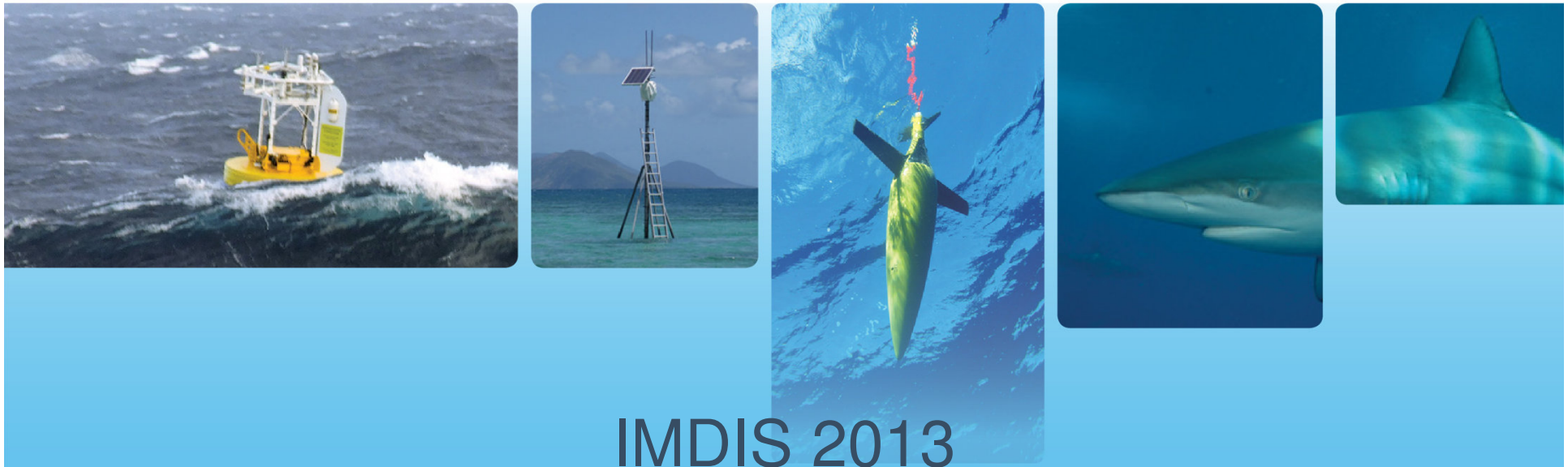
IMOS Integrated **Marine Observing** System



IMDIS 2013
Vocabulary enhancements for the Australian Ocean Data Network (AODN)

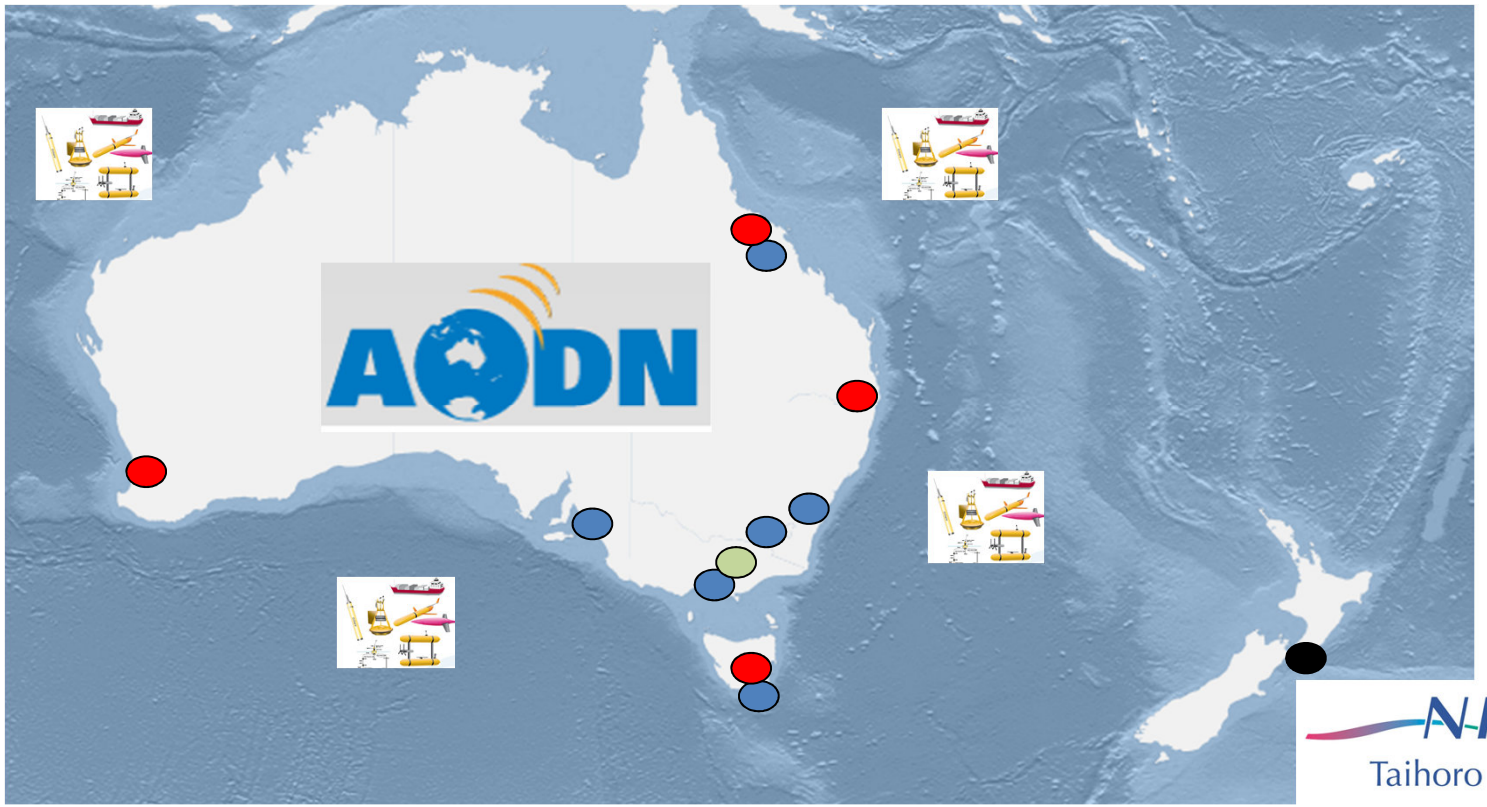
Mr Sebastien Mancini, IMOS eMII (University of Tasmania)
Dr Kim Finney, Australian Antarctic Division and IMOS
Dr Roger Proctor, IMOS eMII

Outline of the presentation

- What is AODN?
- Data discovery using the AODN data Portal
- Introduction of controlled vocabularies (e.g for parameters) in the AODN infrastructure to improve data discovery
  - Background analysis
  - Implementation
  - Perspectives

IMOS

Australian Ocean Data Network (AODN)



