Message ID, GSV protocol header	UTC Time, Current time	Status	Latitude, Degrees + minutes	Longitude, Degrees + minutes	Speed over ground	Course over ground	Date in day, month, year	Mode Indicator	Checksum
$GPRMC,	070035.000,	A,	4430.0447,N,	01121.4314,E,	0.81,	61.77,	010318,,	A	*[illegible] [CR] [LF]

Message ID, GSV protocol header	Course over ground (true)	Fixed field: true	Fixed field: magnetic	Speed over ground	Fixed field: knots	Speed over ground	Fixed field: Km/h	Mode Indicator	Checksum
$GPVTG,	61.77,	T,	, M,	0.81,	N,	1.51,	K,	A	*[illegible] [CR] [LF]

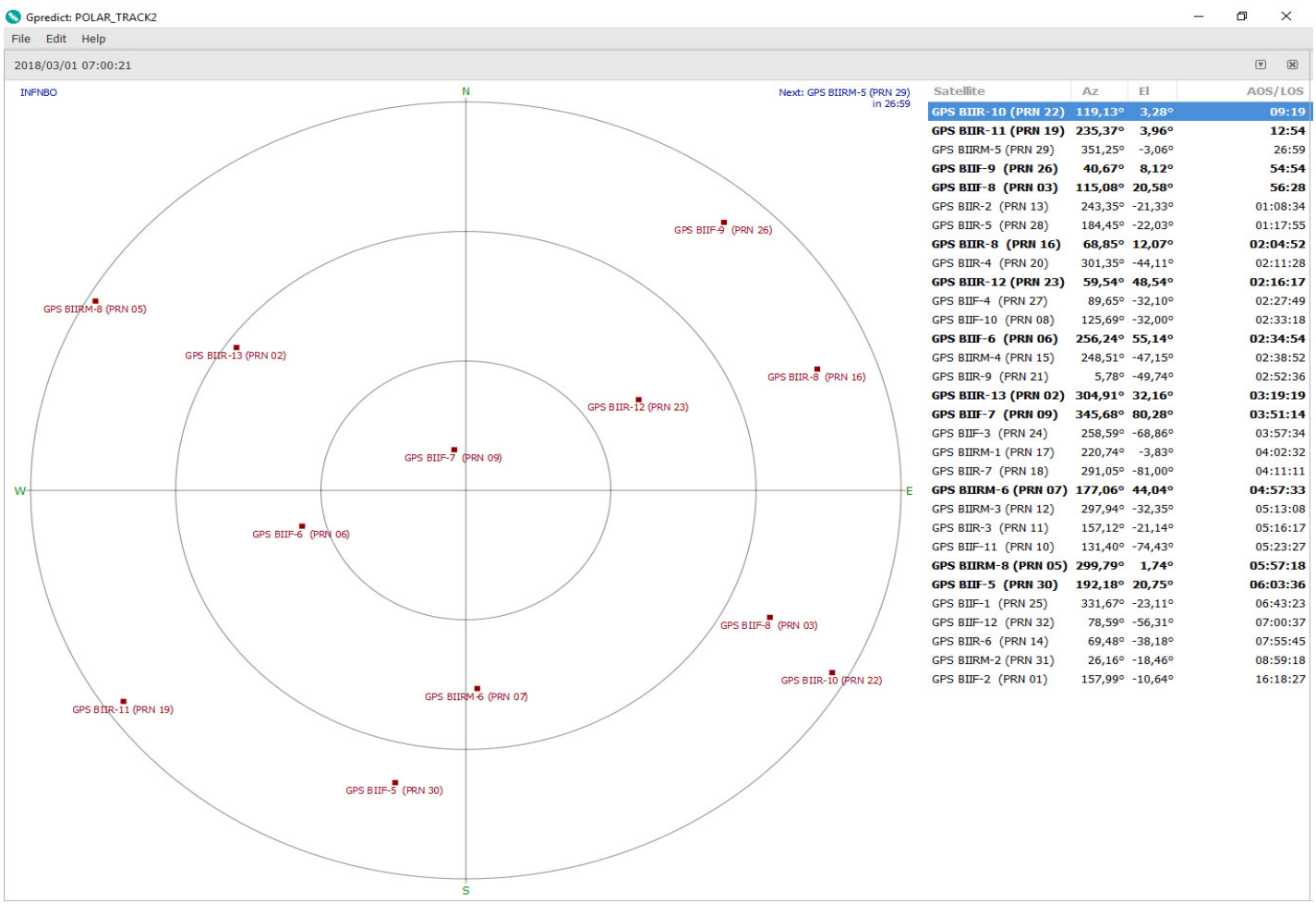
Message ID, GSV protocol header	UTC Time, Current time	Latitude, Degrees + minutes	Longitude, Degrees + minutes	Fix	Nr. Sat	HDOP	Altitude	Units,	Geoid Separation	Units,	Age of Differ.	Checksum
$GPGGA,	070035.000,	4430.0447,N,	01121.4314,E,	1,	5,	1.38,	65.2,	M,	47.5,	M,	,	*60 [CR] [LF]

