

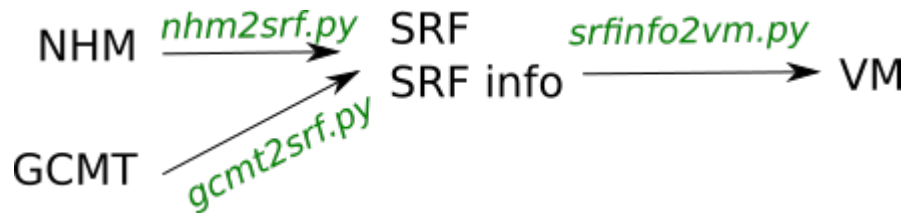
# [repo] Pre-processing

URL: <https://github.com/ucgmsim/Pre-processing>

## Summary

Everything related to producing input for GMSim (NonUniformGrid, SrfGen, geoNet).

- SRF/VM generation : Including a low-level wrapper (createSRF.py) that gives users lots of control for generating an SRF, as well as high-level (more automation) wrapper that creates SRF out of NHM or GCMT as well as calling Ethan's VM binary code using SRF info file as an input.



- NonUniformGrid : Code used for generating non-uniform grid. Mature.
- geoNet: For geoNet's FTP URL for a specific event, it downloads all the observation data, and can run plotting (has its own plotting code, which will need to be replaced with IM Plot). It can create 1D site-specific profiles,

## Current Status : Working

- SRF and VM are generated directly from NHM and GCMT by a single Slurm script. Tested with CS18p6 pre-processing and works fine.
- SRF generation uses 80 concurrent processes (Hyperthread enabled + Python multiprocessing)
- VM generation uses 16 threads for each VM with 5 VMs produced in parallel. (2.5 times after than no hyperthread)
- NonUniforGrid is mature and stable.

## Known Issues

Desirable to have a checkpointing.

- SRF checkpointing: Only needs to skip completed faults
- VM checkpointing: As it depends on SRF info files in autosrf, best to create a temporary copy of autosrf that only contains faults whose VMs are incomplete/missing (Only needs to copy SRF info). Each resume will produce vminfo.csv files containing successfully produced VM meta data, vminfo.csv should be different name if it is a resume to avoid overwriting. Extra routine may be added to merge vminfo files.

Code related to real-time simulation is somewhat obsolete, especially geoNet code needs some maintenance.

## Related Info

- [Non-uniform grid 18p6](#)
- [Preprocessing on Kupe](#)