

Ocean data management update - Australia

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Marine data management in Australia

- “Open by default” - open licences and open standards
- Mix of research and government organisations responsible for marine data in Australia



Australian Government
Bureau of Meteorology

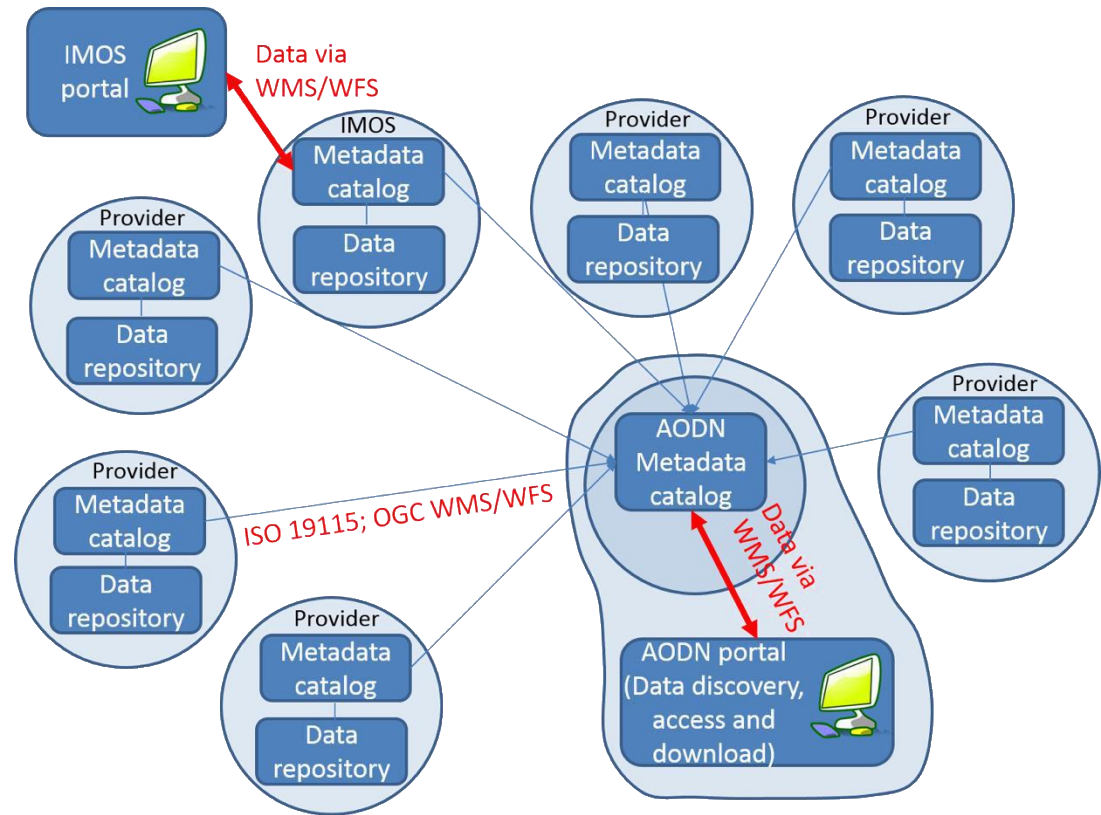


Australian Government
Geoscience Australia

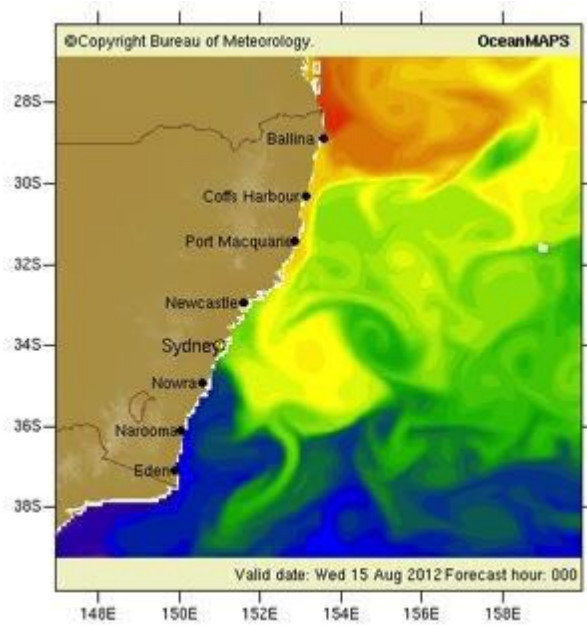


Australian Ocean Data Network (AODN)

