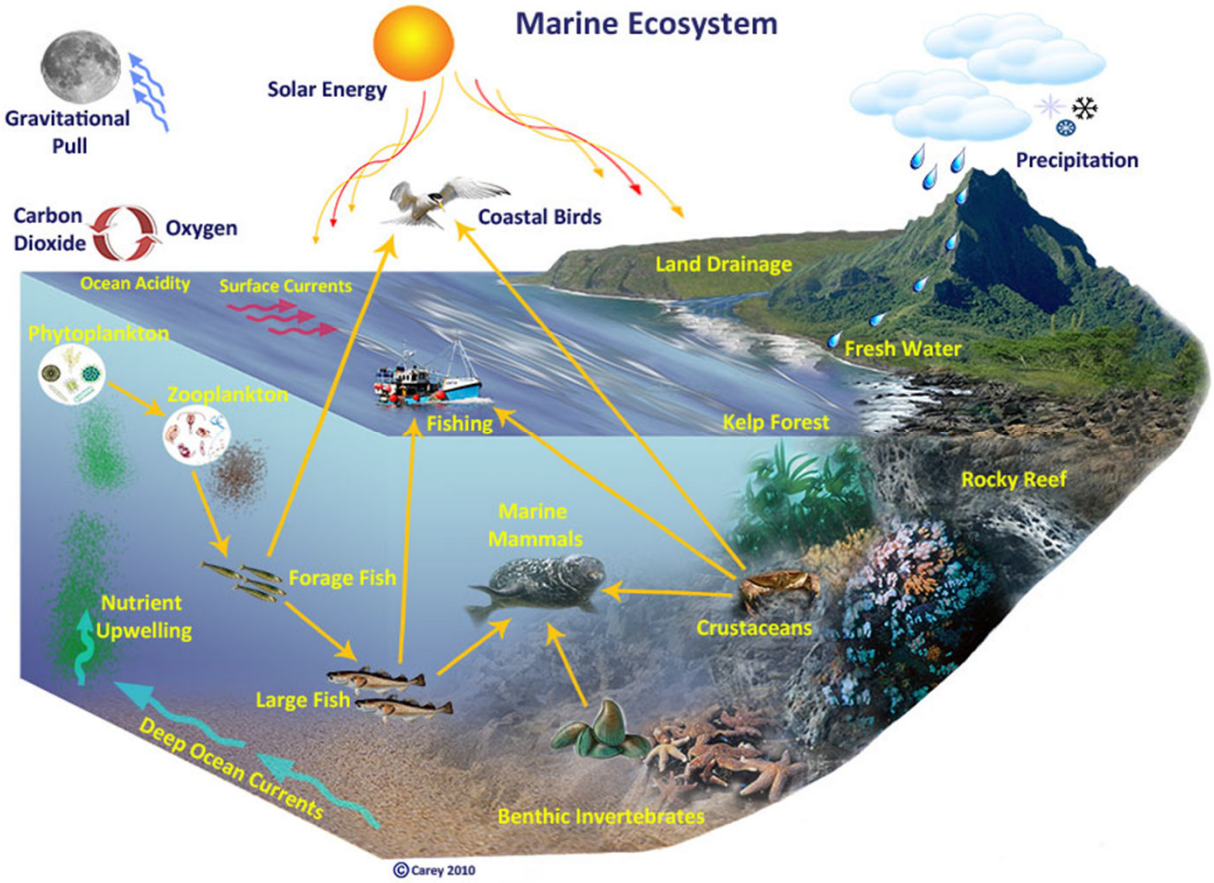
ODIP: Establishing and operating an ocean data interoperability platform

