Memanfaatkan GeoServer untuk Aplikasi Kebencanaan

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Latar Belakang

- Saat bencana alam dibutuhkan sebuah sistem informasi geografis yang dapat membantu pengambilan keputusan
- perangkat lunak server untuk mempublikasikan data geospasial

Latar Belakang

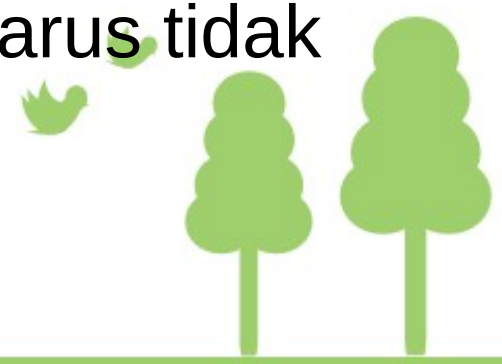
- perangkat lunak destop untuk mengolah data geospasial,
- kemampuan pemrograman (js, python dsb),
- Basis data yang dapat menyimpan dan merepresentasikan data posisi

Latar Belakang

- Pilihannya adalah perangkat lunak proprietary yang mahal (misal ArcGIS, Mapinfo dll) atau perangkat lunak opensource (GeoServer) dengan kemampuan yang mendekati. Pengalaman implementasi, mahalnya perangkat lunak proprietary membuat sistem tidak terawat. Kurangnya kemampuan penguasaan opensource juga mengakibatkan hal yang sama

Latar Belakang

- Untuk kebutuhan kebencanaan maka membuat sistem *fault tolerant* dan *high available* adalah keharusan. Biaya akan berlipat
- Pilihan tempat apakah *on-premise* atau *cloud based.* Jika *on-premise* maka bangunan harus tahan gempa, jika *cloud based* maka koneksi internet harus tidak putus saat bencana



Map Viewer

- Simple project that very helpful if we want to showing our spatial map data like :
  - Point
  - Polyline
  - Polygon
  - or Raster Data

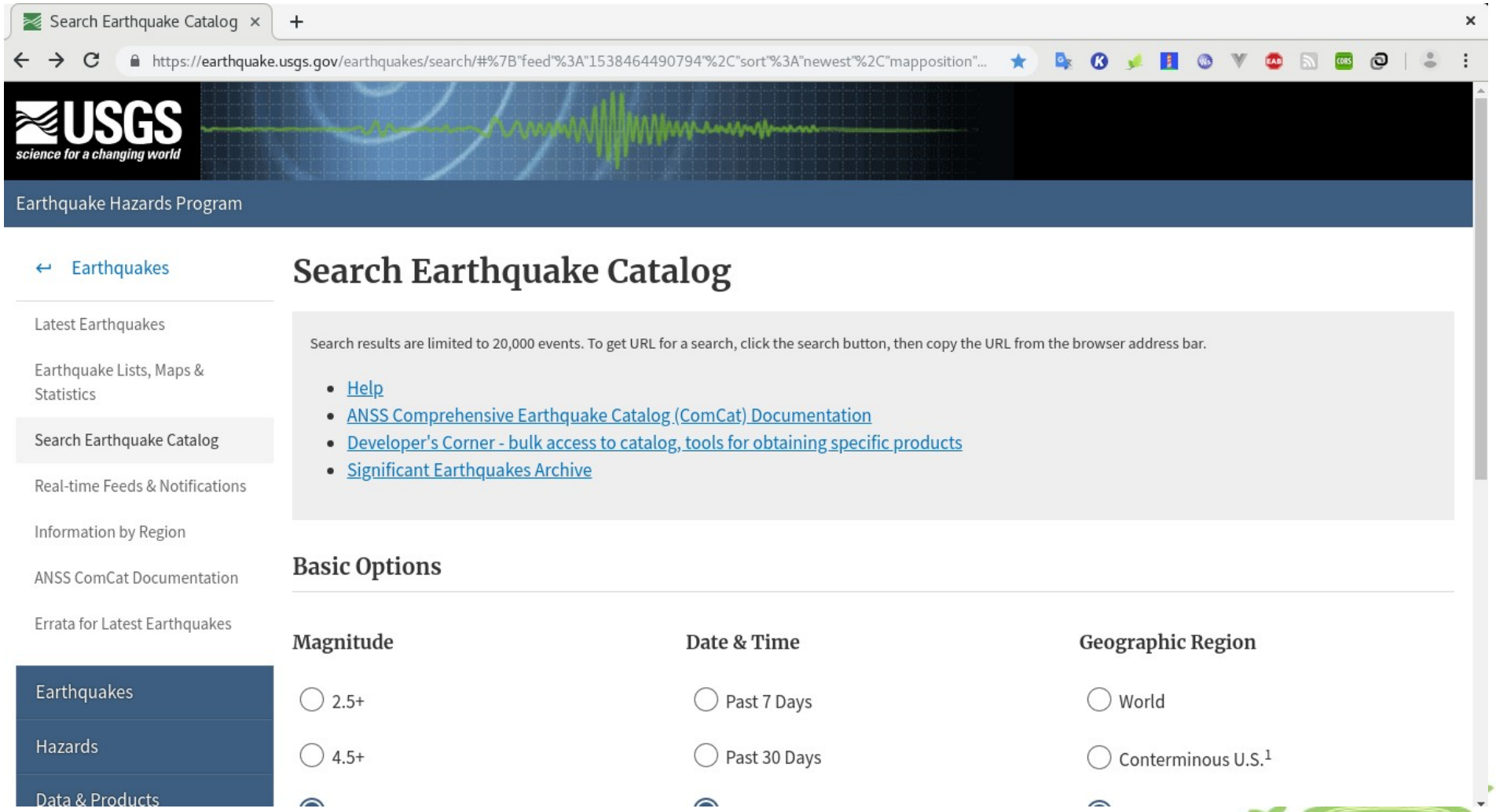
What we need before

- Server requirement :
  - openSUSE_Leap_15.0 / openSUSE_Leap_42.2 openSUSE_Leap_42.3
  - Geoserver : an open source server for sharing geospatial data
  - Postgresql with Postgis Extension *(for geom data type)*
  - Node js for base webapp