Message ID, GSV protocol header	Smode	Fix status	Satellite number	Satellite number	Satellite number	Satellite number	Satellite number	Checksum
$GPGSA,	A,	3,	06,	02,	30,	09,	23,	,,,,,,,1.66,1.38,0.92 *[illegible] [CR] [LF]

Message ID, GSV protocol header	Total number of GPGSV messages being output	Number of this message	Satellites in View	Satellite ID	Elevation	Azimuth	C/N0, null when not tracking	Satellite ID	Elevation	Azimuth	C/N0, null when not tracking	Satellite ID	Elevation	Azimuth	C/N0, null when not tracking	Satellite ID	Elevation	Azimuth	C/N0, null when not tracking	Checksum
$GPGSV,	4,	1,	13,	09,	80,	345,	23,	06,	55,	256,	28,	23,	49,	060,	11,	07,	44,	177,	16,	*[illegible] [CR] [LF]
$GPGSV,	4,	2,	13,	02,	32,	305,	38,	33,	32,	215,	,	03,	21,	115,	17,	30,	20,	192,	22,	*[illegible] [CR] [LF]
$GPGSV,	4,	3,	13,	16,	12,	069,	,	26,	08,	041,	,	19,	04,	236,	17,	22,	03,	119,	,	*[illegible] [CR] [LF]
$GPGSV,	4,	4,	13,	05,	02,	300,	,	*[illegible] [CR] [LF]												

Message ID, GSV protocol header	Tot. nr of msg	Text identifier	Latitude, Degrees + minutes	Longitude, Degrees + minutes	Text	UTC Time, Current time	Valid	Positioning Mode	Checksum
$GPGLL,	4430.0447,N,		01121.4314,E,			070035.000,	A,	A	*5D [CR] [LF]

Message ID, GSV protocol header	Message number			Text	
$GPTXT,	01,	01,	02,	ANTSTATUS=OK	*3B [CR] [LF]