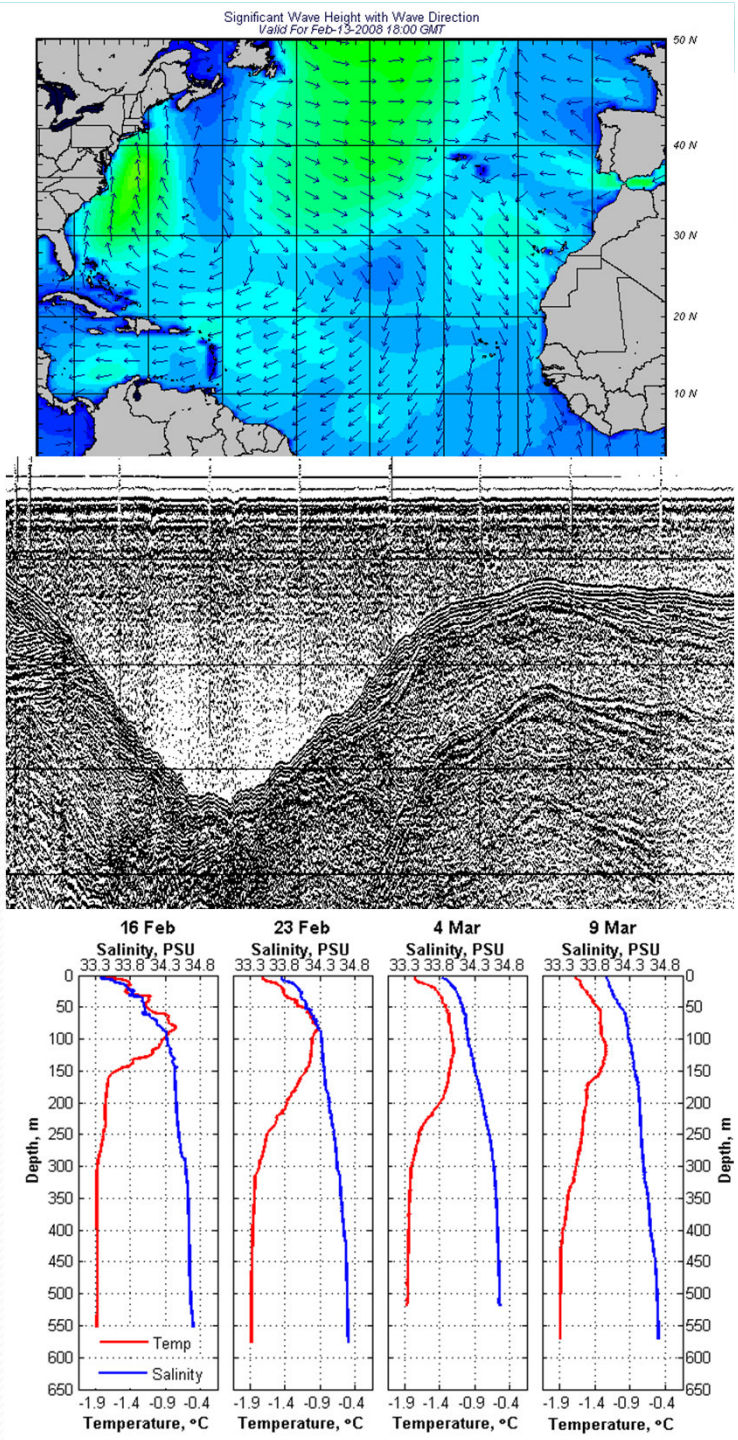
Helen Glaves (NERC- BGS), Dick Schaap (MARIS), Roger Proctor (IMOS) & Stephen Miller (SIO)

- Paradigm shift from traditional discipline based marine research
- Multidisciplinary ecosystem level approach: promoted in Europe by Marine Strategy Framework directive MSFD (2008) and Marine Knowledge 2020
- Requires large amounts of good quality, interoperable data from a range of disciplines



Barriers to re-use of marine data

- Use of different
  - Formats
  - Standards
  - Best practice
  - Co-ordinate systems
- National and organisational data access policies



E-infrastructures

- A number of regional initiatives have made significant progress in addressing these barriers by developing marine data management infrastructures

- Development of these infrastructures is being promoted and supported by international organizations such as UNESCO‘s Intergovernmental Oceanographic Commission (IOC)

AODN

Australia

IMOS

Geo-Seas

Europe

SeaDataNet

IOOS® INTEGRATED OCEAN OBSERVING SYSTEM

USA

Ocean Data Interoperability Platform

EU-US-Australia collaborative project

Grant Number: 312492

Call: FP7-INFRASTRUCTURES-2012-1-INFSO
Activity: INFRA-2012-3.2: International co-operation with the USA on common e-infrastructure for scientific data