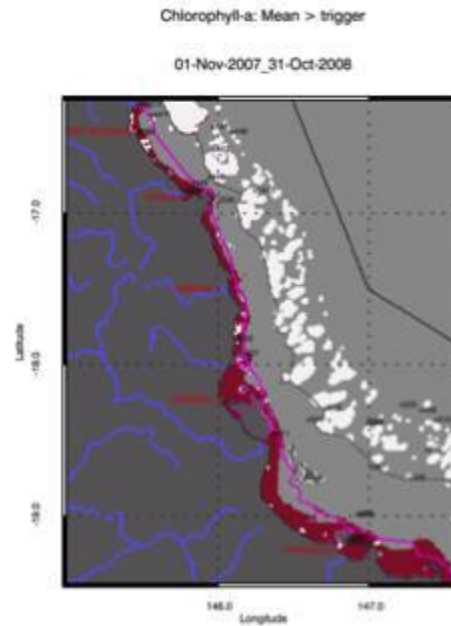
- Templated services
- Any OGC WxS
- Controlled vocabularies
 - Platforms
 - Parameters
 - Units
 - Organisations
- >15,000 AODN metadata records, of which >3,000 IMOS



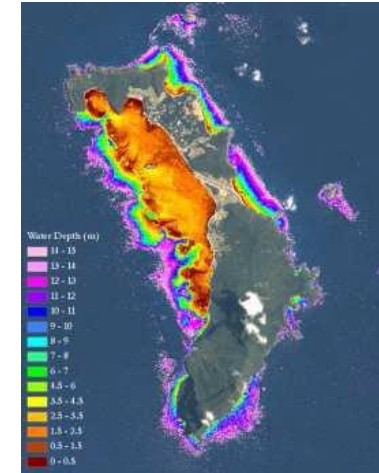
Better observations: Remote Sensing



**Ocean & Coastal
Forecasting**

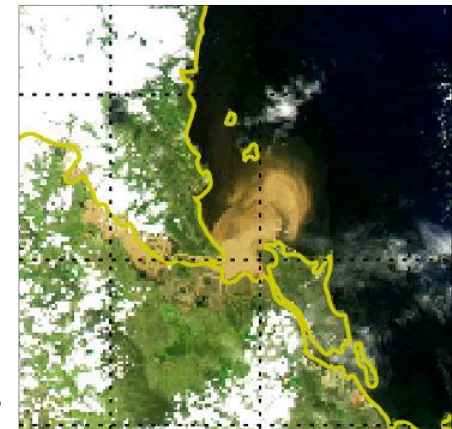


**Environmental
Assessment**



**Habitat &
Bathymetry**

**Events &
Disasters**



Australia's Regional Copernicus Data Hub

An integrated approach to:

- Support government information requirements.
- Enhance access to satellite Earth observation data by research, industry and civil society.
- Facilitate collaboration between Australians, Europeans and regional neighbours in exploitation of Earth observation data.
- **Benefits for: Australia, the region, EC/ESA/EUMETSAT, and the global satellite EO community.**



