

A satellite is shown in space, orbiting the Earth. A vibrant rainbow is visible in the sky, arching over the planet's surface. The satellite has a gold-colored body and several solar panels.

Online Training Course on
**Wildfire Mapping in Lao PDR using
Remote Sensing Satellite Data**

ກຸ່ມຝຶກອົບຮົມກ່ຽວກັບ

ການສ້າງແຜນທີ່ໄຟປ່າຂອງ ສປປ.ລາວ
ດ້ວຍຂໍ້ມູນພາບຖ່າຍດາວທຽມ

December 07-09, 2020, RECOFTC-Lao PDR, Vientiane, Lao PDR

vivarad@gmail.com, thathava@gmail.com

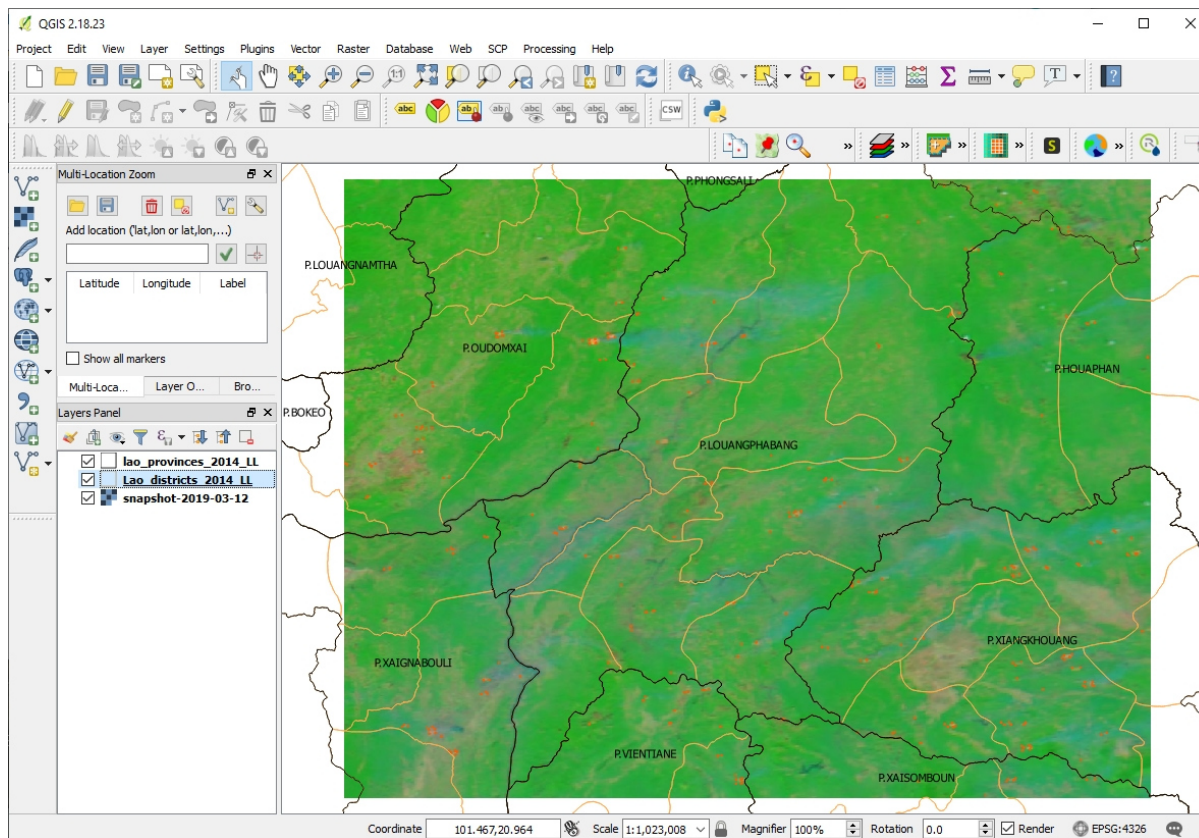
vivarad.asia

Simplified Version

May 2024

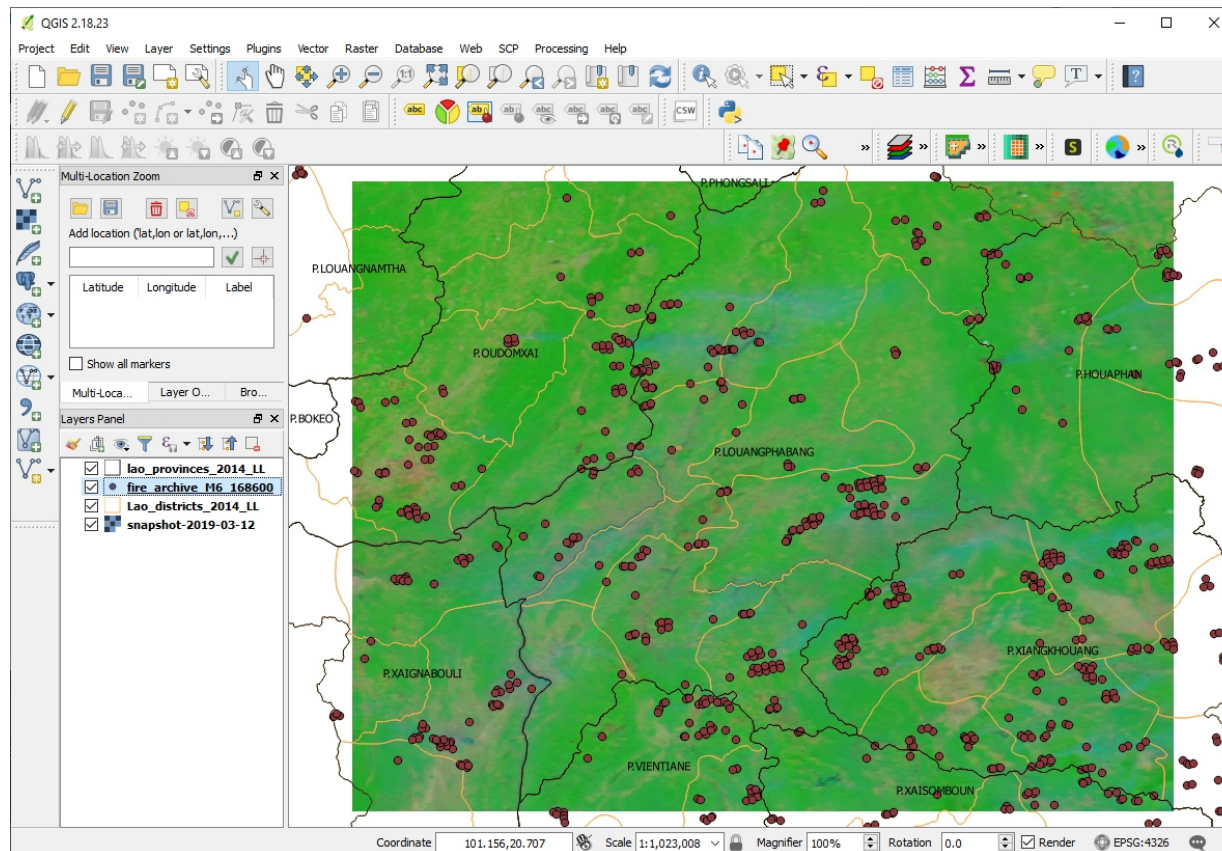
3.1.2 Concept of Wildfire and Active Fire Data