- Example Spatial Data from :
  - Digital Globe (https://www.digitalglobe.com) | **Disaster Data**
  - NOAA (https://www.noaa.gov) | **Tsunami Data**
  - VONA (https://magma.vsi.esdm.go.id/vona/) | **Eruption Data**
  - USGS (https://earthquake.usgs.gov) | **Earthquake Data**

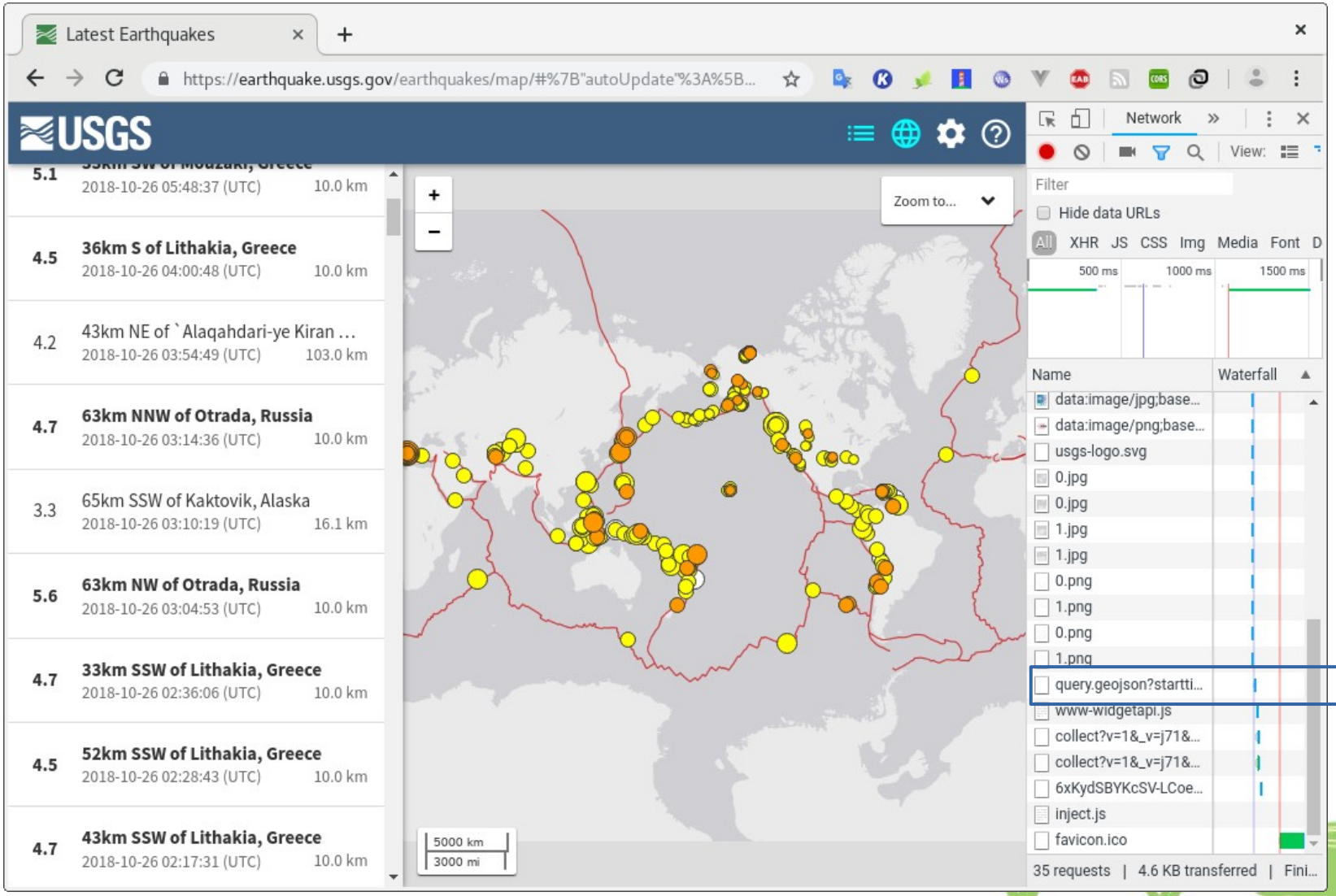