Supporting



Consortium



Partners



Collaborators



Developing the Australian Geoscience Data Cube

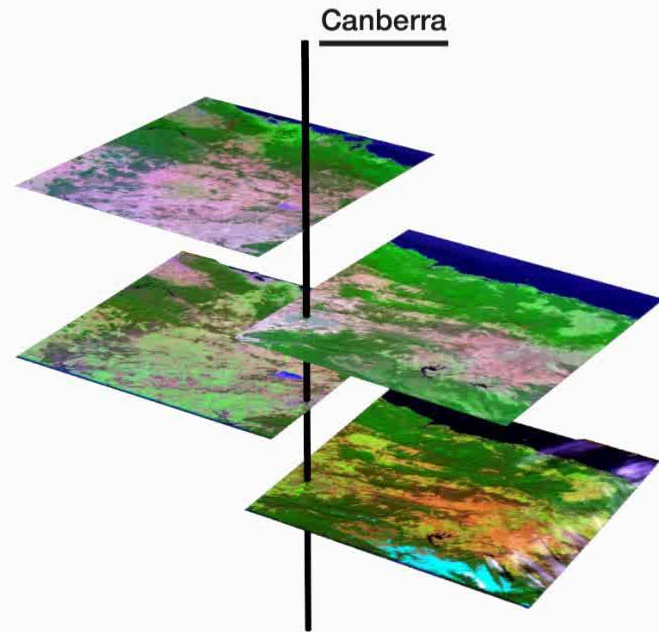
Orthorectification



Calibration



Time series



“DIY” modelling

RECOM Grid Generation

Curvilinear Controls

Grid Definition

X Cells: 40

Y Cells: 10

Instructions

Left drag to move a point. Dragging a into point creates a new point.

With mouse over a point, the following keys apply:

- Ⓚ to delete point.
- Ⓜ to decide external corner.
- Ⓡ to decide internal corner.
- Ⓧ to remove corner totally.
- Ⓛ to decide length (external).

Difference between number of external and internal points must be 4.

Status: valid

Runs

Logged in as: Mike.Hertzfeld@csiro.au

Edit Clone Delete Abort

Select All Unselect All

Run Start	Run Stop	Model Start	Model Stop	Status
-	-	2015-01-18 00:00:00	2015-01-19 00:00:00	100.0
2016-01-25 03:20:12	2016-01-25 03:29:41	2015-01-18 00:00:00	2015-01-19 00:00:00	Finished
2016-01-25 03:20:13	2016-01-25 03:32:42	2015-01-18 00:00:00	2015-01-19 00:00:00	Finished
-	-	2015-01-22 00:00:00	2015-01-23 00:00:00	100.0
2016-01-25 01:49:13	2016-01-25 01:59:17	2015-01-22 00:00:00	2015-01-23 00:00:00	Finished
2016-01-25 01:48:53	2016-01-25 02:02:03	2015-01-22 00:00:00	2015-01-23 00:00:00	Finished
-	-	2015-01-22 00:00:00	2015-01-23 00:00:00	100.0
-	-	2015-01-22 00:00:00	2015-01-23 00:00:00	100.0
2016-01-23 09:39:49	2016-01-25 00:11:37	2015-01-07 00:00:00	2015-01-08 00:00:00	Finished
2016-01-23 02:17:47	2016-01-25 00:11:37	2015-01-22 00:00:00	2015-02-24 00:00:00	Finished

Temporal Extent and Forcing Data

Temporal Extent: 2015-01-18 00:00:00 to 2015-01-19 00:00:00

RECOM Initialization Data

Hydro Boundary

WBC Boundary

Global Ocean

Global Atmosphere

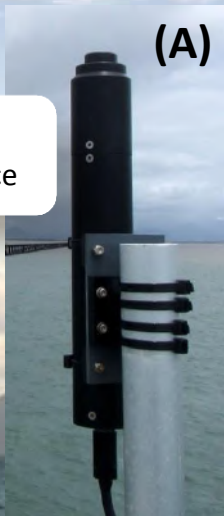
Curvilinear Controls

Relocatable Coastal Model (RECOM) - www.eerefs.info

Marine Virtual Laboratory (MARVL) - www.marvl.org.au

Overview above-water measurements

Satlantic
Spectral irradiance



Webcams
Sky and Sea



Weather Station
Temperature
Pressure
Humidity
Dew point
Wind speed etc



SeaPRISM (7 wavelengths)
Water-leaving radiance
Aerosol optical thickness
Aerosol absorption
Aerosol size distribution
Refractive index
Single scattering albedo
Phasefunction
Water vapor
Spectral flux
Radiative forcing