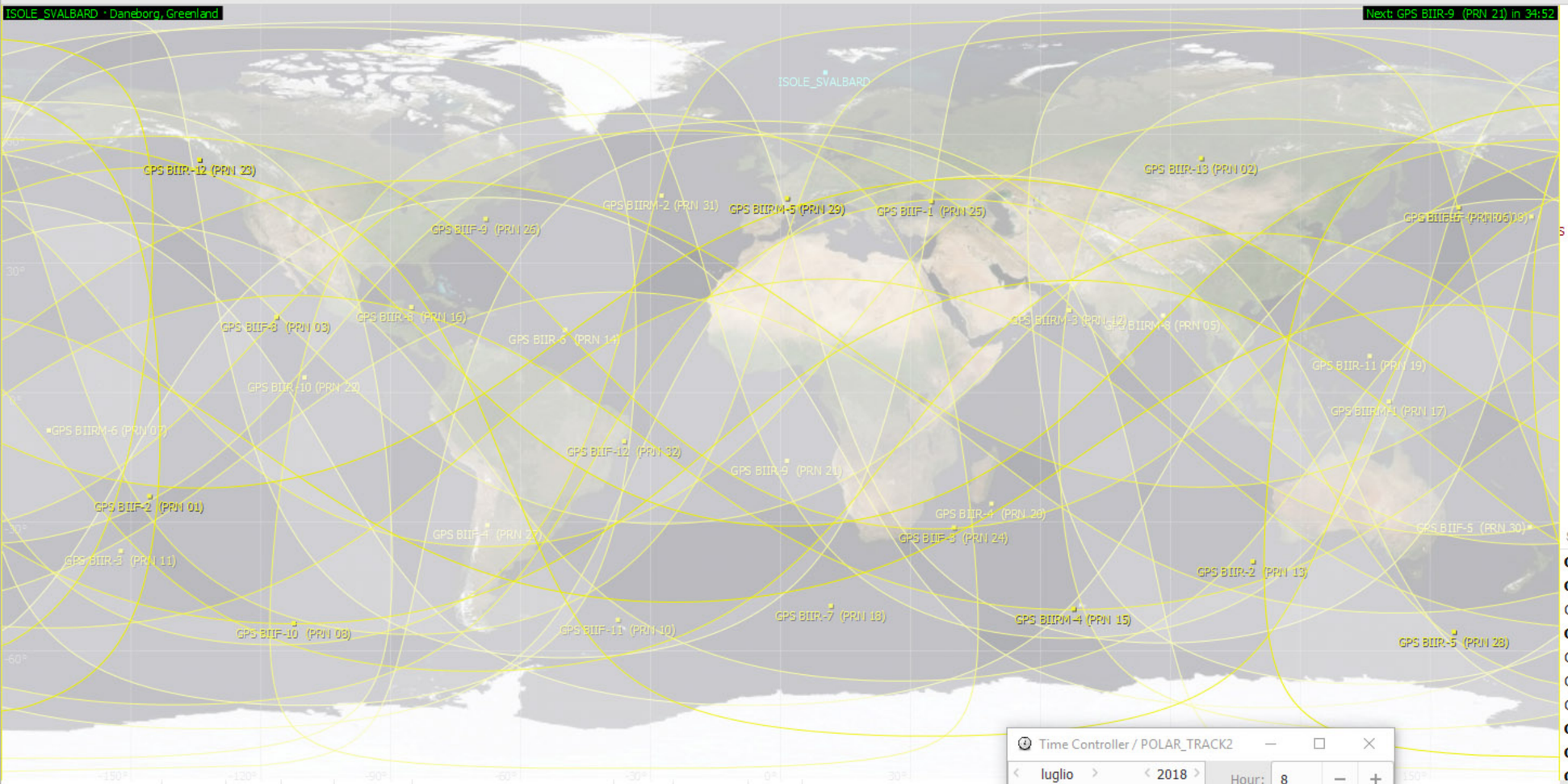


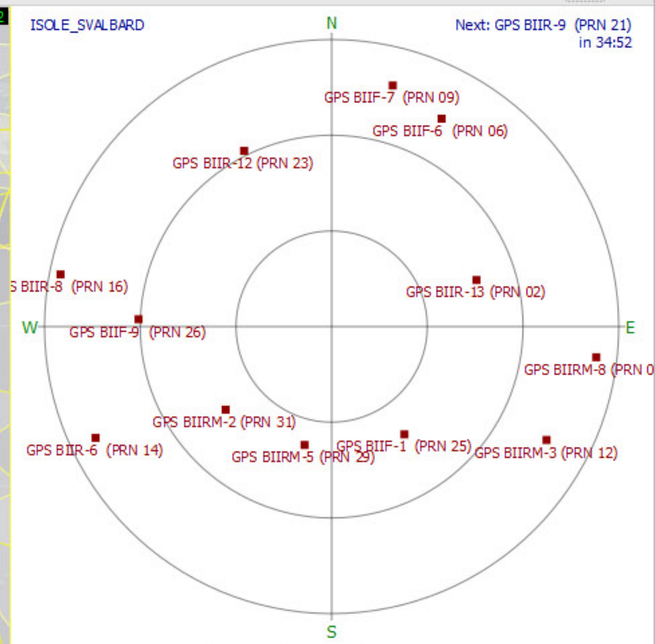
Satellite	Az	El	AOS/LOS
GPS BIIR-10 (PRN 22)	119,13°	3,28°	09:19
GPS BIIR-11 (PRN 19)	235,37°	3,96°	12:54
GPS BIIRM-5 (PRN 29)	351,25°	-3,06°	26:59
GPS BIIF-9 (PRN 26)	40,67°	8,12°	54:54
GPS BIIF-8 (PRN 03)	115,08°	20,58°	56:28
GPS BIIR-2 (PRN 13)	243,35°	-21,33°	01:08:34
GPS BIIR-5 (PRN 28)	184,45°	-22,03°	01:17:55
GPS BIIR-8 (PRN 16)	68,85°	12,07°	02:04:52
GPS BIIR-4 (PRN 20)	301,35°	-44,11°	02:11:28
GPS BIIR-12 (PRN 23)	59,54°	48,54°	02:16:17
GPS BIIF-4 (PRN 27)	89,65°	-32,10°	02:27:49
GPS BIIF-10 (PRN 08)	125,69°	-32,00°	02:33:18
GPS BIIF-6 (PRN 06)	256,24°	55,14°	02:34:54
GPS BIIRM-4 (PRN 15)	248,51°	-47,15°	02:38:52
GPS BIIR-9 (PRN 21)	5,78°	-49,74°	02:52:36
GPS BIIR-13 (PRN 02)	304,91°	32,16°	03:19:19
GPS BIIF-7 (PRN 09)	345,68°	80,28°	03:51:14
GPS BIIF-3 (PRN 24)	258,59°	-68,86°	03:57:34
GPS BIIRM-1 (PRN 17)	220,74°	-3,83°	04:02:32
GPS BIIR-7 (PRN 18)	291,05°	-81,00°	04:11:11
GPS BIIRM-6 (PRN 07)	177,06°	44,04°	04:57:33
