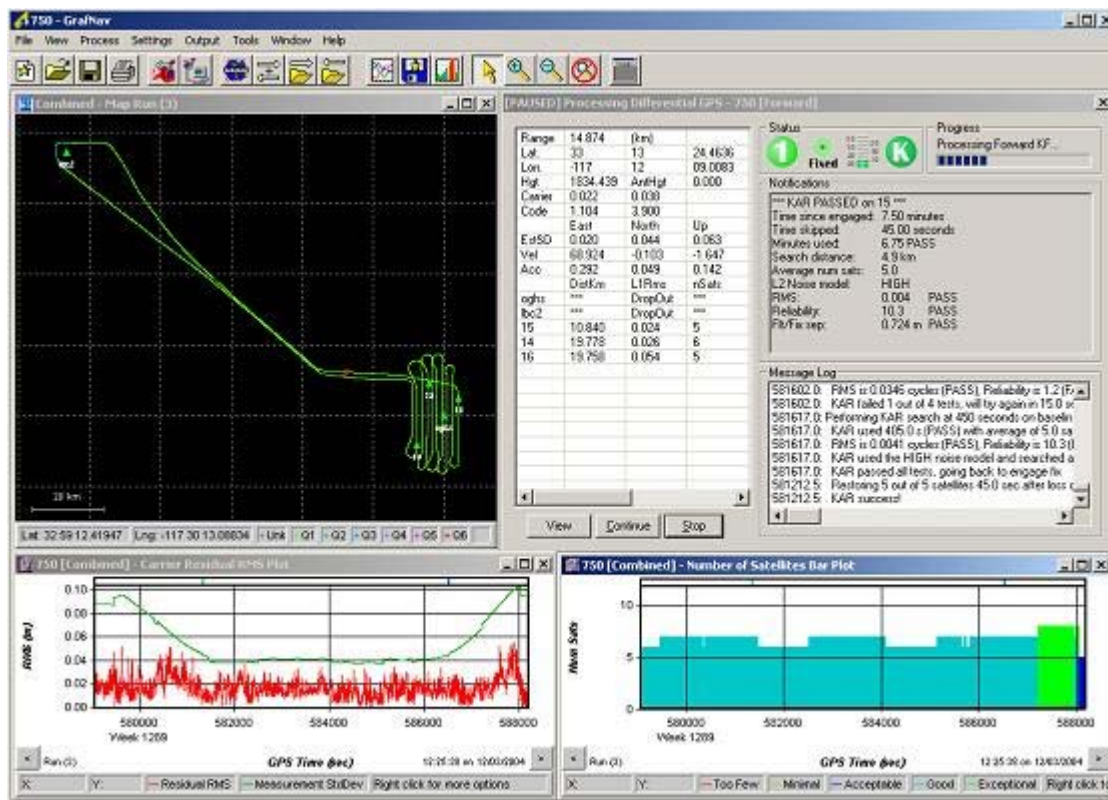


GrafNav/GrafNet - GPS Post-Processing Software

The GrafNav/GrafNet package developed by Waypoint Consulting Inc. post-processes raw GPS data from most available GPS receivers. Using data from both a roving station and as many as eight base stations, accurate position computations are available with GrafNav. GrafNav can also process a single static baseline. GrafNet allows for batch and network processing of multiple static GPS observation files. If you would like to download a demo of GrafNav/GrafNet, please see our [downloads](#) section.

GrafNav - Kinematic/Static Baseline Processing Software

GrafNav is a multiple-base static/kinematic differential code and carrier phase GPS post-processing program. By combining raw data from both base and remote stations, centimetre, decimetre or metre level accuracies can be achieved. The actual accuracy will depend on the processing mode implemented and data quality. Waypoint Consulting has numerous [reports](#) published on this web site showing accuracies.



GrafNav Features

- Multiple-base station processing, supporting up to eight master stations.
- Graphical Windows Interface with plotting of over 30 statistical parameters.
- Forward, reverse, and combined processing maximizes accuracies and quickly indicates problem areas.
- Fast and reliable Kinematic Ambiguity Resolution (OTF).

- Receiver-independent processing (see **Supported GPS Receivers.**)
- Interpolation of camera event marks and importing of marked stations.
- Flexible coordinate output file export, including US State Plane, UTM, TM & 3TM, Gauss Kruger, Geographic, Lambert Transverse Mercator, local plane, local level, Irish grid, British grid and ECEF coordinates. Also includes North American, Australian, Japanese and world Geoid support.
- Feature editor allowing the maintenance and alteration of station information.
- A Download Data utility facilitates fast and easy downloading of data from CORS/IGS/AusLig and many other GPS data networks. This utility unzips, decodes, converts and concatenates raw GPS files so they can be used in GrafNav/GrafNet. This utility can also resample the downloaded data to higher or lower intervals.

A **complete list** of software improvements is available.

GrafNet - GPS Static Network Processing Software

GrafNet is a Windows-based GPS post-processing program specifically designed for static surveying applications. It includes a Network Adjustment and intelligent loop closing algorithm. GrafNet can also be used to batch process multiple static sessions with a single base station.