Overview in-water optical measurements

WetStar fluorometer

CDOM absorption
Chlorophyll-a
Uranine
Phycocerythrin

Automatic winch controller

keeps cage at a constant depth

ACs (80 wavelengths)

Total absorption
Total attenuation

WQM

Temperature
Salinity
Depth
Dissolved oxygen
Turbidity
Back scattering
Chlorophyll fluorescence

DAPCS

Network enabled
real-time data
logger

BB9 (9 wavelengths)

Back-scattering

ACs switching unit
(filtered/unfiltered)

Fortnightly servicing and water sampling
optimized for satellite match-ups



Diverse monitoring

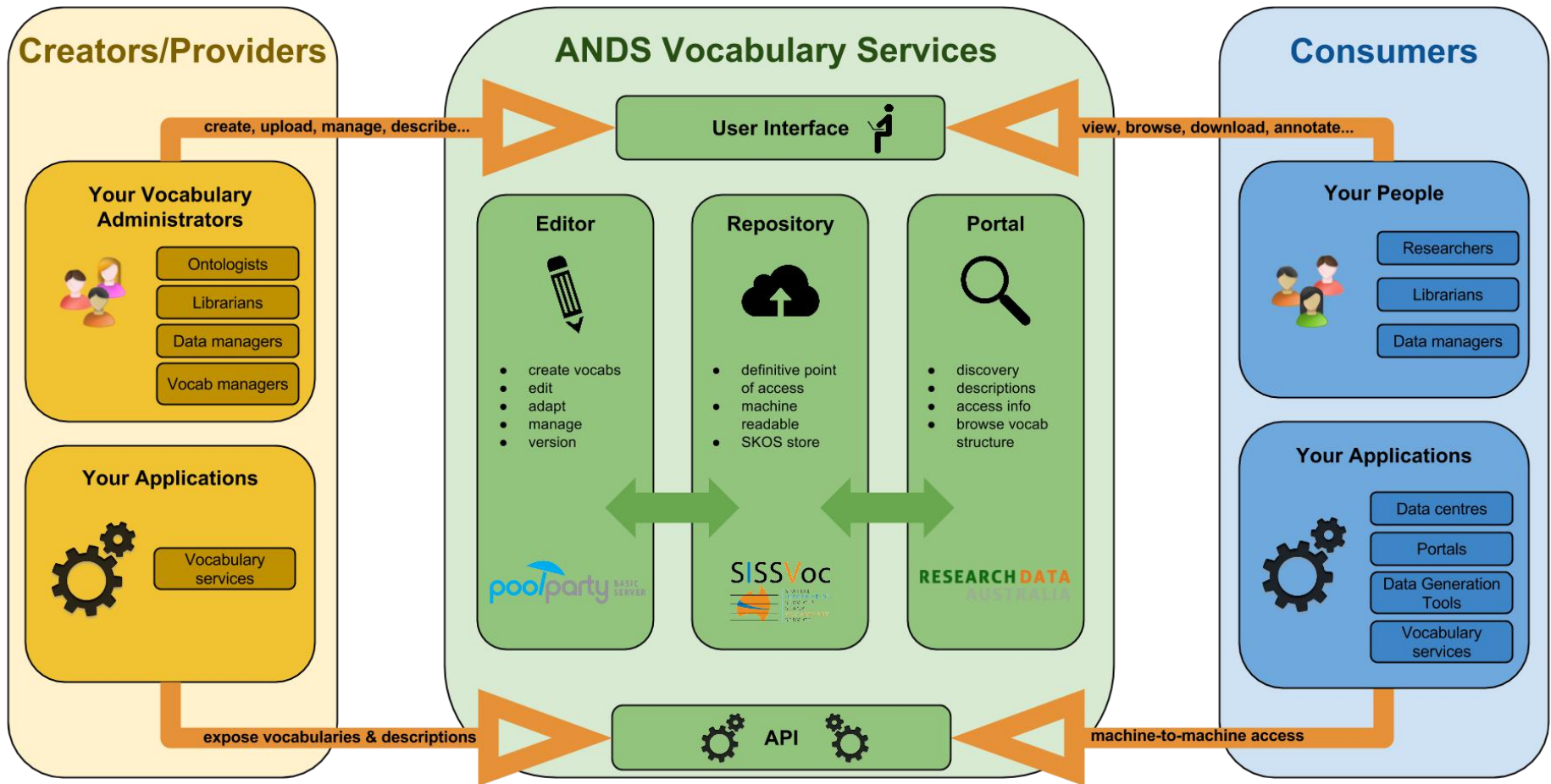


Integration and discovery

- Data and systems are not enough
- Common approaches and standards for metadata enable better discovery and access to data
- Common vocabularies add even more value.
 - Does “**Temp**” = “**Temperature**” = “**water temperature**” = “**SST**”?
 - Fahrenheit or Celsius?
 - How to convert?
- Vocabulary services and brokering systems leverage this information



Research Vocabularies Australia



<https://vocabs.ands.org.au>

Earth and marine observing value chain

Data descriptions, metadata, common vocabularies

Observatories



Observations
(Data)



