255 255 255 7 228 4 11 0 0 0 1 0 0 0 0 1 2 1 0 0 0 0 1 0 0"
  GRIB_REF_TIME: "1586563200 sec UTC"
  datetime: "2020-04-11T00:00:00Z"
```

```
features:
  0:
    id: "FEB44D94AC0F3D26E0441CC1DE40A734"
    type: "Feature"
    geometry:
      type: "Polygon"
      coordinates:
        0: [...]
    properties:
      recordCreated: "2014-07-21"
      recordUpdated: "2021-02-21T00:14:33Z"
      type: "dataset"
      title: "Wegpanorama (Omgevingsvisie 2014) (historie)"
      description: "Door Provinciale Staten van Drenthe op 2 juli 2014 vastgestelde versie van Wegpanorama. De provincie Drenthe hecht waarde aan een zorgvuldige hoofdinfrastructuur en wil de karakteristieken van de landschapstypen en het contrast tussen stad en land, gezien vanaf de infrastructuur, begrip wegpanorama dat voorkomt langs de doorgaande Rijks- en provinciale wegen, zoals bijvoorbeeld de A28, N33 en N391. Komt voor in kaart van de Provincie Drenthe."
      contactPoint: "Provincie Drenthe, Team Gis/Cartografie, post@drenthe.nl"
      associations:
        0:
          href: "https://geo.drenthe.nl/geoserver/wms"
          rel: "item"
          title: "GBI_AOV_K2B_WEGPANORAMA_L"
          type: "OGC:WMS"
        1:
          href: "https://geo.drenthe.nl/geoserver/wfs"
          rel: "item"
          title: "GBI_AOV_K2B_WEGPANORAMA_L"
          type: "OGC:WFS"
      externalId: "FEB44D94AC0F3D26E0441CC1DE40A734"
      names:
```



# Catalogue Search API's

Definition of common protocols for metadata exchange

## CSW

<https://example.org/csw?service=CSW&version=2.0.2&request=GetRecords&types=csw:Record&resulttype=results>

## OpenSearch

<https://example.org/api/search?bbox={geo:box?}&q={searchTerms}>

## OAI-PMH

<https://example.org/oai?verb=Identify>

## SRU

<https://example.org/sru?operation=searchRetrieve&query=birds>

## OGC API - Records

<https://example.org/ogcapi/collections/catalogue/items?q=birds&datetime=2021-09-30>



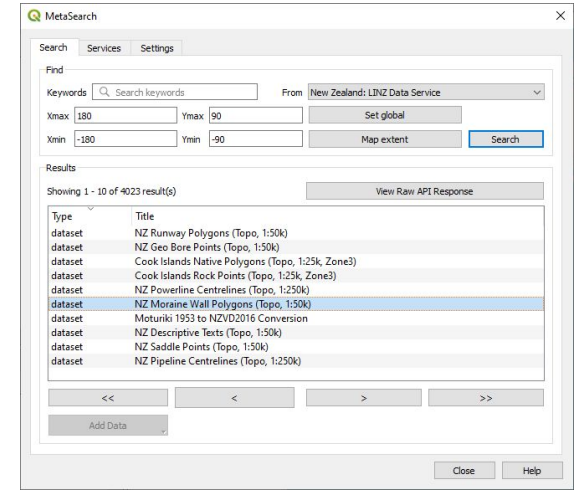
# QGIS and MetaSearch

Beyond the huge tables of content



# QGIS MetaSearch Plugin

- 2010: Initially developed by NextGIS (cswclient)
- 2013: Forked by Geopython/Tom Kralidis
- **2014: Accepted as core QGIS plugin**
- Query any catalogue using CSW for data
- Add common protocols to the map (WMS, WFS, ArcGIS, direct data download)
- View footprints on the map



## MetaSearch client

Search Services

Find

Keywords precipitation

From

CSW endpoint for catalog.d

-130

-90

130

90

Map extent

Set global

Search

10

Records

Results

Showing 71 - 80 of 2001 results

View search results as XML

Type	Title
dataset	SAMOS project underway oceanographic and quality-co
dataset	SAMOS project underway oceanographic and quality-co
dataset	GLOBAL 30-YEAR MEAN MONTHLY CLIMATOLOGY, 1901-
dataset	Growth responses of subalpine fir ( <i>Abies lasiocarpa</i> ) to d...