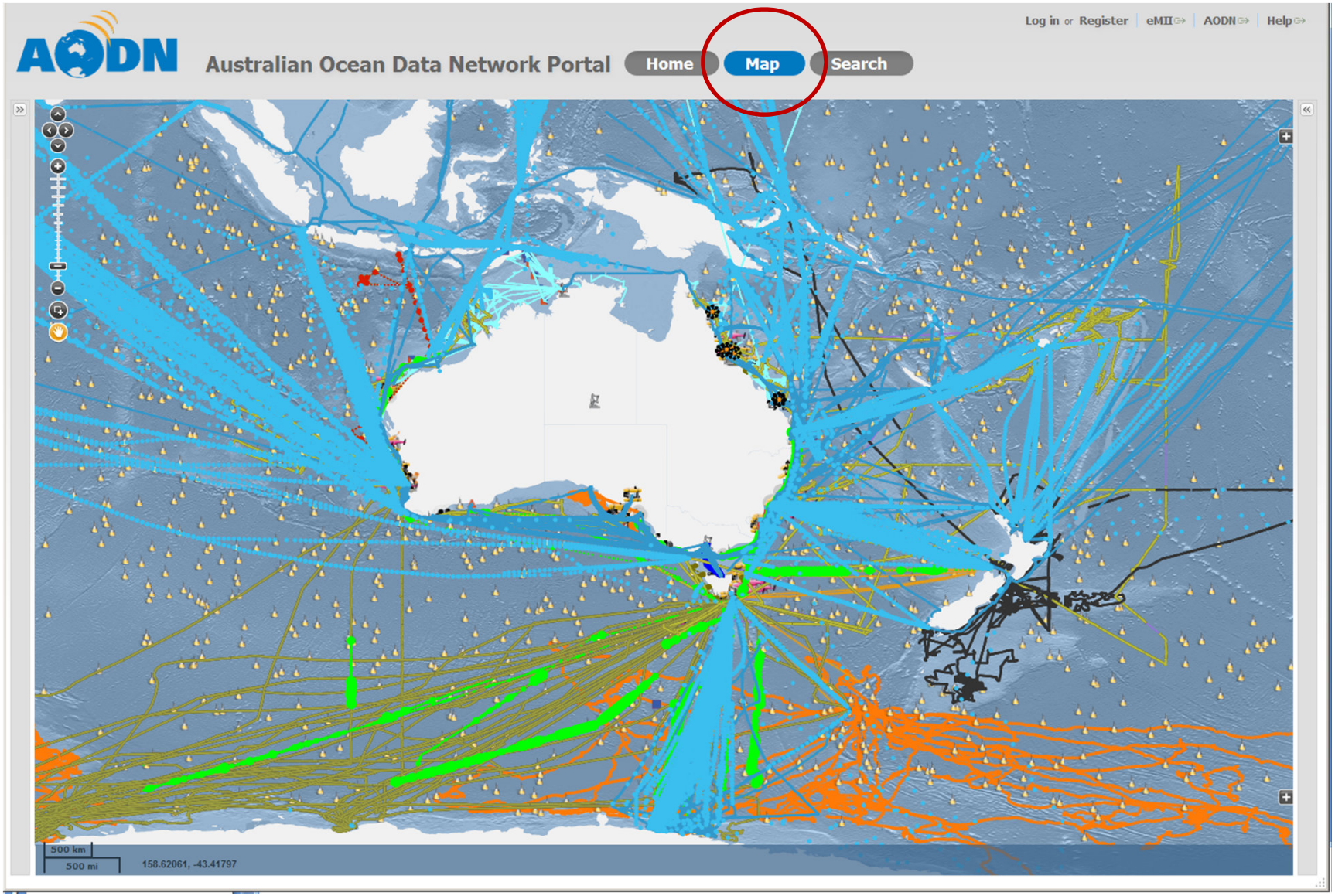
NIWA
Taihoro Nukurangi

- Commonwealth Agencies (AAD, AIMS, BOM, CSIRO, GA, RAN)
- Integrated Marine Observing System (IMOS)
- Universities (IMAS, UWA, UQ, JCU…)
- State Government Agencies (EPA Victoria …)

+ New-Zealand

IMOS

http://portal.aodn.org.au/webportal



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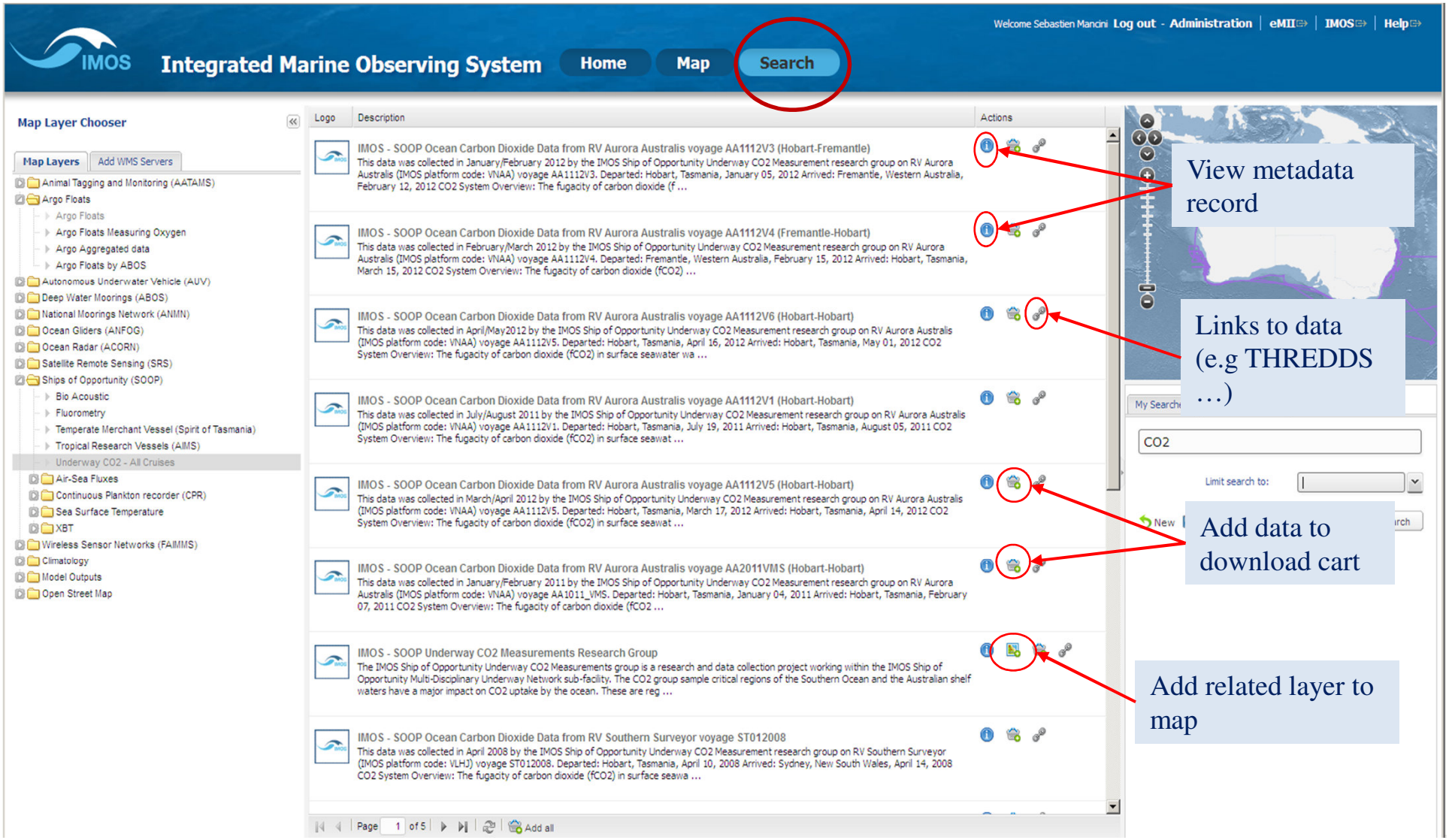
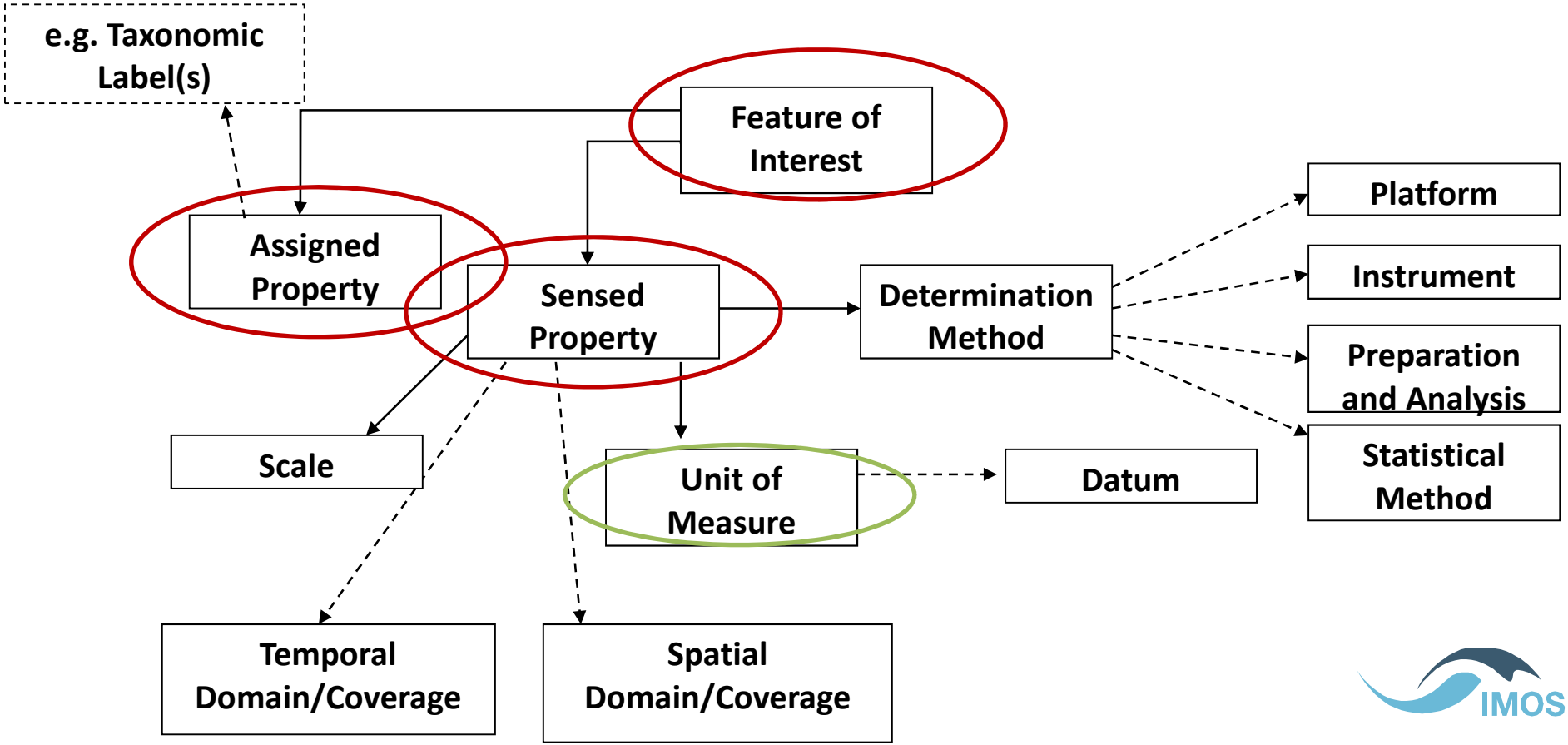
Data Discovery in AODN: Search View