Start date: 1 October 2012

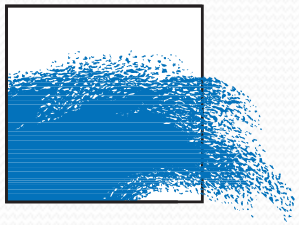
Duration: 36 months

Funded in parallel by European Commission, National Science Foundation (NSF) and Australian Government

ODIP partners

Europe: 10 EU funded partners: 6 countries

NERC-BGS/BODC, MARIS, OGS, IFREMER, HCMR, ENEA, ULG, CNR, RBINS-MUMM, TNO



USA : NSF funded partners

(supplement to existing R2R project)

- San Diego Supercomputer Center (SDSC)
- Scripps Institution of Oceanography (SIO)
- Woods Hole Oceanographic Institute (WHOI)
- Lamont-Doherty Earth Observatory (LDEO)
- Florida State University: Center for Ocean-Atmospheric Prediction Studies (FSU)

Australia

- University of Tasmania (IMOS)

International

- UNESCO IOC-IODE

Associate partners

- **Europe**
  - Alfred Wegener Institute for Polar Research (AWI)
  - MARUM
- **USA**
  - NOAA US-IOOS, NOAA US-NODC, NOAA NGDC
  - UNIDATA
- **Australia**
  - Australian National Data Service (ANDS)
  - Geoscience Australia (GA)
  - CSIRO

ODIP: Objectives

- To establish an EU/USA/Australia/IOC-IODE co-ordination platform to facilitate the interoperability of ocean and marine data management infrastructures

- To demonstrate this co-ordination through the development of several joint EU-USA-Australia-IOC/IODE prototypes that would ensure persistent availability and effective sharing of data across scientific domains, organisations and national boundaries

- Development of a common approach to marine data management that can be extended to other regions and organisations beyond the original project consortium

Overall strategy

Development of a collaboration platform to facilitate organised dialogue between key organisations in Europe, USA and Australia involved with marine data management.

Achieved by:

- Creating inventories of existing standards and policies
- Publication of these existing standards and best practice through ODIP portal and Research Data Alliance
- Regular joint workshops to develop interoperability solutions and/or common standards
- Development of prototypes for testing and evaluating potential interoperability solutions
- Dissemination /promotion of ODIP activities to encourage wider participation and adoption of the outcomes of the project

1st workshop: Ostend, Belgium

Discussion topics

- Common vocabularies
- Marine metadata formats for discovery
- Metadata and data exchange mechanisms
- Data formats
- Observations & Measurements/SensorML
- Added value viewing services

Prototype interoperability solution projects: ODIP 1

- Establishing interoperability between the SeaDataNet, IMOS and NODC data discovery and access services using brokering services
- Lead by European partners via SeaDataNet
  - Initially at the metadata level
  - Progress to data access services (possibly including authentication and authorisation systems)

