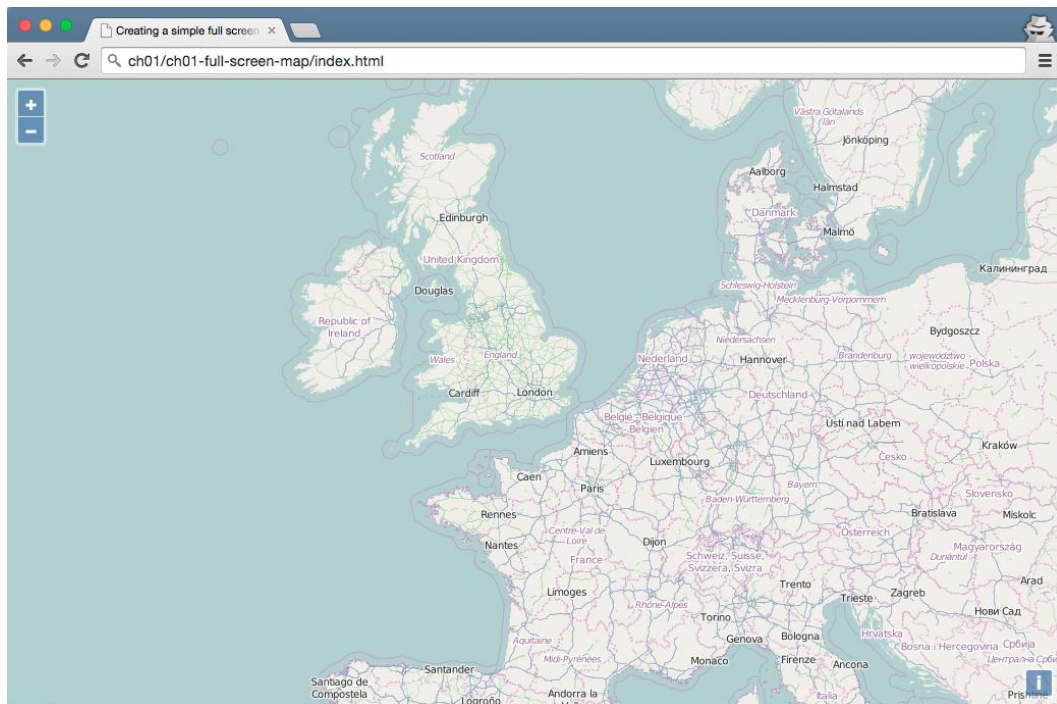
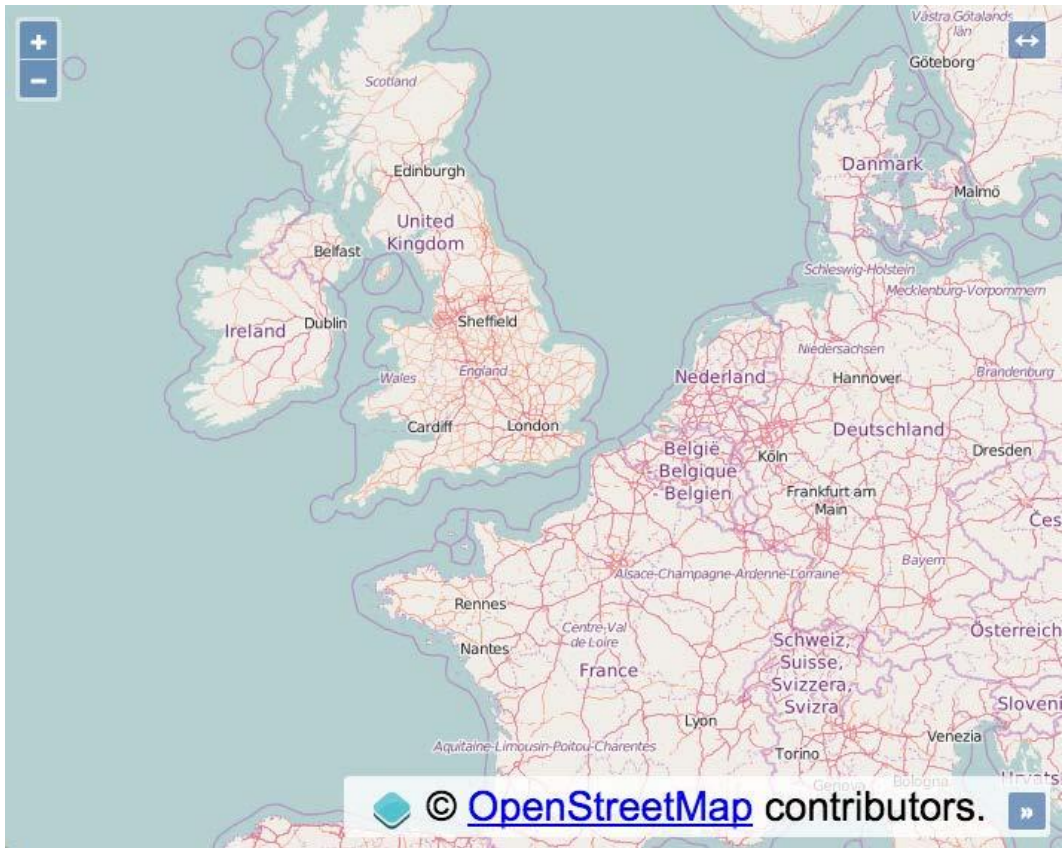
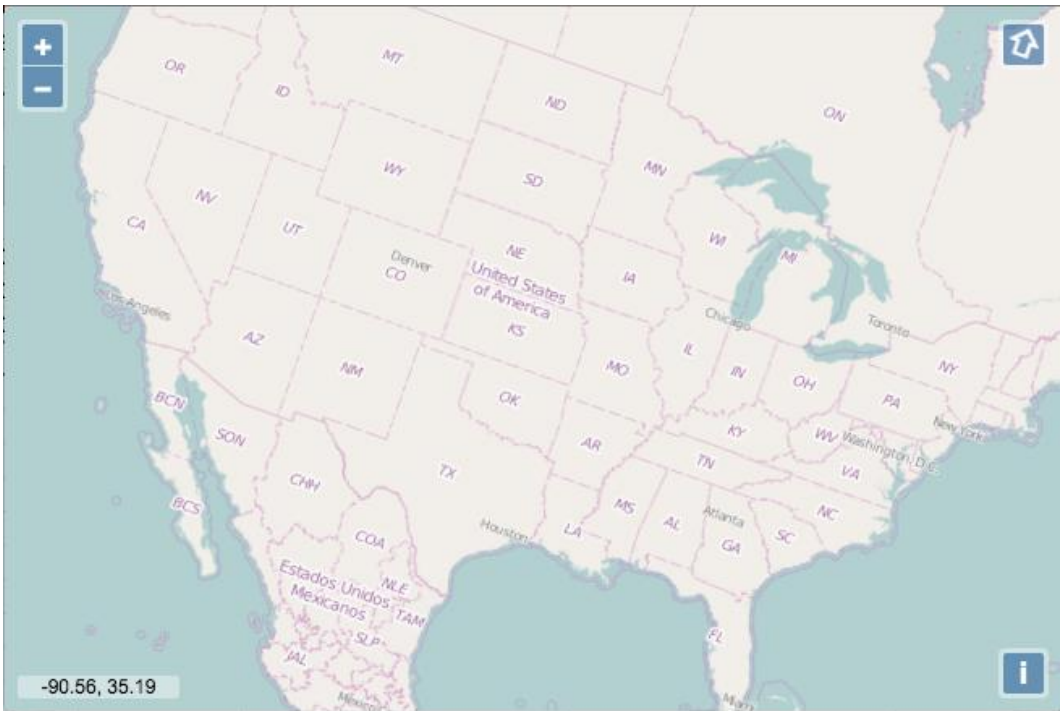


# Chapter 1: Web Mapping Basics



```
▼ <div id="js-map" class="map">
  ▼ <div class="ol-viewport" style="position: relative; overflow: hidden; width: 100%; height: 100%;">
    <canvas class="ol-unselectable" width="1197" height="861" style="width: 100%; height: 100%;">
      <div class="ol-overlaycontainer"></div>
      ▶ <div class="ol-overlaycontainer-stopevent">...</div>
    </div>
  </div>
</div>
```





← → C ch01/ch01-map-layers/

**Layers**

Drag the layer you wish to view over the satellite imagery into the box.

- MapQuest OSM
- MapQuest Hybrid
- OpenStreetMap

← → C ch01/ch01-map-controls


**Controls**

- Zoom control
- Attribution control
- Rotate control

Tiles Courtesy of MapQuest © OpenStreetMap contributors.



← → C ch01/ch01-moving-around/



**Navigation**

Pan to a city  
Rome (Italy)

