

# GPS and MAPs





## Special Smartphone GPS

- antishock
- waterproof
- high capacity battery
- high  $E$  consumption
- heavy
- often expensive



## Which GPS for the land surveyor ?

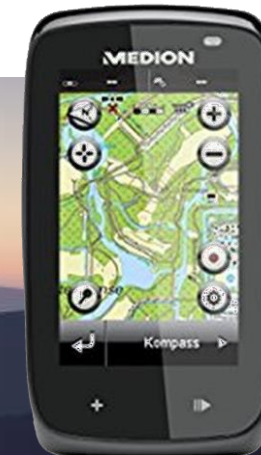


Smartphone GPS

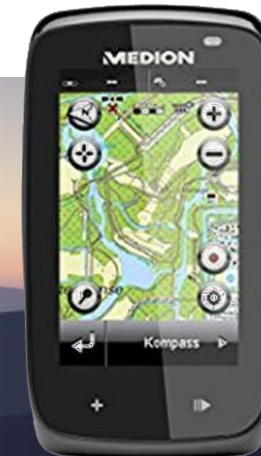
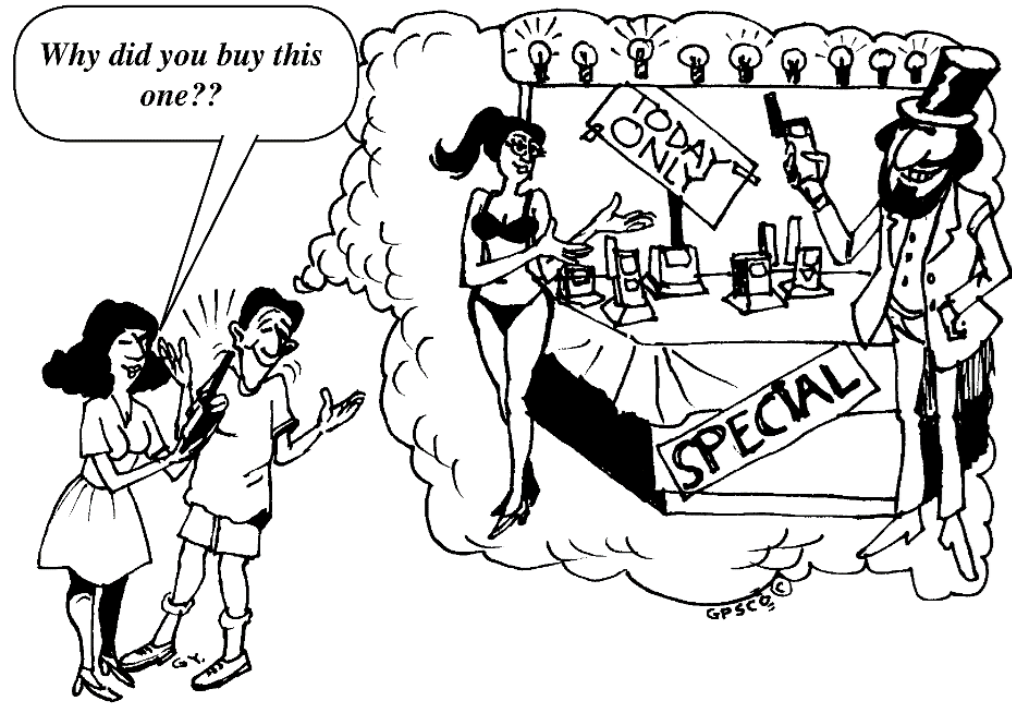
- antishock
- waterproof
- low  $E$  consumption
- lightweight
- replaceable battery
- often cheap



Outdoor GPS



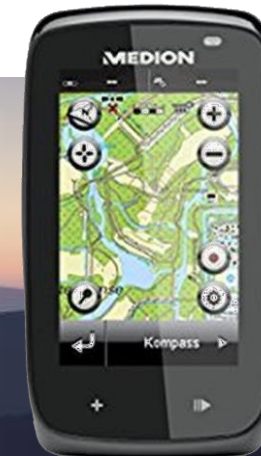








## Mapping GPS



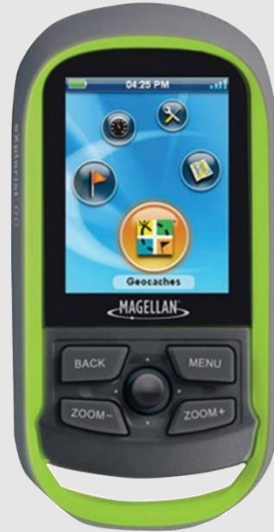








*Garmin GPSMap 64 ST*



*Magellan eXplorist GC*

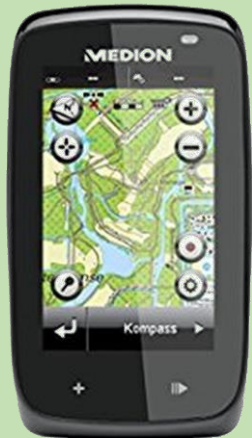
*Proprietary OS Software*



*Garmin - Magellan interface*



*No more chance*



*Medion GoPal S3877*



*Holux FunTrek 130 Pro*

*Win CE OS*



*Medion - Holux interface*

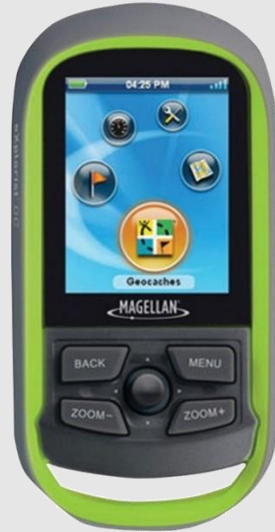


*Third Party Software .. new interfaces .. more functions*





Garmin GPSMap 64 ST

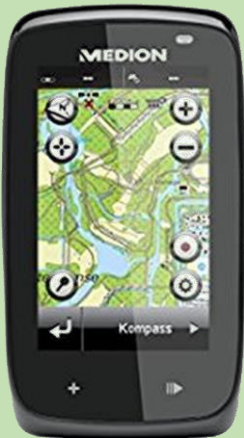


Magellan eXplorist GC

Proprietary Software OS



Garmin - Magellan interface



Medion GoPal S3877



Holux FunTrek 130 Pro



Ozi  
EXPLORER

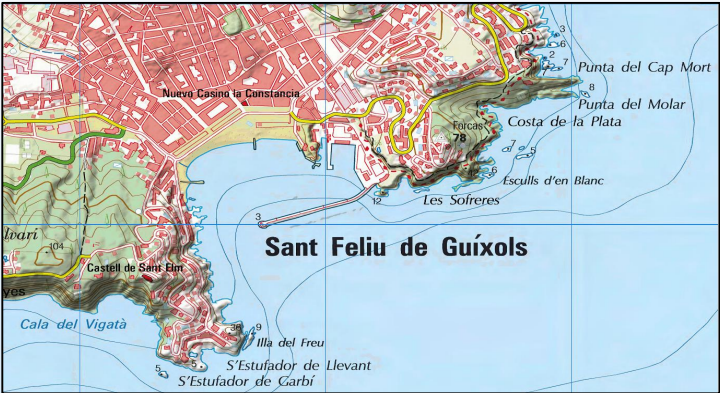


QCT



memory-map™





## Custom Maps >> .KMZ

	JNX	KMZ
number of levels of detail	up to 5	only one
number of tiles	up to 50000 per level	max. 100 per device (!), up to 500 in Montana
map file size	up to 4Gb	max. 32Mb for all KMZ maps in device
subjective rendering speed	high	low
locking to a device	yes	no
source of images	BirdsEye service only	any raster map
number of maps per device	up to 200 (in the firmwares released before March, 2011), up to 250 (in the new firmwares)	

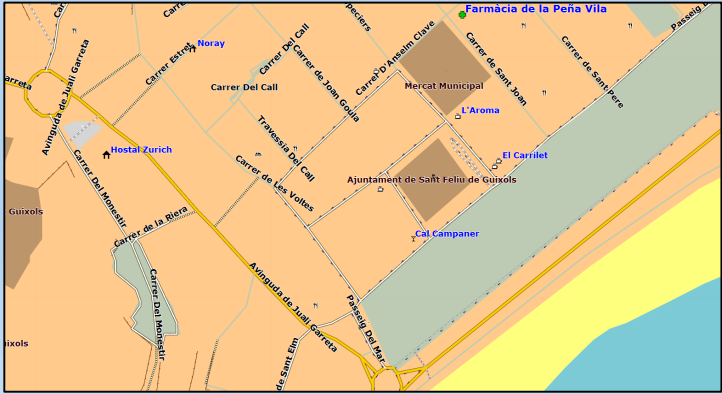
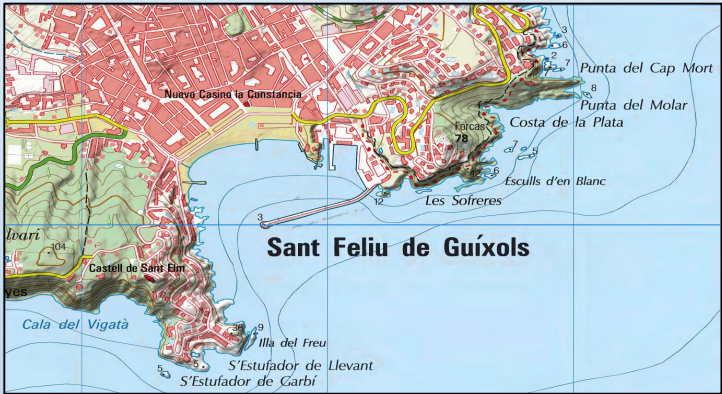
## BirdsEye™ >> .JNX

- We could make a firmware patcher to remove the limitation

## Vector Maps >> .IMG

- Official Garmin Topo Maps
- Free Garmin Maps (.. from OpenStreetMap)





## Custom Maps >> .KMZ

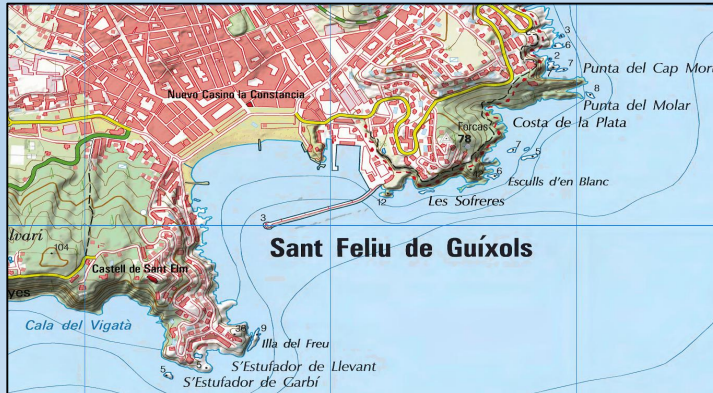
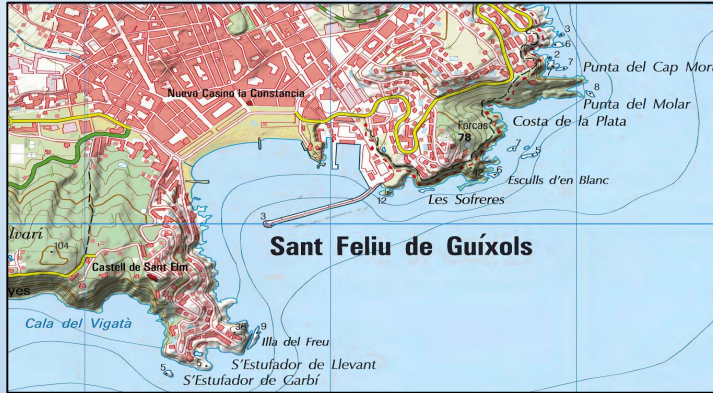
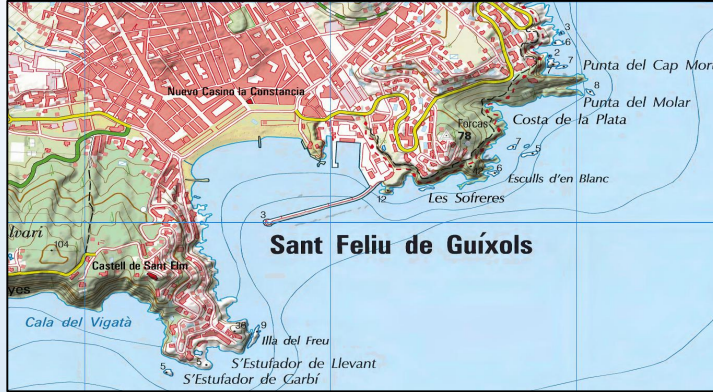
	JNX	KMZ
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number of maps per device	up to 200 (in the firmwares released before March, 2011), up to 250 (in the new firmwares)	

## BirdsEye™ >> .JNX

- becomes our best format!!

## Vector Maps >> .IMG

- Official Garmin Topo Maps
- Free Garmin Maps (.. from OpenStreetMap)



