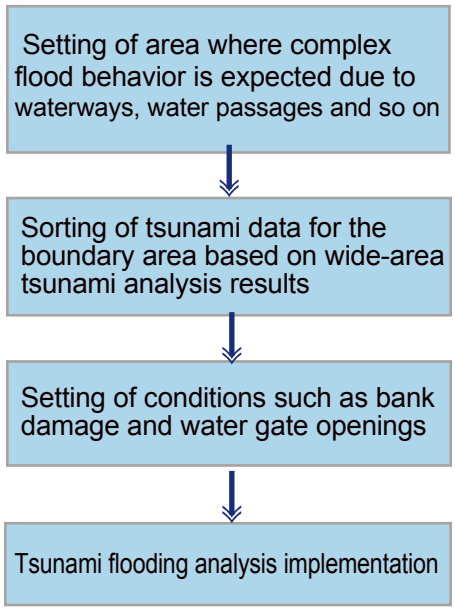
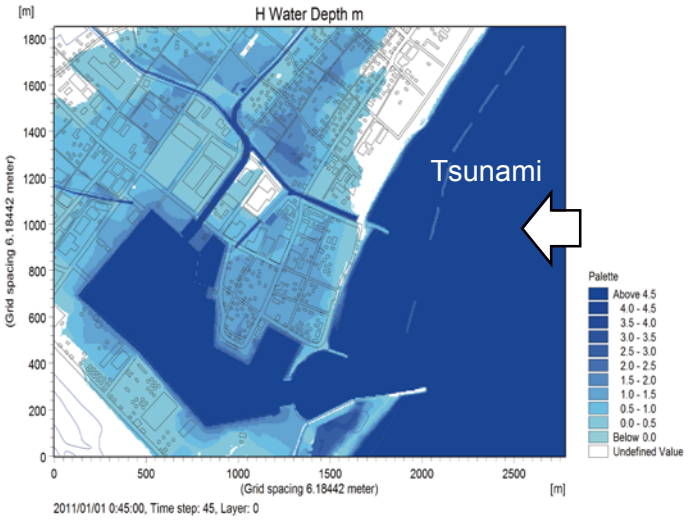
Disaster prevention - Numerical analysis on TSUNAMI Inundation -

The tsunami which was generated by the 2011 off the Pacific coast of Tohoku Earthquake occurred in March of that year caused untold damage to industrial facilities in coastal areas (not just in residential areas) and demonstrated to us once again the importance of disaster prevention measures in devising business continuity planning for industry facilities.

With the supposition of occurrences of Tokai, Tounankai, and Nankai (Nankai trough earthquakes), assumptions concerning tsunami heights and so on are made by various institutions, including the Central Disaster Prevention Council. If it is struck by a tsunami that is twice the size of assumed tsunami heights of the past, then it might go up and over tsunami protection like tide embankment and then make its way into land areas. At Nikken Sekkei Civil Engineering, we can make proposals for tsunami countermeasures and evacuation plan through preliminary forecasts on how it floods a given premises, in the above cases, using a tsunami flooding analyses.

By using analysis models to forecast how tsunami floods, we can ascertain variation over time of the scopes of flooding and for flooding depths. to analysis is the business premise and the surrounding area are set as the scope subject and a model is made which encompasses the ground level, the height of tide embankment, the formation and its height of the structure within the area. We then enter a supposed tsunami height (waveform) that is 1.5 to 2 times more than originally supposed tsunami heights for the boundary (sea area) of the scope subject to analysis. In accordance with the topography situation, we sequentially analyze the flooding which is invading the business premise. We then make proposals for tsunami countermeasures and evacuation plan for core facilities within the premise based on the analysis results regarding data like hourly flooding scopes, water movement and flooding depth.





Example of tsunami flooding analysis