

Online Approaches for GNSS CORS for GNSS Online solutions

FIG References Frame in Practice Seminar

Operational Aspects of GNSS CORS Technical Workshop

Holiday Inn, Suva - Fiji

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19 September 2018

Global GNSS Online Solutions Approach

- AUSPOS: Geoscience Australia
- OPUS: Online Positioning User Service (NOAA)
- CSRS-PPP: Canadian Spatial Reference System
- CenterPoint RTX: Trimble Navigation
- magicGNSS: GMV
- APPS: Jet Propulsion Laboratory (NASA)

AUSPOS: GEOSCIENCE AUSTRALIA



Australian Government
Geoscience Australia

Applying geoscience to Australia's most important challenges

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Positioning and Navigation

Positioning for the Future

Datum Modernisation in Australia

Geodesy

Basics - Geodesy and Global Navigation Systems

Geodetic Transformations and Conversions

Geodetic Techniques

Global Navigation Satellite System Networks

Geodetic Datums and Projections

Australian Height Datum and Geoid Models

Related Organisations - Geodesy

Regulation 13 Certificates

Pacific Sea Level and Geodetic Monitoring

Asia-Pacific Reference Frame (APREF)

AUSPOS - Online GPS Processing Service

AUSPOS is a free online GPS data processing facility provided by Geoscience Australia. It takes advantage of both the [IGS Stations Network](#) and the IGS product range. AUSPOS works with data collected anywhere on Earth.

You can submit dual-frequency geodetic quality GPS RINEX data observed in a 'static' mode to the GPS data processing system.

An AUSPOS report will be emailed to you with the [Geocentric Datum of Australia 2020 \(GDA2020\)](#), Geocentric Datum of Australia 1994 (GDA94) and International Terrestrial Reference Frame (ITRF) coordinates.

Checklist

Before submitting your GPS RINEX file/s, please ensure:

1. The GPS RINEX file/s contain more than one hour (preferably two) of GPS observation data.
2. The GPS RINEX file/s do not contain any data from the current UT day.
3. The GPS RINEX file/s do not contain more than seven days of data.
4. The GPS RINEX file/s names do not contain spaces, parentheses () or a hash key #.
5. When submitting multiple files, ensure the first four characters / numbers of the file names are not the same.
6. You have used the [IGS naming convention for the antenna type](#).
7. The antenna height provided is the vertical distance from the ground mark to the Antenna Reference Point (ARP).

AUSPOS Submission

[Submit your data to AUSPOS](#)

<http://www.ga.gov.au/scientific-topics/positioning-navigation/geodesy/auspos>

AUSPOS: GEOSCIENCE AUSTRALIA



Australian Government
Geoscience Australia



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> AUSPOS - Online GPS Processing Service

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Number of RINEX files	1	Submit RINEX using <input checked="" type="radio"/> upload <input type="radio"/> ftp	
File Name	Height (m)	Antenna Type	
Choose File BM01.18o	1.7000	TRMR10 NONE	
Your Email Address:	andrickl@spc.int		
submit		start over	

Back to the AUSPOS Online GPS Processing Service [Introduction](#) Page.

AUSPOS Online GPS Processing Service



Dear andrickl@spc.int,

Thank you for submitting a GPS processing job to the AUSPOS Online GPS Processing Service.

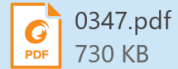
Your job reference is #140347. The following RINEX file(s) have been submitted for processing (#File, Filename, Antenna Type, Height) :

1. BM01.18o TRMR10 NONE 1.7000 m

Your job has just been submitted to the AUSPOS GPS processing server.

Thank you for using the AUSPOS service.

AUSPOS: GEOSCIENCE AUSTRALIA



Dear andrickl@spc.int,

Thank you for using AUSPOS 2.3 released on 13 November 2017.

