Subject: Re: Five days mean values
Posted by K. Bowman on Wed, 05 Oct 2005 21:57:16 GMT
View Forum Message <> Reply to Message

In article <1128546470.965721.312300@g49g2000cwa.googlegroups.com>,
"Julio" <julio@cpa.unicamp.br> wrote:

> Hello people,
>
> I have meteorological data from several years, like these:
>
> Date Temp (max) Temp (min)
> 01/08/2001 27.2 12.7
> 02/08/2001 27.8 12.4
> 03/08/2001 26.8 16.3
> 04/08/2001 26.6 12
> 05/08/2001 27.4 11
> 06/08/2001 27.6 16.1
> 07/08/2001 27.6 11.2
> 08/08/2001 28.4 13.4
> 09/08/2001 27.2 10.9
> 10/08/2001 26 9.7
>
> I want to calculate mean value from 01-05 days, 05-10 days, 10-15 days
> and so on.
> In other words, I must get the mean value at each five days.
> I'm trying to make some code to get it automatically. I think this kind
> of work is trivial for meteorological data users. Does anybody have
> some idea?
>
> Regards,

If the data are in an array T, this is a very quick way to compute averages

```
IDL> T = findgen(15)
IDL> print, T
      0.00000      1.00000      2.00000      3.00000      4.00000      5.00000
6.00000
      7.00000      8.00000      9.00000      10.0000      11.0000      12.0000
13.0000
      14.0000
IDL> print, rebin(T, 3)
      2.00000      7.00000      12.0000
```

but make sure that the number of days is a multiple of 5 and that you have no
missing data. Also, watch out for leap days.

Ken Bowman

Subject: Re: Five days mean values
Posted by Julio[1] on Thu, 06 Oct 2005 12:56:22 GMT
View Forum Message <> Reply to Message

Hi Kenneth,

I don't see how rebin can help me... An example, considering the meteorological data below, I want to find the temp(max) mean values from 01/08/2001 to 05/08/2001 and from 06/08/2001 to 10/08/2001...

So I have Temp (max) = 27.2 and 27.4

The problem is I have a very large amount of data. I can't see a way to find the mean value every five days.

Any comments welcome!

Regards,
Júlio

Kenneth Bowman escreveu:

> In article <1128546470.965721.312300@g49g2000cwa.googlegroups.com>,
> "Julio" <julio@cpa.unicamp.br> wrote:
>
>> Hello people,
>>
>> I have meteorological data from several years, like these:
>>
>> Date Temp (max) Temp (min)
>> 01/08/2001 27.2 12.7
>> 02/08/2001 27.8 12.4
>> 03/08/2001 26.8 16.3
>> 04/08/2001 26.6 12
>> 05/08/2001 27.4 11
>> 06/08/2001 27.6 16.1
>> 07/08/2001 27.6 11.2
>> 08/08/2001 28.4 13.4
>> 09/08/2001 27.2 10.9
>> 10/08/2001 26 9.7
>>
>> I want to calculate mean value from 01-05 days, 05-10 days, 10-15 days
>> and so on.
>> In other words, I must get the mean value at each five days.
>> I'm trying to make some code to get it automatically. I think this kind

>> of work is trivial for meteorological data users. Does anybody have
>> some idea?
>>
>> Regards,
>> Júlio
>
> If the data are in an array T, this is a very quick way to compute averages
>
> IDL> T = findgen(15)
> IDL> print, T
> 0.00000 1.00000 2.00000 3.00000 4.00000 5.00000
> 6.00000
> 7.00000 8.00000 9.00000 10.0000 11.0000 12.0000
> 13.0000
> 14.0000
> IDL> print, rebin(T, 3)
> 2.00000 7.00000 12.0000
>
> but make sure that the number of days is a multiple of 5 and that you have no
> missing data. Also, watch out for leap days.
>
> Ken Bowman

Subject: Re: Five days mean values
Posted by Michael Wallace on Thu, 06 Oct 2005 14:23:18 GMT
View Forum Message <> Reply to Message

I wouldn't have thought of using rebin, but rebin will do the job for you as Ken describes. Rebin is used to resize arrays. When you compress an array, rebin take averages of the data points in the array. You can use rebin to compress your temperature array and when it does so, averages will automatically be taken.

In order for the results to be accurate, you can neither have any missing days nor can your temperature array size not be a multiple of five. The array has to be a multiple of five because the compression and averaging is occurring over every five data points.

