Tethys Blast

February 6, 2015

Welcome to the first February edition of the bi-weekly Tethys Blast!

Tethys Blasts will keep you updated with new information available on Tethys, new features on Tethys, and current news articles of international interest on offshore renewable energy. We hope that this becomes a valuable tool to help you stay connected to your colleagues and to introduce you to new research, new contacts, and ongoing milestones in renewable ocean energy development.

New Articles on Tethys

A total of 22 new documents have been added to Tethys in the last two weeks. These documents have been hand-selected for their relevance to the environmental effects of offshore renewable energy. The listings below are short introductions to several popular documents that can be accessed through the accompanying Tethys links:

Evaluating Sediment Stability at Offshore Marine Hydrokinetic Energy Facilities – Jones et al 2015

> Installation of any offshore MHK infrastructure at the seabed may affect coastal sediment dynamics. It is therefore necessary to evaluate the interrelationships between hydrodynamics and seabed dynamics and the effects of MHK foundations and cables on sediment transport. The ultimate goal of these evaluation methods is to quantitatively evaluate changes to the baseline seabed stability due to the installation of MHK farms in the water.

Performance and Integrity of Protective Coating Systems for Offshore Wind Power Structures after Three Years Under Offshore Site Conditions – Momber et al 2015

> Six corrosion protection systems for offshore wind power constructions have been subjected to offshore conditions on a test site in the North Sea in three different exposure zones, namely splash zone, intermediate zone, and underwater zone. The systems included single- and multiple-layered organic coatings, metal-spray coatings, and duplex coatings. Special testing specimens were designed and manufactured and exposed to an offshore environment for three years in order to characterize particular constructive details for different corrosivity zones.

Statistical Modelling of Seabird and Cetacean Data: Guidance Document – Mackenzie et al 2014

> This document contains a discussion about the issues involved with the data collection process and in particular, the differences in survey methods across platforms (e.g. boat, plane, vantage point). Related platform-based issues about the observation process (and associated imperfect detection) for the data collection, and the associated need to correct observed counts prior to input for analysis are also outlined. A description of the methods comparison process and the associated results then follow, along with recommendations based on the results contained therein.

Modelling Foraging Movements of Diving Predators: A Theoretical Study Exploring the Effect of Heterogeneous Landscapes on Foraging Efficiency – Chimienti et al 2014

> Foraging in the marine environment presents particular challenges for air-breathing predators. Information about prey capture rates, the strategies that diving predators use to maximise prey encounter rates and foraging success are still largely unknown and difficult to observe. As well, with the growing awareness of potential climate change impacts and the increasing interest in the development of renewable sources it is unknown how the foraging activity of diving predators such as seabirds will respond to both the presence of underwater structures and the potential corresponding changes in prey distributions.

Mitigating Wind-Turbine Induced Avian Mortality: Sensory, Aerodynamic and Cognitive Constraints and Options – May et al 2015

> Because of the fast rate of wind-energy development it will become a challenge to verify impacts on birdlife and construe ways to minimise these. Birds colliding with wind turbines are generally perceived as one of the major conflict issues for wind-energy development. Development of effective and practical measures to reduce bird mortality related to offshore and onshore wind energy is therefore paramount to avoid any delay in consenting processes.

Current News

Current news articles of international interest on offshore renewable energy include:

Hitachi to supply 5MW turbines for 220MW offshore wind farm in Japan

> Hitachi appears set to supply its 5MW downwind turbines for a 220MW offshore wind farm that will be built off the coast of northwestern Japan. The Tokyo-based manufacturer will provide 44 of its 5MW turbines for the project, according to a statement by industrial engineering giant Hitachi Zosen. The project will be built by a consortium of 10 companies, led by Osaka-based Hitachi Zosen.

Supacat delivers refurbished wave energy convertor

> In the UK the refurbished Bolt 'Lifesaver' wave energy converter has been delivered to owner Fred.Olsen Ltd by Supacat following a three month project refurbishing the converter's `intelligent systems` at the Devon engineering firm's facilities in Dunkeswell and Blackhill Engineering. After over two years of full scale sea testing at FabTest UK, the device has undergone an upgrade and refurbishment programme in preparation for further trials in Hawaii where the device will undergo further trials with the US Navy.

Dong Energy takes control of Hornsea Project One offshore wind farm in UK

> Denmark-based Dong Energy has acquired the full ownership of the 1.2GW Hornsea Project One offshore wind farm development in the UK. The company purchased the remaining 66.66% ownership stake in the project from its joint venture partner Smart Wind.

New tool monitors effects of tidal, wave energy on marine habitat

> Researchers building a new underwater robot they've dubbed the "Millennium Falcon" certainly have reason to believe it will live up to its name. The robot will deploy instruments to gather information in unprecedented detail about how marine life interacts with underwater equipment used to harvest wave and tidal energy. Researchers still don't fully understand how animals and fish will be affected by ocean energy equipment, and this instrument seeks to identify risks that could come into play in a long-term marine renewable energy project.