dataset	Precipitation Frequency for Northern Mariana Islands, P...
dataset	Wave spectra, meteorological, and other data from the
dataset	CONDUCTIVITY, WIND DIRECTION, SHORTWAVE IRRAD...
dataset	BOREAS 1994 HYD-09 BELFORT RAIN GAUGE DATA

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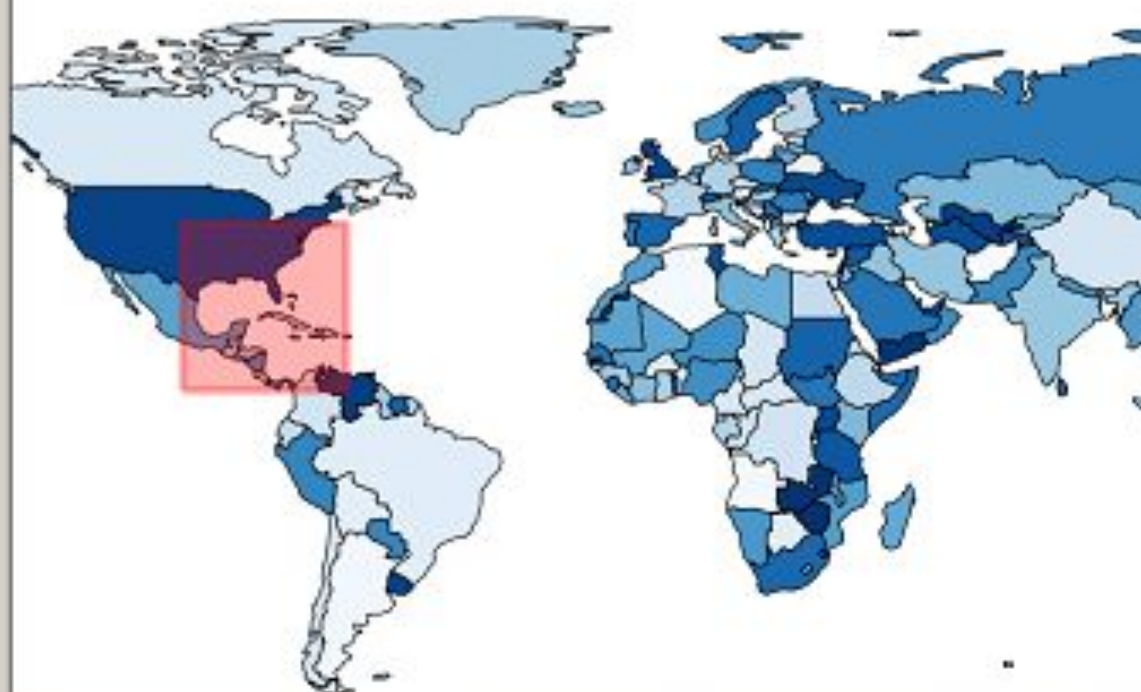
Abstract

The data logging system on the ATLANTIS recorded underway oceanographic and meteorological data from various instruments while cruising in the Caribbean Sea, North Atlantic Ocean and North Pacific Ocean from 2005-10-01 to 2005-10-31. During this period, as part of the Shipboard Automated Meteorological and Oceanographic System (SAMOS) project, the data logging system sent the data daily via e-mail to Florida State University (FSU), where the Center for Ocean-Atmospheric Prediction Studies (COAPS) quality-controlled (QCed) the meteorological data. COAPS submitted three versions of the data to the National Oceanographic Data Center (NODC): the original data as received from the data logging system, and both local (onboard) and processed

