Descriptions of Critical Keywords in the GTDS Data Simulation Program

Table 1. Keywords of Interest in sbv_datasim.gtds

Line:	Keyword:	Description:
1	CONTROL EPHEM	Denotes that this section of the program will be an ephemeris generation. The satellite name and identification number can be found on this line to the right.
2	EPOCH	Specifies the day and time at the beginning of the simulation. The parameter "1061217" is the date 106 years, 12 months, and 17 days after January 1st, 1900. In this case, Dec. 17, 2006.
3	ELEMENT1	Specifies the input coordinate system and orbital element set type. In this case, the "2" indicates an osculating Keplerian element set input. Specifies the semimajor axis, eccentricity, and inclination of the satellite at epoch.
4	ELEMENT2	Specifies the longitude of the ascending node, argument of perigee, and mean anomaly of the satellite at epoch.
5	OUTPUT	Defines properties of the outputted data, including end time of the simulation (Dec. 21, 2006), that the ephemerides will be output as true-of-reference, body-fixed (ECEF), and that the data will be displayed as Keplerian elements and Cartesian vectors.
7	OGOPT	Optional subdeck: "Orbit Generator Options."
21	OUTOPT	Keyword from the OGOPT subdeck: specifies the type of ephemeris output file to be generated. Specifically, this line tells the GTDS to generate two .orb1 output files: one to list the space-based observations, and one to list ground-based observations.
22	END	Indicates the end of the OGOPT subdeck.
23	FIN	Indicates the end of the CONTROL EPHEM ephemeris generation input deck.
70	CONTROL DATASIM	Denotes that this section of the program will be a data simulation.
71	DMOPT	Optional subdeck: "Data Management Options." The three lines following it (beginning with "/S1MC", "/S2MC," and "/CGAC") designate that there are two satellite-based observation stations, and one ground-based observation station.
76	DCOPT	Optional Subdeck which contains the needed instructions to record the actual observation data.
89, 90, 91	DSPEA1, DSPEA2, DSPEA3	Three keywords used conjunctively to define various simulation parameters such as random noise and the tracking schedule.
92	END	Indicates the end of the DCOPT subdeck.
93	FIN	Indicates the end of the CONTROL EPHEM ephemeris generation input deck.

Table 5. Keywords of Interest in sbv_dc.gtds

Line:	Keyword:	Description:
1	CONTROL DC	Denotes that this section of the program will perform differential correction.
2	EPOCH	Specifies the day and time at the beginning of the differential correction.
3	ELEMENT1	Specifies the coordinate system and orbital element set type used for the input data. Provides an initial estimate for semimajor axis, eccentricity, and inclination of the satellite at epoch.
4	ELEMENT2	Provides an initial estimate for the longitude of the ascending node, argument of perigee, and mean anomaly of the satellite at epoch.
5,6	OBSINPUT	Defines properties for the input data
8	DMOPT	Optional subdeck: “Data Management Options.” The three lines following it (beginning with “/S1MC”, “/S2MC,” and “/CGAC”) designate that there are two satellite-based observation stations, and one ground-based observation station.
42	CONTROL EPHEM	Indicates a new section of the program for ephemeris generation.