Subject: extract circle from data with idl
Posted by termybel on Wed, 11 Oct 2017 12:23:31 GMT
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How can extract an circle or an ellipse from my data with IDL?
With a contour plot my data form a circle, I need to know the center of this circle. From the geometry I know that if I know 3 points I can extract a circle, are there routine or function something else in IDL that using, reading my data, can give me the center?

Subject: Re: extract circle from data with idl
Posted by Markus Schmassmann on Wed, 11 Oct 2017 12:41:43 GMT
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On 10/11/2017 02:23 PM, termybel@gmail.com wrote:
> How can extract an circle or an ellipse from my data with IDL?
> With a contour plot my data form a circle, I need to know the center
> of this circle. From the geometry I know that if I know 3 points I
> can extract a circle, are there routine or function something else in
> IDL that using, reading my data, can give me the center?

;; without using the properties of the circle or ellipse:

```
; DATA   being the data to be contoured
 data=2-(([-1:1:.1]^2)#replicate(1.,21))-(replicate(1.,21)#([ -1:1:.1]^2))
; LEVEL  the appropriate level to contour
level=1.
contour, data, path_info=li, path_xy=lines, /path_data_coord, $
              levels=[level], /path_double
if n_elements(li) ne 1 then message, 'not exactly 1 contour'

cont_obj =obj_new('IDLanROI',lines)
void= cont_obj.ComputeGeometry(centroid=center)

print, center[0:1]
```

;; otherwise use math to calculate the center

Subject: Re: extract circle from data with idl
Posted by Helder on Wed, 11 Oct 2017 12:47:50 GMT
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On Wednesday, 11 October 2017 14:23:33 UTC+2, term...@gmail.com wrote:
> How can extract an circle or an ellipse from my data with IDL?
> With a contour plot my data form a circle, I need to know the center of this circle. From the geometry I know that if I know 3 points I can extract a circle, are there routine or function

something else in IDL that using, reading my data, can give me the center?

Hi,
you might also want to have a look at this article:
http://www.idlcoyote.com/ip_tips/fit_ellipse.html
Cheers,
Helder

Subject: Re: extract circle from data with idl
Posted by termybel on Thu, 12 Oct 2017 12:10:30 GMT
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Thanks to answer but I have a probelm.

You puth this: if n_elements(li) ne 1 then message, 'not exactly 1 contour'

and my program say: not exactly 1 contour

How I can solve it?

If I ask in idl " help,/str,li" and the answer is:

```
Structure CONTOUR_DBL_PATH_STRUCTURE, 6 tags, length=24, data length=20:
   TYPE           BYTE        1
   HIGH_LOW       BYTE        1
   LEVEL          INT         0
   N              LONG        7
   OFFSET         LONG        0
   VALUE          DOUBLE      9.0000000
```

and for " help,/str,lines"
LINES   DOUBLE   = Array[2, 5447]

My contour isn't a perfect circle. Maybe is this the problem?

This is my program where the image is a flat field panel minus dark:

```
file_ff1='ff_100s_3.fits'                    ;immagine
immagine_ff1=readfits (file_ff1, header1)       ; leggo l'immagine del flat field panel
file_dark='ff_100s_dark_3.fits'                  ;immagine
immagine_dark=readfits (file_dark, header1)       ; leggo l'immagine della dark

n=100.                                       ; secondi di esposizione dell'immagine
ffp=(immagine_ff1-immagine_dark)/n

; contour per selezionare soglie di equivalore
```

```
speriamo=fltarr(2048,2048)                ; creo una matrice 2048x2048
dimensioni=size(speriamo,/dimensions)
cubo=where(ffp lt 9.5 or ffp gt 10)



wrong_matrix=array_indices(dimensioni, cubo,/dimensions)
indxw=reform(wrong_matrix(0,*))
indyw=reform(wrong_matrix(1,*))
;ffp(indxw,indyw)=0.
;c = CONTOUR(ffp, dimensions=[512,512], Title='prova cubo')

; DATA   being the data to be contoured
level=9
contour, smooth(ffp(250:1700, 250:1700),3), path_info=li,closed=1 , path_xy=lines,
/path_data_coord, levels=[level], /path_double
 ; lix=lines(0,*)
 ; liy=lines(1,*)
 ; liyd=deriv(lix,liy)
 ;ind=where(abs(liyd) le 0.0001)

if n_elements(li) ne 1 then message, 'not exactly 1 contour'


cont_obj =obj_new('IDLanROI',lines)
void= cont_obj.ComputeGeometry(centroid=center)
;fit_ellipse(
print, center[0:1]

end
```

