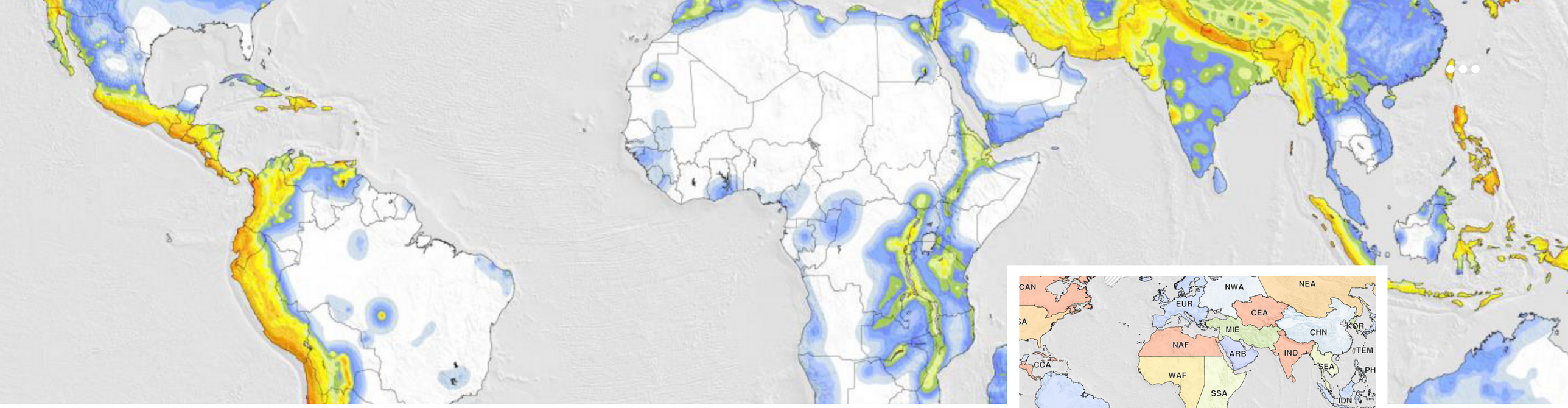
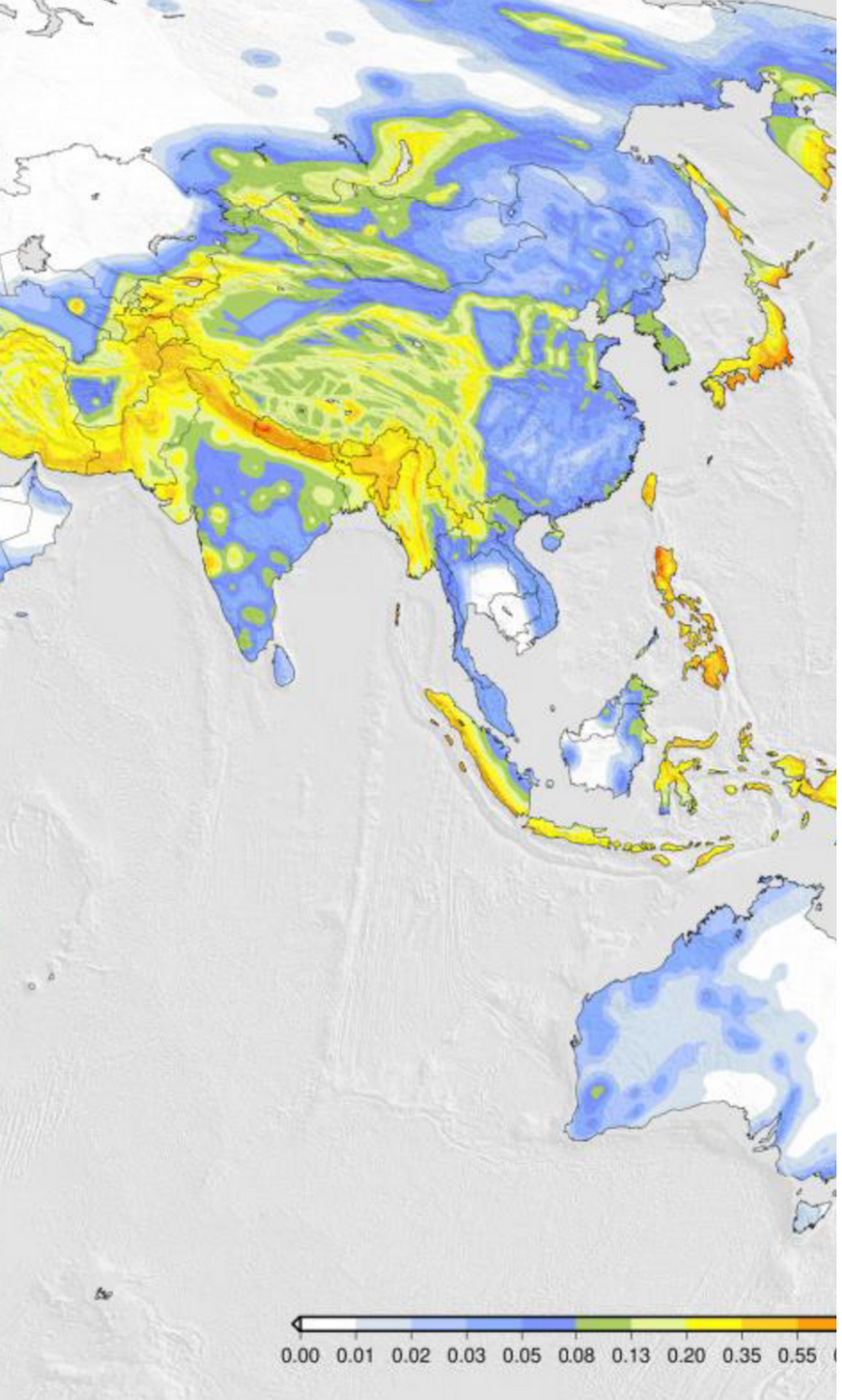


