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Subject: WTD: Orbital analysis with IDL

Posted by [Randall Skelton](#) on Thu, 17 May 2001 09:29:04 GMT

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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

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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

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