Zoom  
6

Rotation  
0

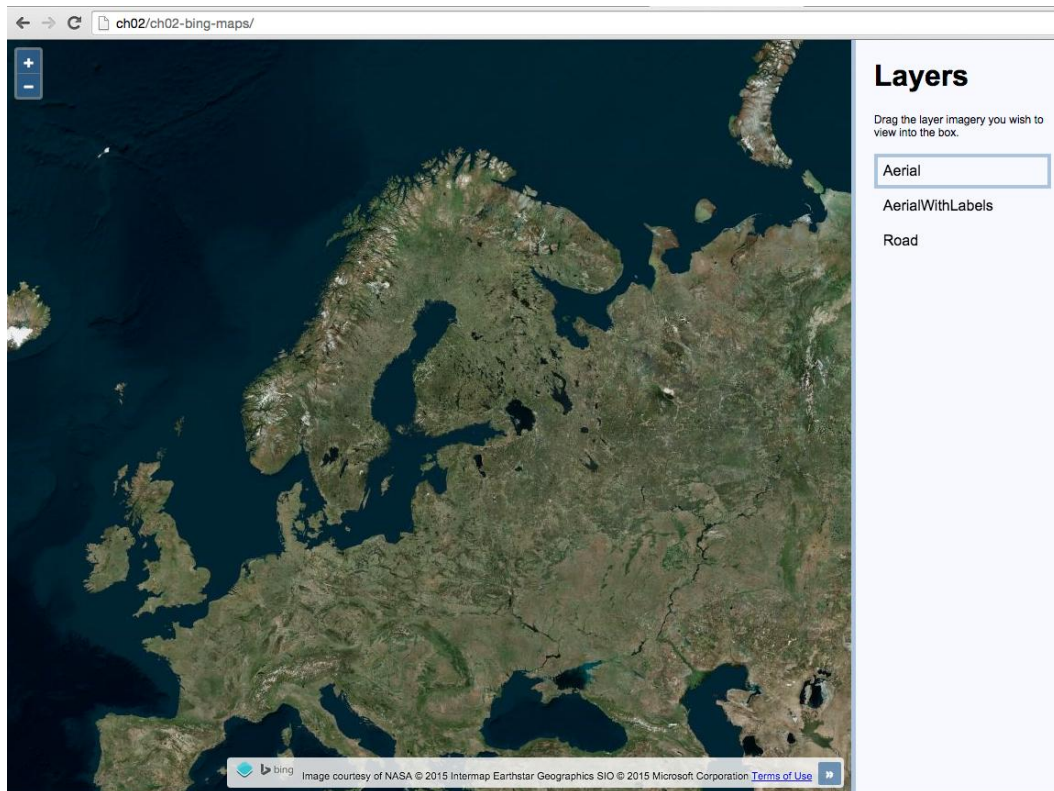
Lon  
12.500

Lat  
41.900

i

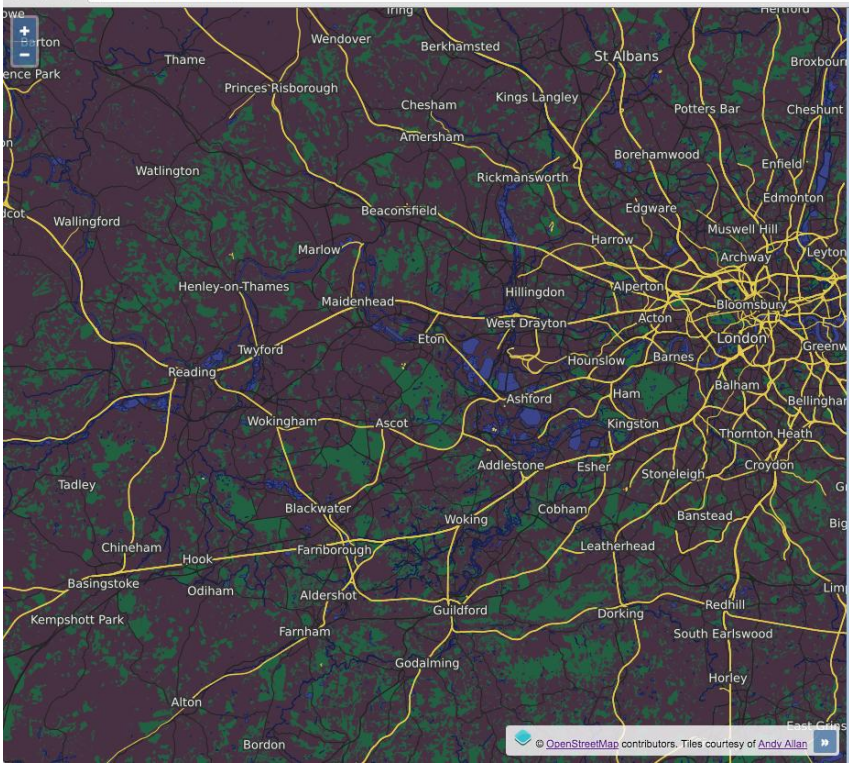


## Chapter 2: Adding Raster Layers





← → C ch02-openstreetmap/

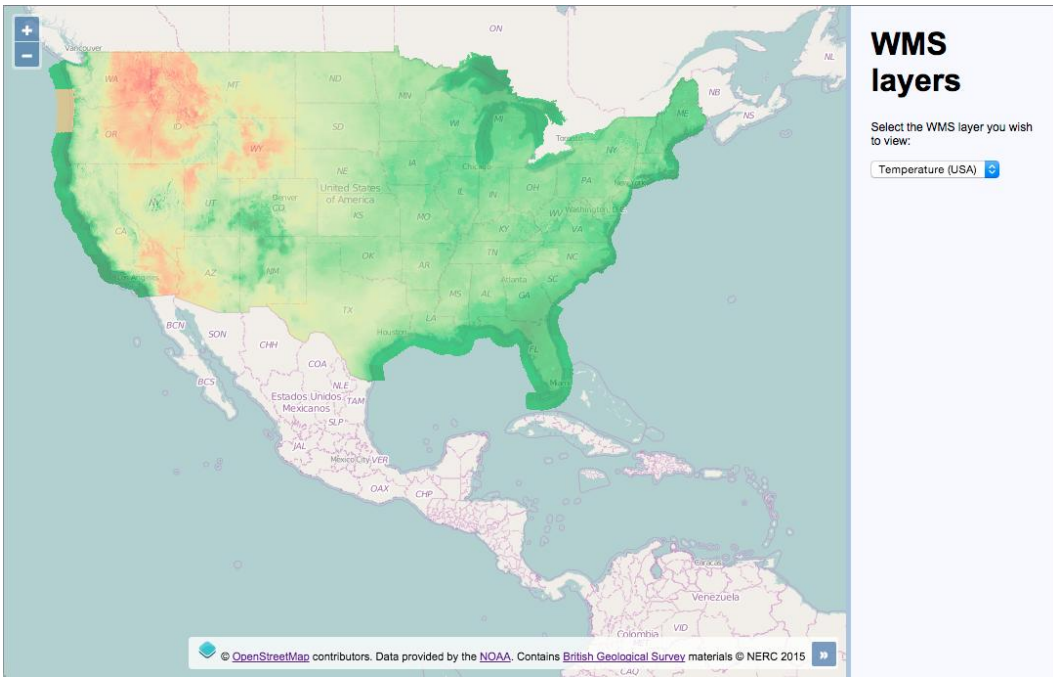


**Layers**

Drag the layer imagery you wish to view into the box.

- Transport Dark OSM
- Humanitarian OSM
- MapQuest OSM

© OpenStreetMap contributors. Tiles courtesy of Andy Allan



← → ↻ ch02/ch02-zoom-effect/


**Zoom effect**

Choose an animation effect:  
inAndOut

Choose a speed:  
1000ms

Bounce?  
Yes

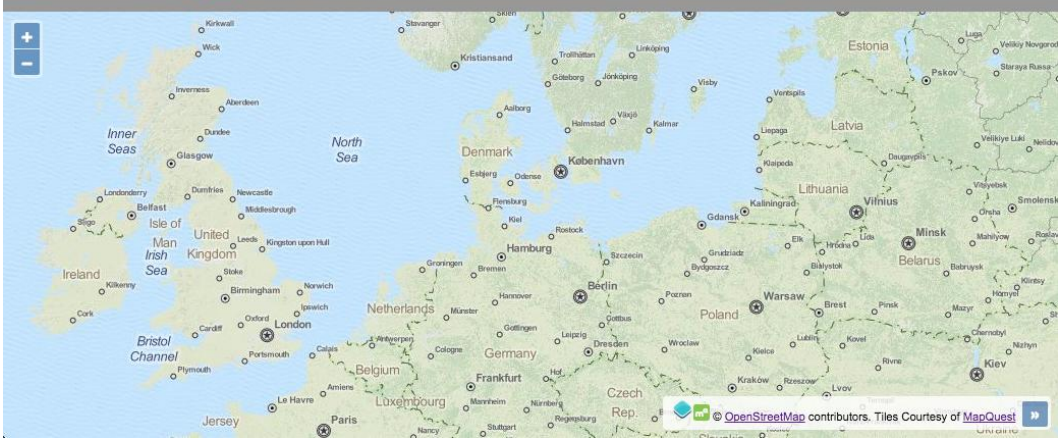
Tiles courtesy of [Humanitarian OpenStreetMap Team](#) © [OpenStreetMap](#) contributors.



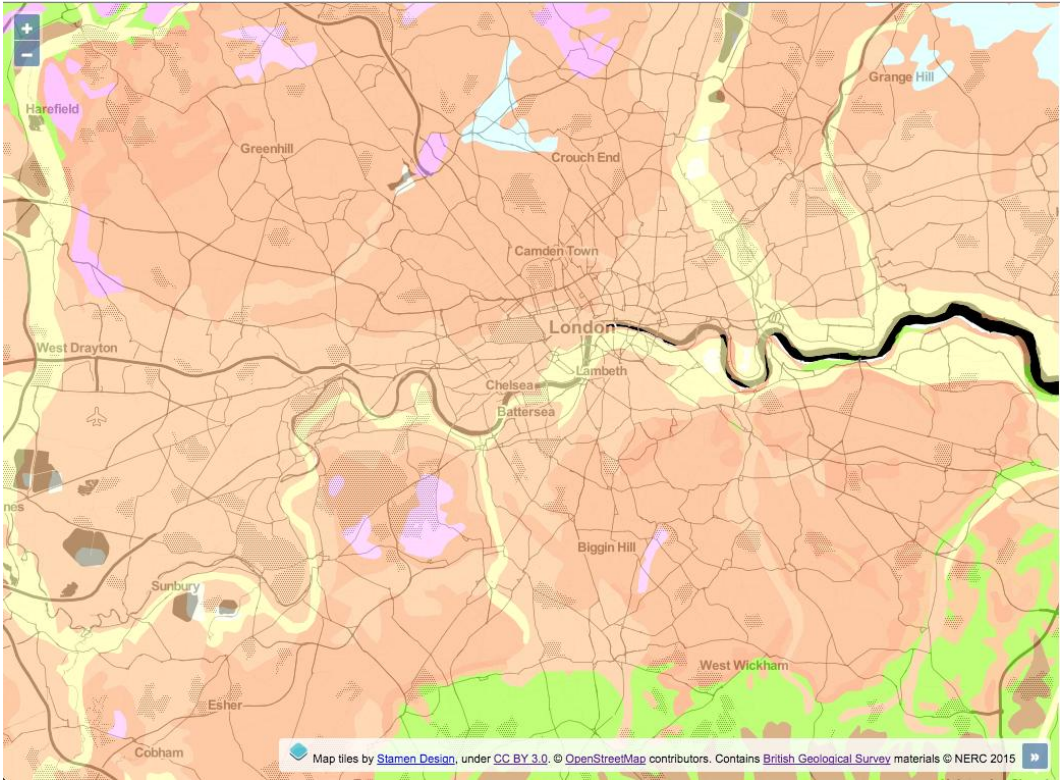
The image shows a map of Northern Italy with a semi-transparent layer overlaid. The map displays major cities such as Torino, Milano, Genova, and Savona, along with a network of roads and geographical features. In the top-left corner, there are zoom-in (+) and zoom-out (-) buttons. On the right side, a control panel titled "Layer opacity" features a slider set to 60%.