Preparing Data From GeoJSON
Example

Start the query Data Earthquake



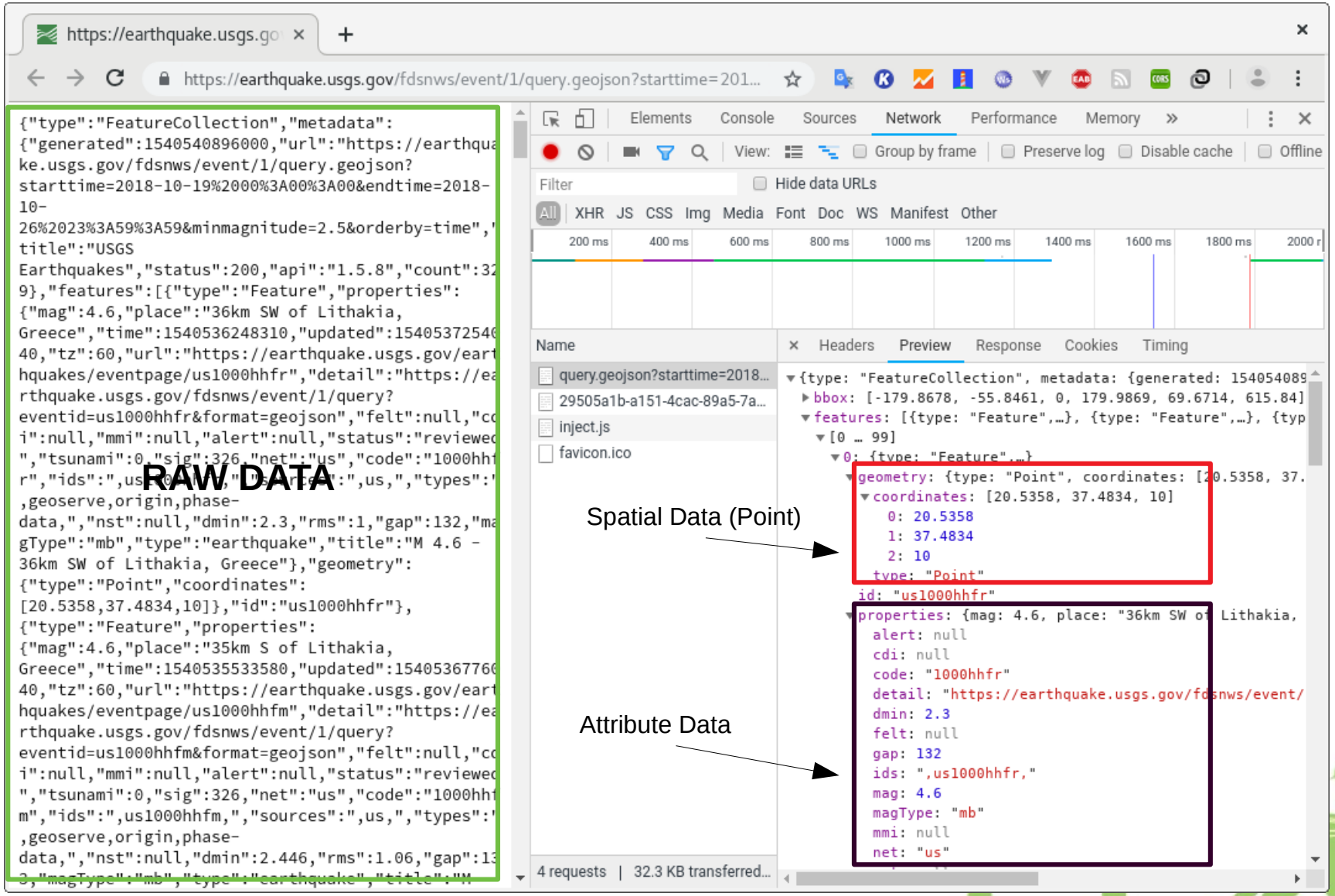
https://earthquake.usgs.gov/earthquakes/search/

Inspect Network and Find GeoJSON Data



https://earthquake.usgs.gov/earthquakes/search/

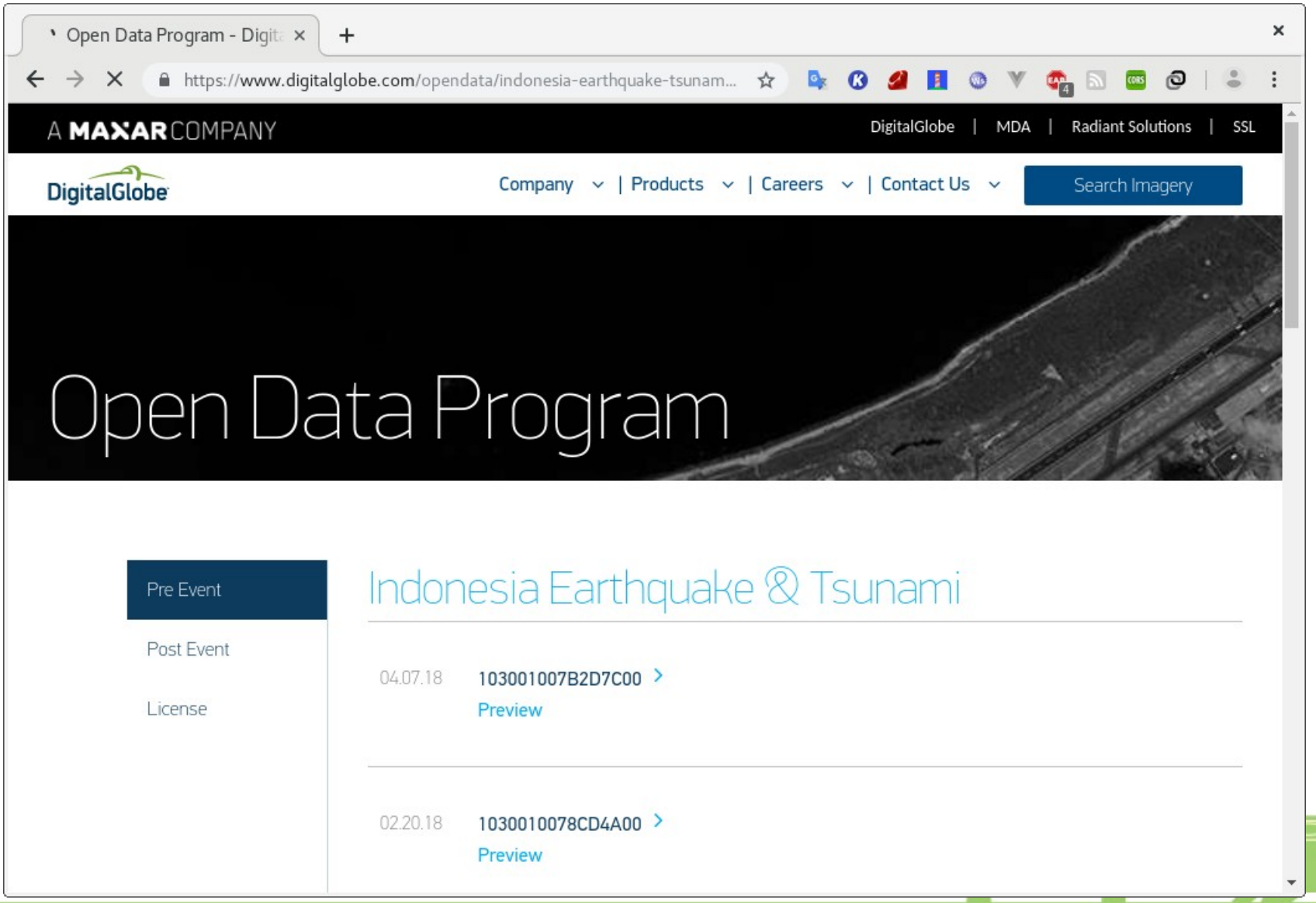
Preparing the DB table by attribute + geom



