
Subject: Re: rebinning data on new time samples without loops?

Posted by [Chris Lee](#) on Fri, 12 Dec 2003 09:18:59 GMT

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In article <d916d48a.0312111543.8425684@posting.google.com>, "James" <jbattat@cfa.harvard.edu> wrote:

> Hi there,
> I have a time series of data, y, sampled on an irregular grid, t1. I
> would like to rebin y onto an existing time series (also irregular), t2.
> Right now, I am using a for loop and a where statement to get it done,
> but it is rather slow, and I'm guessing that there's a way to do it
> without a for loop (probably even using Histogram...). The t1 series is
> ~100,000 points and the t2 series is ~3,000 points. On my system, my
> code takes 10-15 mins to run. I'd like to make a faster solution.
> There are basically only 2 requirements. 1. If t1[i] is more than some
> user defined dTMax away from any t2 sample then omit the data point
> 2. I'd like to know how many t1 points went into each t2 bin. Right now
> i do it like this (roughly):
> t1 = original time samples
> y1 = data gridded on t1
> t2 = desired time sampling
> y2 = data gridded on t2
>
> code to ensure overlap between t2 and t1 code to eliminate all points
> that are not part of the overlap
>
> for loop over t1
> dT = t2 - replicate(t1[i],nt2)
> ID = where(dT EQ min(dT))
> dump y1[i] data into y2[ID] if min(dT) < dTMax increment counter[ID]
> endfor loop
>
> then divide y2/counter to get the rebinned value.
> I'm sure there's a better way. I'm curious if there's an efficient way
> in which no loops are used.
> Thanks very much in advance,
> James

Hi,

On your code, do you need the replicate line,

[1,2,3,4] - 3 = [-2,-1,0,1]

[1,2,3,4] - [3,3,3,3] = [-2,-1,0,1]

anyway..

What's wrong with INTERPOLATE or INTERPOL?

```
y2=interpol(y1, t1, t2)
```

TRIANGULATE if the data is two dimensional.

If you really want to use your method, I would suggest making a two dimensional grid from y1 (t1, t2), and using some matrix tricks on it. Possibly based on the "Vector Comparison" thread a while back

<http://groups.google.com/groups?hl=en&lr=&ie=ISO-8859-1&q=vector+comparison+idl&btnG=Google+Search>

should be one line obviously.

Chris.