Background analysis

- Examination of how the concept of a ‘parameter’ have been used in AODN metadata records
- Define basic semantic elements of an observation/measurement



Background analysis

- Examination of how the concept of a ‘parameter’ have been used in AODN metadata records
- Define basic semantic elements of an observation/measurement
- Investigate existing controlled vocabularies : BODC , CF, GCMD, US IOOS…

  and Determine suitability of existing vocabulary with the terms used in AODN

The BODC vocabulary offers the best semantic model

But

We think too much information is being attributed to the ‘parameter’ name

A more modular approach is preferred

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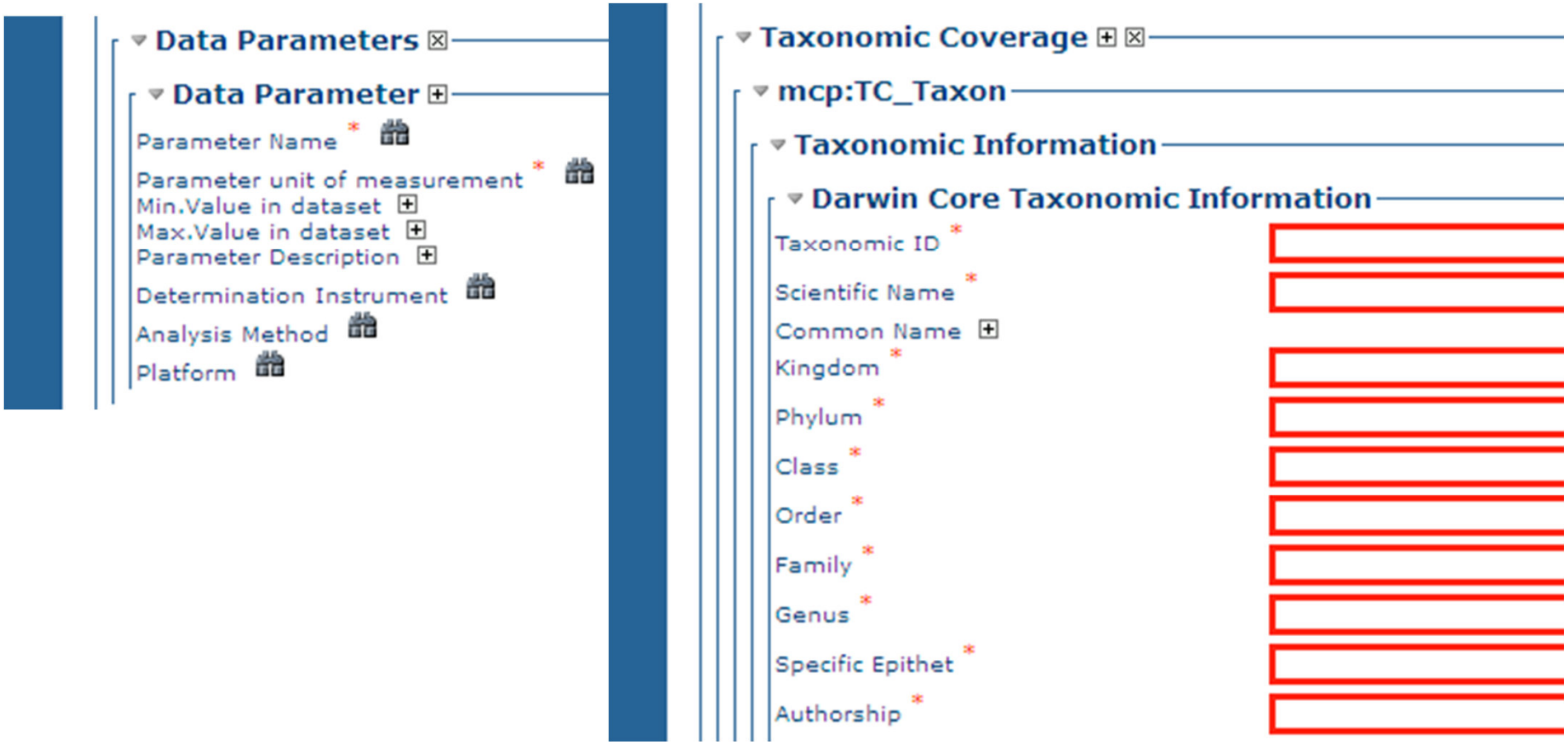
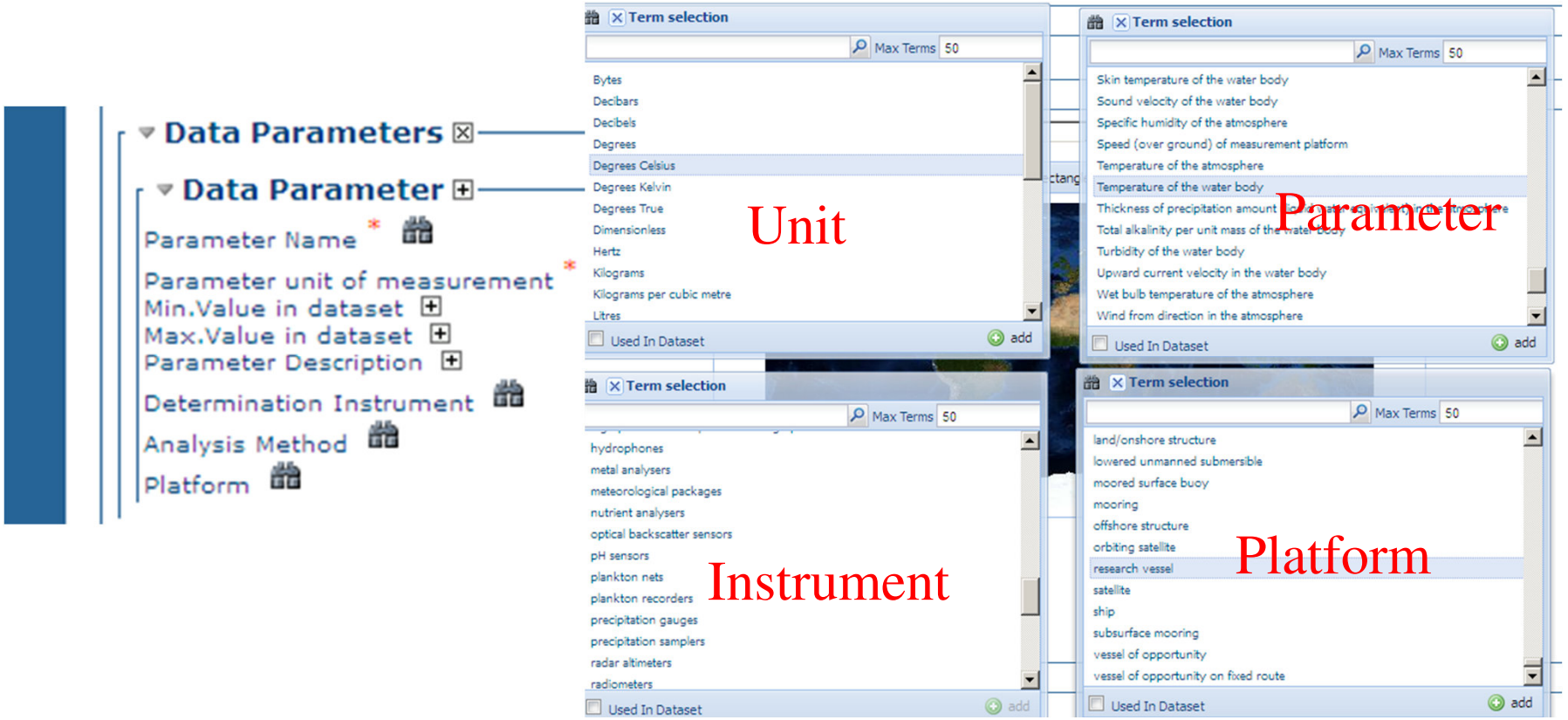
Implementation of controlled vocabularies in the AODN infrastructure

- Design database to store information
- Populate relevant vocabulary in database
- Update/Edit Marine Community Profile (MCP)



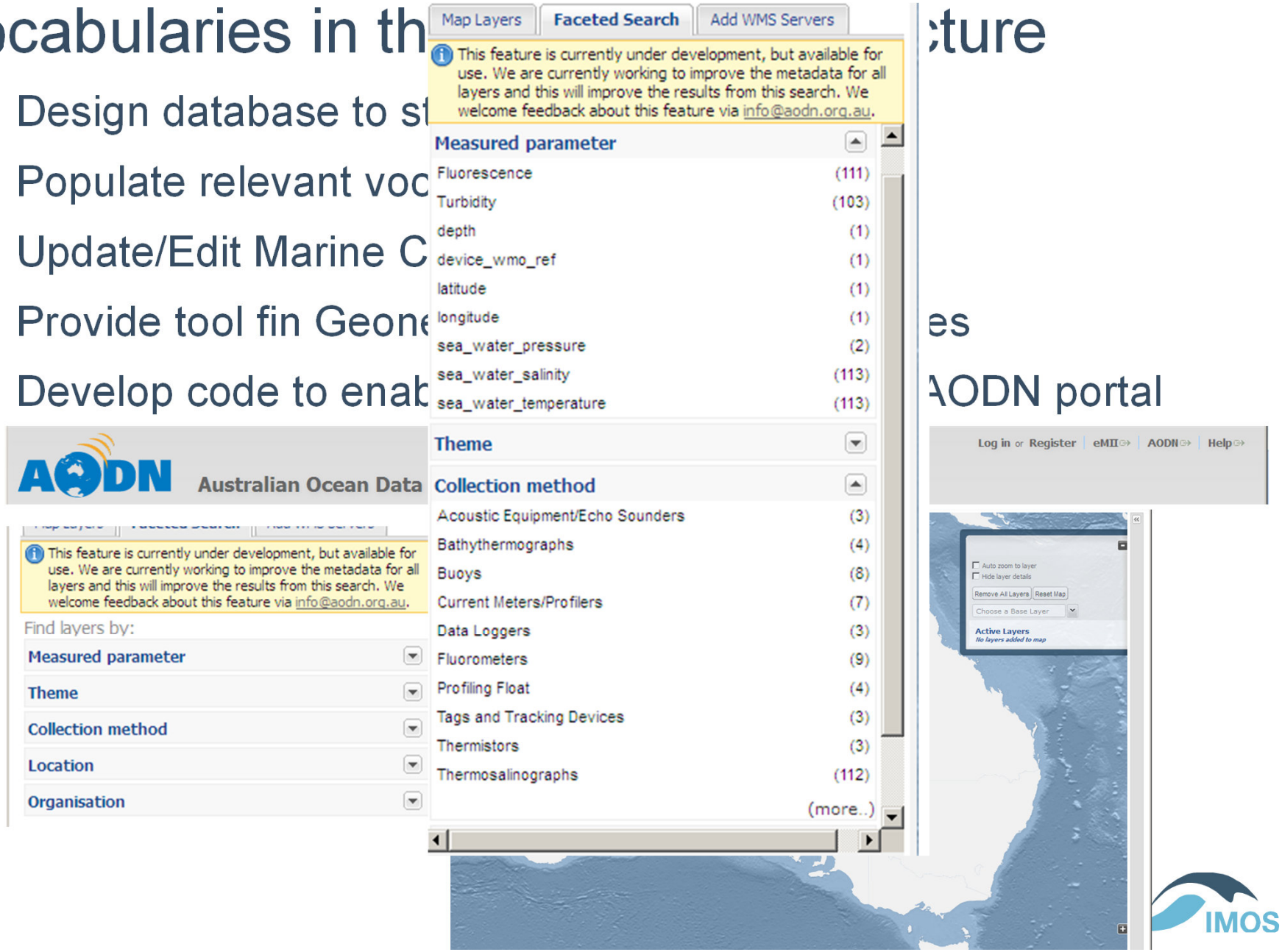
Implementation of controlled vocabularies in the AODN infrastructure

