GDAL, OGR - VECTOR DATA

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OGR

- part of GDAL
- OpenGIS simple feature Reference
- Manipulation of vector data
- List of supported vector formats
- e.g. Shapefile, PostGIS, KML, CartoDB, …

COMMAND LINE PROGRAMS

ogrinfo

List information about dataset

ogr2ogr

Converter for vector data

orgtindex

Creates a tileindex

GEOMETRIES WELL KNOWN TEXT (WKT)

WKT can represent 18 distinct geometric objects:

- Geometry
- Point, MultiPoint
- LineString, MultiLineString
- Polygon, MultiPolygon, Triangle
- CircularString
- Curve, MultiCurve, CompoundCurve
- CurvePolygon
- Surface, MultiSurface, PolyhedralSurface
- TIN
- GeometryCollection

EXAMPLES

Point

```
POINT(30 10)
```

LineString

```
LINESTRING(30 10, 10 30, 29 34)
```

Polygon

```
POLYGON ((30 10, 40 40, 20 40, 10 20, 30 10))
```

FIONA

Figure 1: an ogr's dream girl

LIBRARY FOR USING OGR BINDINGS IN A NICE BUT SIMPLE WAY

- Fiona trades memory and speed for simplicity and readability.
- For special cases or optimized applications - user ogr
- use `ogr2ogr` if you can.
- Manual

SHAPELY

- Computational geometry in the Cartesian plane.
- Projection handled elsewhere
- Data I/O handled elsewhere(OGR, Fiona, DB interface)
- Manual

PYPROJ

- python bindings to the proj.4 C library
- handles map projections
- Project Site

DESCARTES

- Allows you to use Shapely Polygons as Matplotlib patches.
- Means that you can plot filled polygons instead of just lines.
- Not really necessary but nice for plotting.
- PyPi Site

EXAMPLE

- We will work with some open data from the city of Vienna.
- Ipython notebook Wien-Ubahn.ipynb contains the code

USED DATA

METRO NETWORK OF VIENNA

https://open.wien.gv.at/site/datensatz/?id=2d0e9a21-fa5f-441d-948a-fe97a453a827

DISTRICTS OF VIENNA

https://open.wien.at/site/datensatz/?id=2ee6b8bf-6292-413c-bb8b-bd22dbb2ad4b