GPS BIIRM-3 (PRN 12)	297,94°	-32,35°	05:13:08
GPS BIIR-3 (PRN 11)	157,12°	-21,14°	05:16:17
GPS BIIF-11 (PRN 10)	131,40°	-74,43°	05:23:27
GPS BIIRM-8 (PRN 05)	299,79°	1,74°	05:57:18
GPS BIIF-5 (PRN 30)	192,18°	20,75°	06:03:36
GPS BIIF-1 (PRN 25)	331,67°	-23,11°	06:43:23
GPS BIIF-12 (PRN 32)	78,59°	-56,31°	07:00:37
GPS BIIR-6 (PRN 14)	69,48°	-38,18°	07:55:45
GPS BIIRM-2 (PRN 31)	26,16°	-18,46°	08:59:18
GPS BIIF-2 (PRN 01)	157,99°	-10,64°	16:18:27

Gpredict: POLAR_TRACK2

File Edit Help

2018/07/30 08:00:00





Satellite	Az	El	AOS/LOS
GPS BIIR-6 (PRN 14)	**244,76°**	**8,21°**	**20:55**
GPS BIIRM-3 (PRN 12)	**117,83°**	**13,83°**	**32:54**
GPS BIIR-9 (PRN 21)	188,51°	-13,99°	34:52
GPS BIIF-6 (PRN 06)	**27,87°**	**16,28°**	**41:56**
GPS BIIR-4 (PRN 20)	144,97°	-25,66°	01:12:23
GPS BIIRM-6 (PRN 07)	359,28°	-35,69°	01:36:55
GPS BIIF-4 (PRN 27)	249,74°	-37,45°	01:38:25
GPS BIIF-1 (PRN 25)	**145,99°**	**49,23°**	**01:52:27**
GPS BIIRM-2 (PRN 31)	**231,92°**	**47,78°**	**02:04:46**
GPS BIIR-13 (PRN 02)	**72,18°**	**42,32°**	**02:08:22**