**Holux DRG Maps >> .SMF**

- 256 colours



**>> .OZF2**

- 256 colours



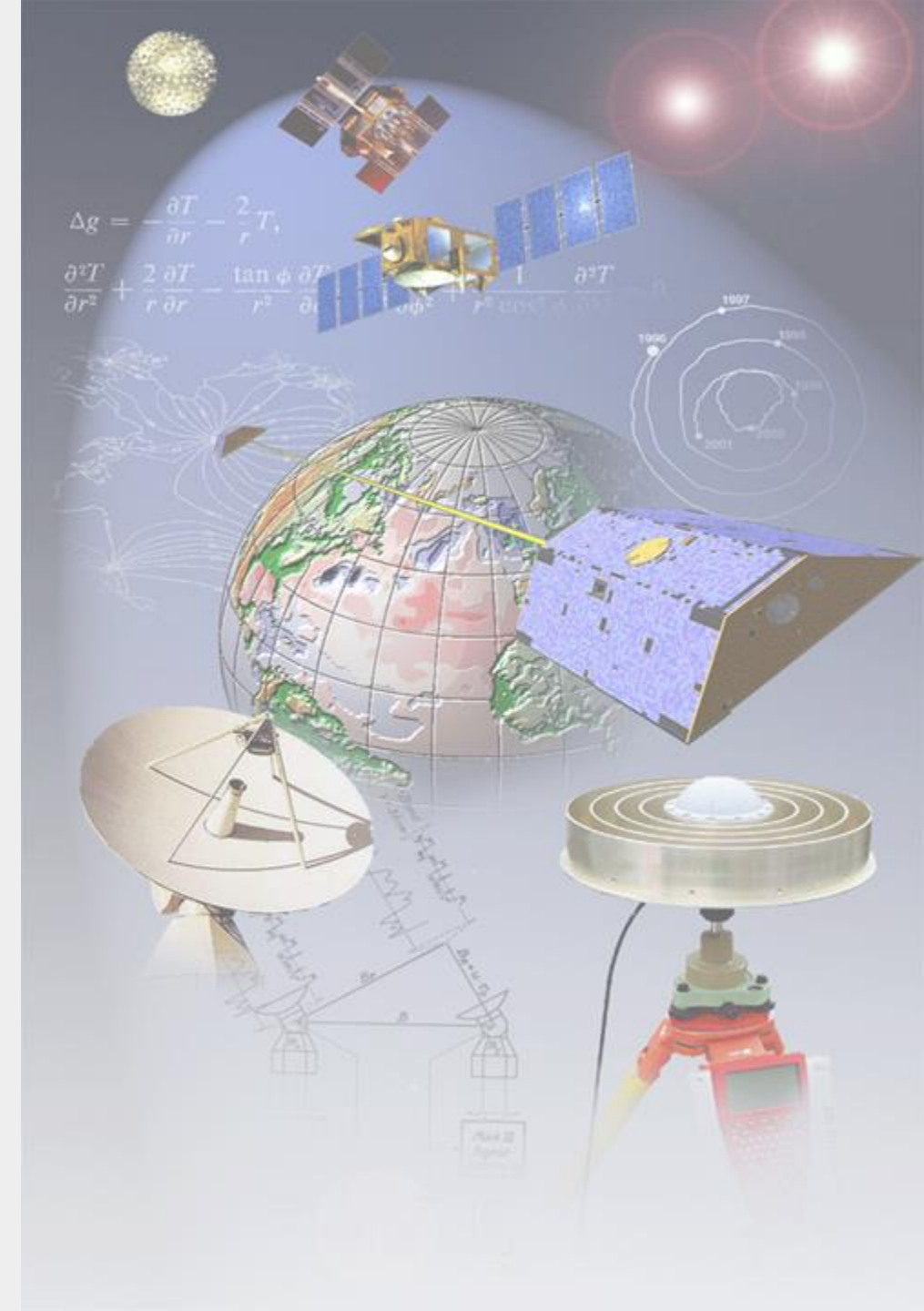
**>> .QCT**

- 128 colours



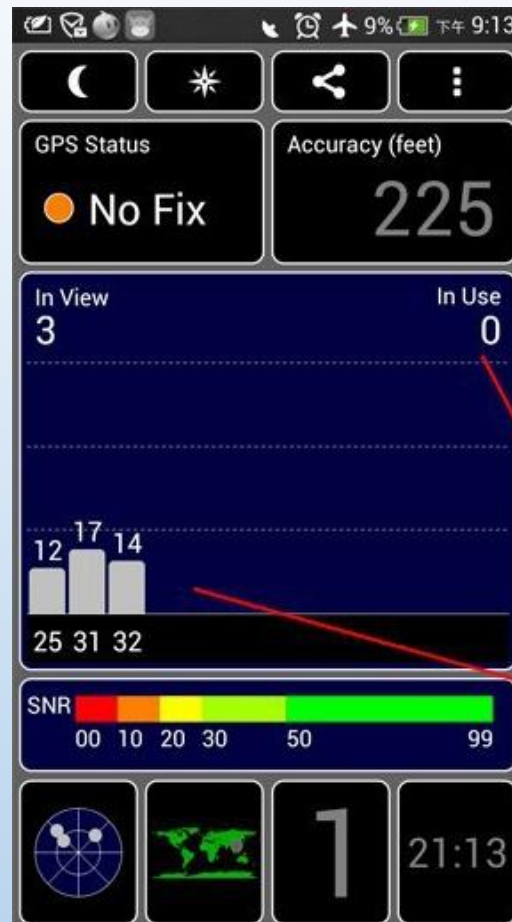


# Garmin GPS Setup









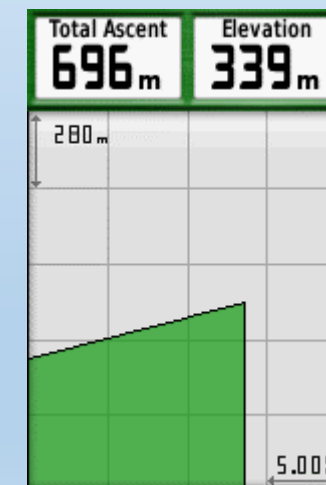
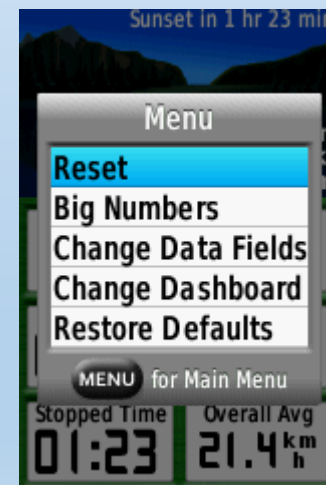
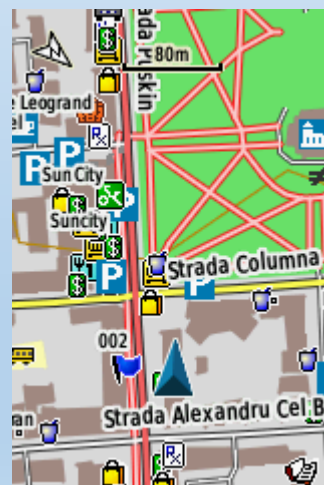
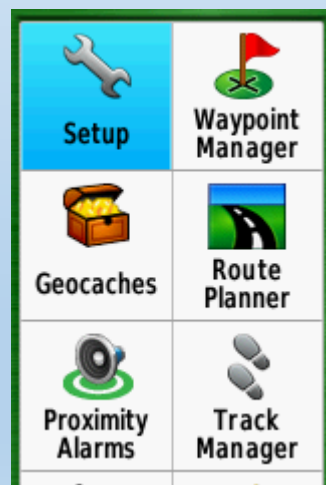
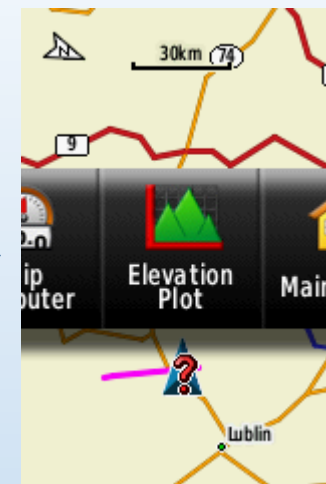
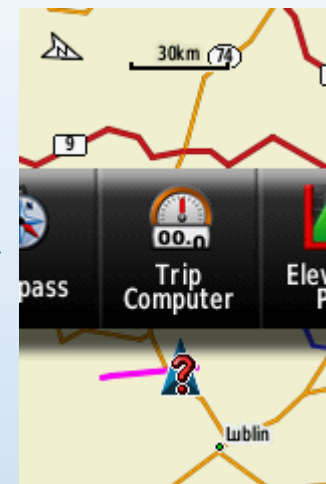
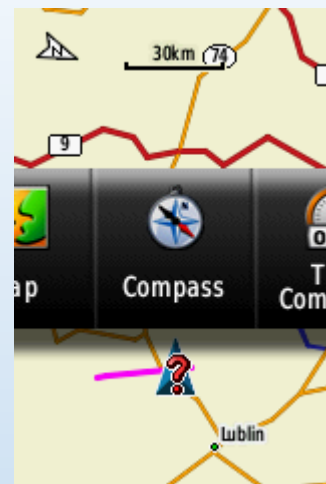
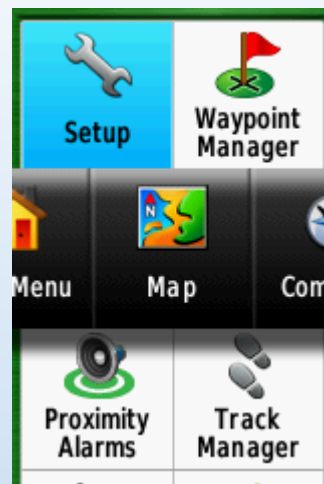
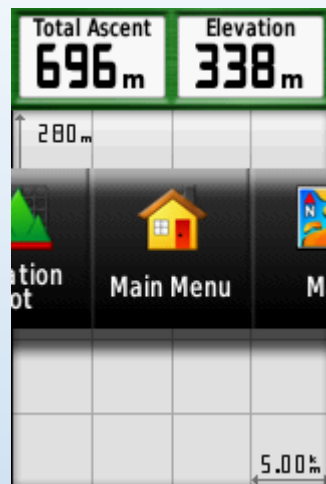
Use gps antenna



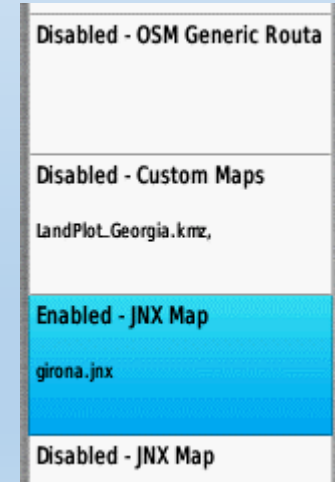
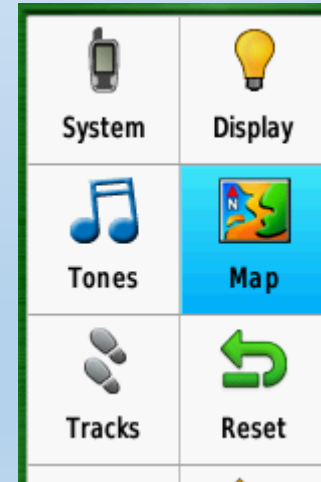
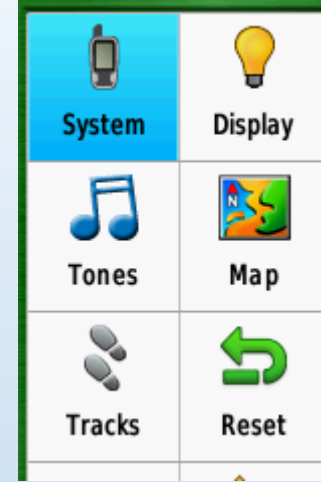
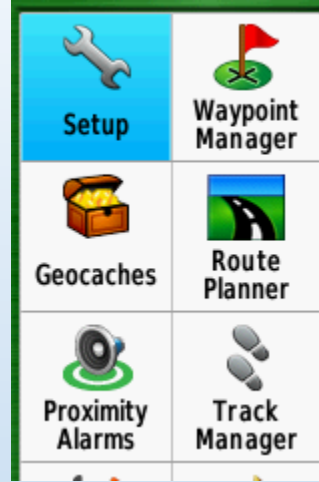
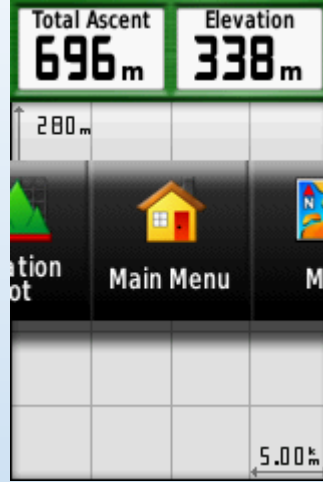
Real catching the satellite

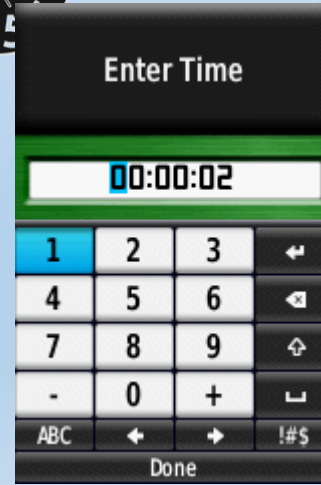
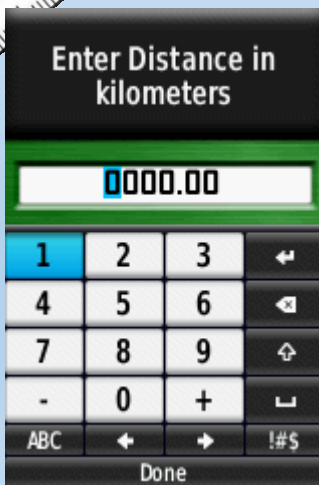
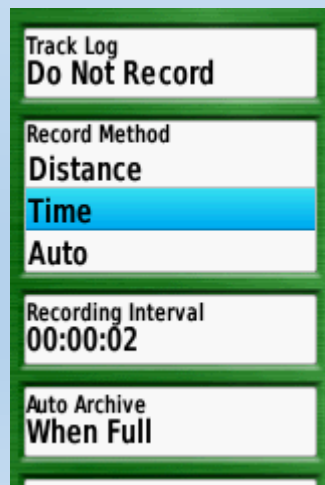
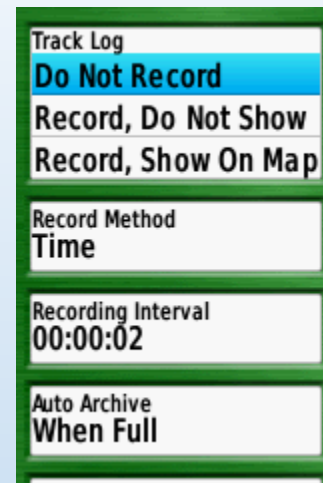
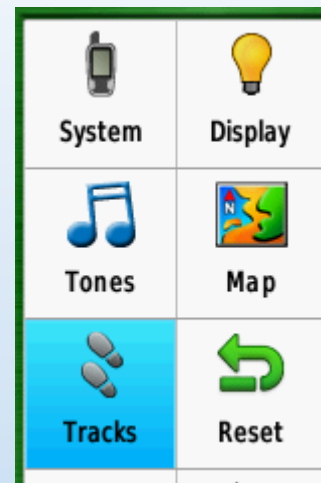
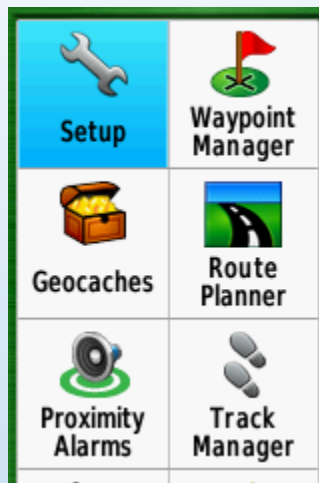
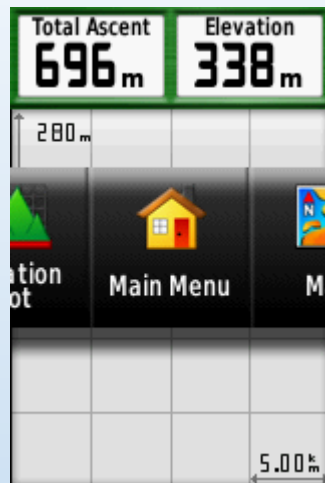
Catching the satellite, but the white is no use



