Subject: Re: hours since 1-1-1
Posted by Mark Hadfield on Wed, 27 Jul 2005 03:00:52 GMT
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qian wrote:
> Dear IDL users:
>
> Is there an IDL function/program that converts the unidata time unit to
> more readable format?
>
> For example: hours since 1-1-1 17338824 -> Jan 1 1979.

Oh no, not hours since 1-1-1 again! That must be the silliest ever date-time origin ever invented for modern data! I mean, what calendar were they using then and why should I have to care?

Anyway, IDL has the JULDAY function, which calculates time in Julian days, ie time since 12:00 hours on 1 Jan 4713BC. (OK, I withdraw my comment about 1 Jan 0001 being the silliest ever date-time origin.)

The confusing things you have to remember:

- JULDAY uses the weird month, day, year order for dates.

- The Julian date reaches an integral at 12:00 each day, not at 00:00.

- JULDAY accepts optional hour, minute, second arguments. With them it returns the true Julian date-time as a double precision floating point number. Without them it returns the Julian date to be reached at 12:00 on the day in question as an integer. (Got that?)

Consider the following calculations

```
IDL> print, julday(1,1,1,0,0,0)
      1721423.5
IDL> print, julday(1,1,1979,0,0,0)-julday(1,1,1,0,0,0)
      722451.00
IDL> print, 24*(julday(1,1,1979,0,0,0)-julday(1,1,1,0,0,0))
      17338824.
```

It seems that JULDAY agrees with you and with Unidata, that 00:00 on 1 Jan 1979 was 722451 days == 17338824 hours after 00:00 on 1 Jan 0001.

IDL also offers the CALDAT function, to convert Julian date-times to calendar date-times and the calendar format codes that let it express

real numbers as date-time strings (on the assumption they are Julian date-times).

So to deal with "hours after 1-1-1" in IDl convert them to Julian date-times immediately (divide by 24 then add 1721423.5D0) and then use IDL's built-in facilities thereafter.

--
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