Hazard

The following slides feature questions and answers regarding hazards discussed during the launch of GEM's global products, which took place on the International Day for Disaster Risk Reduction in 2023.

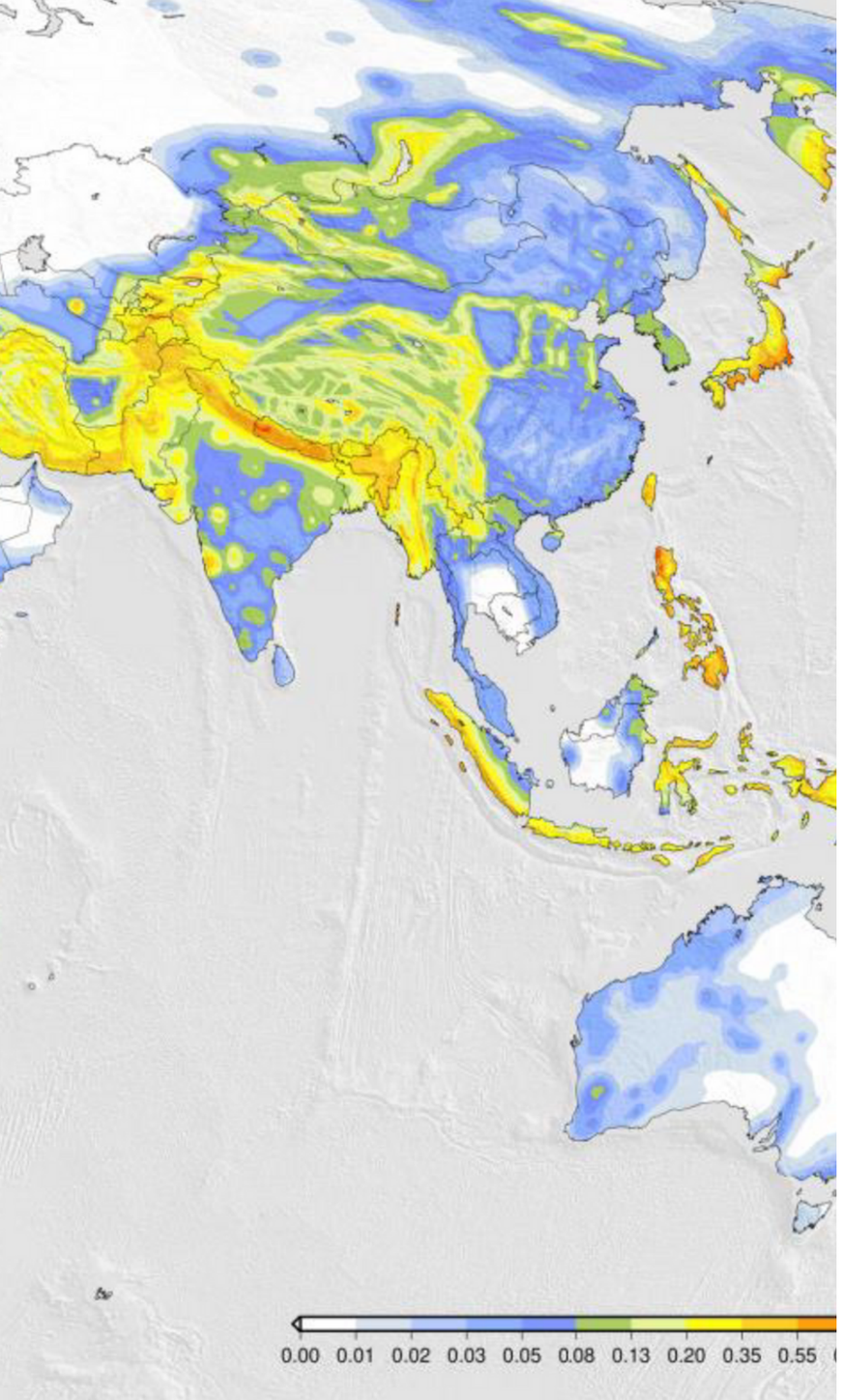
GEM GLOBAL EARTHQUAKE MODEL working together to assess risk