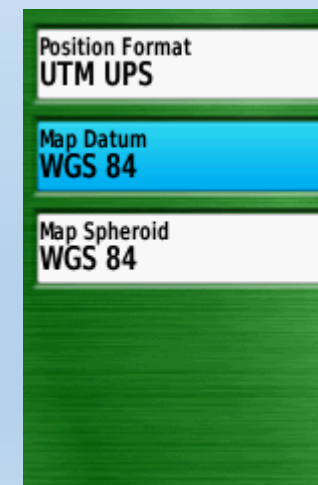
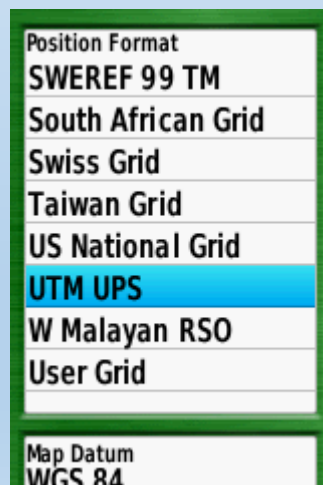
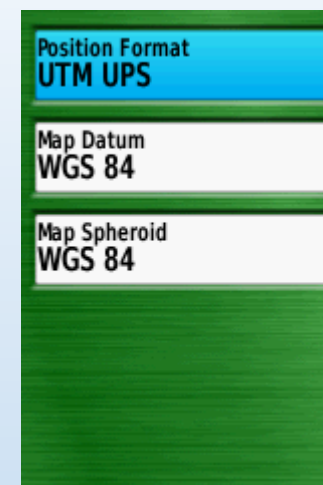
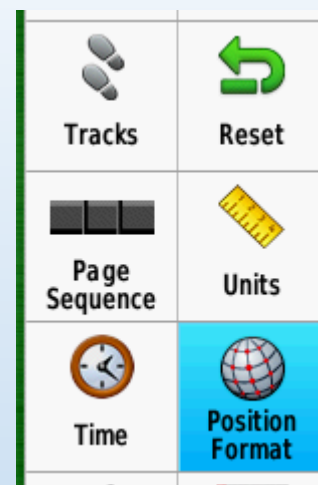
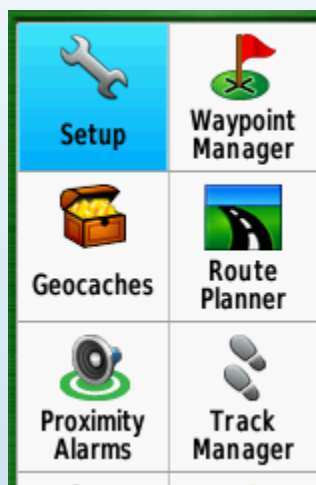
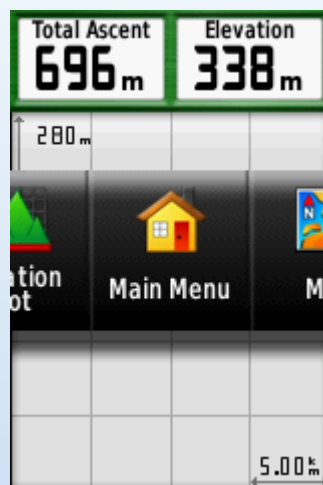


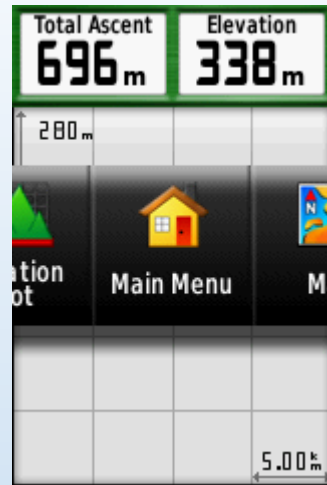




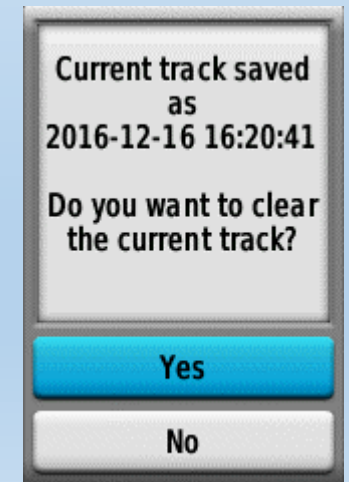
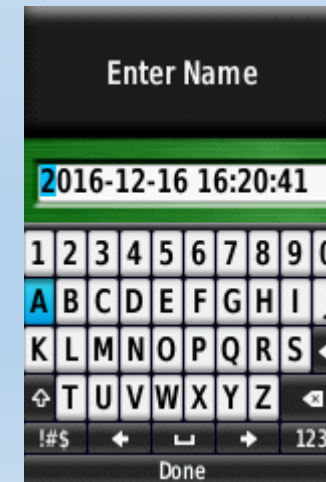
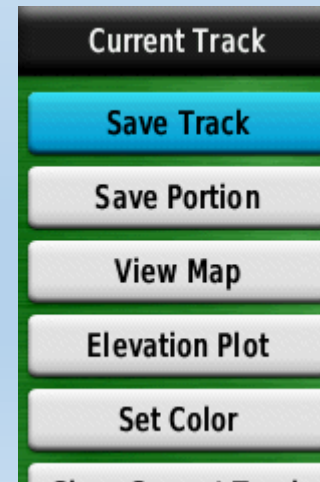
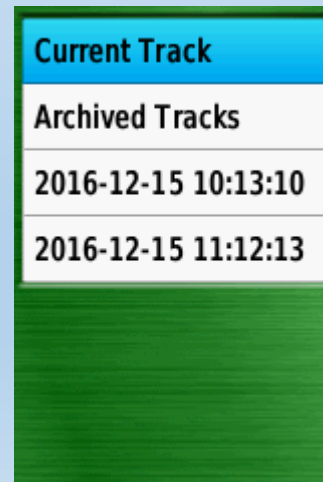
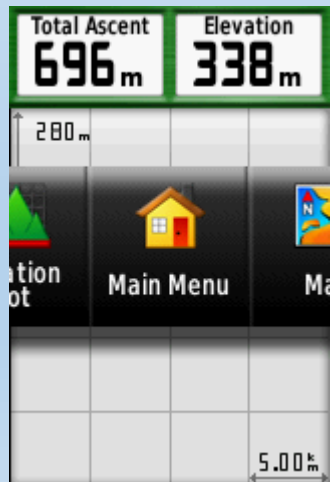








## Save Track

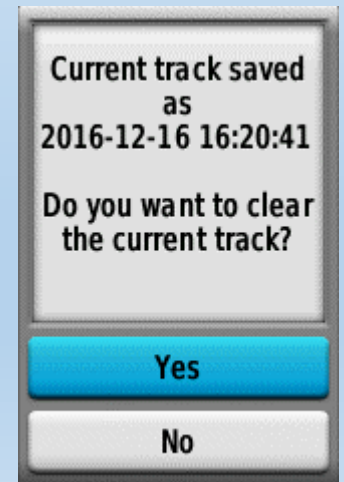
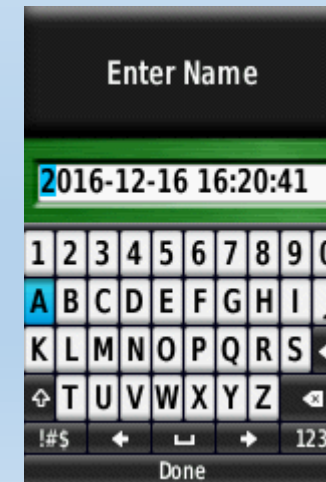
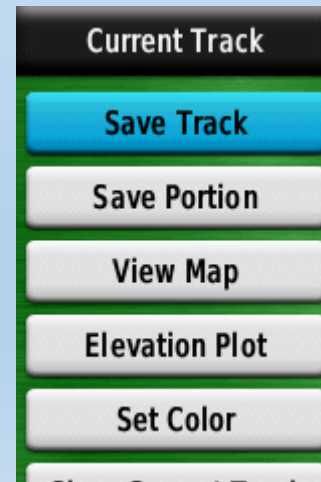
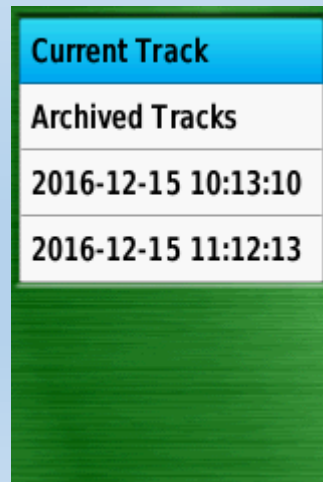
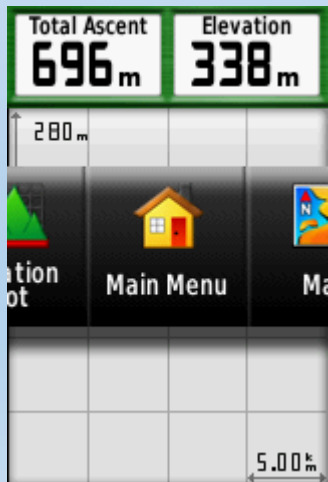






- After saving the track clear the track log
- The track log is however saved when the GPS is turned off

## Save Track





# Mark Waypoint (POI)

014

Note

Location  
35 T 0638812  
UTM 5210084

Elevation 125m Depth \_\_\_\_\_m

N 0m

Map Done



016

Menu

- Average Location
- Project Waypoint
- Move Waypoint
- Find Near Here
- Change Reference
- Set Proximity
- Add to Route

MENU for Main Menu

Map Done



Select Start to begin recording a new sample

002

Number of Samples 2

Saved Location 35 T 0639658  
UTM 5209721

Distance to Saved Location 48m

Start



Select Save to add a sample with averaged values

016

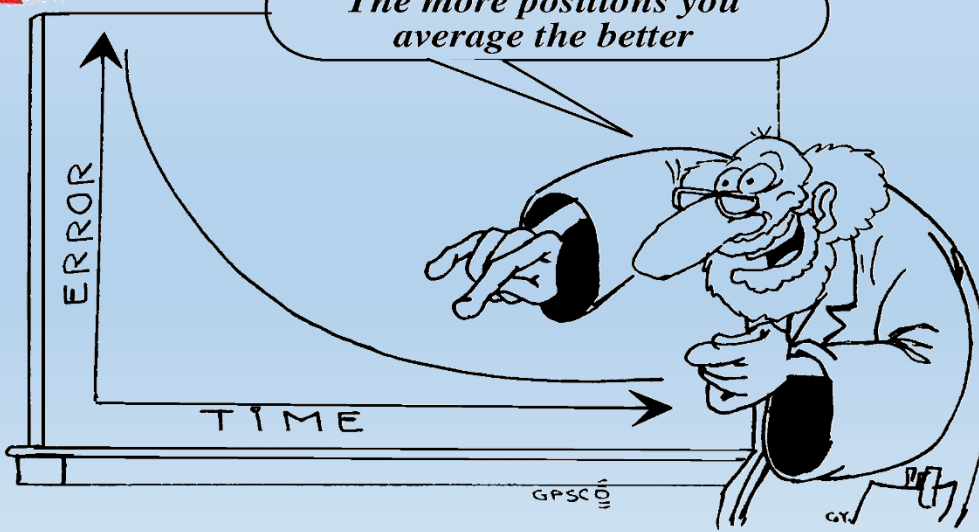
Sample Confidence 43%

Averaged Location 34 U 0589866  
UTM 5660388

Averaging Time 00:13

Save

**REMEMBER**



The waypoint has been updated

016

Number of Samples 2

Saved Location 34 U 0591112  
UTM 5658261

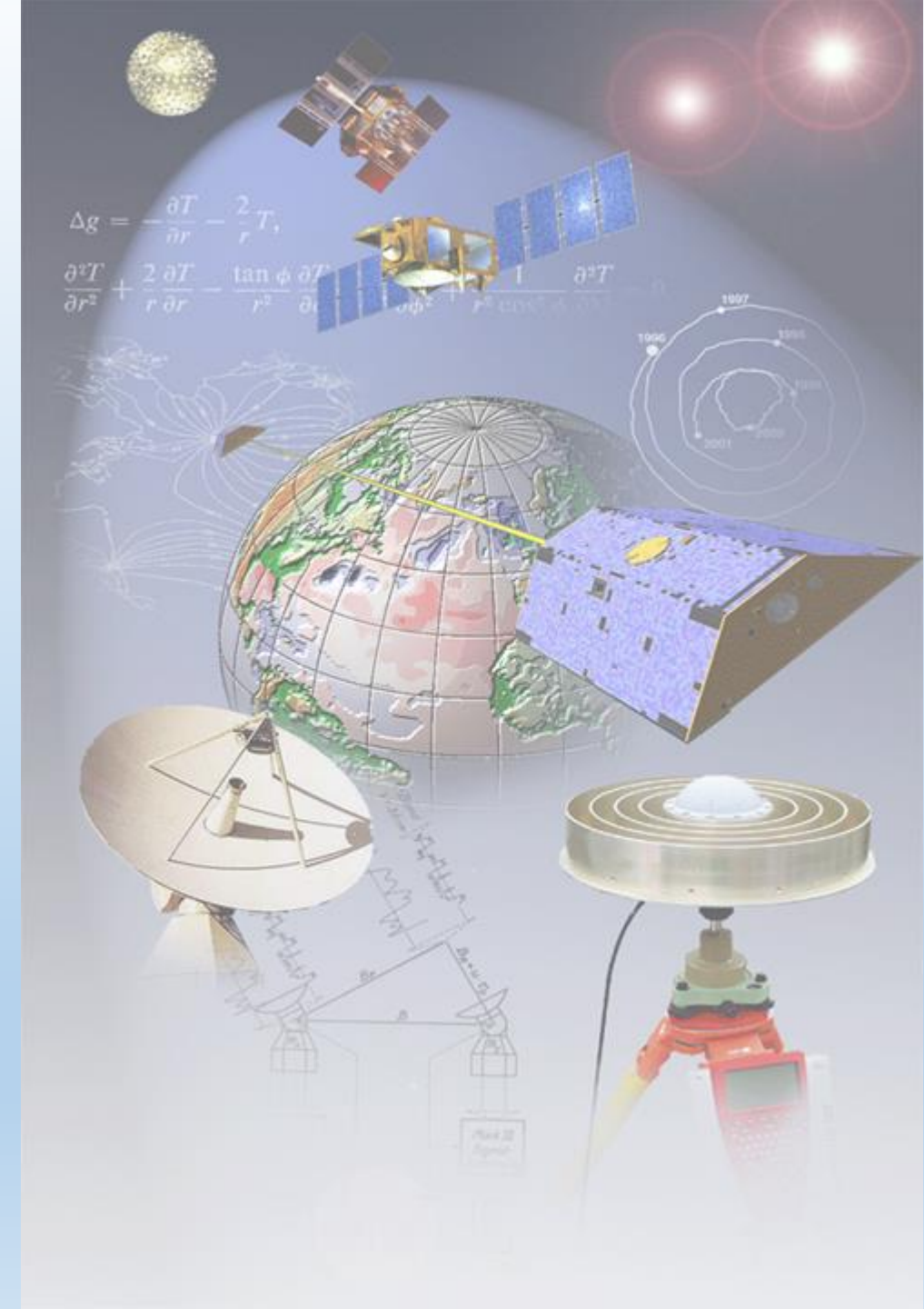
Distance Adjusted 2km

Done





# GPS Survey Procedure





## GPS Land Survey

Outdoor devices (Garmin, Holux, Medion, etc) or Smartphone GPS with Locus Map, OruxMaps, Memory Map, Avenza Map (Android); Galileo, OkMap, Memory Map, Avenza Map (iOS)