A report of your GPS processing, job number #0347, is attached to this message. An additional copy of this report can also be found, for a short time only, at:

<ftp://ftp.ga.gov.au/geodesy-outgoing/apps/ausposV2/0347/0347.pdf>

A SINEX file for your solution is also available from:

<ftp://ftp.ga.gov.au/geodesy-outgoing/apps/ausposV2/0347/>

We welcome your input, any queries or suggestions regarding the AUSPOS GPS Processing Service should be addressed to:

<mailto:geodesy@ga.gov.au>

Best Regards:

Project Manager -- AUSPOS Online GPS Processing Service

AUSPOS: GEOSCIENCE AUSTRALIA



3.2 Geodetic, GRS80 Ellipsoid, ITRF2014

Geoid-ellipsoidal separations, in this section, are computed using a spherical harmonic synthesis of the global EGM2008 geoid. More information on the EGM2008 geoid can be found at <http://earth-info.nga.mil/GandG/wgs84/gravitymod/egm2008/>.

Station	Latitude (DMS)	Longitude (DMS)	Ellipsoidal Height(m)	Derived Above Geoid Height(m)
BM01	-17 32 14.59750	177 41 53.33896	92.305	34.895
ASPA	-14 19 33.92725	-170 43 20.78718	53.471	20.847
AUCK	-36 36 10.21650	174 50 03.79109	132.686	97.753
CKIS	-21 12 03.68258	-159 48 02.22564	18.397	5.776
KIRI	1 21 16.50799	172 55 22.39685	36.156	4.845
KOUC	-20 33 31.27495	164 17 14.42099	84.136	23.689
KTIA	-35 04 08.13341	173 16 23.19973	127.433	89.089
LAUT	-17 36 31.71548	177 26 47.69582	89.654	31.694
NAUR	-0 33 06.21820	166 55 31.95384	46.232	6.057
NIUM	-19 04 35.48544	-169 55 37.46285	89.693	59.074
NIUT	-19 03 10.79188	-169 55 14.35329	37.651	7.060
NORF	-29 02 36.03120	167 56 19.80154	159.004	112.159
NRMD	-22 13 41.95700	166 29 05.59331	160.321	100.010
PTVL	-17 44 57.95614	168 18 54.07726	86.466	22.648
SAMO	-13 50 57.14127	-171 44 18.34073	76.761	39.520
TONG	-21 08 40.96954	-175 10 45.15552	56.275	3.705

3.3 Positional Uncertainty (95% C.L.) - Geodetic, ITRF2014

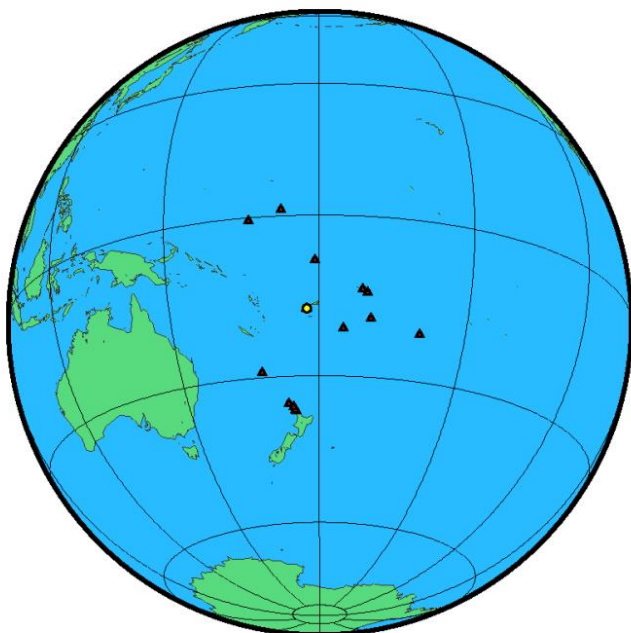
Station	Longitude(East) (m)	Latitude(North) (m)	Ellipsoidal Height(Up) (m)
BM01	0.014	0.010	0.041

1 User Data

All antenna heights refer to the vertical distance from the Ground Mark to the Antenna Reference Point (ARP).


