**Introduction**

SALSA is a python tool that calibrates planetary spectral data in Mid-to-Far Ultraviolet wavelengths (110 – 300 nm), using data from the Solar Stellar Irradiance Comparison Experiment (SOLSTICE) on NASA’s Solar Radiation Climate Experiment (SORCE). It is designed to allow planetary scientists to input their spectra of a planet or moon in our solar system and SALSA will produce a number of results including, but not limited to, a corrected high-resolution solar spectrum and the convolution of that solar spectrum onto the point spread function of the instrument.

**Process**

Step 1: The user is prompted for the information to create the URL that will query the solar data: target, wavelengths, time range, etc. These inputs are passed into a function in the DataQuery class which stitches together the URL string that downloads the data from LISIRD and creates a json data structure which SALSA then reads as Irradiance and Wavelength data columns.

Step 2: The user will be prompted for the filename containing their planetary data and which options they would like SALSA to produce. In order for SALSA to produce the desired figures, this data file must be of FITS format, within the same directory on their OS, and its contents must be in units of kiloRayleighs per Angstrom.

Step 3: The user will then be prompted to provide the instrument specific point spread function (PSF) array, if they are using data from an instrument that SALSA is not equipped for. They will input an array at this step and SALSA will convolve the solar spectrum onto this PSF, producing a solar spectrum of the same spectral resolution as the data given. If the user data is from Cassini UVIS or Maven IUVS, then SALSA is automatically equipped with these PSFs.

**Results**

The first option is for SALSA to return a high-resolution solar spectrum for the time being queried, corrected for the distance of the object and face of the sun at the position of the object. It will also produce the solar spectrum convolved onto the point spread function (or line spread function) of the instrument corresponding to the user’s data.

**Fig. 1: Simple dependency chart of SALSA functions**

**Fig. 2: Diagram of solar system geometry, vectors that SALSA calculates, and the values produced.**

**References**