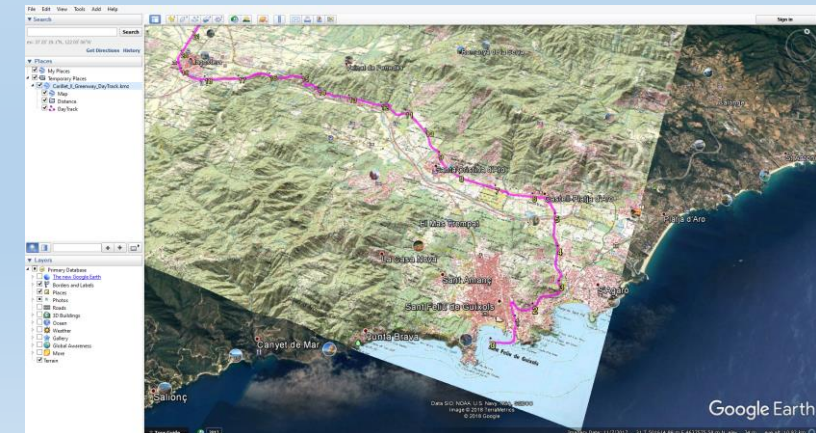
Track GPX & POIs GPX

POI = Point Of Interest

- Open Vector File (Tracks & POIs GPX)
- Edit and save as KML / KMZ

- Open KML / KMZ
- Organize Folders
- Add Information (text; link)
- Change Style
- Add Map Images
- Save Places as KMZ

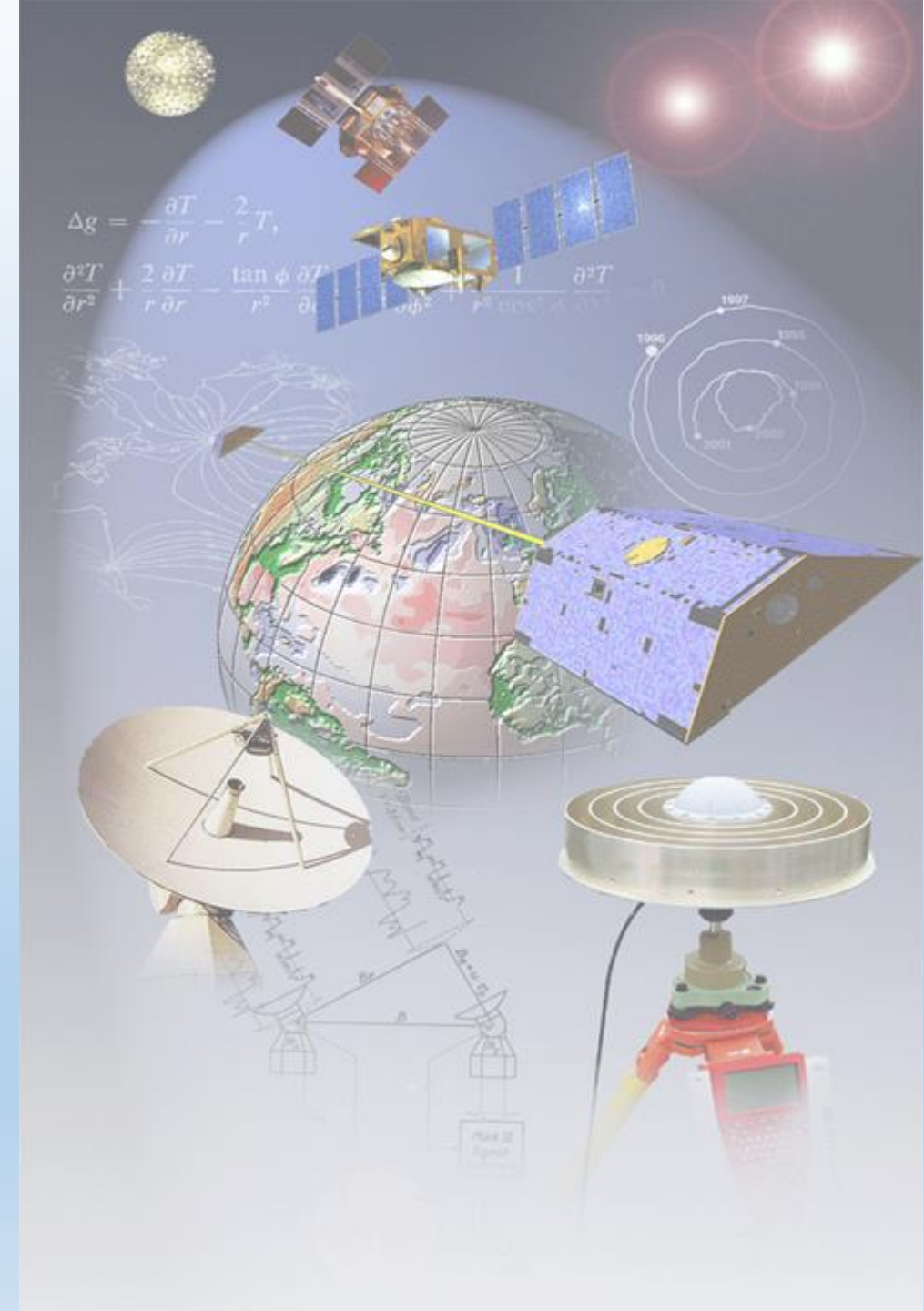
## Share KMZ data







# Exif Photos





## Collect Geotagged Images

(Smartphone GPS – Digital GPS Camera)



Open Images File

Read EXIF Information (automatic)