- NASA Fire and anomaly MODIS product
- NASA ATBD MOD14 v006 by Louis Giglio
 - MODIS/Terra Thermal Anomalies/Fire 5-Minute L2 Swath 1 km
 - <https://lpdaac.usgs.gov/product/mod14v006/>
- Description of the Thermal Anomalies and Fire MOD14 Version 6 product
 - **NASA Fire Information for Resource Management System (FIRMS)**
 - <https://firms.modaps.eosdis.nasa.gov/>
 - Terra/Aqua MODIS, Suomi NPP VIIRS, and NOAA-20 VIIRS
 - Data format - ESRI Shapefile, CSV, JSON
- **NASA Worldview**
 - <https://worldview.earthdata.nasa.gov/>
 - Terra/Aqua MODIS, Suomi NPP VIIRS, and NOAA-20 VIIRS
- **NASA Worldview Snapshots**
 - <https://wvs.earthdata.nasa.gov/>
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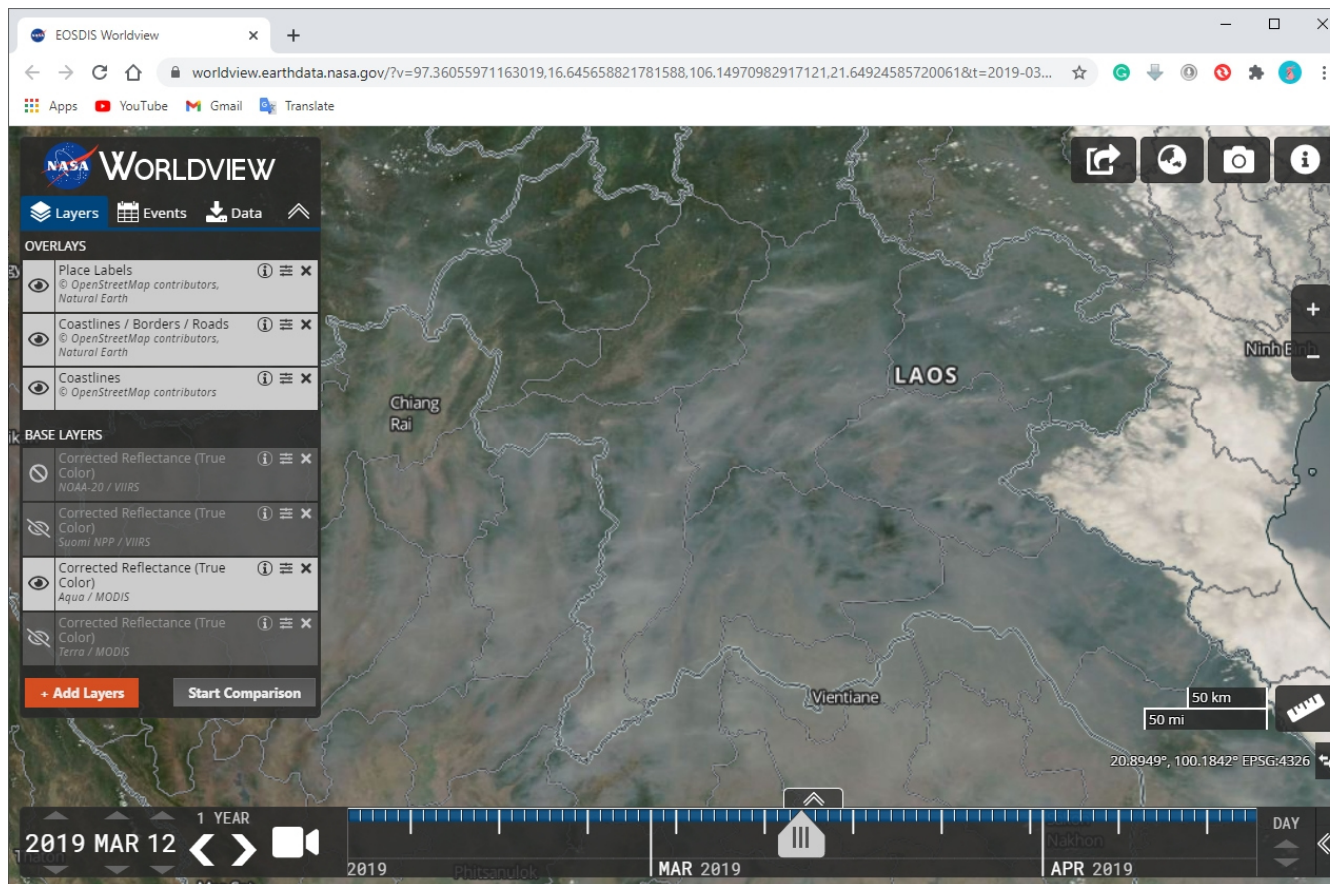
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creating image snapshots from a selection of popular NASA satellite imagery layers. You can preview and download imagery in different band combinations and add overlays on the imagery of active fire detections, coastlines, borders and roads.

How To Use

1. Create a Snapshot by choosing a map projection, date, layers, bounding box, and image file options, or use one of the [Rapid Response subsets](#). Bookmark the browser URL if you would like to use these options again later.
2. Select the preview button to preview and share a subset before downloading.
3. Click the download button to generate a snapshot.

Check out the [Frequently Asked Questions \(FAQ\)](#) for more information and [citation guidelines](#).

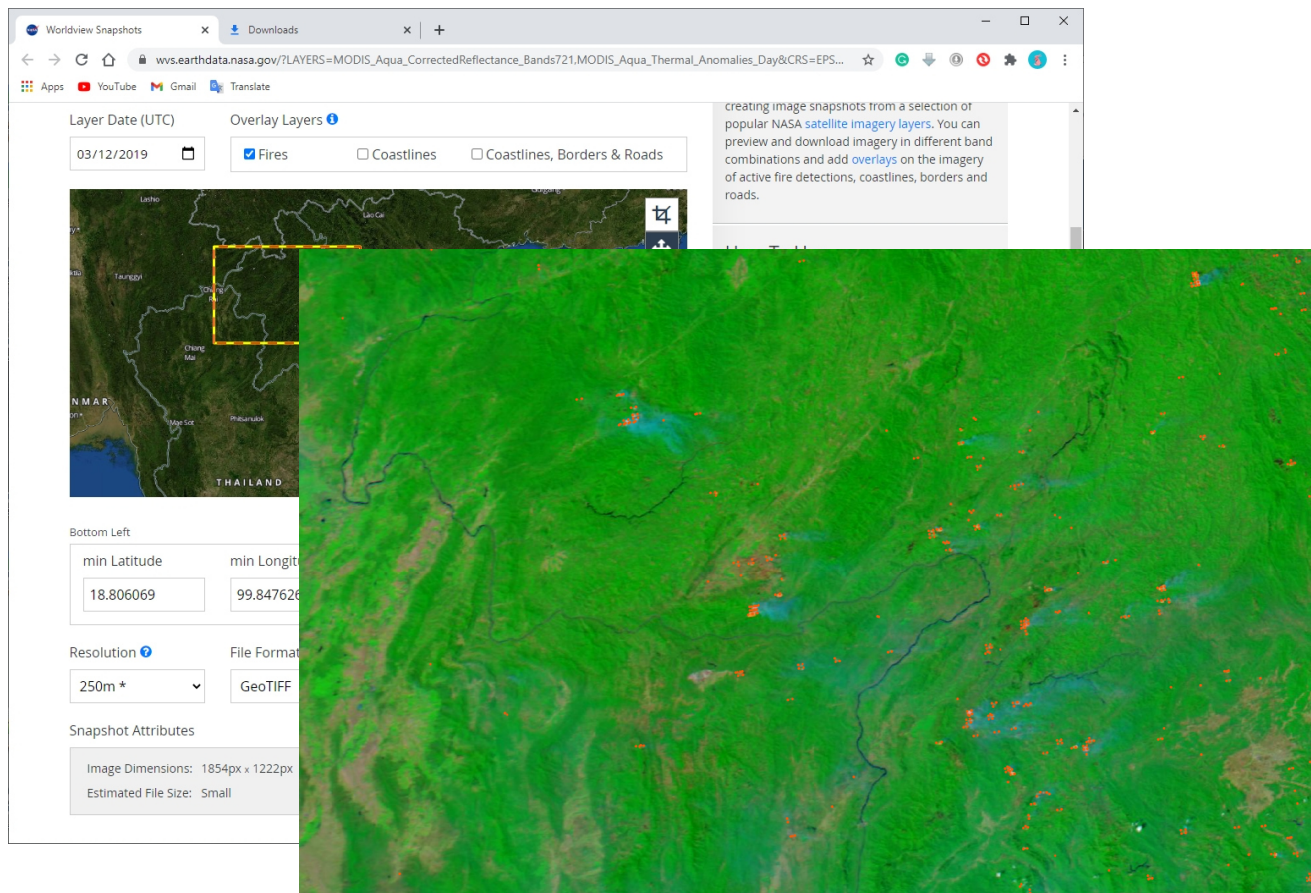
Other Tools

[NASA Worldview](#)

Worldview is a fully featured, interactive interface for browsing full-resolution imagery. [Click Here](#) to view the selected map parameters in Worldview.