https://earthquake.usgs.gov/earthquakes/search/

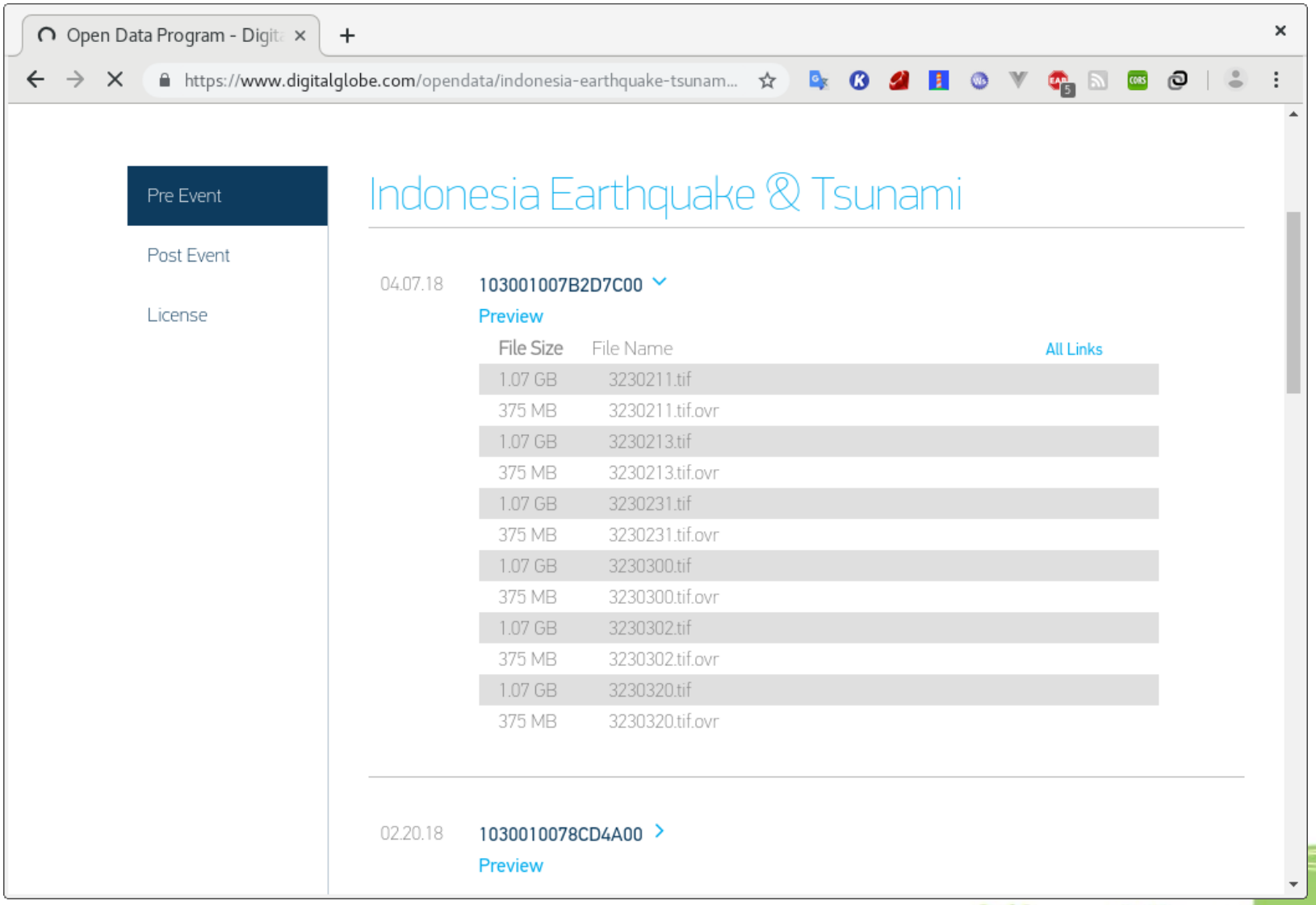
Preparing Data From GeoTIFF
Example

Open Data Digital Globe Website



https://www.digitalglobe.com/opendata/indonesia-earthquake-tsunami

Choose what you want and DOWNLOAD it



https://www.digitalglobe.com/opendata/indonesia-earthquake-tsunami

Installing
Geoserver package

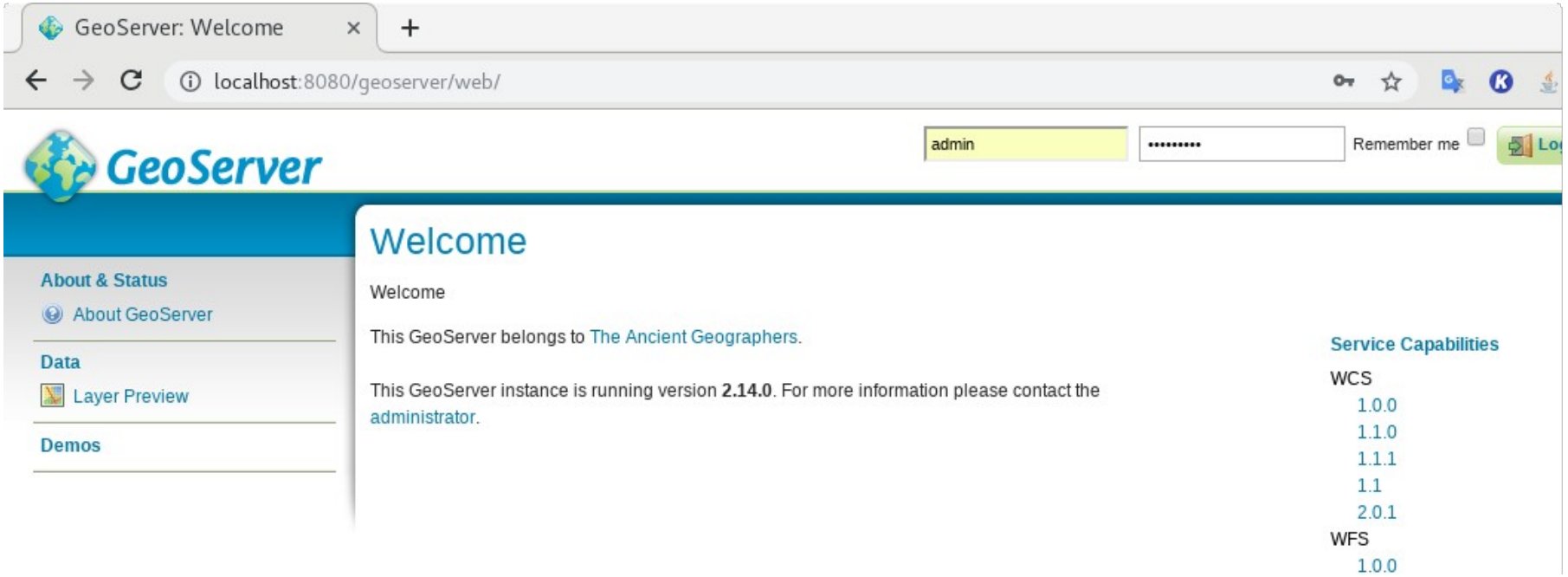
Installing Geoserver

- Add repository from

  http://download.opensuse.org/repositories/home:/medwin/BASE_OPENSUSE_VERSION
- $ sudo zypper update
- $ sudo zypper install geoserver
- $ sudo systemctl start geoserver

