First, the **MinXSS-1 data should not be fit below 0.9 keV** (the detector noise is very large below 0.9 keV and the spectral response is very uncertain below 0.9 keV). Second, we will have to perform laboratory test to estimate the MinXSS X123 spectral response below, and implement the spectral resolution vs. energy into the drm. The current OSPEX drm uses the best fit value of 0.24 keV determined at 6 keV from on orbit flare data. It is currently fixed vs. energy.

The zipped folder MinXSS\_OSPEX\_Shyama.zip contains all the code that you need.

You will need to copy over all the files (with the current names) in the “packages” folder to their respective locations in SSW. If you use the ‘nominal’ SSW code this will NO work. The code in “cmoore”, should go into the directory that you want to run your IDL codes through. Information on these files is files enumerated below. You will need to change the directory paths for to be compatible with your computer.

* Chianti spectral files – Version 8. extended from 0.1 – 30 keV in photon energy and 5 – 8 MK in temperature
  + Lines
    1. **setenv**, 'Chianti\_cont\_file=C:'+**path\_sep**()+'ssw'+**path\_sep**()+'packages'+**path\_sep**()+'xray'+**path\_sep**()+'dbase'+**path\_sep**()+'chianti'+**path\_sep**()+'chianti\_setup\_cont\_01\_30\_v8\_5MK\_8MK.geny'
  + Continuum
    1. **setenv**, 'chianti\_lines\_file=C:'+**path\_sep**()+'ssw'+**path\_sep**()+'packages'+**path\_sep**()+'xray'+**path\_sep**()+'dbase'+**path\_sep**()+'chianti'+**path\_sep**()+'chianti\_lines\_01\_30\_v8\_5MK\_8MK.sav'
* OSPEX data read file – DRM + data
  + File location – 'C:' +**path\_sep**()+'ssw'+**path\_sep**()+'packages'+**path\_sep**()+'spex'+**path\_sep**()+'idl'+**path\_sep**()+'object\_spex'+**path\_sep**()+
  + o->**set**, spex\_file\_reader='minxss\_read'
* OSPEX functions default and text file
  + File location – 'C:' +**path\_sep**()+'ssw'+**path\_sep**()+'packages'+**path\_sep**()+'spex'+**path\_sep**()+'idl'+**path\_sep**()+'object\_spex'+**path\_sep**()+
  + f\_vth\_abun\_defaults.pro
  + f\_2vth\_abun\_defaults.pro
  + f\_vth\_defaults.pro
  + f\_2vth\_defaults.pro
  + fit\_model\_components.txt
* OSPEX functions and chianti line and continuum setup functions
  + File location – 'C:' +**path\_sep**()+'ssw'+**path\_sep**()+'packages'+**path\_sep**()+'xray'+**path\_sep**()+'idl'+**path\_sep**()+
  + f\_vth\_abun.pro
  + f\_2vth\_abun.pro
  + f\_vth.pro
  + f\_2vth.pro
  + chianti\_kev\_lines.pro
  + chianti\_kev\_cont.pro
* Chris Moore functions and DRM .sav file
  + create\_opsex\_minxss1\_level1\_60minute\_average\_mission.pro (EXAMPLE FILE, you will need to change this to whatever you need !!)
  + minxss\_x123\_level1\_make\_ospex\_structure.pro
  + minxss\_x123\_compute\_ospex\_fit.pro
  + function\_auto\_fit\_ospex\_minxss.pro
  + DRM\_COMPLETE\_MINXSS\_X123\_FM1\_ALL\_OSPEX\_FWHM\_0\_240\_keV.SAV

Follow these steps to take a downloaded level 1 MinXSS-1 data set from the [MinXSS website](http://lasp.colorado.edu/home/minxss/data/). Compile all the routines. This process uses the [OSPEX ANY SPECFILE Input](https://hesperia.gsfc.nasa.gov/ssw/packages/spex/doc/ospex_any_specfile.htm). Please read the comments and ask questions.

* Run your modified version of the procedure create\_opsex\_minxss1\_level1\_60minute\_average\_mission.pro, again, you will have to change the file paths and you can perform temporal averages of the MinXSS-1 level 1 data that is read in before you put it into the function, minxss\_x123\_level1\_make\_ospex\_structure.pro.
  + Note that it currently states 60minute\_average, but this is just a place holder.
  + This code reads in the MinXSS-1 level1 nominal data structure formulations and puts it into a format tha OSPEX any
* Run function\_auto\_fit\_ospex\_minxss.pro with the data that you want to fit (saved data file from create\_opsex\_minxss1\_level1\_60minute\_average\_mission.pro), it nominally is a loop that runs through the spectral classes
  + 1Tcoronal – vth with abundances fixed at Feldman 1992 values
  + 2Tcoronal – 2vth with abundances fixed at Feldman 1992 values
  + 1Tfree– vth with low-fip (Fe\_Ni, Mg, Si, 0.5S, Ca) multiplicative factor variable at Feldman 1992 values
  + 2Tfree– 2vth with low-fip (Fe\_Ni, Mg, Si, 0.5S, Ca) multiplicative factor variable at Feldman 1992 values
  + 1TAllfree– vth with Fe\_Ni, Mg, Si, 0.5S, Ca, Ar, + more) can be varied independently from Feldman 1992 values
  + 2TAllfree– 2vth with Fe\_Ni, Mg, Si, 0.5S, Ca, Ar, + more) can be varied independently from Feldman 1992 values
* This code uses the minxss\_x123\_compute\_ospex\_fit.pro, which fits the data AUTONOMOUSLY, unless you set the optional keyword spex\_fit\_manual = 1
* You can just use the function minxss\_x123\_compute\_ospex\_fit.pro separate from the function\_auto\_fit\_ospex\_minxss.pro also or use the outline by [OSPEX ANY SPECFILE Input](https://hesperia.gsfc.nasa.gov/ssw/packages/spex/doc/ospex_any_specfile.htm).