locations Discovery Service

Description

The API **locations** discovery web service returns all the locations defined in Oceans 2.0 that meet a set of filter criteria.

A location is the parent of an Oceans 2.0 Tree Node from which you can get data. In the Oceans 2.0 Data Search GUI, a location is a Tree Node that contains device categories (Instruments by Location) or properties (Variables by Location) that can be selected to download data. From the Oceans 2.0 perspective, a location is a Search Tree Node that has one or more site devices and/or has one or more primary sensors. If there are multiple instruments of the same device category at a location, child locations or pseudo-nodes will exist and can be pulled from any one of them. Device Categories can be either at the location or at the child-level, whereas Properties (variables) can only be at the location level, due to the "Primary Sensor" concept, which stitches together data from multiple sensors over time at a location.

The primary purpose for the locations service is to find locations that have the data you are interested in and use the locationCode when requesting a data product using the dataProductDelivery web service.

URL

```
https://data.oceannetworks.ca/api/locations
```

Method	Description	Example
get	Retrieve a flat list of locations metadata	`method=get`
getTree	Retrieve a Search Tree Node hierarchy of locations	`method=getTree`

get

The get method retrieves a list of location names and location codes.

Parameters

Parameter	Type	Description	Example
Required			
token	string	All Web Services require a token. This can be generated at https://data.oceannetworks.ca /Profile. Click on the "Web Services" tab and click "Generate Token".	token=YOUR_TOKEN_HERE
Optional			
locationCode	string	Return a single Location matching a specific **Location Code**. • Location Code must be valid and match exactly, including case. • Specific Location Codes can be found by simply running the service without this parameter to get a list of all locations.	locationCode=BACAX

deviceCategoryCode	string	Return all Locations that have devices with a specific **Device Category Code**. • Device Category Code must be valid and match exactly, including case. • Specific Device Category Codes can be obtained using the deviceCategories service.	deviceCategoryCode=CTD
propertyCode	string	Return all Locations that have devices with a sensor with a specific **Property Code**. • Property Code must be valid and match exactly, including case. • Specific Property Codes can be obtained using the properties service.	propertyCode=differentialtemperature
dataProductCode	string	Return all of the Locations that support a specific **Data Product Code**. • Data Product Code must be valid and match exactly, including case. • Specific Data Product Codes can be obtained from the dataProducts service.	dataProductCode=CPID
dateFrom	datetime	Return all of the Locations that have a **Deployment Beginning** on or after a specific date/time. Accepted DateTime formats: • yyyy-MM-dd'T'HH:mm:ss.SSS'Z' (ISO 8601 Extended) • yyyy-MM-dd (ISO 8601 Extended) • PnYnMnDTnHnMnS (ISO 8601 Duration) If not specified, the default value is the beginning of time. • DateTime is represented in Coordinated Universal Time (UTC). • ISO 8601 Extended format without a time will be assumed to mean midnight (T00:00:000.000Z). • Queries with both dateFrom and dateTo in the ISO 8601 Duration format will not be accepted.	dateFrom=2010-07-27T00:00:00.000Z dateFrom=2010-07-27 dateFrom=-P1DT1H • Previous 1 day and 1 hour, relative to the dateTo. Note the '-' before the P.
dateTo	datetime	Return all of the Locations that have a **Deployment Ending** before a specific date/time. Accepted DateTime formats: • yyyy-MM-dd'T'HH:mm:ss.SSS'Z' (ISO 8601 Extended) • yyyy-MM-dd (ISO 8601 Extended) • PnYnMnDTnHnMnS (ISO 8601 Duration) If not specified, the default value is the end of time. • DateTime is represented in Coordinated Universal Time (UTC). • ISO 8601 Extended format without a time will be assumed to mean midnight (T00:00:000.000Z). • Queries with both dateFrom and dateTo in the ISO 8601 Duration format will not be accepted.	dateTo=2016-08-01T00:00:00.000Z dateTo=2016-08-01 dateTo=PT12H30M • Next 12 hours and 30 minutes, relative to the dateFrom.
locationName	string	Return all of the Locations where the **Location Name** contains a keyword. • Not case sensitive.	locationName=mill
deviceCode	string	Return all of the Locations where a specific device with that **Device Code** has been deployed. • Location Code must be valid and match exactly, including case. • Specific Device Codes can be obtained from the devices service.	deviceCode=AandOpt0581
includeChildren	bool	Include all of the children of a Location in the results. • Requires a valid locationCode. • Valid values are either true or false.	includeChildren=true