File Export as Vector **KMZ**



## Share KMZ data



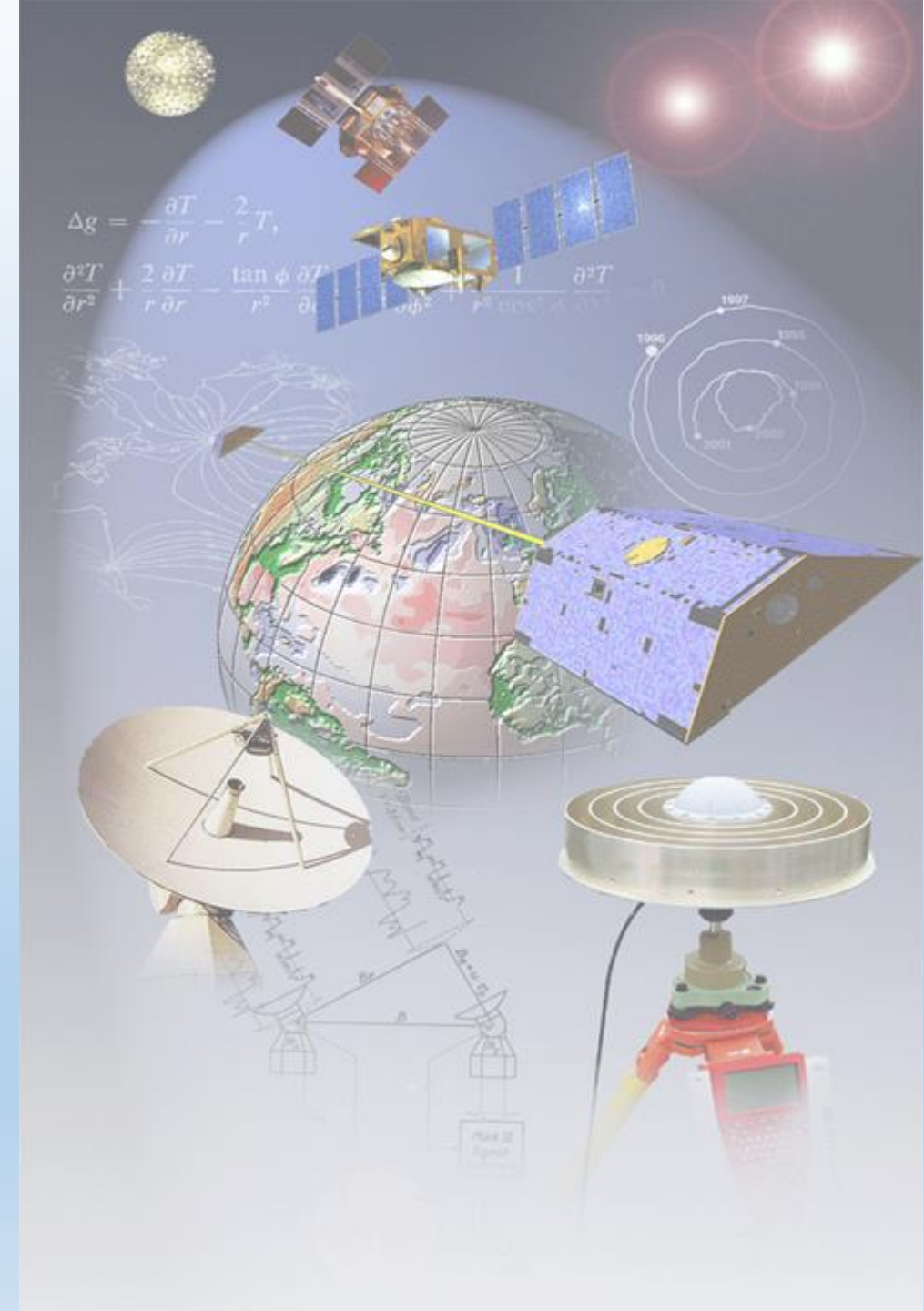
Google Earth Pro








*Track Edit with Google Earth*









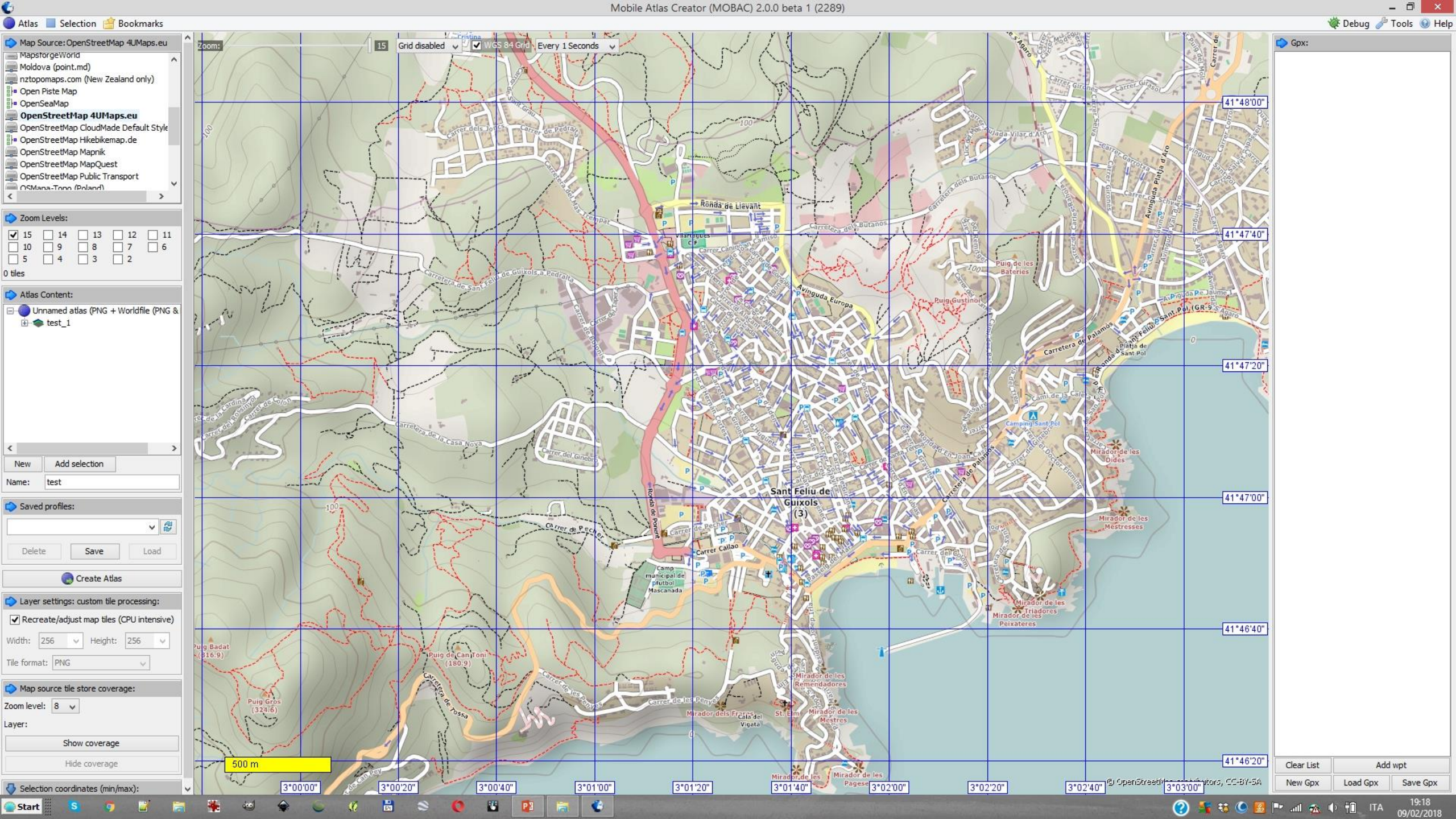












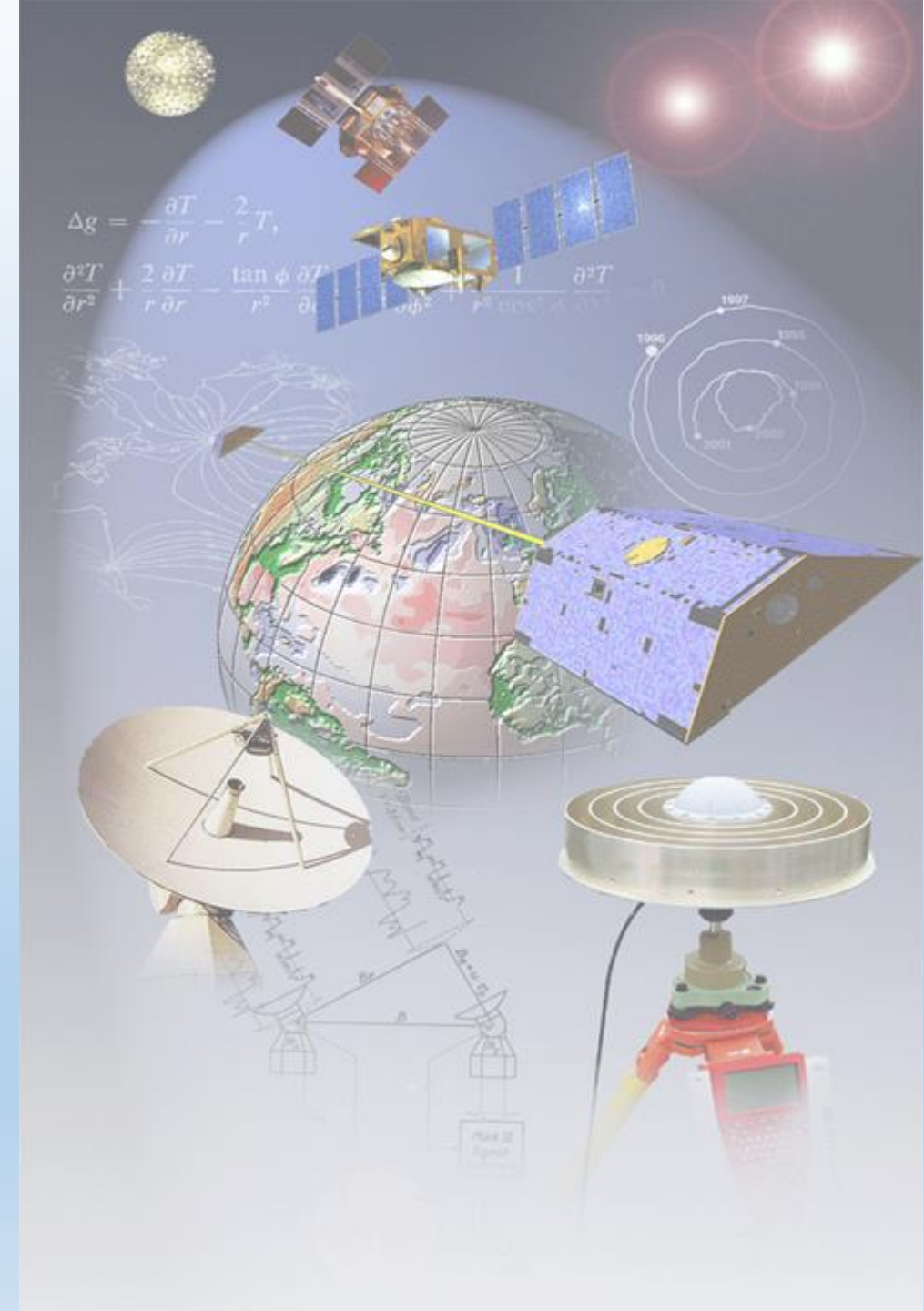






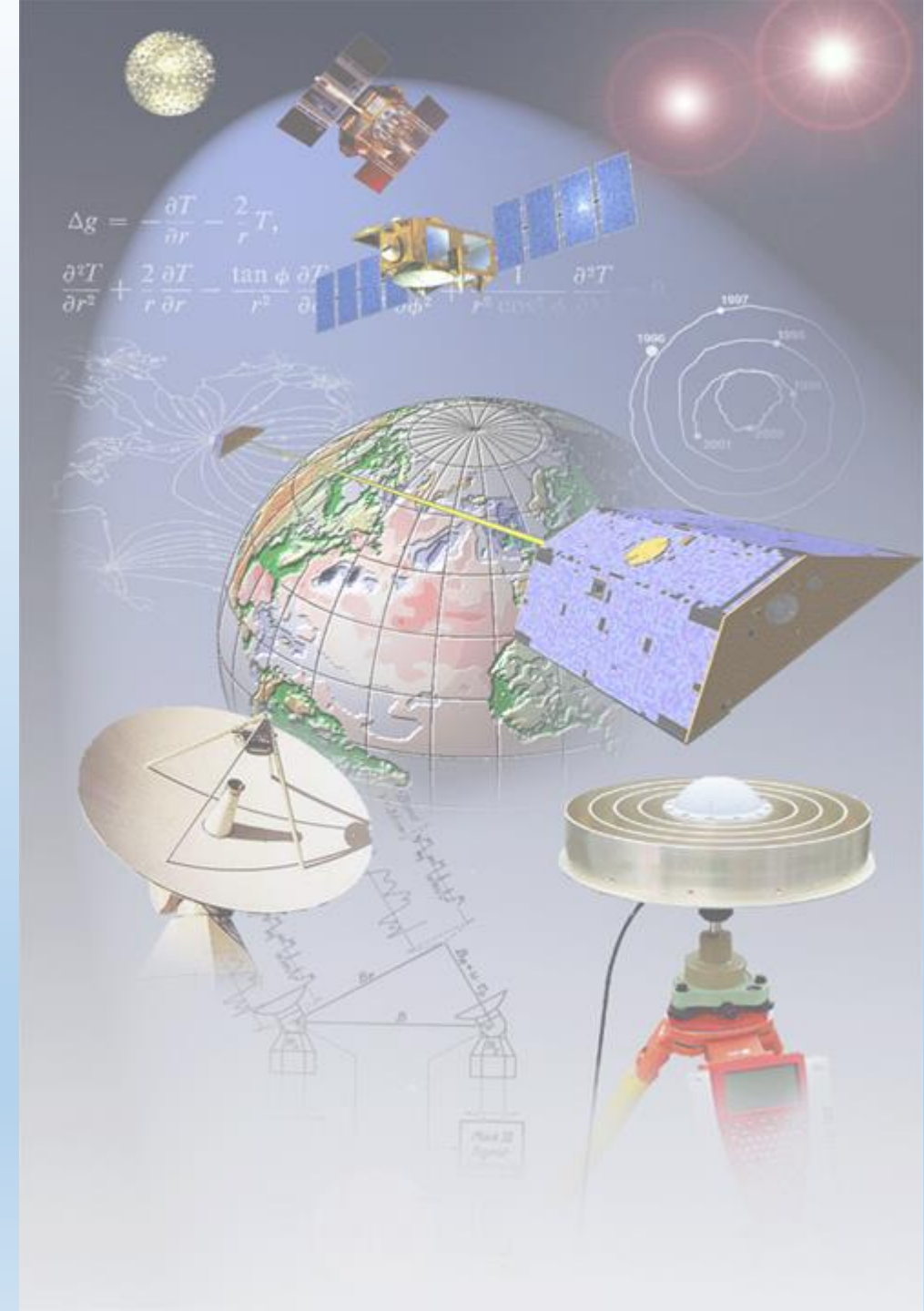


*Track Edit with SAS.Planet*





*Download Data from Web Services*





Minimizar lista de resultados

MTN25 ráster

16 -

Total ficheros MTN25 ráster: 16

## Metadatos

### Información auxiliar

Filtrar por tipo de fichero: Todos ▾

[Aviso legal](#) | [Mapa web](#)

Selección de productos  Selección de capas 



INCIDÈNCIES / AVISOS

Actualment no hi ha incidències

Notícies Media >> Descàrregues

TRACKS

[Ruta Termal >> Descàrrega ↓](#)

[Ruta del Carrilet I >> Descàrrega ↓](#)

[Ruta del Carrilet II >> Descàrrega ↓](#)

[Ruta del Ferro i del Carbó >> Descàrrega ↓](#)

[Ruta del Tren Petit. >> Descàrrega ↓](#)

[Totes les rutes >> Descàrrega ↓](#)

[Trams urbans de Girona i Salt >> Descàrrega ↓](#)

[Trams urbans d'Olot >> Descàrrega ↓](#)

INFORMACIONS D'INTERÈS

Aquí us oferim un seguit de documents relacionats amb el món de la bicicleta, la mobilitat sostenible, normatives, etc, que poden ésser del vostre interès.

[Bases legals concurs #càmpingsbedandbike >> Descàrrega ↓](#)

[Bases legals concurs #EquipViesVerdes - Trailwalker Girona 2016 >> Descàrrega ↓](#)

[Rutes accessibles per bicis adaptades i cadires de rodes - Serveis accessibles. >> Descàrrega ↓](#)

[Km parcials i totals de la ruta del Carrilet Olot - Girona - Sant Feliu de Guíxols >> Descàrrega ↓](#)

[Quilometratge i distàncies: Ripoll - Olot - Sant Feliu de Guíxols - Palafrugell >> Descàrrega ↓](#)

Document amb les distàncies entre poblacions, dels trams de la ruta del Ferro i del Carbó, ruta del Carrilet i ruta del Tren Petit.

[Fullet informatiu vies verdes de Girona- 2012 >> Descàrrega ↓](#)

Fullet amb informació de totes les rutes i els serveis turístics associats.

[Declaració de Madrid >> Descàrrega ↓](#)

Declaració per a una "Xarxa Verda Europea" - Madrid, 11 de juny de 2010

[Baròmetre anual de la bicicleta a Catalunya - 2011 >> Descàrrega ↓](#)

Baròmetre anual que analitza l'ús de la bicicleta a Catalunya - 2011

[Baròmetre anual de la bicicleta - Espanya - 2011 >> Descàrrega ↓](#)

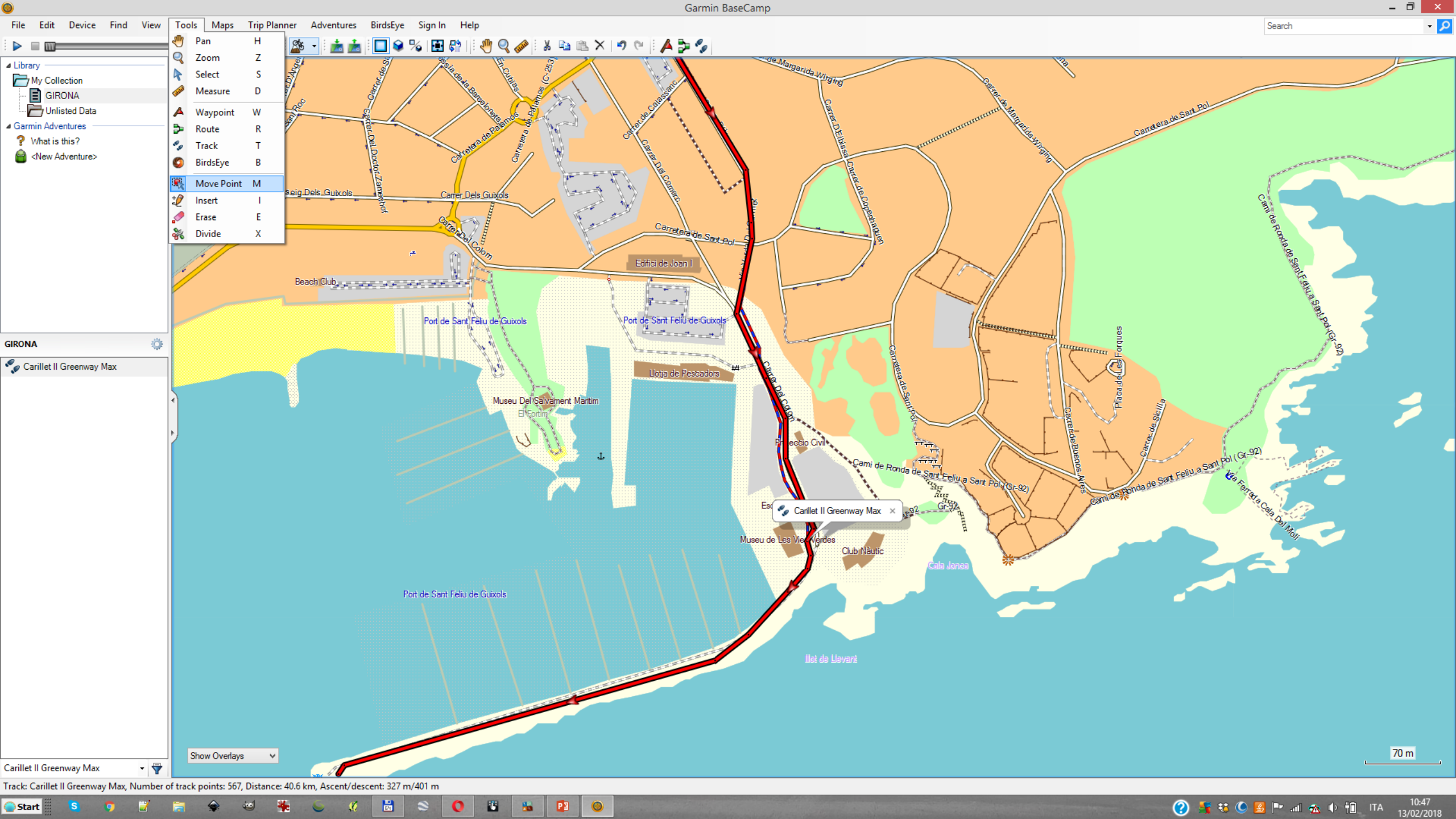
Evolució de l'ús de la bicicleta a Espanya - informe de resultats de juliol del 2011 (Document en castellà)

[Declaració de Lille >> Descàrrega ↓](#)

Declaració a favor d'una xarxa verda Europea. Lille, 12 de setembre de 2000 (Document en castellà)

[Baròmetre anual de la bicicleta a Catalunya - 2012 >> Descàrrega ↓](#)

