Subject: Re: Getting mean from HDF SD files - stack in envi or read into IDL array?
Posted by kathryn.davies1 on Sun, 06 Jul 2008 09:10:24 GMT
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On Jul 5, 10:32 pm, bulrushmo...@gmail.com wrote:
> 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:
>
>>>> > 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