

METEOR: Modelling Exposure Through Earth Observation Routines



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<http://meteor-project.org/>

METEOR is a three year project that started in February 2018, funded by the UK Space Agency International Partnership Programme. It is developing innovative Earth Observation (EO) routines to deliver robust national-scale exposure and natural hazard data with a focus on Nepal and Tanzania.

The escalating impacts of natural hazards are caused mostly by increasing exposure of populations and assets. Poor understanding of the distribution and character of exposure (buildings and infrastructure) in ODA countries is a major challenge when making Disaster Risk Management (DRM) decisions locally, nationally and globally. Robust and quantitative methods are required to justify resilience decisions and risk mitigation.



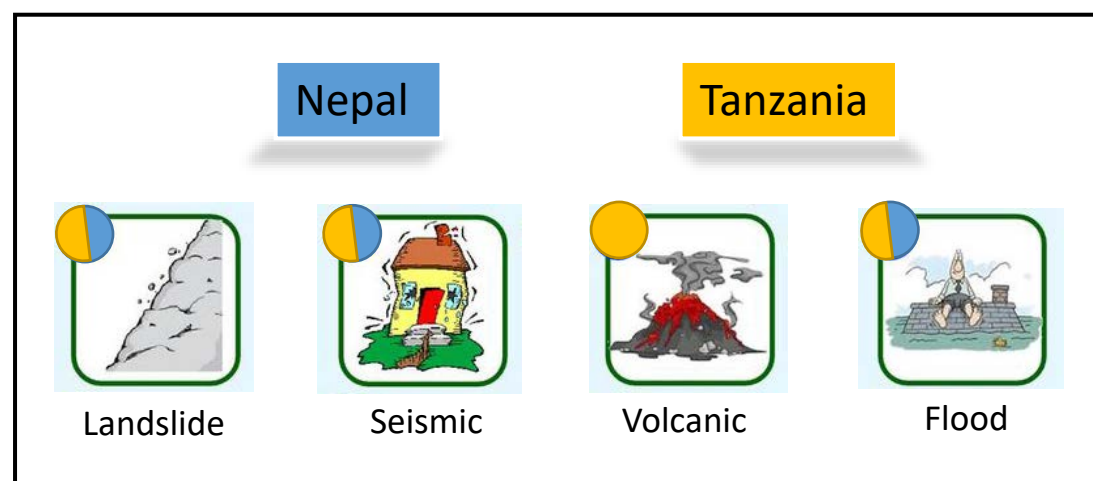
Gorkha Earthquake Reconstruction in Nepal. Copyright NSET © 2018

METEOR takes a step-change by co-developing and delivering rigorous and open routines (protocols) and standards to allow quantitative assessment of exposure, with explicit uncertainties.

$$\text{Risk} = \text{Hazard} \times \text{Exposure} \times \text{Vulnerability}$$

The exposure data will be co-developed with partners in Nepal and Tanzania, with country-wide openly-available data subsequently delivered for the 47 least developed countries in the DAC list of ODA recipients.

National-scale geohazard footprints will be developed and provided openly for Nepal and Tanzania. We will investigate the interaction of these multi-hazards and their potential impacts on exposure.



Geohazard data will be developed and openly disseminated

All of our work is co-designed and co-delivered with our partners. The process of building capacity and co-delivering new consistent data will promote welfare and economic development and demonstrate the applicability of the techniques elsewhere. METEOR progress is tracked within the project by a dedicated Monitoring & Evaluation process that includes baseline, midline and endline interviews.



Flooding in Tanzania (image from BBC.com)

All METEOR results will be openly and freely disseminated. We will deliver:

- Exposure taxonomy and data models
- Country-wide exposure data for 47 countries
- Hazard footprints for Nepal and Tanzania
- Training materials and tutorials
- Information to help make better-informed DRM decisions that meet the demands of international drivers (e.g. UN Sustainable Development Goals and the Sendai Framework for Disaster Risk Reduction)

METEOR is led by the British Geological Survey with partners from Disaster Management Department of the Prime Minister's Office, Tanzania; the National Society for Earthquake Technology (NSET), Nepal; Fathom Global; Global Earthquake Model Foundation; Humanitarian OpenStreetMap Team; ImageCat Inc; and Oxford Policy Management Limited.