Satellite	Az	El	Dir	Range	Next Event	Lat	Lon	Alt	
GPS BIIF-1 (PRN 25)	**145,99°**	**49,23°**	↓	**21353**	**LOS: 2018/07/30 09:52:27**	**44,50°**	**34,69°**	**20133**	**5985**
GPS BIIF-10 (PRN 08)	280,67°	-65,26°	↑	32146	AOS: 2018/07/30 11:09:08	-53,57°	-112,61°	20140	2227
GPS BIIF-11 (PRN 10)	216,69°	-49,88°	↓	31043	AOS: 2018/07/30 11:24:31	-52,71°	-37,69°	20142	2009
GPS BIIF-12 (PRN 32)	225,39°	-13,67°	↓	27280	AOS: 2018/07/30 13:37:12	-11,16°	-36,16°	20138	1815
GPS BIIF-2 (PRN 01)	332,02°	-47,28°	↓	31085	AOS: 2018/07/30 13:22:16	-23,91°	-145,81°	20381	5153
GPS BIIF-3 (PRN 24)	153,66°	-29,27°	↓	29262	AOS: 2018/07/30 13:33:28	-31,22°	40,00°	20372	4260
GPS BIIF-4 (PRN 27)	249,74°	-37,45°	↑	29869	AOS: 2018/07/30 09:38:25	-30,90°	-67,67°	20119	3814
GPS BIIF-5 (PRN 30)	21,54°	-54,16°	↑	31520	AOS: 2018/07/30 10:35:04	-31,36°	173,01°	20247	3196
GPS BIIF-6 (PRN 06)	**27,87°**	**16,28°**	↓	**24106**	**LOS: 2018/07/30 08:41:56**	**43,12°**	**156,50°**	**20221**	**3080**

Time Controller / POLAR_TRACK2

luglio 2018

lun	mar	mer	gio	ven	sab	dom
25	26	27	28	29	30	1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31	1	2	3	4	5

Hour: 8
Min: 0
Sec: 0
Msec: 0
Throttle: 1

Manual Control | Reset

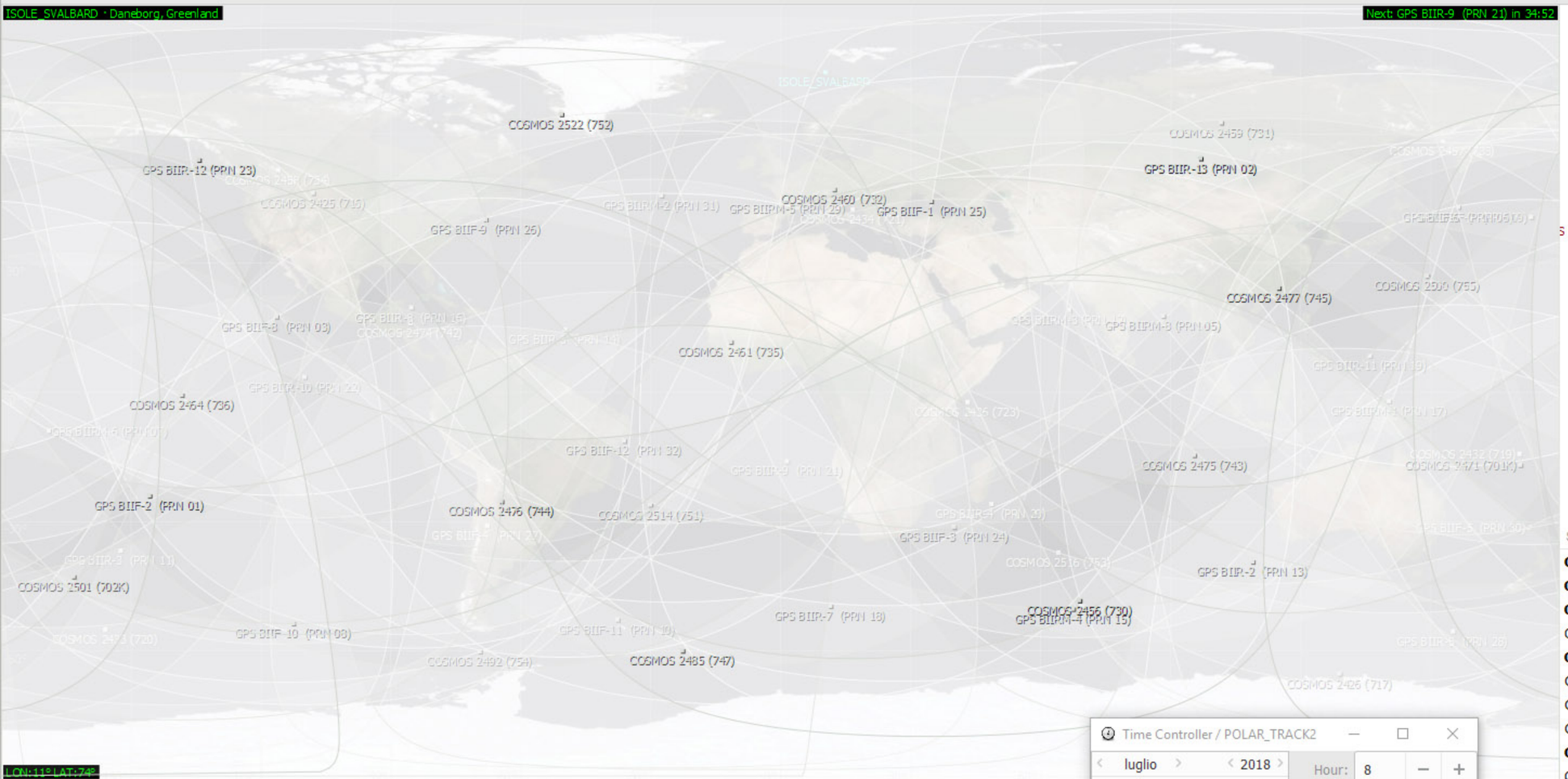
GPS BIIF-12 (PRN 32)