Subject: Re: extract circle from data with idl
Posted by Markus Schmassmann on Thu, 12 Oct 2017 14:27:15 GMT
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On 10/12/2017 02:10 PM, termybel@gmail.com wrote:
> Thanks to answer but I have a probelm.
>
> You puth this: if n_elements(li) ne 1 then message, 'not exactly 1 contour'
>
> and my program say: not exactly 1 contour
>
> How I can solve it?
>
> If I ask in idl " help,/str,li" and the answer is:
>
> Structure CONTOUR_DBL_PATH_STRUCTURE, 6 tags, length=24, data length=20:

```
>     TYPE           BYTE        1
>     HIGH_LOW       BYTE        1
>     LEVEL          INT         0
>     N              LONG        7
>     OFFSET         LONG        0
>     VALUE          DOUBLE      9.0000000
>
>  and for " help,/str,lines"
>  LINES          DOUBLE    = Array[2, 5447]
>
>  My contour isn't a perfect circle. Maybe is this the problem?
>
>  This is my program where the image is a flat field panel minus dark:
>
>  file_ff1='ff_100s_3.fits'                    ;immagine
>  immagine_ff1=readfits (file_ff1, header1)       ; leggo l'immagine del flat field panel
>  file_dark='ff_100s_dark_3.fits'              ;immagine
>  immagine_dark=readfits (file_dark, header1)       ; leggo l'immagine della dark
>
>  n=100.                                       ; secondi di esposizione dell'immagine
>  ffp=(immagine_ff1-immagine_dark)/n
>
>  ; contour per selezionare soglie di equivalore
>
>  speriamo=fltarr(2048,2048)                   ; creo una matrice 2048x2048
>  dimensioni=size(speriamo,/dimensions)
>  cubo=where(ffp lt 9.5 or ffp gt 10)
>
>
>
>  wrong_matrix=array_indices(dimensioni, cubo,/dimensions)
>  indxw=reform(wrong_matrix(0,*))
>  indyw=reform(wrong_matrix(1,*))
>  ;ffp(indxw,indyw)=0.
>  ;c = CONTOUR(ffp, dimensions=[512,512], Title='prova cubo')
>
>  ; DATA   being the data to be contoured
>  level=9
>  contour, smooth(ffp(250:1700, 250:1700),3), path_info=li,closed=1 , path_xy=lines,
/path_data_coord, levels=[level], /path_double
>    ; lix=lines(0,*)
>    ; liy=lines(1,*)
>    ; liyd=deriv(lix,liy)
>    ;ind=where(abs(liyd) le 0.0001)
>
>  if n_elements(li) ne 1 then message, 'not exactly 1 contour'
>
>
```

```
>  cont_obj =obj_new('IDLanROI',lines)
>  void= cont_obj.ComputeGeometry(centroid=center)
>  ;fit_ellipse(
>  print, center[0:1]
>
>  end

contour, smooth(ffp(250:1700, 250:1700),3), path_info=li,closed=1 , $
    path_xy=lines, /path_data_coord, levels=[level], /path_double
contour, smooth(ffp(250:1700, 250:1700),3), levels=[level]
; shows you there are more than 1 contour,
; you need to identify the correct one
; often the best is the longest
void=max(li.n,j)
line=[*,li[j].offset+lindgen(li[j].n)]
plot, line[0,*],line[1,*]
cont_obj =obj_new('IDLanROI',line)
```

