Challenges of training and capacity development in data and marine information management in the 21st century

Claudia Delgado & Peter Pissierssens

(Marine) Data and Information Management: a crosscutting issue
## MARINE DATA & INFORMATION

### DATA:
- acquisition
- processing
- quality control
- standardizing
- Inventorying
- archival
- exchange
- documentation
- dissemination

### ... marine data:
- data volume
- Remote sensing
- Diversity of data (P, O, B, G, M)
- ...diversity of problems/challenges
- Integration, analysis and data product generation
  - Real time/delayed mode
  - Spatial & time scales/series
- Monitoring
- Marine information
- Metadata
- Standards
- Technological developments
- Social changes/needs
- Biodiversity & environment
- Data policy/accessibility
The ‘Digital Divide’

http://wireless.ictp.trieste.it/simulator

IODE and Capacity Development

• cornerstone of the IODE since the programme’s start in 1961

• The objective is to assist Member States to acquire the necessary capacity to manage marine data and information and become partners in the IODE network

• Capacity development activities teach the principles of data and information management and also promote the use of "standards" amongst all IODE centres and thus achieve interoperability amongst centres.

GAP!!!

• No formal academic degrees or even curricula in oceanographic data management and library management

• Data managers start as either (ocean) researchers or IT specialists

• Data and information managers still need to acquire the knowledge, expertise and experience on the job

1997: IODE Resource Kit (CD Rom based: marine and data management material, software, training manuals, etc.)

2001: OceanTeacher - Comprehensive self-training and resource tool - web-based - for newly established NODCs, and to assist managers and staff members to acquire the skills to set up new IODE centres
**IODE's Capacity Building tool: OceanTeacher**

- A training resource/tool to support IODE capacity development activities
- Provides training tools for Oceanographic Data and Information management
- Comprehensive resource tool for newly established NODCs
- Underspins the education and training requirements of the ODINs
- Audience:
  - Data and information managers
  - NODC staff (newly established and established centres)
  - Marine library staff (newly established and established libraries)
  - University students and researchers who need training in data and information management
  - Staff of facilities working in related disciplines who need familiarization with oceanographic data management techniques

---

**OceanTeacher**

- Web-based training system that supports Classroom training (face-to-face), Blended training, online tutoring and online self-learning.
- Contents freely and openly available (Creative Commons Attribution-NonCommercial-NoDerivs 3.0 Unported License)
IODE Project Office

- IODE Secretariat
- International Training Centre
- International Conference Centre
- Host for IOC/IODE data and information services (Data/information hub)
- Expert Centre

- ~15 events/year
- Support from Flanders Government (FUST)
- Close cooperation with Flanders Marine Institute (VLIZ)

OceanTeacher
A Training Resource for Data & Information Management Related to Oceanography & Marine Meteorology

- 2005-12: 1238 students from ~120 countries
- 6-8 courses/year

- Training Courses:
  - >50 000 USD/course
  - ~3000 USD/student
  - ~15 sponsored students/course
  - Co-sponsoring

IODE trainees

- 2005: 105
- 2006: 135
- 2007: 138
- 2008: 250
- 2009: 180
- 2010: 155
- 2011: 203
- 2012: 177

- 2011
- 2012

- Fully sponsored
- Co-sponsored
- Paid course fee
OTA 2013:

- 8 - 12 April: Development and Management of e-Repositories
- 13 - 17 May: Digital Asset Management
- September: Operational Oceanography: Synoptic Views of the Sea
- September/November: Marine Information Management (subject TBD)
- November: Environmental Imagery and Satellite Data Management
- September/November: Interdisciplinary course (subject TBD)

Other OTA courses

- 28 January – 1 February: University Curriculum Ocean Data Management (BBS, Bermuda)
- 25 February - 1 March: EMBC: Introduction to Ocean Data Management (UAlgarve, Portugal) [University Accredited course]
- 29 April - 3 May: EMBC: Introduction to Ocean Data Management (UGent, Belgium) [University Accredited course]
- TBD: Harmful Algal Bloom (HAB) course

Is networking the strategy?

IODE Capacity Development Strategy: Ocean Data and Information Network (ODIN’s)

ODIN regional networks:
- ODINAfrica: African region
- ODINCAR: Latin America and Caribbean
- ODINICIND: Central Indian Ocean
- ODINWESTPAC: Western Pacific region
- ODINBlackSea: Black Sea region
- ODINECET: European Countries in Economic Transition
- ODIN-PMSE: Small Island Pacific States

Cooperation with other Agencies/projects:
- POGO
- SCOR
- EUMETSAT
- JCOMM
- WMO
- NOAA
- IOI (International Ocean Institute)
- SeaDataNet
- CPSP-SPINCAM
- UGent/UNHasselt
- Rutgers University

ODIN regional networks:
- ODINAfrica: African region
- ODINCAR: Latin America and Caribbean
- ODINICIND: Central Indian Ocean
- ODINWESTPAC: Western Pacific region
- ODINBlackSea: Black Sea region
- ODINECET: European Countries in Economic Transition
- ODIN-PMSE: Small Island Pacific States
Transforming the Classroom Experience: OTA Global Classroom

• Expand the learning experience from our current 20 students/course to hundreds

• Combine focus on local/national priorities with a global view

• True flexibility: make the best lecturers available anywhere in the world without the need for expensive, tiring and time-consuming travel

• Link classrooms in geographically dispersed locations: network of training centres... network of Centres of Excellence?