

MASTER'S DISSERTATION AT STRUCTURAL MECHANICS

DEPARTMENT OF CONSTRUCTION SCIENCES | FACULTY OF ENGINEERING LTH | LUND UNIVERSITY



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PRESENTATION

SPRING 2017

REPORT

Will be published as
Report TVSM-5226

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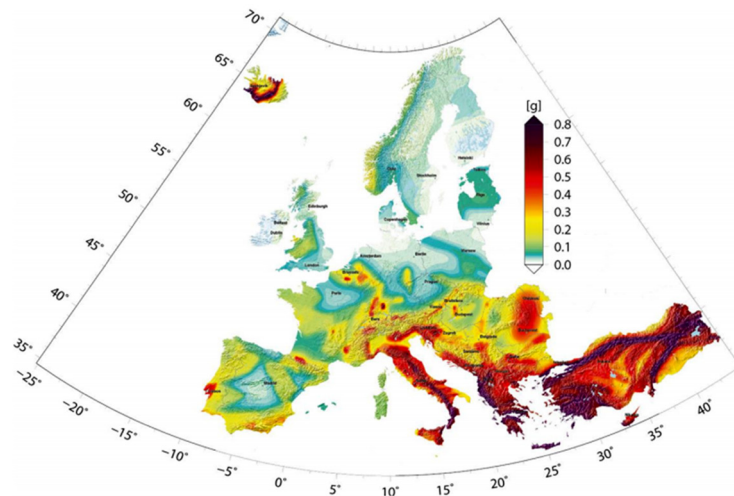
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AND IN COOPERATION WITH
SCANSCOT TECHNOLOGY AB**



EVALUATION OF SEISMIC ACTION IN SWEDEN USING THE EUROPEAN SEISMIC HAZARD MODEL



BACKGROUND

Within the scope of the EU-FP7 project "Seismic Hazard Harmonization in Europe" the European Seismic Hazard Model (ESHM13) was developed. From the model seismic intensity measures like PGA ("Peak Ground Acceleration") and UHS ("Uniform Hazard Spectrum") can be obtained for any location within Europe and Turkey. What can be observed is the relatively high seismic hazard along the Swedish west coast compared to the rest of the country.

OBJECTIVE AND METHOD

The seismic action according to ESHM13 is evaluated with respect to the regulations of Eurocode 8, specifically along the Swedish west coast and Skåne where the seismic hazard is higher than the rest of Sweden. There are no guidance in the Swedish annex to Eurocode 8 and consequently a de-

sign spectrum is shaped to match the seismic hazard predicted from ESHM13 as it is supposed to serve as a reference model for all of Europe.

The seismic action is evaluated with a parametric study of the response in a simple structure and a more detailed case study of a structure that is considered to be critical. The seismic response can be compared to the response from wind load, which normally is the designing load for horizontal stability in Sweden.

The objective is to examine the rationale behind the absence of nationally determined parameters in the Swedish annex to Eurocode 8, when considering the predictions of ESHM13, and perhaps provide suggestions for future revisions.

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