



## SP3 FORMAT

U.S. DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
National Ocean Service

### Standard Product #3 ASCII SP3 Format

Orbits are Earth Centered - Earth Fixed and are in GPS time

#### [Sample Precise Orbit](#)

#### SP3 First Line

column(s)		example
1-2	Symbols	#a
3	Position or Position&Velocity	P
4-7	Year Start	1999
8	unused	
9-10	Month Start	1
11	unused	
12-13	Day of Month Start	6
14	unused	
15-16	Hour Start	17
17	unused	
18-19	Minute Start	15
20	unused	
21-31	Second Start	.00000000
32	unused	
33-39	Number of Epochs	151
40	unused	
41-45	Data Used	D
46	unused	
47-51	Coordinate System	ITR96
52	unused	
53-55	Orbit Type	FIT
56	unused	
57-60	Agency	NOAA

### SP3 Line 2

column(s)		example
1-2	Symbols	##
3	unused	
4-7	GPS Week	0991
8	unused	
9-23	Seconds of Week	321300.00000000
24	unused	
25-38	Epoch Interval in Seconds	900.00000000
39	unused	
40-44	Modified Julian Day Start	51184
45	unused	
46-60	Fractional Day	.718750000000

### SP3 Line 3

column(s)		example
1-2	Symbols	#
3-4	unused	
5-6	# of Satellites	27
7-9	unused	
10-12	Satellite #1 ID (SV1)	1
13-15	Satellite #2 ID (SV2)	2
	*	
	*	
	*	
58-60	Satellite #17 ID (SV19)	19

### SP3 Line 4

column(s)		example
1-2	Symbols	#
3-9	unused	#
10-12	Satellite #18 ID (SV21)	21
	*	

\*  
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37-39    Satellite #27 ID (SV31)    31

### SP3 Lines 5-7

column(s)		example
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These lines are used for additional satellites if needed.

### SP3 Lines 8-12

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These lines are the accuracy of satellites.

1= Superb   99=Do not use   0=Unknown

### SP3 Lines 13-14

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These lines are character fields.

### SP3 Lines 15-16

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These lines are floating point fields.

### SP3 Lines 17-18

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These lines are integer fields.

### SP3 Lines 19-22

column(s)		example
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1-2       Symbols       /\*

3       unused

4-60    Comments   CC...CC

### SP3 Line 23

column(s)		example
1-2	Symbols	* _
3	unused	
4-7	Year Start	1999
8	unused	
9-10	Month Start	1
11	unused	
12-13	Day of Month Start	6
14	unused	
15-16	Hour Start	17
17	unused	
18-19	Minute Start	15
20	unused	
21-22	Second Start	.00000000

### SP3 Line 24

column(s)		example
1	Position or Velocity	P
2-4	Vehicle ID	1
5-18	x-coordinate (km)	20104.806030
19-32	y-coordinate (km)	-13217.390413
33-46	z-coordinate (km)	-11082.798291
47-60	clock correction (microsecs)	70.501167



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Last modified: February 11, 2000

[http://www.ngs.noaa.gov/orbits/SP3\\_format.html](http://www.ngs.noaa.gov/orbits/SP3_format.html)