Subject: Re: Maximum intensity projection (MIP)
Posted by Jo Klein on Thu, 12 Apr 2007 12:44:07 GMT
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Hi,
Take a look at project_vol.pro available at
http://www.astro.washington.edu/deutsch
Also, there's an example in IDL's documentation using object graphics.
Cheers,
Jo

Subject: Re: Maximum intensity projection (MIP)
Posted by Anne Martel on Thu, 12 Apr 2007 13:10:03 GMT
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Steve,

For a mip in the x-y plane you just need to do

mipIm=data[*,*,0]
for i = 1,79 do mipIm = mipIm > data[*,*,i]

I've pasted my mip routine below - it gives you more control over the orientation and slices to use. I posted an interactive GUI version on the IDL website a few years ago - I think it was called xmip and it should still be there,

Anne

```
 $Id: mip.pro $
;
;+
; NAME:
; MIP
;
; PURPOSE:
; Function to return the max (or min) intensity projection of
; an array of images.

; CATEGORY:
;
;
; CALLING SEQUENCE:
; myMipImage=MIP(image)
;
; INPUTS:
; image - raw image image - must be a 3D array
```

```
; KEYWORD PARAMETERS:

; ORIENTATION: This gives the orientation of the mip image.
;    default = 2 -ie mip generated using images (*,*,i)
;

   can also have 0 or 1
; MAXIMUM: Generates max intensity projection image (the default)
; MINIMUM: Generates min intensity projection image
; X_LOWER, X_UPPER: extent of array in X direction with which to
generate the mip.
;             Only has an effect if orientation=0
; Y_LOWER, Y_UPPER: extent of array in Y direction with which to
generate the mip.
;             Only has an effect if orientation=1;
; Z_LOWER, Z_UPPER: extent of array in Z direction with which to
generate the mip.
;             Only has an effect if orientation=2
;Default is to use complete array

; MODIFICATION HISTORY:
; 7/3/01 anne: orientation keyword and lower and upper bounds keywords
added
; 7/10/02 anne: minimum keyword added


;-

FUNCTION Mip, image,orientation=orientation , $
 maximum=maximum, minimum=minimum, $
 x_Lower=xLower,x_Upper=xUpper, $
 y_Lower=yLower,y_Upper=yUpper, $
  z_Lower=zLower,z_Upper=zUpper

if n_elements(orientation) eq 0 then orientation = 2
if keyword_set(minimum) then mode=1 else mode=0

s=size(image)

xsize = s[1]
ysize = s[2]
zsize = s[3]

case orientation of
 2: begin
  if keyword_set(zLower) then zLower=zLower>0   else zLower=0
  if keyword_set(zUpper) then zUpper=zUpper<zsize-1 else
```

```
zUpper=zsize-1
  mipImage=image[*,*,zLower]
  if mode eq 0 then begin ; max intensity
   for i = zLower+1, zUpper do begin
     mipImage=mipImage>image[*,*,i]
   endfor
  endif else begin  ;  min_intensity
   for i = zLower+1, zUpper do begin
     mipImage=mipImage<image[*,*,i]
   endfor
  endelse
       end
    1: begin
   if keyword_set(yLower) then yLower=yLower>0   else yLower=0
  if keyword_set(yUpper) then yUpper=yUpper<ysize -1  else
yUpper=ysize-1
  mipImage=image[*,yLower,*]
  if mode eq 0 then begin ; max intensity
   for i = yLower+1, yUpper do begin
     mipImage=mipImage>image[*,i,*]
   endfor
  endif else begin  ;  min_intensity
   for i = zLower+1, zUpper do begin
     mipImage=mipImage<image[*,i,*]
   endfor
  endelse
  mipImage=reform(mipImage)
       end

      0: begin
    if keyword_set(xLower) then xLower=xLower>0   else xLower=0
  if keyword_set(xUpper) then xUpper=xUpper<xsize-1   else
xUpper=xsize-1
  mipImage=image[xLower,*,*]
  if mode eq 0 then begin ; max intensity
      for i = xLower+1, xUpper  do begin
          mipImage=mipImage>image[i,*,*]
   endfor
  endif else begin  ;  min_intensity
   for i = zLower+1, zUpper do begin
     mipImage=mipImage<image[i,*,*]
   endfor
  endelse
  mipImage=transpose(reform(mipImage))
  ;using transpose maintains orientation so that y remains along
vertical axis
      end
```

```
    else:

endcase


RETURN, mipImage

END
```

