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Subject: TOTAL gives totally different result on identical array

Posted by [M. Suklitsch](#) on Fri, 08 Jul 2011 10:22:42 GMT

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Hi everybody,

I don't exactly know how to start this question, so I'll probably just tell you the workflow which leads to a very disturbing result.

I have a netCDF file which contains temperature data for a decade on daily time resolution. And I have two different versions of an IDL based evaluation tool which should read in the data and do some stuff with it.

Now, although I read in exactly the same data (the data array has the same size in both IDL sessions with both versions of my tool), TOTAL and MEAN give completely different results. And I do not understand how that can be, since the data does not contain any NaN values, and MIN and MAX of the array are identical in both IDL sessions. The only difference between the two IDL sessions are different source codes that lead to the point where I do the stuff below. Here is what I get:

Session 1:

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```
IDL> ncid=NCDF_OPEN('my_input_file.nc')
IDL> ncdf_varget, ncid, 'tas', testa
IDL> help, mean(testa), min(testa), max(testa)
<Expression>  FLOAT  =   270.284
<Expression>  FLOAT  =   232.614
<Expression>  FLOAT  =   317.723
IDL> print, total(testa)/n_elements(testa)
      270.284
IDL> print, n_elements(testa)
      127124400
IDL> print, total(testa)
      3.43597e+10
IDL> idx=where(testa lt 275., countidx, ncomplement=countnidx)
IDL> help, countidx, countnidx
COUNTIDX    LONG    =   22074445
COUNTNIDX    LONG    =   105049955
```

Session 2:

=====

```
IDL> ncid=NCDF_OPEN('my_input_file.nc')
IDL> ncdf_varget, ncid, 'tas', testa
IDL> help, mean(testa), min(testa), max(testa)
```

```
<Expression>  FLOAT  =    67.5711
<Expression>  FLOAT  =    232.614
<Expression>  FLOAT  =    317.723
IDL> print, total(testa)/n_elements(testa)
      67.5711
IDL> print, n_elements(testa)
    127124400
IDL> print, total(testa)
      8.58993e+09
IDL> idx=where(testa lt 275., countidx, ncomplement=countnidx)
IDL> help, countidx, countnidx
COUNTIDX      LONG    =   22074445
COUNTNIDX     LONG    =   105049955
```

So, the values within the arrays seem to be the same (since the counting gives the identical number of elements), yet the TOTAL (and MEAN) deviate completely from each other. How can that be? I am really confused right now. And insecure about any results I got so far.

Regards,  
Martin

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