PSHA Model Development & Testing of model
Modelling (1), Uncertainty (3), Testing (4), Communication (2)

- **Consistency of information** from source \(\rightarrow\) ground motion prediction. For example magnitude definitions, determination of mechanism and tectonic types \(\rightarrow\) **MODELLING**

- **Precision vs. Uncertainty**: How do we optimise the trade-off between precision and uncertainty when calculating hazard models and communicating results. For example, as spatial precision increases, the uncertainty in the hazard estimate increases \(\rightarrow\) **UNCERTAINTY**

- **Quantification & Reduction in uncertainty via validation**: e.g., regionalisation of GMPEs, single station sigma, use of Fragile Geological Features. When is regionalisation robust enough to use? \(\rightarrow\) **UNCERTAINTY/TESTING**

- **Testing of GMPE and simulation in the very near source** (i.e., better constraints on the strong ground motion near fault) *More data please!!!* What Additional data could we use? \(\rightarrow\) **TESTING**

- **What is the role of CSEP** and what can it do to provide more to NSHMs: continual ground-motion based testing of hazard, testing of background models (time frames), testing of GMPEs (S. Mak style testing) \(\rightarrow\) **TESTING**
Does the future look like the recent past in low seismicity areas. Testing and optimisation of smoothed seismicity models and area source models in low seismicity areas → TESTING

Practically, how can we handle many sources of epistemic uncertainty? What are The goals of a NSHM and how much epistemic uncertainty is reasonable to quantify or not quantify? End-users are demanding including uncertainty, but we need to be honest about how well we can do that. → UNCERTAINTY

How to communicate model performance and skill (i.e., test results) to end-users to encourage developing and understanding of the true ability of the models to forecast hazard → COMMUNICATION

How to communicate hazard results and products to the engineering community, government and to the public → COMMUNICATION