

# Primary and secondary risks of landslide outburst floods

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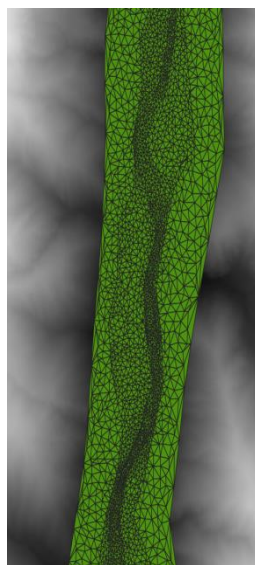
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Landslide dammed events are widely developed worldwide, subsequently, the outbursts of floods are often induced catastrophic casualties and properties loss. In China, giant landslide dammed events were often caused and densely distributed in mountainous areas. The Yigong landslide as the most typical case located at the Zhamunong creek has successfully two occurred, blocked the Yigong River, and formed the barrier dam that deposition height about 50-80m in 1901 and 2000. Subsequently, the outburst flood traveled over 500 km south into India, and it has threatened about 4000 peoples downstream, and the economic loss from flooding was about 169287 US dollars. Therefore, there is urgent and necessary work that playing more attention to applying a high resolution and mature hydrological model to simulate the outburst flood.

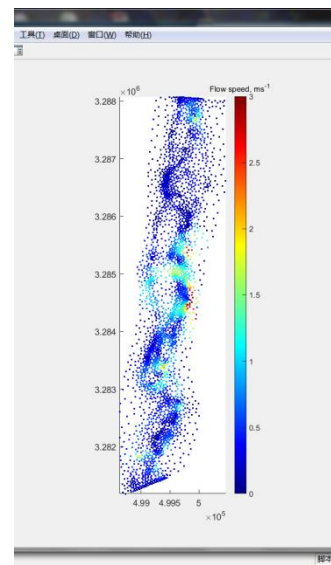
In this program, a hydraulic model BASEMENT has been applied to simulate a landslide dam's outburst flood, and the step will be detailed introduce. BASEMENT model, developed and designed by the Swiss Federal Institute of Technology in Zurich (ETHZ), is famous and widely applied to the simulation of water flow, sediment, and pollutant transport and according to interaction in consideration of movable boundaries and morphological changes. In this program, the BASEMENT model will be used to simulate water depth, velocity, and WSE data for the outburst flood. There are three main steps to explain in detail when in terms of the operation of flood simulation. First, how to construct the high-quality mesh? This part includes preparing the basic data (DEM) and designing the breakline and boundary, subsequently using QGIS software to generate the high-resolution mesh and .2dem file. Second, how to use the BASEMENT model to simulate flood and generate the result? This part is in terms of the parameter's selection, basis data input, and executing the simulation. Finally, how to visualize the simulation result? This part is in terms of the Matlab or Paraview tools to visualize the result.



Construct boundary



Generate mesh and simulation



Result visualization→