Response

Example for request: https://data.oceannetworks.ca/api/locations?method=get&token=YOUR_TOKEN_HERE&locationCode=BACAX

Success (HTTP 200)

Returns a list of locations with values for Location Code, Location Name, Description, Device Data indicator, Property Data indicator, bounding box, and Data Search Link URL, ordered by Location Code

```
[
    {
        "deployments":51,
        "locationName":"Axis ",
        "depth":984.164314,
        "bbox": {
            "maxDepth":987.0,
            "maxLat":48.316839,
            "maxLon":-126.050123,
            "minDepth":981.0,
            "minLat":48.316517,
            "minLon":-126.050872
        },
        "description":"Depth: 985 m Latitude: 48.3167 Longitude: -126.0501 Type: Stationary platform
Description: Canyon axis: benthic processes, biodiversity, sediment dynamics.",
        "hasDeviceData":"true",
        "lon":-126.050355,
        "locationCode":"BACAX",
        "hasPropertyData":"false",
        "lat":48.316685,
        "dataSearchURL":"http://data.oceannetworks.ca/DataSearch?location=BACAX"
    }
]
```

Property	Type	Description	Example
locationName	string	The name of the location	`"locationName":"Axis (POD 1)"`
locationCode	string	The locationCode for that location.	`"locationCode":"BACAX"`
description	string	The description of the location	`"description":"Depth: 985 m Latitude: 48.3167 Longitude: -126.0501 Type: Stationary platform Description: Canyon axis: benthic processes, biodiversity, sediment dynamics."`
hasDeviceData	string	Indicates that data products can be requested using a device category code for the location	`"hasDeviceData":"true"`
hasPropertyData	string	Indicates that data products can be requested using a property code for the location	`"hasPropertyData":"true"`
dataSearchURL	string	The location specific Data Search web page URL	`"dataSearchURL":"https://data.oceannetworks.ca/DataSearch?location=BACAX"`
deployments	integer	Number of deployments	`"deployments" : 10`
depth	double	Average depth of deployments (in meters below the water surface)	`"depth" : 984.164314`
lat	double	Average latitude of deployments (in degrees north of the equator)	`"lat" : 48.47672`
lon	double	Average longitude of deployments (in degrees east of the prime meridian)	`"lon" : -123.294902`

bbox	object	Bounding box of site devices at location for device that pass filters	`"bbox" : {`
			`    "maxDepth" : 100,`
			`    "maxLat" : 48.476740,`
			`    "maxLon" : -123.294904,`
			`    "minDepth" : 50,`
			`    "minLat" : 48.47670,`
			`    "minLon" : -123.294900`
			`  }`

• bbox.maxDepth	double	Maximum depth in meters below water surface (negative numbers denote above)	`"maxDepth":987.0`

		double	Maximum latitude in degrees north of the equator (negative numbers denote south)	`"maxLat":48.316839`
	• b b o x. m a x L at			

		double	Maximum longitude in degrees east of the prime meridian (negative numbers denote west)	`"maxLon":-126.050123`
	• b b o x. m a x L on			

		double	Minimum depth in meters below water surface (negative numbers denote above)	`"minDepth":981.0`
	• b b o x. m in D e p th			

		double	Minimum latitude in degrees north of the equator (negative numbers denote south)	`"minLat":48.316517`
	• b b o x. m in L at			

		double	Minimum longitude in degrees east of the prime meridian (negative numbers denote west)	`"minLon":-126.050872`
	• b b o x. m in L on			

Bad Request (HTTP 400)

errorCode	errorMessage	Description
23	Invalid Time Range, Start Time is greater that End Time or start time is not provided	Occurs when the dateTo is before the dateFrom date/time. • The name of both of the datetime filters will be included in the "parameter" property
25	Invalid Time Range, Start Time is in the future.	Occurs when the dateFrom is in the future. • The name of both of the datetime filters will be included in the "parameter" property
127	Invalid parameter value	Occurs when an invalid code is used in the filter. Most filters require an exact match, otherwise this error will occur. • The name of the filter parameter will be included in the "parameter" property

