OPUS with ProMark500, ProFlex500, & ProMark200

OPUS is wonderful! The price is right. It must be used with proper field and office procedures or the file will be rejected. Take advantage of the resources on the OPUS web page to learn about how it works and make effective use of it. This document does not replace the tutorial information available from the OPUS web page.

http://www.ngs.noaa.gov/OPUS/

This document will focus on the use of OPUS Static with a ProMark500, ProFlex500 or ProMark200 .

Use the instructions in chapter 7 of the ProMark500 Reference Manual to help with site selection and for general information about the operation of a GPS receiver. OPUS will reject poor quality data. If the GPS antenna is moving, or if it appears to be moving because of a poor solution OPUS will reject the data.

After the GPS receiver is set up use the Monitor / Skyplot in FAST Survey to make sure there is a good solution and a reasonably stable position.

😪 Monitor/Skyplot 🫛 🧲
Quality Position SATView SATInfo
Status: AUTONOMOUS
Satellites: 12
Local Northing: 1953933.0450
Local Easting: 6142092.8623
Local Elev: 52.6002
HDOP: 0.90 TDOP: 1.40
VDOP: 2.00 GDOP: 2.61
PDOP: 2.20
HRMS: 9.410
VRMS: 11.76
🛃 😂 FAST 📃 🎭 11:02 AM 🏴 🔁

After the receiver has been set up as an RTK base or whatever other job it will do use the Log Raw GPS menu selection to configure it for the OPUS session.



Click on Start File

😂 Magellan Setup
File: None
Start File
Tag New Site
Close File
File Manager
Continue Logging
Pause Logging
Free Mem on Receiver:
98090 kBytes
🎸 😂FAST 📃 🎐 11:06 AM 🏴 🖷

Some settings specific to the OPUS session are about to be made but additional data entry will make processing in GNSS Solutions easy if OPUS rejects the file.

📚 Start New File 🔽 🔀
Elev Mask: 5 Change Ant.
Antenna Height: 7.1230 ft
🔘 Internal Mem 🔿 USB Mem Stick
Interval: 5.0 seconds
ಶ 😂 FAST 📃 🌫 11:08 AM 🏴 🐂

A five second recording interval provides more than enough data for a long static session. The elevation mask and antenna height shown here come from previous settings. OPUS requires manual entry of the vertical height to the Antenna Reference Point. The antenna height entered here is for the RTK work or data processing in GNSS Solutions. Click the check box to accept the settings.

Then tap Tag New Site.

😤 Ма	igellan Setup 🧲	
	File: Logging	
	Start File	
	Tag New Site	
	Close File	
	File Manager	
	Continue Logging	
	Pause Logging	
	Free Mem on Receiver:	
	98090 kBytes	
🐮 😂	FAST 📃 🎭 11:17 AM 🏴 🗟	-

📚 Tag New Site	
Free Mem on Receiver:	: 98079 kBytes
Site Name:	PHIL
Site Attr.:	РК
Antenna Height:	7.1230 ft
Ch	ange Antenna
Interval (in Seconds)	5.0000
Stop Logging: Manually O After	10. minutes
ಶ 😂 FAST 📃 🍛	11:20 AM 🏴 🗟

Use a four character alpha-numeric Site Name. Avoid punctuation. The Site Attribute is there for GNSS Solutions. Tap the dot to Stop Logging Manually at the end of the session. Tap the check box to accept the settings.

Tap Exit - Continue Logging.

😪 Recording site 'PHIL'	
Site Duration: 00:00:22	
Antenna Height: 7.1230 ft	
Stop Point Logging	
Monitor/Satellite View	
Exit - Continue Logging	
👸 📚 FAST 📃 🎐 11:22 AM 🏴 🖣	2

😂 Recording site 'PHIL'				
Site Duration: 00:56:24				
FAST Survey				
Exit to main menu? Data logging will continue.				
Yes No				
Monitor/Satellite View				
Exit - Continue Logging				
🌠 😂FAST 📃 🎐 12:18 PM ጆ 😤				

Tap Yes to continue data logging.