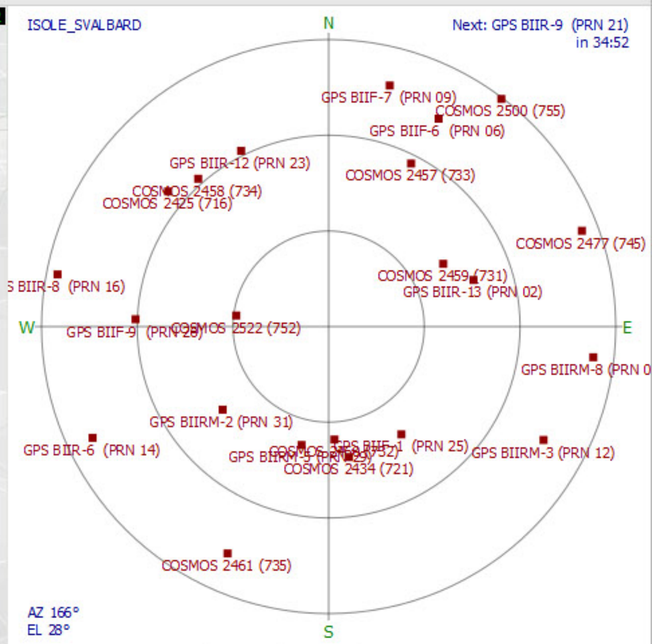
Azimuth : 225,39°
Elevation : -13,67°
Slant Range : 27280 km
Range Rate : 0,698 km/sec
Next Event : AOS: 2018/07/30 13:37:12
SSP Loc. : HH18WU
Footprint : 16939 km
Altitude : 20138 km
Velocity : 3,881 km/sec
Doppler@100M : -233 Hz
Sig. Loss : 161,12 dB
Sig. Delay : 91,00 msec

