

GSILIB解析例

IFB補正

※IFB (Inter Frequency Bias)

受信機回路を周波数のずれた信号が通ることによって発生するバイアス、GLONASSは信号の周波数で衛星を識別するため、IFBが発生し、そ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GLONASSを含めた解析では補正が必要

解析条件

- 観測時間：2014年9月13日7時～23時
- 観測点：
つくば長距離GNSS比較基線場（No.02, No.10）
- 受信機：No.02 – Trimble NetR9
No.10 – LEICA GR25
- 測位方式：キネマティック
- 衛星系：GPS、GLONASS
- No.10を既知点として、No.02を計算

手順

※ifb_correction.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:¥ifb_correction¥ifb.confを選択
4. [OK]を選択
5. [RINEX OBS: Rover]にNo.02のoファイル(tr022562.14o)、
[RINEX OBS: Base Station]にNo.10のoファイル
(le102562.14o)、[RINEX *NAV]にNo.10のnファイル
(le102562.14n)、gファイル(le102562.14g)を格納
6. [Execute]を選択し、解析実行
7. D:¥ifb_correctionにposファイル(tr022562.pos)が作成
され、[Plot...]を選択すれば、グラフを描画する

データ設定画面

The screenshot shows the GSIPOST ver.1.0.0 software interface. The window title is "GSIPOST ver.1.0.0". The interface is divided into several sections for configuring data processing parameters.

Time Settings:

- Time Start (GPST) ?
- 2000/01/01 | 00:00:00
- Time End (GPST) ?
- 2000/01/01 | 00:00:00
- Interval
- 0 s
- Unit
- 24 H

RINEX OBS: Rover ?

- D:\%ifb_correction%\tr022562.14o

RINEX OBS: Base Station

- D:\%ifb_correction%\le102562.14o

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

- D:\%ifb_correction%\le102562.14n
- D:\%ifb_correction%\le102562.14g

Solution Dir

- D:\%ifb_correction%\tr022562.pos

Buttons: Plot..., View..., To KML..., Options..., Execute, Exit

Options – Setting1

Options

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

Positioning Mode: Kinematic

Frequencies: L1+L2

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 PhWindup Reject Ed RAIM FDE

Exclud (GLOを選択): Included)

GPS GLO Galileo QZSS SBAS Beidou

Glonass L1 Code Priority

Glonass L2 Code Priority

Options – Setting2

The screenshot shows the 'Options' dialog box with the 'Setting2' tab selected. The 'Use IFB Table' dropdown menu is highlighted with a red box. The dialog box contains various settings for ambiguity resolution, including resolution methods, strategies, and thresholds.

Setting	Value
Integer Ambiguity Resolution Method	LAMBDA
Integer Ambiguity Resolution Strategy	Continuous
GLONASS Ambiguity Resolution	Use IFB Table
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

