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LÍNEAS DE INVESTIGACIÓN

- **Open channel flow: fluvial hydraulics and control structures**
- **Erosion and sediment transport modeling**
- **Groundwater hydraulics and seepage flows**

PROYECTOS DE INVESTIGACIÓN Poner los de los últimos cinco años

- **2014-2016: Reformulación de los modelos de erosión y transporte de sedimentos desde una perspectiva física (MINECO). Investigador responsable: Oscar Castro Orgaz**

PUBLICACIONES

1. Castro-Orgaz, O., Hager, W.H. (2012). Subcritical side-weir flow at high lateral discharge. Journal of Hydraulic Engineering 138(9), 777-787.
2. Castro-Orgaz, O., Giráldez, J.V. (2012). Steady-state water table height estimations from a pseudo-two-dimensional Dupuit-Forchheimer type improved model. Journal of Hydrology 438-439, 194-202.
3. Castro-Orgaz, O., Giráldez, J.V., Robinson, N. (2012). Second order two-dimensional solution for the drainage of recharge based on Picard's iteration technique: a generalized Dupuit-Forchheimer equation. Water Resources Research 48, W06516, doi:10.1029/2011WR011751.
4. Castro-Orgaz, O., Hager, W.H. (2012). Turbulent, discontinuous, open channel flow: the contribution of Ralph Schröder. Journal of Hydraulic Research 50(3), 280-289.
5. Castro-Orgaz, O., Giráldez, J.V., Mateos, L., Dey, S. (2012). Is the von Kármán constant affected by sediment suspension?. Journal of Geophysical Research: Earth Surface 117, F04002, doi:10.1029/2011JF002211.
6. Castro-Orgaz, O., Mateos, L., Dey, S. (2013). Revisiting the Energy-Momentum method for rating vertical sluice gates under submerged flow conditions. Journal of Irrigation and Drainage Engineering 139(4), 325-335.
7. Castro-Orgaz, O., Hager, W.H. (2013). Unsteady Boussinesq-type flow equations for gradually-eroded beds: Application to dike breaches. Journal of Hydraulic Research 51(2), 203-208.
8. Castro-Orgaz, O. (2013). Potential flow solution for open channel flows and weir-crest overflow. Journal of Irrigation and Drainage Engineering 139(7), 551-559.
9. Castro-Orgaz, O. (2013). Iterative solution for ideal fluid jets. Journal of Hydraulic Engineering 139(8), 905-910.
10. Castro-Orgaz, O., Giráldez, J.V., Mateos, L. (2013). Second-order shallow flow equation for anisotropic aquifers. Journal of Hydrology 501, 183-185.
11. Castro-Orgaz, O., Hager, W.H. (2013). Velocity profile approximations for two-dimensional potential channel flow. Journal of Hydraulic Research 51(6), 645-655.

12. Castro-Orgaz, O., Chanson, H. (2014). Depth-averaged specific energy in open channel flow and analytical solution for critical irrotational flow over weirs. Journal of Irrigation and Drainage Engineering 140(1), 04013006.
13. Castro-Orgaz, O., Mateos, L. (2014). Water discharge measurement in agricultural catchments using critical depth flumes affected by sediment deposition. Journal of Irrigation and Drainage Engineering, 140(3) 04013018.
14. Castro-Orgaz, O., Hager, W.H. (2014). 1D modelling of curvilinear free surface flow: Generalized Matthew theory. Journal of Hydraulic Research 52(1), 14-23.
15. Castro-Orgaz, O., Hager, W.H. (2014). Transitional flow at standard sluice gate. Journal of Hydraulic Research 52(2), 264-273.
16. Castro-Orgaz, O., Dey, S. (2014). Second-order shallow flow theory and Dupuit approximation for phreatic aquifers. Journal of Hydraulic Engineering 140(9), 04014040.
17. Castro-Orgaz, O., Hager, W.H. (2014). Scale effects of round-crested weir flow. Journal of Hydraulic Research 52(5), 653-665.
18. Castro-Orgaz, O., Hutter, K., Giraldez, J.V., Hager, W.H. (2015). Non-hydrostatic granular flow over 3D terrain: New Boussinesq-type gravity waves?. Journal of Geophysical Research-Earth surface 120(1), 1-28, 10.1002/2014JF003279.
19. Kacimov, A., Obnosov, Y., Abdalla, O., Castro-Orgaz, O. (2015). Groundwater flow in hillslopes: Analytical solutions by the theory of holomorphic functions and hydraulic theory. Applied Mathematical Modelling 39, 3380-3397.
20. Castro-Orgaz, O., Hager, W.H., Dey, S. (2015). Depth-averaged model for the undular hydraulic jump. Journal of Hydraulic Research 53(3), 351-363.
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22. Obnosov, Y., Kacimov, A., Castro-Orgaz, O. (2015). Analytical solutions for steady phreatic flow appearing/re-emerging toward/from a bedrock/caprock isobaric breach: the Polubarinova-Kochina-Numerov and Pavlovsky problems revisited. Transport in Porous Media 109(2), 337-358.
23. Cantero, F., Castro-Orgaz, O., García-Marín, A., Ayuso, J.L., Dey, S. (2015). Flow profiles in river flows: Can standard energy-based gradually-varied flow computations be pursued?. Journal of Hydrology 529(part3), 1644-1656.
24. Cantero-Chinchilla, F., Dey, S., Castro-Orgaz, O., Ali, S. (2015). Hydrodynamics analysis of turbidity currents over plane beds based on self-preserving velocity and concentration distributions. Journal of Geophysical Research-Earth surface 120(10), 2176-2199, 10.1002/2015JF003685.
25. Castro-Orgaz, O., Hager, W.H. (2016). Dressler's theory for curved topography flows: Iterative derivation, transcritical flow solutions and higher-order wave-type equations. Environmental Fluid Mechanics 16(2), 289-311.
26. Castro-Orgaz, O., Chanson, H. (2016). Minimum specific energy and transcritical flow in unsteady open channel flow. Journal of Irrigation and Drainage Engineering 142(1), 04015030.
27. Hager, W.H., Castro-Orgaz, O. (2016). Critical flow in open channel hydraulics: From Boss to De Marchi. Journal of Hydraulic Engineering 142(1), 02515003.