Subject: Re: extract circle from data with idl
Posted by termybel on Sun, 15 Oct 2017 15:43:58 GMT
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Il giorno giovedì 12 ottobre 2017 16:27:18 UTC+2, Markus Schmassmann ha scritto:

```
>  On 10/12/2017 02:10 PM, termybel@gmail.com wrote:
>>  Thanks to answer but I have a probelm.
>>
>>  You puth this: if n_elements(li) ne 1 then message, 'not exactly 1 contour'
>>
>>  and my program say: not exactly 1 contour
>>
>>  How I can solve it?
>>
>>  If I ask in idl " help,/str,li" and the answer is:
>>
>>  Structure CONTOUR_DBL_PATH_STRUCTURE, 6 tags, length=24, data length=20:
>>     TYPE           BYTE        1
>>     HIGH_LOW       BYTE        1
>>     LEVEL          INT         0
>>     N              LONG        7
>>     OFFSET         LONG        0
>>     VALUE          DOUBLE      9.0000000
>>
>>  and for " help,/str,lines"
>>  LINES          DOUBLE    = Array[2, 5447]
>>
>>  My contour isn't a perfect circle. Maybe is this the problem?
>>
```

```
>>  This is my program where the image is a flat field panel minus dark:
>>
>>  file_ff1='ff_100s_3.fits'                    ;immagine
>>  immagine_ff1=readfits (file_ff1, header1)       ; leggo l'immagine del flat field panel
>>  file_dark='ff_100s_dark_3.fits'                  ;immagine
>>  immagine_dark=readfits (file_dark, header1)       ; leggo l'immagine della dark
>>
>>  n=100.                                    ; secondi di esposizione dell'immagine
>>  ffp=(immagine_ff1-immagine_dark)/n
>>
>>  ; contour per selezionare soglie di equivalore
>>
>>  speriamo=fltarr(2048,2048)                ; creo una matrice 2048x2048
>>  dimensioni=size(speriamo,/dimensions)
>>  cubo=where(ffp lt 9.5 or ffp gt 10)
>>
>>
>>
>>  wrong_matrix=array_indices(dimensioni, cubo,/dimensions)
>>  indxw=reform(wrong_matrix(0,*))
>>  indyw=reform(wrong_matrix(1,*))
>>  ;ffp(indxw,indyw)=0.
>>  ;c = CONTOUR(ffp, dimensions=[512,512], Title='prova cubo')
>>
>>  ; DATA   being the data to be contoured
>>  level=9
>>  contour, smooth(ffp(250:1700, 250:1700),3), path_info=li,closed=1 , path_xy=lines,
/path_data_coord, levels=[level], /path_double
>>    ; lix=lines(0,*)
>>    ; liy=lines(1,*)
>>    ; liyd=deriv(lix,liy)
>>    ;ind=where(abs(liyd) le 0.0001)
>>
>>  if n_elements(li) ne 1 then message, 'not exactly 1 contour'
>>
>>
>>  cont_obj =obj_new('IDLanROI',lines)
>>  void= cont_obj.ComputeGeometry(centroid=center)
>>  ;fit_ellipse(
>>  print, center[0:1]
>>
>>  end
>
>  contour, smooth(ffp(250:1700, 250:1700),3), path_info=li,closed=1 , $
>       path_xy=lines, /path_data_coord, levels=[level], /path_double
>  contour, smooth(ffp(250:1700, 250:1700),3), levels=[level]
>  ; shows you there are more than 1 contour,
>  ; you need to identify the correct one
```

> ; often the best is the longest
> void=max(li.n,j)
> line=[*,li[j].offset+lindgen(li[j].n)]
> plot, line[0,*],line[1,*]
> cont_obj =obj_new('IDLanROI',line)

I don't know why but IDL say this message:

line=[*,li[j].offset+lindgen(li[j].n)]
^
% Syntax error.