Processing/
Correction



Value
Extraction/
Application



Decisions

- Better
- Faster
- More efficient



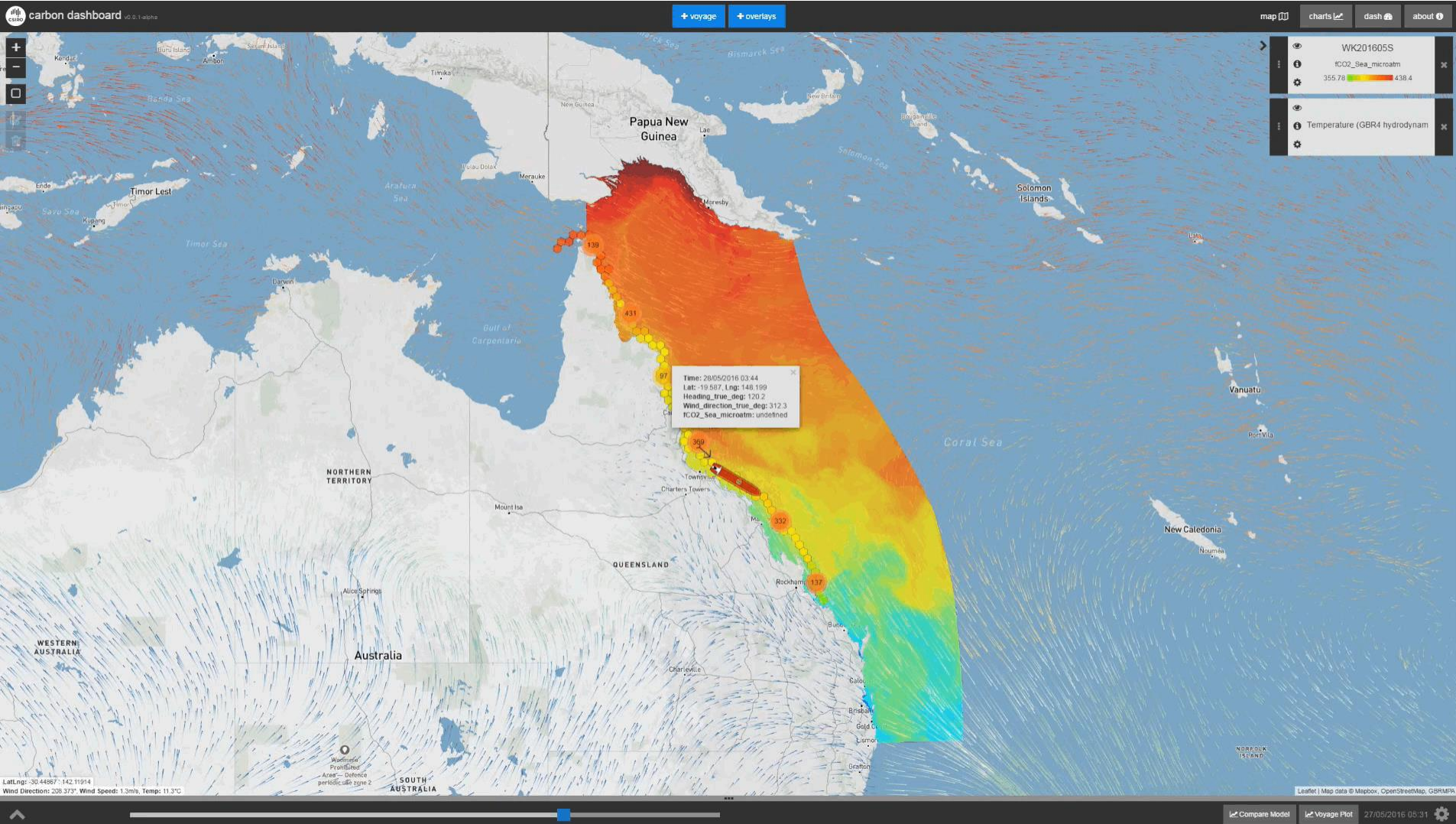
Impacts

- Conservation
- Productivity
- Protection
- Knowledge
- Capacity



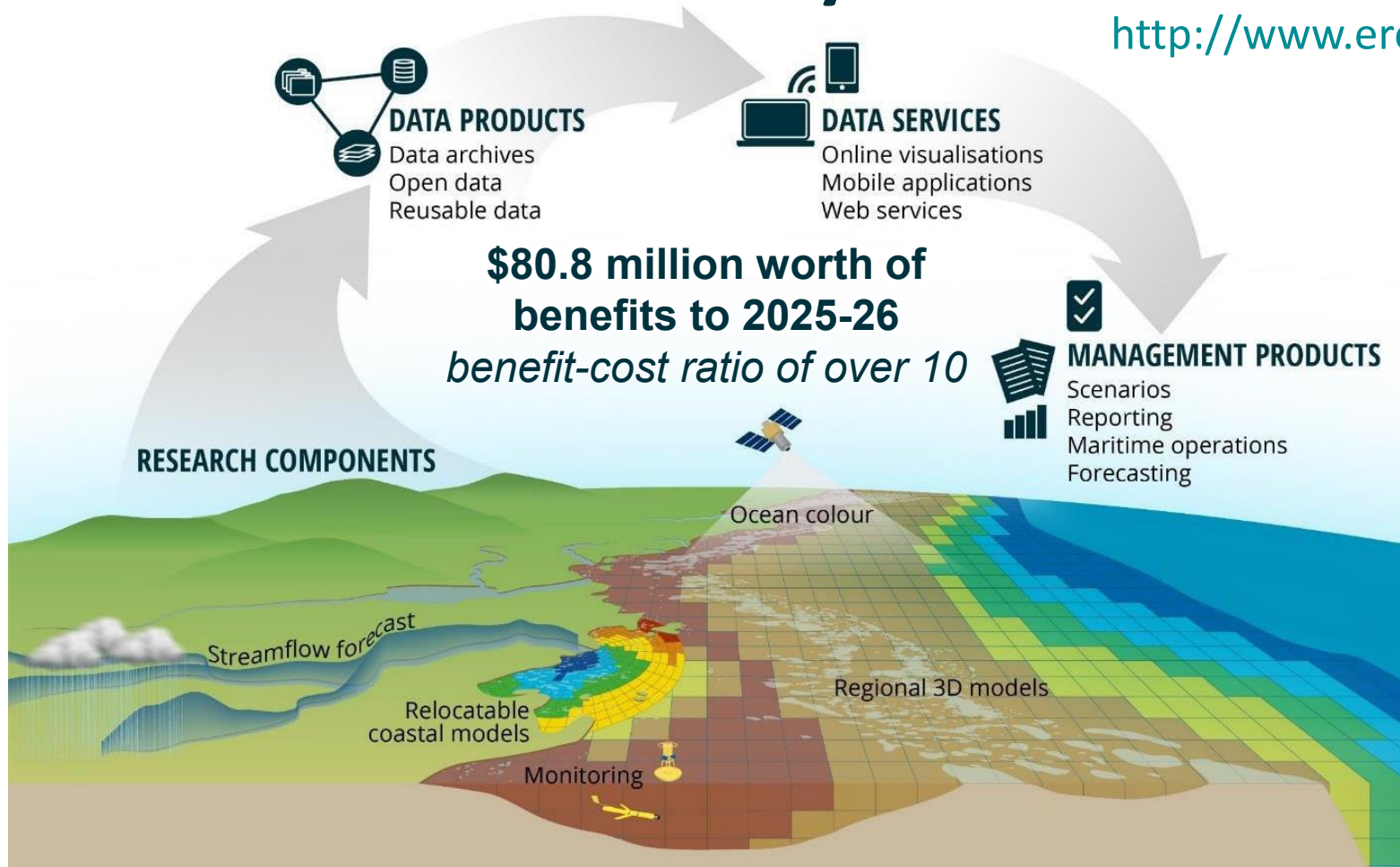
Value accumulates along the chain

Bringing data together



eReefs: An Information System for the GBR

<http://www.ereefs.info>



“The results of the eReefs research will significantly transform our ability to manage and protect the Great Barrier Reef and assist in its long-term preservation.”

