TETHYS BLAST

April 6, 2018

The bi-weekly Tethys Blast will update you with new information on Tethys, news article of international interest, and opportunities in wind and marine renewable energy. We hope you find this a valuable tool to keep you connected to colleagues, new research, opportunities, and industry milestones.

Annual Tethys Peer Review

Each year we send out a quick 5-minute survey requesting feedback on the Tethys website. Please consider filling out the survey to provide our team with valuable feedback that makes Tethys a better resource to you and the wind and marine renewable energy communities.

New Tethys Story

Changing the Game: New Renewable Energy Support Website Launched by Jim Stritholt

In order to effectively combat climate change, rapid transition to renewable energy is essential and new economic opportunities are rapidly emerging. The recent progress towards renewable energy is encouraging, but care must be taken to avoid unintended negative consequences on wildlife and existing human uses whether these new developments are on land or at sea. Successful development requires up-front community engagement and careful planning backed by the best scientific and social data, and the means to advance participation by all stakeholders (read more).

ICES MRE Workshop

The ICES Working Group on Marine Renewable Energy is holding a workshop in Runde, Norway from April 16-18. The workshop will address approaches to assessing environmental impacts from marine renewable energy development and their application in planning, consenting and regulatory processes. The technologies addressed include tidal (in-stream and lagoon/barrage), wave, and offshore wind. Those interested in attending should contact the Chairperson by email: finlay.bennet@gov.scot

The International Council for the Exploration of the Sea (ICES) coordinates and promotes marine research on oceanography, the marine environment and ecosystems, and living marine resources in the North Atlantic Ocean and adjacent seas.

EIMR Workshop by ORJIP and Annex IV

A workshop will be held from 10am-3pm on 23 April 2018 around the Environmental Interactions of Marine Renewables (EIMR) conference. It will examine the use of data collected to satisfy consenting and licensing requirements for wave and tidal developments through a case study process. Registration details are available 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 Turbine Sensor Array for Monitoring Avian and Bat Collisions – Hu et al. 2018

> Assessment of avian and bat collisions with wind turbines is necessary to ensure that the benefits of renewable wind power generation are not outweighed by mortality of protected species. An onboard, integrated multisensor system capable of providing detection of turbine collision events, including taxonomic information, was developed. The conceptual design of a multisensor system including a vibration sensing node, an optics node, and a bioacoustic node with an event-driven trigger architecture was field-tested on utility-scale wind turbines.

Modelling the Hydrodynamic and Morphological Impacts of a Tidal Stream Development in Ramsey Sound – Haverson et al. 2018

> A number of sites around the UK are being considered for development of tidal stream energy, one of which is Ramsey Sound off the coast of Pembrokeshire, South Wales. The Sound was used to test the prototype of the Delta Stream by Tidal Energy Ltd. After initial testing, a 10 MW tidal array was proposed at St David's Head. To investigate any possible environmental impacts of the array due to energy extraction, a case study of the Pembrokeshire coast was performed using a high-resolution depth averaged hydrodynamic model, Telemac2D, to investigate changes to hydrodynamics and morphodynamics.

The Life-Cycle Energy and Environmental Emissions of a Typical Offshore Wind Farm in China – Yang et al. 2018

> China's vast untapped offshore wind energy and the concentration of electricity consumers in coastal regions make offshore wind power a promising solution to the

country's cleaner power transition. However, the potential energy and environmental emissions of offshore wind farms have not been thoroughly investigated. Thus, this study employed a process-based life cycle inventory (LCI) model to calculate the life-cycle energy and emissions of offshore wind power in China based on the country's first offshore wind energy project.

Assessment of Chemicals Released in the Marine Environment by Dielectric Elastomers Useful as Active Elements in Wave Energy Harvesters – Zaltariov et al. 2018

A series of elastomers, either natural or synthetic (some of them commercial, while others prepared in the laboratory), suitable for use as active elements in devices for wave energy harvesting, were evaluated concerning their behavior and effects on the marine environment. In this aim, the elastomer films, initially evaluated regarding their aspect, structure, surface wettability, and tolerance of microorganisms growth, were immersed in synthetic seawater (SSW) within six months for assessing compounds released.

Testing the Performances of Automated Identification of Bat Echolocation Calls: A Request for Prudence – Rydell et al. 2017

Echolocating bats are surveyed and studied acoustically with bat detectors routinely and worldwide, yet identification of species from calls often remains ambiguous or impossible due to intraspecific call variation and/or interspecific overlap in call design. To overcome such difficulties and to reduce workload, automated classifiers of echolocation calls have become popular, but their performance has not been tested sufficiently in the field.