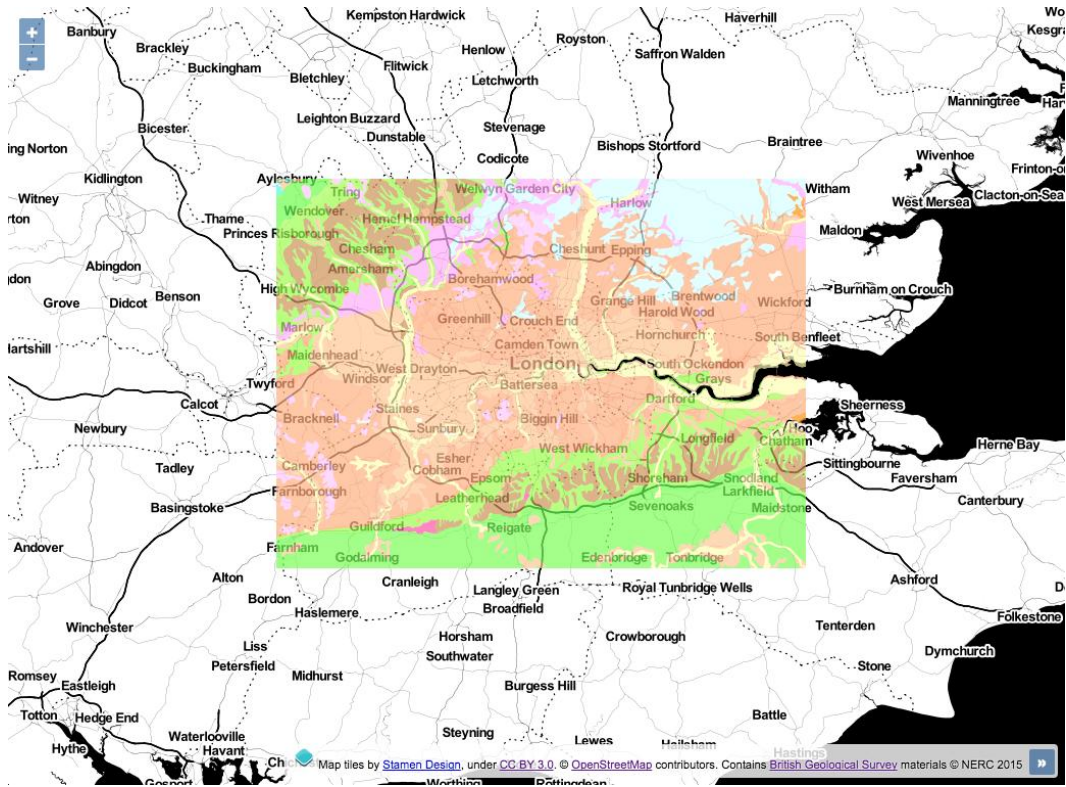
Map tiles by [Stamen Design](#), under [CC BY 3.0](#). © [OpenStreetMap](#) contributors. Tiles courtesy of [Andy Allan](#)