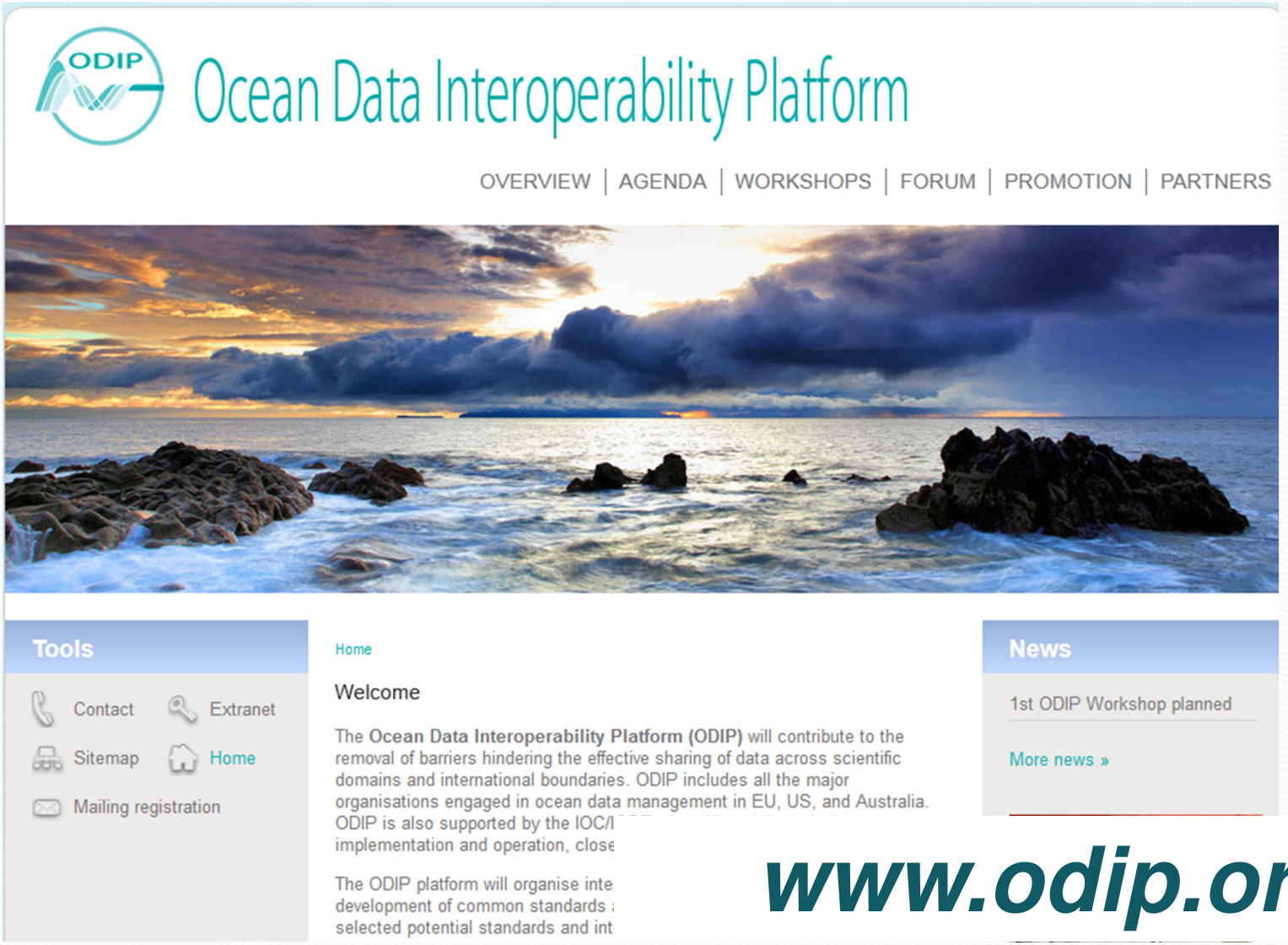
Prototype interoperability solution projects: ODIP 2

- Establishing interoperability between cruise summary reporting systems in Europe, the USA and Australia using GeoNetWorks
- Lead by Rolling Deck to Repository (R2R) partners (USA)
  - Improvement of delivery and exchange of cruise summary information through the use of common formats and vocabularies
  - Use of GeoNetWorks for routine harvesting of cruise data for delivery via the Partnership for Observation of Global Oceans (POGO) portal