Station (s)	Submitted File	Antenna Type	Antenna Height (m)	Start Time	End Time
0947	09471090.18o	TRMR10 NONE	1.700	2018/04/19 22:24:30	2018/04/20 01:39:00

2 Processing Summary



Date	User Stations	Reference Stations	Orbit Type
2018/04/19 22:24:30	0947	ASPA AUCK CKIS KIRI KTIA LAUT NAUR NIUM NIUT NORF SAMO TONG TUVA WARK WHNG	IGS final


OPUS: NOAA



OPUS: Online Positioning User Service

National Geodetic Survey

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GPS on Bench Marks campaign ending soon!

To help improve the next hybrid geoid model, **GEOID18**, please opt to **share your solution!** To participate, choose **Yes, Share** ▾ The deadline to contribute to **GPS on Bench Marks** has been extended to Friday, 9/21/18.

Upload your data file.
Solve your GPS position & tie it to the National Spatial Reference System.
What is OPUS? [FAQs](#)

BM01.18o

* **data file** of dual-frequency GPS observations. [sample](#)

TRMR10 NONE
▾

L1/L2/L5/G1/G2/G3/E1/E2/E5AB/E6/B1/B2/B3, GPS, GLONASS, GALILEO & BEIDOU ANTENNA

antenna - choosing wrong may degrade your accuracy.


meters above your mark.
antenna height of your antenna's reference point.

* **email address** - your solution will be sent here. [Privacy Act Statement](#)

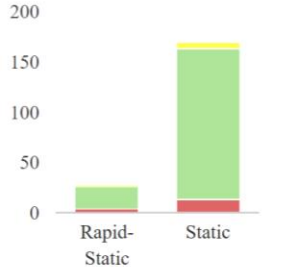
to **customize** your solution.

for data 15 min. - 2 hrs.

for data 2 hrs. - 48 hrs.



sample solutions



OPUS Today
as of 2018-09-15T04:55 EDT

<https://geodesy.noaa.gov/OPUS/index.jsp>



Upload successful!
You will receive an email when processing is complete.

uploaded:		Solving with:	
data file	BM01.18o	solution format	Standard
converted to	bm01109w.18o (RINEX format)	base sta. used	--
antenna	TRMR10 NONE	base sta. excluded	--
antenna height	1.700 meters	state plane zone	--
email address	andrick1@spc.int		
processor	Static	project ID	--

Thank you for using OPUS!

OPUS: NOAA



FILE: BM01.18o OP1537003604355

NGS OPUS SOLUTION REPORT

=====

All computed coordinate accuracies are listed as peak-to-peak values.
For additional information: <https://www.ngs.noaa.gov/OPUS/about.jsp#accuracy>

USER: andrickl@spc.int DATE: September 15, 2018
RINEX FILE: bm01109w.18o TIME: 09:29:47 UTC

SOFTWARE: page5 1603.24 master71.pl 160321 START: 2018/04/19 22:24:00
EPHEMERIS: igs19974.eph [precise] STOP: 2018/04/20 01:39:00
NAV FILE: brdc1090.18n OBS USED: 7895 / 8064 :
98% ANT NAME: TRMR10 NONE # FIXED AMB: 34 / 42 :
81% ARP HEIGHT: 1.700 OVERALL RMS: 0.018(m)

REF FRAME: IGS08 (EPOCH:2018.2986)

X:	-6078712.856(m)	0.044(m)
Y:	244342.962(m)	0.026(m)
Z:	-1909654.051(m)	0.021(m)
LAT:	-17 32 14.59748	0.007(m)
E LON:	177 41 53.33852	0.025(m)
W LON:	182 18 6.66148	0.025(m)
EL HGT:	92.312(m)	0.049(m)

UTM COORDINATES

UTM (Zone 60)


Northing (Y) [meters]	8060858.780
Easting (X) [meters]	574099.773
Convergence [degrees]	0.21038056
Point Scale	0.99966789
Combined Factor	0.99965338

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
	TUVA			1009106.0
	LAUT			27851.3
	SAMO			1201552.2

This position and the above vector components were computed without any knowledge by the National Geodetic Survey regarding the equipment or field operating procedures used.