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3.1 Technical Concept of RS for Wild fire Detection

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The image shows a web browser window displaying the NASA Worldview Snapshots interface. The URL is wvs.earthdata.nasa.gov/?LAYERS=MODIS_Aqua_CorrectedReflectance_Bands721.MODIS_Aqua_Thermal_Anomalies_Day&CRS=EPS.... The interface includes a 'Layer Date (UTC)' dropdown set to '03/12/2019', an 'Overlay Layers' section with 'Fires' checked, and a 'How To Use' section. Below the browser is a QGIS 2.18.23 window showing a satellite image of a region in Thailand. The QGIS window has a 'Layers Panel' on the left with a list of layers including 'sample_study_area02', 'lao_provinces_2014_11', 'lao_districts_2014_11', 'fire_archive_MODIS_2018-10-01_2019-03-11', 'fire_archive_VI_2018-10-01_2019-03-11', 'snapshot_2019-03-11aqua', 'snapshot_2018-11-01aqua', 'OpenStreetMap', 'd_nrt_2019-2019', 'mr_11_2019', 'mr_11_2018', 'ndvi_11_2019', 'ndvi_11_2018', 'LC08_bands05_2018-11-03_11', 'LC08_bands04_2018-11-03_11', and 'LC08_bands05_2019-03-11_11'. The main map area shows a satellite image with red and orange markers indicating active fire detections. The 'Bottom Left' panel in the browser shows 'min Latitude: 18.806069' and 'min Longitude: 99.847626'. The 'Resolution' is set to '250m *' and the 'File Format' is 'GeoTIFF'. The 'Snapshot Attributes' panel shows 'Image Dimensions: 1854px x 1222px' and 'Estimated File Size: Small'.

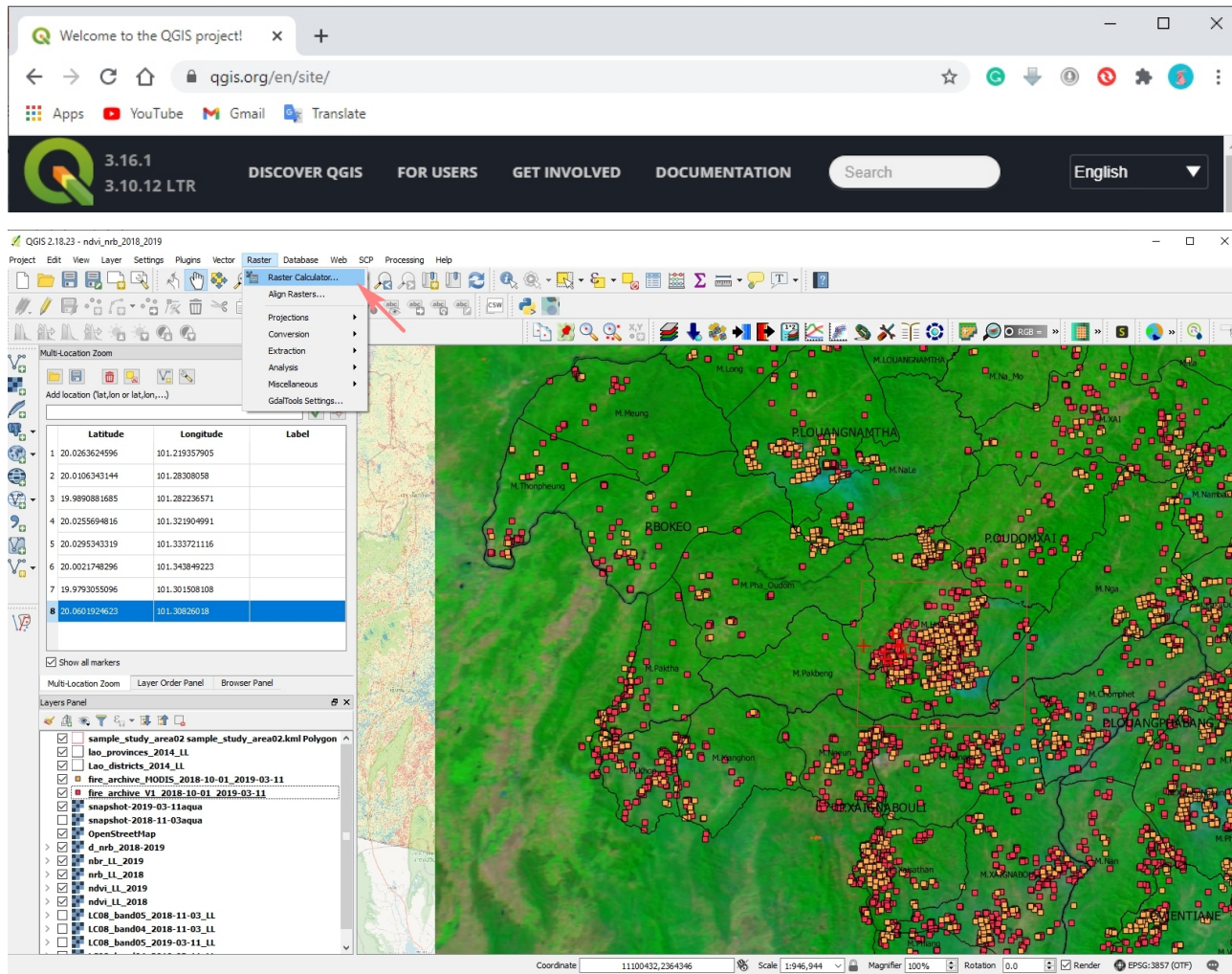
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 - <https://earthexplorer.usgs.gov/>
 - Landsat 8 OLI and Sentinel-2 Multispectral Instrument (MSI)

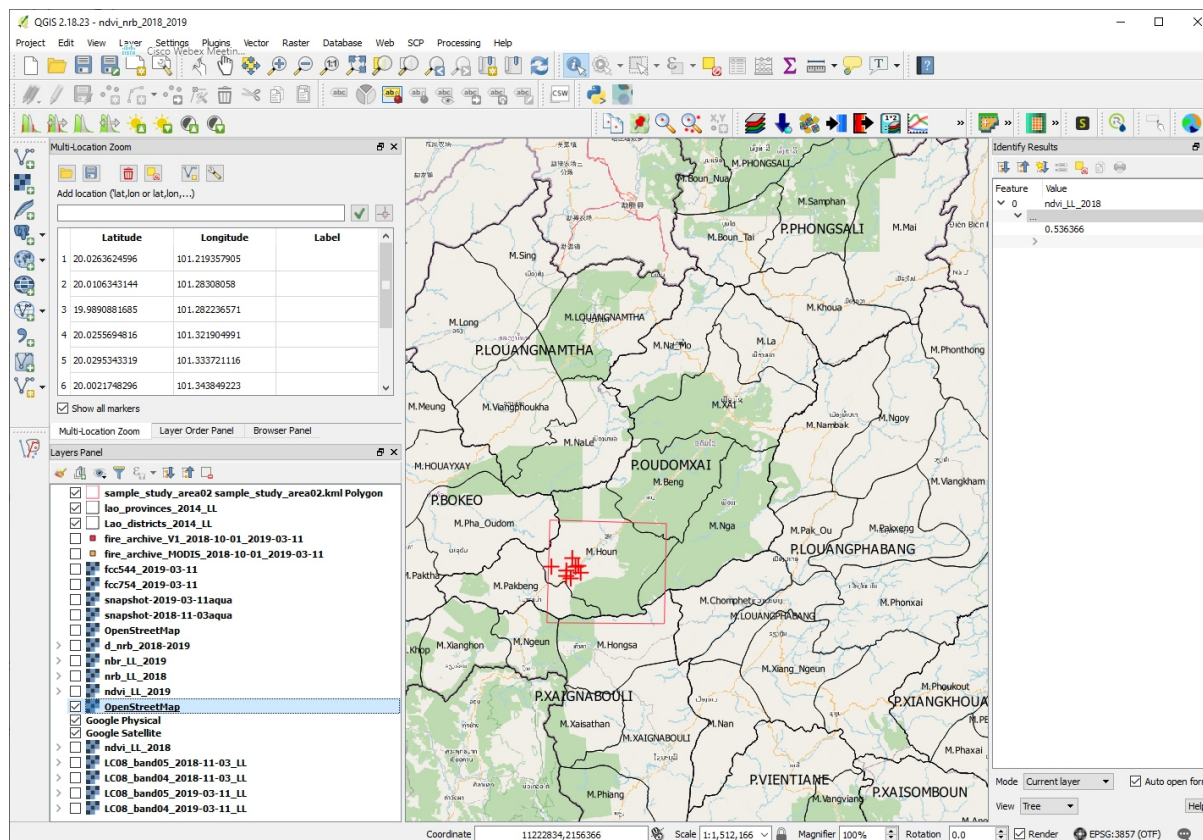
- Quantum GIS 2.x
 - QGIS Website Main Page:
 - <https://qgis.org/en/site/>