- Check in browser at http://localhost:8080/geoserver

Geoserver Page



Default account is **admin** with password is **geoserver**

Common Geoserver Structure

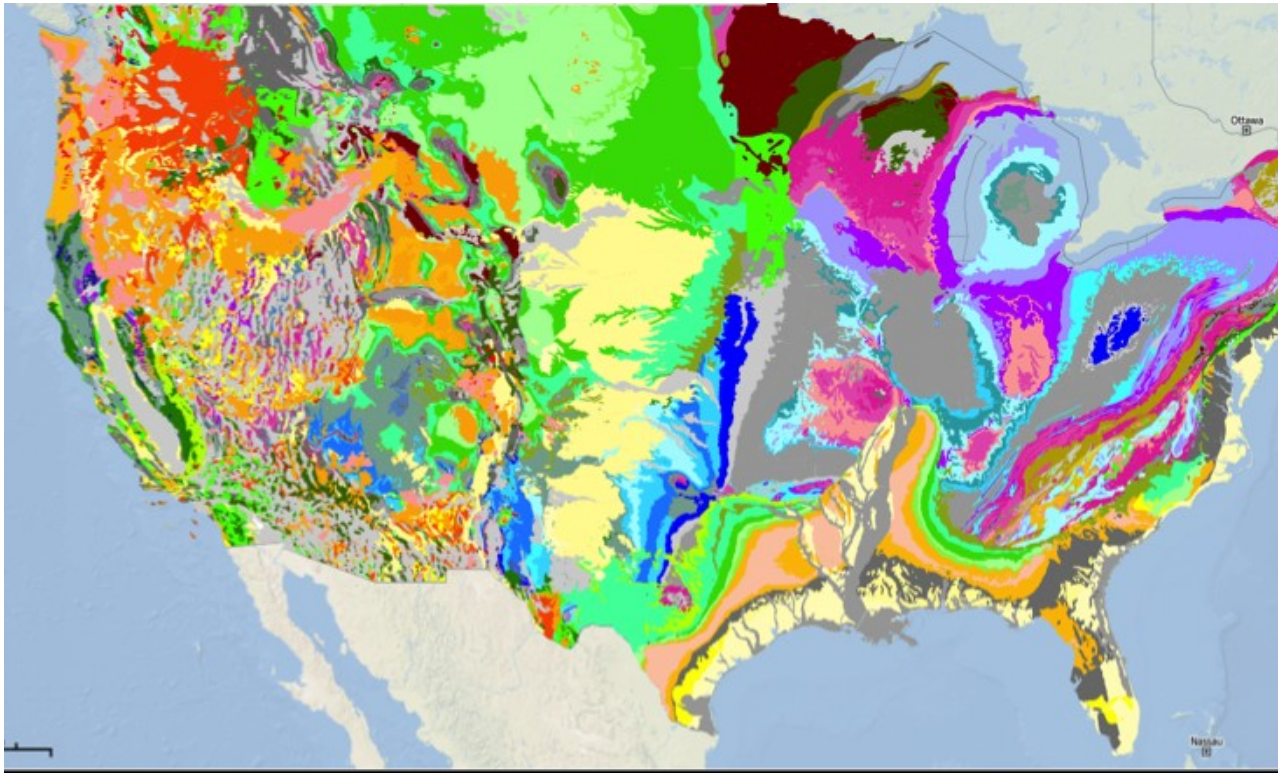
Workspace

Store

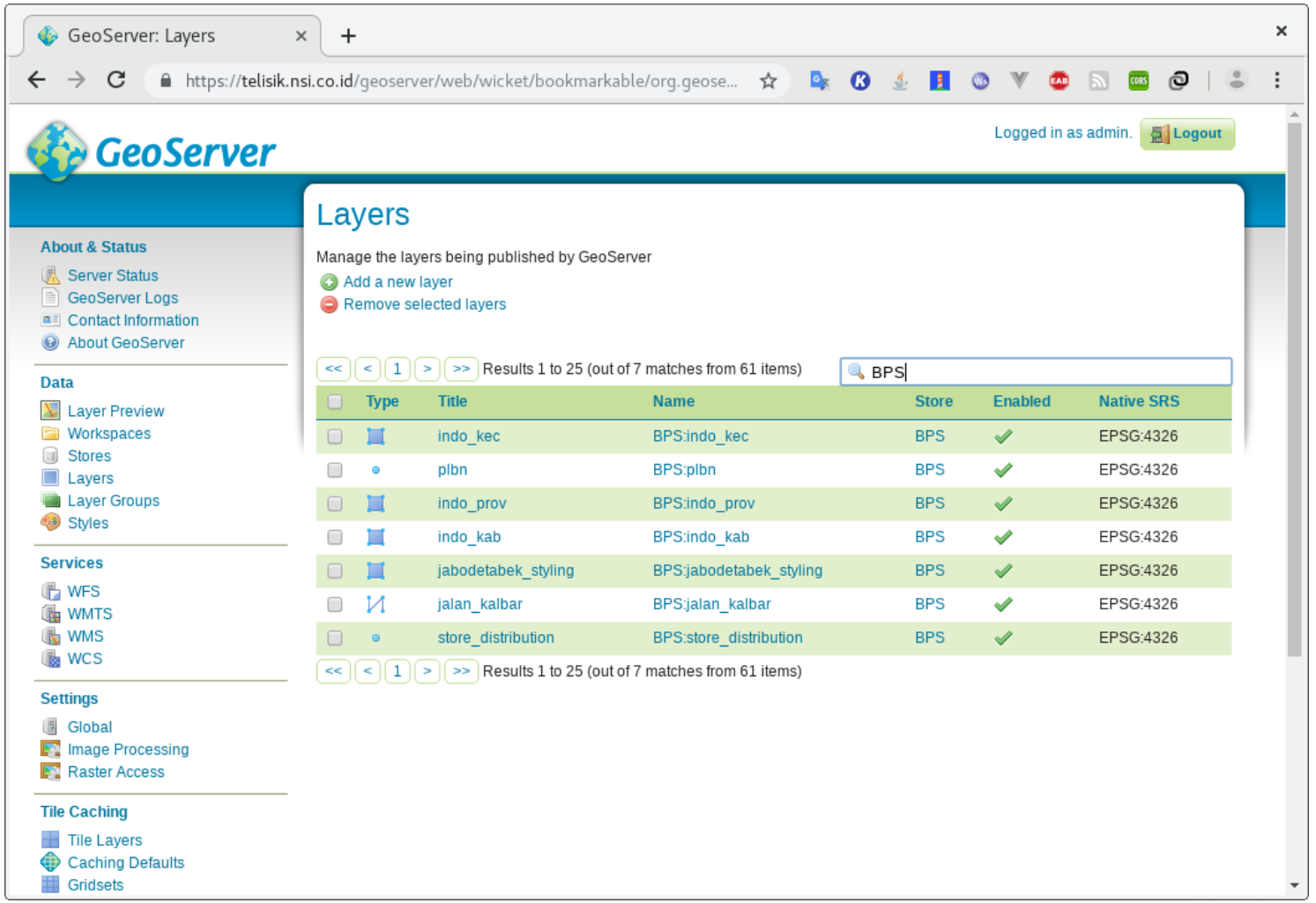