CSRS-PPP: NATURAL RESOURCES CANADA

Natural Resources Canada  Canada

Energy ▾ Mining/Materials ▾ Forests ▾ Earth Sciences ▾ Hazards ▾ Explosives ▾ The North ▾ Climate Change ▾

Home → Earth Sciences → Geomatics → Geodetic Reference Systems → Tools and Applications → Precise Point Positioning

Precise Point Positioning

CSRS-PPP Service Upgrade

The Canadian Geodetic Survey of Natural Resources Canada updated the CSRS-PPP service on Thursday, August 16th 2018. This update included the transition to a new processing software (SPARK) which replaced the previous software (GPSPACE). Information detailing the file formats for all updated output files is available on the [modernized CSRS-PPP service page](#). Sample static and kinematic solutions are also available for download to allow you to familiarize yourself with the new outputs.

▶ Help for CSRS PPP (Updated 2018-08-16) Profile Sign out

Email for results (required)

Processing mode

Static Kinematic

NAD83 ITRF

- The epoch will be the same as the GPS data.
- A UTM zone will be calculated from the longitude.

Vertical datum

Contribute to passive control maintenance? ([what is this?](#))

Authorize the Canadian Geodetic Survey (CGS) to archive and publish CSRS-PPP submission and solution

Official marker station name

▶ More options

RINEX observation file (required) (.zip, .gzip, .gz, .z, .???)

Use of Canadian Geodetic Survey products and data is subject to the [Open Government Licence - Canada](#)
[Geodetic Reference Systems Information](#)

Date modified: 2018-08-24

<https://webapp.geod.nrcan.gc.ca/geod/tools-outils/ppp.php?locale=en>

The estimated coordinates **ITRF14 2018-04-19** for the **BM01.18o** RINEX file are as follow:

Latitude $S17^{\circ} 32' 14.5970'' \pm 0.007 \text{ m (95\%)}$
Longitude $E177^{\circ} 41' 53.3381'' \pm 0.024 \text{ m (95\%)}$
Ellipsoidal Height $92.338 \text{ m} \pm 0.042 \text{ m (95\%)}$
[-17.53738805,177.69814946,92.338]

UTM Zone 60 (South)
Northing -8060858.796 m
Easting 574099.760 m
Scale factor (point) 0.999668
Scale factor (combined) 0.999653
[-8060858.796,574099.760,92.338]

Cartesian coordinates
X $-6078712.885 \pm 0.039 \text{ m (95\%)}$
Y $244342.977 \pm 0.025 \text{ m (95\%)}$
Z $-1909654.043 \pm 0.016 \text{ m (95\%)}$
[-6078712.885,244342.977,-1909654.043]

Orbits and Clocks Used:
GNSS Data: **GPS & GLONASS**
WGS84 ellipsoid used for (x,y,z) to (lat,lon,h) transformation



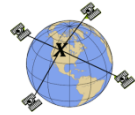
CSRS-PPP SPARK Latest update: **2018-08-16**
CSRS-PPP SPARK [Latest news](#)

Software Version: **2.11.0**

CSRS-PPP SPARK Results for **BM01.18o** [full_output.zip](#)

BM01.18o [summary](#) [graphics](#) [residuals](#) *GPS & GLONASS IGS Final*

CSRS-PPP: NATURAL RESOURCES CANADA



CSRS-PPP 2.11.0 (2018-07-26)



BM01.18o
BM01

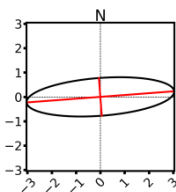
Data Start	Data End	Duration of Observations
2018-04-19 22:24:28.00	2018-04-20 01:39:11.00	3:14:43
Processing Time		Product Type
18:47:33 UTC 2018/09/15		IGS Final
Observations	Frequency	Mode
Phase and Code	Double	Static
Elevation Cut-Off	Rejected Epochs	Estimation Steps
7.5 degrees	0.00 %	1.00 sec
Antenna Model	APC to ARP	ARP to Marker
TRMR10 NONE	L1 = 0.128 m L2 = 0.120 m	H:1.700m / E:0.000m / N:0.000m

(APC = antenna phase center; ARP = antenna reference point)

