
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)
>> indwx=reform(wrong_matrix(0,*))
>> indyw=reform(wrong_matrix(1,*))
>> ;ffp(indwx,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 problem.

>>>

>>> You put 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'
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>>>>
>>>> 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