[Use IFB Table]を
選択することで
IFB補正。[ON]は
補正しない

Options – Setting3

Options

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

Phase Cycle Shift, GLONASS IFB, Error Model

D:¥ifb_correction¥gloifb.tbl

Options – Setting2で[Use IFB Table]を指定した場合、IFBテーブルを選択
テーブルには、受信機種毎の組み合わせ毎のIFB値を記載

Solution Directory

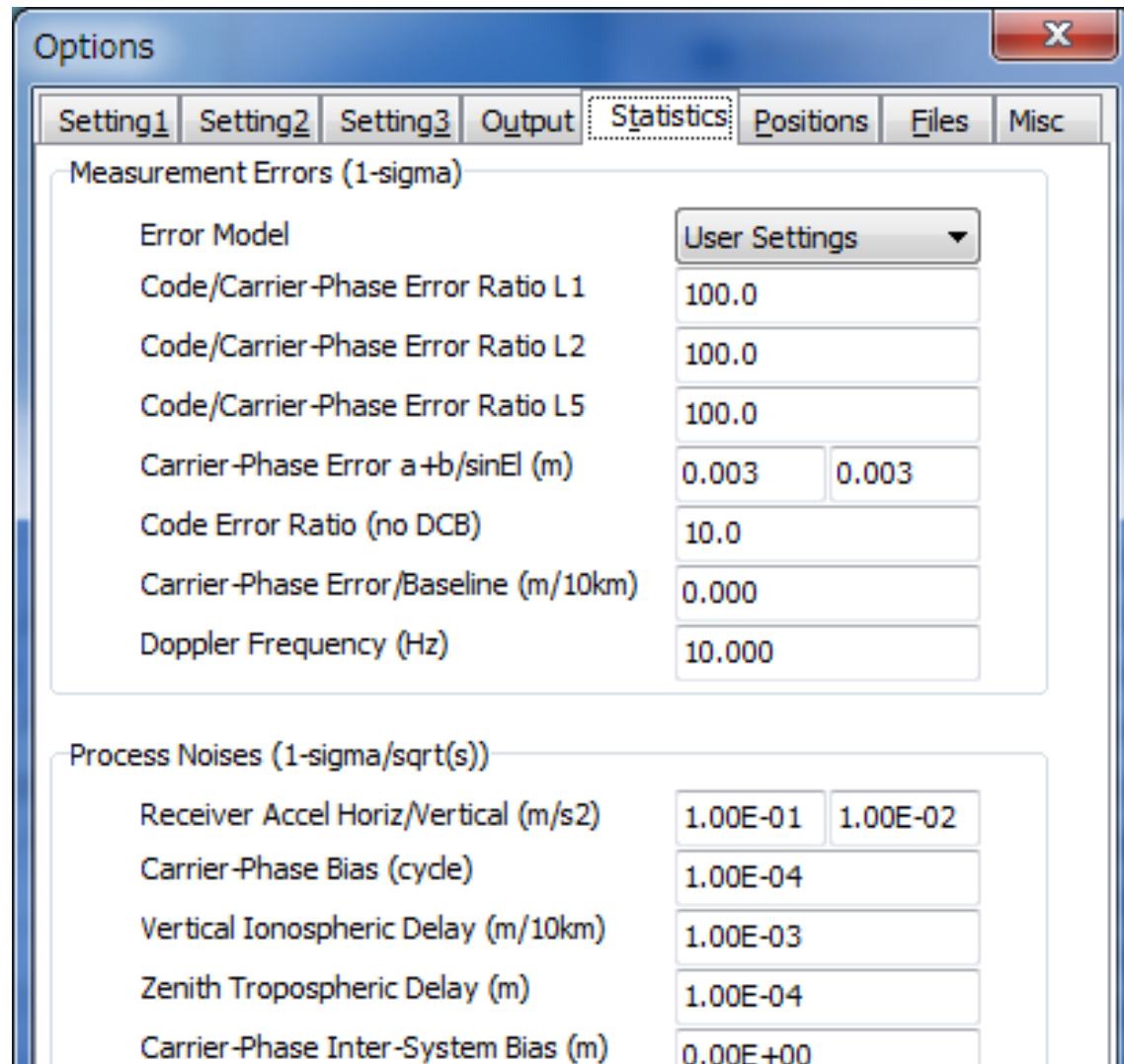
Est. Interval of ZTD (s)	7200
Est. Interval of Trop. Gradient (s)	43200
Trop. Process Noise Zen/EW/NS	1.00E-01 1.00E-01 1.00E-01
O-C Reject Phase/Code (sigma)	5.0 5.0
Fixing Probability WL/NL	0.99990 0.99990
Convergence Factor of Iteration	1.00E-03
Maximum Iteration	3

Options – Output

The screenshot shows the 'Options' dialog box with the 'Output' tab selected. The settings are as follows:

Setting	Value
Solution Format	Lat/Lon/Height
Output Header/Processing Options	ON / ON
Time Format / # of Decimals	hh:mm:ss GPST / 3
Latitude / Longitude Format	ddd.dddddd
Field Separator	
Datum/Height	WGS84 / Ellipsoid
Geoid Model	Internal
Solution for Static Mode	All
NMEA Interval (s) RMC/GGA, GSA/GSV	0 / 0
Output Solution Status / Debug Trace	OFF / OFF
Output ISB Data	OFF <input type="checkbox"/>
	<input type="text"/> ...
Output L2P-L2C Data	OFF <input type="checkbox"/>
	<input type="text"/> ...
Output Position in SINEX	OFF

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/s ²)	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

Lat/Lon/Height (deg/m) ...