Estimated Position for BM01.18o

	Latitude (+n)	Longitude (+e)	Ell. Height
ITRF14 (2018)	-17° 32' 14.59697"	177° 41' 53.33807"	92.338 m
Sigmas(95%)	0.006 m	0.024 m	0.042 m
A priori*	-17° 32' 14.65150"	177° 41' 53.32194"	97.425 m
Estimated – A priori	1.676 m	0.476 m	-5.088 m

95% Error Ellipse (cm)
 semi-major: 3.044 cm
 semi-minor: 0.776 cm
 semi-major azimuth: 85° 41' 7.07"

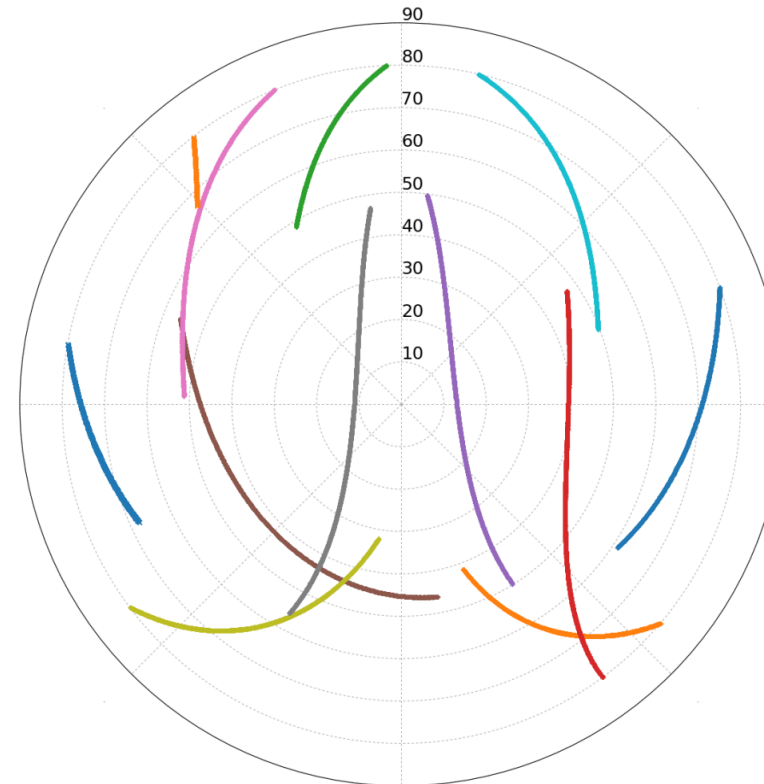


UTM (South) Zone 60

-8060858.796 m (N)
 574099.760 m (E)
 Scale Factors
 0.999668 (point)
 0.999653 (combined)

*(Coordinates from RINEX header used as a priori position)

Satellite Sky Distribution



• G02	× G10	• G13	• G20	• G24	• G29
• G05	• G12	• G15	• G21	• G25	× G32

TRIMBLE CENTERPOINT RTX POST PROCESSING



Trimble
CenterPoint RTX Post-Processing

Post-Processing Register Support Contact Us

WELCOME TO TRIMBLE CENTERPOINT™ RTX™ POST-PROCESSING SERVICE

Trimble RTX™ is a global GNSS technology that provides centimeter-level positioning, worldwide, at any time.

This application allows you to upload GNSS observation data to the CenterPoint RTX post-processing service and receive positioning calculations. The positioning calculations are performed in the observation epoch (current epoch) of ITRF2008 for data sets that were collected prior to March 23rd 2017, and ITRF2014 for data sets that were collected on or after March 23rd 2017. Transformation can be performed by selecting a different coordinate system and tectonic plate. Complete the form below to receive your calculations via email.

