

---

Subject: Re: Time Woes

Posted by [thompson](#) on Thu, 02 May 2002 21:51:20 GMT

[View Forum Message](#) <> [Reply to Message](#)

---

btupper@bigelow.REMOVE.org (Ben Tupper) writes:

> On Wed, 1 May 2002 13:41:10 -0600, David Fanning <david@dfanning.com>  
> wrote:

>> I have a time array that purports to be the number of seconds  
>> from 1 Jan 1980. How in the world do I convert that to something  
>> I can use with routines I have access to?  
>>

> Howdy,

> Do you mean that you want to know a Julian time stamp or Calendar date  
> for the time array values? I don't have IDL in front of me right now  
> so I can't check this, and I can't clearly recall the syntax.

> (The following supposes the 'seconds' are just the run-of-the-mill  
> kind of seconds...)

```
> ; start time in seconds  
> t0 = JulDay( 0,1 1980, 0, 0, 0)  
> ; add the elapsed time since t0  
> t[i] = t0 + timeArray[i]  
> ;convert to calendar values  
> CalDat, t[i], month, day, year, hour, min, sec
```

> I have a sneaky feeling that your problem is more complicated than  
> this solution will bridge. The only thing I do well with time (in  
> IDL) is squander it, but I hope it helps anyway.

There is an ambiguity in the problem. It isn't obvious whether the seconds in timeArray include leapseconds or not. In other words, is it a UTC-based time, or a TAI-based time? The difference in the two between 1-Jan-1980 and today is 13 seconds. Depending on your point of view that could be negligible or a major mistake.

My gut feeling is that your data is UTC-based. This would make it comparable to Unix time, which is the number of (non-leap) seconds since 1-Jan-1970, and which in IDL is returned with SYSTIME(1). In that case, using the JulDay and CalDat procedures would give you exactly the correct answers.

If on the other hand, the data you have is TAI-based, and you care about the distinction, you might want to check out my routines [utc2tai.pro](#) and [tai2utc.pro](#), which are available at

ftp://sohoftp.nascom.nasa.gov/solarsoft/gen/idl/time/

William Thompson

P.S. By the way, wouldn't that be

```
; start time in seconds  
t0 = JulDay( 1,1, 1980, 0, 0, 0) * 86400.D0
```

;^)

---