36.106114782 140.087197069 70.1808

Antenna Type (*: Auto) Delta-E/N/U (m)

0.0000 0.0000 0.0000

Receiver Type **Trimble NetR9**

Base Station

RINEX Header Position

36.133167165 140.134038595 42.6214

Antenna Type (*: Auto) Delta-E/N/U (m)

0.0000 0.0000 0.0000

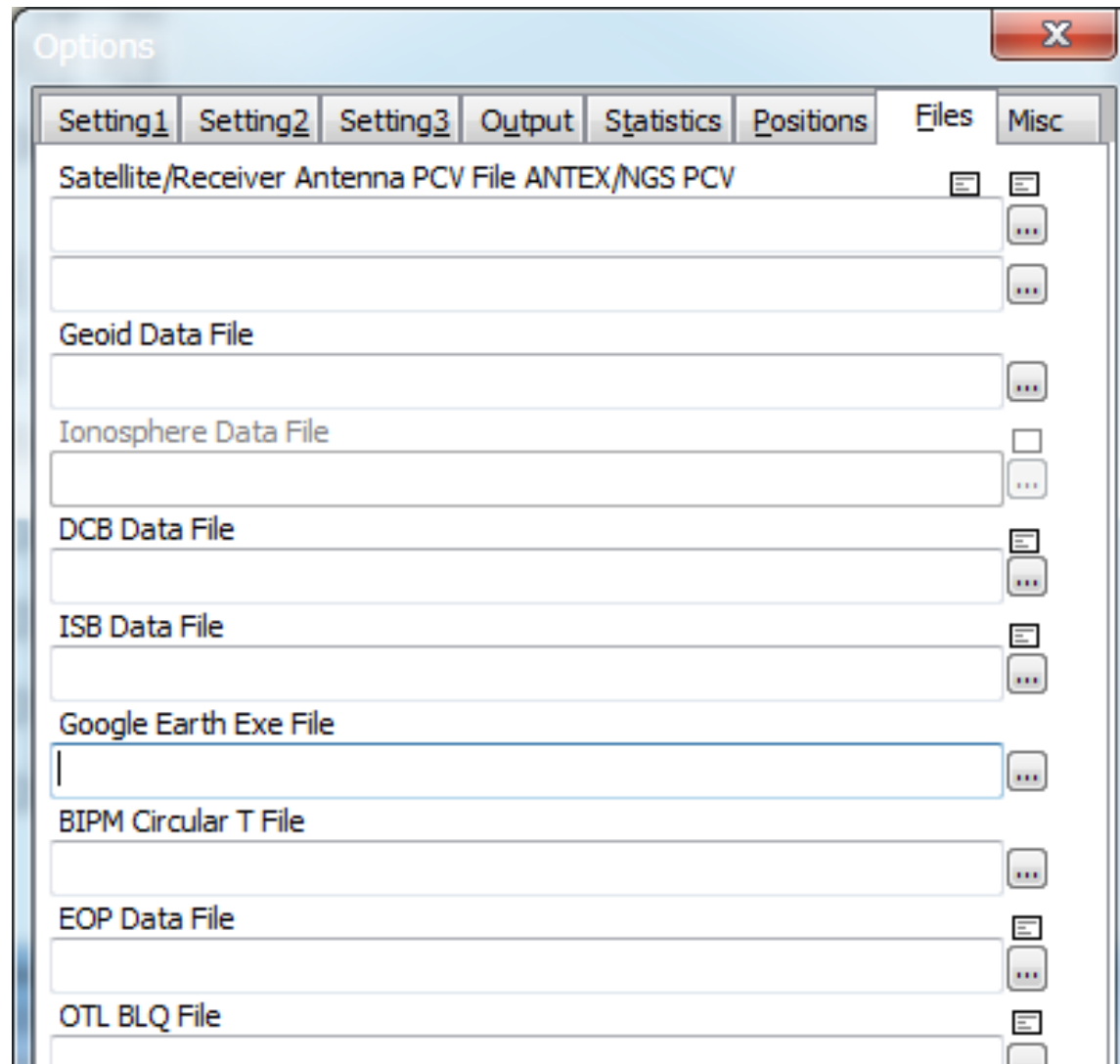
Receiver Type **LEICA GR25**

Station Position File

...

