



**EAS
CONGRESS
2018**

THE EAST ASIAN SEAS CONGRESS

25 Years of Partnerships for
Healthy Oceans, People and Economies
Moving as One with the Global Ocean Agenda

27-30 November 2018 • Iloilo Convention Center, Philippines



TRACK 5: RESEARCH AND TOOLS

SESSION 5.2

Satellite Observation Data-based
Systems for Improved Coastal and
Marine Management: Moving from
Research to Services

CONVENERS:

COLLABORATOR:

PML | Plymouth Marine
Laboratory



Plymouth Marine Laboratory

Oil Spill Response Limited

First Institute of
Oceanography of China



The East Asian Seas Congress 2018

25 Years of Partnerships for Healthy Oceans, People and Economies: Moving as One with the Global Ocean Agenda

Iloilo City, Philippines, 27-30 November 2018

Partnership Hub Track 5: Research and Tools

Session 5.2: Satellite Observation Data-based systems for improved coastal and marine management: moving from research to services

27 November 2018; 13:30-15:30

Session Room 8, Iloilo Convention Center, Iloilo City Philippines

Co-conveners: Plymouth Marine Laboratory, UK (Lead Organizer)
Oil Spill Response Limited (OSRL), Singapore (Co-organizer)

Collaborating organization: First Institute of Oceanography, State Oceanic Administration, PR China

Session Chair: Dr Jae Ryoung OH, PEMSEA Executive Committee and Research Counselor, South Sea Research Institute, Korea Institute of Ocean Science and Technology (KIOST), RO Korea

1. INTRODUCTION

1.1 Earth observations from space can provide unique and cost-effective information to greatly aid sustainable marine management in the East Asian Seas region. This is demonstrated through developments of scientific integration into services allowing actionable intelligence to end-users, such as those in fisheries and aquaculture, marine planning, water quality monitoring, maritime security, oil spill preparedness and response, and environmental protection.

1.2 The sessions specifically aimed to:

- Identify opportunities for the application or further integration of Earth Observation (EO) data, including training for the use of Earth Observation data to support future SDS-SEA (Sustainable Development Strategy for the Seas of East Asia) actions.

2. SESSION HIGHLIGHTS AND DISCUSSIONS

2.1 This session, introduced and chaired by Dr. Jae Ryoung OH (PEMSEA Executive Committee and Research Counselor, South Sea Research Institute, KIOST), focused on sharing experiences on the ground, developments in technical solutions, “Services of tomorrow” and the current and required infrastructure for effective data delivery to end-users. Industry and regulatory requirements were discussed while considering regional challenges with recommendations given for further regional development.

2.2 The speakers highlighted challenges and applications at varying scales, i.e., local, national, sub-regional and regional, and provided examples of satellite applications and developments in marine and coastal environments. Geospatial applications and Earth observation data derived opportunities showed that combining key data sets can significantly enhance the

intelligence quality, for instance, for marine pollution. It was shown how satellite and aircraft imagery is of benefit in preparing for and responding to oil spills and the latest developments with regards to food security, in particular sustainable aquaculture.

- 2.3 Dr. Tingwei Cui (Researcher, First Institute of Oceanography, SOA/MNR, PR China) shared experiences from Dongying, China of using high spatial resolution data from Chinese satellites. Dr. Cui defined five steps for delivering a monitoring service (identifying user requirements, technological awareness, iterative product development, testing and review) and discussed satellite monitoring of coastline variability, coastal wetland changes, invasive species dynamics, vegetation health state and storm surge damage assessment.
- 2.4 Mr. Rapin Chhoun (Vice Chief of Cadastral Technique and Geography, Department of Land Management, Urban Planning, Construction and Cadastre, Preah Sihanouk Province, Cambodia) provided a local government perspective on the use of Earth observation data for land administration and zoning, water pollution, and storm impact mapping, with a forward-looking view toward satellite use for oil spill monitoring, water quality management, and construction planning in Preah Sihanouk.
- 2.5 Dr. Ben Loveday (Marine Earth Observation Scientist, Plymouth Marine Laboratory and Centre for Geospatial Applications, United Kingdom) highlighted the different regional approaches that need to be taken to develop optimal satellite products, the importance of data visualisation and training using open source approaches. Dr. Loveday shared examples of regional work including harmful algal blooms, illegal fishing, oil spill detection, and use of marine fronts for biodiversity.
- 2.6 Ms. Hon Phui Hang (Spill Response Specialist, Oil Spill Response Limited, Singapore) focused on the use of satellite data as a component of oil spill response citing its wide coverage, ability to complement other surveys, and validate models. She mentioned how satellite data plays a role in mapping assets, protecting clean-up teams and determining the end point of operations, and how there are industry moves to its use in contingency planning and best practice.
- 2.7 Ms. Kristina Cordero (Marine Science Institute, University of the Philippines) shared local experiences of using Earth observation data combined with hydrological modelling to implement management changes in the distribution of aquaculture facilities to reduce fish losses. An example of an end-to-end process involved developing detection methods, modelling different interventions, and using novel communication methods to involve stakeholders in decision making.

3. CONCLUSIONS AND RECOMMENDATIONS

- 3.1 Concluding discussions considered approaches to capacity building to broaden these applications and the importance of involving younger implementation staff in new techniques around data access and analysis. Open source data was discussed and it was made clear that the field advances rapidly and data is becoming ever more available, though this has its own challenges.
- 3.2 The partnership hub provided the key recommendation that government agencies should have an obligation to consider Earth Observation use in regional environmental management plans. They could (with support from experts) scope how local community/stakeholders

across diverse applications can be engaged to drive appropriate product/service development through requirement and action definition, and to collect valuable data for validation.

- 3.3 Further recommendations focused on the need for training on available data and applications as well as considering the benefit of combining data sets.

For any questions about this session please contact the Session Co-ordinator Thecla Keizer at Plymouth Marine Laboratory, tke@pml.ac.uk.