

(1) Name: Peter Nielsen

(2) Title: A/Professor

(3) Affiliation: School of Civil Engineering at The University of Queensland, Australia

(4) Short Biography:

Born at Fakse, Denmark 25/6-1952, Danish citizen, permanent resident of Australia

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Master of Engineering, Civil, Technical University of Denmark, June 1976

Ph D Technical University of Denmark, February 1979.

Doctor of Engineering, University of Queensland October 1996

January 1995 to present: Associate Professor, School of Civil Engineering, The University of Queensland.

January 1991 – January 1995: Senior Lecturer, School of Civil Engineering, The University of Queensland.

August 1984 – December 1990: Supervising Engineer, New South Wales Public Works Department

January 1983 – May 1984: Assistant Professor, Department of Coastal and Oceanographical Engineering, The University of Florida.

January 1980 – September 1982: Postdoctoral fellow, Department of Geography, The University of Sydney.

Nielsen's research record has placed him firmly as a world leader in the field of coastal sediment transport. This is shown most simply by the fact that he is the most cited Coastal Engineering researcher in Australia, and within the top handful in the world.

Nielsen is the author of the world's most cited reference book on coastal sediment transport: Nielsen, P (1992): *Coastal bottom boundary layers and sediment transport*. World Scientific, Singapore, 324pp.

In addition, Nielsen's work on coastal groundwater dynamics since 1988, contains some milestone papers, e g, Nielsen, P (1990): Tidal dynamics of the watertable in beaches. *Water Resources Research*, Vol 26 No 9, pp 2127-2135. Reprinted in full in *Water resources Journal of the United Nations Econ & Soc Comm for Asia and the Pacific*, Dec 1990, pp 35-43. Cited 161 times by other authors by the end of 2011.

Other important research areas include Coastal Hazards such as storm surges, wave runup and rip currents; Wave theory, particularly long waves including tsunami and storm surges; The motion of suspended particles and bubbles, Fundamentals of turbulent mixing; and most recently wind-driven waves.

(5) Subject and Schedule of the Lectures:

As a part of the course "Advanced Environmental Coastal Engineering" in Department of Civil and Environmental Engineering, Graduate School of Engineering I propose the following schedule of lectures on forced long waves. The lecture material is covered as Sections 1.3, 2.3.6, 3.3 and 3.4 of my 2009 book: *Coastal and Estuarine Processes*, World Scientific.

Tuesday 22/5

Preparation and meeting for the lectures.

Wednesday 23/5

10:30-12:00: Outline of the course and introduction to wave theory including linear long waves.

12:50-14:20: Steady forced waves due to atmospheric pressure, wind stress, and bottom displacements, including the effects of friction

Thursday 24/5

12:50-14:20: The analytical modeling of transient, forced waves, particularly the case of surges and tsunami growing after abrupt onset of the forcing on an initially quiescent ocean.

14:35-16:05: Examples including, tsunami, and surges driven by wind and uneven surface pressure.

25/5 12:50-14:20

New insights into the structure of wind-driven waves, particularly how wind-driven waves transfer momentum downwards without the need for ad-hoc breaker induced turbulence.