- Design database to store information
- Populate relevant vocabulary in database
- Update/Edit Marine Community Profile (MCP)
- Provide tool in Geonetwork for mark-up purposes



Implementation of controlled vocabularies in th cture

- Design database to st
- Populate relevant voc
- Update/Edit Marine C
- Provide tool fin Geone es
- Develop code to enab AODN portal



Background Analysis	Implementation
Done	In progress
Examination of how ‘parameter concepts have been recorded in AODN	Design database to store information
Define Basic semantic elements of an observation/measurement	Populate relevant vocabulary in database
Investigate existing controlled vocabularies	Update Marine Community Profile (MCP)
Determine suitability of existing vocabularies	Provide tool for mark-up purposes in Geonetwork
	Develop code to enable faceted search via the AODN portal

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Background Analysis	Implementation	Perspectives
Done	In progress	Next
Examination of how 'parameter concepts have been recorded in AODN	Design database to store information	Tool to support the addition, moderation and governance of vocabulary source
Define Basic semantic elements of an observation/measurement	Populate relevant vocabulary in database	Provide online access to agreed vocabulary list
Investigate existing controlled vocabularies	Update Marine Community Profile (MCP)	Feedbacks to existing vocabularies (e.g BODC)
Determine suitability of existing vocabularies	Provide tool for mark-up purposes in Geonetwork	Development of community schema for Web Feature Service
	Develop code to enable faceted search via the AODN portal	

IMOS

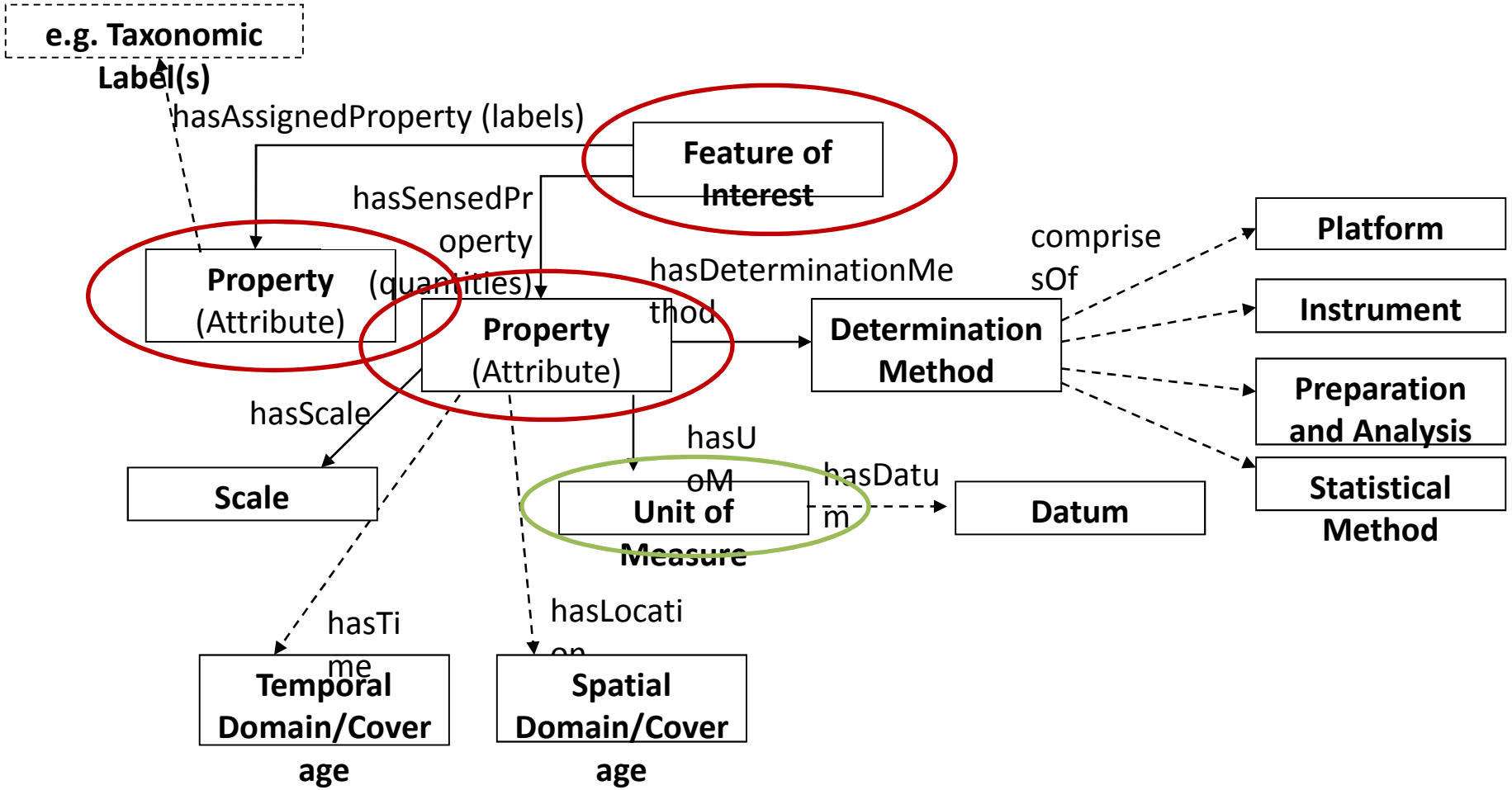
Australian Government
Department of Industry, Innovation, Science, Research and Tertiary Education

www.imos.org.au

IMOS is supported by the Australian Government through the National Collaborative Research Infrastructure Strategy and the Super Science Initiative. It is led by the University of Tasmania on behalf of the Australian marine and climate science community.