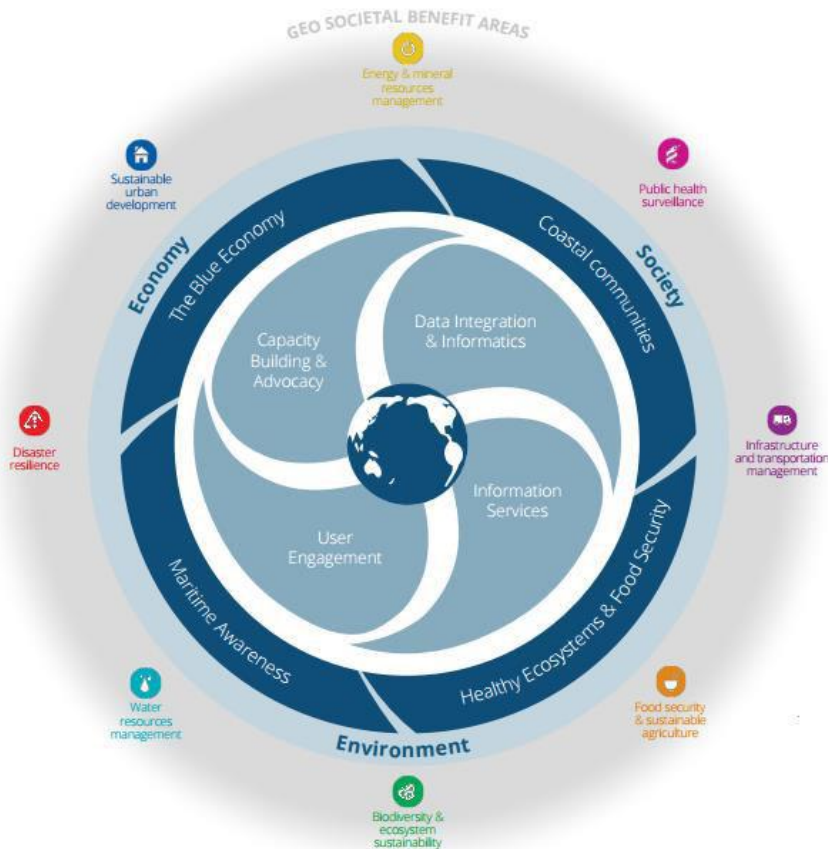
Ocean Data Interoperability Platform

- Supporting development of a common global framework for marine data management
- Promoting adoption of agreed standards, best practices and technologies
- Leveraging on-going activities of regional and global marine data infrastructures
- Demonstrating international coordination through interoperability solutions

<http://www.odip.eu/>



Oceans and Society – Blue Planet: utilizing ocean and coastal observations to benefit society



- **5 Foundational Components** rely upon each other and collectively underpin the 4 **Service components**.
- Service Components deliver to one or more of the eight SBAs.
- Within a component activities that can be existing or new tasks or programs and some of which can be delivered as services or developed into GEO flagships.

<http://www.geoblueplanet.com/>

Thank you

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