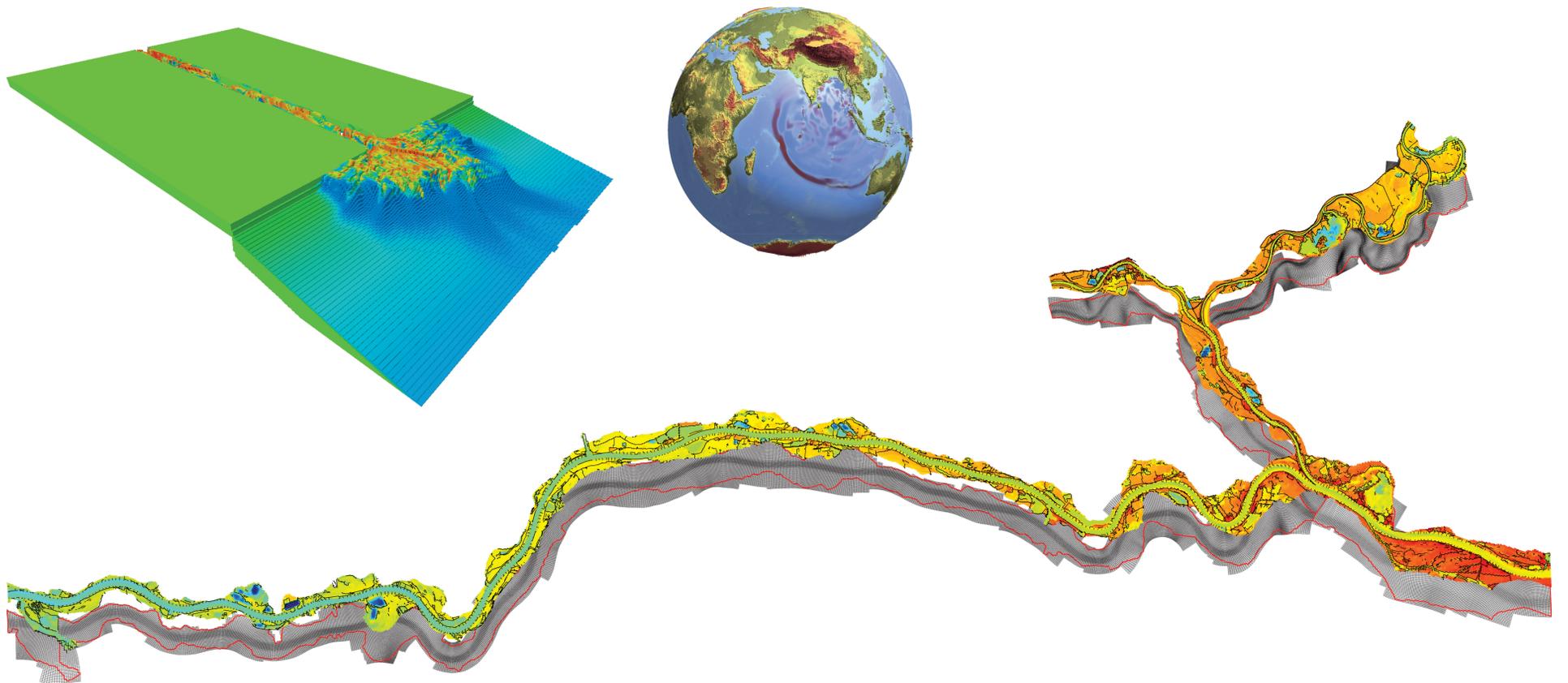


# Integrated Environmental Modeling Done Efficiently



Sustainable spatial planning requires reliable environmental impact assessment which balances an eye for detail with a sense of reality with respect to uncertainty and predictability. Building on a thorough understanding of the earth system processes and the human impact thereon, we are building an efficient modeling framework suited for every scale of study: from urban flooding to oceanic algal bloom.

It's beyond doubt: humans have influenced and will always influence the environment. To minimize the impact, we have the responsibility to make sustainable decisions. For this we need to understand this complex system and numerical models are the way to collect, integrate and verify that knowledge. This holds not only at a global level but also at a local scale. We support politicians and engineers with a set of models suited for modeling the environmental system at a wide range of spatial and time scales. These same tools enable us to monitor the impact of the environment on us using operational early warning systems.



We are integrating our Delft3D and SOBEK modeling systems to offer the user an efficient modular 1D, 2D and 3D framework for sewers, rivers, lakes, estuaries, coasts and oceans. It allows you to assess the interaction of surface and subsurface hydrology, sediment transport and morphology, water quality, ecology and anthropogenic influences thereon. By developing accurate engines integrating 1D network technology with 2D/3D multi-block and unstructured domains we enable efficient modeling of the system with relatively coarse models. By paying attention to the details of the implementation, we give you the freedom to select (depending on the question at hand) the most appropriate modeling approach from running a single high resolution parallel 3D computation to running an ensemble of thousands much coarser models for a probability analysis or data-model integration.

The figures illustrate a number of applications: long term simulation of river delta deposits, Indian Ocean tsunami modeling, high resolution river modeling, designing man-made coastal structures and 1D/2D flooding in New Orleans and flume.