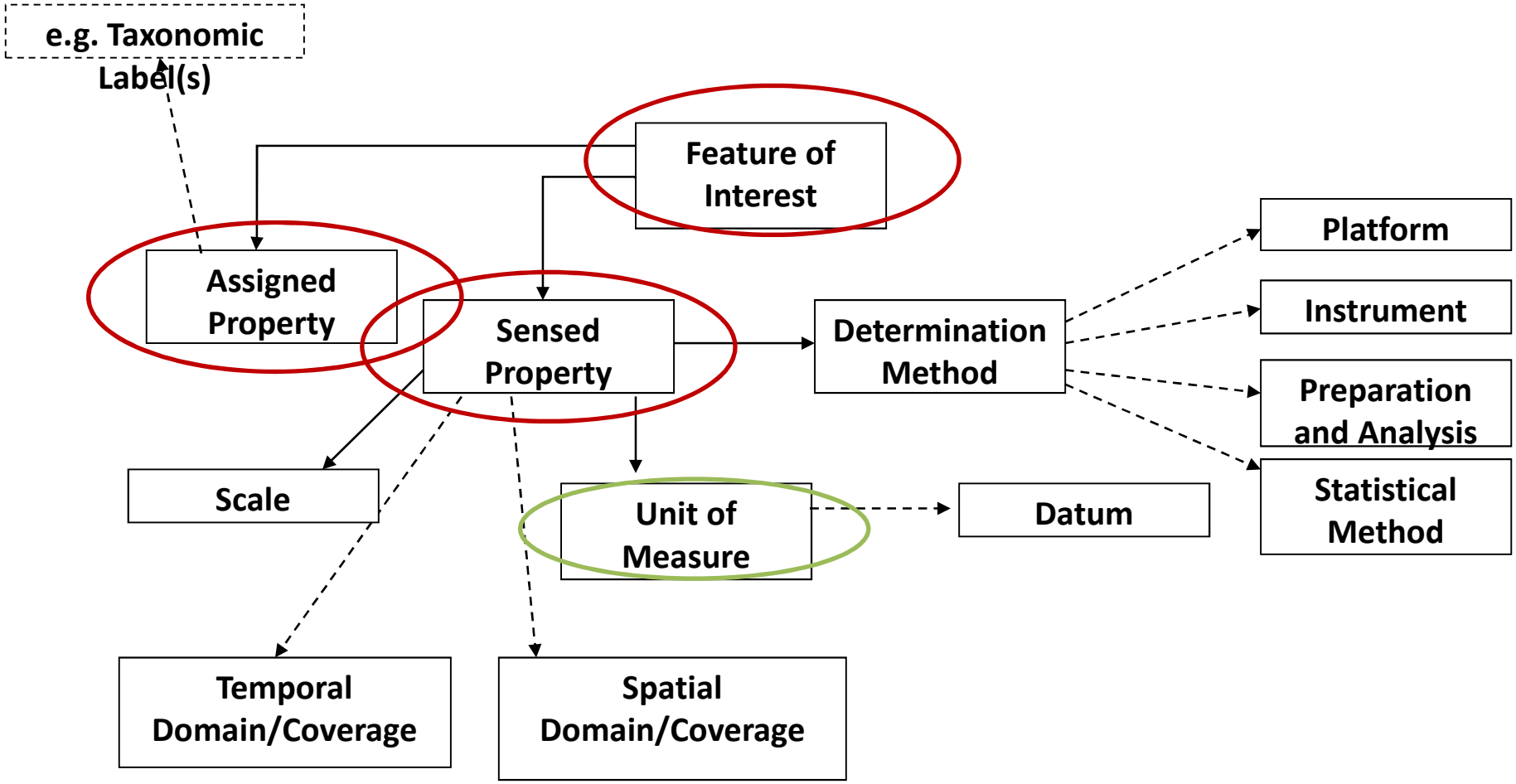
Integrated Marine Observing System
University of Tasmania
Private Bag 110
Hobart Tasmania 7001

Simplified basic semantic elements of an observation or measurement



Parameters are sensed and assigned properties of Features of Interest (if we start from the view-point of an observation/measurement model). Highly granular (simplistic) 'parameter' names include a sensed