Subject: Re: WTD: Orbital analysis with IDL
Posted by Med Bennett on Thu, 17 May 2001 12:57:18 GMT
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Randall Skelton wrote:

> Hi all,
>
> I know this is a long shot, but does anyone have IDL routines for
> calculating and plotting satellite orbits from state vector data (i.e.
> the space shuttle). I have measurements made on the shuttle which are
> accurately time stamped, and I have the orbit parameters below... If no
> one has code, can anyone recommend a good book on orbital mechanics?
>
> Cheers,
> Randall
>
> ---
> STS-45
> 1 21915U 92 15 A 92 92.51739928 .00256000 00000-0 65900-3 0 156
> 2 21915 56.9969 243.7362 0006513 335.5347 24.5445 15.94771428 1289
>
> Satellite: STS-45
> Catalog number: 21915
> Epoch time: 92092.51739928 -----> (01 APR 92 12:25:03.29 UTC)
> Element set: JSC-015
> Inclination: 56.9969 deg
> RA of node: 243.7362 deg Space Shuttle Flight STS-45
> Eccentricity: .0006513 SGP4 Keplerian Elements
> Arg of perigee: 335.5347 deg from NASA flight Day 9 vector
> Mean anomaly: 24.5445 deg
> Mean motion: 15.94771428 rev/day W5RRR
> Decay rate: 2.56000e-03 rev/day-2 NASA Johnson Space Center
> Epoch rev: 128

You should ask that latter question in sci.astro.amateur if you don't find
anyone here that can help you.

Subject: Re: WTD: Orbital analysis with IDL
Posted by Liam E. Gumley on Thu, 17 May 2001 14:18:44 GMT
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Randall Skelton wrote:
> I know this is a long shot, but does anyone have IDL routines for
> calculating and plotting satellite orbits from state vector data (i.e.
> the space shuttle). I have measurements made on the shuttle which are
> accurately time stamped, and I have the orbit parameters below... If no

> one has code, can anyone recommend a good book on orbital mechanics?

Randall,

Unless you are extremely keen to learn the intricacies of orbital mechanics, I'd recommend one of the many existing packages available on the Web:

http://www.celestrak.com/software/

You may also want to look into the Satellite Tool Kit (STK), available from

http://www.stk.com/

An evaluation version can be obtained at no cost, and it will propagate orbits given a Two-Line-Element (TLE) set like the one you showed in your post.

Cheers,
Liam.
http://cimss.ssec.wisc.edu/~gumley/
