
Subject: Help with data gaps and interpolation

Posted by [zolile mtumela](#) on Fri, 20 Mar 2015 14:18:48 GMT

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Dear All,

I would to get help, sugestions on the ff program. i have tried many ways but I did not succed, any help will be highly appreciated.

1. I want to plot with data gaps which are represented by values such as 9999.99.

2. I would like to interpolate the data again to fill the data gaps.

the data look like this

06-10-2006 19:01:00.000	1.45000	-2.15000	0.120000
06-10-2006 19:02:00.000	1.36000	-2.31000	0.120000
06-10-2006 19:03:00.000	1.39000	-1.76000	0.140000
06-10-2006 19:04:00.000	9999.99	9999.99	9999.99
06-10-2006 19:05:00.000	9999.99	9999.99	9999.99
06-10-2006 19:06:00.000	1.20000	-1.91000	0.220000
06-10-2006 19:07:00.000	1.23000	-1.87000	0.230000
06-10-2006 19:08:00.000	1.22000	-1.84000	0.230000
06-10-2006 19:09:00.000	1.14000	-1.86000	0.310000
06-10-2006 19:10:00.000	1.05000	-1.86000	0.440000
06-10-2006 19:11:00.000	0.920000	-1.87000	0.660000
06-10-2006 19:12:00.000	0.790000	-1.60000	0.420000
06-10-2006 19:13:00.000	0.180000	-1.38000	0.810000
06-10-2006 19:14:00.000	0.900000	-0.970000	0.310000
06-10-2006 19:15:00.000	1.64000	-0.680000	-0.270000
06-10-2006 19:16:00.000	1.73000	-0.680000	-0.210000
06-10-2006 19:17:00.000	1.83000	-0.710000	0.0500000

The program looks like this

```
File = Dialog_PickFile(Filter='*.txt')
```

```
Date_array = 0
```

```
time_array = 0
```

```
Bx_array = 0
```

```
By_array = 0
```

```
Bz_array = 0
```

```
str = "
```

```
openR, Lun, File,/Get_Lun
```

```
readf, Lun, str
```

```
while~eof(lun) do begin
```

```

readf,lun,date,time,Bx,By,Bz
;print,date,time,Bx,By,Bz

Bx_array = [Bx_array, Bx]
By_array = [By_array, By]
Bz_array = [Bz_array, Bz]
endwhile
free_lun,lun
  Bx_array=Bx_array[1:*]
  By_array=By_array[1:*]
  Bz_array=Bz_array[1:*]

index = where(Bx_array eq 9999.99, count)
  if (count gt 9999.99) then Bx_array[index] = !values.f_nan

; interpolate
if Bx_array lt 9999.99 then begin
  temp=(Bx_array, count)
  result=interpol(Bx_array[temp],temp, time[temp])
endif

Nx = n_elements(Bx_array)
time = findgen(Nx)
time = time/60

; plot with data gaps
plot, time, Bx_array[index];

plot,time, Result

end

```

Thank in advance for your time.
Zolile

Subject: Re: Help with data gaps and interpolation
 Posted by [Matthew Argall](#) on Fri, 20 Mar 2015 16:34:08 GMT
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There is a lot going wrong in this example.

```

index = where(Bx_array eq 9999.99, count)
  if (count gt 9999.99) then Bx_array[index] = !values.f_nan

```

"count" is an integer telling you how many fill values you have. It should not be compared to your fill value.

```
if Bx_array lt 9999.99 then begin
  temp=(Bx_array, count)
  result=interpol(Bx_array[temp],temp, time[temp])
endif
```

Bx_array is an array and comparing it to a scalar (9999.99) will cause an error. The line temp = (Bx_array, count) will append the scalar integer "count" to the end of the Bx_array. Bx_array[temp] indexes an array with another array. This would be ok if "temp" were an array of indices, but it is not. Thus, your call to "interpol" does not give you what you expect.

Something like this should work:

```
;Create data with fill values
Bx = randomu(3, 50)
Bx[[3, 4, 5, 12, 30, 33, 39, 45]] = 9999.99

;Find the good index values
iGood = where(Bx ne 9999.99, nGood)

;Create a time array indicating where you want points
nPts = n_elements(Bx)
time_out = findgen(nPts)

;Times where you have good data
time_in = time_out[iGood]
Bx_in = Bx[iGood]

;Interpolate over fill values
Bx_out = Interpol(Bx_in, time_in, time_out)
```

Subject: Re: Help with data gaps and interpolation
Posted by [zolile mtumela](#) on Mon, 23 Mar 2015 07:33:49 GMT
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On Friday, March 20, 2015 at 4:18:50 PM UTC+2, zolile...@gmail.com wrote:

```
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any help will be highly appreciated.
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> 1. I want to plot with data gaps which are represented by values such as 9999.99.
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> The program looks like this
>
> File = Dialog_PickFile(Filter='*.txt')
>
> Date_array = 0
> time_array = 0
> Bx_array = 0
> By_array = 0
> Bz_array = 0
>
> str = "
>
> openR, Lun, File,/Get_Lun
> readf, Lun, str
> while~eof(lun) do begin
>
>   readf,lun,date,time,Bx,By,Bz
>   ;print,date,time,Bx,By,Bz
>
>   Bx_array = [Bx_array, Bx]
>   By_array = [By_array, By]
>   Bz_array = [Bz_array, Bz]
> endwhile
> free_lun,lun
>   Bx_array=Bx_array[1:*]
>   By_array=By_array[1:*]
>   Bz_array=Bz_array[1:*]
>
>   index = where(Bx_array eq 9999.99, count)
>   if (count gt 9999.99) then Bx_array[index] = !values.f_nan

```

```
>  
> ; interpolate  
> if Bx_array lt 9999.99 then begin  
>   temp=(Bx_array, count)  
>   result=interpol(Bx_array[temp],temp, time[temp])  
> endif  
>  
> Nx = n_elements(Bx_array)  
> time = findgen(Nx)  
> time = time/60  
>  
> ; plot with data gaps  
> plot, time, Bx_array[index];  
>  
> plot,time, Result  
>  
> end  
>  
> Thank in advance for your time.  
> Zolile
```

Thank you so much Matthew for ur help. Thanks
