Subject: Re: Julian Day Numbers
Posted by LC's No-Spam Newsread on Wed, 15 Nov 2000 08:00:00 GMT
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On 14 Nov 2000, Craig Markwardt wrote:

> No, there is only one flavor here, as long as we are talking about
> simple Julian Days.

and here we are (for some reason a lot of people refer to JDs are the number of days in the year which is wrong). The definition taken from the Astronomical Almanac (I happen to have the 1993 issue on my desk, but the definition did not change since more than 400 years) is "the interval of time in days and fraction of a day since 4713 BC January 1, Greenwich noon, Julian proleptic calenda" (page M6 of the Almanac). !!!!!!!!!!!!!

> There are other conventions, at least in astronomy. The Modified
> Julian Day (MJD) and Truncated Julian Day (TJD) are very similar time
> systems, the only difference being the zero-point. Thankfully these
> systems subtract the 0.5 day that makes standard Julian days so
> complicated and confusing. [A day changeover at *noon* ???]

Yes, there are more modern conventions like MJD which subtract a constant, and invariably this constant is some integer plus 0.5.

There was a couple of historical reasons to start a time scale at noon (which is indeed what happens for "real" JDs) : one was that noon is easier to measure than any other phenomenon (culmination of a star ?), you just take when the Sun is highest in the sky. The other was that it was convenient for observers to count a single night with one number, so if they say zero at noon there is no changeover during an observing run.

Both arguments are now obsolete, and that's why MJD subtracts 2400000.5

> The strange thing is that January the 0th is really December 31st.
> Everybody I know starts counting calendar days with the number 1, so
> the 0th day of the month is actually the last day of the previous
> month. So it's strange that your almanac quoted that day instead of
> January the 1st.

I've just checked (page B4 on the Almanac) and I see indeed that among many reference dates it quotes 1900 Jan 0 12 h UT as 2415020.0. That's noon of Dec 31, which is when JD is an integer. It is correct, although funny. All other dates on the same page are quoted at 0 UT (and their JD therefore ends in 0.5.

I would have used 1900 Jan 1 0 UT as 2415020.5 (which is indeed what

returns a program of mine which I hacked somewhere) ... but that's exactly the same thing.

And my old IDL 4 doc for julday clearly (re)states that JD begins at noon.

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