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IOW marine physicist Hans Burchard receives the Georg Wüst Prize for outstanding achievements

Hans Burchard, deputy head of the Physical Oceanography Department at the Leibniz Institute for Baltic Sea Research Warnemünde (IOW), has been awarded the Georg Wüst Prize 2019 from the German Society for Marine Research (DGM) for outstanding contributions to marine research. He received the award, which is supported by the international scientific journal “Ocean Dynamics”, at the Annual General Meeting of the European Geosciences Union (EGU) on April 10 in Vienna. With this award, which has been awarded for the eighth time this year, the DGM honours Burchard's work on the significant advancement of computer-aided modelling of turbulence and other dynamic processes in the ocean.

Turbulence and other mixing and transport processes have a major impact on marine life and are also an important influencing factor for many processes outside the ocean, such as weather and – in the long term – climate developments. To better understand their influence on marine ecosystems and to simulate future scenarios, marine researchers use numerical models. Since his doctoral thesis, Hans Burchard's research has focused on the continuous advancement of these models and their adaptation to the special conditions in coastal waters and estuaries – in particular to brackish waters such as the Baltic Sea or the tidal Elbe. By creating an overarching framework concept for the computational modelling of marine turbulence with only a few variable key parameters, he made the use of different models, each with only a limited applicability to very specific situations, superfluous. In addition, he contributed to a deeper understanding of estuaries, for example by incorporating tidal dynamics in addition to classical gravitational circulation. To make it easier for the scientific community to work with his models, he made sure that their program code was easily accessible on web portals. In particular, the General Ocean Turbulence Model (GOTM) and the General Estuarine Transport Model (GETM) have been used by marine researchers worldwide for about two decades to quickly and accurately estimate the influence of turbulent mixing processes of varying intensity on their respective research areas.

Prof. Jörg-Olaf Wolf, editor-in-chief of “Ocean Dynamics”, praised the achievements of the prize winner in his laudation with the following words: “Hans Burchard has brought order to a complicated field with his research and has also made his work available to others in a selfless contribution. In summary, he is a great asset to our community. He is extraordinarily productive, collaborates widely, and has created or expanded the most important tools and ideas used in estuarine and coastal dynamics at this time.” In his reply to the laudation, Hans Burchard added: “Without intensive national and international scientific cooperation and networking, the development of these methods and the scientific knowledge they have produced would never have been possible.”

Hans Burchard has been working at the IOW since 2002 as deputy head of the Physical Oceanography Section and at the same time teaches as professor in this field at the University of Rostock. Before that, his scientific career led him from the Institute of Marine Science of the University of Hamburg, where he completed his doctoral thesis in 1995, to

the Danish Hydraulic Institute in Hørsholm, to Italy to the Institute of Space Applications of the EU Joint Research Centre in Ispra, and back to his Alma Mater in Hamburg.

Background information:

Georg Adolf Otto Wüst (1890 – 1977) was a German oceanographer. He is best known for his studies of the Atlantic Ocean. During the “German Atlantic Expedition” (1925 – 1927) he led the oceanographic work on the research vessel METEOR. He was able to obtain a large amount of data, from which he developed for the first time a clear understanding of the circulation system of the Atlantic Ocean. The award named after him was established in 2005 by the DGM and the journal “Ocean Dynamics” published by the Springer publishing house in order to honour scientists every two years, who have contributed outstanding scientific findings to marine research. In accordance with the scientific focus of the journal, these are primarily in the areas of theoretical, computer-aided and observational marine research and are of cross-disciplinary significance.

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