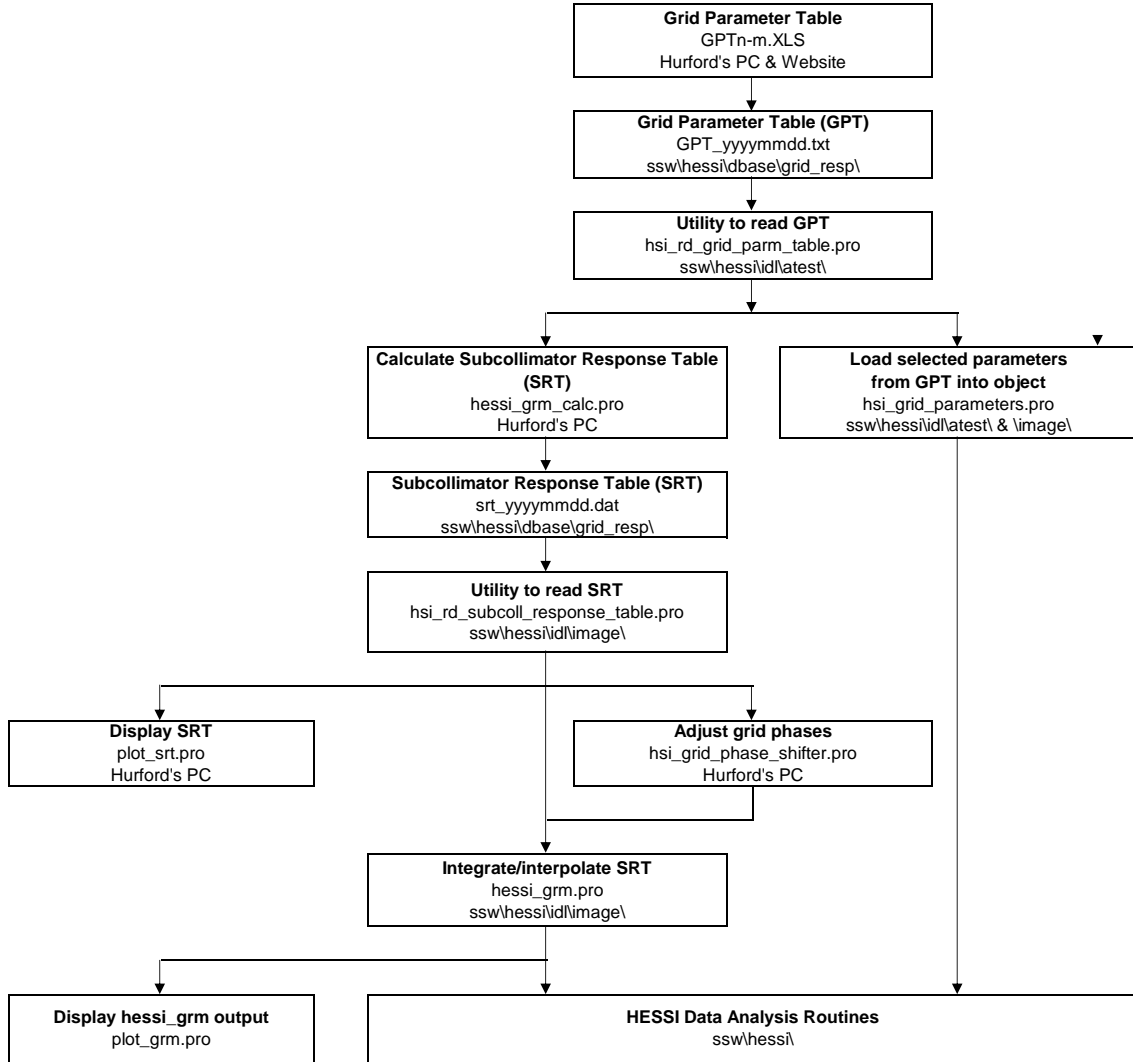


# HESSI Subcollimator Response Calculations

Original 11/6/2001



The HESSI subcollimator response is calculated from the detailed grid characterization, location, and orientation information determined before launch. Some of this information will be refined after launch based on the response to flares. All of the relevant grid information is contained in the Grid Parameter Table (GPT), available in an Excel file, or alternatively as an html document, or ASCII text file. A few parameters from the GPT are obtained as needed by the HESSI Data Analysis Routines using hsi\_grid\_parameters.pro.

The Subcollimator Response Table (SRT) is a binary file which contains tabulated values of the average transmission, modulation amplitude and phase (for 3 harmonics) for each of the subcollimators as a function of incident angle and energy. It is computed from the GPT taking into account the separation and relative phases of the front and rear grids, their dimensions, density and material. The SRT is part of the calibration database on SSW. A utility called, hsi\_rd\_subcoll\_response\_table.pro is used to read the SRT into a structure. The analysis software uses a routine, hessi\_grm.pro, to interpolate and integrate the SRT as necessary to meet the requirements of a specific analysis task.

Plots of the contents of the SRT can be made by using either of the two IDL routines, plot\_srt.pro and plot\_grm.pro.

Changes to the subcollimator response table are normally made by altering the contents of the Grid Parameter Table. Requests for any such changes should be made to Gordon Hurford. Alternatively, if only the phases need to be modified, a more convenient routine, hsi\_grid\_phase\_shifter.pro can be used if only the phases need to be modified. Under normal circumstances, the Subcollimator Response Table should not be modified.

Note that the SSW locations of the data files and IDL procedures given in the above flow diagram are for the latest versions. Earlier versions can be found in ssw\hessi\release\ folders.