Tethys Blast

September 4, 2015

Welcome to the latest bi-weekly Tethys Blast, which will update you with new information available on Tethys, new features of 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.

PhD Position at the Department of Engineering Sciences

The Swedish Department of Engineering Sciences, Division of Electricity is hiring a PhD position in marine ecology and renewable energy, to research environmental impacts from wave power. The start date would be October 2015, or as per agreement. Applications are due no later than September 21, 2015. Contact jan.sudberg@angstrom.uu.se with questions, and apply here: http://www2.personalavd.uu.se/jobb/appform.php?lang=en&case=UFV-PA%202015/2218.

New Documents on Tethys

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:

Confusion Reigns? A Review of Marine Megafauna Interactions with Tidal-Stream Environments - Benjamins et al. 2015

> Energetic tidal-stream environments are characterised by frequent, variable yet broadly predictable currents containing ephemeral flow structures that change across multiple spatiotemporal scales. Marine mammals and seabirds (marine megafauna) often frequent

such sites but increasingly these locations are targeted for renewable energy extraction; little is known however about how marine megafauna use these habitats and any potential impacts. This review aims to summarise existing knowledge concerning usage by marine megafauna and considers their wider ecological significance.

An Analytical Model for the Underwater Sound Pressure Waveforms Radiated when an Offshore Pile is Driven - Hall 2015

An analytical model has been developed for the pile vibration and consequent sound pressure and particle velocity radiated underwater when an offshore cylindrical pile is struck by a drop hammer. The model, which is based on the coupled equations of motion for axial and radial vibration of a thin cylindrical shell, yields frequency-dependent phase velocity and attenuation of these vibrations.

Challenges in Implementing Sustainable Marine Spatial Planning: The New Portuguese Legal Framework Case - Santos et al. 2015

Being a large maritime nation, the need to develop sustainable ocean planning and management processes in Portugal has been gaining increased importance in the last decade. After promulgating its first national framework law on maritime spatial planning (MSP), Portugal has recently approved a new MSP Diploma that aims at "developing" (i.e. implementing in detail) the framework law.

Improving Assessments of Tidal Power Potential using Grid Refinement in the Coupled Ocean-Atmosphere-Wave-Sediment Transport Model - Yang and Haas 2015

Tidal currents are a promising source for future power generation given their periodicity and predictability. Therefore, numerical hydrodynamic models are frequently utilized for resource assessments. However, the relevant scales of the simulations and hence modeling techniques depend on the problem at hand. This paper shows the potential of the grid refinement technique for the assessment of tidal current energy for particular sites given its relatively low computational expense and high accuracy for the regions with the refined resolution.

Three Dimensional Tracking of a Wide-Ranging Marine Predator: Flight Heights and Vulnerability to Offshore Wind Farms - Cleasby et al. 2015

A large increase in offshore wind turbine capacity is anticipated in the next decade, raising concerns about possible adverse impacts on birds as a result of collision risk. Birds' flight heights greatly influence this risk yet height estimates are currently available only using methods such as radar or ship-based observations over limited areas.

Current News

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

Polyethylene Wave Energy Device Launched

> Wave energy developer Polygen deployed a full-scale device three miles off the Cornwall coast in the U.K. last week. Volta is a 46-metre long, sub-100kW oscillating surge converter made using high density polyethylene (HDPE). Polygen's newly patented device has been designed to optimize the flexibility and resilience of the material to help reduce concentrated stresses and hence produce an extremely cost effective converter.

German Offshore Wind Farm of 400 MW Officially Goes Live

> Global Tech I Offshore Wind GmbH on Wednesday officially inaugurated its 400-MW wind park in the North Sea, a whole year after the final turbine was installed. The project company said in a statement that Global Tech I was realised within its anticipated cost even though its grid connection was delayed several times.

France Inaugurates Le Croisic MHK Test Site

> On Aug. 25, France officially inaugurated the Site d' Experimentation en Mer (SEM-REV) at Le Croisic, Brittany, France on the country's west coast. The site will test marine hydrokinetic (MHK) energy systems and floating wind turbines in open sea conditions. Beginning this September, three different MHK energy technologies are scheduled for testing at the site, located 12 nautical miles off Le Croisic.

Kentish Flats Extension Offshore Wind Farm Whirrs into Action

> The first power has been generated at the 49.5MW Kentish Flats Extension (KFE) site, Swedish energy provider Vattenfall announced yesterday. The company confirmed the extension to its wind farm began generating clean electricity at around 2pm on Saturday, following the installation of the first new turbine at the site at the end of June.