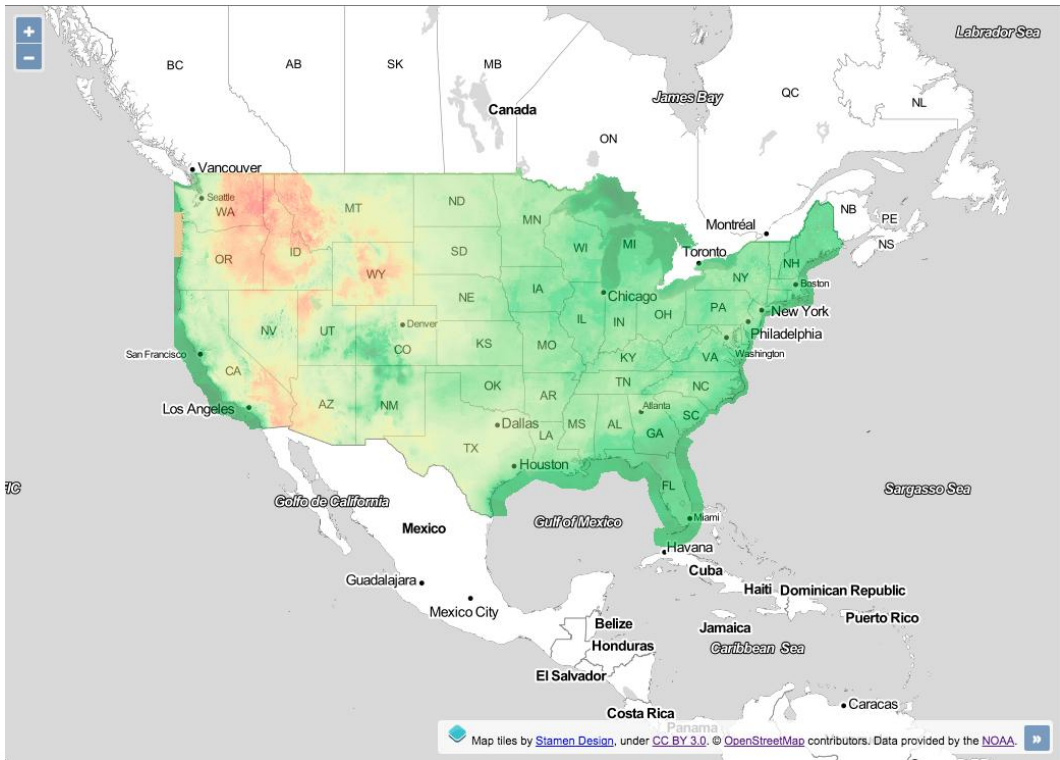




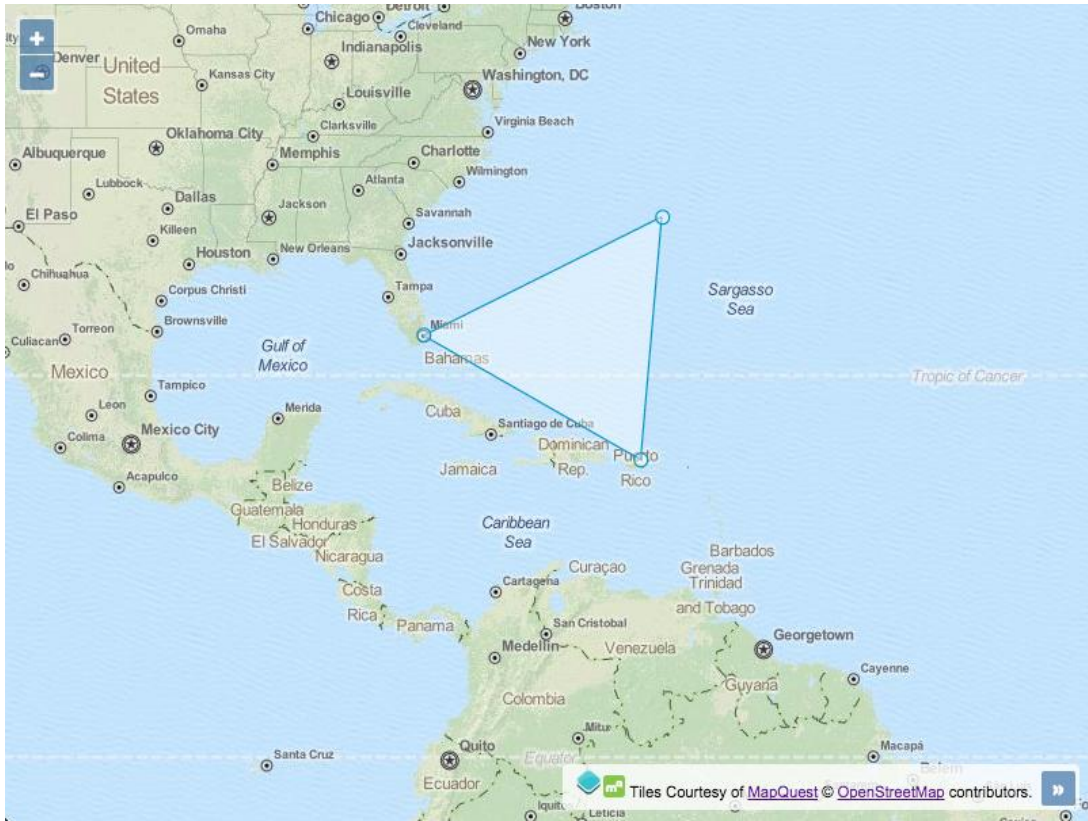


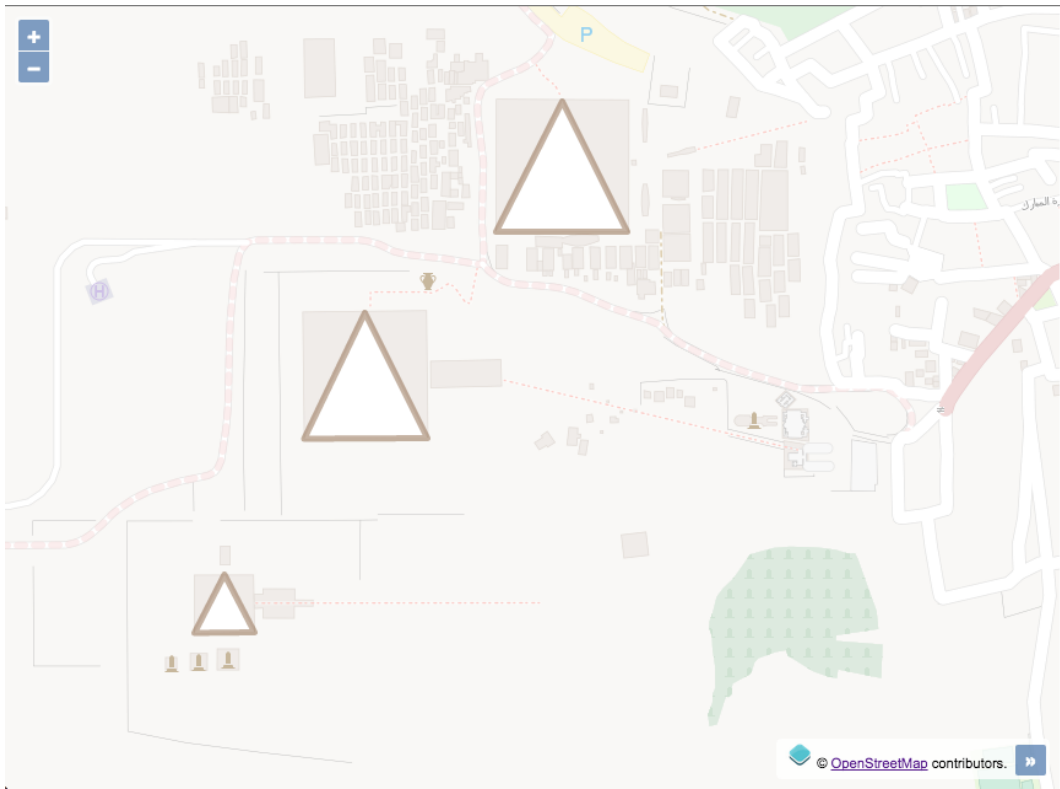






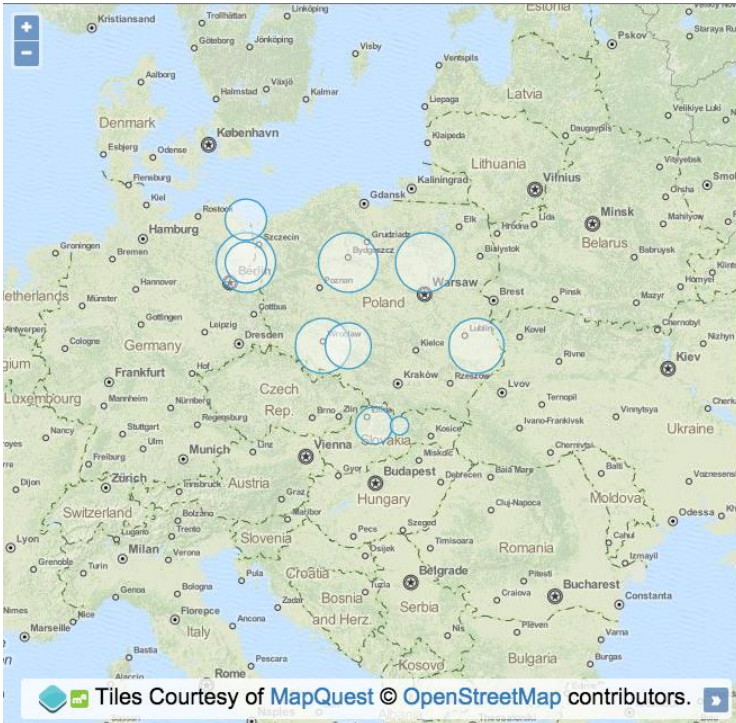
# Chapter 3: Working with Vector Layers







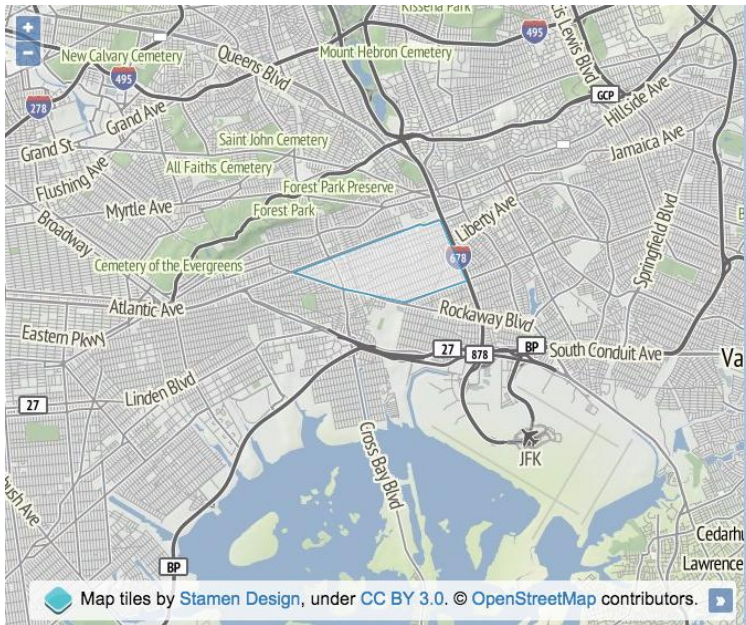




## Exporting GeoJSON

Export layer

```
{
  "type": "FeatureCollection",
  "features": [
    {
      "type": "Feature",
      "geometry": {
        "type": "Polygon",
        "coordinates": [
          [
            [2133750.8342789244, 6982997.920389788],
            [2131252.9207313443, 7008359.662251885],
            [2123855.1735053915, 7032746.76659725],
            [211841.8838782553, 7055222.050682337],
            [2095674.7158331755, 7074921.80194404],
            [2075974.9645714725, 7091088.969989119],
            [2053499.680486386, 7103102.259616256],
            [2029112.576141021, 7110500.006842208],
            [2003750.8342789242, 7112997.920389788]
          ]
        ]
      }
    }
  ]
}
```

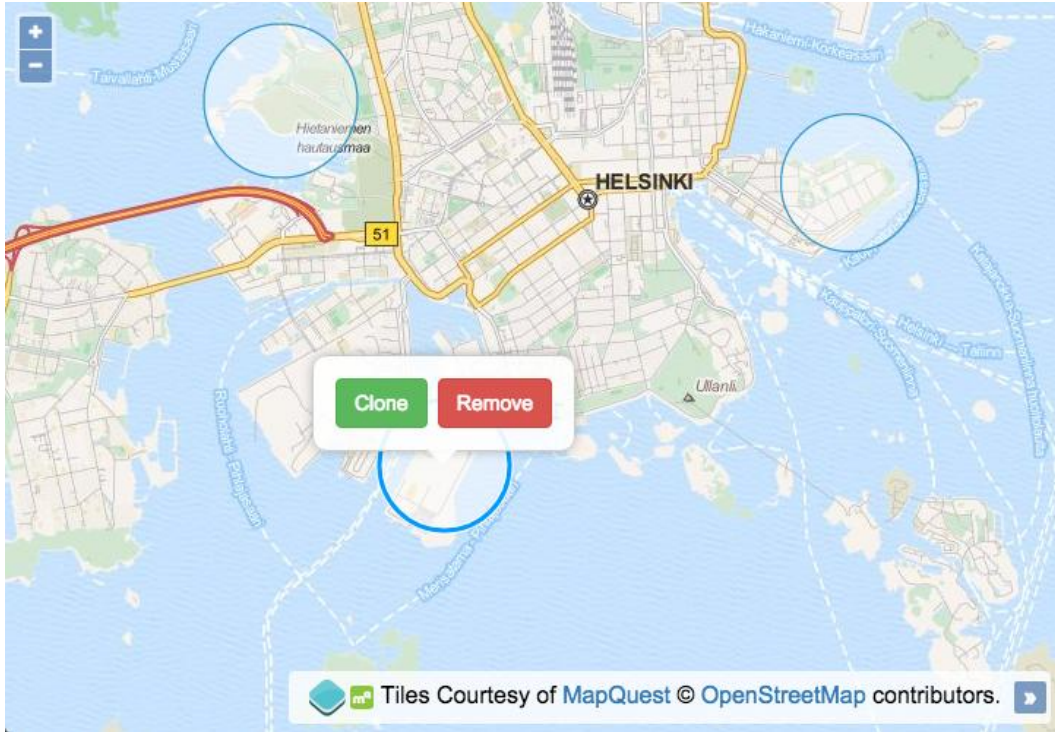


## WKT format

Export layer

```
POLYGON((-8222044.493780339
4965922.635117188,-8217687.58
3168084
4967566.031225319,-8217572.92
7625656
4967527.812711176,-8216999.64
9913518
4967718.905281889,-8216082.40
5574095
4965616.887004048,-8218260.86
0880223
4964890.735235338,-8220324.66
0643922 4965349.357405049))
```