- Administrative Data of Lao PDR in Country, Provinces, and District level (shapefile format)

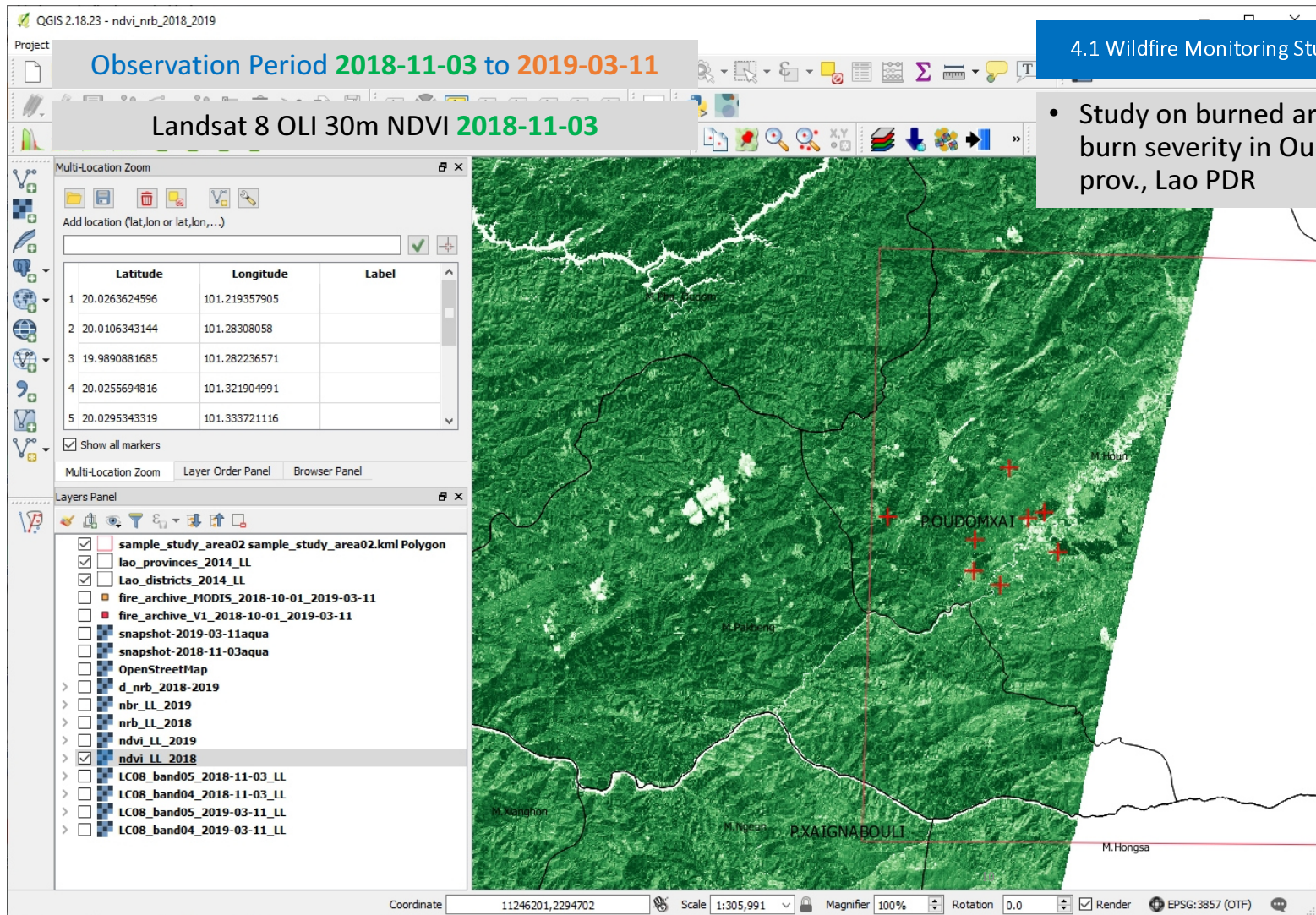
- Openstreet Map <https://www.openstreetmap.org/> as a plugin to QGIS



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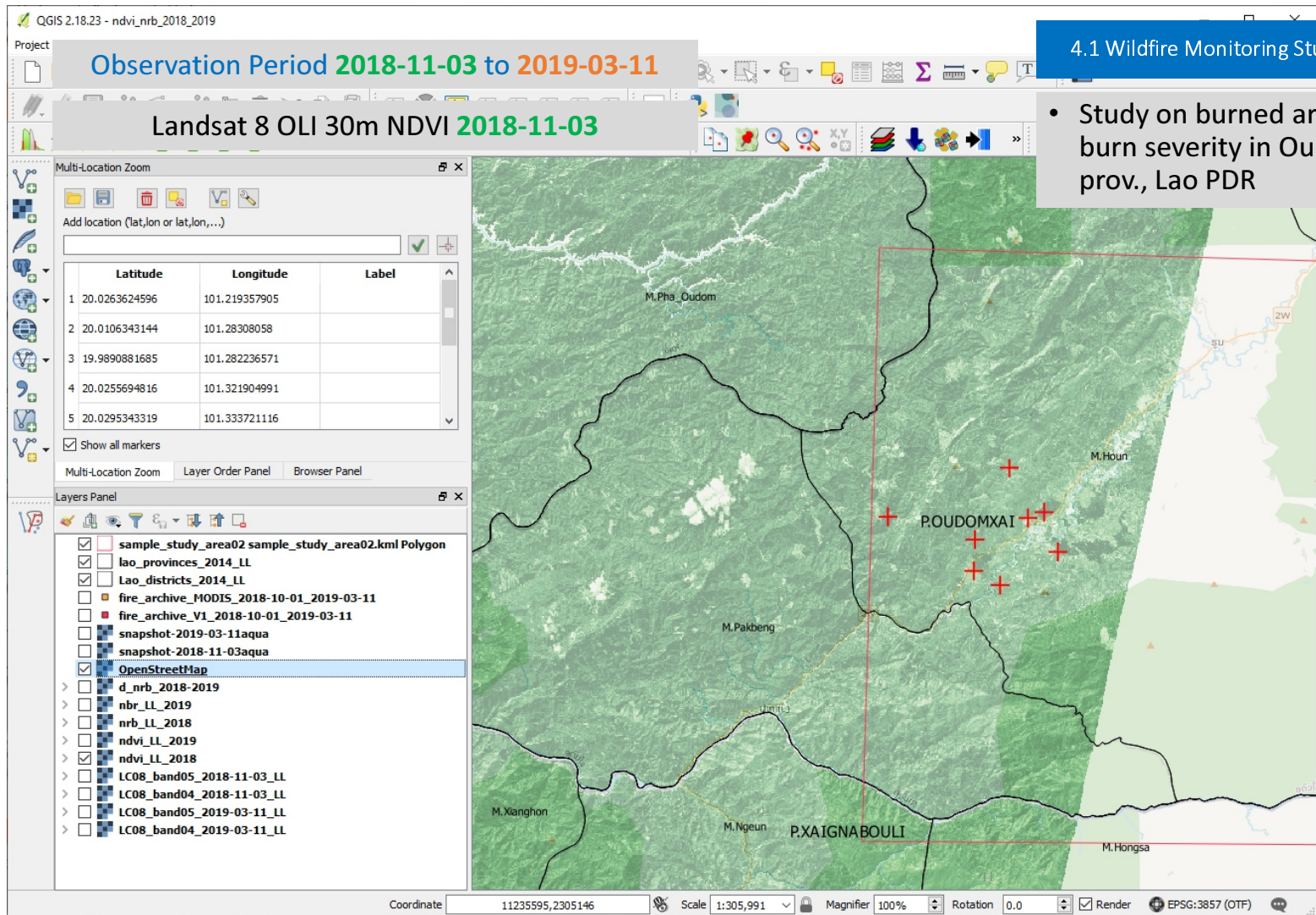


