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NOA content prediction in the rock excavation of a highway tunnel system ("Gronda di Genova", NW Italy)

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For a reliable evaluation of the geo-environmental risk related to the presence of naturally occurring asbestos (NOA) in rocks excavated for large infrastructural projects, a proper procedure has to be followed.
First it is necessary to provide a detailed geological model, tailored on NOA-related issues, to allow planning a proper strategy for representative sampling. Sampling should meet two criteria: the lithological and the statistical representativeness.
The geological model for NOA should be thus constrained by the main "NOA-related petrofacies" -i.e. classes of rocks which share common lithological, structural and NOA content features- occurring in a given geotectonic context, and the identification of "homogeneous zones" into which the NOA petrofacies are subdivided.
Here we describe the approach followed for the evaluation of the asbestos content in the excavation, in meta-ophiolite rocks, of a complex highway tunnel system in NW Italy ("Gronda di Genova" project). The geological model of the complex setting of the area (Alps-Apennines junction) is described focusing on how the NOA-related problems have been addressed to allow reliable and detailed estimations of NOA contents for each homogeneous zone and the relevant tunnel layout segment.