property, like 'concentration' plus the Feature Of Interest (e.g. Concentration of Carbon). To be of value most parameter names should

Simplified basic semantic elements of an observation or measurement



Background analysis

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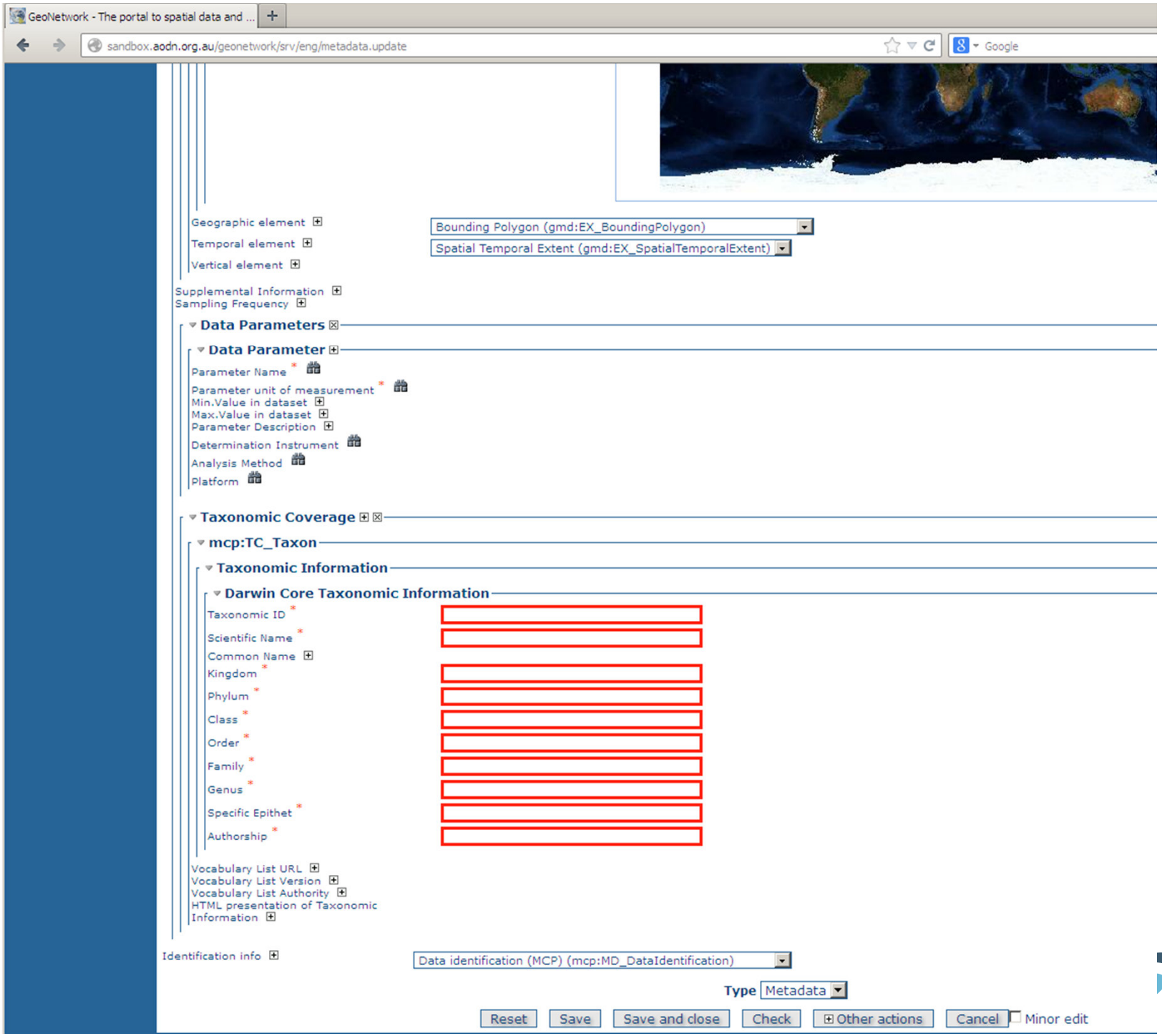
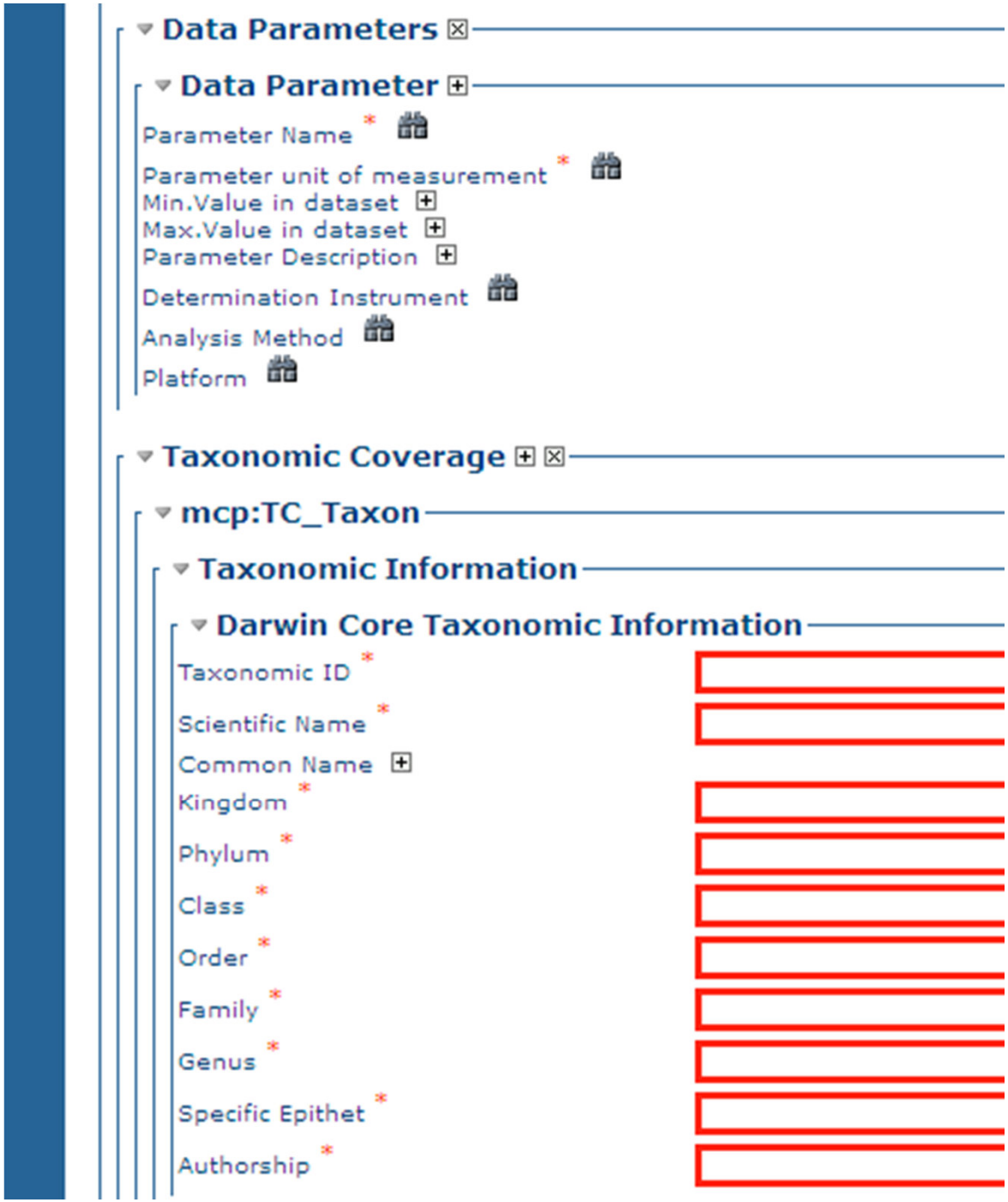
- Define basic semantic elements of an observation/measurement