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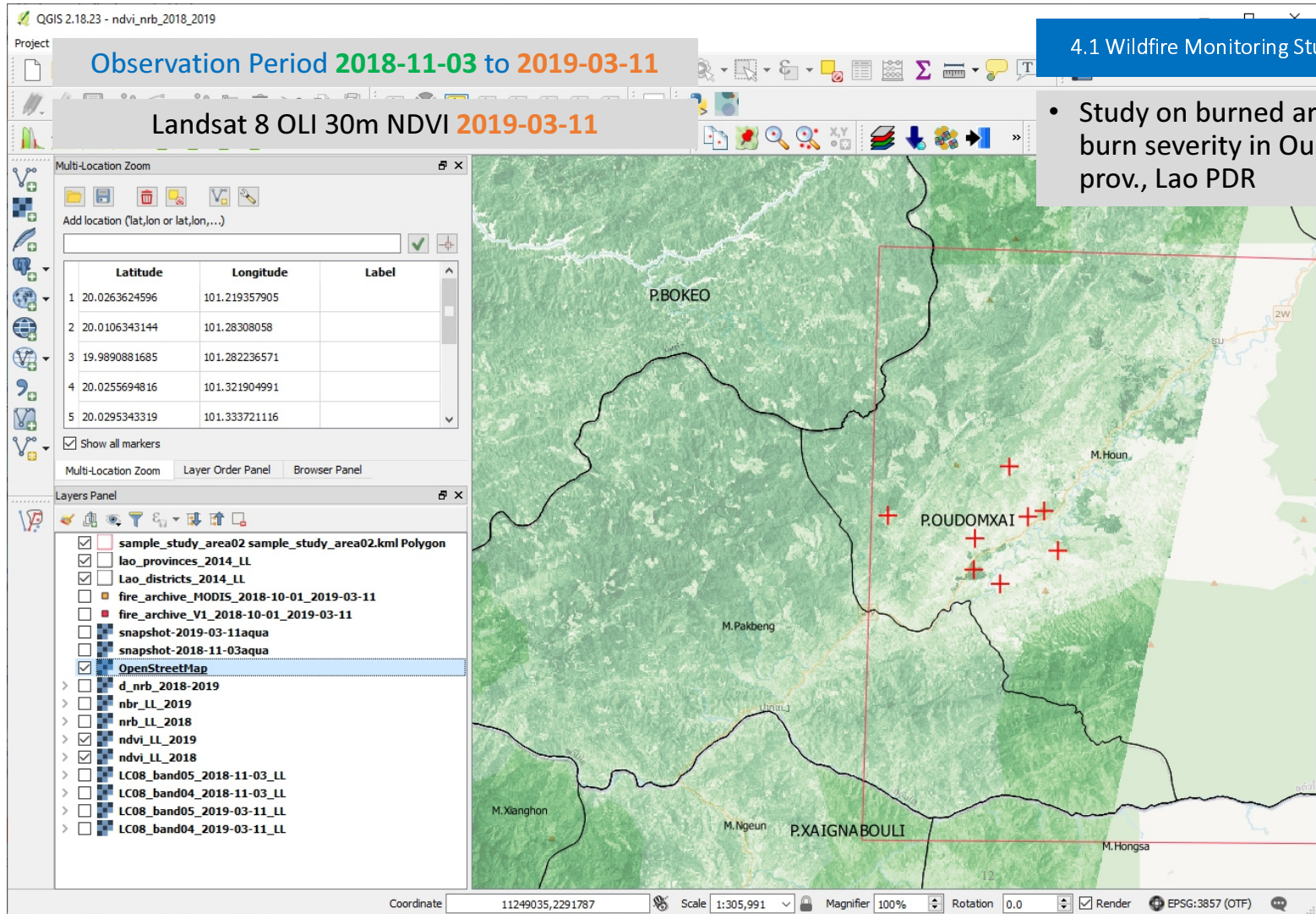
4.1 Wildfire Monitoring Study in Lao PDR

