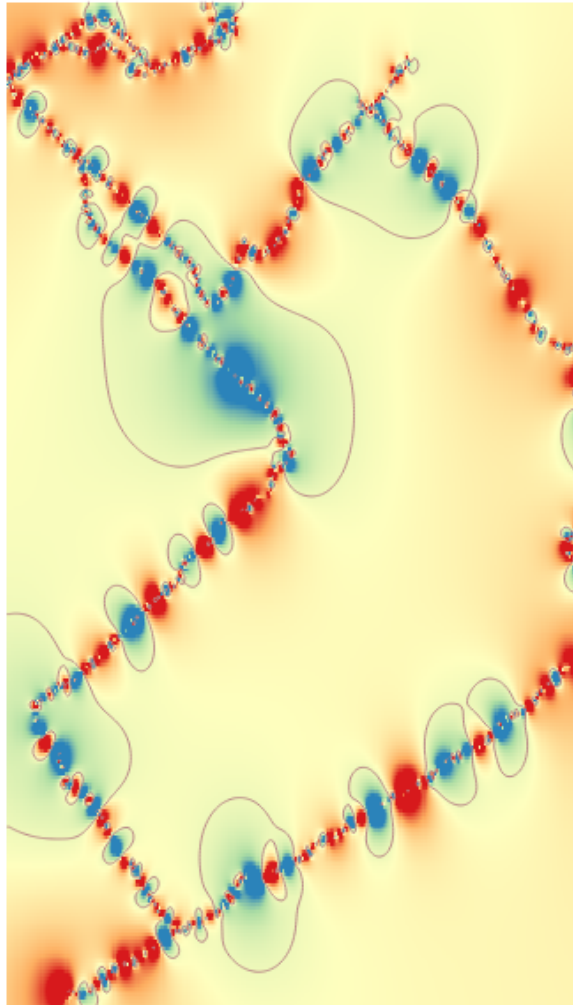# QGIS Mapping Notes

ShiftRegister

May 21, 2018

how to go to a location

do we need to make csv file and load it under "add delimited text layer" (big quote mark icon)?

    eg. messene.csv :

    MESSENE, 21.92, 37.175

    name, long, lat = x,y

how to make graphic overlays from other map sources

Using geo-referencing (plugin?) as very well detailed here:

    `http://fredgibbs.net/tutorials/qgis/overlaying-historic-maps-with-qgis.html`

    [Don't use - Add raster layer]

- Raster menu -> Georeferencer (check plugins)

- Upper left icon

- Add points icon to begin add points across both image and map

When you've entered 5-7 points, click the yellow gear icon to adjust the Transformation Settings. For Transformation type, choose "Thin Plate Spline"; for Resampling methods, choose "Cubic Spline". You can read about what these do if you want to remember why you hate math.

Click the folder or dots icon to the right of the "Output Raster" input box and choose a filename and directory to save the warped file. Saving the file makes it easily available for reuse without having to repeat the georeferencing process—super helpful for when you've spent a lot of time aligning many points.

Make sure the box for "Use 0 for transparency when needed" is checked.

After you've finished with the transformation settings, click the green arrow icon (right next to the load image icon).

- ?confusing as we now use pseudo mercator to make it work?

how to add satellite and map layers

Web->Openlayers plugin-> Googlemaps

how to draw points, draw lines between points (python) and load in these lines

points

Add delimited text layers:
 eg. list of German nuclear power stations: germany_nuclear_sites.csv
 VAK, Kahl am Main, 50.0591294, 8.9871812, BWR, 15, 1960–1985,

linestrings

eg. tld_europe_leys_linestrings_trimmedforcloseness
 0|LINESTRING(12.583 55.667,-3.683 40.4,6.13 49.612)
 1|LINESTRING(24.934 60.176,24.1 56.95,24.728 59.434)
 Add delimited text layers
 Custom delimiter: |
 Geometry definition: WKT Well Known Text
 Geometry Field; LINESTRING blah
 WGS84

interface with pyephem...

See: solstice.py, newephem.py

- solstice.py: there are variations to compute next 1000 years of solstice sun rises for different locations, compute sun movements in next 24 hours, compute next 30 sunrises - as linestrings for our observer point which we can then view in qgis

- newephem.py: looks just like the first version of this!

other bits of software we use for processings

unmap.py, unmap2.py: for data from `https://raw.githubusercontent.com/52vis/2016-15/master/sites.json`
 kmltocsv.py: convert kml to csv

how to export images?

Save as image
   What are other print options?

bordeaux notes - for entropy box and mappings

- note GPS has red without label on top and is 2nd from left, coincidence has black to top (check) - FIXED!

forbordeaux.brd

- note that GPS device (?) has LED which lights so we can see that power is OK

- logging software is in:

/root/projects/archived/bordeaux/new_skry

other softwares for plotting the entropy stuff

... and our scripts:
   gpsrng2.py: just for low entropy sites
   gpsrngcum.py: Cumulative deviation mapped against p=0.05 probability.
   gpsrng.py: simple plotting lat-x, long-y, z, zz
   muon_entropy.py: for muons

how to work with format straight from gps

- gps and particle sensor

gpsdevice.py and airsds.py to integrate and test data with qgis:

```
python airsdsandgps.py
```

how to use our gps data in the qgis?

Eg. from submarine21052017:

    4451.365870,00033.80021,116,0

    Bordeaux is 44.836151 (latitude-y), -0.580816 (longitude-x) ...

    so for qgis these are reversed...

    NMEA example:

    3404.7041778 is the latitude in the DDMM.MMMMM format. Decimal places are variable.

    N denotes north latitude.

    07044.3966270 is the longitude in the DDDMM.MMMMM format. Decimal places are variable.

- how to convert this:

```
python gpstoqgis.py filename
```

    and can load straight into qgis with x as first field and y as second

    It is easy to confuse X and Y coordinates. Latitude specifies the north-south position of a point and hence it is a Y coordinate. Similarly Longitude specifies the east-west position of a point and it is a X coordinate.

    also be aware of east and west and change

- how to add extra layer of information??

    shapefiles? - we can save as shapefile from our csv of gps data

    `https://www.qgistutorials.com/en/docs/interpolating_point_data.html`

- interpolation is key question - how else we can do this to make a contour...

    we need to have gpsbabel installed for gps tools plugin in qgis

drawing shapefiles

We can add points, lines with:

- new shapefile layer (point, line or polygon), toggle edit layer icon, add feature, untoggle to save change

```
    https://docs.qgis.org/2.8/en/docs/training_manual/create_vector_
data/create_new_vector.html
    https://github.com/mtop/speciesgeocoder/wiki/Tutorial-for-creating-polygons-in-QGIS
    http://geo.nls.uk/urbhist/guides_vectorlayerqgis.html
```

data sets and resources

- see: `https://docs.google.com/document/d/1etyXS8oWM3yF6MfpBPuwxvhmll_qahWjhXwrRWV213I/edit#`

single repository/howtos on shiftregister github:

```
https://github.com/shiftregister/shiftregister/tree/master/mapping
```

other links

```
https://www.qgistutorials.com/en/docs/importing_spreadsheets_csv.
html
    https://planet.qgis.org/planet/tag/terrain%20analysis/
    http://www.qgistutorials.com/en/docs/georeferencing_basics.html
```