GeoNetwork - The portal to spatial data and ...
sandbox.aodn.org.au/geonetwork/srv/eng/metadata.update
Google
Geographic element
Bounding Polygon (gmd:EX_BoundingPolygon)
Temporal element
Spatial Temporal Extent (gmd:EX_SpatialTemporalExtent)
Vertical element
Supplemental Information
Sampling Frequency
Data Parameters
Data Parameter
Parameter Name *
Parameter unit of measurement *
Min.Value in dataset
Max.Value in dataset
Parameter Description
Determination Instrument
Analysis Method
Platform
Taxonomic Coverage
mcp:TC_Taxon
Taxonomic Information
Darwin Core Taxonomic Information
Taxonomic ID *
Scientific Name *
Common Name
Kingdom *
Phylum *
Class *
Order *
Family *
Genus *
Specific Epithet *
Authorship *
Vocabulary List URL
Vocabulary List Version
Vocabulary List Authority
HTML presentation of Taxonomic Information
Identification info
Data identification (MCP) (mcp:MD_DataIdentification)
Type
Metadata
Reset
Save
Save and close
Check
Other actions
Cancel
Minor edit


Data Parameters
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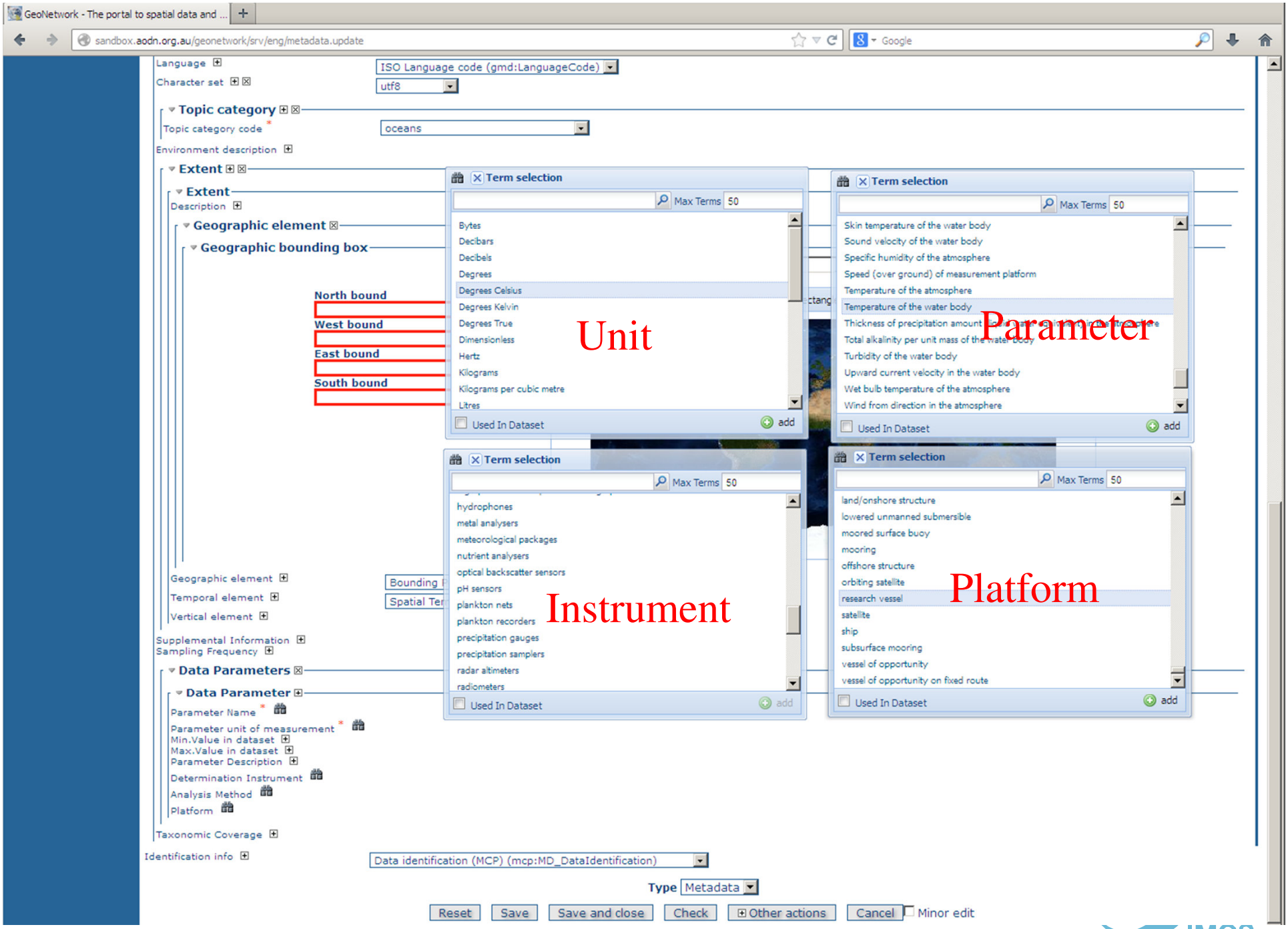
Parameter Name *
Parameter unit of measurement *
Min.Value in dataset
Max.Value in dataset
Parameter Description
Determination Instrument
Analysis Method
Platform
Taxonomic Coverage
mcp:TC_Taxon
Taxonomic Information
Darwin Core Taxonomic Information
Taxonomic ID *
Scientific Name *
Common Name
Kingdom *
Phylum *
Class *
Order *
Family *
Genus *
Specific Epithet *
Authorship *