Gpredict: POLAR_TRACK2

File Edit Help

2018/07/30 08:00:00





Satellite	Az	El	Dir	Range	Next Event	Next AOS	Next LOS	Lat	Lon	
COSMOS 2425 (716)	**310,10°**	**24,24°**	↑	**22204**	**LOS: 2018/07/30 11:58:19**	**2018/07/30 17:55:18**	**2018/07/30 11:58:19**	**46,36°**	**-108,02°**	**19110**
COSMOS 2426 (717)	97,97°	-72,52°	↓	31519	AOS: 2018/07/30 11:55:18	2018/07/30 11:55:18	2018/07/30 15:56:43	-65,27°	129,07°	19166
COSMOS 2432 (719)	21,90°	-39,90°	↓	29149	AOS: 2018/07/30 13:47:26	2018/07/30 13:47:26	2018/07/30 18:48:37	-14,24°	170,65°	19154
COSMOS 2433 (720)	336,70°	-73,84°	↓	31551	AOS: 2018/07/30 12:03:55	2018/07/30 12:03:55	2018/07/30 17:17:22	-54,98°	-155,95°	19138
COSMOS 2434 (721)	**171,13°**	**48,59°**	↓	**20371**	**LOS: 2018/07/30 09:32:45**	**2018/07/30 15:47:45**	**2018/07/30 09:32:45**	**42,55°**	**16,69°**	**19127**
COSMOS 2436 (723)	146,46°	-3,40°	↓	25119	AOS: 2018/07/30 14:24:36	2018/07/30 14:24:36	2018/07/30 18:16:25	-2,19°	43,20°	19174
COSMOS 2456 (730)	133,24°	-48,16°	↑	29881	AOS: 2018/07/30 10:01:40	2018/07/30 10:01:40	2018/07/30 14:20:48	-48,23°	68,97°	19139
COSMOS 2457 (733)	**26,81°**	**32,69°**	↑	**21506**	**LOS: 2018/07/30 10:28:19**	**2018/07/30 17:10:03**	**2018/07/30 10:28:19**	**58,23°**	**152,94°**	**19138**
COSMOS 2458 (734)	**318,57°**	**28,20°**	↓	**21880**	**LOS: 2018/07/30 09:07:09**	**2018/07/30 15:31:26**	**2018/07/30 09:07:09**	**51,64°**	**-116,01°**	**19136**

Time Controller / POLAR_TRACK2

luglio 2018

lun	mar	mer	gio	ven	sab	dom
25	26	27	28	29	30	1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31	1	2	3	4	5

Hour: 8
Min: 0
Sec: 0
Msec: 0
Throttle: 1

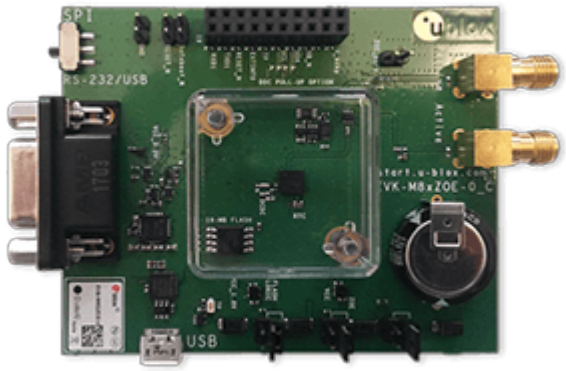
Manual Control Reset

Satellite	Az	El	AOS/LOS
COSMOS 2500 (755)	**37,18°**	**0,42°**	**00:53**
GPS BIIR-6 (PRN 14)	**244,76°**	**8,21°**	**20:55**
GPS BIIRM-3 (PRN 12)	**117,83°**	**13,83°**	**32:54**
GPS BIIR-9 (PRN 21)	188,51°	-13,99°	34:52
GPS BIIF-6 (PRN 06)	**27,87°**	**16,28°**	**41:56**
COSMOS 2475 (743)	98,62°	-25,61°	58:00
COSMOS 2514 (751)	216,91°	-26,58°	59:50
COSMOS 2464 (736)	327,65°	-26,79°	59:54
COSMOS 2458 (734)	**318,57°**	**28,20°**	**01:07:09**
GPS BIIR-4 (PRN 20)	144,97°	-25,66°	01:12:23

GPS BIIF-12 (PRN 32)

Azimuth : 225,39°
Elevation : -13,67°
Slant Range : 27280 km
Range Rate : 0,698 km/sec
Next Event : AOS: 2018/07/30 13:37:12
SSP Loc. : HH18WU
Footprint : 16939 km
Altitude : 20138 km
Velocity : 3,881 km/sec
Doppler@100M : -233 Hz
Sig. Loss : 161,12 dB
Sig. Delay : 91,00 msec

ublox: https://www.u-blox.com/en/product-search



ST: http://www.st.com/en/evaluation-tools/gnss-ics-eval-boards.html?querycriteria=productId=SC2186

NVS: http://www.nvs-gnss.com/products/receivers.html

(NVS) : https://custom-build-robots.com/electronic/precise-gps-gnss-positioning-raspberry-pi-rtklib-software-installation/8087?lang=en#prettyPhoto