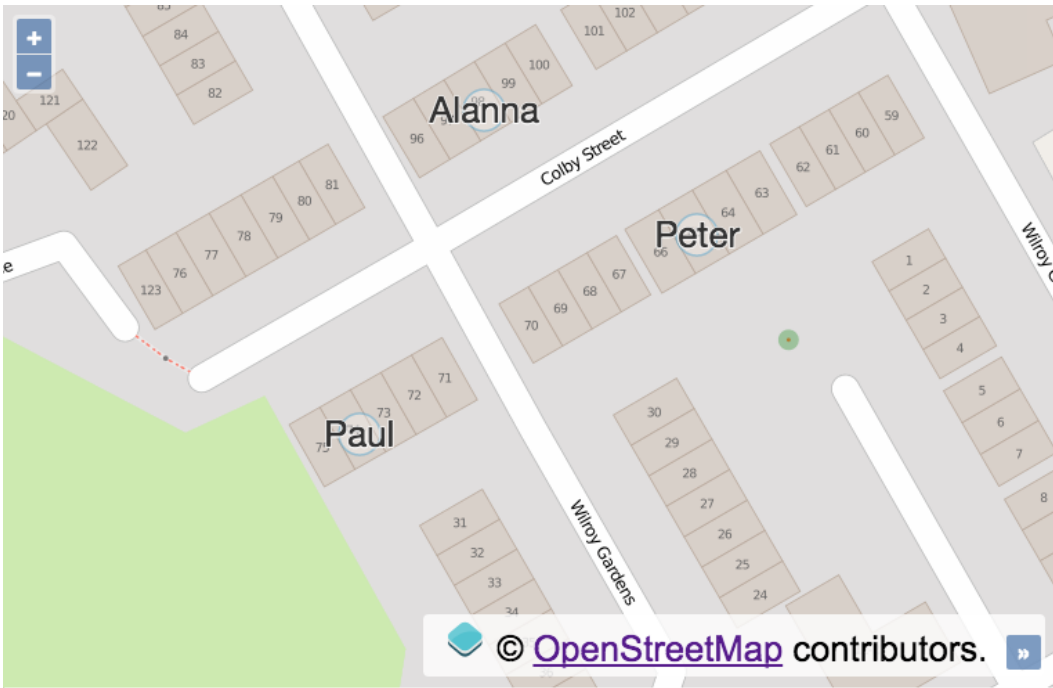


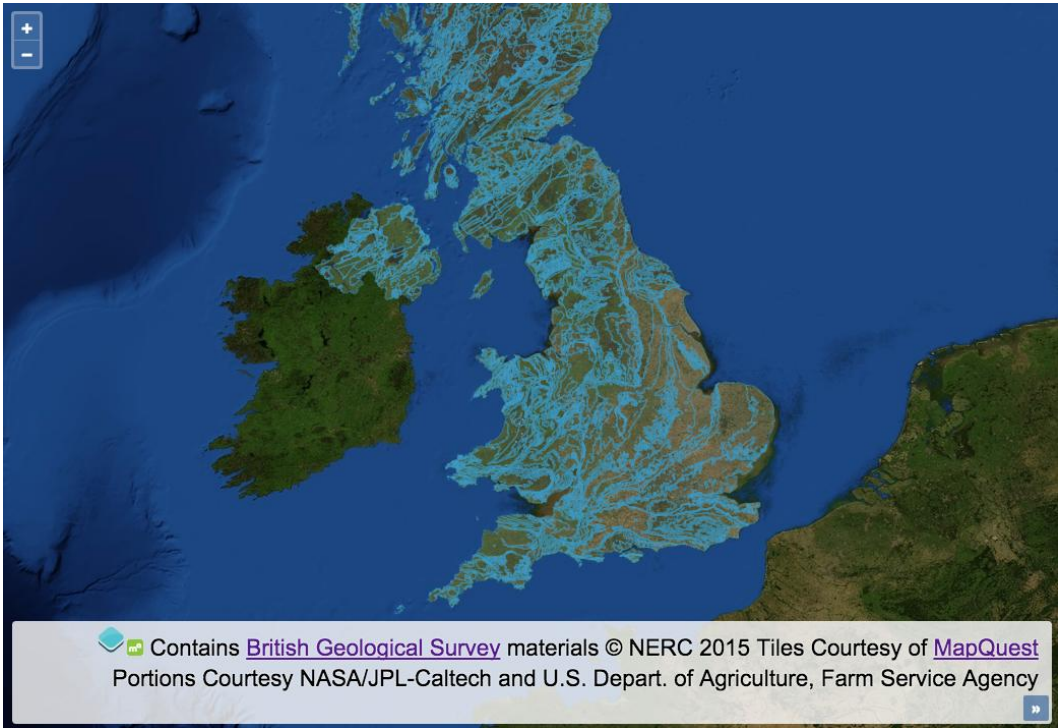


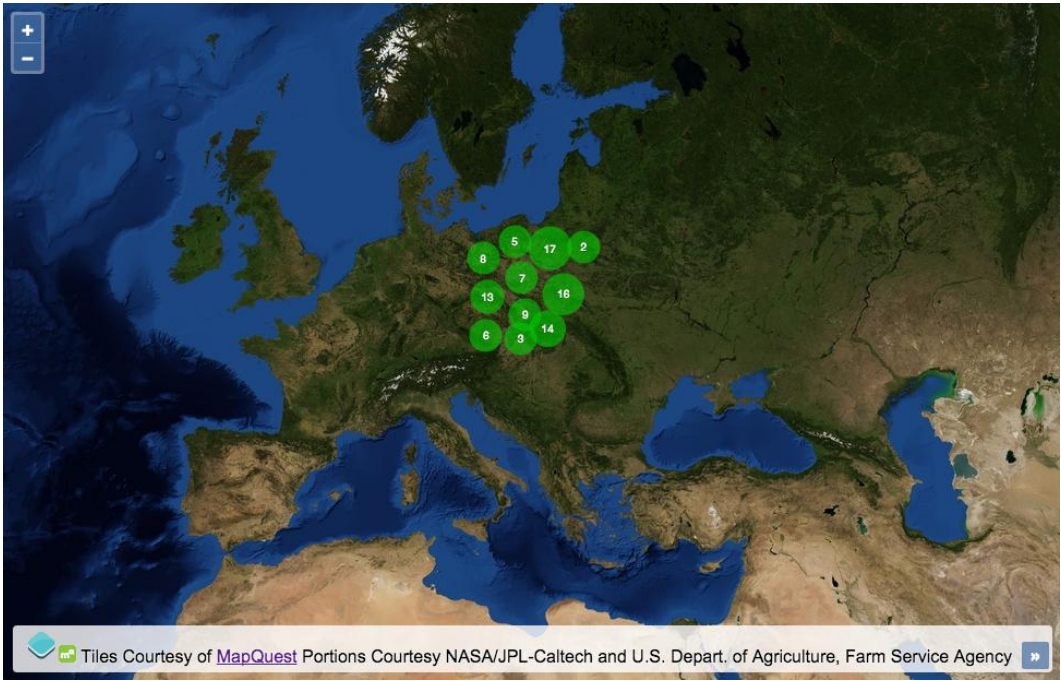
Zoom to  
extent

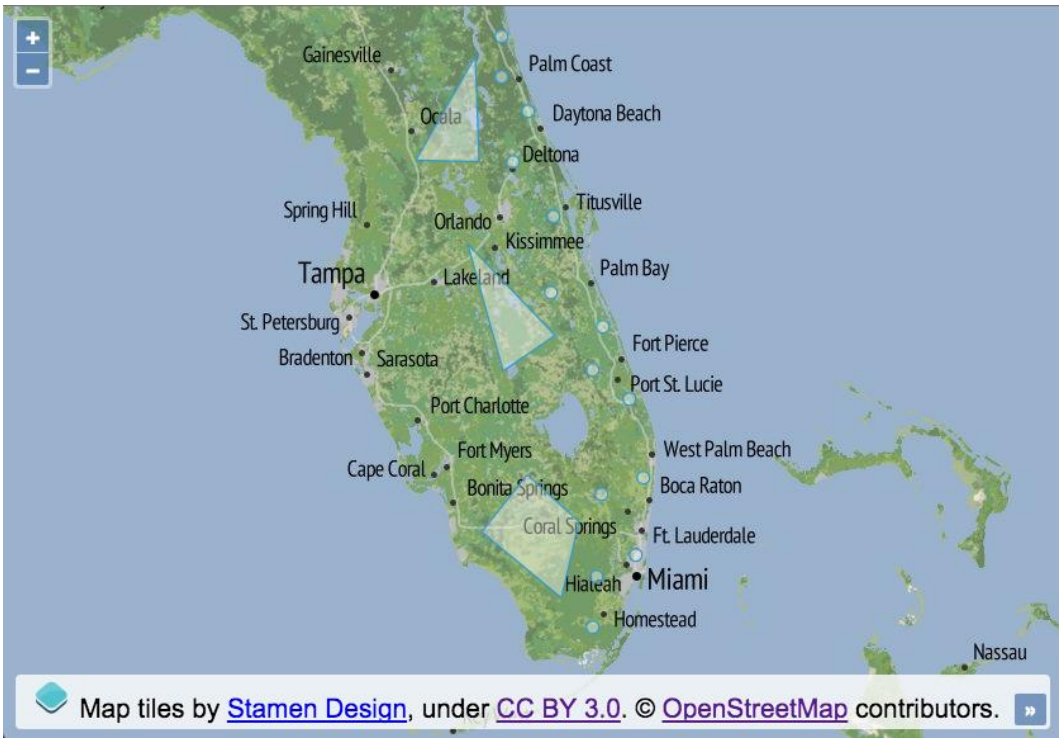
Zoom to extent



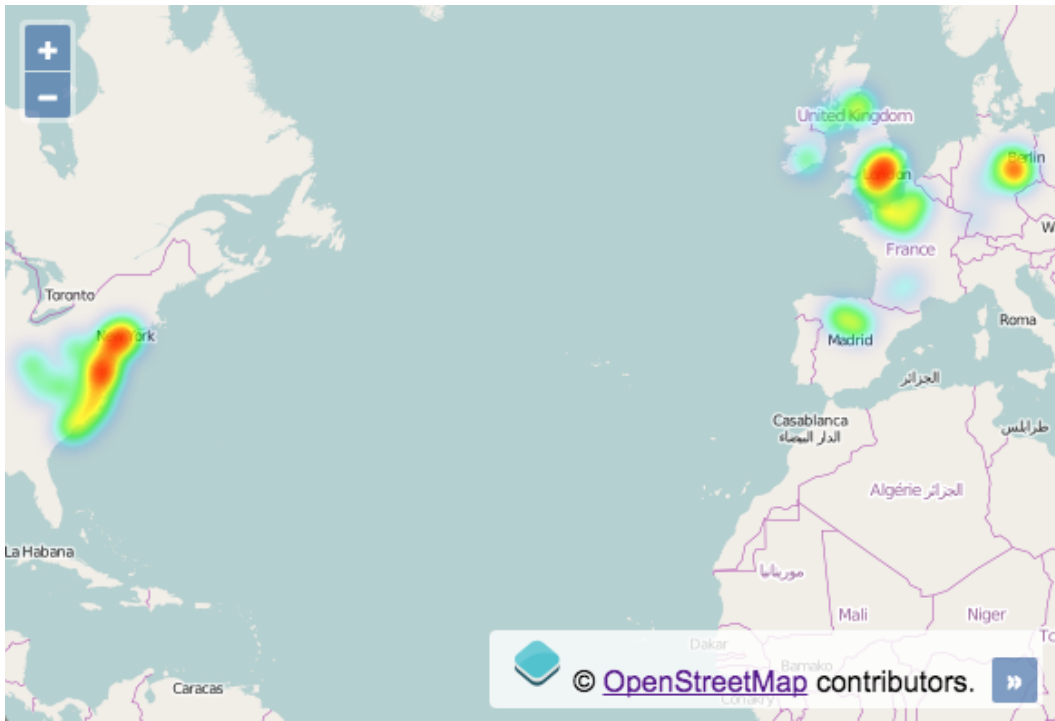




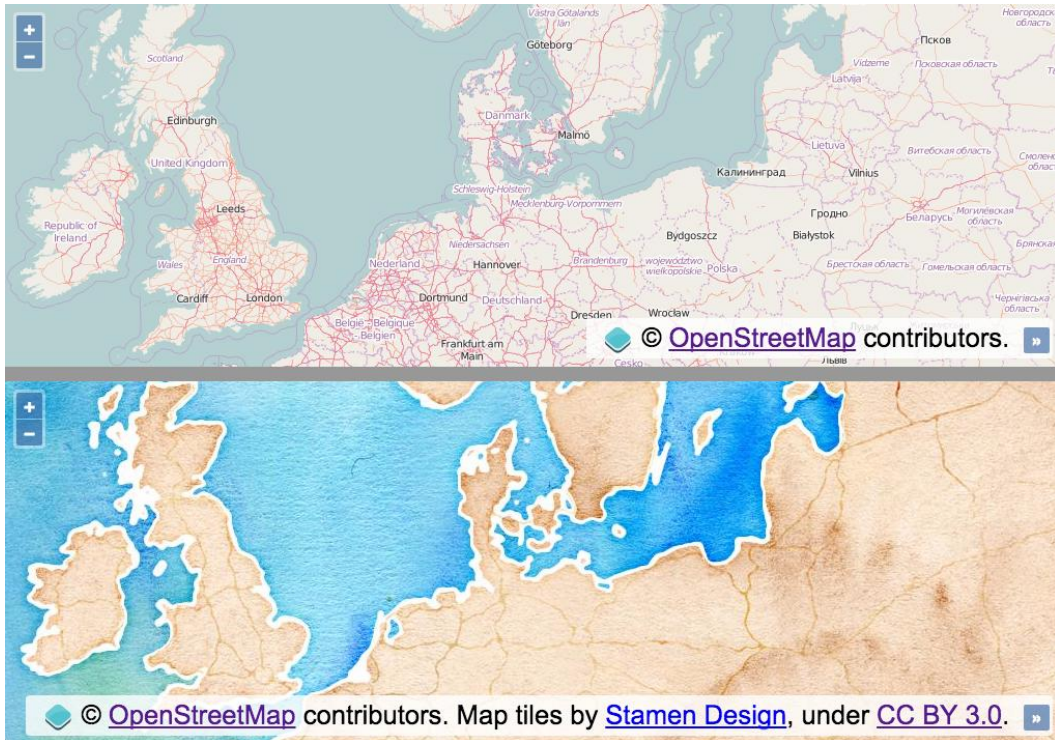


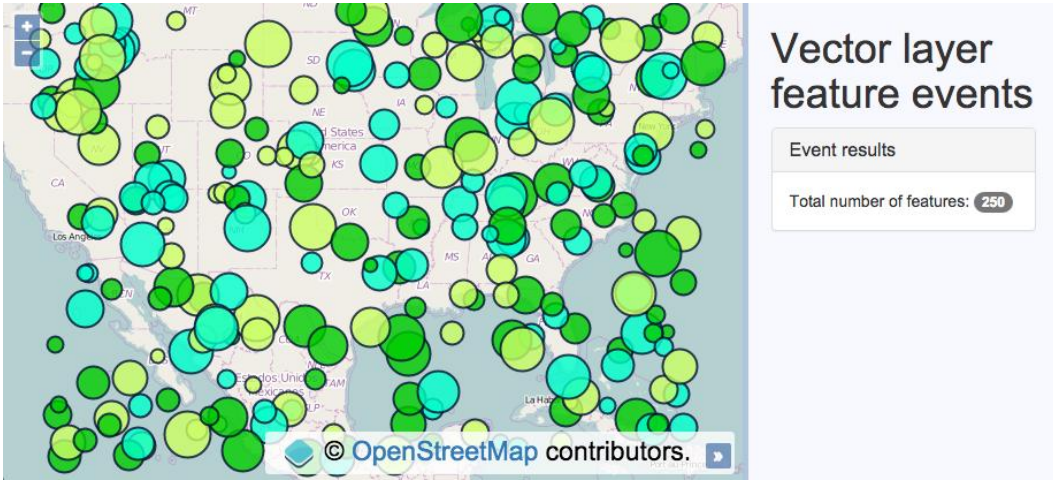


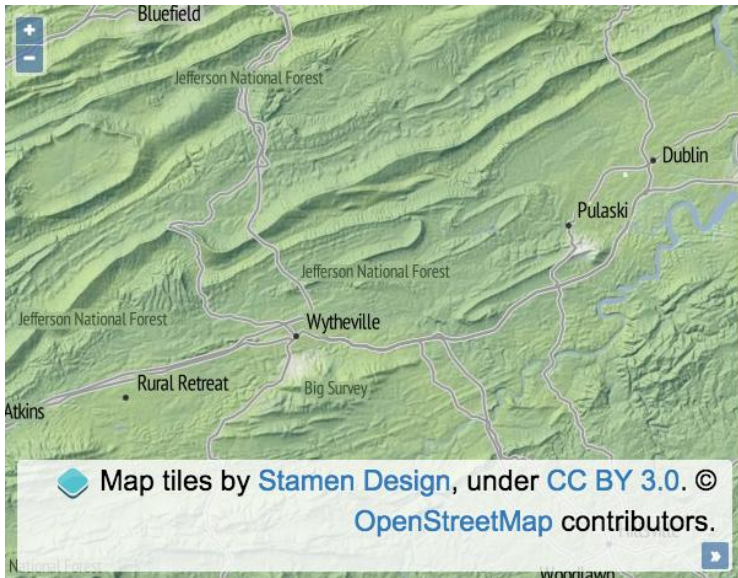




## Chapter 4: Working with Events







## Mouse/touch events

### Event results

#### Current map extent

[ -9062908.65399939,  
4401702.470762538,  
-8971031.34600061,  
4473247.529237462 ]