The settings have been made but a new file must be started with all of the settings just as they are. Tap Log Raw GPS to return to the menu to close the file and begin a new one. Alternatively close the file and start it again with the log button on the front panel of the receiver. This question takes several forms in different places in FAST Survey. If a screen like this one appears. Tap Yes to continue Logging.

😤 JOB: 31AU	JG09		1	0
<u> </u>		Ē	quip	
<u>S</u> urvey	<u>C</u> O0	GO	<u>R</u> oa	d
	1			1
1 FAST Su	rvey			M
2	Continue	e Loggir	ng File?	2
<u>3</u> <u>Y</u> e	5	1	<u>4</u> o	8
4 Stake Offset	-			
5 Elev Difference	e 🖿			
🐮 😂 FAST .		<u>م</u>	0 PM 🗭	

Next is another example of the question about stopping the log. Tap Yes to continue recording the Site that was entered.

SOC 🏀	8:31AU	G09		2] 👩
	<u>F</u> ile			Equi	р
Surv	/еү	<u>C</u> O0	GO	<u> </u>	bad
EAG	T Surv				
ы Тыл Ти 	📐 Co	ntinue IIL'?	record	ding si <u>N</u> o	
4 Sta Off:	set	•			
5 Elev Diff	erence	, 🖿			
🐮 😂	FAST .	. 🔳	3 12:	21 PM	7 2
😤 Ма	igellan	Setu	p		(
	File:	Logg	ging		
	0	Start F	ile		
	Та	ig New	Site		
	(Close F	ile		
	Fil	e Mana	ager		
	Cont	inue Lo	ogging		
	Pau	use Log	gging		
Free Mem on Receiver:					
	ç)7724 k	Bytes		
* 😔	FAST	. 📃 🤅) 12:2	23 PM	>

Tap Close File to close the file that was used to set the parameters in the receiver.

😂 Ма	gellan Setup			
	File: None			
	Start File			
	Tag New Site			
	Close File			
	File Manager			
	Continue Logging			
	Pause Logging			
Free Mem on Receiver:				
	97724 kBytes			
2	FAST 📃 🎐 12:25 PM 🏓 🖷			

Tap Start File to begin a new file.

📚 Start New File 🔽 🔀
Elev Mask: 🗾 🛛 Change Ant.
Antenna Height: 7.1230 ft
🔘 Internal Mem 🔿 USB Mem Stick
Interval: 5.0 seconds
🌠 😂FAST 📄 🎭 12:26 PM ጆ 🖷

Do not make changes in the settings. Click the check box.

<mark>ề</mark> Magellan Setup	
File: Logging	
Start File	
Tag New Site	
Close File	
File Manager	
Continue Logging	
Pause Logging	
Free Mem on Receiver	:
98079 kBytes	
	m 🏴 🗟

Use File Manager, if desired, to confirm that the first file was closed and a new file is being recorded.

📚 Files on Receiver :			
PHIL 6 kBytes 8/31 19:34 PHIL 84 kBytes 8/31 19:50			
Internal Mem O USB Mem Stick			
Free Memory: 97997 kBytes			
2 files			
Delete Delete All Files			
🌠 😂 FAST 📄 🎐 12:52 РМ 🏓 🖷			

The first file that was used to configure the settings will not be used for the processing.

This is the beginning of at least two hours of raw data recording to create a file that will be used by OPUS. When the session is finished return to the Log Raw GPS menu. Remember to respond with Yes to the questions illustrated on pages 5 and 6.

📚 Magellan Setup 🧲	
File: Logging Start File	
Tag New Site	
Close File	
File Manager	
Continue Logging	
Pause Logging	
Free Mem on Receiver : 97984 kBytes	
🛃 😂 FAST 📃 🎐 12:54 PM 🏓 🤅	2

Close file and turn off the receiver if this is the last session of the day.