128	Missing parameter	Occurs when multiple parameters are needed, but not all are present. Occurs when dateFrom is used without dateTo or vice versa
		• The names of the required filter parameters will be included in the "parameter" property separated by /
129	Invalid parameter name	Occurs when a filter parameter is in the query but is not supported.
		• The name of the filter parameter will be included in the "parameter" property

getTree

The getTree method returns a hierarchical representation of the ONC Search Tree Nodes. The Search Tree is used in Oceans 2.0 to organize Instruments and Variables by Location so that users can easily drill down by place name or mobile platform name to find the instruments or properties they are interested in.

Parameters

Parameter	Type	Description	Example
Required			
token	string	All Web Services require a token. This can be generated at https://data.oceannetworks.ca/Profile. Click on the "Web Services" tab and click "Generate Token"	token=YOUR_TOKEN_HERE
Optional			
locationCode	string	A valid locationCode is needed. One can be found by simply running the service without this parameter to get a list of all locations • Code must match exactly, including case	locationCode=BACAX

Response

Response for request https://data.oceannetworks.ca/api/locations?method=getTree&token=YOUR_TOKEN_HERE&locationCode=BACCC

Success (HTTP 200)

```
[
    {
        "locationName":"Coral Cliff",
        "children": [
            {
                "locationName":"ADCP 2 MHz East",
                "children":null,
                "description":"Depth: 824 m Latitude: 48.3098 Longitude: -126.0621 Type: Autonomous platform
Description: Boundary layer flow near steep bathymetry, interaction of currents and deep-sea corals.",
                "hasDeviceData":"true",
                "locationCode":"BACCC.A1",
                "hasPropertyData":"false"
            },
            {
                "locationName":"ADCP 2 MHz West",
                "children":null,
                "description":"Depth: 807 m Latitude: 48.3104 Longitude: -126.0623 Type: Autonomous platform
Description: Boundary layer flow near steep bathymetry, interaction of currents and deep-sea corals.",
                "hasDeviceData":"true",
                "locationCode":"BACCC.A2",
                "hasPropertyData":"false"
            }
        ],
        "description":"Depth: 816 m Latitude:48.3101 Longitude: -126.0622 Type: Autonomous platform
Description: Boundary layer flow near steep bathymetry, interaction of currents and deep-sea corals.",
        "hasDeviceData":"false",
        "locationCode":"BACCC",
        "hasPropertyData":"true"
    }
]
```

Property	Type	Description	Example
locationName	string	The name of the location	`"locationName":"Axis (POD 1)"`
locationCode	string	The locationCode for that location.	`"locationCode":"BACAX"`
children	list	A list of all child nodes for the location. Each child node contains all of the available parameters	`"children":[{...},{...},...]`
description	string	The description of the location	`"description":"Depth: 985 m Latitude: 48.3167 Longitude: -126.0501 Type: Stationary platform Description: Canyon axis: benthic processes, biodiversity, sediment dynamics."`
hasDeviceData	string	Indicates that data products can be requested using a device category code for the location	`"hasDeviceData":"true"`
hasPropertyData	string	Indicates that data products can be requested using a property code for the location	`"hasPropertyData":"true"`

Bad Request (HTTP 400)

errorCode	errorMessage	Description
127	Invalid parameter value	Occurs when an invalid code is used in the filter. Most filters require an exact match, otherwise this error will occur. • The name of the filter parameter will be included in the "parameter" property
129	Invalid parameter name	Occurs when a filter parameter is in the query but is not supported. • The name of the filter parameter will be included in the "parameter" property

Examples

- Return a list of **All** of the Locations (no filters)

  https://data.oceannetworks.ca/api/locations?method=get&token=YOUR_TOKEN_HERE

- Return the Location with a **Location Code** of 'BACAX' ('Barkely Canyon Axis (POD1)')

    https://data.oceannetworks.ca/api/locations?method=get&token=YOUR_TOKEN_HERE&locationCode=BACAX

- Return a list of all of the Locations including and below a location in the Tree View, with a **Location Code** of 'NEP' ('Northeast Pacific')

    https://data.oceannetworks.ca/api/locations?method=get&token=YOUR_TOKEN_HERE&locationCode=NEP&includeChildren=true

- This example returns the NEP location and all of it's child locations, in a flat format. The "hasDeviceData" and "hasPropertyData" properties in the results indicate if there is data at that location. If both values are false, the location is a hierarchical tree node.