Layer

Publish With WMS

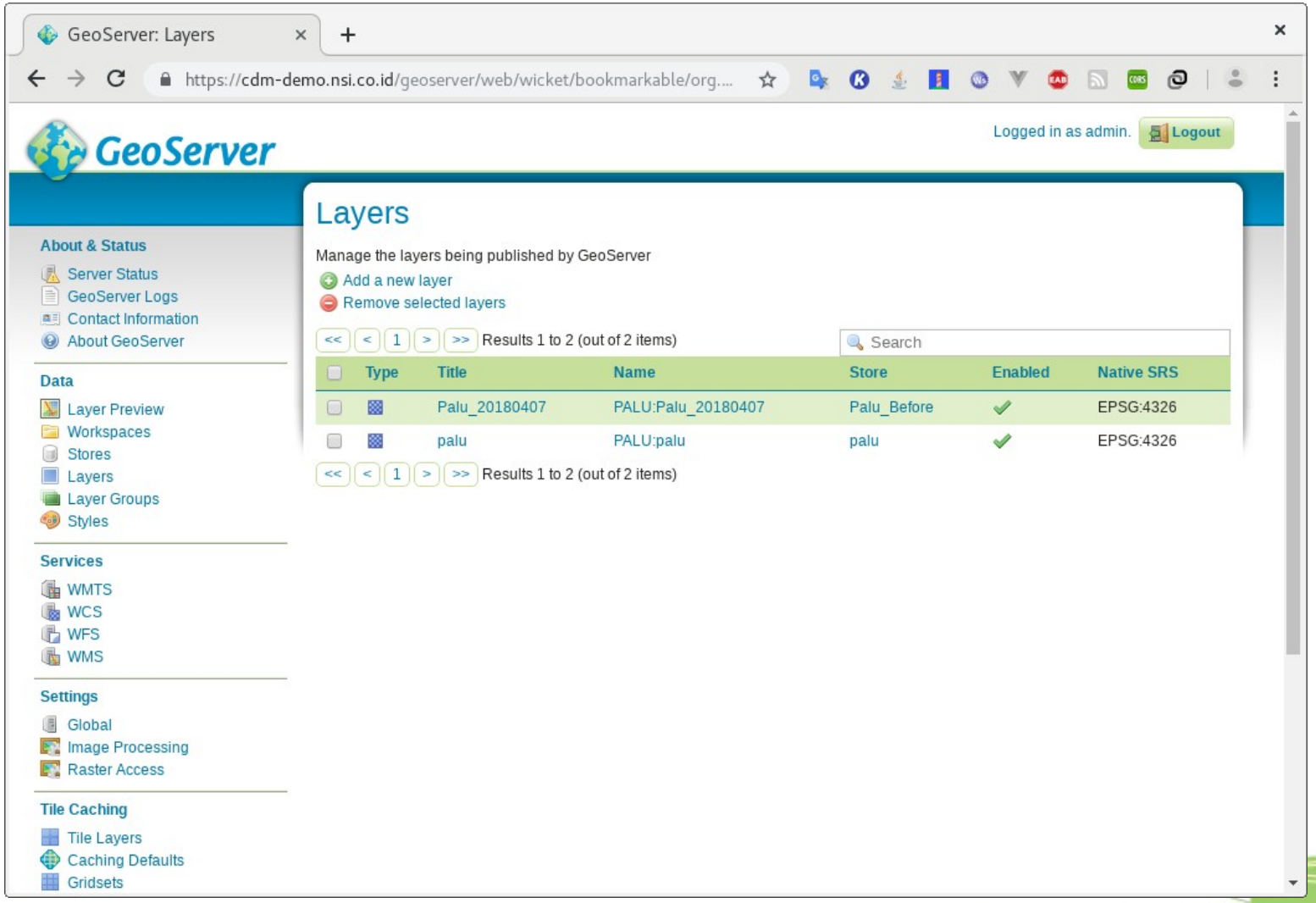
A Web Map Service (WMS) is a standard protocol developed by the Open Geospatial Consortium in 1999 for serving georeferenced map images over the Internet.