GeoNetwork - The portal to spatial data and ...
sandbox.aodn.org.au/geonetwork/srv/eng/metadata.update
Google
Language
ISO Language code (gmd:LanguageCode)
Character set
utf8
Topic category
Topic category code
oceans
Environment description
Extent
Extent
Description
Geographic element
Geographic bounding box
North bound
West bound
East bound
South bound
Geographic element
Temporal element
Vertical element
Supplemental Information
Sampling Frequency
Data Parameters
Data Parameter
Parameter Name
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Min.Value in dataset
Max.Value in dataset
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Analysis Method
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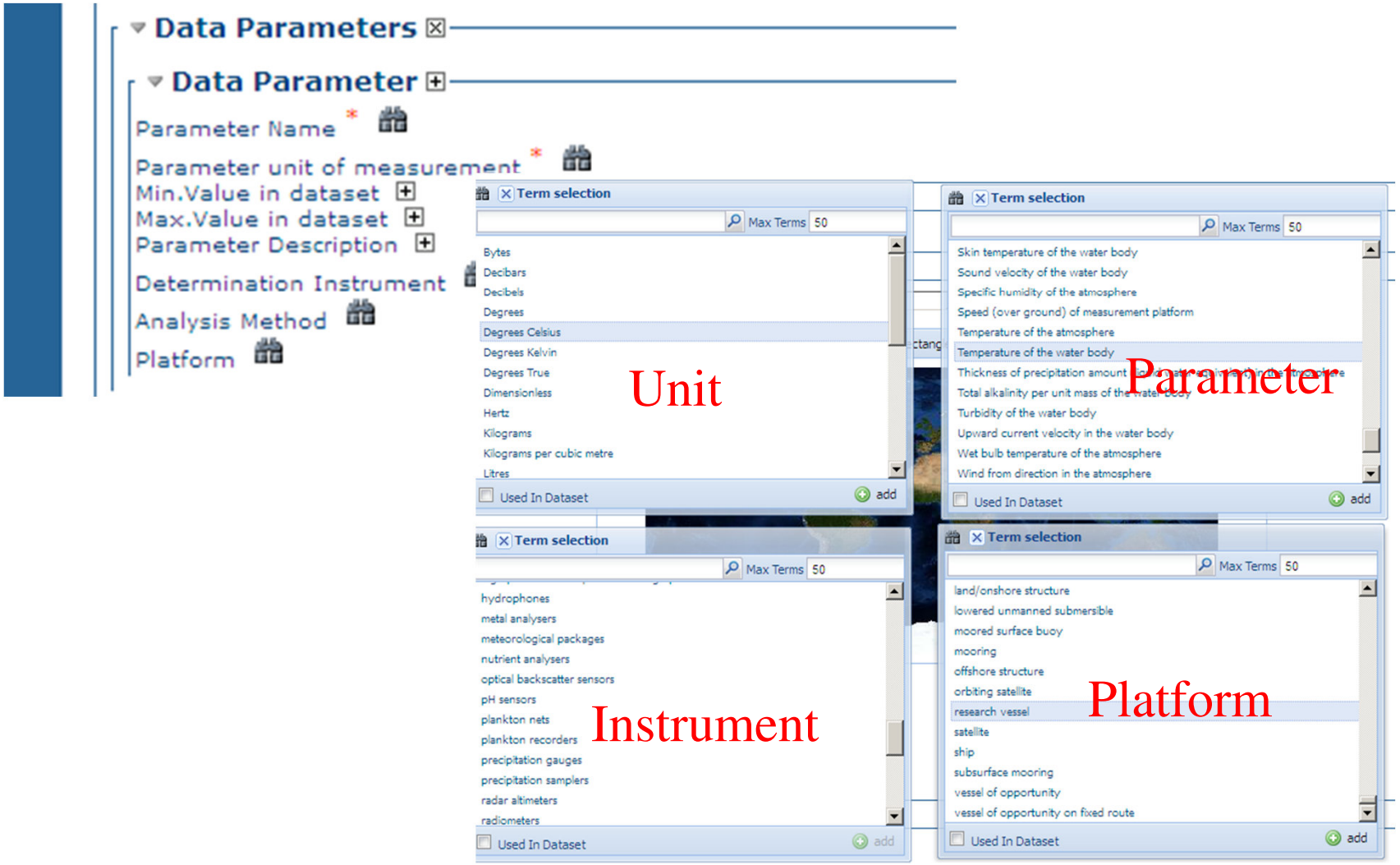
Taxonomic Coverage
Identification info
Data identification (MCP) (mcp:MD_DataIdentification)
Type
Metadata
Reset
Save
Save and close
Check
Other actions
Cancel
Minor edit
Term selection
Max Terms
50
Bytes
Decibars
Decibels
Degrees
Degrees Celsius
Degrees Kelvin
Degrees True
Dimensionless
Hertz
Kilograms
Kilograms per cubic metre
Litres
Used In Dataset
add
Unit
Term selection
Max Terms
50
Skin temperature of the water body
Sound velocity of the water body
Specific humidity of the atmosphere
Speed (over ground) of measurement platform
Temperature of the atmosphere
Temperature of the water body
Thickness of precipitation amount
Total alkalinity per unit mass of the water body
Turbidity of the water body
Upward current velocity in the water body
Wet bulb temperature of the atmosphere
Wind from direction in the atmosphere
Used In Dataset
add
Parameter
Term selection
Max Terms
50
hydrophones
metal analysers
meteorological packages
nutrient analysers
optical backscatter sensors
pH sensors
plankton nets
plankton recorders
precipitation gauges
precipitation samplers
radar altimeters
radiometers
Used In Dataset
add
Instrument
Term selection
Max Terms
50
land/onshore structure
lowered unmanned submersible
moored surface buoy
mooring
offshore structure
orbiting satellite
research vessel
satellite
ship
subsurface mooring
vessel of opportunity
vessel of opportunity on fixed route
Used In Dataset
add
Platform
IMOS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Data Parameter
Parameter Name *
Parameter unit of measurement *
Min.Value in dataset
Max.Value in dataset
Parameter Description
Determination Instrument
Analysis Method
Platform
Term selection
Max Terms 50
Bytes
Decibars
Decibels
Degrees
Degrees Celsius
Degrees Kelvin
Degrees True
Dimensionless
Hertz
Kilograms
Kilograms per cubic metre
Litres
Used In Dataset
add
Unit
Term selection
Max Terms 50
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Specific humidity of the atmosphere
Speed (over ground) of measurement platform
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Thickness of precipitation amount
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Upward current velocity in the water body
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Wind from direction in the atmosphere
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Term selection
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nutrient analysers
optical backscatter sensors
pH sensors
plankton nets
plankton recorders
precipitation gauges
precipitation samplers
radar altimeters
radiometers
Used In Dataset
add
Instrument
Term selection
Max Terms 50
land/onshore structure
lowered unmanned submersible
moored surface buoy
mooring
offshore structure
orbiting satellite
research vessel
satellite
ship
subsurface mooring
vessel of opportunity
vessel of opportunity on fixed route
Used In Dataset
add
Platform

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