

Towards the OpenQuake Infomall

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This abstract describes possible features of a modern community portal aimed at supporting earthquake science. This capability was always part of the GEM (General Earthquake Model) “dream” and indeed QuakeSim <http://www.quakesim.org/> can be considered a prototype of this. However it’s over the ten years since GEM and QuakeSim were conceived and both technology and user requirements have evolved since then. Highlights of particularly relevant technology developments include rise in importance of lightweight clients (smartphones, tablets), rich Web 2.0 collaborative sites and Cloud backends supporting inter alia Software as a Service. Further open source (community) approaches to software development have blossomed. Recent disasters have emphasized the requirement for essentially real-time response. This was presumably always a requirement but only recently has the internet interfaced cloud made it clearly possible. Looking at portal support for crises, there are many features that are common both to different modalities of disasters and indeed to military command and control systems. Such basic features include collaborative tools including sharing of real time data from sensors and web-cams with information supported on web-based GIS (Geographic Information Systems). Further the major Internet companies especially Google and Microsoft have collected a remarkable amount of information relevant for crises. This varies from collections of scholarly papers (say on earthquake prediction) to the lists of all geo-located entities in the world. There are nice examples of Web 2.0 resources dedicated to crises -- <http://japan.personfinder.appspot.com/?lang=en> and <http://www.google.com/crisisresponse/japanquake2011.html>.

We need to re-examine GEM and Quakesim and identify the features of the next generation portal – we call this the OpenQuake Infomall. This is an electronic exchange of data and tools of relevance to Earthquake response and science. It is open so it motivates people contribute new tools in an interoperable fashion. OpenQuake will support and establish the needed interface standards to promote this. The OpenQuake Infomall will collaborate with the Internet giants so that their data and base tools in GIS/collaboration areas are exploited. It will examine for gaps in the commodity offerings and put its efforts into filling these. Areas of clear importance include specialized data not compiled commercially (such as fault data and some sensors); simulation and data mining tools and further customizations of base tools to the needs of OpenQuake. One example of latter is the scholarly literature searches customized to particular earthquake regions and features. OpenQuake will offer a convenient web-based workflow engine allowing quick analyses on demand in the cloud with a good visualization front end.