Subject: Re: Reading various HDF files
Posted by peter.albert@gmx.de on Wed, 09 Nov 2005 11:37:41 GMT
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Hi Nicola,

first of all we need to know whether the files are in HDF4 or HDF5, as the data structure and thus the routines for reading differ berween the two. I guess you can't avoid looping over all the files, but of course you don't have to read each file completely. For HDF4 and HDF5 there are options to read only individual datasets. In therory it should also be possible to extract just the one plane, but I never did that.

Cheers,

Peter

Subject: Re: Reading various HDF files
Posted by Nicola on Wed, 09 Nov 2005 12:35:07 GMT
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Hi Peter
thank you for your reply. I forgot to mention that the data are save in HDF4 format. Normally I used the routine sds_read (from Liam Gumley) but of course if there are some other methods I can use them.
hear your soon
Nicola

Subject: Re: Reading various HDF files
Posted by peter.albert@gmx.de on Wed, 09 Nov 2005 13:11:53 GMT
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Hi Nicola,

well, it's all there, then. Haven't you used the SDS, START and COUNT keywords to sds_read yet?

In your case, I'd loop over the files with a command like

```
sds_read, files[i], $
  sds = "the_field_you_want_to_extrasct", $
  start = [0, 0, 8], $
  count = [64,128, 0], $
  data
```

Then data should be just the field's plane you need for further
processing with e.g. MPEG_PUT.

Cheers,

Peter

Subject: Re: Reading various HDF files
Posted by Nicola on Wed, 09 Nov 2005 13:19:46 GMT
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Actually for the moment I've tried only to read each sds and then to
extract the let's call 0-zplane. I did not tried for the moment start
and count which will be me reading just one plane and so I can divided
for 8 the computational time. I will try..and also I will try mpeg_put
(although I was not succesfully in creating mpeg file with IDL up to
now :-( )
thank's a lot
n

Subject: Re: Reading various HDF files
Posted by David Fanning on Wed, 09 Nov 2005 13:35:16 GMT
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Nicola writes:

> Actually for the moment I've tried only to read each sds and then to
> extract the let's call 0-zplane. I did not tried for the moment start
> and count which will be me reading just one plane and so I can divided
> for 8 the computational time. I will try..and also I will try mpeg_put
> (although I was not succesfully in creating mpeg file with IDL up to
> now :-( )

Is that because you haven't asked for the free MPEG license? :-)

Cheers,

David
--
David Fanning, Ph.D.
Fanning Software Consulting, Inc.
Coyote's Guide to IDL Programming: http://www.dfanning.com/

Subject: Re: Reading various HDF files
Posted by peter.albert@gmx.de on Wed, 09 Nov 2005 13:36:10 GMT
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Well, it took me a while to create MPEGs, too, but here is my recipe:
First of all, I let mpeg_put read the individual frames from a direct
graphics window. So you have to subsequently display each frame in a
window.

; In order to get the dimensions right, I'd suggest to display the
first image e.g. like

```
window, 1, xsize = 600, ysize = 400
tv, data

; First, open the mpeg_file:

mpegID = mpeg_open( $
  [!d.x_size, !d.y_s
  filename = filename
  motion_vec_length = 1, $
  iframe_gap = 3, $
 quality = 75 $
 )

; With the images I wanted to put together, simply specifying
; QUALITY brought horrible results full of
; jpeg artefacts. With MOTION_VEC_LENGTH and
; IFRAME_GAP, everything is just fine. Increasing
; IFRAME_GAP gives better results, but you pay with longer processing
time.

; O.k., now for the individual frames, assuming that you have some code
for
; reading the i-th dataset

for i = 0, n do begin
  data = read_the_data(i)
  tv, data
  mpeg_put, mpegID, $
    window = !d.window, $
    /color, $
    frame = i, $
    /order
endfor

; After all this, you have to close the file and let IDL do a lot of
compression:
```

mpeg_save, mpegID
mpeg_close, mpegID

That's it. In case you have only a small number of images to show, the MPEG file will be short, given a framerate of 24 frames per second. In that case you can just repeatedly add one and the same frame with a second loop, but make sure to correctly count the frame number as provided via FRAME = i. (i.e. use something like

```
 for j = 0, nframes-1 do begin
   f = i * (nframes) + j
  ...
  ... FRAMES = f, $
  ...
 endfor
```

Cheers,

Peter

)

Subject: Re: Reading various HDF files
Posted by Rick Towler on Thu, 10 Nov 2005 19:46:08 GMT
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I don't want to complicate things but forget about MPEG. MPEG is most often a lousy format for scientific animations. I would suggest writing all of your frames to disk as individual .png files then using another program to create the animation.

For 8-bit animations, it's tough to beat the FLI/FLC format. Rich Signell has a page with all you need to know to get started with FLI/FLC format at: http://woodshole.er.usgs.gov/operations/modeling/flc.html

For 24-bit animations it is a bit more complicated as there are a number of encoder/decoders out there. I would be happy to advise further if you want to go this route.

If you just want to stick with MPEG, understand that most MPEG players only support certain frame sizes and bit rates so to ensure compatibility you need to stick to them. For frames sizes, I would

stick with D1 (704x480 or 720x480), half D1 (352x480), and quarter D1 (352x240). MPEG-2 will give you better overall quality vs file size but not all media players play MPEG-2 content (for example, Windows Media Player requires a special plug-in). MPEG-1 is widely compatible but you are limited in maximum bit-rate (1856 kbps) and quality vs file size isn't as good as MPEG-2.

-Rick

Nicola wrote:
> Actually for the moment I've tried only to read each sds and then to
> extract the let's call 0-zplane. I did not tried for the moment start
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