#### Coordinates at last click

[ -9027748.099677311,  
4450622.408932673 ]

#### Pixels at last click

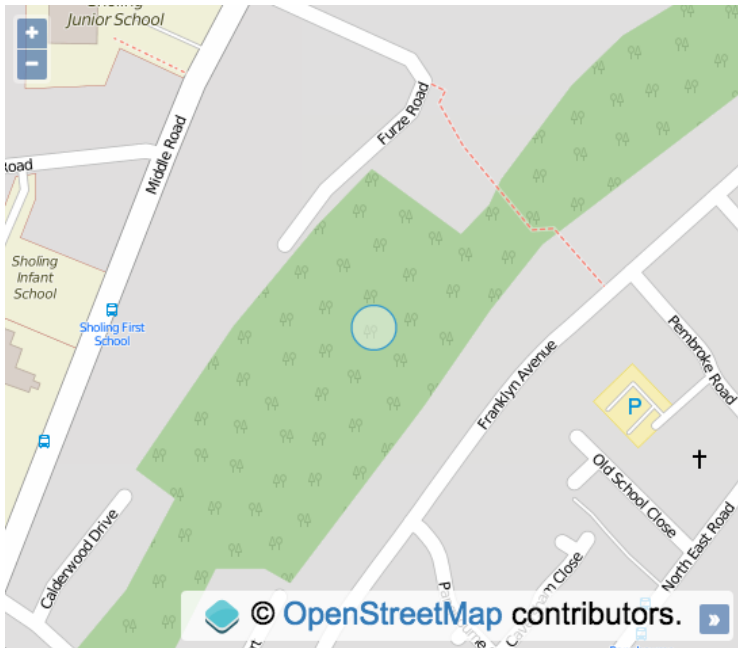
[ 230, 148 ]



## Chapter 5: Adding Controls



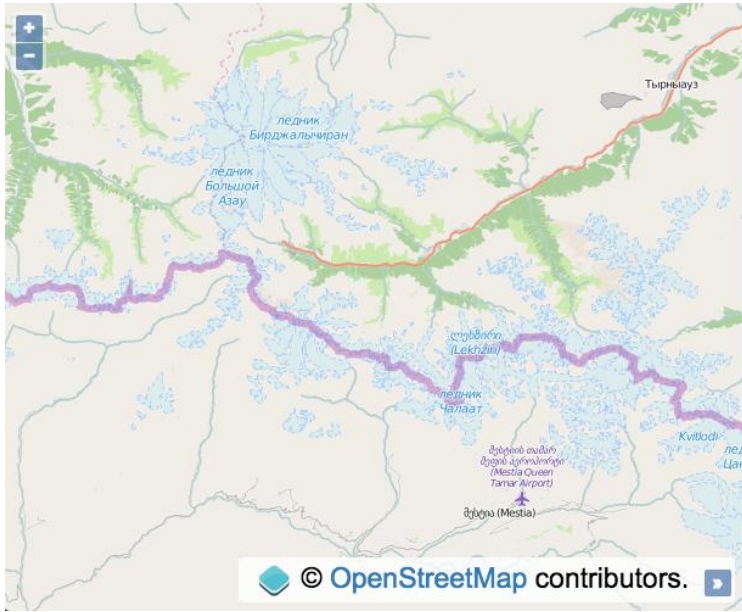
The image displays a web map application interface. The main map shows a geographical area including parts of Turkey, Syria, and Cyprus, with cities like Antalya, Konya, Adana, Aleppo, and Hama labeled. A coordinate pair (4098859.204764291, 4223604.434925699) is visible at the top. The map includes a scale bar for 100 km and an inset map of the region. On the right side, there is a panel titled "Map Controls" with the text "Enable or disable the controls...". Below this text are several green buttons: Attribution, FullScreen, MousePosition, OverviewMap, Rotate, ScaleLine, Zoom, ZoomSlider, and ZoomToExtent. At the bottom of the map area, there is a footer that reads "Tiles Courtesy of MapQuest © OpenStreetMap contributors." with a small arrow icon.



## Geolocation

### Where am I?

- Position:  
[ -150975.890,  
6604584.626 ]
- Speed: 1.080 m/s
- Altitude: 26.286 m
- Heading: 2.749  
degrees



## Map Controls

Zoom to Extent

E

Scale Line

10 km

**Drawing Features**

Layer  
Vector Layer 1

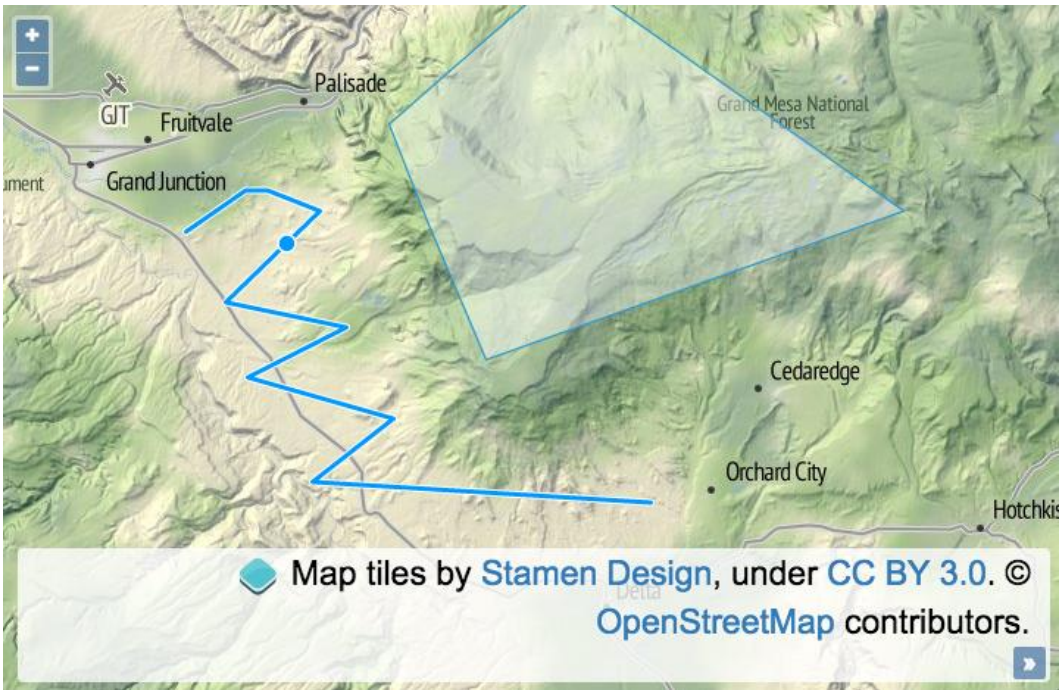
Geometry type

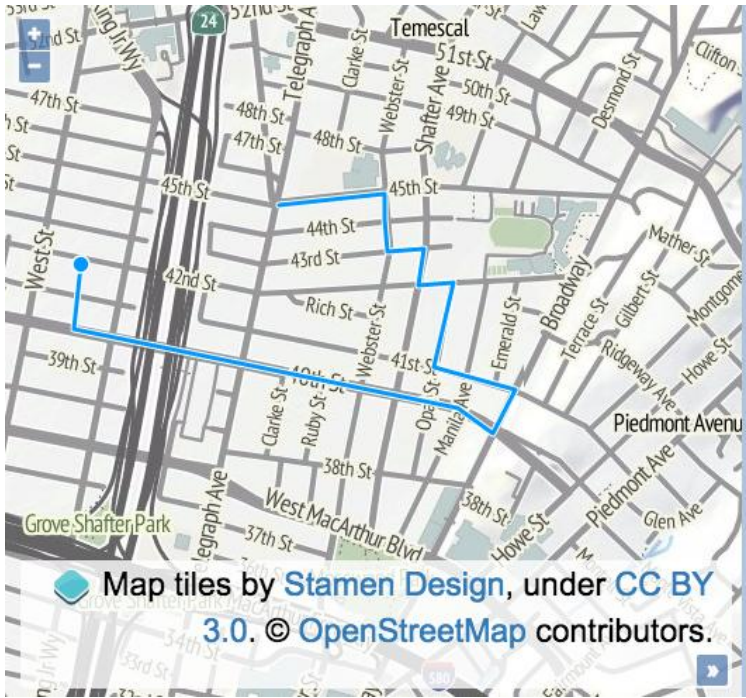
- None
- Point
- LineString
- Polygon
- Circle

Map tiles by **Stamen Design**, under **CC BY 3.0**. © **OpenStreetMap** contributors.

