
Subject: Re: Julian time problem

Posted by [badjelly.witch](#) on Mon, 27 Nov 2006 00:18:50 GMT

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Jonathan Dursi wrote:

- > In particular, the difference between the two quantities ($\sim 4.65e-10$) is
- > a couple parts in $1e16$ of the value ($\sim 2.45e6$), and you simply can't do
- > better than that in the usual IEEE double precision math.

Another issue here, apart from the general imprecision of floating point math, is that TIMEGEN adds a small offset. From the documentation:

"A small offset is added to each Julian date to eliminate roundoff errors when calculating the day fraction from the hour, minute, second. This offset is given by the larger of EPS and $EPS \times \text{Julian}$, where Julian is the integer portion of the Julian date and EPS is the double-precision floating-point precision parameter from MACHAR. For typical Julian dates the offset is approximately 6×10^{-10} (which corresponds to 5×10^{-5} seconds). This offset ensures that when the Julian date is converted back to the hour, minute, and second, the hour, minute, and second will have the same integer values."