On Apr 12, 8:34 am, "StevenM" <s.maclel...@strath.ac.uk> wrote:
> Hi all,
>
> I have a 3d data set as a 320x80x80 array. Can anyone tell me if
> there is an easy way to do a maximum intensity projection using IDL.
>
> thanks
>
> Steven

Subject: Re: Maximum intensity projection (MIP)
Posted by Paolo Grigis on Thu, 12 Apr 2007 13:52:50 GMT
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Anne Martel wrote:
> Steve,
>
> For a mip in the x-y plane you just need to do
>
> mipIm=data[*,*,0]
> for i = 1,79 do mipIm = mipIm > data[*,*,i]

You can avoid the loop using the dimension keyword of max:
mipIm=max(data,dimension=3)

Ciao,
Paolo

>
> I've pasted my mip routine below - it gives you more control over the
> orientation and slices to use. I posted an interactive GUI version on
> the IDL website a few years ago - I think it was called xmip and it
> should still be there,
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>  ; image - raw image image - must be a 3D array
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>  ; KEYWORD PARAMETERS:
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>  ;              Only has an effect if orientation=0
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>  generate the mip.
>  ;              Only has an effect if orientation=1;
>  ; Z_LOWER, Z_UPPER: extent of array in Z direction with which to
>  generate the mip.
>  ;              Only has an effect if orientation=2
>  ;Default is to use complete array
>
>  ; MODIFICATION HISTORY:
>  ; 7/3/01 anne: orientation keyword and lower and upper bounds keywords
>  added
>  ; 7/10/02 anne: minimum keyword added
>
>
>  ;-
>
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>   maximum=maximum, minimum=minimum, $
>   x_Lower=xLower,x_Upper=xUpper, $
>   y_Lower=yLower,y_Upper=yUpper, $
>    z_Lower=zLower,z_Upper=zUpper
>
>  if n_elements(orientation) eq 0 then orientation = 2
>  if keyword_set(minimum) then mode=1 else mode=0
>
>  s=size(image)
>
>  xsize = s[1]
>  ysize = s[2]
>  zsize = s[3]
>
>  case orientation of
>   2: begin
>    if keyword_set(zLower) then zLower=zLower>0   else zLower=0
>    if keyword_set(zUpper) then zUpper=zUpper<zsize-1 else
>  zUpper=zsize-1
>    mipImage=image[*,*,zLower]
>    if mode eq 0 then begin ; max intensity
>     for i = zLower+1, zUpper do begin
>       mipImage=mipImage>image[*,*,i]
>     endfor
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>     for i = zLower+1, zUpper do begin
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>     endfor
>    endelse
>         end
>     1: begin
>    if keyword_set(yLower) then yLower=yLower>0   else yLower=0
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>    mipImage=image[*,yLower,*]
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>     for i = yLower+1, yUpper do begin
>       mipImage=mipImage>image[*,i,*]
>     endfor
>    endif else begin  ;  min_intensity
>     for i = zLower+1, zUpper do begin
>       mipImage=mipImage<image[*,i,*]
>     endfor
>    endelse
>    mipImage=reform(mipImage)
>         end
>
```

```
>       0: begin
>     if keyword_set(xLower) then xLower=xLower>0   else xLower=0
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>    if mode eq 0 then begin ; max intensity
>        for i = xLower+1, xUpper  do begin
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>    endelse
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>    ;using transpose maintains orientation so that y remains along
>  vertical axis
>        end
>
>       else:
>
>   endcase
>
>
>  RETURN, mipImage
>
>  END
>
>
>
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>  On Apr 12, 8:34 am, "StevenM" <s.maclel...@strath.ac.uk> wrote:
>>  Hi all,
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>
>
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>
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