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In Appreciation: Don L. Boyer (1938–2020)

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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 as well as the growth of this journal itself—by providing learned advice to the editors and, on occasion, acting as a (virtual) Guest Editor.

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Born on 5 April, 1938 in Valley View Pennsylvania, Boyer received education at Rensselaer Polytechnic Institute (B.S. in Physics, 1960) and the Johns Hopkins University (Ph.D. in Mechanics, 1965) where he investigated pipe flows in rotating systems under the supervision of George Benton. His first academic appointment was at the University of Delaware (1965–1970), where he consolidated his research interests in rotating flows until his leadership traits steered him to the National Science Foundation where he became the Program Manager in Fluid Mechanics and Science Coordinator for the National Center for Atmospheric Research. He joined the University of Wyoming in 1974 as the Head of Department of Mechanical Engineering, and then moved to Arizona State University as the Chair of the Mechanical and Aerospace Engineering Department in 1988, a position he held till 2002. Notwithstanding his prolonged burden of Parkinson's disease, Don remained active way past his retirement in 2008 and continued to engage in research and travel.

He was a strong proponent of exploring fundamentals of fluid flows, and his favorite topic right throughout the career was rotating and stratified flows, primarily with applications to oceanographic and meteorological phenomena. His approach stressed laboratory modeling and theoretical analysis, but also emphasized integrating laboratory work with oceanic observations and numerical modeling. His belief that laboratory geophysical fluid dynamics experiments with rotating fluids are marred by low Reynolds number effects (combined with his francophile affinity for life in the shadow of the French Alps) caused him to gravitate frequently to the Coriolis laboratory in Grenoble where the 13 m rotating table permitted rotating flow studies to be undertaken at large horizontal scale. There, with Gabriel Chabert d' Hières and Henri Didelle (and later Dominique Renouard and Joël Sommeria), he participated in a range of high Reynolds number experiments and compared results with those from large-scale ocean and atmospheric modeling and observations. This approach provided credence for the efficacy of laboratory models in atmospheric and oceanic research, through which he persuaded funding agencies to support laboratory work alongside large field and numerical projects. Throughout his career he produced scores of important papers covering, *inter alia*, stratified flow over oceanic topographic features such as seamounts and canyons, flow in mountainous terrain, sediment transport, turbulent mixing in stratified flows, scour and dynamics of large objects (cobbles) in swash and shoaling coastal zones, and wakes and vortex structures behind moving bodies. While he ramified research into many other topics, the principal focus never diverted away from his careerlong passion of rotating/stratified flows. Even a few months before passing, he attempted to work on a manuscript on bottom drag in oceanic Ekman layers.

Boyer took a keen interest in promoting environmental fluid mechanics and hydraulics and expanding its reach to under-served regions in the world (especially Africa) by organizing international workshops and meetings, including two International Conferences of Environmental Hydraulics (2000 and 2007) in Tempe, Arizona; these are signature conferences of the International Association of Hydro-environmental Research (IAHR). He was a great mentor to scores of his juniors, encouraging and advising them. Both of us (Fernando and Davies) benefitted immensely from his inspirational mentorship and research collaboration. In everything he did, he gave wholehearted commitment. He demanded high standards in research and teaching, and always viewed the world with optimism and pragmatism, yet lightheartedness. He had a knack for converting charm, knowledge and infectious enthusiasm into tangible products of consequence. Boyer had an international outlook, travelled extensively and enjoyed overseas sabbaticals in Grenoble and Dundee. During his time at University of Wyoming and Arizona State University, he attracted and hosted numerous guest researchers for summer visits and longer term stays; e.g. Lee-Or Merkine (Technion), Mike Foster (Ohio State), Hiro Honji (Kyushu University), Robert

Long (Johns Hopkins), Gunnar Roden (U Washington) and both of us. These led to highly productive and long-lived research interactions, all enriched by fishing trips, hikes, baseball and the generous hospitality of Don and his family. Throughout his academic life he helped keep scientific gatherings pleasant, positive and socially-engaging while maintaining rigor and substance. He is survived by Eileen (wife), Eric and Dustin (sons), Margaret (daughter-in-law) and two grandchildren (Kai and Samara).

His presence and guidance will be greatly missed.

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