3D visualization of derived hydrophysical parameters in Lakes and Inland Seas. New approach to applied hydrodynamics.

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Based on numerical simulation results, derived parameters computed from output variables and represented in 3D are used to have a clearer approach to the hydrodynamics of real systems. More precisely, a 3D dynamic visualization of the Shannon entropy of the velocity direction field is shown to illustrate the horizontal mixing related to the flow dynamics in the case of the Aral and Black sea applications. Previous to that some video test cases are presented in order to have a close view of what is highlighted with this approach. Complementarily, the physical meaning of the Shannon entropy of velocity directions is discussed in comparison with more standard derived variables such as the Obuko-Weiss parameter. The Shannon entropy of other scalar fields is also represented and used for the discussion. The utility of these tools for science as well as for management and more popular applications is discussed.