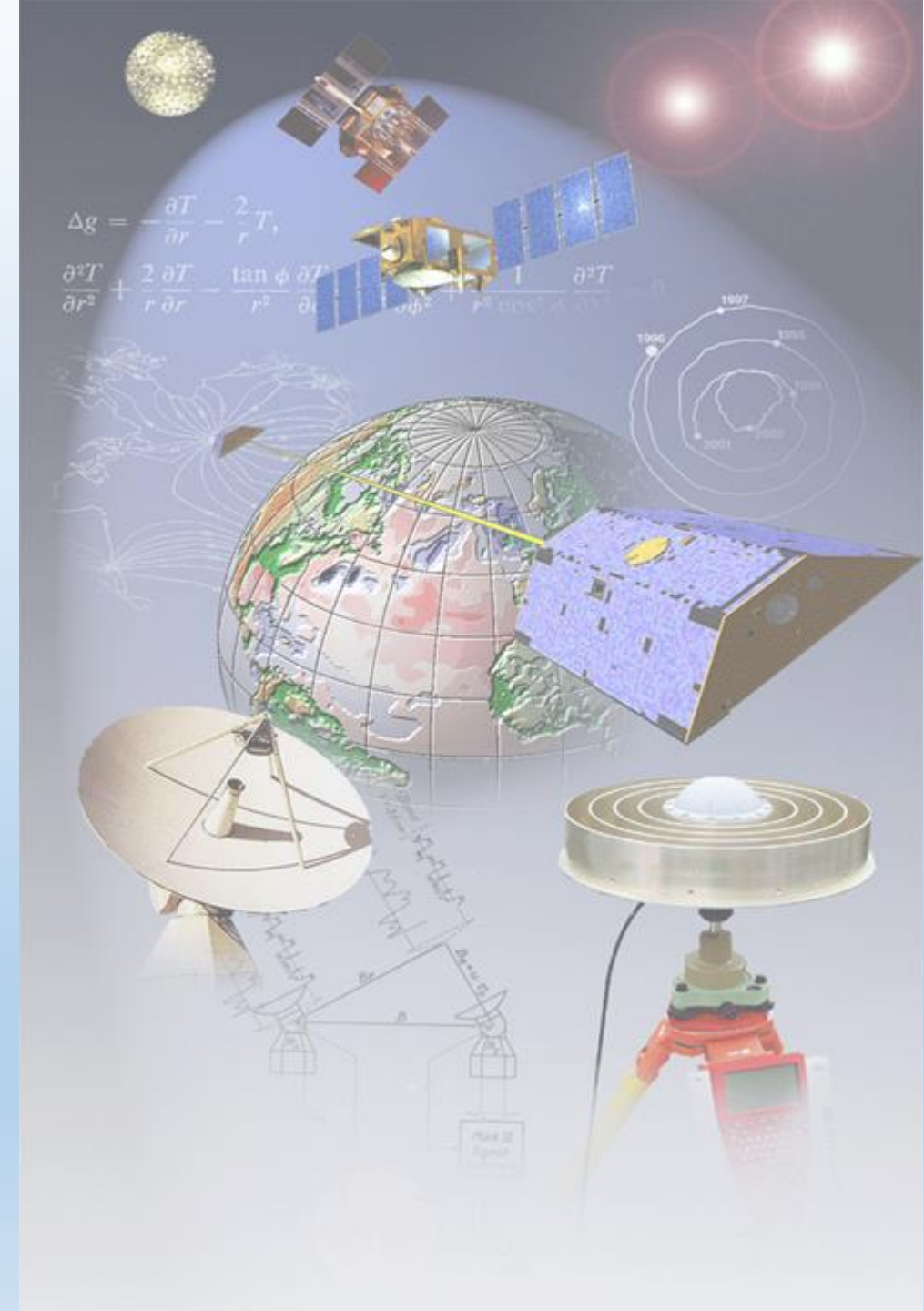


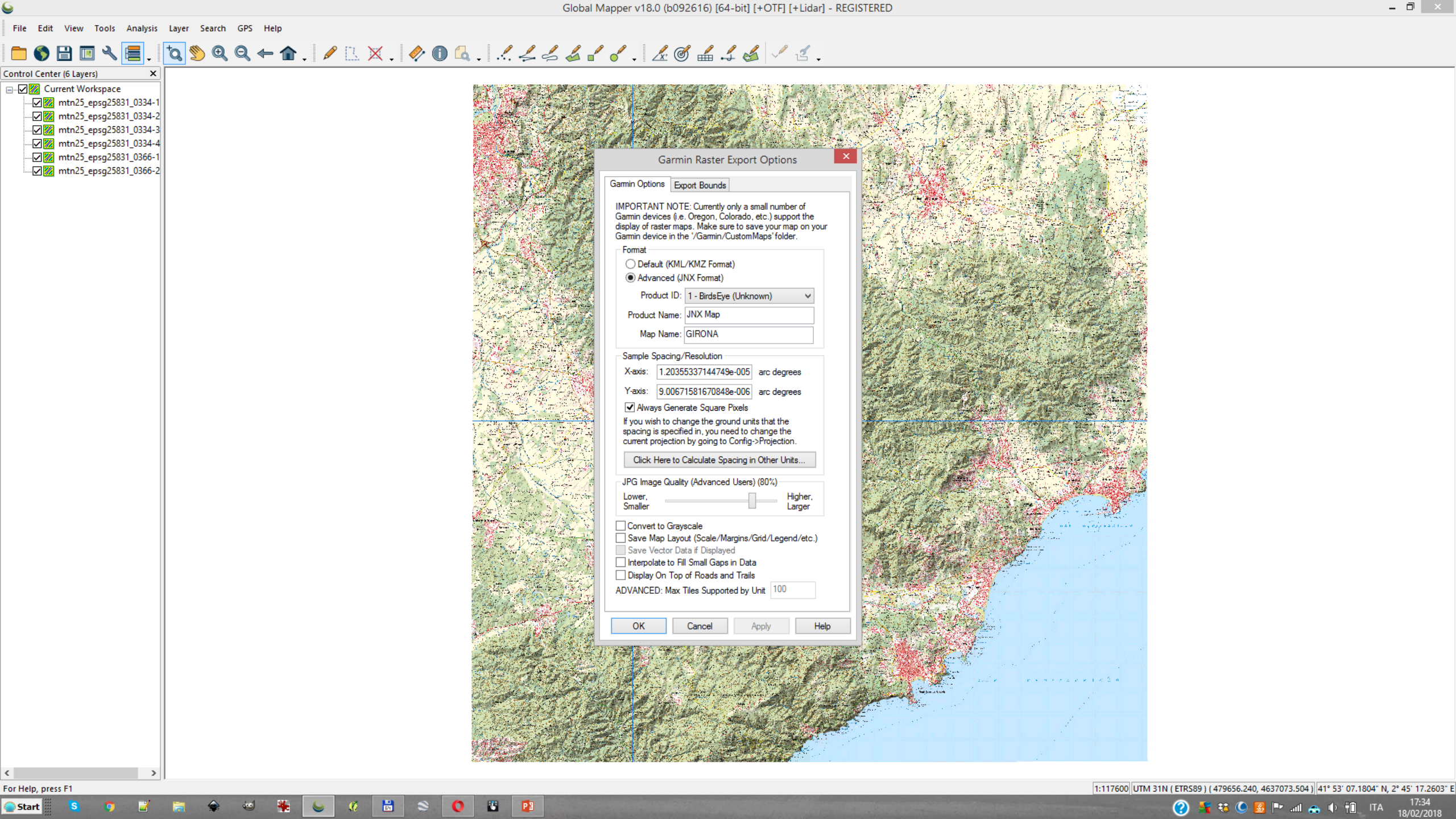




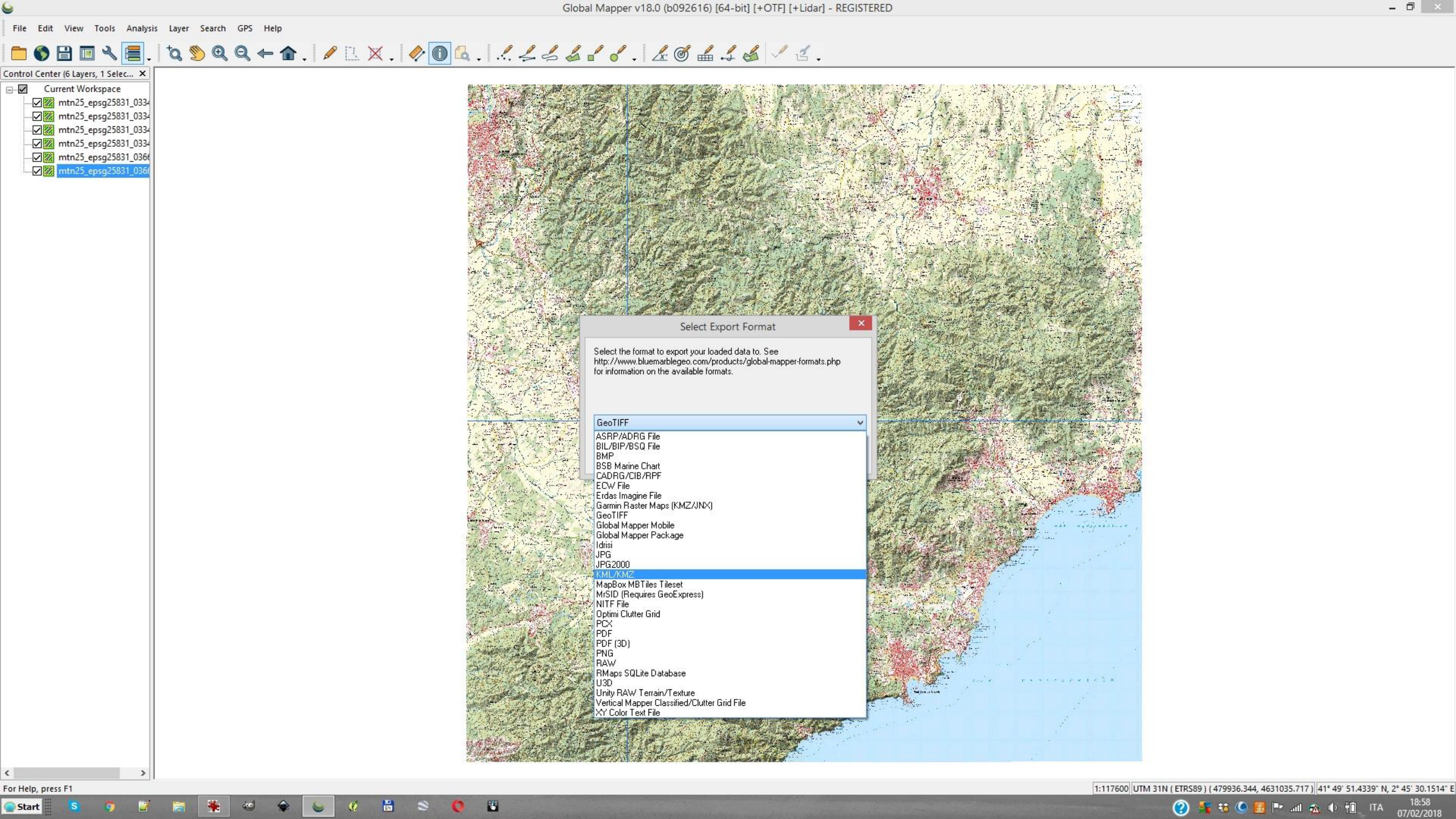


*Manage Geospatial information*



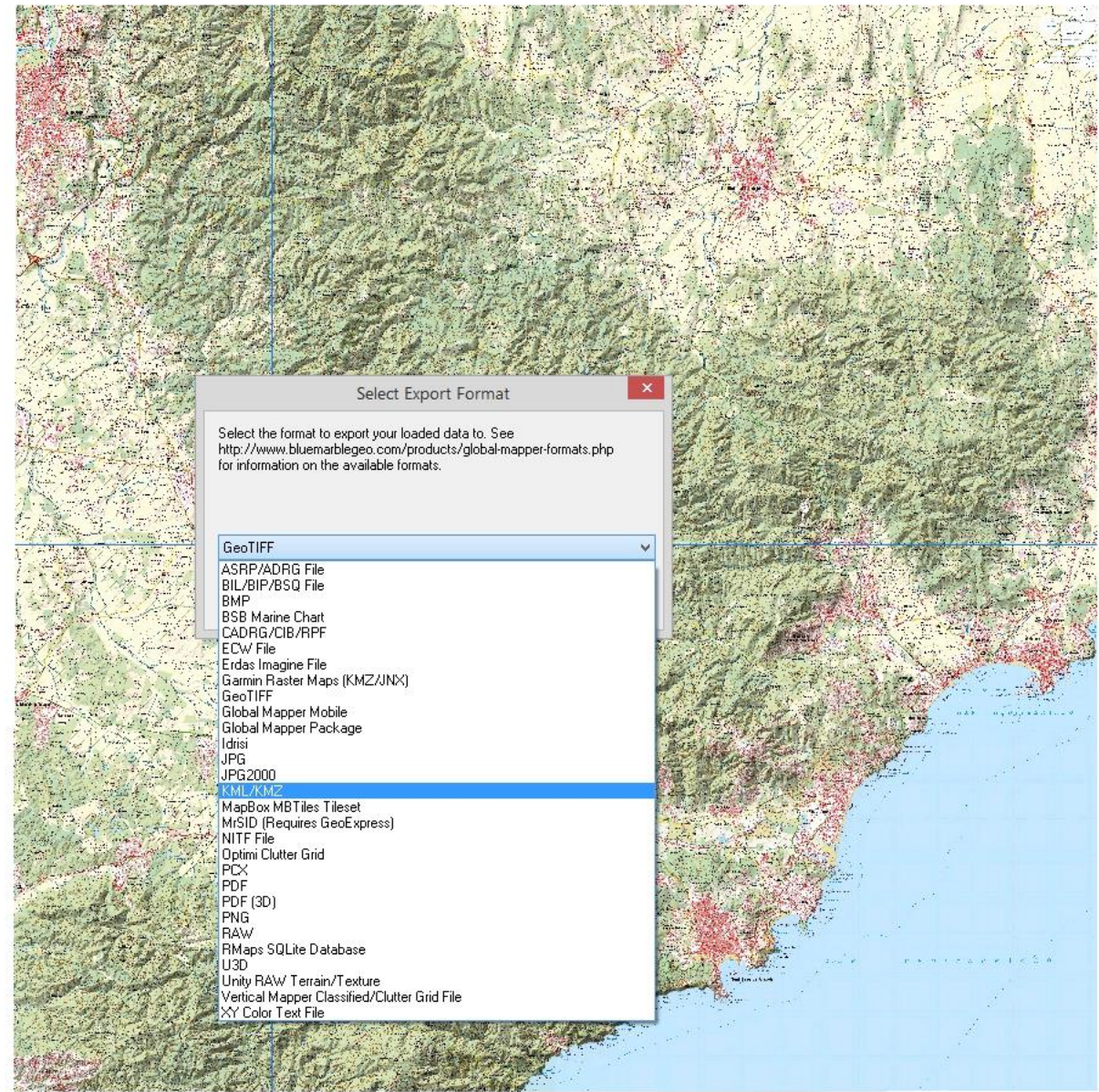






Control Center [6 Layers, 1 Selec... X

- Current Workspace
  - ✓ mtn25\_epsg25831\_0334
  - ✓ mtn25\_epsg25831\_0334
  - ✓ mtn25\_epsg25831\_0334
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  - ✓ mtn25\_epsg25831\_0366
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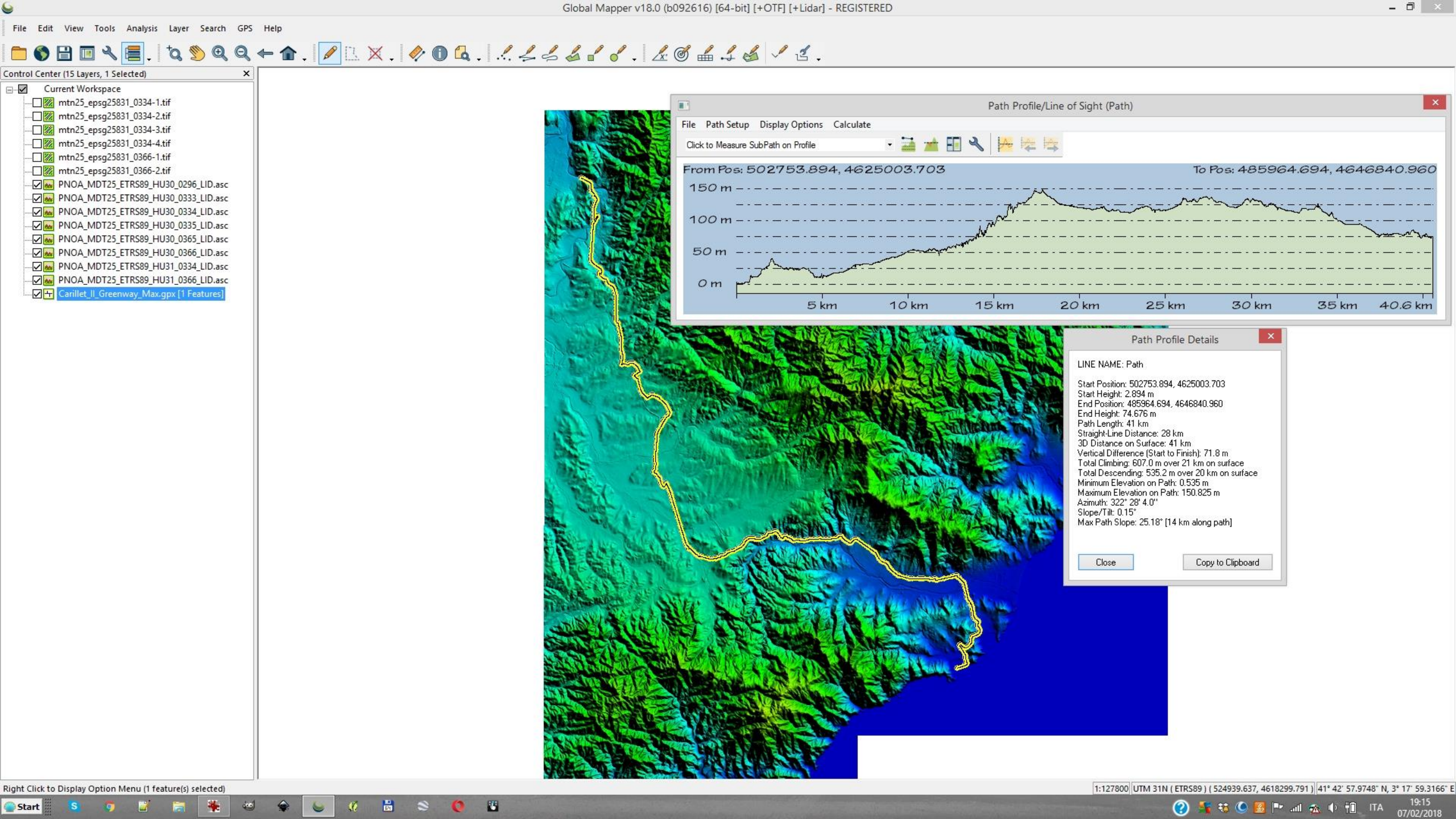
Select Export Format

Select the format to export your loaded data to. See <http://www.bluemarblegeo.com/products/global-mapper-formats.php> for information on the available formats.