OQ OPENQUAKE calculate share explore



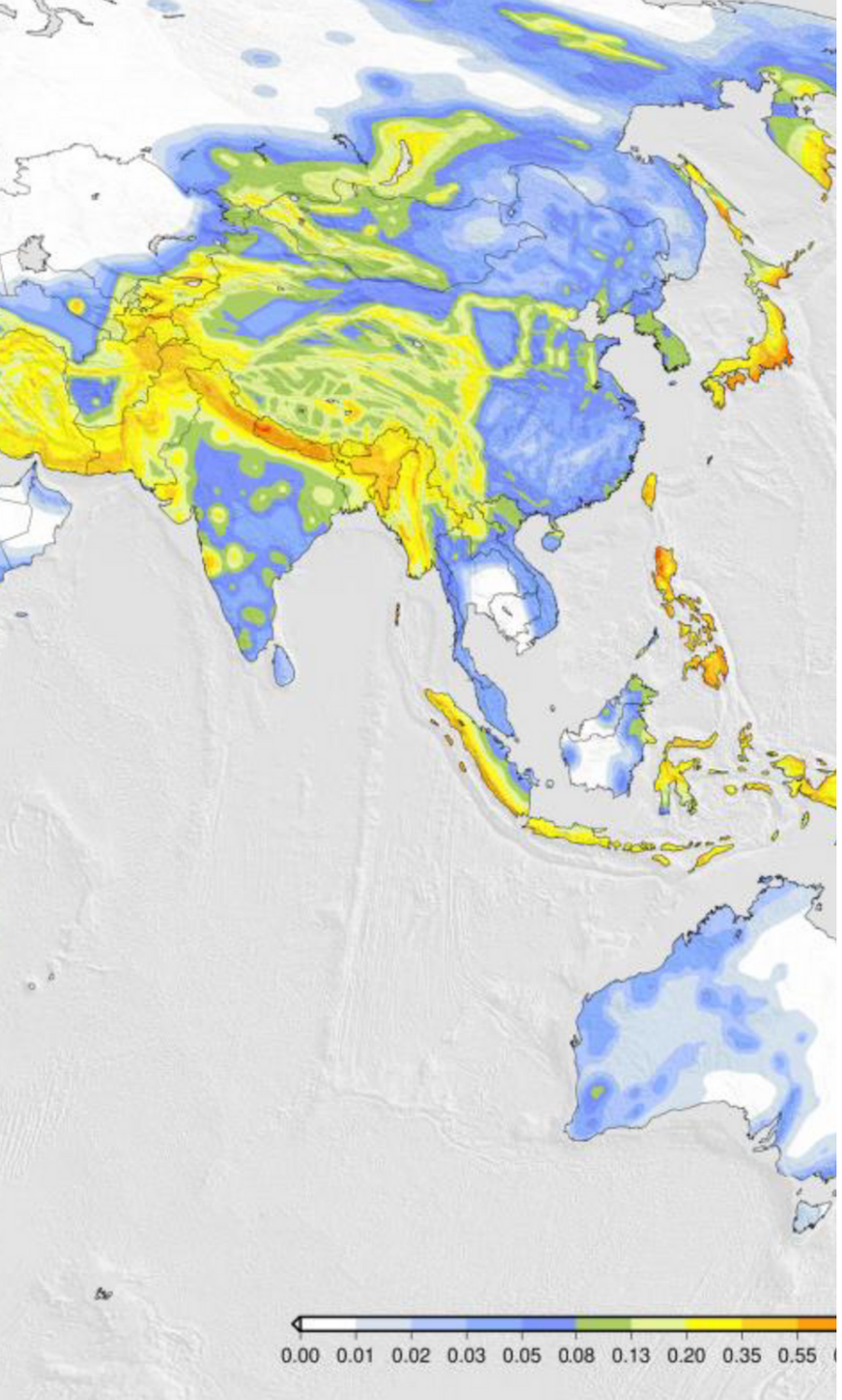
I understand the hazard map is based on PGA intensity. How do we interpret "10% probability of exceedance in 50 years?"

