Subject: Interpolation problem
Posted by sdj on Mon, 03 Nov 2003 11:21:30 GMT
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Dear All,

I have a problem with interpolating data, neither of the IDL functions INTERPOLATE/INTERPOL/BILINEAR seem to work.

I have a 2-d array on a regular grid with valid values which are all +ve. Non valid values are set to -9999 and some 'intermediate' values I
would like to interpolate are set to -1.
How can I interpolate over the x, y grid the 'intermediate' values set to -1 without taking into account the non-valid values ?

I've tried the following, but it does not work (my output values are exactly the same as my input values).

```
;a is a fltarr(x, y) -> 'a' being meteorological values at 'x' lon
;and 'y' lat
nx = n_elements(a(*, 0)) ; no. elements x
ny = n_elements(a(0, *)) ; no. elements y
d = where(a EQ -1, count1) ; find 1-d index of values to be
interpolated
xd = d mod nx  ;x index of values to be interpolated
yd = d / nx  ; y index of values to be interpolated

;I "try" to have the a(xd, yd) values interpolated, but my output
;values are exactly the same as my input values
int_val = INTERPOLATE(a, xd, yd, missing = -9999)
```

INTERPOL and BILINEAR don't work either, have you got any idea of how to do this sort of operation ?

Thanks in advance for the help.

Best Regards,
Pepe

Subject: Re: Interpolation problem
Posted by the_cacc on Mon, 03 Nov 2003 20:06:54 GMT
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sdj@tiscali.it (Pepe) wrote in message
news:<56bc95a7.0311030321.42de483d@posting.google.com>...
>

> I have a 2-d array on a regular grid with valid values which are all
> +ve. Non valid values are set to -9999 and some 'intermediate' values
> I would like to interpolate are set to -1.

It sounds like you may be mis-understanding the MISSING keyword in interpolate. In fact, you may want to be using different functions altogther: TRIANGULATE & TRIGRID.

Try the program below and see if it's what you're looking for.

Ciao.

```
;-------------------------------------------------
PRO test

; Make a data set
n = 100
data = SIN( FINDGEN(n,n)/n^2 )

; Missing data
mx = RANDOMU(1,n,/LONG) MOD n^2
data[mx] = -1
valid = WHERE(data NE -1)
ix = valid MOD n
iy = valid / n

; Fill in missing data
TRIANGULATE,ix,iy,tr
new = TRIGRID(ix,iy,data[valid],tr,NX=n,NY=n)

; Display.
tvscl,data >0
tvscl,new

END
;-------------------------------------------------
```

Subject: Re: Interpolation problem
Posted by sdj on Tue, 04 Nov 2003 11:26:31 GMT
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Thank you for the help, yes your program indeed does the trick.

The only minor thing I had to change was to set the valid data NE to -1 AND NE to -9999 (see my original message), and then overwrite the interpolated values of the -9999 indices with the original data.

Thus, I end up interpolating the missing values without taking into
account the non-valid ones.

```
PRO test2

; Make a data set
n = 100
data = SIN( FINDGEN(n,n)/n^2 )

; Missing data
mx = RANDOMU(1, n, /LONG) MOD n^2
data[mx] = -1

; Non-valid data
nv = RANDOMU(2, n, /LONG) MOD n^2
data[nv] = -9999

valid = WHERE(data NE -1 AND data NE -9999)
ix = valid MOD n
iy = valid / n

; Fill in missing data
TRIANGULATE,ix,iy,tr
new = TRIGRID(ix, iy, data[valid],tr, NX = n, NY = n)

;Reset non-valid values equal to -9999
new[nv] = data[nv]
```

Again, thanks for your help.

Hasta lluego,
Pepe

the_cacc@hotmail.com (trouble) wrote in message
news:<5f9f0a23.0311031206.167c106a@posting.google.com>...
> sdj@tiscali.it (Pepe) wrote in message
news:<56bc95a7.0311030321.42de483d@posting.google.com>...
>>
>> I have a 2-d array on a regular grid with valid values which are all
>> +ve. Non valid values are set to -9999 and some 'intermediate' values
>> I would like to interpolate are set to -1.
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> It sounds like you may be mis-understanding the MISSING keyword in
> interpolate. In fact, you may want to be using different functions
> altogther: TRIANGULATE & TRIGRID.
>
> Try the program below and see if it's what you're looking for.
>

```
>  Ciao.
>
>  ;-------------------------------------------------
>  PRO test
>
>  ; Make a data set
>  n = 100
>  data = SIN( FINDGEN(n,n)/n^2 )
>
>  ; Missing data
>  mx = RANDOMU(1,n,/LONG) MOD n^2
>  data[mx] = -1
>  valid = WHERE(data NE -1)
>  ix = valid MOD n
>  iy = valid / n
>
>  ; Fill in missing data
>  TRIANGULATE,ix,iy,tr
>  new = TRIGRID(ix,iy,data[valid],tr,NX=n,NY=n)
>
>  ; Display.
>  tvscl,data >0
>  tvscl,new
>
>  END
>  ;-------------------------------------------------
```