Subject: Re: extract circle from data with idl
Posted by termybel on Sun, 15 Oct 2017 16:08:02 GMT
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Il giorno giovedì 12 ottobre 2017 16:27:18 UTC+2, Markus Schmassmann ha scritto:
> On 10/12/2017 02:10 PM, termybel@gmail.com wrote:
>> Thanks to answer but I have a probelm.
>>
>> You puth this: if n_elements(li) ne 1 then message, 'not exactly 1 contour'
>>
>> and my program say: not exactly 1 contour
>>
>> How I can solve it?
>>
>> If I ask in idl " help,/str,li" and the answer is:
>>
>> Structure CONTOUR_DBL_PATH_STRUCTURE, 6 tags, length=24, data length=20:
>> TYPE BYTE 1
>> HIGH_LOW BYTE 1
>> LEVEL INT 0
>> N LONG 7
>> OFFSET LONG 0
>> VALUE DOUBLE 9.0000000
>>
>> and for " help,/str,lines"
>> LINES DOUBLE = Array[2, 5447]
>>
>> My contour isn't a perfect circle. Maybe is this the problem?
>>
>> This is my program where the image is a flat field panel minus dark:
>>
>> file_ff1='ff_100s_3.fits' ;immagine
>> immagine_ff1=readfits (file_ff1, header1) ; leggo l'immagine del flat field panel
>> file_dark='ff_100s_dark_3.fits' ;immagine
>> immagine_dark=readfits (file_dark, header1) ; leggo l'immagine della dark

```
>>
>>  n=100.                                  ; secondi di esposizione dell'immagine
>>  ffp=(immagine_ff1-immagine_dark)/n
>>
>>  ; contour per selezionare soglie di equivalore
>>
>>  speriamo=fltarr(2048,2048)              ; creo una matrice 2048x2048
>>  dimensioni=size(speriamo,/dimensions)
>>  cubo=where(ffp lt 9.5 or ffp gt 10)
>>
>>
>>
>>  wrong_matrix=array_indices(dimensioni, cubo,/dimensions)
>>  indxw=reform(wrong_matrix(0,*))
>>  indyw=reform(wrong_matrix(1,*))
>>  ;ffp(indxw,indyw)=0.
>>  ;c = CONTOUR(ffp, dimensions=[512,512], Title='prova cubo')
>>
>>  ; DATA   being the data to be contoured
>>  level=9
>>  contour, smooth(ffp(250:1700, 250:1700),3), path_info=li,closed=1 , path_xy=lines,
/path_data_coord, levels=[level], /path_double
>>    ; lix=lines(0,*)
>>    ; liy=lines(1,*)
>>    ; liyd=deriv(lix,liy)
>>    ;ind=where(abs(liyd) le 0.0001)
>>
>>  if n_elements(li) ne 1 then message, 'not exactly 1 contour'
>>
>>
>>  cont_obj =obj_new('IDLanROI',lines)
>>  void= cont_obj.ComputeGeometry(centroid=center)
>>  ;fit_ellipse(
>>  print, center[0:1]
>>
>>  end
>
>  contour, smooth(ffp(250:1700, 250:1700),3), path_info=li,closed=1 , $
>       path_xy=lines, /path_data_coord, levels=[level], /path_double
>  contour, smooth(ffp(250:1700, 250:1700),3), levels=[level]
>  ; shows you there are more than 1 contour,
>  ; you need to identify the correct one
>  ; often the best is the longest
>  void=max(li.n,j)
>  line=[*,li[j].offset+lindgen(li[j].n)]
>  plot, line[0,*],line[1,*]
>  cont_obj =obj_new('IDLanROI',line)
```

I don't know why but IDL says this message (it doesn't read the *):

```
line=[*,li[j].offset+lindgen(li[j].n)]
       ^
% Syntax error.
```

