

README: Flatfile and HDF5 Dataset Summary

1. Overview

This dataset contains synthetic ground-motion simulations provided in two complementary formats:

- **CSV flatfile:** Metadata and calculated ground-motion intensity measures for each record.
- **HDF5 dataset:** Full acceleration time series organized by simulation scenario and identified by Name column from CSV file.

Both files share a consistent naming convention to allow cross-referencing between metadata and waveform data.

2. CSV Flatfile

The CSV file includes one row per simulated ground-motion record. Each row is uniquely identified by the **Name** column (e.g., Azores_Scenario_20_Site12_RandomNo28).

3. HDF5 Dataset Structure

The HDF5 file stores the corresponding acceleration time series.

- Each **scenario** is organized as a group:
 - /Scenario_1/
 - /Scenario_2/
 - /Scenario_3/
 - Within each scenario group, the **ACC** subgroup contains acceleration datasets for all sites and random realizations, using the same names as in the CSV flatfile, e.g.:
 - /Scenario_20/ACC/Azores_Scenario_20_Site12_RandomNo28
 - Each dataset contains two arrays:
 - **ac** – acceleration time series (in cm/s^2)
 - **t** – corresponding time vector (in seconds)
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4. Accessing the Data

The HDF5 files can be accessed using:

- **Python:** h5py or pandas for reading datasets.
- **MATLAB:** h5read() function.
- **HDFView:** GUI-based exploration of dataset hierarchy.