White Sands National  
San Andres National Wildlife Refuge







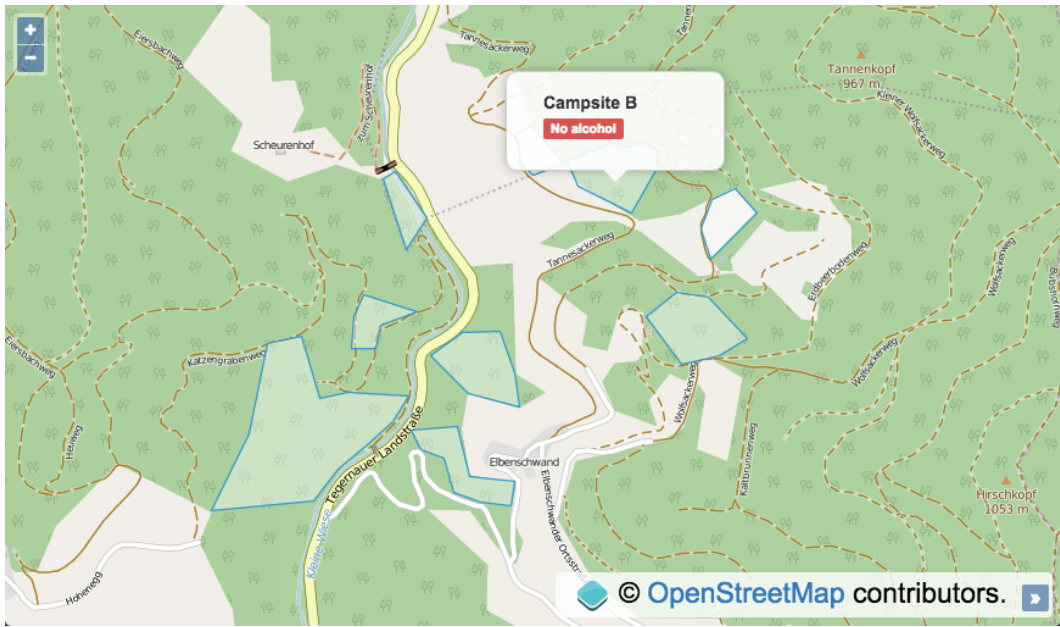
## Measuring

### Measurement type

- Area
- Distance

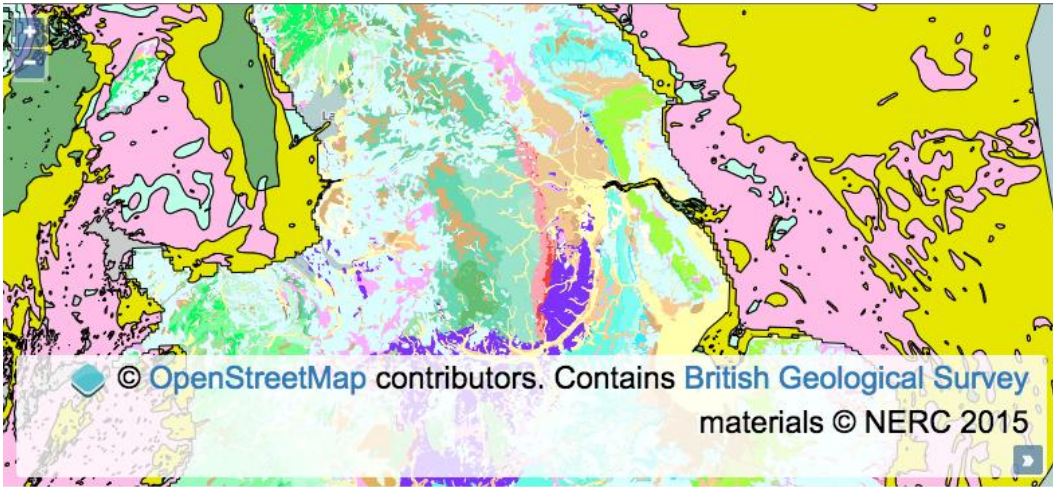
### Result

3.37km



Campsite B  
No alcohol

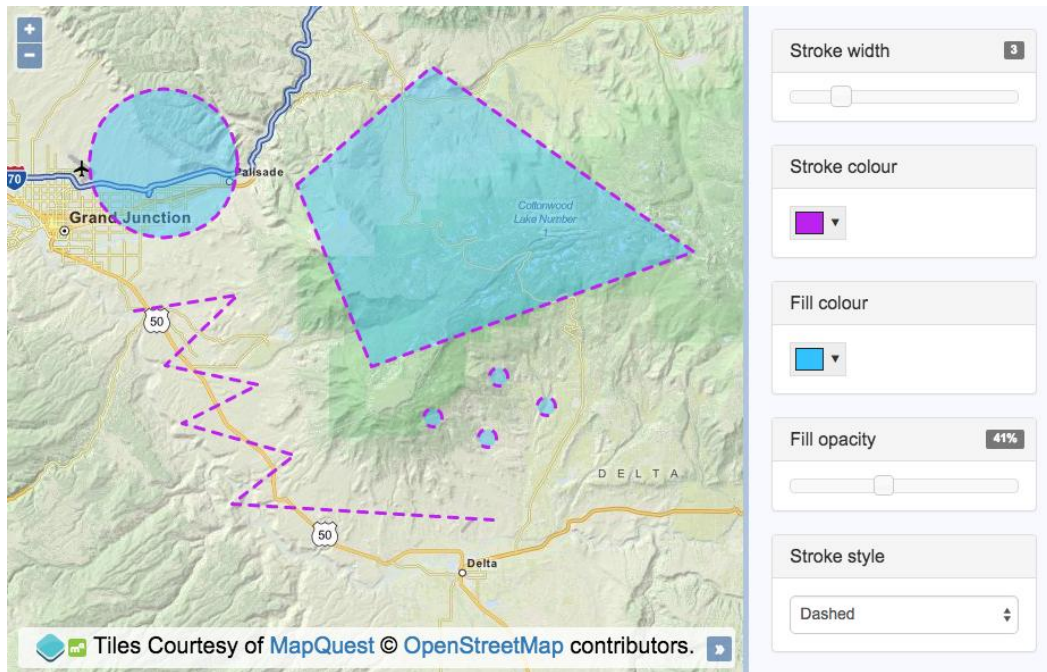
© OpenStreetMap contributors.



Feature Information		
<b>Lithology</b>		
SANDSTONE AND CONGLOMERATE, INTERBEDDED		
<b>Lithostratigraphy</b>	<b>Lithology</b>	<b>Age</b>
LLANDOVERY ROCKS	SANDSTONE AND CONGLOMERATE	LLANDOVERY



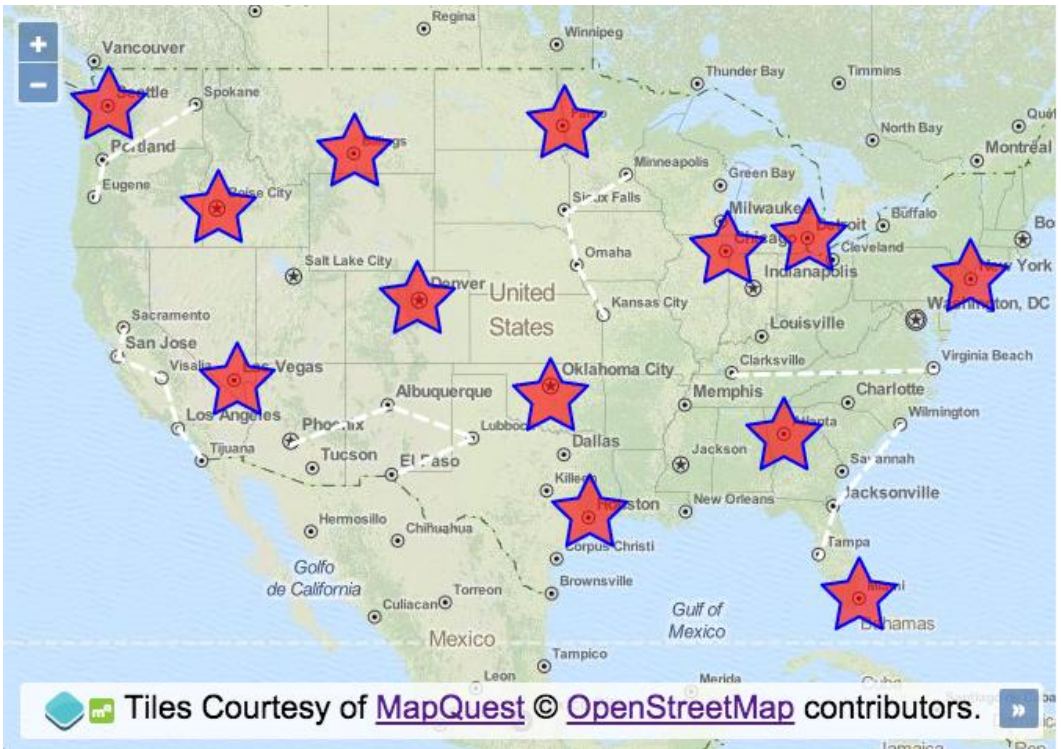
## Chapter 6: Styling Features



The image displays a map styling interface. On the left, a map shows a region with several features: a large polygon filled with light blue and outlined with a dashed purple stroke, a smaller circle also filled with light blue and outlined with a dashed purple stroke, and a road labeled '50'. The map includes labels for 'Grand Junction', 'Palisade', 'Delta', and 'Cottonwood Lake Number'. The bottom of the map area contains the text 'Tiles Courtesy of MapQuest © OpenStreetMap contributors.' with a small logo.

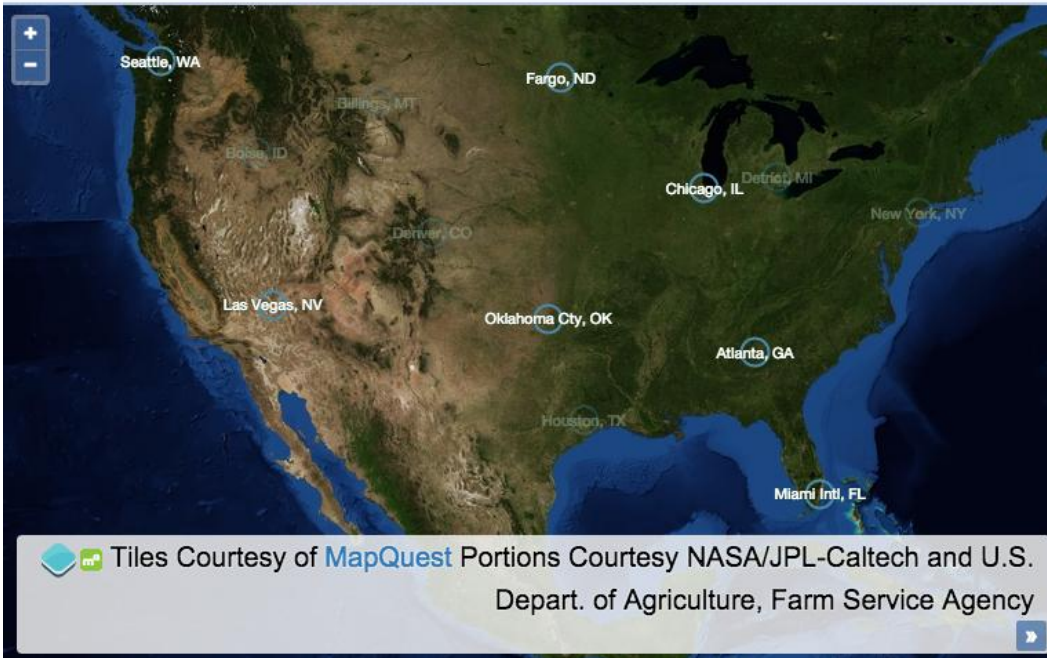
On the right, a styling panel is visible with the following settings:

- Stroke width: 3
- Stroke colour: Purple
- Fill colour: Light blue
- Fill opacity: 41%
- Stroke style: Dashed