; temp is your temperature array
avgtemp = rebin(temp, n_elements(temp) / 5)

The n_elements(temp) / 5 tells us how many five element groups there are in your temperature array. The first five elements will be averaged and stored in avgtemp[0]. The second five elements will be averaged and stored in avgtemp[1], etc.

-Mike

Julio wrote:
> Hi Kenneth,
>
> I don't see how rebin can help me... An example, considering the
> meteorological data below, I want to find the temp(max) mean values
> from 01/08/2001 to 05/08/2001 and from 06/08/2001 to 10/08/2001...
>
> So I have Temp (max) = 27.2 and 27.4
>
> The problem is I have a very large amount of data. I can't see a way to
> find the mean value every five days.
>
> Any comments welcome!
>
> Regards,
> Jï¿½lio
>
> Kenneth Bowman escreveu:
>
>
>> In article <1128546470.965721.312300@g49g2000cwa.googlegroups.com>,
>> "Julio" <julio@cpa.unicamp.br> wrote:
>>
>>
>>> Hello people,
>>>
>>> I have meteorological data from several years, like these:
>>>
>>> Date Temp (max) Temp (min)
>>> 01/08/2001 27.2 12.7
>>> 02/08/2001 27.8 12.4
>>> 03/08/2001 26.8 16.3
>>> 04/08/2001 26.6 12
>>> 05/08/2001 27.4 11
>>> 06/08/2001 27.6 16.1
>>> 07/08/2001 27.6 11.2
>>> 08/08/2001 28.4 13.4
>>> 09/08/2001 27.2 10.9
>>> 10/08/2001 26 9.7
>>>
>>> I want to calculate mean value from 01-05 days, 05-10 days, 10-15 days
>>> and so on.
>>> In other words, I must get the mean value at each five days.
>>> I'm trying to make some code to get it automatically. I think this kind
>>> of work is trivial for meteorological data users. Does anybody have
>>> some idea?

>>>
>>> Regards,
>>> Jï¿½lio
>>
>> If the data are in an array T, this is a very quick way to compute averages
>>
>> IDL> T = findgen(15)
>> IDL> print, T
>>   0.00000   1.00000   2.00000   3.00000   4.00000   5.00000
>> 6.00000
>>   7.00000   8.00000   9.00000   10.0000   11.0000   12.0000
>> 13.0000
>>   14.0000
>> IDL> print, rebin(T, 3)
>>   2.00000   7.00000   12.0000
>>
>> but make sure that the number of days is a multiple of 5 and that you have no
>> missing data. Also, watch out for leap days.
>>
>> Ken Bowman
>
>

Subject: Re: Five days mean values
Posted by Julio[1] on Thu, 06 Oct 2005 17:54:34 GMT
View Forum Message <> Reply to Message

Thanks Mike, now I undestand how rebin works...

I'll try this, but I'm not sure rebin will help me... The fact is my
temperature array size is not always multiple of five, due to the
number of days in a month (28, 30 or 31).

Kind Regards,
Júlio

Subject: Re: Five days mean values
Posted by Michael Wallace on Thu, 06 Oct 2005 18:04:46 GMT
View Forum Message <> Reply to Message

> I'll try this, but I'm not sure rebin will help me... The fact is my
> temperature array size is not always multiple of five, due to the
> number of days in a month (28, 30 or 31).

With or without rebin, what do you with the days at the end of a month.

You said previously that you were calculating 5-day averages. What do you want to do with the left over days?

-Mike

Subject: Re: Five days mean values
Posted by btt on Fri, 07 Oct 2005 12:10:42 GMT
View Forum Message <> Reply to Message

Julio wrote:
> Thanks Mike, now I undestand how rebin works...
>
> I'll try this, but I'm not sure rebin will help me... The fact is my
> temperature array size is not always multiple of five, due to the
> number of days in a month (28, 30 or 31).
>
> Kind Regards,
> Jï¿½lio
>
Hello,

I'm not sure what you want to do with the 'extra' days each month. But if what you want is to bin the dates into 5-day consecutive groups then I suggest you...

(1) Convert your dates from strings to Julian day values. You need to used some string processing before you get to using JULDAY().

(2) Sort your dates into 5 day bins using HISTOGRAM().

```
H = HISTOGRAM(myJulianDayValues, START = JULDAY(8,1,2001), BIN = 5, $
 REVERSE = r, LOCATION = binStartDates)
```

(3) Use the REVERSE_INDICES to extract the records for each 5 day group.

Hope that helps.

Cheers,
Ben
