

GSILIB解析例

ISB推定

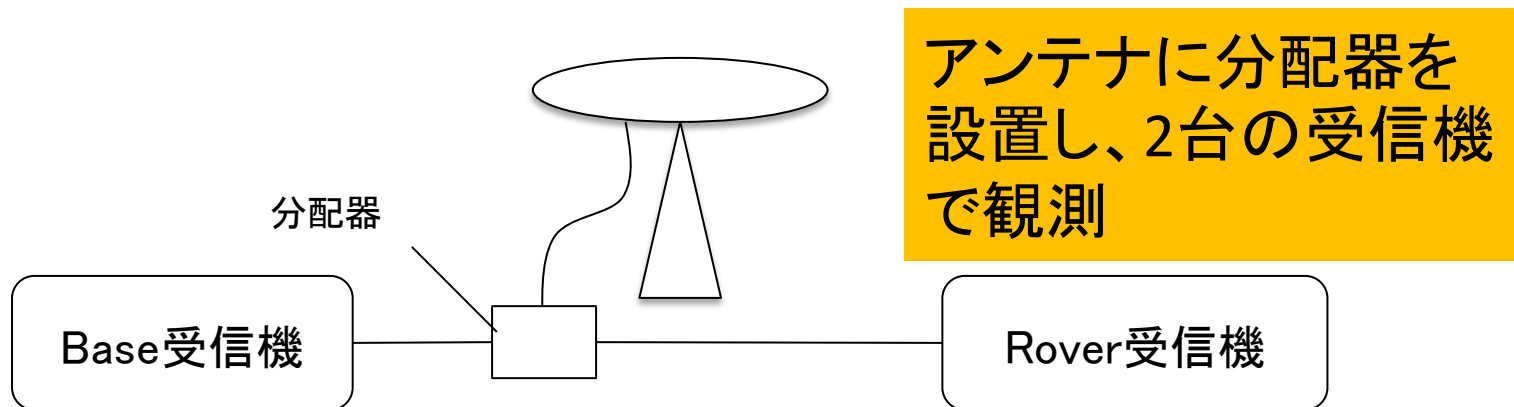
※ISB (Inter System Bias)

異なる衛星系の信号を処理する際に受信機回路で発生するバイアス、ISBの大きさは受信機種によって異なる

→異機種受信機間における異なる衛星系間で位相差をとる解析で補正が必要

解析条件

- 観測時間：2014年8月27日7時～28日7時
- 観測点：国土地理院アンテナ検定架台
- 受信機：jv02 – JAVAD TRE_G3T DELTA
tr02 – Trimble NetR9
- 衛星系：GPS、Galileo



手順

※isb_estimation.zipをD:¥に展開と仮定

1. GSILIBのbin¥gsipost_gui.exeを起動
2. [Options...]を選択
3. [Load]をクリックし、D:¥isb_estimation¥isb_est.confを選択
4. [OK]を選択
5. [RINEX OBS: Rover]にtr02のoファイル(tr022390.14o)、
[RINEX OBS: Base Station]にjv02のoファイル
(jv022390.14o)、[RINEX *NAV]にjv02のnファイル
(jav022390.14n)、lファイル(jav022390.14l)を格納
6. [Execute]を選択し、解析実行
7. D:¥isb_estimationにisb.tblが作成される

データ設定画面

GSIPOST ver.1.0.0

Time Start (GPST) ? Time End (GPST) ? Interval Unit

2000/01/01 00:00:00 2000/01/01 00:00:00 0 s 24 H

RINEX OBS: Rover ?

D:\%isb_estimation%\tr022390.14o

RINEX OBS: Base Station

D:\%isb_estimation%\jv022390.14o

RINEX *NAV/CLK, SP3, IONEX or SBS/EMS

D:\%isb_estimation%\jv022390.14n

D:\%isb_estimation%\jv022390.14l

Solution Dir

D:\%isb_estimation%\tr022390.pos

?

Plot... View... To KML... Options... Execute Exit

Options – Setting1

Options

Setting1 | Setting2 | Setting3 | Output | Statistics | Positions | Files | Misc

Positioning Mode: Fixed

Frequencies: L1+L5

L2 Code Priority: L2P(Y)