Add WMS/WMTS

Add WFS

Add WCS



Coordinate

-2.063, 0.224

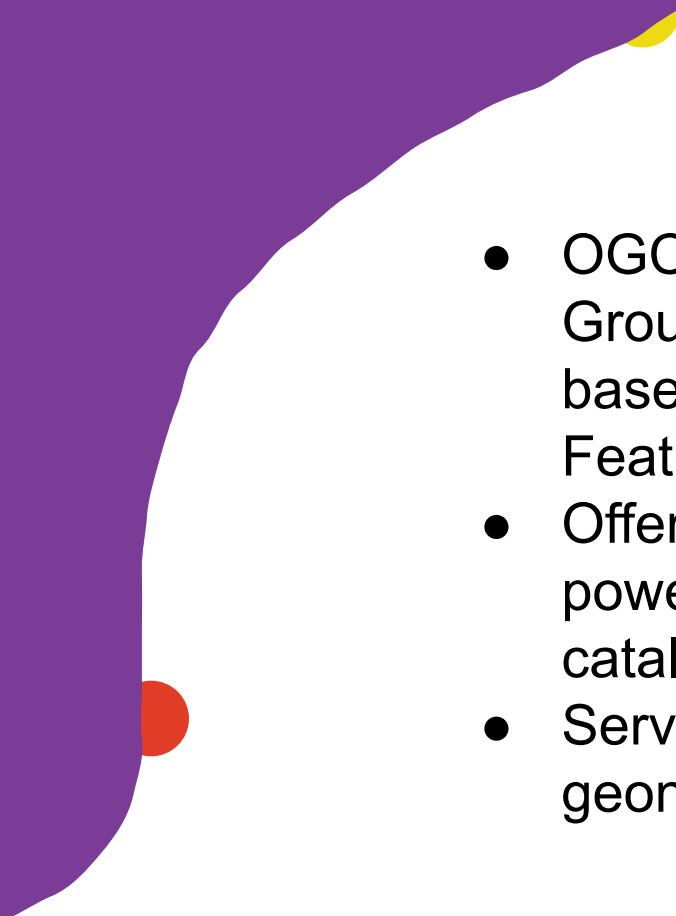
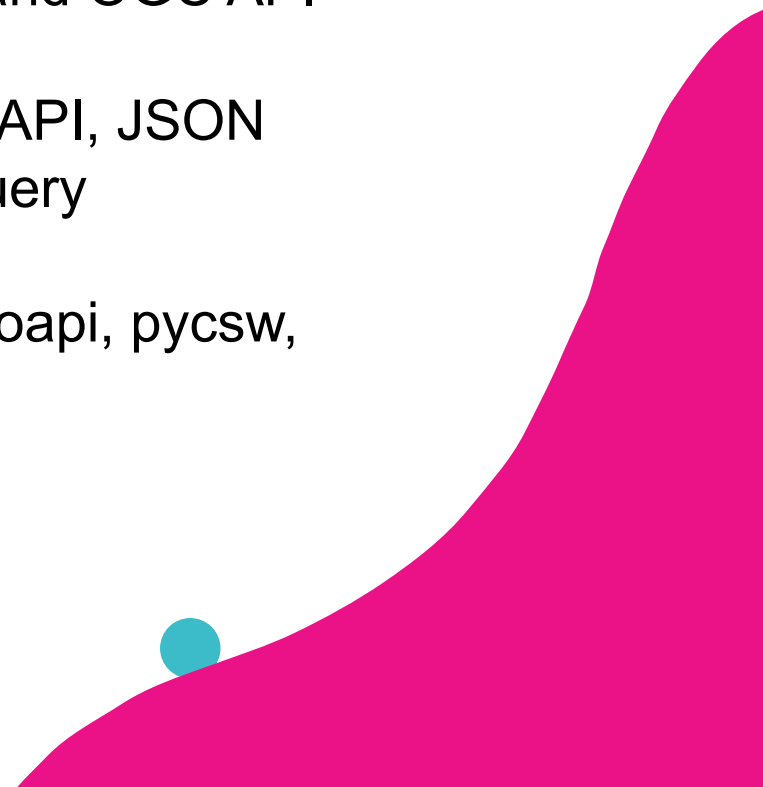
Scale

: 10043900



# OGC API - Records

Discovery representation in the OGC API Suite

- 
- 
- OGC API - Records Standards Working Group (SWG) works on the new standard based on OGC API - Common and OGC API - Features
  - Offers a unified, RESTful, OpenAPI, JSON powered query experience to query catalogues
  - Server implementations in pygeoapi, pycsw, geonetwork, Idproxy

# Updates to MetaSearch

Adding OGC API Records and refactor

- MetaSearch tool is extended and refactored to support OGC API - Records
  - Currently a PR to QGIS repo
  - Should we merge if standard is not yet formal?
  - MetaSearch is handy while implementing OGC API - Records server
- Internally MetaSearch uses OWSLib for client/server interaction
- Service type is abstracted, other protocols can be easily added later
- Binding to data still needs work
  - Link types!



# Demo Time!

Nothing beats a live demo at FOSS4G