
Subject: Re: Basic IDL/ENVI Input file/Apply calc/Output to new file
Posted by [Jeff N.](#) on Sat, 07 Apr 2007 05:59:59 GMT

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On Apr 6, 10:34 pm, petersod...@gmail.com wrote:

> I'm going to go ahead and apologize in advance for such a newbie
> question, but I am *slowly* trying to learn the basics of how to write
> ENVI functions. My particular problem is pretty simple, but I've been
> trying to figure it out for far too long and need help. I simply want
> to write a function that 1) opens a spectral library, 2) figures out
> the dimensions of the file, 3) applies a calculation upon each spectra
> and then 4) saves these manipulated spectra into a new spectral
> library which has an appended name (for example, USGSSpecLib_appended)
> and appropriate header file. Could someone give me an example of how
> to do this?
>
> Thanks for your help!
>
> Dave

This should get you pretty close (there may be typos or syntax errors,
this was off the top of my head):

```
;1) open the spectral library  
;specify the filename (or use dialog_picfile(), envi_select, etc.)  
in_file = 'spectral_library_file.sli'
```

```
;Open the file  
envi_open_file, in_file, r_fid=fid
```

```
;2) get file dimensions and names of spectra  
envi_file_query, fid, spec_names=spec_names, ns=ns, nl=nl,  
file_type=file_type  
;(you could also ask for nb (#bands) here, but since this is a  
spectral  
;library it would be 1.
```

```
;3) apply a calculation to the spectra  
spectra = envi_get_data(fid=fid, pos=0, dims=[-1,0,ns-1, 0, nl-1])  
;the variable spectra now contains a 2D array, each row being one of  
the  
;library spectra. you can now perform any kind of calculation you'd  
like.  
;Lets assume you wanted to multiply every element of each spectrum by  
2  
;for the purposes of this exercise  
outdata = spectra * 2
```

;note that if you have a very large spectral library such that it's
not
;efficient to hold them all in memory at once you can set up tiling
routines.

```
;4)Save new spectral library
outname = file_basename(in_file, '.sli') + '_appended.sli'
openw, lun, outname, /get_lun
writeu, lun, outdata
free_lun, lun
envi_setup_head, fname=outname, ns=ns, nl=nl, nb=1, interleave=0, $
  data_type = size(outdata, /type), offset=0, spec_names=spec_names, $
  file_type=file_type, /write, /open
```
