

About Don L. Boyer

Don Lamar Boyer, a pioneer of physical modeling of rotating and stratified topographic flows, passed away in Las Vegas, Nevada on June 19, 2020. A visionary in and champion for geophysical and environmental fluid dynamics research, a dedicated mentor and a skilled administrator, he played an influential leadership role in the evolution of laboratory-based research in environmental flows.

Endowed Annual Lecture

In his honor, the Don L. Boyer Memorial Endowment for Excellence in Environmental Fluid Dynamics has been created to support groundbreaking, crucial lectures in the important fields of environmental prediction, risks, and sustainability. These lectures, emphasizing the fundamental dynamics of environmental flows in the spirit of the research of Don L. Boyer, will enliven the conversation around these topics in the college and beyond. This lecture will be supported annually in perpetuity by the fund.

The endowment was established by an initial gift from Dr. Dustin Boyer, Don's son. Donations to the fund can be made at [giveto.nd.edu](https://efmlab.nd.edu/don-l-boyer-memorial-endowment/).

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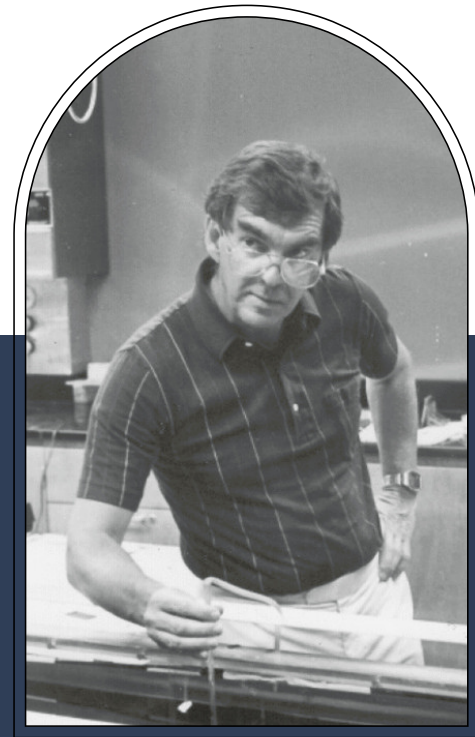
ENGINEERING AT NOTRE DAME

Engineering at Notre Dame combines technical inquiry with a creative bent to develop innovations that can improve the health, well-being, and quality of life for all persons. Consistent with the University's Catholic mission and heritage, the College of Engineering's mission is founded on the principle that the creation and transfer of fundamental knowledge should reflect a profound and complete respect for the dignity of all persons and for the greater common good of humanity. The Don L. Boyer Memorial Endowment supports faculty, students, and the scientific community at large in the pursuit of achieving the educational mission and outreach of the University.

DON L. BOYER

DISTINGUISHED LECTURE

in Environmental Fluid Mechanics



Tuesday, March 19, 2024

Lecture 11:00 am - 12:00 pm

Lunch Reception 12:00 pm - 1:00 pm

Eck Visitors Center Auditorium

Professor GertJan van Heijst



Professor GertJan van Heijst
Environmental Fluid Mechanics Group
Department of Applied Physics
Eindhoven University of Technology
Eindhoven, Netherlands

BIOGRAPHY

Professor GertJan van Heijst is an Emeritus Professor of Fluid Dynamics in the Department of Applied Physics at Eindhoven University of Technology, The Netherlands. He graduated in 1977 in Mechanical Engineering from the University of Twente (NL), and he received his PhD at the same university in 1981. He was awarded a 1-year postdoctoral fellowship by the Dutch Science Foundation, which was spent at the Department of Applied Mathematics and Theoretical Physics at the University of Cambridge (UK). In 1982 he moved to a Lectureship in Physical Oceanography in the Department of Physics and Astronomy at the University of Utrecht (NL). Subsequently, he was appointed in 1990 as a chair professor in Fluid Dynamics in the Department of Applied Physics at Eindhoven University of Technology where he has spent the rest of his career.

His research interests include rotating and stratified flows, with special focus on vortex dynamics, shallow flows and two-dimensional turbulence, all relevant to geophysical and environmental flow phenomena.

He has been associate editor of Physics of Fluids and of Geophysical and Astrophysical Fluid Dynamics, and served as co-editor-in-chief of the European Journal of Mechanics B/Fluids until his retirement in 2020.

He is an elected Fellow of the European Mechanics Society EUROMECH, and a member of the Royal Netherlands Academy of Arts and Sciences (since 1997), a member of the Russian Academy of Natural Sciences (since 2010), and recipient of the Dutch Physica Award (2006).

Over the past years, he has served on many national and international scientific advisory committees and governing boards. From 2013 until 2019 he served as President of EUROMECH, and presently he is the Vice-President of this society. Since 1991 he has been one of the directors of the J M Burgers Centre, the national Dutch research school for fluid dynamics. He served as scientific director of the Burgers Centre from 2014 to 2021.

Some Fascinating Aspects of Shallow Flows

ABSTRACT

Many flows in environmental and in industrial situations can be characterised as ‘shallow’, with the horizontal scales being essentially larger than the vertical size of the flow domain. Examples are flows in rivers, estuaries, the coastal region, harbours, fresh water reservoirs, but also in settling chambers for water treatment. Shallowness implies a rather specific flow dynamics.

In some studies it was assumed that shallowness of a fluid layer implies a quasi-two-dimensional flow, because motions in the vertical direction are very small compared to the horizontal flow components. As will be shown in the lecture, this conjecture may be very deceptive. On the other hand, many large-scale environmental flow situations may be elegantly modeled in the shallow-layer approach.

Some different aspects of shallow flows will be discussed, including the laboratory modelling of quasi-two-dimensional turbulence and the tidal flushing of semi-enclosed basins.