Validation of Binary Workflow

In order to validate the binary workflow we have followed two steps:

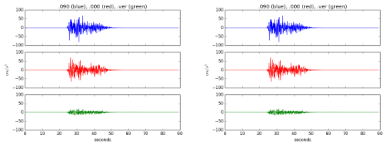
- Verify that HF produced with the text workflow is exactly the same as the one produced by the binary workflow at the waveform level
  - They use the same Fortran code so the waveforms should match
- BB verification also occurs on the waveforms. There are two stages, as some code has been ported to Python from C:
  - Without site amplification ie. we use vs = 500 for everything.
  - Include the site amplification and verify once again.

Results

HF

For random locations, the HF accelerations are visually close. Also, when computing the RMS (Root-Mean squared) error, we get very small discrepancy. For example:

Location WAI:



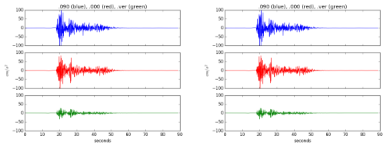
For this location we have the RMS per component of:

Component	RMS
000	0.0063
090	0.0108
ver	0.0016

BB

If we start with the same LF and same HF, we should arrive to exactly the same BB acceleration waveforms, this with and without site amplification. Once again, I have repeated the previous steps and found out that we have a perfect matching of waveforms:

Location CCH2:



And the values of the RMS for that location per component are:

Component	RMS
000	0.201
090	0.189
ver	0.065

A better validation is to compute the IMs from the text and binary BB accelerations and then compute the ratio. This ratio should be really close to 1. I have uploaded the text files that contain the results for several IMs to this page: pgv_ratio.txt, pga_ratio.txt, AI_ratio.txt, pSA0p5_ratio.txt, pSA1p0_ratio.txt and pSA10p0_ratio.txt for example.