- Return a list of all of the Locations that have a **Location Name** which contains 'underwater'

    https://data.oceannetworks.ca/api/locations?method=get&token=YOUR_TOKEN_HERE&locationName=underwater

- Return a list of all of the Locations that have devices with a **Device Category Code** of 'ADCP2MHZ'

    https://data.oceannetworks.ca/api/locations?method=get&token=YOUR_TOKEN_HERE&deviceCategoryCode=ADCP2MHZ

- Return a list of all of the Locations with a **Property Code** of 'differentialtemperature'

    https://data.oceannetworks.ca/api/locations?method=get&token=YOUR_TOKEN_HERE&propertyCode=differentialtemperature

- Return a list of all of the Locations with a **Device Category Code** of 'CTD' and **Property Code** of 'pressure'

    https://data.oceannetworks.ca/api/locations?method=get&token=YOUR_TOKEN_HERE&deviceCategoryCode=CTD&propertyCode=pressure

- Return a list of all of the Locations where a device with a **Device Code** of 'NORTEKAQDPRO8398' has been deployed

    https://data.oceannetworks.ca/api/locations?method=get&token=YOUR_TOKEN_HERE&deviceCode=NORTEKAQDPRO8398

- Return a list of all of the Locations that have instruments that support the **Data Product Code** of 'IBPP' ('Ice Buoy Profile Plots')

    https://data.oceannetworks.ca/api/locations?method=get&token=YOUR_TOKEN_HERE&dataProductCode=IBPP

- Return a list of all of the Locations that have instruments that were **Deployed Between** July 1st 2010 and June 30th 2012

    https://data.oceannetworks.ca/api/locations?method=get&token=YOUR_TOKEN_HERE&dateFrom=2010-07-01T00:00:00.000Z&dateTo=2012-06-30T23:59:59.999Z

- Return a list of all of the Locations which has instruments **Deployed Between** July 1st 2010 and June 30th 2011 with a sensor with the **Property Code** of 'seawatertemperature'

    https://data.oceannetworks.ca/api/locations?method=get&token=YOUR_TOKEN_HERE&dateFrom=2010-07-01T00:00:00.000Z&dateTo=2011-06-30T23:59:59.999Z&propertyCode=seawatertemperature

- Return the complete **DMAS Search Tree** hierarchy

    https://data.oceannetworks.ca/api/locations?method=getTree&token=YOUR_TOKEN_HERE

    or

    https://data.oceannetworks.ca/api/locations?method=getTree&token=YOUR_TOKEN_HERE&locationCode=ONC

- Return the **DMAS Search Tree** hierarchy from the 'Mobile Platforms' node and below

https://data.oceannetworks.ca/api/locations?method=getTree&token=YOUR_TOKEN_HERE&locationCode=MOBP

API Proxy

The https://data.oceannetworks.ca/**apiproxy**/locations URL link in the above examples can be used in a browser for sharing or testing purposes; however, it can not be accessed from code. Calls to the apiproxy server are redirected to a login screen to capture your user id. Accessing the apiproxy URL from code will return html in the payload, which may cause errors or unexpected behavior. In order to use the deployments endpoint from code, you must use the https://data.oceannetworks.ca/**api**/locations url along with a valid token.

Code Examples

Title	Creator	Modified
Python Client Library	Ryan Ross	16-Aug-19
MATLAB Client Library	Ryan Ross	26-Apr-19
Ouranos Use Case	Allan Rempel	25-Apr-18
Bird Studies Canada Use Case	Allan Rempel	24-Apr-18
Internal Use Case	Ryan Ross	24-Apr-18
Discover Locations	Ryan Ross	23-Apr-18

Please report all issues with the web services, documentation, samples and client libraries to the Oceans 2.0 Help Centre