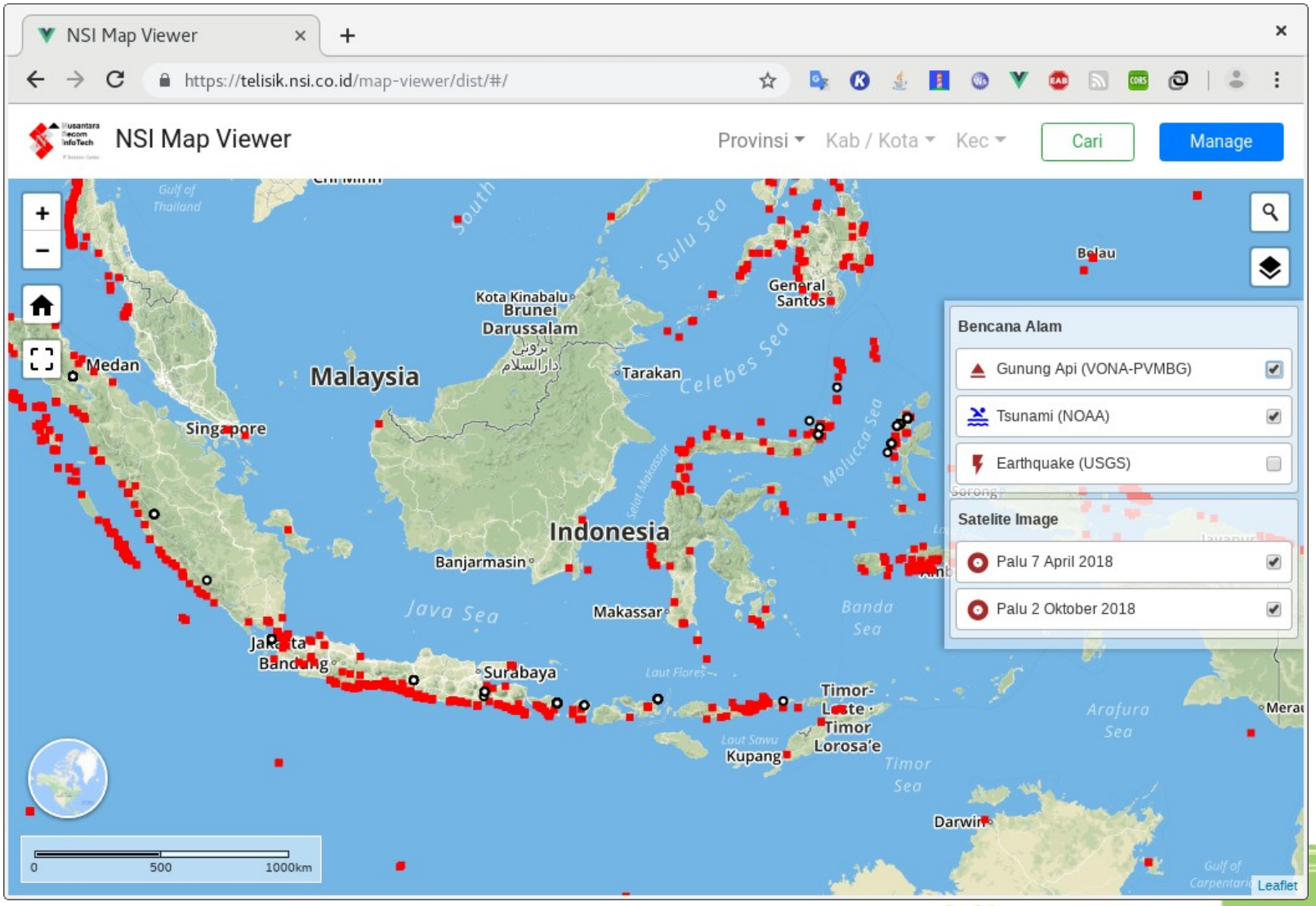
Spatial Vector Layer



Spatial Raster Layer

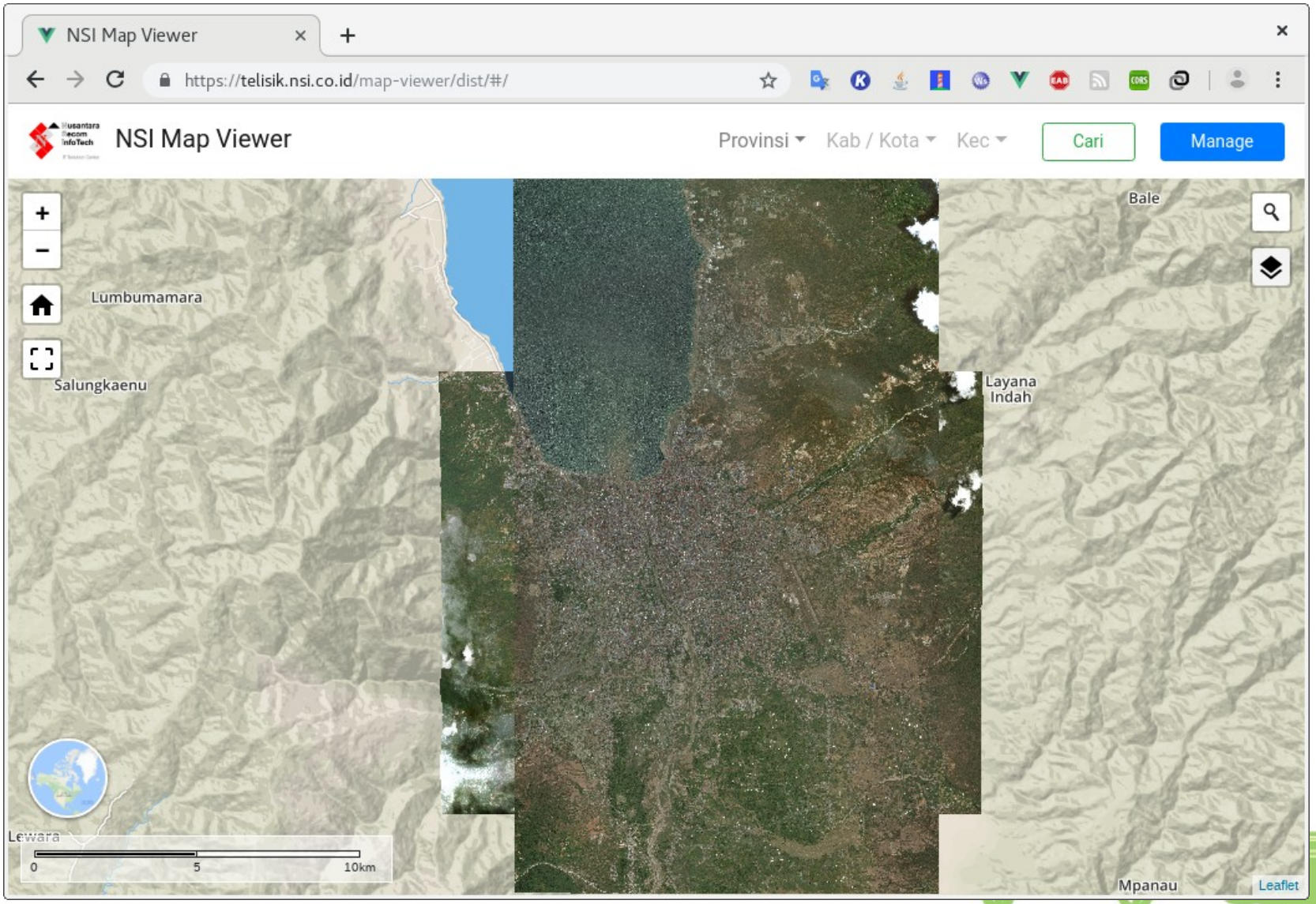


Result



https://telisik.nsi.co.id/map-viewer/dist

Result



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Terima kasih / Thank you !