ASSOCIAÇÃO PORTUGUESA DOS RECURSOS HÍDRICOS

Sessão Técnica

"Computational modeling of man-made and natural systems: the two-phase flows in bubble plumes and sediment-laden open channels"

Orador: Prof. Fabián Bombardelli

(University of California, Davis, USA)

17:00 - 18:00, Sexta-Feira, 25 de Março de 2011

Pequeno Auditório, LNEC, Avenida do Brasil, 101, Lisboa

No âmbito da sua deslocação a Portugal, com apoio da FCT, e em cooperação com a Comissão Especializada de Hidráulica Fluvial, o Prof. Fabián Bombardelli foi convidado a apresentar uma palestra e a dinamizar uma sessão técnica sobre modelação computacional em sistemas naturais e artificiais, envolvendo escoamentos difásicos.

Abstract

The flow of water and a disperse phase (such as suspended solid particles in rivers or bubbles in stepped spillways, for instance) has received tremendous attention in recent decades. Still, our knowledge regarding those flows is not as satisfactory as compared to that of single-phase flows. Traditionally, two-phase flows have been treated as the flow of a mixture, disregarding the relative velocity between the disperse phase and the carrier. On the other hand, various researchers have advocated in recent years the use of the two-phase flow theory to simulate natural and man-made flows. Under an Eulerian-Eulerian framework, the two-phase flow theory considers that both phases are continua, and that they can be modeled in a separate way. The interrelation of motions of both phases can be modeled through the consideration of the interaction forces. This seminar presents and discusses a framework of models developed to address dilute and non-dilute two-phase flows in general, considering different complexity levels. Further, it shows comparisons with data for two example flows and assess different issues with those comparisons, such as the influence on the accuracy of the prediction of different turbulence closures and approaches, diverse formulations of the eddy diffusivity of the disperse phase, and different proposals for the stresses coming from the inter-particle collisions in the case of non-dilute mixtures.

Inscrição

Por motivos de organização, solicita-se aos interessados em participar nesta sessão técnica que informem, via e-mail, o secretariado da APRH (aprh@aprh.pt). A entrada é gratuita.