

In Recollection of Professor Ryszard Zeidler



On 24 February 1998 Professor dr hab. inż. Ryszard Zeidler – our tremendously hard-working, outstanding scientist, boasting great linguistic skills (he spoke English, French, German and Russian very well), died. He maintained extensive co-operation with universities and research institutes and organisations, both at home and abroad. Despite his serious illness he continued to be extremely active over the last two years, to the final moments of his life.

Professor Ryszard Zeidler was born on 19th May 1939 in Poznań. He commenced studies in the Department of Civil Engineering of the Technical University of Gdańsk and graduated in 1961 with an M.Sc. degree. Soon afterwards, he took up work at the Polish Academy of Sciences Institute of Hydro-Engineering (IBW PAN) where he was employed until his death. In the last 7 years, after the re-organisation of IBW PAN, he was the Head of Department of Coastal Engineering and Dynamics.

Initially, he dealt with hydraulic model investigations, then – statistical hydro-mechanics and turbulence. In that period he wrote several papers on water waves (mainly under real sea conditions) and a monographic publication on turbulence.

Wave motion and turbulence were the main topics of his interest. Together with Prof. Cz. Druet and Prof. St. Massel, he worked out original statistical and spectral distributions of wind waves in coastal zones.

As from 1967–1968 he concentrated on turbulent diffusion due to waves and currents. This problem was analysed in his Ph.D. thesis entitled: “*Diffusion of solid particles due to wave (turbulent) water motion*”, presented in 1970.

Elements of turbulence theory were implemented in a number of his later works. The awards of Head of KNiT in 1970, President of PAN in 1973 and

Scientific Secretary of PAN in 1977 reflected the appreciation of his achievements in the field of wave motion and turbulent processes.

In the following years, he dealt with the practical aspects of turbulent diffusion, particularly related to the spread of contamination in the sea. He published several studies on these subjects followed by his D.Sc. thesis entitled: "*Hydro-mechanical tasks of the spread of waste and warmed water in sea*" (1975/1976).

The above work was commenced during a 15 month scholarship at the Massachusetts Institute of Technology in Cambridge, USA (1971–1972). Taking advantage of the general bases of turbulent diffusion theory and his laboratory measurements (wave flume discrete tracer data) and field investigations (fluorescent tracer data), Professor Zeidler formulated a number of detailed rules on turbulence in coastal zones. He developed the mathematical model of turbulent diffusion and spread of passive substances in a coastal zone, due to a number of random oceanological, hydraulic, morphometric and other impacts. The model was implemented in the prediction of spread of cooling water of designed nuclear power plant at the Kopań Lake, sodium saline in Algeria, industrial and urban waste waters at Baltic sites, as well as the optimisation of the investments associated with the relevant designs. The group reward of the Secretary of Dept. IV PAN was the acknowledgement of the above achievements.

After the experimental investigations carried out in Bulgaria, Professor Zeidler described a new aspect of wave characteristics of passive substance concentrations (1980). In the 'eighties, Professor Zeidler and his research team carried out analyses and investigations on the dynamics of coastal sediments due to real wave motion and longshore current. The analyses comprised the structure of sediment transport, both bedload and suspended load. The semi-empirical theory of turbulent diffusion, taking into account sea bed friction, gave rise to the determination of sediment transport rate formulae. These relationships have been used in the assessment of coastal evolution. Their verification has been carried out in both laboratory and field investigations. Use was made of the results of the extensive and complex study at the Atlantic shore in Senegal. Professor Zeidler organised and managed that campaign.

The analysis of Navier-Stokes equations with respect to coastal currents was a separate field of Professor Zeidler's research. The field measurements enabled him to determine the statistical long-term features of flow, while the laboratory investigations ensured the determination of spatial velocity distribution and the estimation of their parameters.

Aside from research, he also carried out teaching activities, participating in scientific seminars, both in Poland and abroad, as well as being a lecturer at technical universities. The most important lectures were those at the Technical University of Gdańsk (Maritime Engineering at the Dept. of Environmental Engineering, after Prof. Onoszko's retirement) held until 1995. Professor Zeidler was a supervisor of four Ph.D. theses and reviewer of several Ph.D. and D.Sc. theses.

In 1977 he was nominated to the position of Associate Professor and in 1987 to Full Professor. He published 80 scientific works (including a number in international journals) and is the author of about 50 expert opinions.

Professor Zeidler participated in international conferences at which he presented the results of his theoretical and experimental studies. Several times, he was chairman of sessions at such conferences.

In 1994–1996 Professor Zeidler, together with Dutch experts, led the project on the investigation of Vietnam coast vulnerability to sea level rise (Vietnam Vulnerability Assessment). Within that activity, he visited Vietnam many times, organising field surveys. His reports and expert opinions were thereafter very highly estimated by an international commission.

Professor Zeidler was Head of the Organising Committee of the international “Coastal Dynamics ’95” conference which took place in Gdynia, 1995, which was very successful, from both the scientific and organisational points of view.

As from 1996 Professor Zeidler participated in the project on prediction of multi-scale sea shore variability (Prediction of Aggregated Scale Coastal Evolution – PACE) conducted under the EU international joint research programme MAST III. As from 1994 he took part in the other MAST III project – related to the Baltic ecosystem investigations (Baltic Sea System Study – BASYS). Simultaneously, he acted on many committees, e.g. PIANC (Guidelines for the Design and Construction of Flexible Revetments Incorporating Flexible Revetments in the Marine Environment – Working Group member and co-author). He also participated in the US Country Studies Climate Change Program Poland SEI3.

Professor Zeidler was a member of the Polish National Scientific Committee on Oceanic Research, member of the Science Councils for three Polish Academy of Sciences’ Institutes: Hydro-Engineering in Gdańsk, Oceanology in Sopot and Geophysics in Warsaw, member of the Scientific Steering Committee at the European Marine & Polar Science (EMaPS) Secretariat, reviewer of Polish and international science products and programmes. Recently, for the book *Offshore Breakwaters and Shore Evolution Control* (AA Balkema Rotterdam-Brookfield, co-authored with K. Pilarczyk), he has been awarded a prize by the Minister of the Home Office and Administration.

The death of Professor Zeidler is a painful and irrecoverable loss for Polish science in the field of hydro-mechanics and lito-dynamics of coastal zones. Professor Zeidler possessed enormous theoretical and practical knowledge which afforded great appreciation by a wide group of world scientists conducting research on maritime processes, particularly in coastal zones.

The premature death of Professor Zeidler halted the intensive scientific activities carried out efficiently despite his disease up to the very last days.

Many people in Poland and abroad have lost both a friend and colleague.

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