

C: Introduction to GeoPandas

GeoPandas adds two new data structures:

- **GeoSeries:**

Special Series object for handling geometry

Many additional attributes and methods

Index	geometry
FL	MULTIPOLYGON (((-80.17628 25.52505, -80.17395 ...
VI	MULTIPOLYGON (((-64.62799 17.78933, -64.62717 ...
MT	POLYGON ((-116.04914 48.50205, -116.04913 48.5...

- **GeoDataFrame:**

Extends DataFrame

Additional column for geometry

Supports all Pandas attributes and methods

Many additional attributes and methods

Index	STATEFP	NAME	...	geometry
FL	12	Florida	...	MULTIPOLYGON (((-80.17 ...
VI	78	US Virgin Islands	...	MULTIPOLYGON (((-64.62 ...
MT	30	Montana	...	POLYGON ((-116.04 ...

In effect: integrates attributes and geometry from shapefiles

Typically imported as gpd:

```
import geopandas as gpd
```

Key tip about joins and spatial data:

Always join non-spatial data onto spatial data

=> Spatial data on the **left**, nonspatial data on the **right**

- QGIS:
Start with the spatial layer and join the CSV data onto it
- GeoPandas:
`newdata = geodata.merge(non_geodata,...)`

Switch to g22, g23 demo.py