Subject: Getting mean from HDF SD files - stack in envi or read into IDL array?
Posted by kathryn.davies1 on Fri, 04 Jul 2008 13:41:32 GMT
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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???

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Big questions I know - I am desperate to do this in a short time.

Any help on any aspect much appreciated.

K

Subject: Re: Getting mean from HDF SD files - stack in envi or read into IDL array?
Posted by bulrushmower on Sat, 05 Jul 2008 15:33:07 GMT
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On Jul 4, 8:41 am, kathryn.davi...@googlemail.com wrote:
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Tell me more about how many bands you have in HDF file and how many
bands you want to read into IDL?

Subject: Re: Getting mean from HDF SD files - stack in envi or read into IDL array?
Posted by kathryn.davies1 on Sat, 05 Jul 2008 15:46:04 GMT
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Thanks

Kathryn

Subject: Re: Getting mean from HDF SD files - stack in envi or read into IDL array?
Posted by bulrushmower on Sat, 05 Jul 2008 18:58:11 GMT
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Try this code

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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

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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
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      OpenW, Lun, 'D:\test.txt', /get_lun
      str= fname
      printf,lun,str
   endFOR

End
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Posted by bulrushmower on Sat, 05 Jul 2008 19:45:19 GMT
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Posted by bulrushmower on Sat, 05 Jul 2008 21:32:48 GMT
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   files=file_search(dialog_pickfile(/dir),'*.HDF', count=numFiles);

   out_fid = lonarr(numFiles)
   ; loop for the whole data set in the directory
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      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

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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>        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
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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

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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>>>>     ; loop for the whole data set in the directory
>>>>     FOR K = 0, numFiles-1 do begin
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>>>>           ;get the mean of the data
>>>>           result = MEAN(fid)
>>>>        endfor
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>>>>        OpenW, Lun, 'D:\test.txt', /get_lun
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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 22:38:17 GMT
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>
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The metafiles says the fill value is zero where there is no value
(i.e. a cloudy pixel and therefore no temperature reading) so I hope
that is OK - obviously I want the mean to not count in the zero value
so the number the total value for the pixels needs to be divided by to
obtain the mean needs to be adjusted when there is a non-valid value
i.e. zero - do you think it will work? I can test it on a few files.

I am using MODIS daily files and I do have another complication
however as I have realised I need to use two datasets from each HDF
file not one i.e. the first dataset (daytime temperature) and the
fifth (nighttime temperature)to get the daily mean temperature but
again if one of the two values is zero I don't want the value to be
calculated, the pixel in the resulting daily image needs to be zero so
it wont be counted as if only one temperature (day or night) is there
the daily value can't be calculated. Does that make sense....

Cheers

Kathryn