1. Select a coordinate system and tectonic plate:

Coordinate System: ITRF2008
Tectonic Plate: (Autodetect)

2. Select a file to upload:

Choose File: BM01.18o

New Enhancements

The CenterPoint RTX post-processing service now supports all dual frequency GNSS receivers. Antennas must be on the Supported Antennas list. The post-processing service will not process unsupported antennas. See also: [Supported Antennas](#)

Observation files must meet the following requirements:

- Data formats accepted include Trimble proprietary data formats (e.g. DAT, T01, T02, Quark) and the standard RINEX 2 and RINEX 3 data formats
- For optimal processing results, it is recommended to provide at least 60 minutes of observations.
- Data files cannot exceed 24 hours in length
- Data files must be static only
- Data files must contain dual frequency pseudorange and carrier phase observations (L1 and L2)
- Data must have been collected after 14 May 2011
- BeiDou data is included since 04 Jun 2014
- Galileo data is included since 01 Jan 2017
- If your observation data consists of several files, please compress them to a ZIP archive and upload the zipped file. All files in the ZIP archive must belong to the same station.

3. Provide your email address:

Email: andrickl@spc.int

I accept the terms of use listed in the Disclaimer section below.

Process The Report will be sent to the email address provided above.

Disclaimer

Trimble Navigation Limited does not guarantee availability, reliability, and performance of the Trimble CenterPoint RTX post-processing service and accepts no legal liability arising from, or connected to, the use of information on this website or use of this service. Trimble reserves the right to view any information contained in the uploaded file subject to [Terms of Use](#).

Please [contact us](#) if you have further questions or experience any issues.

Trimble

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<https://www.trimblertx.com/UploadForm.aspx>



Post-Processing Service Based on RTX Technology

TrimbleLRTX.com

Contributor: andrickl@spc.int
Reference Name: BM01.18o
Upload Date: 09/15/2018 19:05:10 UTC

Report Time Frame:
Start Time: 04/19/2018 22:24:28 UTC
End Time: 04/20/2018 01:39:11 UTC
Observation File Type(s): RINEX
Observation File(s): BM01.18o
Antenna:
Name: TRMR10 NONE
Height: 1.700 m
Reference: Bottom of antenna mount
Receiver Name: R10
Coordinate Systems: ITRF2008 & ITRF2014
Tectonic Plate: Australia (Auto-detected)
Tectonic Plate Model: MORVELS6
Processing Interval: 10 s

Statistics

# Total Obs	# Usable Obs	# Used Obs	Percent
11684	1168	1169	100

Used Satellites

# Total Satellites:	20
GPS:	G02 G05 G10 G12 G13 G15 G20 G21 G24 G25 G29 G32
GLONASS:	R02 R03 R04 R14 R17 R18 R19 R24

Processing Results

ITRF2008 at Epoch 2005.0		
Coordinate	Value	σ
X	-6078712.712 m	0.013 m
Y	244343.271 m	0.006 m
Z	-1909654.530 m	0.007 m
Latitude	17° 32' 14.61366" S	0.004 m
Longitude	177° 41' 53.32785" E	0.006 m
El. Height	92.331 m	0.014 m

ITRF2014 at Epoch 2018.30		
Coordinate	Value	σ
X	-6078712.877 m	0.013 m
Y	244342.956 m	0.006 m
Z	-1909654.055 m	0.007 m
Latitude	17° 32' 14.59741" S	0.004 m
Longitude	177° 41' 53.33876" E	0.006 m
El. Height	92.334 m	0.014 m

Report Information

Trimble RTX Solution ID: 18491080
Solution Type: Static
Software Version: 6.1.4.17185
Creation Date: 09/15/2018 19:05:45 UTC

Disclaimer

Trimble Navigation Limited does not guarantee availability, reliability, and performance of the current RTX Post-Processing service and accepts no legal liability arising from, or connected to, the use of information on this document or use of this service.

MAGIC GNSS ONLINE SERVICE



QUALITY DATA, ALGORITHMS AND PRODUCTS
FOR THE GNSS USER COMMUNITY

Services

The **magicGNSS** suite provides a set of commercial a set of advance GNSS online services:

- **magicGNSS[®] Web Service:** providing a user-oriented platform for advance GNSS algorithms exploitation. [Brochure](#).
- **PPP by mail Service:** a mail-based PPP service where the user RINEX are processed and a complete PPP solution and report is generated. [Info](#).
- **GNSS Product Provision Service:** multi-GNSS product generation and provision in file-based standard formats.
- **GNSS Corrections Provision Service:** multi-GNSS real-time corrections provision in a RTCM format. [Brochure](#).
- **magicMONITOR:** product able to perform continuous monitoring of a GNSS station network. The station status is assessed at data and receiver and environment level providing full visibility of the stations status. [Visit magicMONITOR demo](#).
- **Timing Monitoring Web Service:** a dedicated web service for timing oriented users. It provide a complete monitoring platform for GNSS station and satellite clocks.
- **magicFAST:** multi-GNSS real-time Ionospheric delay corrections provision service for rapid PPP convergence.



