

EGU21-10310

<https://doi.org/10.5194/egusphere-egu21-10310>

EGU General Assembly 2021

© Author(s) 2021. This work is distributed under the Creative Commons Attribution 4.0 License.



A new cost-performance grid to compare different flood modelling approaches

Rouya Hdeib¹, Roger Moussa², François Colin^{3,4}, and Chadi Abdallah⁵

¹College of Civil and Architectural Engineering, Applied Science University, Bahrain

²UMR LISAH, Univ Montpellier, INRAE, IRD, Montpellier SupAgro, Montpellier, France

³UMR LISAH, Univ. Montpellier, Montpellier SupAgro, Montpellier, France

⁴UMR G-EAU, Univ. Montpellier, Montpellier SupAgro, Montpellier

⁵National Council for Scientific Research, Remote Sensing Center. Beirut, Lebanon

The wise selection of modeling approaches with an appropriate level of complexity for the study objectives is critical for robust inference. In this paper, the structure of a cost-performance grid designed for flood modeling is presented. The grid is developed to compare different flood modeling approaches of variable complexity and to guide on the proper selection of the couple data-model. The methodology involves defining metrics to quantify the three variables: data costs, model costs, and performance. Preliminarily, eighteen flood modeling applications in literature were arbitrarily selected and analyzed to guide on the implementation of the grid. The cost-performance diagram allows tracing a cost-performance curve and grouping applications in 4 zones corresponding to 4 modeling approaches (empirical and geomorphic, hydrological, hydraulic, and coupling). The grid is a tool to support the comparison, classification, and future selection of cost-effective modeling approaches. It is flexible and can be extrapolated to other modeling objectives.