The maps represent the values that in 50 years have a 10% chance of being exceeded. Assuming a Poisson temporal occurrence model, they correspond to the values of shaking that - on average - you can expect every 475 years.



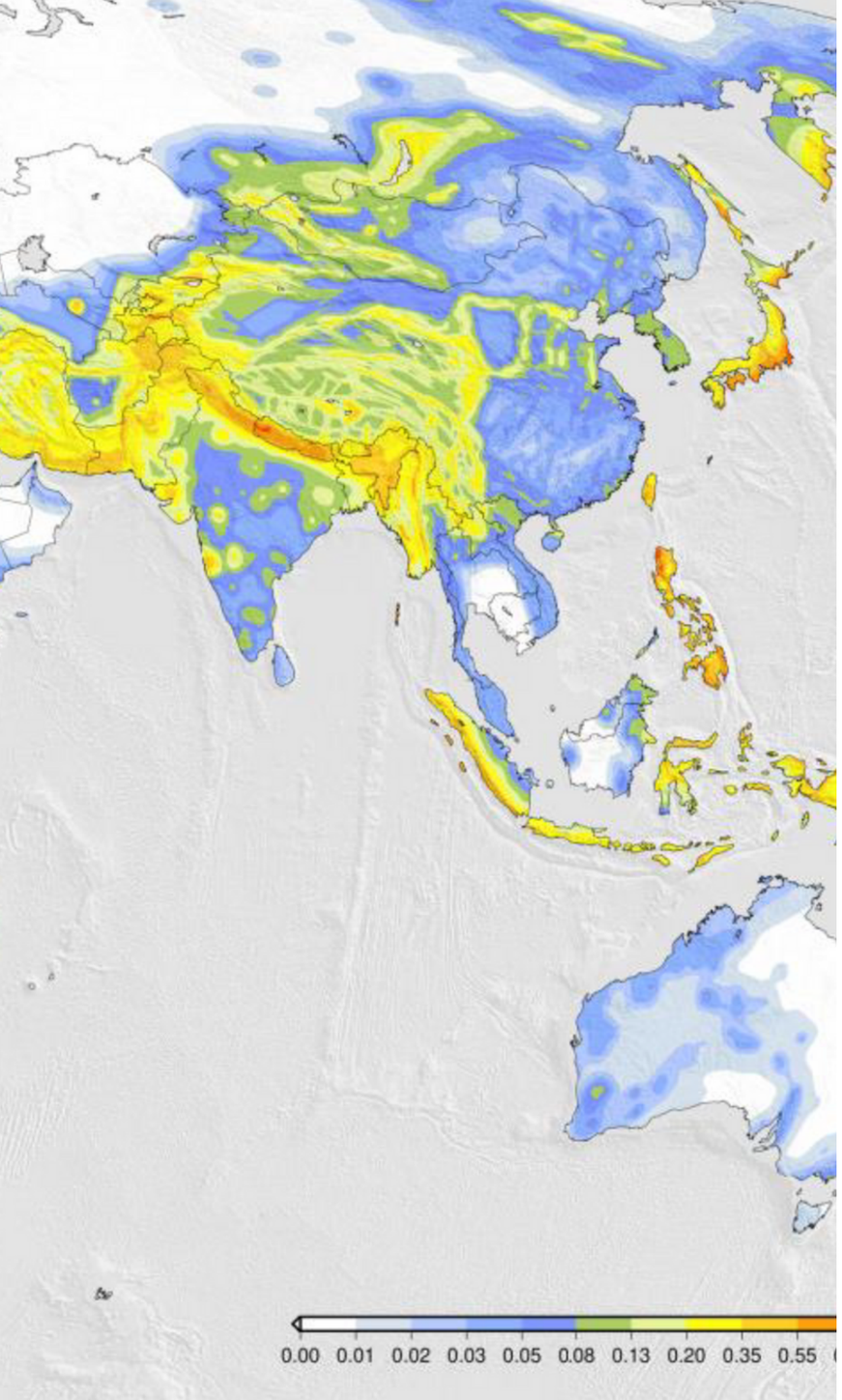
Will there be an update for the hazard maps after the Turkiye and Morocco earthquakes?

