TETHYS BLAST

February 17, 2017

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 wind and marine 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 wind and marine renewable energy development.

Upcoming Conferences

RenewableUK Wave and Tidal Conference 2017 will be held in London, UK on February 23. More information is available here.

The 3rd Marine Energy Week will be held in Bilbao, Spain on March 27-31. More information is available here.

European Geosciences Union (AGU) General Assembly 2017 will be held in Vienna, Austria on April 23-28. More information is available here.

Waterpower Week in Washington 2017 will be held in Washington DC, USA on May 1-3. Here, you can participate in the Marine Energy Technology Symposium (METS) and International Marine Renewable Energy Conference (IMREC). More information is available here.

WEC-Sim (Wave Energy Converter Simulator) Survey

The Sandia National Laboratories and National Renewable Energy Laboratory WEC-Sim team is requesting feedback about the WEC-Sim code from its user-community through the WEC-Sim online survey. Findings from this survey will be used to guide the future direction of the WEC-Sim project. Take the survey here.

New Documents on Tethys

New documents are regularly added to Tethys, hand-selected for their relevance to the environmental effects of wind and marine renewable energy. Short introductions to new or popular documents are listed below, accessible by the accompanying Tethys links:

Wind Energy and Wildlife Interactions - Köppel 2017

> This book presents a selection of new insights in understanding and mitigating impacts on wildlife and their habitats. Topics such as, species behaviour and responses; collision risk and fatality estimation; landscape features and gradients, are considered. Other chapters in the book cover the results of current research on mitigation; compensation; effectiveness of measures; monitoring and long-term effects; planning and siting. Examples are given of current research on shutdown on demand and curtailment algorithms. By identifying what we have learned so far, and which predominate uncertainties and gaps remain for future research, this book contributes to the most up to date knowledge on research and management options.

Multisensor Acoustic Tracking of Fish and Seabird Behavior Around Tidal Turbine Structures in Scotland - Williamson et al. 2017

> Despite rapid development of marine renewable energy, relatively little is known of the immediate and future impacts on the surrounding ecosystems. Quantifying the behavior and distribution of animals around marine renewable energy devices is crucial for understanding, predicting, and potentially mitigating any threats posed by these installations. The Flow and Benthic Ecology 4D (FLOWBEC) autonomous seabed platform integrated an Imagenex multibeam echosounder and a Simrad EK60 multifrequency echosounder to monitor marine life in a 120° sector over ranges up to 50 m, seven to eight times per second.

Benthic and Fish Aggregation Inside an Offshore Wind Farm: Which Effects on the Trophic Web Functioning? - Raoux et al. 2017

> As part of the energy transition, the French government is planning the construction of three offshore wind farms in Normandy (Bay of Seine and eastern part of the English Channel, north-western France) in the next years. These offshore wind farms will be integrated into an ecosystem already facing multiple anthropogenic disturbances such as maritime transport, fisheries, oyster and mussel farming, and sediment dredging. Currently no integrated, ecosystem-based study on the effects of the construction and exploitation of offshore wind farms exists, where biological approaches generally focused on the conservation of some valuable species or groups of species.

Experimental Measurement of Wave Field Variations around Wave Energy Converter Arrays - O'Boyle et al. 2017

> Wave energy converters (WECs) inherently extract energy from incident waves. For wave energy to become a significant power provider in the future, large farms of WECs will be required. This scale of energy extraction will increase the potential for changes in the local wave field and coastal environment. Assessment of these effects is necessary to inform decisions on the layout of wave farms for optimum power output and minimum environmental impact, as well as on potential site selection.

Recent Developments in Ocean Energy and Offshore Wind: Financial Challenges and Environmental Misconceptions - Esteban et al. 2016

> The first generation of (pre-commercial) ocean energy devices emerged in 2008, but comparatively little practical commercial development has taken place in wave and tidal power since then. Currently offshore wind power is in a sense the only true commercial deployment of an ocean energy technology seeing wide-scale adoption. This paper presents a review of recent developments in ocean energy and discusses the financial challenges and environmental misconceptions regarding such technologies.

ORJIP Ocean Energy (http://www.orjip.org.uk/) is a UK-wide collaborative programme of environmental research with the aim of reducing consenting risks for wave, tidal stream and tidal range projects. Partnering with Annex IV, ORJIP provides content input to Tethys Blasts. ORJIP also wishes to make you aware of the following opportunities:

- The FORESEA (Funding Ocean Renewable Energy through Strategic European Action) Programme's second Call for support package applications is open until 28 February 2017.
- The European Commission has launched a €4 million call for proposals to address short and medium term skills needs by boosting cooperation in the maritime technologies sector, including tidal and wave. Open until 16 February 2017.
- OceaNET is organizing its final Workshop under the theme "Offshore Renewable Energy farm design and O&M" in Bilbao on 27 March 2017 as a side event of the Bilbao Marine Energy Week.

