climada module **eq_global**   5 Dec 2014

https://github.com/davidnbresch/climada_module_eq_global
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This module implements a raw global earthquake model, see other files in docs for details. Consider climada module GDP_entity[1] to generate the centroids for the earthquake model. Please consider module country_risk, too.

- `eq_isc_gem_read` reads the ISC-GEM database[2], see `help eq_isc_gem_read`
- `eq_centennial_read` reads the centennial database (see docs/centennial.pdf)
- `eq_signigeq_read` reads the signigeq database (and `help eq_signigeq_read`)
- `eq_global_probabilistic` creates the probabilistic epicenters (see `help eq_global_probabilistic for details`)
- `eq_global_hazard_set` creates the climada hazard event set and calls `eq_global_attenuation` for each event (see also docs/Po-Shen Lin and Chyi- Tyi Lee, 2008)

all-in-one, you can run the module as:

```
hazard=eq_global_hazard_set(eq_global_probabilistic(...
    eq_isc_gem_read,99,0))
```

Please consider `climada_create_GDP_entity`[1] to generate the centroids and basic assets data in order to run the earthquake module.
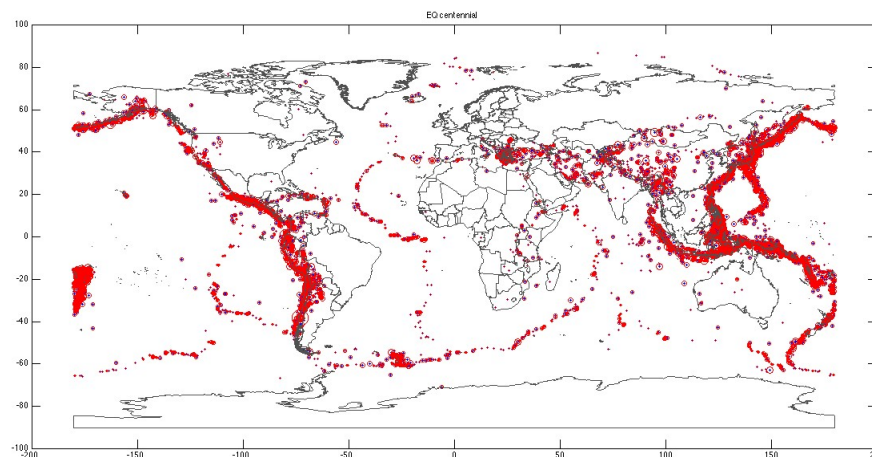

Figure: centennial database, epicenter overview. Figure created with the command eq_data=eq_centennial_read('',1)

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[1] See https://github.com/davidnbresch/climada_module_GDP_entity and climada_high_res_entity from module https://github.com/davidnbresch/climada_module_country_risk
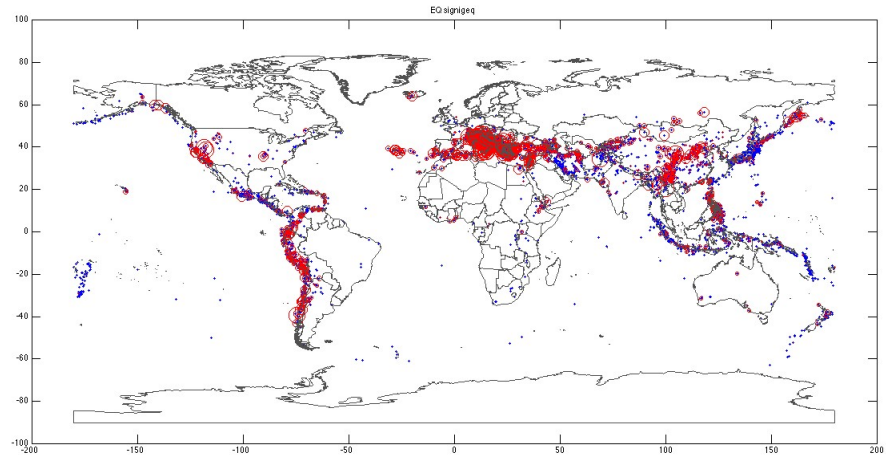[2] see www.isc.ac.uk/iscgem/index.php

Figure: signigeq database, epicenter overview. Figure created with the command eq_data=eq_signigeq_read('',1)
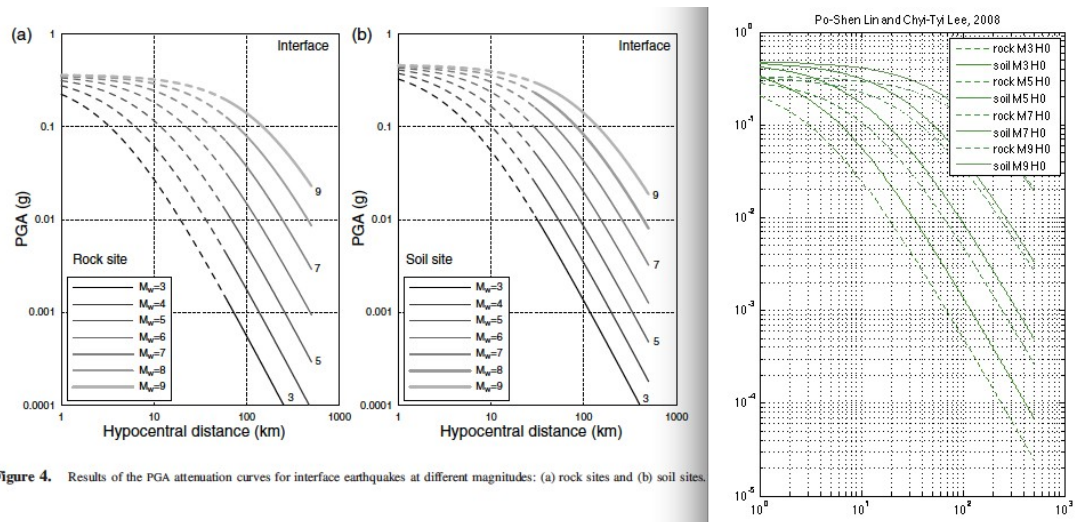

Figure 4. Results of the PGA attenuation curves for interface earthquakes at different magnitudes: (a) rock sites and (b) soil sites.

Figure: the attenuation function currently used, left the publication (Po-Shen Lin and Chyi-Tyi Lee, 2008), right the climada eq_global module implementation (the user can in fact specify what he wants, see code eq_global_attenuation)