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

  else:
endcase

RETURN, miplImage

```

END

On Apr 12, 8:34 am, "StevenM" <s.macle...@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