Prototype interoperability solution projects: ODIP 3

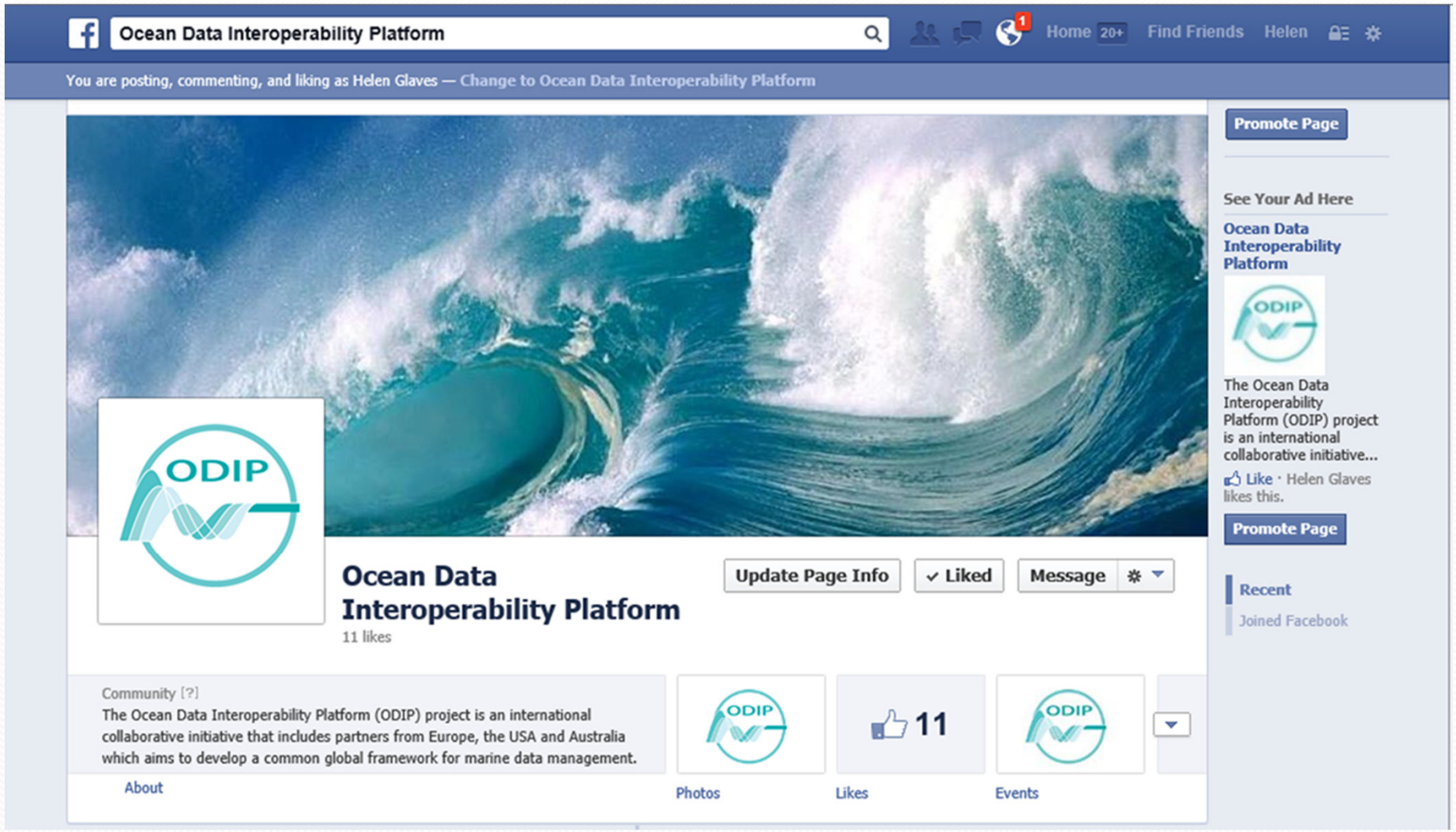
- Establishment of a prototype for a Sensor Observation Service (SOS) for selected sensors installed on vessels and in real-time monitoring systems using sensor web enablement (SWE)
- Lead by AODN (Australia)
  - regional initiatives progress towards the adoption of SWE allowing direct standardised access to the data from operational sensor systems e.g. real-time ocean monitoring networks or underway data from research vessels

Dissemination of ODIP outcomes



www.odip.org

ODIP on social media



Research Data Alliance (RDA)

- Funded by EU, NSF (USA) and Australian government
- RDA aims to facilitate and promote the sharing and exchange of research data.
- Activities undertaken through working and interest groups e.g metadata, brokering, data citation and.....

RDA Marine Data Harmonisation Interest Group

- Mechanism for improved communication and co-ordination between existing on-going regional and global interoperability projects
- Promote the activities of the RDA to the marine data management community and encourage membership of the IG/WGs to ensure relevant experts from marine domain contribute to RDA activities.
- Support, promote and facilitate the harmonization of ongoing work of current marine data interoperability efforts (ODIP, IODE etc)

Thank you!