Ocean Energy
ORJIP
working to accelerate offshore consenting

ORJIP Ocean Energy 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 wishes to make you aware of the following opportunities:

- The EUDP (Energy Technology Development and Demonstration Program) supports development and demonstration of energy technologies. Research can be supported if it is part of development and demonstration projects.
- Innovate UK is providing £15 million to invest in great ideas for new innovations in a range of technology and business areas. The deadline for application is May 9.
- The FORESEA (Funding Ocean Energy through Strategic European Action) programme has launched its 4th call for proposals, due June 29.

News and Current Events

Marine Renewable Energy

Project launch: Making wave energy work for Cape Verde – SINN Power

> With the signed agreement between SINN Power and Fazenda de Camarão, SINN Power is all set to begin the company's first commercial wave energy project on Cape Verde. For hundreds of years, huge waves have crashed onto the long, rocky shores of São Vicente. Still, up to now, electricity for the African island is generated by polluting diesel generators instead of using the immense energy contained in the ocean's waves.

DP Energy and Floating Power Plant push forward with plans for Katanes wind-wave project in Scotland – Floating Power Plant

> DP Energy is a leading global developer in renewable energy projects which are both sustainable and environmentally benign. In a comment on the joint decision with Floating Power Plant, Simon De Pietro, CEO DP Energy said: "We have undertaken a detailed analysis of the Katanes project located off Caithness and Sutherland in the north of Scotland and, having completed EIA screening, have decided to proceed to the next stage of this development."

Wave Energy Scotland Funds New Controls Projects – Wave Energy Scotland

> Three of the most promising Control Systems concepts from the WES technology programme will be awarded a total of £632,500k to further develop their ideas. The best projects were selected from the original series of thirteen which were recently completed. SgurrControl, MaxSim, and Queen Mary University, London…

The Penguin hits one year continuous deployment milestone - Wello

> The Wello Penguin wave energy converter has hit another milestone and is celebrating its one-year anniversary of continues deployment in Orkney, Scotland. The Penguin has been making records for wave energy converters since the summer, being one of the few wave energy converters which have been continuously deployed while producing energy throughout its deployment.

Drakoo Modular WEC Peak Power Breakthrough – Hann Ocean

> On March 14 2018, Hann-Ocean's 'Drakoo' WEC achieved a peak power of 11.2 kW during its latest water flume tests successfully which broke its own record of 9.3 kW of November 2017. Having implemented an additional MPPT charge controller, all three 5kWp-MPPTs work together in series to provide this electrical peak power at the same time.

Wind Energy

Consortium to develop floating offshore wind farm off California coast – WindPower Engineering & Development

> The Redwood Coast Energy Authority (RCEA) has selected a consortium of companies to enter into a public-private partnership to pursue the development of an offshore wind energy project off the Northern California coast. The consortium was one of the six respondents to the Request for Qualifications (RFQ) issued by the RCEA on February 1st, 2018, and is comprised of Principle Power Inc., EDPR Offshore North America LLC, Aker Solutions Inc., H. T. Harvey & Associates, and Herrera Environmental Consultants Inc.

Siemens Gamesa awarded 120-MW expansion of Taiwan's Formosa 1 offshore wind farm – WindPower Engineering & Development

> Only one year after the successful commissioning of Taiwan's pioneering Formosa 1 Phase 1 offshore wind farm, Siemens Gamesa Renewable Energy (SGRE) has been contracted to supply an additional 120 MW of capacity for Formosa 1 Phase 2. In addition to the turbine supply agreement, a 15-year full-service agreement is signed and includes the provision of spare parts and tools to help ensure the reliability and optimal performance of the turbines.

Stronelairg delivers first power - ReNews

> SSE has delivered first power from the 228MW Stronelairg wind farm near Fort Augustus in the Great Glen, Scotland. "Reaching this stage in the project is a testament to the hard work of SSE's Stronelairg team and our contractors," the company said. The milestone was reached on 24 March, it added. The project will consist of Vestas hardware – 53 V117 and 13 V112 3.45MW machines – when completed later this year.

Vestas Announces Five U.S. Wind Deals – North American Wind Power

> Vestas has announced four major turbine orders, as well as a service agreement renewal, for the U.S. wind power market. Terra-Gen has placed an order for 159 MW of V117-3.45 MW turbines, delivered in power-optimized mode to 3.6 MW, for the Voyager II wind project in California. The project, including previously purchased 4 MW components qualifying for the production tax credit (PTC), has a total size of 193 MW.