With the receiver connected to the PC with the long USB cable it is a simple matter to copy the large G file to a folder on the PC. The small file with the configuration settings in it can be left behind.

ols Help			
Search 😥 Folders			
			💌 ラ Go
🔨 Name 🔺	Size	Туре	Date Modified
GPHILD09.243	7 KB	243 File	8/31/2009 7:34 PM
GPHILE09.243	724 KB	243 File	8/31/2009 9:54 PM
▼ <	Ш		
9 9:54 PM Size: 723 KB		723 KB	😼 My Computer

RINEX Converter 1.0.0.7 that comes with GNSS Solutions 3.60.1 will convert the ATOM file (G file) to the RINEX format for OPUS.

Click the Add button and select the raw data G file that was copied from the receiver.

Choose the input directory and the output directory where the G file will be input and the RINEX file will be output.

In the Use box remove the check marks from GLONASS and SBAS.

🗘 RINEX Converter 1.0.0.7			_O×
Convert Raw Data File(s)	Add	Remove	Info
 C:\Projects\ProMark500\PM500atDE C:\Projects\phil2451.10o C:\Projects\phil2451.10n C:\Projects\phil2451.10g C:\Projects\phil2451.10h C:\Projects\phil2451.10b C:\Projects\phil2451.10b C:\Projects\phil2451.10m 	CK\Gfile\GPHILB	10.245	
Into: RINEX Raw Data Files version In folder: C:\Projects	n 2.11		.
Include: 🗹 GPS 🗖 GLONASS 🗖 Ask before overwriting any file	SBAS	Convert	J
Copyright © 2010 Ashtech. All rights reserved.		<u></u>	v.ashtech.com

Click the Info button near the top right of the screen and check the box near the bottom left of the screen where it says: Include all optional header records

litional Information Observation Navigation Meteo	2
Name of Program / Agency creating current file / Date of creation	PGM / RUN BY / DATE
Comment line	COMMENT
Name of antenna marker (ie station name) Number of antenna marker (ie station number)	MARKER NAME
Name of observer / Name of observer agency	MARKER NUMBER
Receiver Number / Type / Version	OBSERVER / AGENCY
Antenna Number / Type	REC # / TYPE / VERS
Antenna Height / East offset / North offset - all units in meters	ANT # / TYPE
	ANTENNA: DELTA H/E/N
Include all optional header records	
OK Cancel	

With all the settings done press the Convert button to create the file.

Upload the o file to OPUS.

While waiting for OPUS to return the results there may be time to watch a video about OPUS.

http://www.youtube.com/watch?v=nJYyed0GErk&feature=channel_page

A variety of Ashtech videos are available at

http://www.youtube.com/user/MagellanProfessional

http://www.youtube.com/ashtechvideos

NDRA	AP	OPUS	Online Position	ning User Service
				National Geodetic Survey
NGS Home About NGS	Data & Imagery	Fools Surveys	Science & Education	
OPUS Menu	Tie your GPS What is OPU * Email addr	JS? FAQs ess - your solution v	National Spatial Reference Syst vill be sent here. Browse S observations. sample	tem.
Upload	NONE			•
About OPUS			no antenna selected may degrade your accuracy.	•
Published Solutions -Prefer the old OPUS?	0.0	meters above your ght of your antenna'	mark.	
epical 2022 2023 neuroseneurostatico Charlo Managemento en conservatione en conserva- r en reconstantes	Options	to <mark>customize</mark> your s	olution.	
I MUNICIPA MINITIA	Uploa	d to Rapid-Static	Upload to Static	
<pre> the second se</pre>		elds	for data > 2 hrs. < 48 hrs.	curacy, or related research.

Please dig deeper than the OPUS home page to learn more about how it works.

Questions? Errors? Need some additional details? Send an email to <u>pstevenson@ashtech.com</u>

Phil Stevenson March 1, 2011