- Study on burned area and burn severity in Oudomxay prov., Lao PDR



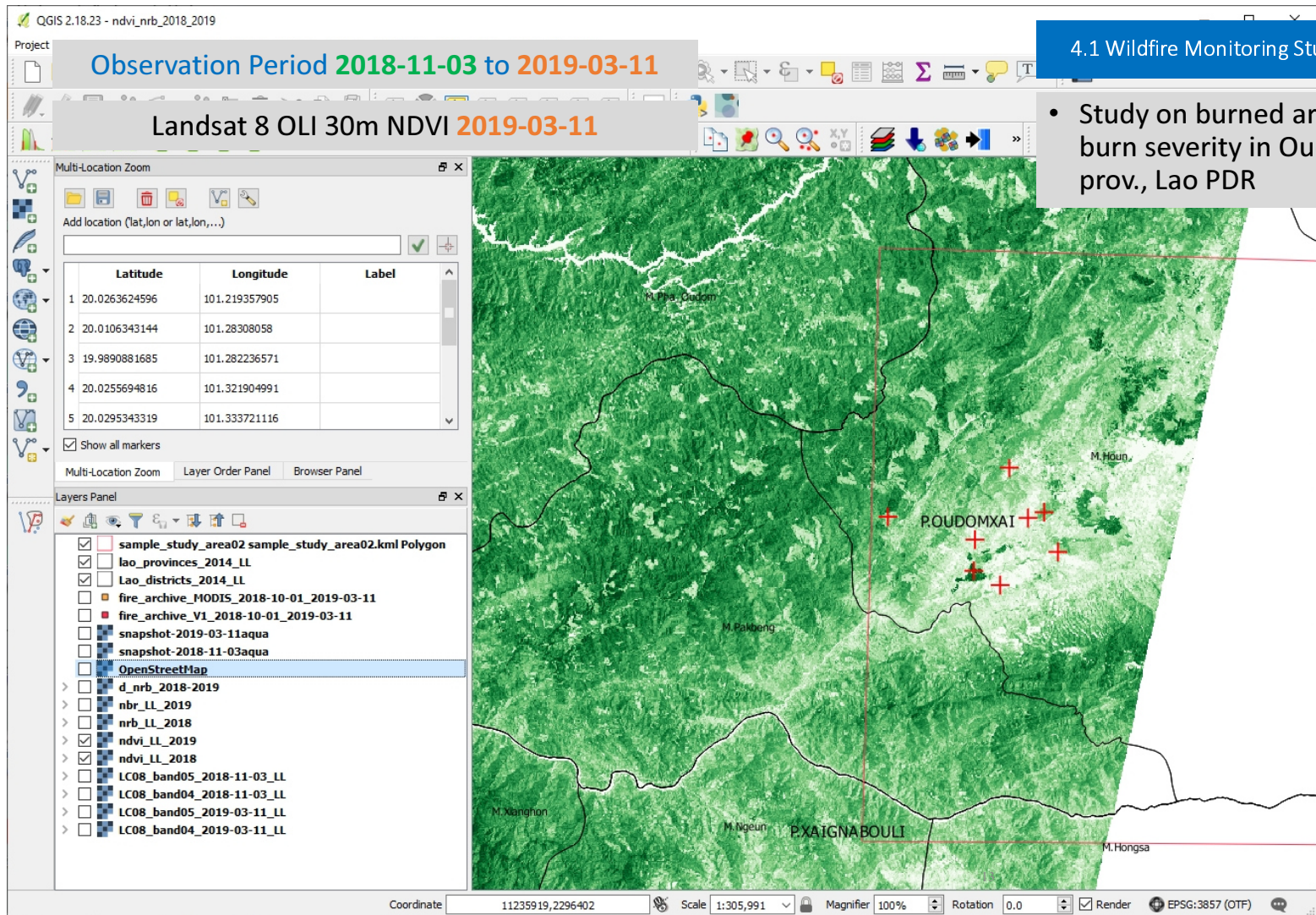
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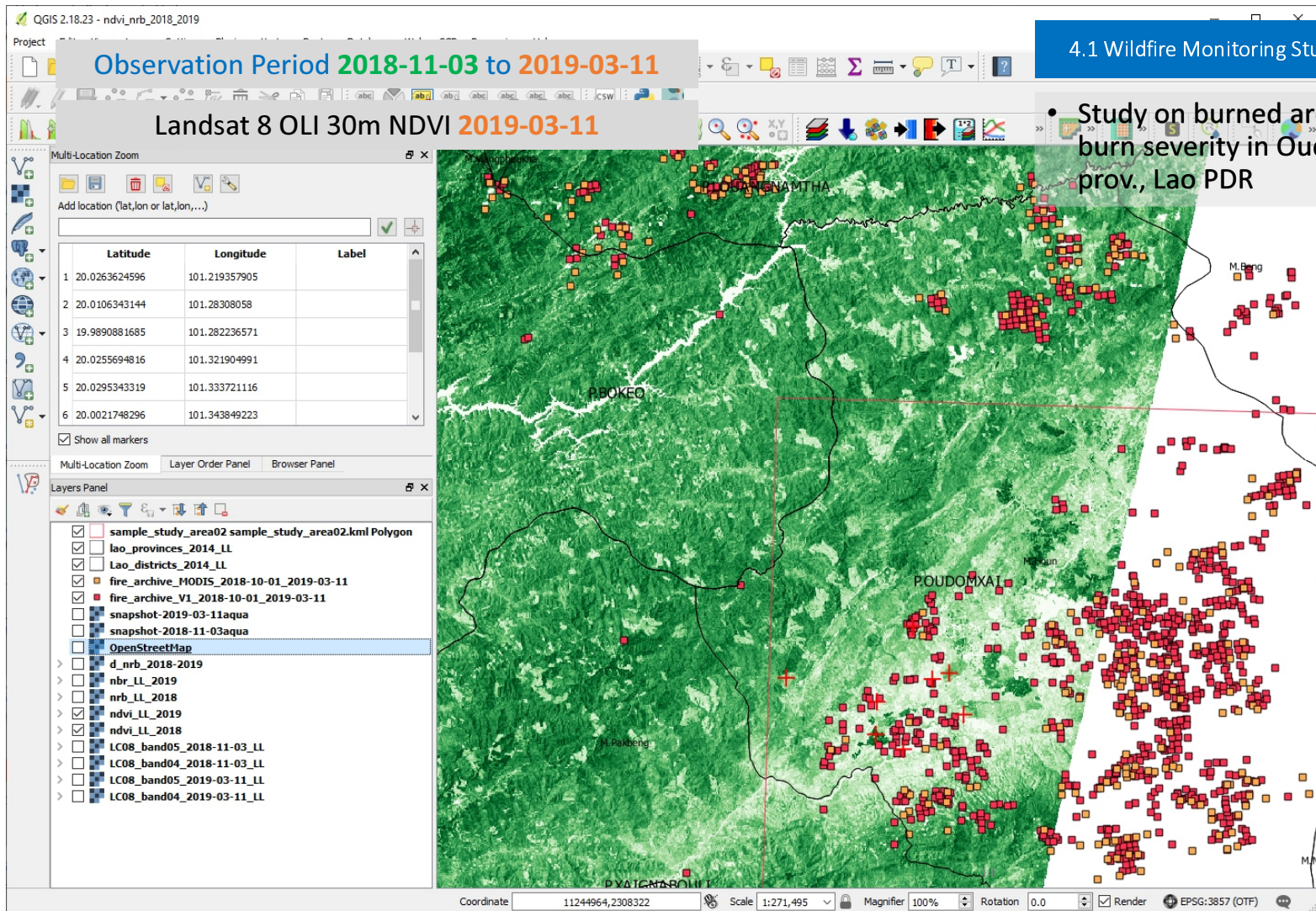
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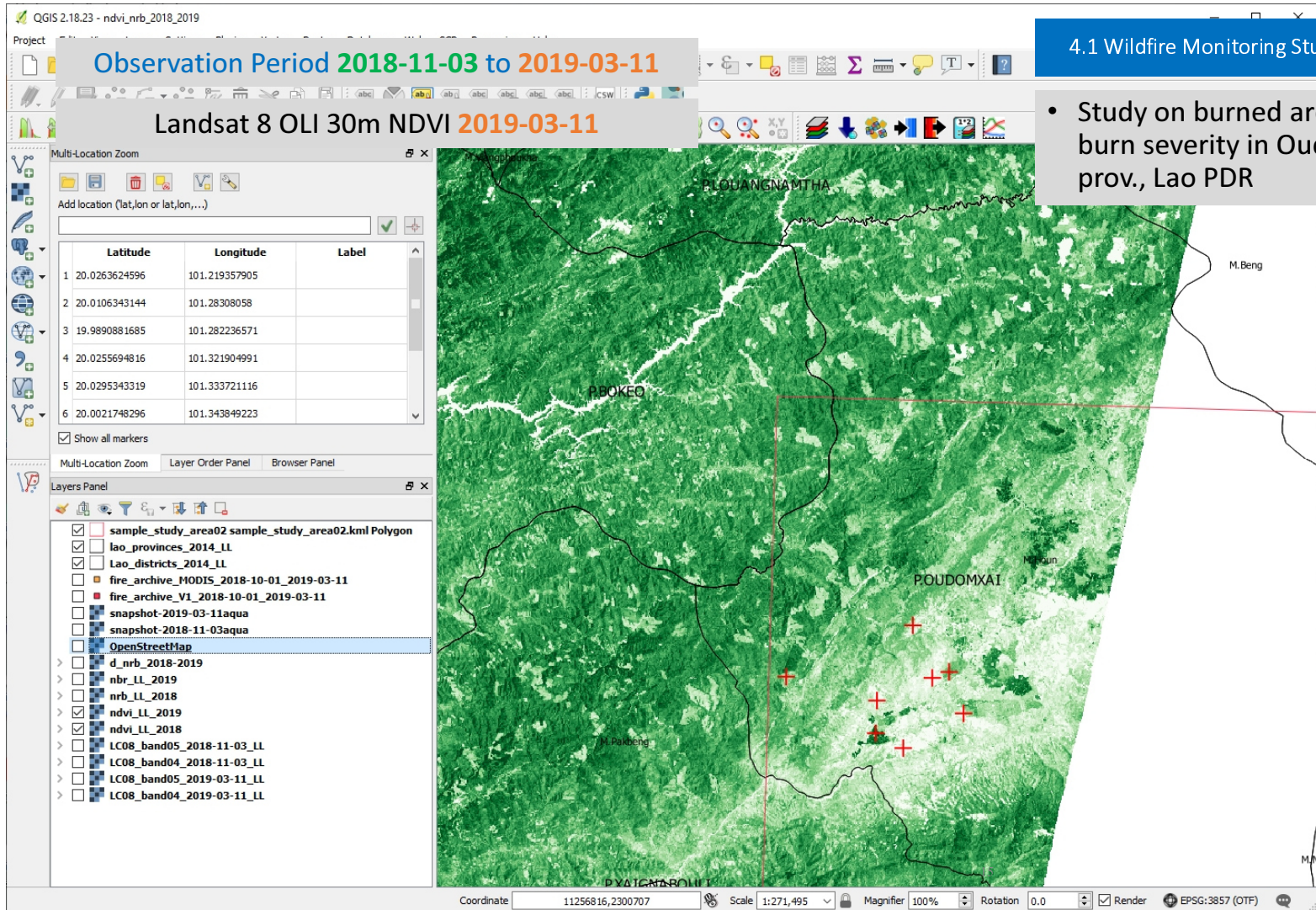
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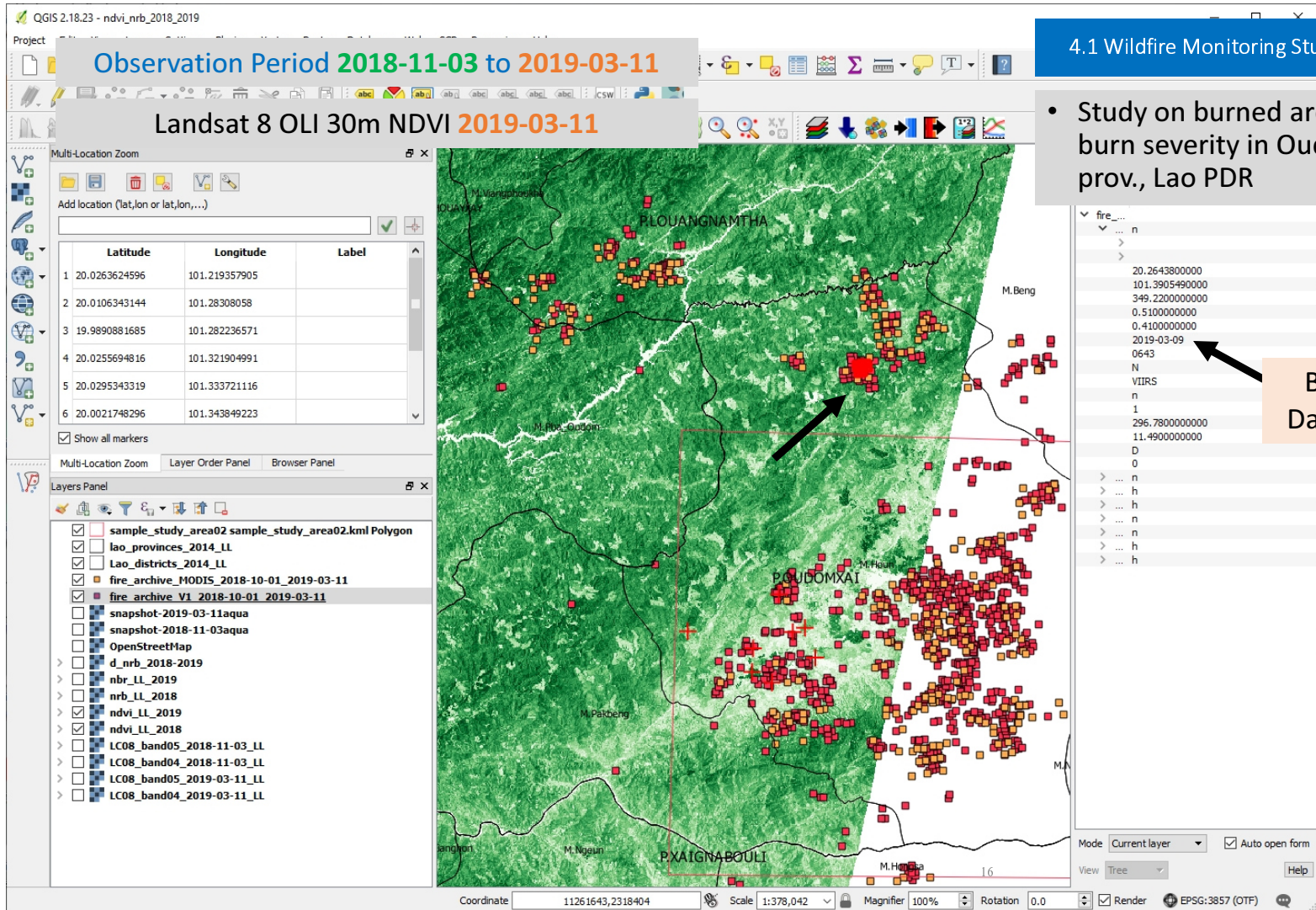
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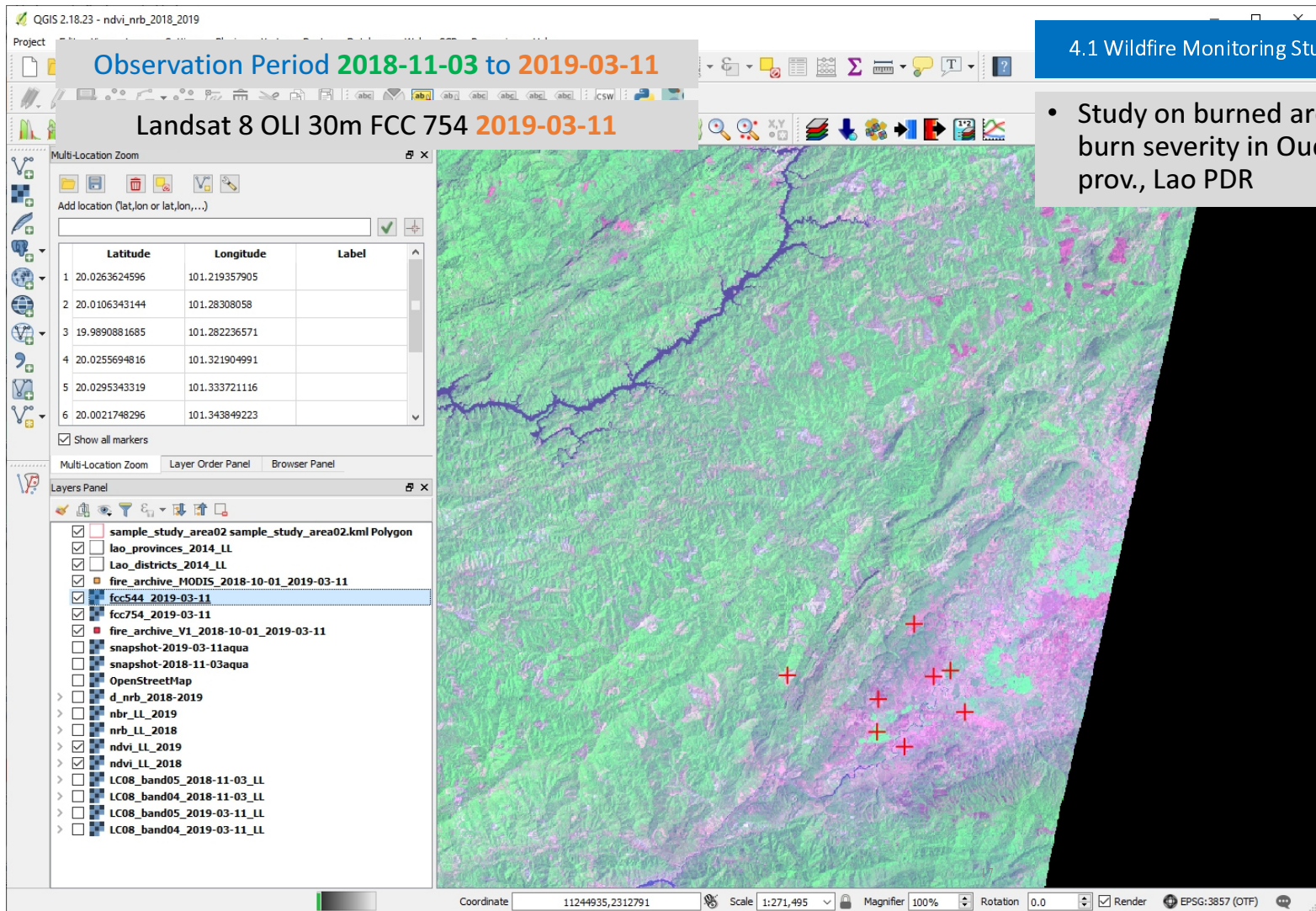


