

Software development to support the creation of housing site liquefaction maps

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1. Foreword

Since the Great East Japan Earthquake caused liquefaction in a wide range of housing sites, causing serious damage to housing/social capital, NILIM, in its "Research related with structured disaster prevention support technology of coastal cities," created/provided a calculation sheet for evaluating a housing site's liquefaction damage in an urbanized area ("Calculation sheet for a housing site's liquefaction damage possibility evaluation") (July 2013) using boring survey data.

On the other hand, since the preparation work for the "liquefaction maps," which indicate housing site liquefaction risks, is slower compared to other hazard maps like those for floods, in order to support local public bodies involved in creating the housing liquefaction map, development began on a software that will support the creation of housing liquefaction maps.

By using boring survey data accumulated by each local public body, it became easier to create liquefaction maps based on the nation's "Technical guideline pertaining to the evaluation of a housing site's liquefaction damage

possibility (April 2014)" (hereafter "technical guidelines"), and as the widespread use of liquefaction is now being promoted, there are greater expectations that in the future, prior measures can be made towards liquefaction on housing sites and that more information can be provided to its residents.

2. Overview of the software to support the creation of housing site liquefaction maps

The software to support the creation of housing site liquefaction maps inputs boring survey data and location information of the boring survey spots. Through this, the liquefaction risk of the investigation spot concerned is evaluated based on the aforementioned NILIM liquefaction evaluation sheet. Then, on a base map of the Geospatial Information Authority of Japan map, a 250m or 500m color-coded mesh is displayed (1), and at the same time, by clicking on the investigated spot concerned, the details of the liquid evaluation sheet at that spot is also indicated (3).

Although the prerequisite conditions of the evaluation

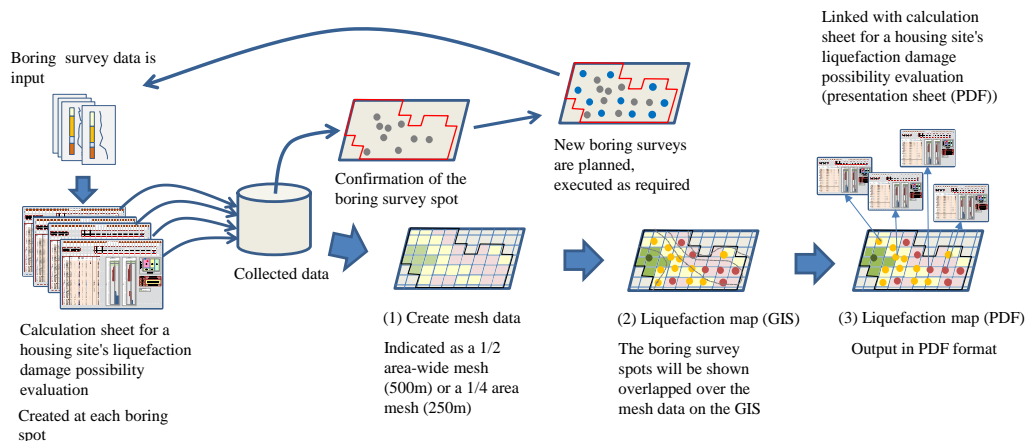


Figure: Vision of the software to support the creation of housing site liquefaction maps

is essentially the evaluation of a housing site's liquefaction damage possibility based on the seismic motion as predicted by the nation's technical guidelines, evaluations can also be conducted regarding the predicted seismic motion in each of the regions as required, which will allow even more detailed examinations through its use. As well, by adding more fresh boring survey data, the liquefaction evaluation information inside the mesh will increase, as well as the quality of the liquefaction map.

This software to support the creation of liquefaction maps is scheduled for release on the NILIM homepage in 2014.

(Reference) NILIM homepage (housing site disaster prevention)

<http://www.nilim.go.jp/lab/jbg/takuti/takuti.html>