IFBテーブルに記載された受信機名にする

Options – Files



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

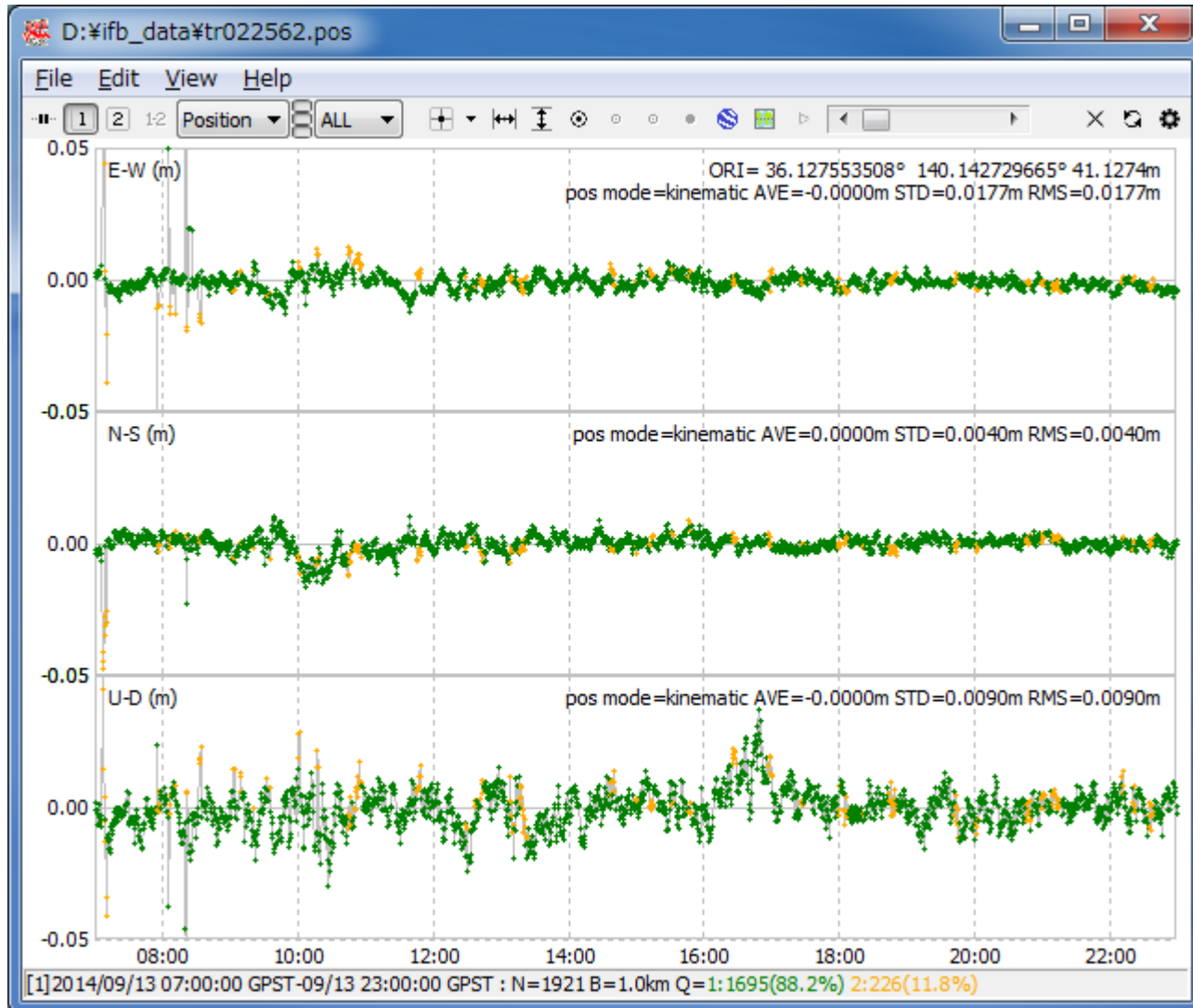
? : Keywords in File Path

#..: Comment in List

Rovers Base Stations

解析結果(IFB補正あり)

Options – Setting2 GLONASS Ambiguity Resolution で [Use IFB Table] を選択



解析結果(IFB補正なし)

Options – Setting2 GLONASS Ambiguity Resolution で[ON] を選択