Solution Type: Forward

Elevation Mask (°) / SNR Mask (dbHz): 15

Rec Dynamics/Earth Tides Correction: OFF

Ionosphere Correction: Broadcast

Troposphere Correction: Saastamoinen

Time System Correction: OFF

Satellite Ephemeris/Clock: Broadcast

Sat PCV Rec PCV PbWindup Reject Ed RAIM FDE

Excluded Satellites: Galileo

GPS GLO Galileo QZSS SBAS Beidou

Glonass L1 Code Priority

Glonass L2 Code Priority

Fixedを選択

Galileoを選択

Options – Setting2

Options

Setting1 Setting2 Setting3 Output Statistics Positions Files Misc

Integer Ambiguity Resolution Method	LAMBDA	
Integer Ambiguity Resolution Strategy	Continuous	
GLONASS Ambiguity Resolution	ON	
PPP Ambiguity Resolution	OFF	
Min Ratio to Fix Ambiguity	3	
Min Confidence / Max FCB to Fix Amb	0.9999	0.2
Min Lock / Elevation (°) to Fix Ambiguity	0	0
Min Fix / Elevation (°) to Hold Ambiguity	10	0
Outage to Reset Amb/Slip Thres (m)	5	0.050
Phase Cycle Shift	OFF	
L2C-L2P Bias	OFF	
Max Age of Differential (s)	30.0	
Reject Threshold of GDOP/Innov (m)	30.0	30.0
Number of Filter Iteration	1	
<input type="checkbox"/> Baseline Length Constraint (m)	0.000	0.000
Inter System Bias	Estimation(0m BL)	
Analysys Method in Double Differencing	inall	

[Estimation(0mBL)]を選択することでISB推定

Options – Setting3

Options X

Setting1 Setting2 **Setting3** Output Statistics Positions Files Misc

Phase Cycle Shift, GLONASS IFB, Error Model ☰ ☰ ☰

⋮

⋮

⋮

Multi Baseline Static

Estimate Satellite Clock/FCB OFF ▾ OFF ▾

Semi-Dynamic Correction Parameter ⋮

Solution Directory ⋮

Est. Interval of ZTD (s)	7200		
Est. Interval of Trop. Gradient (s)	43200		
Trop. Process Noise Zen/EW/NS	1.00E-1	1.00E-1	1.00E-1
O-C Reject Phase/Code (sigma)	5.0	5.0	
Fixing Probability WL/NL	0.99990	0.99990	
Convergence Factor of Iteration	1.00E-03		