Many of the scientists involved in the development of the current model for the Middle East are working on an updated model. The inclusion of Turkey in that model is yet to be defined. Regarding Morocco, that area is covered by our model for North Africa. This model indeed included ruptures similar to the one that occurred in 2023 so we do not plan in the short term an update.



In the geographic zones where several models overlap, like for example NAF - ARB - MIE, if you have made the global model on the sphere, how have you constructed the zoning of seismogenic zones to solve the overlapping or intersection of the collage? Or have you solved it by dividing the problem by zones/models and then assembled…then what have you done with the overlaps?

The models indeed have plenty of sources that do overlap (i.e. if you compute hazard for Canada, you need sources all around it and these sources will overlap with some of the ones used in the model for the US). This is fine if you combine the results and use each model for the corresponding territory. Of course, the best would be to have hazard models that are also homogenised. We aim to go there but we want to do it collaboratively (as much as possible).



I would like to ask what ground motion model is used to calculate seismic hazard in NEA?

Please read the documentation here:
https://hazard.openquake.org/gem/

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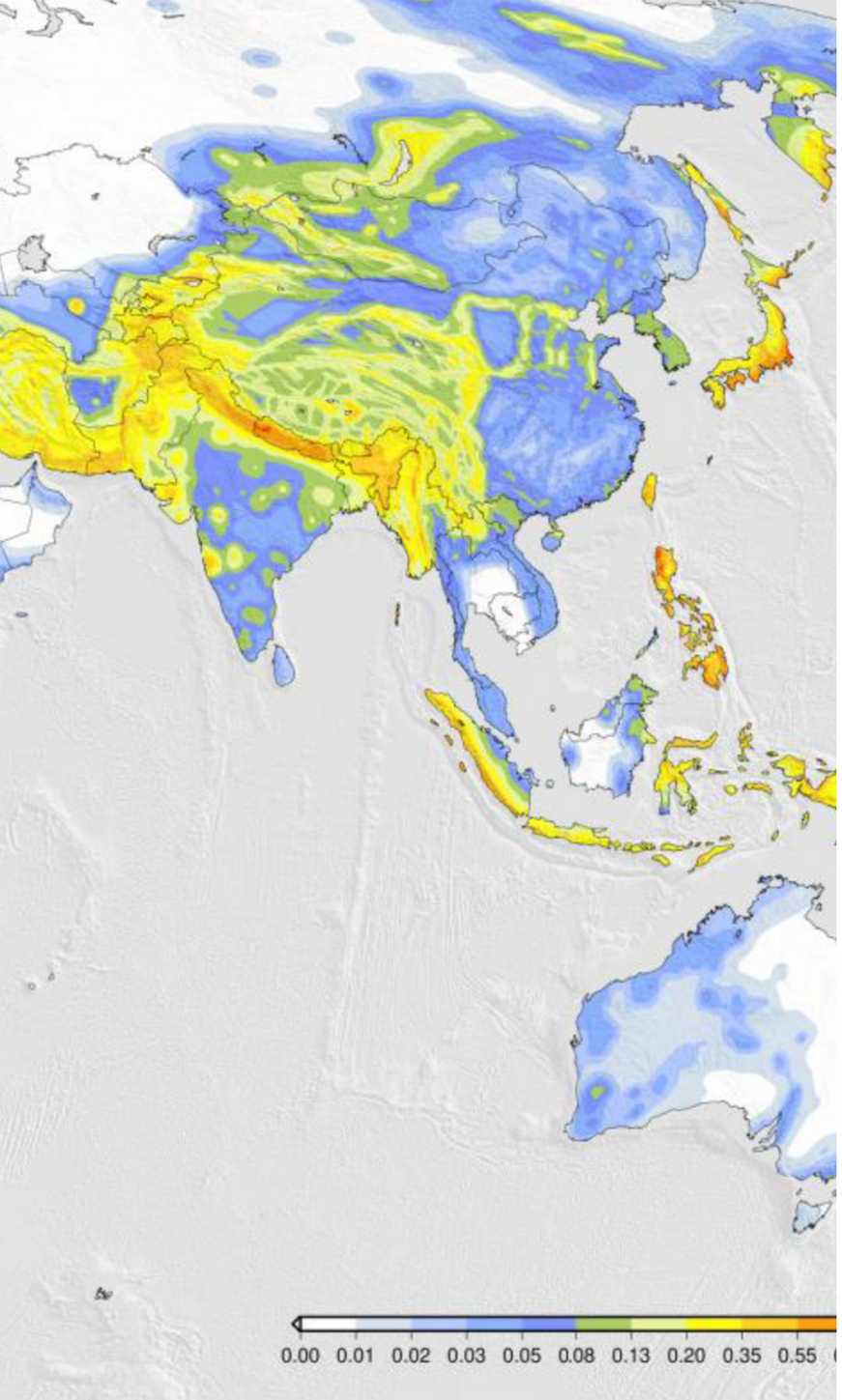
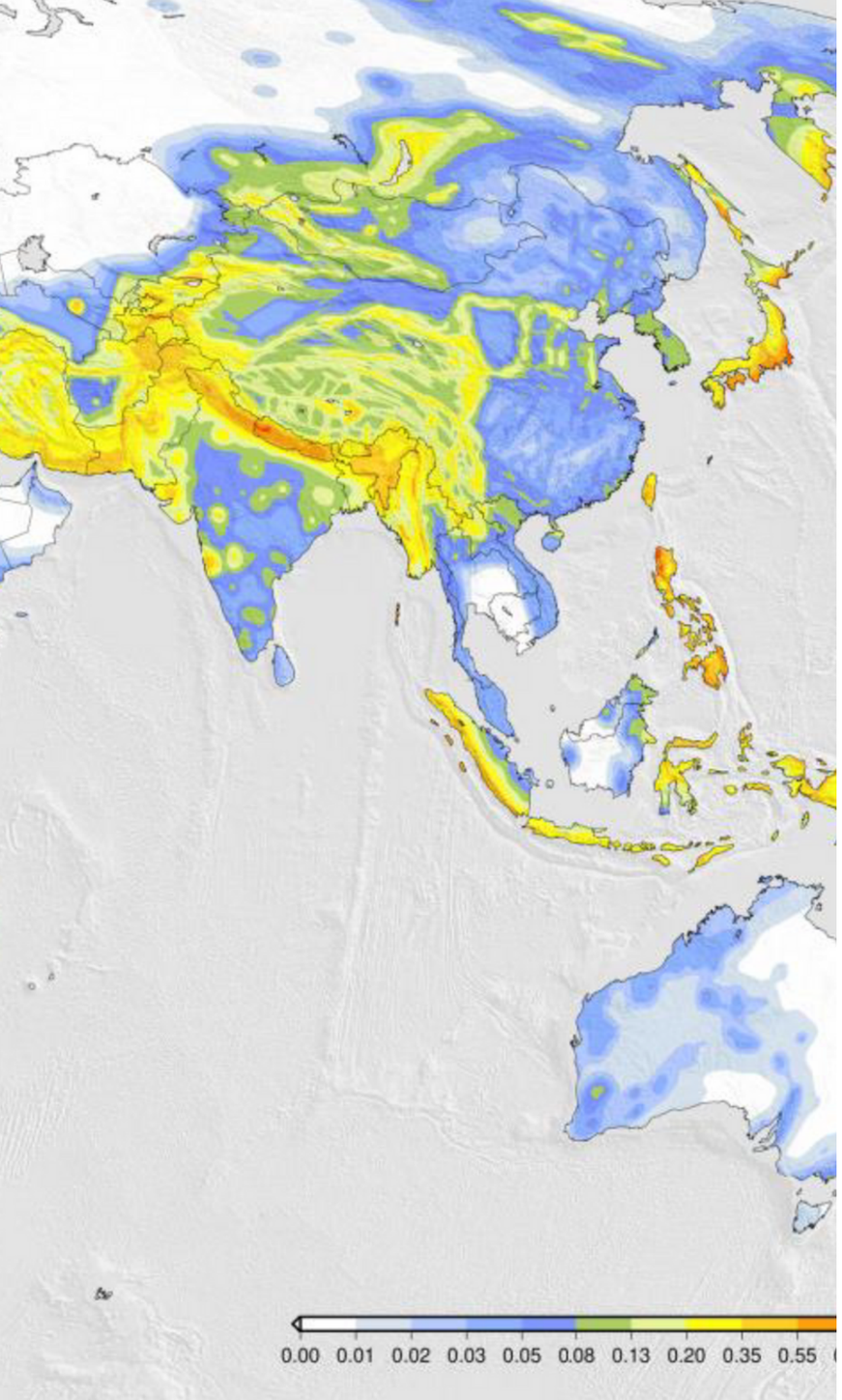