Subject: Re: extract circle from data with idl
Posted by Markus Schmassmann on Mon, 16 Oct 2017 09:20:56 GMT
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On 10/15/2017 06:08 PM, termybel@gmail.com wrote:
> Il giorno giovedì 12 ottobre 2017 16:27:18 UTC+2, Markus Schmassmann ha scritto:
>> On 10/12/2017 02:10 PM, termybel@gmail.com wrote:
>>> Thanks to answer but I have a probelm.
>>>
>>> You puth this: if n_elements(li) ne 1 then message, 'not exactly 1 contour'
>>>
>>> and my program say: not exactly 1 contour
>>>
>>> How I can solve it?
>>>
>>> If I ask in idl " help,/str,li" and the answer is:
>>>
>>> Structure CONTOUR_DBL_PATH_STRUCTURE, 6 tags, length=24, data length=20:
>>>   TYPE   BYTE   1
>>>   HIGH_LOW   BYTE   1
>>>   LEVEL   INT   0
>>>   N   LONG   7
>>>   OFFSET   LONG   0
>>>   VALUE   DOUBLE   9.0000000
>>>
>>> and for " help,/str,lines"
>>> LINES   DOUBLE   = Array[2, 5447]
>>>
>>> My contour isn't a perfect circle. Maybe is this the problem?
>>>
>>> This is my program where the image is a flat field panel minus dark:
>>>
>>> file_ff1='ff_100s_3.fits'   ;immagine
>>> immagine_ff1=readfits (file_ff1, header1)   ; leggo l'immagine del flat field panel
>>> file_dark='ff_100s_dark_3.fits'   ;immagine
>>> immagine_dark=readfits (file_dark, header1)   ; leggo l'immagine della dark
>>>
>>> n=100.   ; secondi di esposizione dell'immagine
>>> ffp=(immagine_ff1-immagine_dark)/n
>>>
>>> ; contour per selezionare soglie di equivalore

```
>>>
>>>  speriamo=fltarr(2048,2048)                ; creo una matrice 2048x2048
>>>  dimensioni=size(speriamo,/dimensions)
>>>  cubo=where(ffp lt 9.5 or ffp gt 10)
>>>
>>>
>>>
>>>  wrong_matrix=array_indices(dimensioni, cubo,/dimensions)
>>>  indxw=reform(wrong_matrix(0,*))
>>>  indyw=reform(wrong_matrix(1,*))
>>>  ;ffp(indxw,indyw)=0.
>>>  ;c = CONTOUR(ffp, dimensions=[512,512], Title='prova cubo')
>>>
>>>  ; DATA   being the data to be contoured
>>>  level=9
>>>  contour, smooth(ffp(250:1700, 250:1700),3), path_info=li,closed=1 , path_xy=lines,
/path_data_coord, levels=[level], /path_double
>>>     ; lix=lines(0,*)
>>>     ; liy=lines(1,*)
>>>     ; liyd=deriv(lix,liy)
>>>     ;ind=where(abs(liyd) le 0.0001)
>>>
>>>  if n_elements(li) ne 1 then message, 'not exactly 1 contour'
>>>
>>>
>>>  cont_obj =obj_new('IDLanROI',lines)
>>>  void= cont_obj.ComputeGeometry(centroid=center)
>>>  ;fit_ellipse(
>>>  print, center[0:1]
>>>
>>>  end
>>
>>  contour, smooth(ffp(250:1700, 250:1700),3), path_info=li,closed=1 , $
>>        path_xy=lines, /path_data_coord, levels=[level], /path_double
>>  contour, smooth(ffp(250:1700, 250:1700),3), levels=[level]
>>  ; shows you there are more than 1 contour,
>>  ; you need to identify the correct one
>>  ; often the best is the longest
>>  void=max(li.n,j)
>>  line=[*,li[j].offset+lindgen(li[j].n)]
>>  plot, line[0,*],line[1,*]
>>  cont_obj =obj_new('IDLanROI',line)
>
>  I don't know why but IDL says this message (it doesn't read the *):
>
>  line=[*,li[j].offset+lindgen(li[j].n)]
>          ^
>  % Syntax error.
```

>
; sorry, it should be
line=lines[*,li[j].offset+lindgen(li[j].n)]

