Subject: Re: Matching data in different time resolution
Posted by Jeremy Bailin on Wed, 26 May 2010 12:42:22 GMT
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On May 25, 8:38 pm, Craig Markwardt <craig.markwa...@gmail.com> wrote:
> On May 25, 4:48 pm, Balt <bindermue...@gmail.com> wrote:
>
>
>
>
>
>> Hi all,
>
>> I'm looking for an elegant solution (i.e. one that does not involve
>> nested FOR loops) for the following problem:
>
>> I have two independent data acquisition systems that sample data at
>> different intervals and different start times. Let's say one samples
>> in 10 second intervals, the other one in 5 second intervals. I now
>> would like to apply a correction determined by one of the systems to
>> the other. This means I need to match up the data points in the
>> corresponding vectors. Let's assume s1 is system one, s2 is system 2
>> delivering the correction values. I have two vectors for each system,
>> one containing the timestamps, the other containing the measured data.
>
>> For example:
>
>> s1_time = [0, 10, 20, 30, 40, 50]
>> s1_data = [4, 5, 6, 7, 8, 9]
>
>> s2_time = [35, 40, 45, 50, 55, 60]
>> s2_data = [1, 2, 3, 2, 1, 2]
>
>> This presumably is a rebinning exercise of sorts to first make s2 data
>> match:
>
>> s2_time_rebinned = [30, 40, 50]
>> s2_data_rebinned = [1, 2.5, 1.5]
>
>> Then adding the result to the s1 vectors:
>
>> res_time = [30, 40, 50]
>> res_data = [8, 10.5, 10.5]
>
>> Does anyone have pointers/ideas how to best go about this in IDL?
>
> This sounds like an interpolation problem. Your S2 vector is the
> "tabulated" vector, which you want to interpolate onto the grid

> specified by S1.
>
> You can do spline interpolation with SPL_INIT() and co. I also use
> the linear and quadratic interpolation routines of the IDL Astronomy
> Library alot, LINTERP and QUADTERP.
>
> Craig

Yeah, I would just throw it into INTERPOL. You'll need to think about what you want to do at the boundaries, though - interpolation schemes will often happily give you wild extrapolations if you ask them to.

-Jeremy.