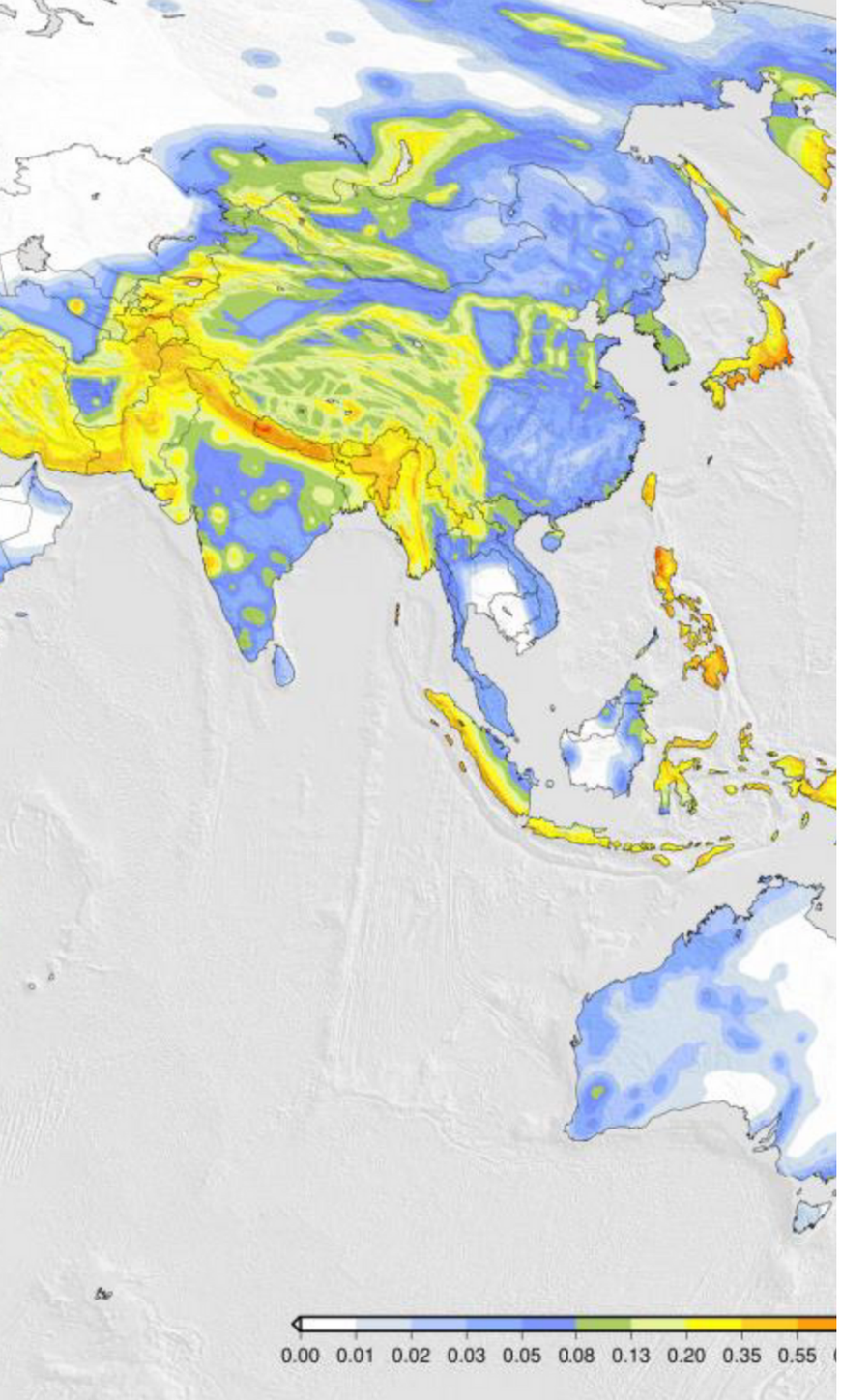
Liquefaction hazard can be estimated using global VS30 maps and procedure by Iwasaki 1981 and incorporated into event-based PSHA to get PLHA maps.

We are aware of these models, as well as a few others that have been released since then (and have also developed a new one based on recent global data). We are still testing these models.