The **magicGNSS** Blog

magicFAST: Regional corrections for improving real-t...

The delay produced by the ionosphere is one of the largest sources of error in GNSS positioning. ...
May 25, 2017 17:01 GMT

Tweets by @magicGNSS

 **magicGNSS**
 @magicGNSS

MagicPPP boosts the autonomous vehicle development providing the positioning and integrity engine for

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MAGIC GNSS ONLINE SERVICE



Sun 16/09/2018 7:56 AM

magicGNSS/PPP <magicgnss@magicgnss.gmv.com>

magicGNSS/PPP: Your results for BM01.18o

To Andrick Lal

Your PPP results for BM01.18o can be downloaded at:

ftp://magicgnss.gmv.com/magicppp/18717_12995_magicgnss_ppp_122706.zip

ITRF14 coordinates:

longitude: 177 41 53.3369 (dms)

latitude: -17 32 14.5970 (dms)

height: 92.244 (m)

ETRS89 coordinates:

longitude: 177 41 53.3054 (dms)

latitude: -17 32 14.5791 (dms)

height: 92.212 (m)

This is your station location on Google Maps:

<http://maps.google.com/?q=BM01.18o@-17.537388,177.698149>

For any question about your results please contact with us at magicgnss@gmv.com and reference your PPP ID: 122706

Results will remain in the ftp server for around 10 days.

For further help please contact us at: magicgnss@gmv.com

CSRS-PPP: NATURAL RESOURCES CANADA

1. CONFIGURATION SUMMARY

1.1. LIST OF STATIONS AND RINEX FILES

Number of stations: 1

bm01

bm011090.18o

1.2. LIST OF SATELLITES

Number of satellites: 52

G01, G02, G03, G05, G06, G07, G08, G09, G10, G11, G12, G13, G14, G15, G16, G17, G18, G19, G20, G21, G22, G23, G24, G25, G26, G27, G28, G29, G30, G31, G32, R01, R02, R03, R04, R06, R07, R08, R10, R11, R13, R14, R15, R16, R17, R18, R19, R20, R21, R22, R23, R24

1.3. SETTINGS

Data Sampling Rate	30 s
Minimum Elevation Angle	10 deg
Number of Iterations	6
Reference Products	GMV Rapid

Table 1. Settings

2. PROCESSING SUMMARY

2.1. PARAMETER ESTIMATION

Constellations	Total Measurements	Clock Parameters	Non Clock Parameters	Ambiguities
GPS Glonass	4194	3181	53	15

Table 2. Parameter estimation

2.2. CONVERGENCE

A priori weight of code measurements: 0.250 m (GPS) / 0.300 m (GLONASS)

A priori weight of phase measurements: 0.006 m (GPS) / 0.006 m (GLONASS)

Iteration Number	RMS of Weighted Residuals	Delta RMS of Weighted Residuals	RMS of Code Residuals m	RMS of Phase Residuals m
GPS Glonass				
0	7335534.384	-	86105.196	86105.188
1	2.044	7335532.339	0.403	0.015
2	2.011	0.033	0.390	0.015
3	2.003	0.009	0.386	0.015
4	1.998	0.005	0.383	0.015
5	1.998	0.000	0.383	0.015
6	1.998	0.000	0.383	0.015

