

## Workshop Oceanografía e Hidráulica Estadística y Computacional

**Mesa redonda:** Presente y futuro en Oceanografía e Hidráulica

**Título de la ponencia:** ISLAND WAKES IN NUMERICAL MODELS OF SHALLOW WATER REGIONS

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**Resumen** (en inglés): During recent years field studies of flow around islands in shallow water have generated detailed observations of wakes and eddy streets. Neill & Elliott (2004) document one of many applications of a vertically integrated two-dimensional model. In such a model the effect of bottom friction on the flow is expressed through a bottom drag coefficient  $CD$  and the equivalent vertical eddy turbulent viscosity generated in the bottom boundary layer can be estimated with a parameterization. With the parameterizations of bottom friction used in two-dimensional vertically integrated models the Island Parameter (Wolanski et al., 1984) becomes independent of the free stream velocity and is thus not suitable for the classification of island wakes. This presents us with a conundrum: Either the argument of Wolanski et al. (1984) and Tomczak (1988) that the state of flow around islands in shallow water is appropriately described by the Island Parameter is incorrect, or the vertically integrated model owes its success in simulating flow around islands to incorrect model physics. We attempt to clarify the situation with numerical simulations developed with the COHERENS (Luyten et al. 1999). Luyten PJ et al., 1999 MUMM Report, Management Unit of the Mathematical Models of the North Sea, 914 pp. Neill, S P and AJ Elliott (2004) Ocean Dyn. 54, 324-332. Tomczak, M (1988) J. Geophys. Res. 86 (C6), 10553-10569. Wolanski, E, J Imberger and ML Heron (1984) J. Geophys. Res. 93 (C5), 5153-5154.