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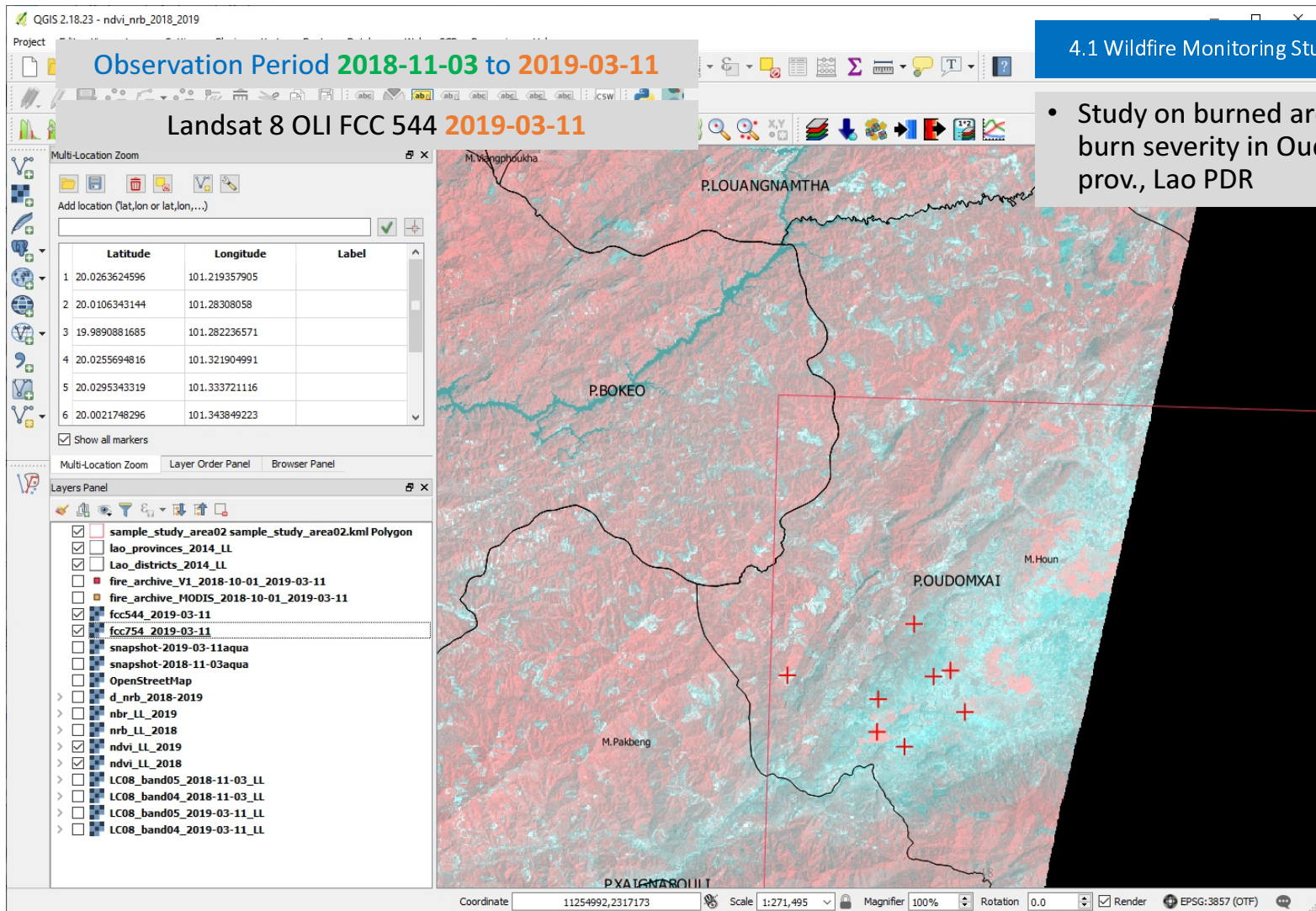
fire_...	n
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>	>
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>	349.2200000000
>	0.5100000000
>	0.4100000000
>	2019-03-09
>	0643
>	N
>	VIIRS
>	n
>	1
>	296.7800000000
>	11.4900000000
>	D
>	0
>	0
>	n
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Burning Date/Time