Options – Output

Options

Setting1 Setting2 Setting3 Output Statistics Positions Files Misc

Solution Format Lat/Lon/Height

Output Header/Processing Options ON ON

Time Format / # of Decimals hh:mm:ss GPST 3

Latitude / Longitude Format ddd.ddddddd

Field Separator

Datum/Height WGS84 Ellipsoid

Geoid Model Internal

Solution for Static Mode All

NMEA Interval (s) RMC/GGA, GSA/GSV

Output Solution Status / Debug Trace

Output ISB Data NEW

D:\%isb_estimation%isb.tbl

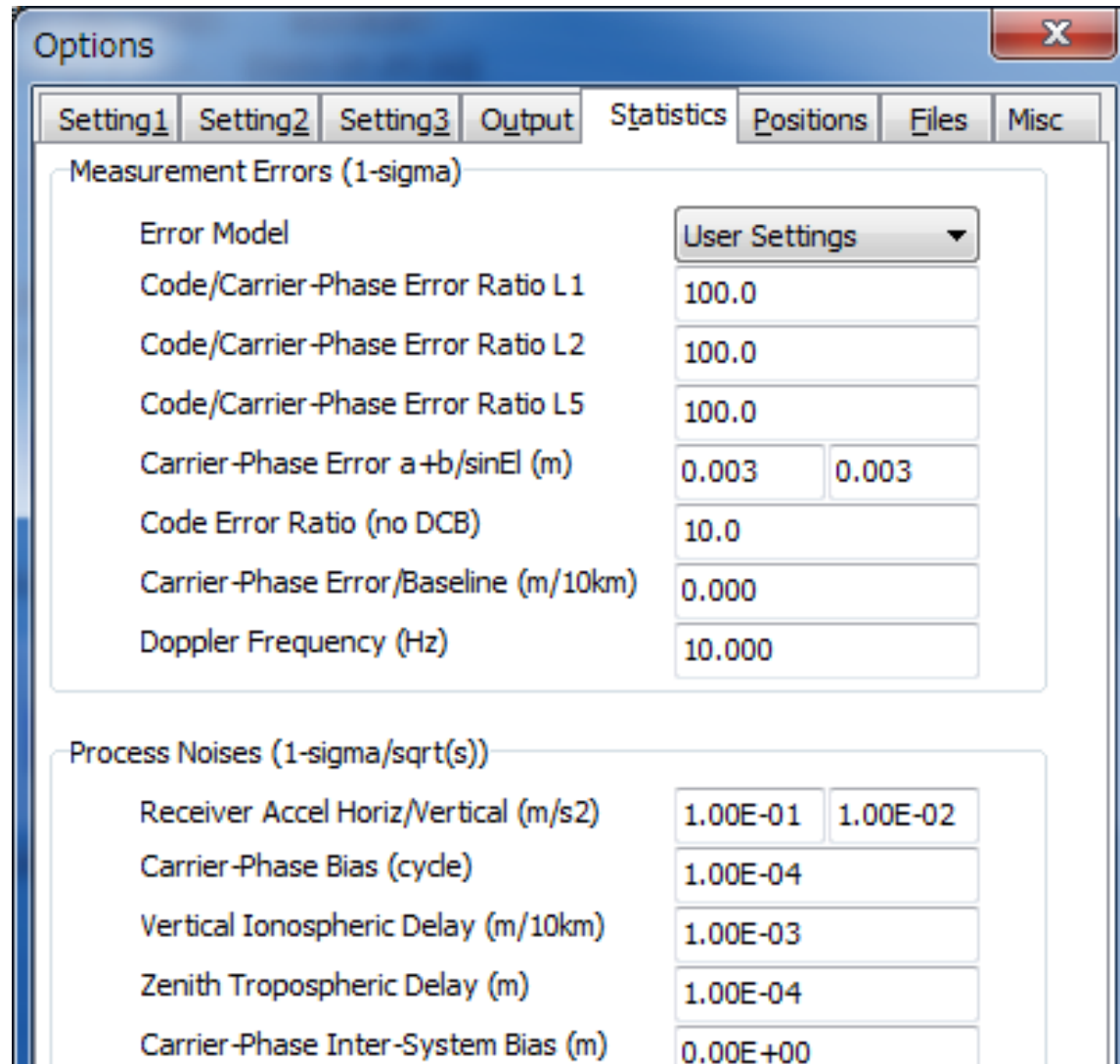
Output L2P-L2C Data OFF

Output Position in SINEX OFF

[NEW]を選択
追記をする場合は[APPEND]を選択

出力ファイル名

Options – Statistics



Options

Setting1 Setting2 Setting3 Output Statistics Positions Files Misc

Measurement Errors (1-sigma)

Error Model	User Settings	
Code/Carrier-Phase Error Ratio L1	100.0	
Code/Carrier-Phase Error Ratio L2	100.0	
Code/Carrier-Phase Error Ratio L5	100.0	
Carrier-Phase Error a+b/sinE1 (m)	0.003	0.003
Code Error Ratio (no DCB)	10.0	
Carrier-Phase Error/Baseline (m/10km)	0.000	
Doppler Frequency (Hz)	10.000	

Process Noises (1-sigma/sqrt(s))

Receiver Accel Horiz/Vertical (m/s2)	1.00E-01	1.00E-02
Carrier-Phase Bias (cycle)	1.00E-04	
Vertical Ionospheric Delay (m/10km)	1.00E-03	
Zenith Tropospheric Delay (m)	1.00E-04	
Carrier-Phase Inter-System Bias (m)	0.00E+00	

Options – Positions

Options

Setting1 Setting2 Setting3 Output Statistics Positions Files Misc

Rover

X/Y/Z-ECEF (m) ...

-3957199.5289	3310209.9842	3737703.4092
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Antenna Type (*: Auto) ...

Receiver Type Trimble NetR9

Base Station

X/Y/Z-ECEF (m) ...

-3957199.5289	3310209.9842	3737703.4092
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Antenna Type (*: Auto) ...

Receiver Type JAVAD TRE_G3T DELTA

Station Position File ...

Roverの座標値と受信機

Base Stationの座標値と受信機

Options – Files

The screenshot shows a software window titled "Options" with a standard Windows-style title bar (blue background, red close button). Below the title bar is a tabbed interface with the following tabs: "Setting1", "Setting2", "Setting3", "Output", "Statistics", "Positions", "Files", and "Misc". The "Files" tab is currently selected and active. It contains a list of file selection options, each with a text input field and a browse button (represented by three dots "...").

Label	Input Field	Buttons
Satellite/Receiver Antenna PCV File ANTEX/NGS PCV	[Empty]	[List Icon] [Browse "..."]
	[Empty]	[Browse "..."]
Geoid Data File	[Empty]	[Browse "..."]
Ionosphere Data File	[Empty]	[List Icon] [Browse "..."]
DCB Data File	[Empty]	[List Icon] [Browse "..."]
ISB Data File	[Empty]	[List Icon] [Browse "..."]
Google Earth Exe File	[Empty]	[Browse "..."]
BIPM Circular T File	[Empty]	[Browse "..."]
EOP Data File	[Empty]	[List Icon] [Browse "..."]
OTL BLQ File	[Empty]	[List Icon] [Browse "..."]

Options – Misc

Options

Setting1 Setting2 Setting3 Output Statistics Positions Files Misc

Time Interpolation of Base Station Data OFF

DGPS/DGNSS Corrections SBAS

SBAS Satellite Selection (0: All) 0

RINEX Opt (Rover)

RINEX Opt (Base)

Station ID List

? : Keywords in File Path

#..: Comment in List

Rovers Base Stations

出力ファイル(isb.tbl)

```
Inter System Bias Table
-----
RECEIVER TYPE          RECEIVER TYPE (BASE)  S F O          BIAS (ns)
*****                *****
Trimble NetR9          JAVAD TRE_G3T DELTA  E 1 L          0.143341583
                       JAVAD TRE_G3T DELTA  E 5 L          -0.002754165
                       JAVAD TRE_G3T DELTA  E 1 P          -6.475588289
                       JAVAD TRE_G3T DELTA  E 5 P          -20.498001586
```

受信機の組み合わせ

衛星

周波数帯

信号

P - 擬似距離

L - 搬送波位相

ISB