

## Future RINEX features (V 3.10)

### GLONASS Observation files: List of slot and frequency numbers

<b>* GLONASS SLOT / FRQ #</b>	Glonass slot and frequency numbers - Number of satellites in list - List of - Satellite numbers (system code, slot) - Frequency numbers  Use continuation lines for more than 8 Satellites	I3,I1X,  8(A1,I2.2, I3.2)  4X,8(A1, I2.2,I3.2)
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-----|---1|0---|---2|0---|---3|0---|---4|0---|---5|0---|---6|0---|---7|0---|---8|
18 R01 01 R02 02 R03 03 R04 04 R05 05 R06 06 R07 07 R08 06 GLONASS SLOT / FRQ #
R09 09 R10 10 R11 11 R12 12 R13 01 R14 02 R15 03 R16 04 GLONASS SLOT / FRQ #
R17 05 R18 06 GLONASS SLOT / FRQ #
  
```

### Observation codes for unknown tracking modes

(proposed by Jean-Marie Sleewaegen)

System	Freq. Band	Frequency	Channel or Code	Observation Codes			
				Pseudo Range	Carrier Phase	Doppler	Signal Strength
GPS	L1	1575.42	P-code based tracking with unknown mode	C12	L12	D12	S12
	L2	1227.60	L2C-based tracking with unknown mode	C21	L21	D21	S21
			P-code based tracking with unknown mode	C22	L22	D22	S22
	L5	1176.45	L5-based tracking with unknown mode	C51	L51	D51	S51
Galileo	E1	1575.42	E1-based civilian tracking with unknown mode (B and/or C)	C11	L11	D11	S11
	E5a	1176.45	E5a-based tracking with unknown mode	C51	L51	D51	S51
	E5b	1207.140	E5b-based tracking with unknown mode	C71	L71	D71	S71
	E5 (E5a+E5b)	1191.795	E5-based tracking with unknown mode	C81	L81	D81	S81
	E6	1278.75	E6-based civilian tracking with unknown mode (B and/or C)	C61	L61	D61	S61
SBAS	L5	1176.45	L5-based tracking with unknown mode	C51	L51	D51	S51

## Compass/Beidou

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snn
| |
| +-- nn: PRN          (GPS, Galileo)
|         slot number (GLONASS)
|         mod(PRN,100)(GPS SBAS,      |
|                   PRN=120...158)   |
|
+--- s:  satellite system identifier
      G : GPS
      R : GLONASS
      S : SBAS payload
      E : Galileo
      C : Compass/Beidou           |
|
SBAS: Satellite-Based Augmentation System

```

**Table 1:** Satellite numbers

GPS-SBAS and pseudorandom noise (PRN) code assignments see e.g., <http://www.losangeles.af.mil/library/factsheets/factsheet.asp?id=8618>

System	Freq. Band	Frequency	Channel or Code	Observation Codes			
				Pseudo Range	Carrier Phase	Doppler	Signal Strength
Compass	E1	1589.74					
	E2	1561.098	I	C2I	L2I	D2I	S2I
			Q	C2Q	L2Q	D2Q	S2Q
			I+Q	C2X	L2X	D2X	S2X
	E5b	1207.14	I	C7I	L7I	D7I	S7I
			Q	C7Q	L7Q	D7Q	S7Q
			I+Q	C7X	L7X	D7X	S7X
	E6	1268.52	I	C6I	L6I	D6I	S6I
			Q	C6Q	L6Q	D6Q	S6Q
I+Q			C6X	L6X	D6X	S6X	

## GNSS Navigation Message File - Header Section Description

Replace LEAP SECONDS by new record or modify record to also include  $\Delta T_{LS}$ ,  $WN_{LSF}$  (adjusted to continuous week number) and DN.

TABLE A4 GNSS NAVIGATION MESSAGE FILE - HEADER SECTION DESCRIPTION			
HEADER LABEL (Columns 61-80)	DESCRIPTION	FORMAT	
* LEAP SECONDS	- Number of leap seconds since 6-Jan-1980 as transmitted by the GPS almanac $\Delta t_{LS}$ - Future or past leap seconds $\Delta t_{LSF}$ - Respective week number $WN_{LSF}$	I6, I6, I6,	*

	(continuous number) - Respective day number DN (see ICD-GPS-200C 20.3.3.5.2.4) Zero or blank if not known	I6
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### GNSS Navigation Message File – GLONASS Data Record Description

TABLE A9 GNSS NAVIGATION MESSAGE FILE - GLONASS DATA RECORD DESCRIPTION		
OBS. RECORD	DESCRIPTION	FORMAT
<b>BROADCAST ORBIT - 4</b>	- Important missing items from the - navigation message - **** to be defined **** -	4X,4D19.12

Include missing items such as P,P1,P2,P3,P4, the M-word (identifying satellite type), the Ft (like GPS-URA for GLONASS-M), D-tau (group delay) and In (proposed by G. Wübbena)

**Include table of PRN allocations:**

PRN Number	PRN Allocations
<b>C/A</b>	
1 – 63	Reserved (GPS)
64 – 119	Ground Based Augmentation System & Other Augmentation Systems
120 – 158	Satellite Based Augmentation System
159 – 210	Other GNSS & Other Applications
<b>L2C</b>	
1 – 63	Reserved (GPS)
64 – 158	Not Available
159 – 210	Other GNSS & Other Applications
<b>L5</b>	
1 – 63	Reserved (GPS)
64 – 119	Unallocated
120 – 158	Satellite Based Augmentation System
159 – 210	Other GNSS & Other Applications

**Table : PRN numbers and their associated PRN allocations**  
(see <http://www.losangeles.af.mil/shared/media/document/AFD-070530-038.pdf>)

#### 6.5 Order of the header records, order of data records

Explicitly exclude multiple epoch data records with identical time tag (exception: Event records). Epochs have to appear ordered in time.