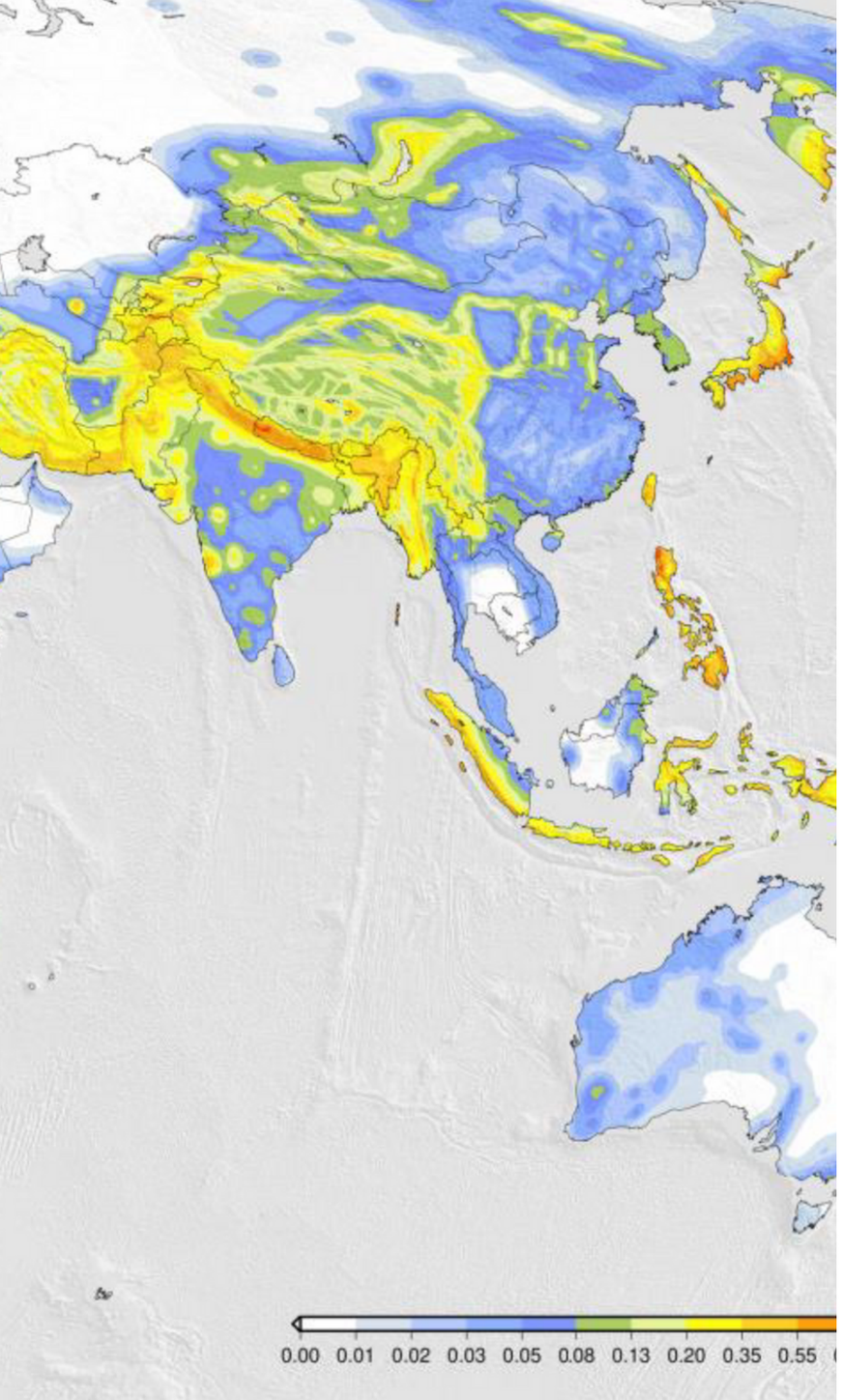
When is your project on ASCE 7-16 including seismic loads for 500 E/Q-prone locations around the world going to be completed and made public?

It’s a 4 years project and we just finished the second year. As mentioned, we might be able to release some features before the end.



Would you consider adding additional layers to the hazard map - for example for a 2475-year return period rather than 475-year on rock?

That’s already available upon request on the hazard products page using the license request form.



How many return period / exceedance probability views are there in the raster file? It looks like you have the 50-year / 10% view, but are more available?

Yes, we have 10% and 2% maps. They can be requested using the license request form on the hazard products page. Hazard curves for commercial use can also be accessed through the Atlas service https://www.globalquakemodel.org/product/atlas-global-seismic-hazard-curves