The screenshot displays the GrafNet software interface. The main window shows a network diagram with stations CChs2, IBhs3, ISLnd, and RBPTH connected by lines. The Session Menu window is open, showing a list of sessions with columns for Name, SD (m), Reliability, RMS (m), and SolType. The Results window is also open, displaying the following data:

```

*****
GrafNet - GRAPHIC GPS NETWORK PROCESSING
SOFTWARE PACKAGE
*****
TRAVERSE SOLUTION:
*****
Copyright Waypoint Consulting Inc., 1994-2004
*****
Version: 7.50.1025
*****
PROJECT: 750
*****

DATE(n/d/y): 12/16/04   TIME: 13:47:52

DATUM: MGS84

*****
COMPUTED COORDINATES:
*****

```

Station	Latitude	Longitude	EllHgt(m)	RefSta	Result
CChs2	45 16 27.85676	-66 05 18.95192	-14.042	IBhs3	Good
IBhs3	45 16 41.88121	-66 05 39.54885	-11.753	(-)	Published
ISLnd	45 16 02.75267	-66 05 27.19653	-13.675	IBhs3	Good
RBPTH	45 16 34.30649	-66 06 28.92245	-15.409	IBhs3	Good

```

*****
LOOP, CHECK & DUPLICATE TIES:
*****

```

NAME/SESSION	TYPE	RESULT	DH (m)	DE (m)	DM (m)
CChs2 to ISLnd	Loop	Good	0.0029	-0.0020	0.0043
CChs2 to RBPTH	Loop	Good	-0.0011	-0.0011	0.0049
ISLnd to RBPTH	Loop	Good	-0.0016	0.0027	0.0071

```

-----
RMS
-----
0.0020  0.0020  0.0056
-----

```

GrafNet Features

- Interactive user interface with full error ellipse plotting

- Built-in weighted Network Adjustment
- Fast processing
- Full single and dual frequency GPS receiver support
- Long baseline support, including precise ephemeris
- Full North American, Australian, Japanese and world Geoid support for orthometric height correction
- Support for most GPS raw data formats including RINEX (see **Supported GPS Receivers**)
- Extraneous baseline removal
- Trivial baseline removal
- Automatic forward/reverse processing
- Map projection and scale factor output

A **complete list** of software improvements is available.

GPS Processing Engine

Waypoint's proprietary GPS processing engine is used by GrafNav, GrafNet and our RTK software. The engine can also be purchased separately as a Windows Dynamic Link Library (DLL), which allows the user to embed the DLL in their own application.

Processing Differential GPS - 750 [Forward]

Time	317978.0	1299	
Epochs	2691	Num<4	2
Status	Q1	FIXED	Dyn=K
nSats	10	nB/L	1
Range	0.084	[km]	
DDOP	1.68	PDOP	1.62
HDOP	0.90	VDOP	1.35
Lat.	38	14	51.7368
Lon.	-86	57	06.4366
Hgt	128.581	AntHgt	0.000
Speed	0.241	COG	4.1
Carrier	0.026	0.037	
Code	0.388	4.137	
	East	North	Up
EstSD	0.020	0.019	0.045
Vel	0.229	0.016	0.073
Acc	-0.020	0.024	0.085
LLRel	-32.112	-77.257	-0.050
	DistKm	L1Rms	nSats
BL1	0.084	0.026	10
	PRN	Elev	Az
Ch1	19	63	134
Ch2	13	60	230
Ch3	48	75	74
Ch4	3	54	67

Status: 1 Fixed K

Progress: Processing Forward KF... [Progress Bar]

Notifications:

```

**** KAR PASSED on BL1 ****
Time since engaged: 1.00 minutes
Time skipped: 0.00 seconds
Minutes used: 1.00 PASS
Search distance: 0.1 km
Average num sats: 7.0
L2 Noise model: HIGH
RMS: 0.004 PASS
Reliability: 9.8 PASS
Flt/Fix sep: 0.568 m PASS

```

Message Log:

```

316814.0: $$$ Engaging filter reset--Accuracy is severely redu
316814.0: **** KAR engaged due to occurrence of filter reset
316874.0: Performing KAR search at 60 seconds on baseline
316874.0: KAR used 60.0 s (PASS) with average of 7.0 sats
316874.0: RMS is 0.0038 cycles (PASS). Reliability is 9.8 (P
316874.0: KAR used the HIGH noise model and searched a
316874.0: KAR passed all tests, going back to engage fix
316815.0: Restoring 7 out of 7 satellites 0.0 sec after loss of
316815.0: KAR success!

```

View Pause Stop

Processing Engine Features

- Multiple-base processing

- Fixed and float static processing
 - Accurate velocity determination
 - Reliable single and dual frequency Kinematic Ambiguity Resolution (KAR)
 - Full support for precise ephemeris (.SP3 format)
 - Proprietary Kalman Filter provides seamless static and kinematic processing
 - Full dual frequency support in ionospheric and integer ambiguity processing
 - Superior cycle slip and bad data handling
 - Accurate ionospheric and tropospheric processing
 - All features supported in both forward and reverse processing
-

Supported GPS Receivers

Supported Formats

- Allen Osborne Associates (TurboBinary)
 - Canadian Marconi (Allstar and Superstar II)
 - Leica (SR/MX/MC1000/System 500/System 1200)
 - Magellan
 - Javad/Topcon
 - NAVCOM (OEM GPS)
 - NovAtel (OEM2/OEM3/OEM4)
 - RINEX
 - Rockwell PLGR
 - Septentrio (SBF)
 - SIRF Binary (Star II)
 - Thales/Ashtech (Real-Time/B-File/DSNP)
 - Trimble (DAT/Real-Time/4000 series/5700/SSx/CMR/TSIP/Force5)
 - U-Blox (Antaris)
 - UKOOA
-

Moving Baseline Upgrade

The optional Moving Baseline processing module allows for relative position and velocity determination between two moving antennae. Accuracies can be much higher than processing from a fixed base station since relative distances tend to be much shorter. If the two antennae are fix mounted to the same craft, a post-mission heading determination system is formed.

For more information on our **GrafNav/GrafNet** post-processing software, look at the detailed brochure in the **Products** section of our website.

Inertial Explorer - GPS/IMU Processing

For users who wish to integrate their GPS data with inertial sensor data, please see the **Inertial Explorer** section of the website.

[Home](#) > [Products](#) > [GrafNav/GrafNet \(concise\)](#)