Subject: Re: extract circle from data with idl
Posted by termybel on Mon, 16 Oct 2017 10:23:34 GMT
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Il giorno lunedì 16 ottobre 2017 11:20:59 UTC+2, Markus Schmassmann ha scritto:
> On 10/15/2017 06:08 PM, termybel@gmail.com wrote:
>> Il giorno giovedì 12 ottobre 2017 16:27:18 UTC+2, Markus Schmassmann ha scritto:
>>> On 10/12/2017 02:10 PM, termybel@gmail.com wrote:
>>>> Thanks to answer but I have a probelm.
>>>>
>>>> You puth this: if n_elements(li) ne 1 then message, 'not exactly 1 contour'
>>>>
>>>> and my program say: not exactly 1 contour
>>>>
>>>> How I can solve it?
>>>>
>>>> If I ask in idl " help,/str,li" and the answer is:
>>>>
>>>> Structure CONTOUR_DBL_PATH_STRUCTURE, 6 tags, length=24, data length=20:
>>>>   TYPE   BYTE   1
>>>>   HIGH_LOW   BYTE   1
>>>>   LEVEL   INT   0
>>>>   N   LONG   7
>>>>   OFFSET   LONG   0
>>>>   VALUE   DOUBLE   9.0000000
>>>>
>>>> and for " help,/str,lines"
>>>> LINES   DOUBLE   = Array[2, 5447]
>>>>
>>>> My contour isn't a perfect circle. Maybe is this the problem?
>>>>
>>>> This is my program where the image is a flat field panel minus dark:
>>>>
>>>> file_ff1='ff_100s_3.fits'   ;immagine
>>>> immagine_ff1=readfits (file_ff1, header1)   ; leggo l'immagine del flat field panel
>>>> file_dark='ff_100s_dark_3.fits'   ;immagine
>>>> immagine_dark=readfits (file_dark, header1)   ; leggo l'immagine della dark
>>>>
>>>> n=100.   ; secondi di esposizione dell'immagine
>>>> ffp=(immagine_ff1-immagine_dark)/n
>>>>
>>>> ; contour per selezionare soglie di equivalore
>>>>

```
>>>>  speriamo=fltarr(2048,2048)                ; creo una matrice 2048x2048
>>>>  dimensioni=size(speriamo,/dimensions)
>>>>  cubo=where(ffp lt 9.5 or ffp gt 10)
>>>>
>>>>
>>>>
>>>>  wrong_matrix=array_indices(dimensioni, cubo,/dimensions)
>>>>  indxw=reform(wrong_matrix(0,*))
>>>>  indyw=reform(wrong_matrix(1,*))
>>>>  ;ffp(indxw,indyw)=0.
>>>>  ;c = CONTOUR(ffp, dimensions=[512,512], Title='prova cubo')
>>>>
>>>>  ; DATA   being the data to be contoured
>>>>  level=9
>>>>  contour, smooth(ffp(250:1700, 250:1700),3), path_info=li,closed=1 , path_xy=lines,
/path_data_coord, levels=[level], /path_double
>>>>     ; lix=lines(0,*)
>>>>     ; liy=lines(1,*)
>>>>     ; liyd=deriv(lix,liy)
>>>>     ;ind=where(abs(liyd) le 0.0001)
>>>>
>>>>  if n_elements(li) ne 1 then message, 'not exactly 1 contour'
>>>>
>>>>
>>>>  cont_obj =obj_new('IDLanROI',lines)
>>>>  void= cont_obj.ComputeGeometry(centroid=center)
>>>>  ;fit_ellipse(
>>>>  print, center[0:1]
>>>>
>>>>  end
>>>
>>>  contour, smooth(ffp(250:1700, 250:1700),3), path_info=li,closed=1 , $
>>>        path_xy=lines, /path_data_coord, levels=[level], /path_double
>>>  contour, smooth(ffp(250:1700, 250:1700),3), levels=[level]
>>>  ; shows you there are more than 1 contour,
>>>  ; you need to identify the correct one
>>>  ; often the best is the longest
>>>  void=max(li.n,j)
>>>  line=[*,li[j].offset+lindgen(li[j].n)]
>>>  plot, line[0,*],line[1,*]
>>>  cont_obj =obj_new('IDLanROI',line)
>>
>>  I don't know why but IDL says this message (it doesn't read the *):
>>
>>  line=[*,li[j].offset+lindgen(li[j].n)]
>>           ^
>>  % Syntax error.
>>
```

> ; sorry, it should be
> line=lines[*,li[j].offset+lindgen(li[j].n)]

Thank you so much! :D :D :D