Collecting in situ observations with the App Geopaparazzi

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Volunteered Geographic Information: Enabling VGI creation, management and sharing Milano, 16th April 2018



INTRODUCTION

Traditional field data survey:

- Paper form for data collection
- GPS for spatial position
- Paper map / GPS app to follow a transect
- \rightarrow slow data collection
- \rightarrow uncomfortable in case of many records
- \rightarrow time-consuming operations to import data



INTRODUCTION

Aim of this presentation:

show a method to speed-up field data collection using the app Geopaparazzi for Android devices

- collect data using a custom form
- associate a GPS position to each record
- use the customized basemap to follow the transect



https://geopaparazzi.github.io/geopaparazzi
https://play.google.com/store/apps/details?id=eu.hydrologis.geopaparazzi

INTRODUCTION

Steps:

- Data preparation:
 load ancillary data
 - prepare basemaps
 - create the data form
 - upload on the phone

2. Field work: collect the data

download from the phone

3. Post-survey work: use the collected data

<u>Case study:</u>

ERMES – Space4agri 2016 field campaign

- *Aim*: collect a field dataset of validation point about crop types and flooding conditions
- Field work:
 - 4 surveys
 - 2 operators (a driver and a data collector)
 - study area: pianura padana (PV-MI-LO-NO-VC)





Vector data

(e.g. transect)

- Edit the required / useful vector data (QGIS)
- Save it as Spatialite database

(spatialite-gui)





Vector data

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Mobile Atlas Creator (MOBAC) 2.0.1 (2371) 80 Atlas Selection Alpha Bookmarks 💐 <u>D</u>ebug 🥜 <u>T</u>ools 🔞 Help > Map Source: OpenStreetMap Hikebil 10 Grid disabled 🔻 🔲 WGS 84 Grid Gpx: 💻 Freemap Slovakia Car Atlas 💭 Freemap Slovakia Cycle Map (14) 💭 Freemap Slovakia Hiking MapsforgeWorld Moldova (point.md) nztopomaps.com (New Zealand only) - Open Piste Map OpenStreetMap 4UMaps.eu OpenStreetMap CloudMade Default Style OpenStreetMap Hikebikemap.de OpenStreetMap Public Transport DSMapa-Topo (Poland) > Zoom Levels: ✓ 17 ✓ 16 ✓ 15 ✓ 14 ✓ ₩ 12 ₩ 11 ₩ 10 ₩ 9 V 7 6 5 4 2 1 0 108518 tiles Atlas Content: 🜪 🛑 Lomellina OSM (MBTiles SQLite) OSM (A26) (A26) Add selection New Name: OSM 121 Saved profiles: (A26) Delete Save Create Atlas (A26) 🗅 Layer settings: custom tile processi Recreate/adjust map tiles (CPU ir Clear List 20 km Add wpt Width: 256 Height: 250 Load Gpx New Gpx Save Gpx

Download a basemap

(MOBAC)

- Choose the map source and zoom levels
- Draw the extent
- Export as MBTiles

http://mobac.sourceforge.net



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- Use a raster basemap
- Export the raster as RGB GeoTIFF
 - (QGIS)
- Create tiles (gdal2tiles.py)
- Import as MOBAC source
- Export as MBTiles (MOBAC)



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Load the additional vector data



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Load the additional vector data









PAVIA











PAVIA





1. Move the map to the position of the field

2. Click on "add field" button

Google

Rice field 1





VARA









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4. Move to the next field and take a new point

Rice field 2

Google



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Google







Export as KMZ

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changelog: version 0.2.2

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/home/lranghetti/.qgis2/python/plugins/GeopaparazziTags) Available version: 0.2.2 (in QGIS Official Plugin Repository)

-Fixed bug in note text when using non ascii character.

Uninstall plugin

Render

Reinstall plugin

Close

EPSG:32632 (OTF)

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Import in QGIS

- Install the plugin GeopaparazziTags converter
- Import the file using the GUI

If an error appears during installation (missing Python module **pykml**):

> sudo pip install pykml





Import in QGIS

- Install the plugin GeopaparazziTags converter
- Import the file using the GUI

Multiple datasets can be present in the same KMZ if more than one note type were used.



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Import in QGIS

- Install the plugin GeopaparazziTags converter
- Import the file using the GUI

Values added in the form appears as data fields





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<u>Field campaign 2016</u> Four field working days 3654 sampling points

P. Martin Martin



CONCLUSION

Geopaparazzi offers an easy way to collect field data both for scientific and recreational purposes, with the advantages of

- using offline maps \rightarrow solve connectivity problems
- building custom data forms \rightarrow collect multiple information
- sharing forms among operators \rightarrow collect data with the same structure
- using multiple-choice menus \rightarrow speed-up data collection
- seeing already-taken points \rightarrow split the campaign in several surveys

Thank you for your attention