Subject: Re: Getting mean from HDF SD files - stack in envi or read into IDL array?
Posted by bulrushmower on Sun, 06 Jul 2008 13:25:48 GMT
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On Jul 6, 4:10 am, kathryn.davi...@googlemail.com wrote:
> On Jul 5, 10:32 pm, bulrushmo...@gmail.com wrote:
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>> On Jul 5, 2:45 pm, bulrushmo...@gmail.com wrote:
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>>> On Jul 5, 1:58 pm, bulrushmo...@gmail.com wrote:
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>>>> On Jul 5, 10:46 am, kathryn.davi...@googlemail.com wrote:
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>>>> > On Jul 5, 4:33 pm, bulrushmo...@gmail.com wrote:
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>>>> > > On Jul 4, 8:41 am, kathryn.davi...@googlemail.com wrote:
>
>>>> > > > Hi
>
>>>> > > > I am extremely new to IDL (2 weeks!) and have previously only used
>>>> > > > envi on a small scale.
>
>>>> > > > I want to read one SD dataset from from a each of a huge number of
>>>> > > > MODIS files and having looked at IDL and envi batch routines can't
>>>> > > > decide which is the best way. Bear in mind my limited knowledge and a
>>>> > > > very short timeframe.... Should I write an envi batch programme and
>>>> > > > create a big (3000bands +) envi file or should I put straight into the
>>>> > > > an IDL array. I need to get a mean value (one image or array) and
>>>> > > > even if it is easier in envi batch mode, would the routine
>>>> > > > ENVI_SUM_DATA_DOIT with the Mean option deal with the missing
>>>> > > > values???
>
>>>> > > > Looking at IDL I have managed to open HDF file from command line, read
>>>> > > > in appropriate data set to an array but how then could I build 3D
>>>> > > > array from absolutely loads of 2D arrays.
>
>>>> > > > Big questions I know - I am desperate to do this in a short time.
>
>>>> > > > Any help on any aspect much appreciated.
>
>>>> > > > K
>
>>>> > > Tell me more about how many bands you have in HDF file and how many
>>>> > > bands you want to read into IDL?- Hide quoted text -

>
>>>> > > - Show quoted text -
>
>>>> > Well I am going to be using around 3-4000 MODIS HDF files but I only
>>>> > want one band (the first) from each i.e. the Land Surface
>>>> > Temperature. Since my last post I have thought about creating a huge
>>>> > multiband file in ENVI and then exporting as a variable to IDL (if the
>>>> > ENVI_SUM_DOIT doesn't work for the mean, as it may not deal with
>>>> > missing values very well, I need them to not be counted as opposed to
>>>> > counting as zero). However that means extracting the SD dataset from
>>>> > all of the HDF files, converting them to ENVI standard files to build
>>>> > multi-band image. I hope the data values are not corrupted by being
>>>> > converted to ENVI standard. Also I could create an image stack in
>>>> > iIMAGE or mess about with iDataManager in some way but they do not
>>>> > seem to like reading ENVI standard files and keep asking me to fill in
>>>> > binary information - will the data values still be OK?
>
>>>> > Thanks
>
>>>> > Kathryn- Hide quoted text -
>
>>>> > - Show quoted text -
>
>>>> The simplest way to do it:
>>>> I am assuming you have IDL and ENVI, initiate batch mode by doing the
>>>> following
>
>>>> 1. define the file directory
>>>> 2. read them into IDL using envi_open_data_file
>>>> 3. get their mean by
>>>> 4. print them into a txt file
>
>>>> Try this code
>
>>>> Pro Mean_HDF
>>>> envi, /restore_base_save_files
>>>> envi_batch_init, log_file='batch.txt'
>
>>>> ; Open the file directory and searh for HDF files to read, then
>>>> select the directory manually
>>>> files=file_search(dialog_pickfile(/dir),'*.HDF', count=numFiles);
>>>> or you can use files=file_search('D:\MODIS*.hdf', count=numFiles)
>
>>>> ; loop for the whole data set in the directory
>>>> FOR K = 0, numFiles-1 do begin
>>>> ; get the file name only without file directory for final
>>>> output filename
>>>> fname = file_basename(files[K])

```
>>>>         ;select input file directory to subset
>>>>         hdf_bands = 1   ; determines the HDF dataset bands to read
>
>>>>         ;start looping through opening bands from HDF
>>>>         for i = 0, hdf_bands -1 do begin
>>>>            envi_open_data_file, files[K], r_fid=fid, /hdf_sd,
>>>>  hdfsd_dataset=i, hdfsd_interleave=0
>
>>>>            ;query new file for ns, nl, dims;
>>>>            envi_file_query, fid, dims=dims, bnames=bnames, ns=ns,
>>>>  nl=nl, nb=nb
>>>>            pos=0
>
>>>>            ;get the mean of the data
>>>>            result = MEAN(fid)
>>>>         endfor
>>>>         ;if you want to export the results in screen do as
>>>>         print, results
>>>>          ;if you want to export them into a txt file
>
>>>>         OpenW, Lun, 'D:\test.txt', /get_lun
>>>>         str= fname
>>>>         printf,lun,str
>>>>      endFOR
>
>>>>  End- Hide quoted text -
>
>>>>  - Show quoted text -
>
>>>  I wonder if you are trying to get mean of each band you read or the
>>>  mean of thousands of bands over each pixel.
>>>  If you want to read just band you can get rid of the inside loop from
>>>  above code. Let me know I will help you figure out.- Hide quoted text -
>
>>>  - Show quoted text -
>
>>  If you are looking making a mean of all of the data bands you read,
>>  try the following
>
>>  Pro Mean_HDF
>>      envi, /restore_base_save_files
>>      envi_batch_init, log_file='batch.txt'
>
>>      ; Open the file directory and searh for HDF files to read, then
>>  select the directory manually
>>      files=file_search(dialog_pickfile(/dir),'*.HDF', count=numFiles);
>
>>      out_fid = lonarr(numFiles)
```