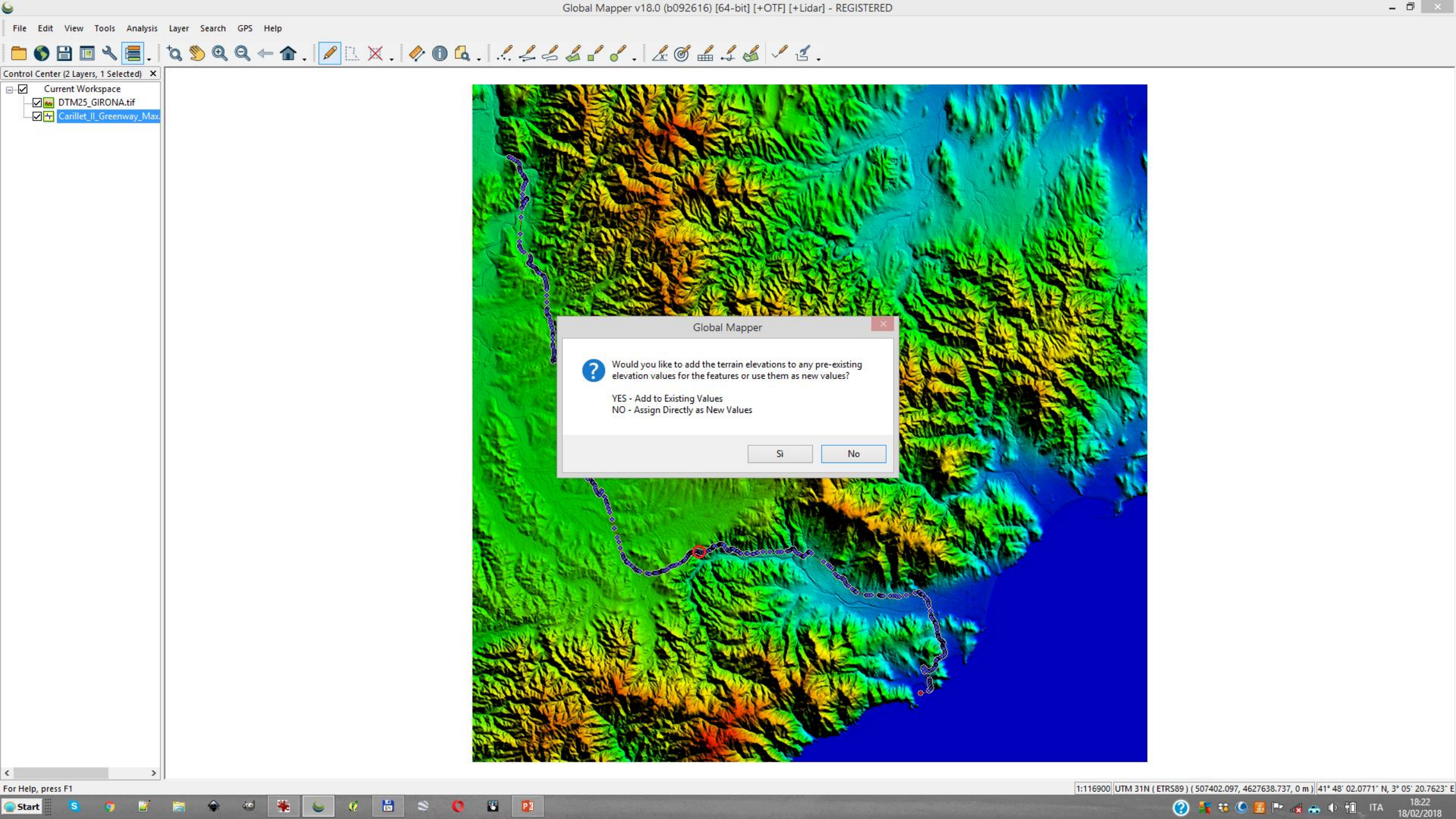
GeoTIFF

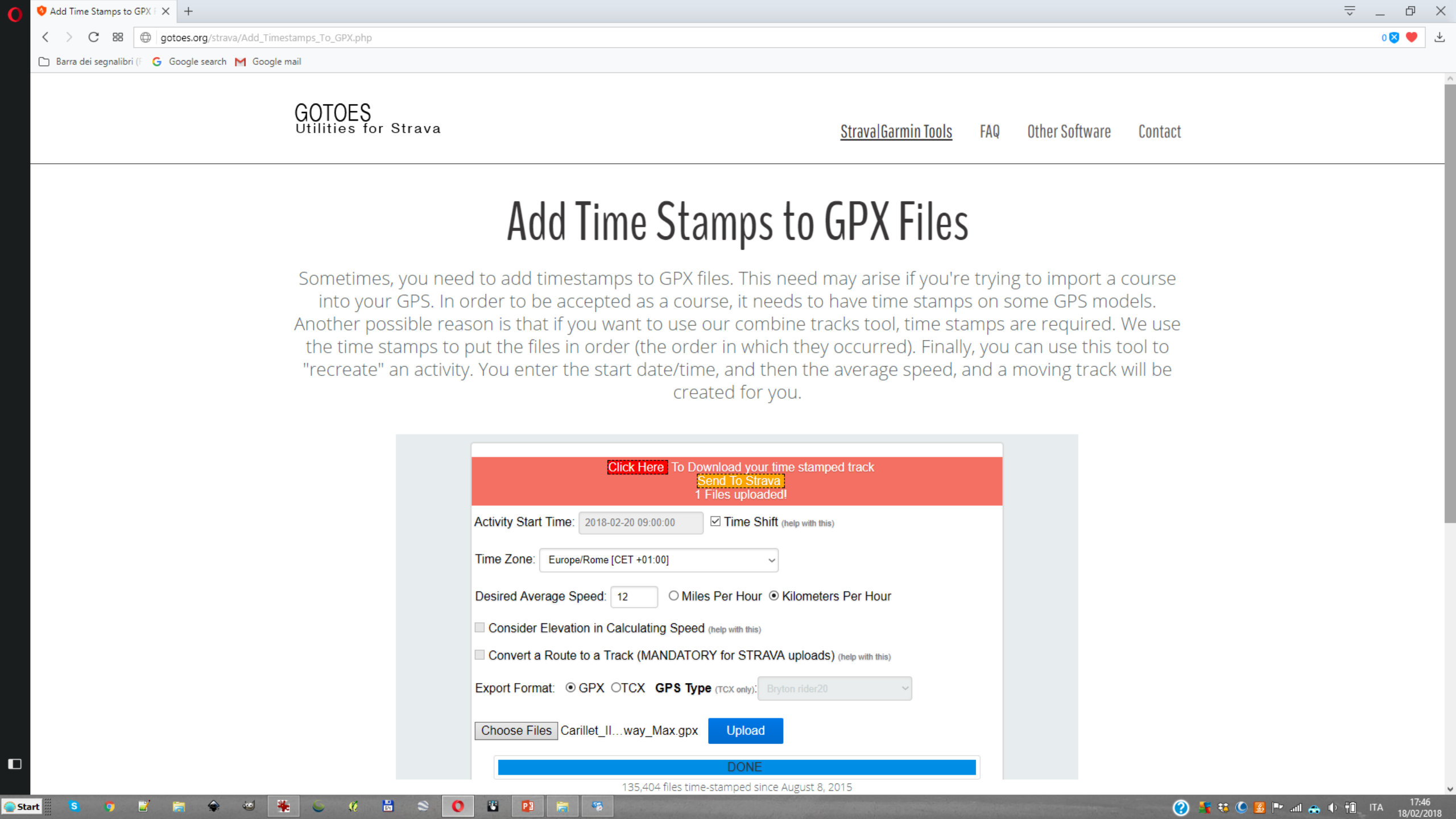
- ASRP/ADRG File
- BIL/BIP/BSQ File
- BMP
- BSB Marine Chart
- CADRG/CIB/RPF
- ECW File
- Erdas Imagine File
- Garmin Raster Maps (KMZ/JNX)
- GeoTIFF
- Global Mapper Mobile
- Global Mapper Package
- Idrisi
- JPG
- JPG2000
- KML/KMZ
- MapBox MBTiles Tileset
- MrSID (Requires GeoExpress)
- NITF File
- Optimi Clutter Grid
- PCX
- PDF
- PDF (3D)
- PNG
- RAW
- RMaps SQLite Database
- U3D
- Unity RAW Terrain/Texture
- Vertical Mapper Classified/Clutter Grid File
- XY Color Text File











# Add Time Stamps to GPX Files

Sometimes, you need to add timestamps to GPX files. This need may arise if you're trying to import a course into your GPS. In order to be accepted as a course, it needs to have time stamps on some GPS models. Another possible reason is that if you want to use our combine tracks tool, time stamps are required. We use the time stamps to put the files in order (the order in which they occurred). Finally, you can use this tool to "recreate" an activity. You enter the start date/time, and then the average speed, and a moving track will be created for you.

[Click Here](#) To Download your time stamped track  
[Send To Strava](#)  
1 Files uploaded!

Activity Start Time: 2018-02-20 09:00:00

☒ Time Shift (help with this)

Time Zone: Europe/Rome [CET +01:00]

Desired Average Speed: 12

☐ Miles Per Hour ☒ Kilometers Per Hour

☐ Consider Elevation in Calculating Speed (help with this)

☐ Convert a Route to a Track (MANDATORY for STRAVA uploads) (help with this)