News and Current Events

Marine Renewable Energy

New Monitoring Platform Launched in Minas Passage, Enhances Fish Research

> A new underwater monitoring platform has been deployed in the world's highest tides, designed to capture environmental data from the Bay of Fundy. "FAST-3," the third sensor platform built and deployed by the Fundy Ocean Research Center for Energy (FORCE), was successfully lowered to the sea floor in the Minas Passage on Friday, February 2.

French tidal site trials ahoy: Final Seeneoh tests in Bordeaux to start next week

> Final trials will kick off next week at French river tidal test site Seeneoh in Bordeaux ahead of commissioning this summer. The site's plug-and-play platform featuring three berths with an overall capacity of 250kW will be tested for a month. Waters are up to eight metres deep. The €3m project has been developed by Cerenis, Energie de la Lune, SEML Route des Lasers and Valorem.

GWave launches Wave Hub Project

> American wave energy developer, GWave has today announced its plans for a 9MW wave energy project to be deployed at Wave Hub, Cornwall. GWave, based in Portland, Maine, USA has spent the past decade developing its Power Generation Vessel (PGV) technology, an innovative wave energy device of a scale that is unprecedented, and is preparing to bring the first full-scale vessel across the Atlantic for installation at the Wave Hub site in Cornwall.

Minesto announces plan to expand Holyhead Deep tidal energy array to 80 MW

> Swedish tidal energy developer Minesto has announced its intent to scale the Holyhead Deep tidal array from a planned 10 MW of installed capacity to 80 MW. Minesto already holds a lease agreement for the 10 MW installation, but recently submitted a scoping report to Natural Resources Wales detailing the proposed expansion after completing a study exploring its feasibility.

Atlantis Energy joins forces with Natural Energy Wyre to develop the 160 MW Wyre Tidal Energy Project

> Atlantis Resources, a global leader in the development of marine renewables, is pleased to announce an agreement to partner with Natural Energy Wire ("NEW") to develop the Wyre tidal project planned to be built between Fleetwood and Knott's End on the Lancashire coast in England.

Wind Energy

Vattenfall proposes extension to UK Thanet offshore wind farm

The Crown Estate has received a request from Vattenfall to explore the award of rights for an extension to its 300MW Thanet Offshore Wind Farm. Previous examples at Kentish Flats, Greater Gabbard, Walney and Burbo Bank, all either under construction or operation, have proven the model of extensions to be successful.

First offshore wind farm in US repaired, fully operational

The first offshore wind farm installed in the United States is now operating at full capacity off the coast of Rhode Island following repairs to a damaged turbine. The Providence Journal reports the 30-megawatt wind farm went into commercial operation in December with only four of its five turbines on line after being installed in waters off Block Island last fall. Jeffrey Grybowski, CEO of project developer Deepwater Wind, says testing has confirmed that the repair work was successful and Turbine 2 is now running normally.

First North Carolina, US wind farm to have economic benefits despite concerns from legislators

Amazon Wind Farm became the first fully operational, utility-scale wind farm in North Carolina last week — after it was declared commercially operational earlier this month. The wind farm of 104 wind turbines, located near Elizabeth City, was built by Avangrid Renewables. It produces enough energy to power more than 61,000 homes, according to Avangrid's website. Avangrid Communications Manager Paul Copleman said the property taxes will total $520,000 annually, making it the largest taxpayer in both Pasquotank and Perquimans counties.

British grid drawing power from new offshore wind farm

While only a fraction of the total capacity is realized, Norwegian energy company Statoil said the British grid is getting power from its latest wind farm. Statoil announced its first wind turbine from the Dudgeon facility off the British coast is now providing electricity to the nation's grid. Up to 6,000 homes are now getting power from offshore wind. Once in full operation later this year, the entire Dudgeon wind farm will have the capacity to provide power for more than 400,000 average households.

Ontario offshore wind turbine moratorium set to continue for several more years despite contradictory science

Six years after Ontario abruptly imposed a moratorium on offshore wind projects, citing the need for more research, the government is signalling it will likely continue for several more years, even with all of its studies in hand. The moratorium has so far put the Liberal government on the hook for at least $28 million, and it still faces a trial next year on another $500-million lawsuit over the February 2011 decision.