>>   ; loop for the whole data set in the directory
>>   FOR i = 0, numFiles-1 do begin
>>   ; get the file name only without file directory for final
>> output filename
>>   fname = file_basename(files[i])
>>   ;select input file directory to subset
>>   hdf_bands = 1   ; determines the HDF dataset bands to read
>
>>   ;start looping through opening bands from HDF
>>   envi_open_data_file, files[i], r_fid=fid, /hdf_sd,
>> hdfsd_dataset=1, hdfsd_interleave=0
>>   ;query new file for ns, nl, dims;
>>   envi_file_query, fid, dims=dims, bnames=bnames, ns=ns, nl=nl,
>> nb=nb
>>   pos=0
>
>>   out_fid[i]=fid
>>   endFOR
>>   ; Set the keywords to process all the
>>   ; spectral data.
>>   ; Set the keyword COMPUTE_FLAG to
>>   ; compute the sum of the bands, the
>>   ; sum squared of the bands, the mean
>>   ; of the bands, and the standard
>>   ; deviation of the bands.
>>   out_pos = lonarr(numFiles)
>>   envi_file_query, fid, dims=dims, nb=nb
>>   out_name = 'Mean.img'
>>   compute_flag = [1,1,1,1,0,0,0,0]
>>   ;
>>   ; Call the processing routine to
>>   ; sum the data together.
>>   ;
>>   envi_doit, 'envi_sum_data_doit', $
>>   fid=out_fid, pos=out_pos, dims=dims, $
>>   out_name=out_name, compute_flag=compute_flag
>>   ;
>>   ; Exit ENVI
>>   ;
>>   envi_batch_exit
>
>> End- Hide quoted text -
>
>> - Show quoted text -
>
> Hi
>
> I am trying to get the mean of thousands of bands over each pixel.

> Many thanks for the code I will give it a go tonight when I get some
> time to play with it. My only worry is whether it will deal with the
> missing values - I will let you know.
>
> Many, many thanks
>
> Kathryn- Hide quoted text -
>
> - Show quoted text -

Missing values? you mean the background values as Zero or not? If yes,
no problem, but if there is missing balues even in the data, it would
be a little tricky.