Export Format: ☒ GPX ☐ OTCX

GPS Type (TCX only): Bryton rider20

Choose Files

Carillet\_IL...way\_Max.gpx

Upload

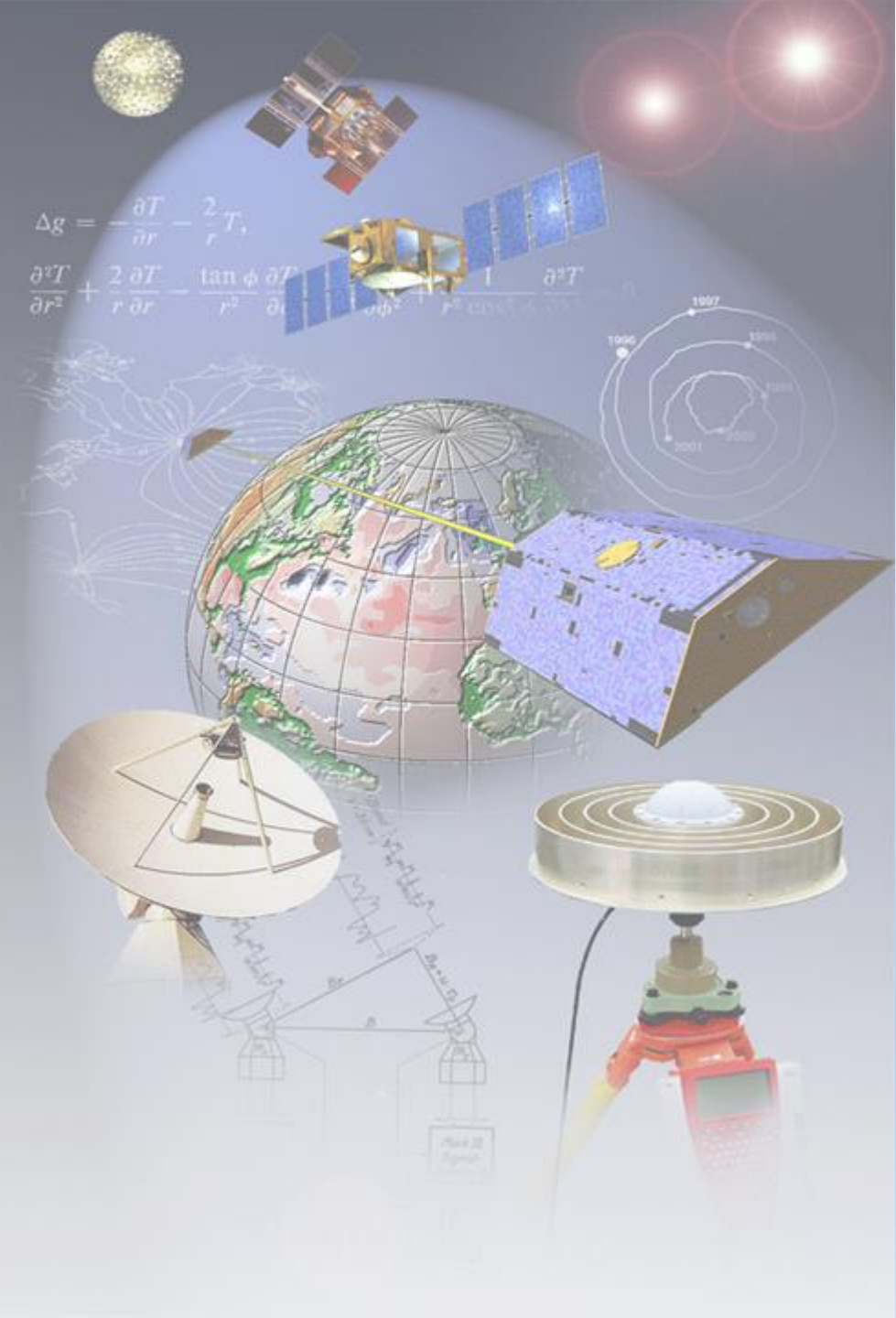
DONE

135,404 files time-stamped since August 8, 2015

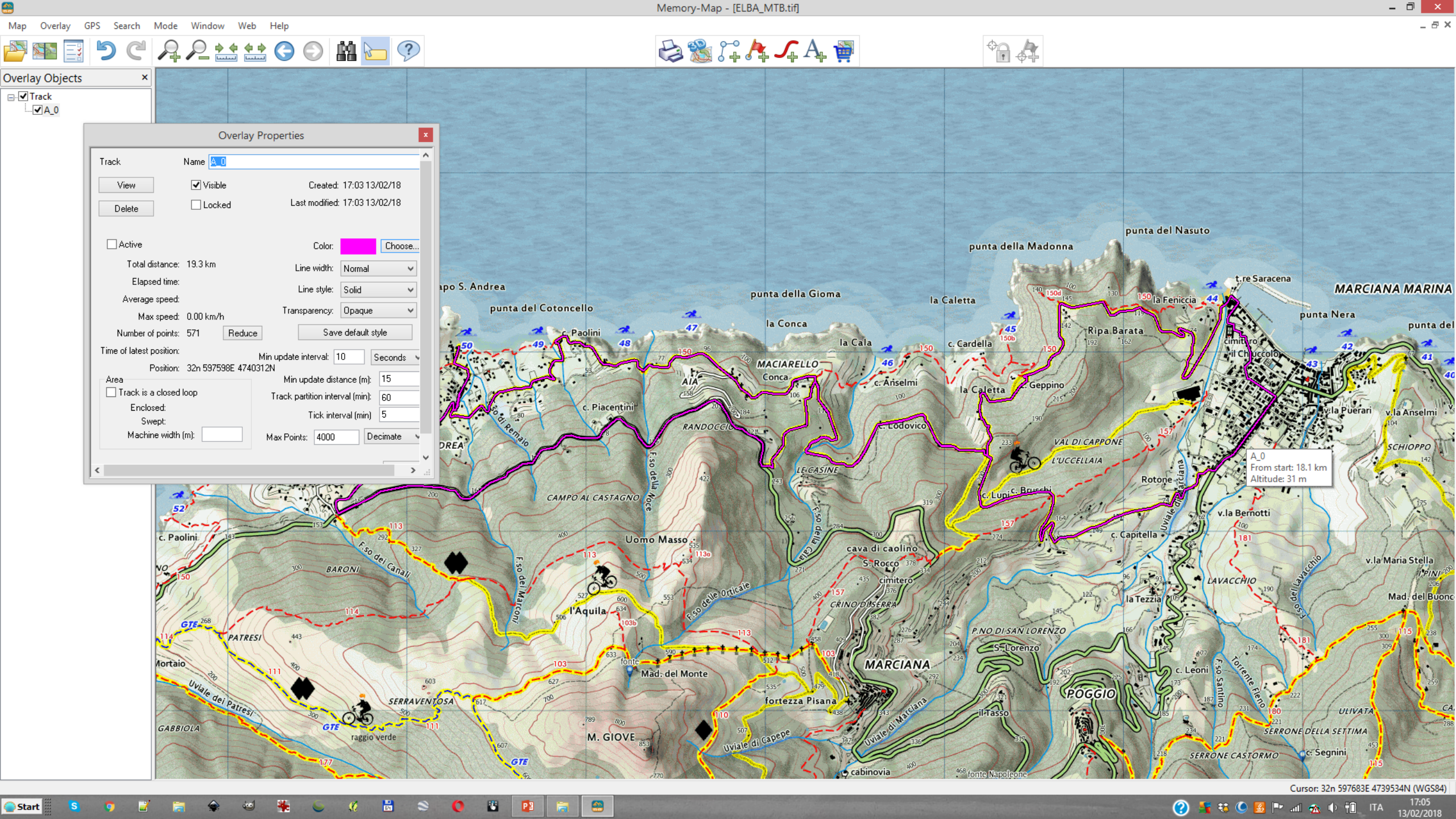




# GPS Mapping software



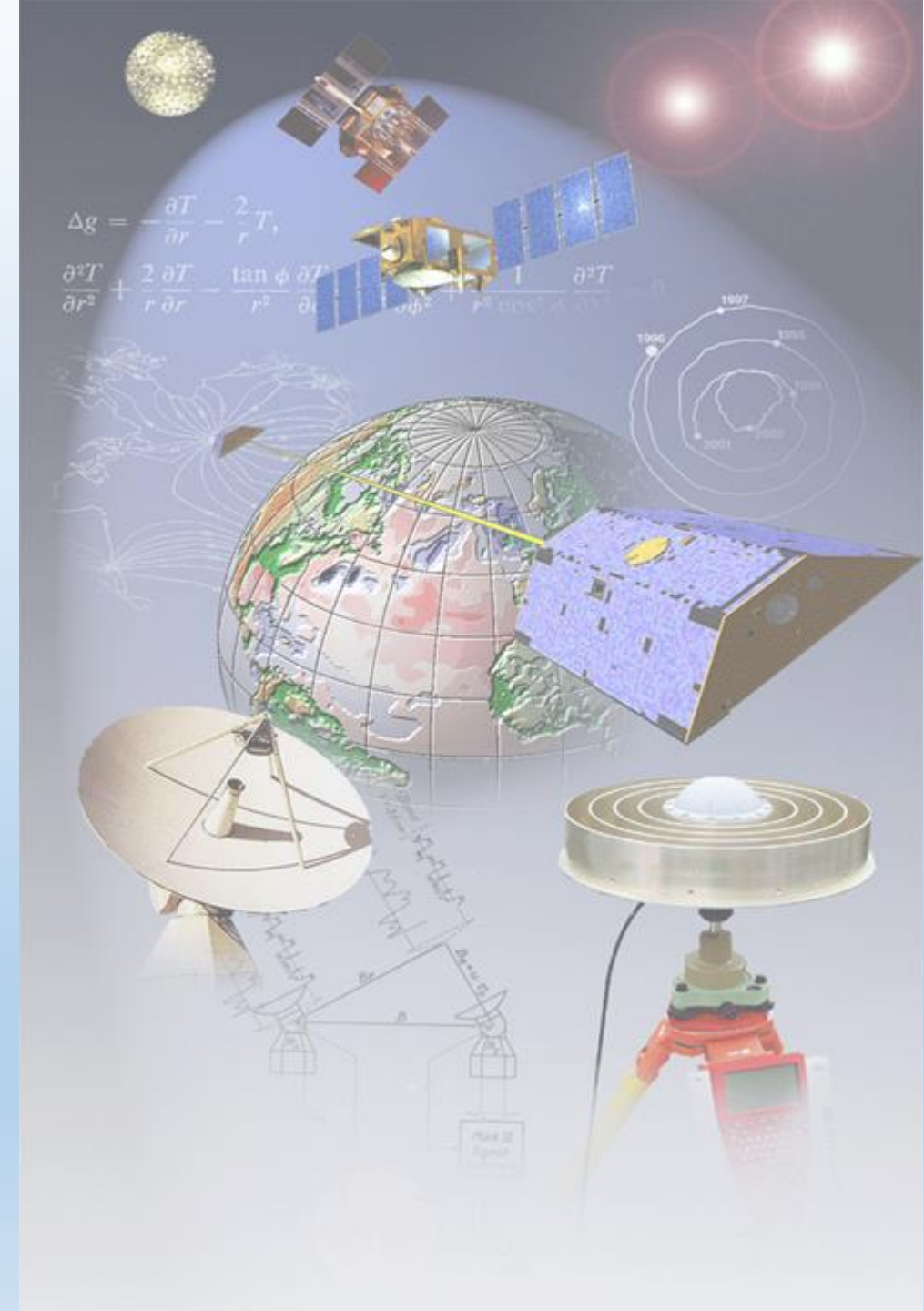




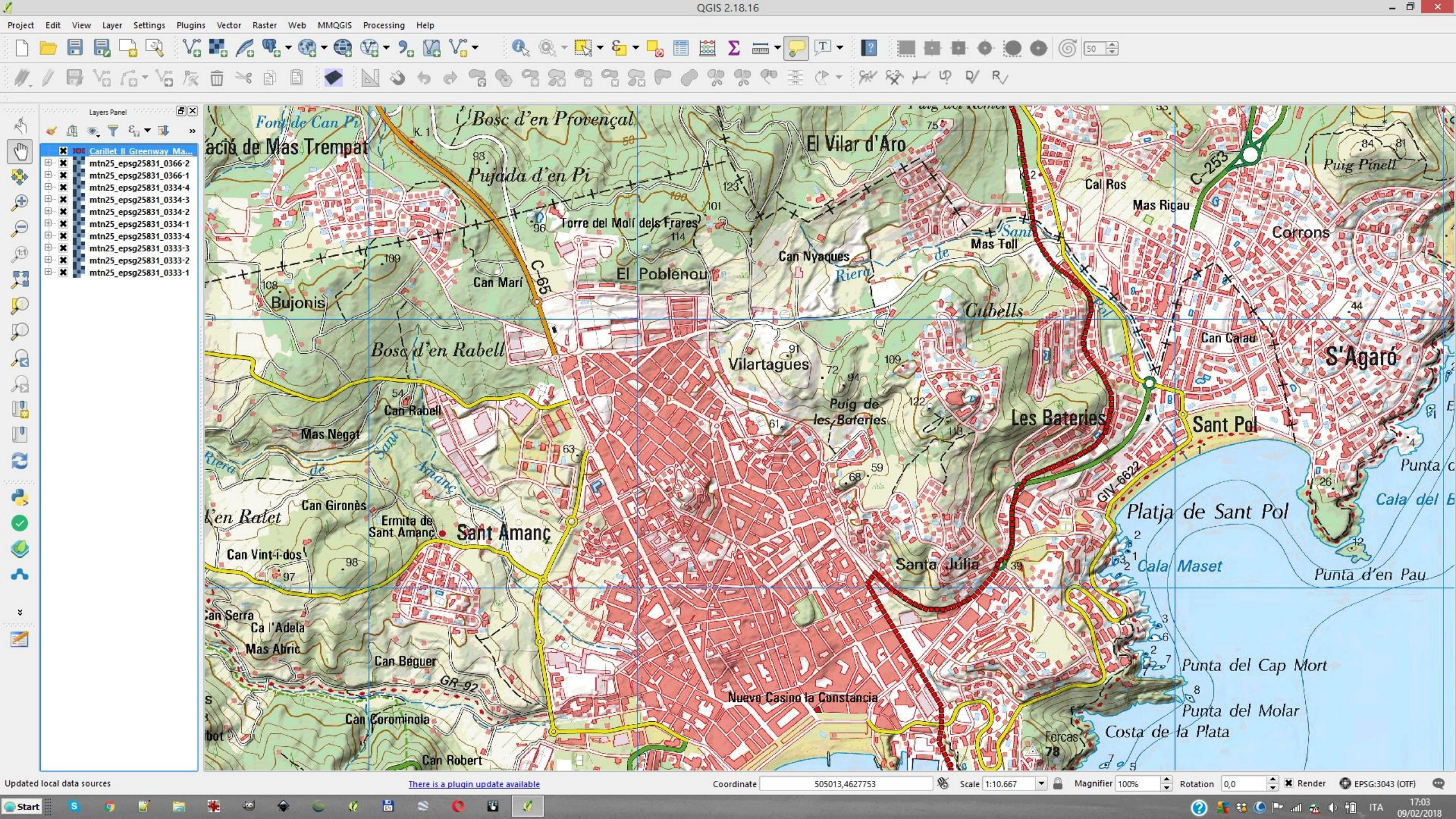




*GIS tech software*



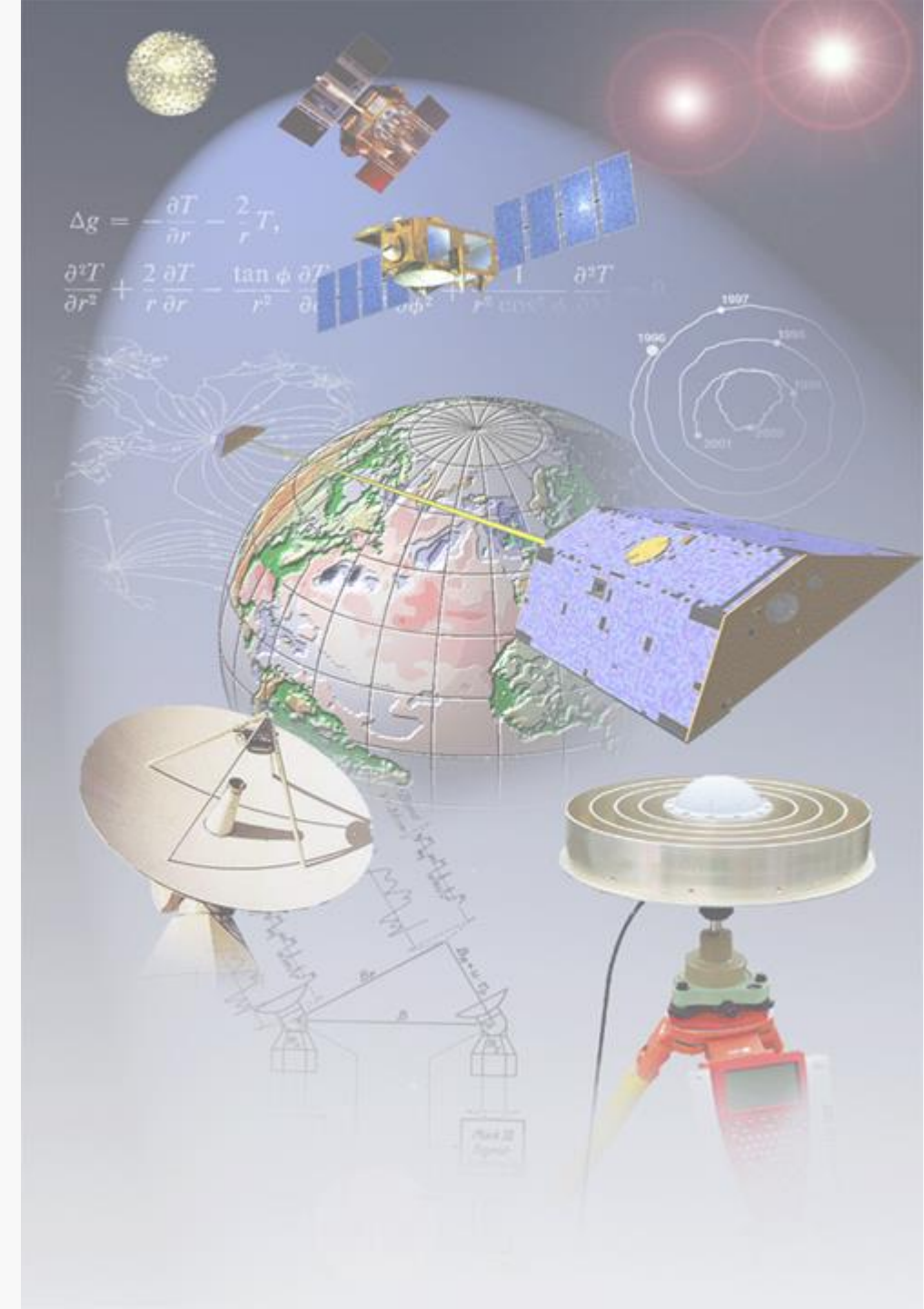








*Smartphone / Tablet Apps*





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Vendor: Paul Johnson

Published: Nov 2016

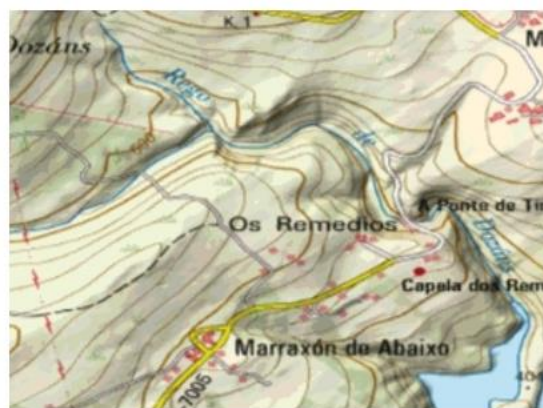
Language: Spanish

Size: 147.8 MB

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Next Result →

### Preview and Coverage:



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