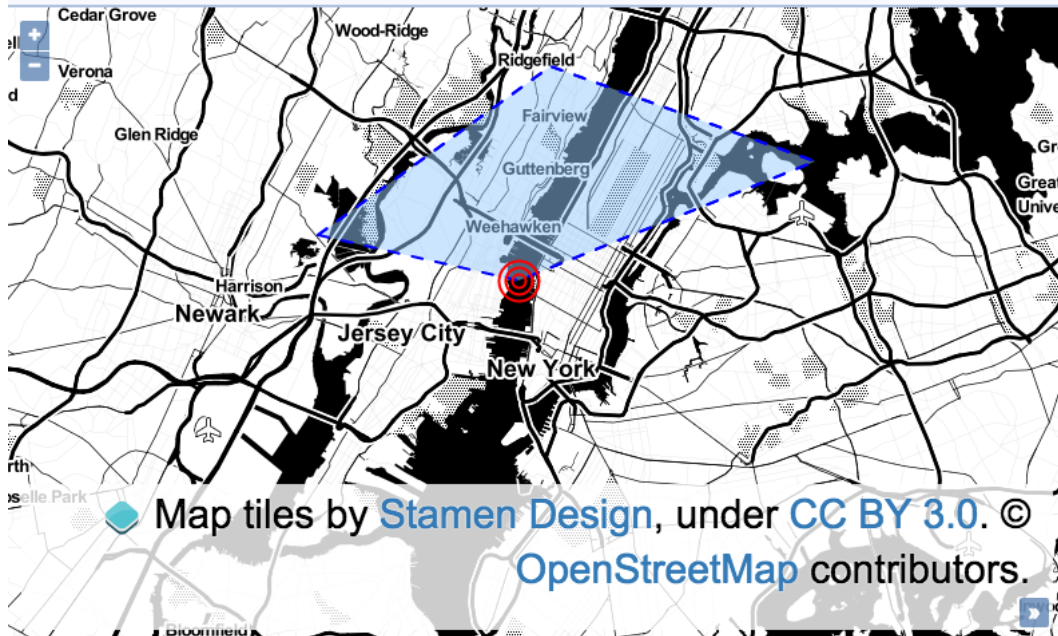


Tiles Courtesy of [MapQuest](#) © [OpenStreetMap](#) contributors.

Filter by city name



Draw or Select Interaction: Draw ↕



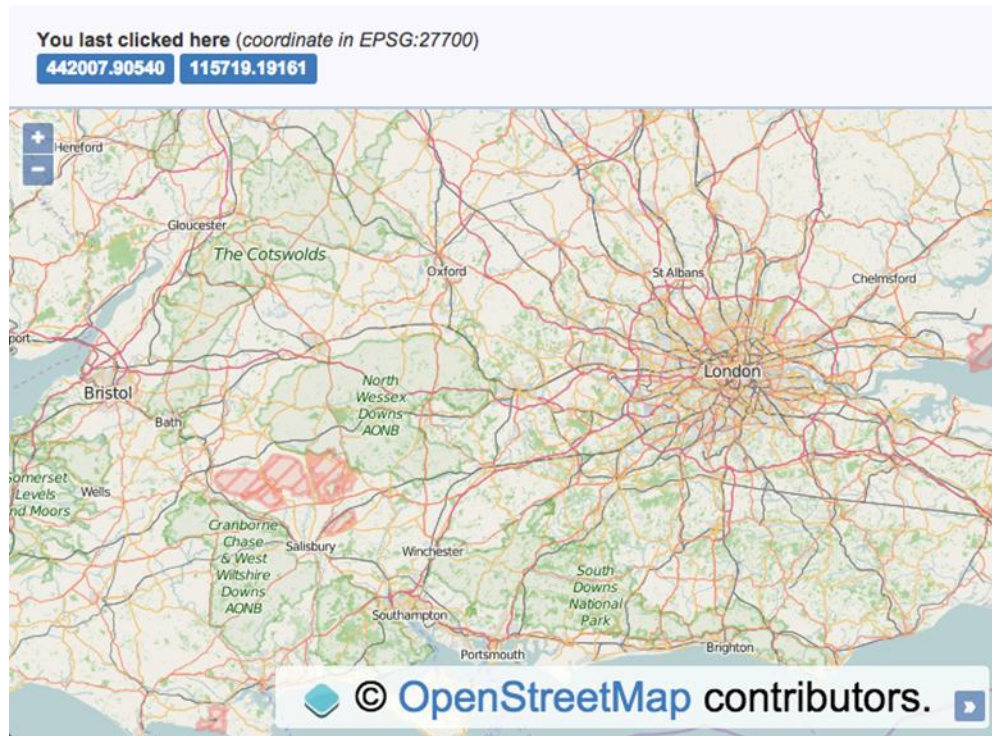
Map tiles by [Stamen Design](#), under [CC BY 3.0](#). © [OpenStreetMap](#) contributors.

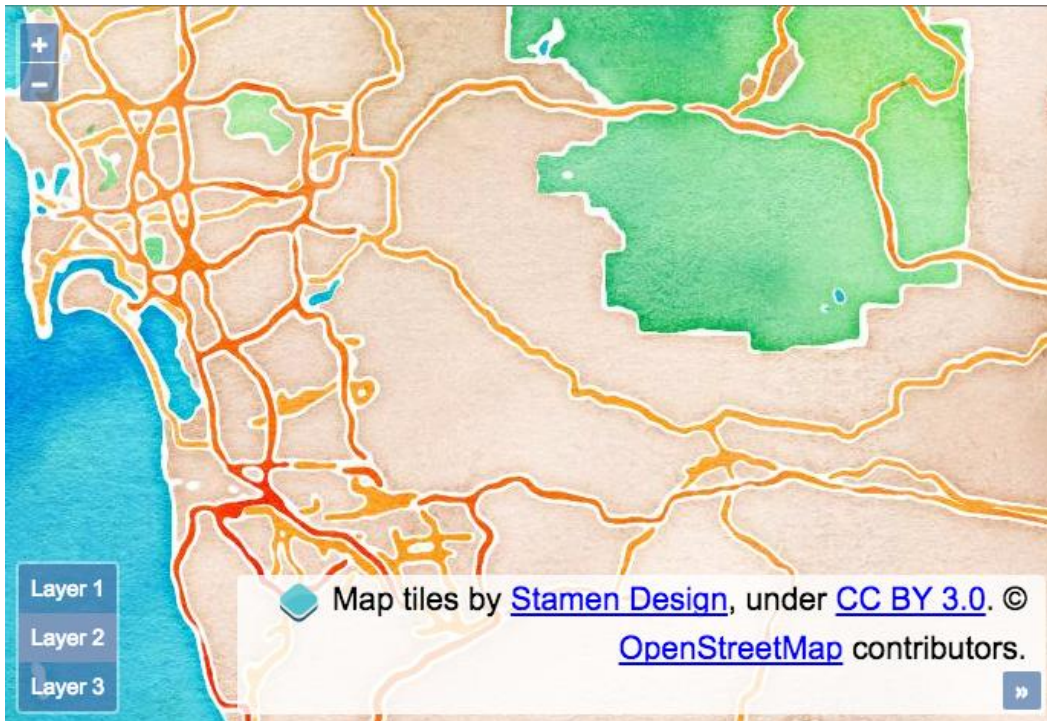




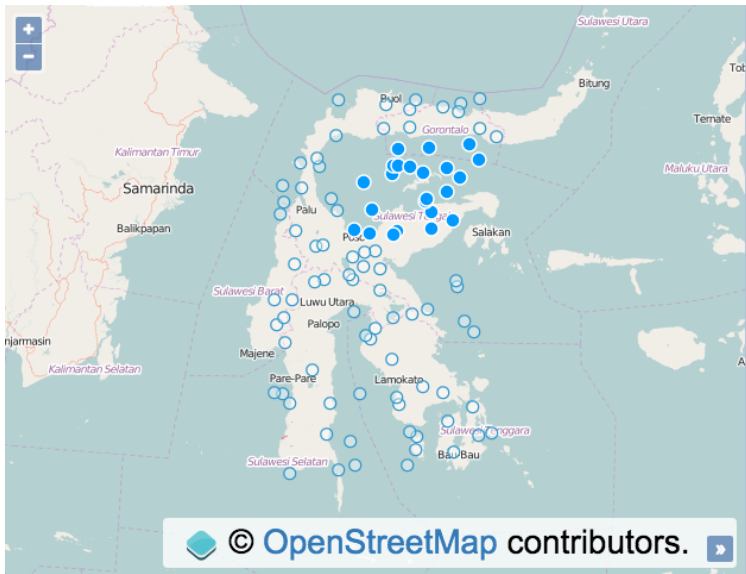


## Chapter 7: Beyond the Basics





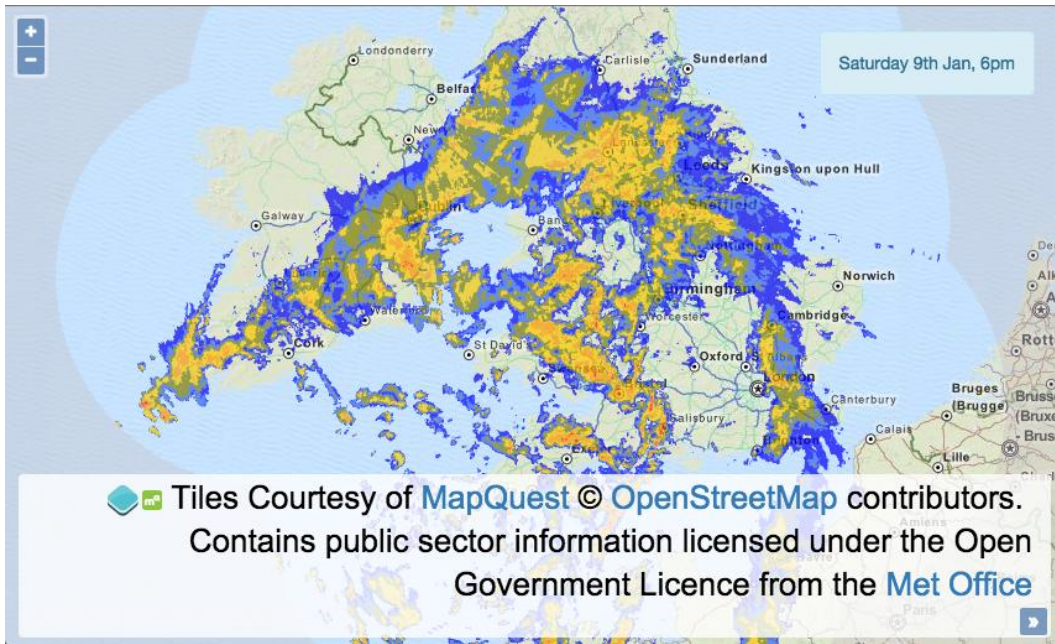
```
▼ <div class="ol-layer-switcher ol-unselectable ol-control">
  ▼ <ul>
    <li data-layer-ref="1">Layer 1</li>
    <li data-layer-ref="2">Layer 2</li>
    <li data-layer-ref="3" class="active">Layer 3</li>
  </ul>
</div>
```



Features selected: 23

Delete selected features

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Convert to circle  Convert to rectangle