Table 3. Convergence

2.4. NUMBER OF USED AND REJECTED MEASUREMENTS

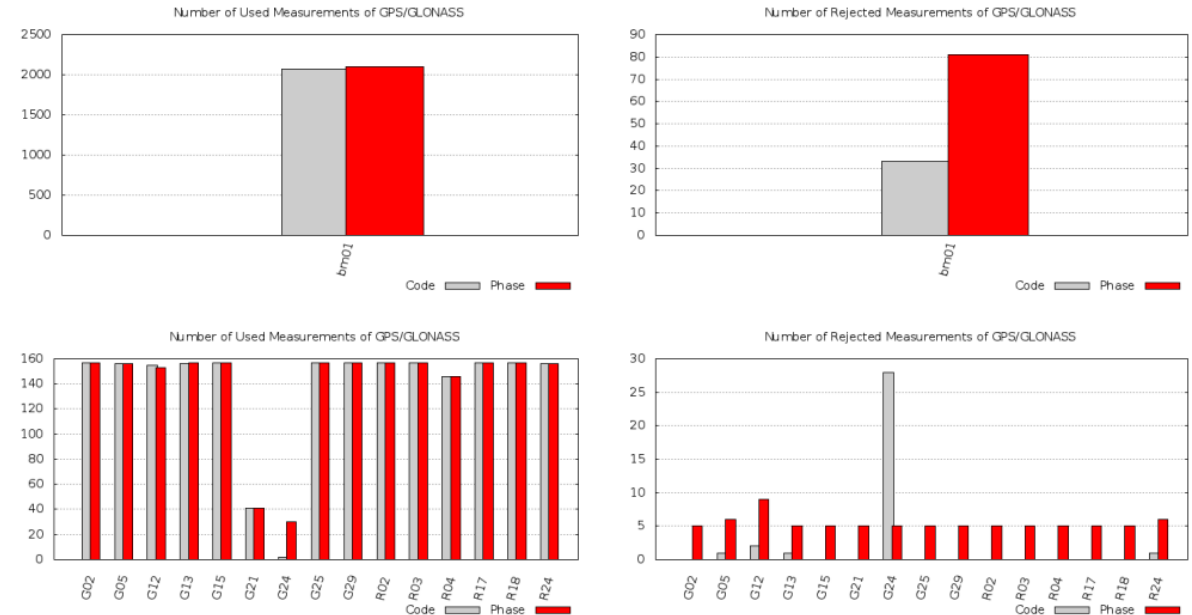




Table 4. Number of Used and Rejected Measurements




Jet Propulsion Laboratory
California Institute of Technology



GDGPS
Jet Propulsion Laboratory

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SOLAR SYSTEM
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TECHNOLOGY



The Automatic Precise Positioning Service
of the
Global Differential GPS System

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Instant Positioning

APPS Options	
Processing Mode	<input checked="" type="radio"/> Static <input type="radio"/> Kinematic
Measurement Type	<input type="radio"/> Single Frequency <input checked="" type="radio"/> Dual Frequency
Orbits/Clocks used	JPL Final: Data prior to 2018-09-01 JPL Rapid: Data from 2018-09-01 to 2018-09-13 JPL Ultra R/T: Data from 2018-09-13 to present
L1 Code	<input type="radio"/> CA Code <input checked="" type="radio"/> P Code
Model Pressure Data?	<input type="radio"/> Yes <input checked="" type="radio"/> No
Elevation Dependent Data Weighting	<input checked="" type="radio"/> Flat <input type="radio"/> Sin <input type="radio"/> Sqrt(sin)
Advanced Options	<input type="text" value="7.5"/> <small>Elevation Angle Cutoff</small> <input type="text" value="300"/> <small>Solution Output Rate (seconds)</small>

No file chosen

https://apps.gdgps.net/apps/apps_file_upload.php

Comparison Gnss Online Solutions

Online GNSS Service	Latitude	Longitude	Ellipsoidal Height
AUSPOS	17° 32' 14.59750" S	177° 41' 53.33896" E	92.305
OPUS	17° 32' 14.59748" S	177° 41' 53.33852" E	92.312
CSRS	17° 32' 14.59700" S	177° 41' 53.33810" E	92.338
Trimble RTX	17° 32' 14.59741" S	177° 41' 53.33876" E	92.334
MAGIC	17° 32' 14.59700" S	177° 41' 53.33690" E	92.244

Difference	0.0005"	0.0021"	0.094m
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Questions?

Vinaka