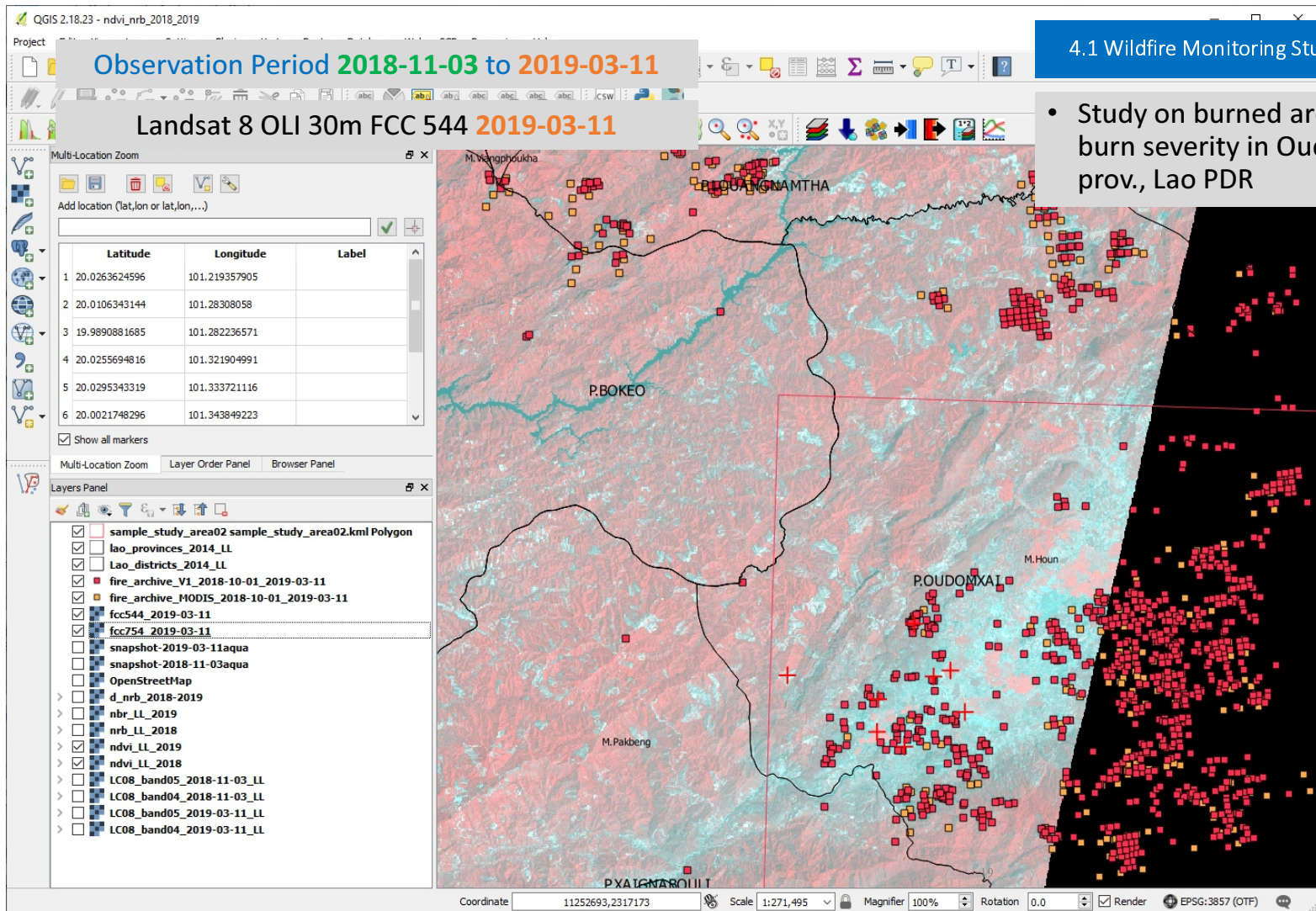
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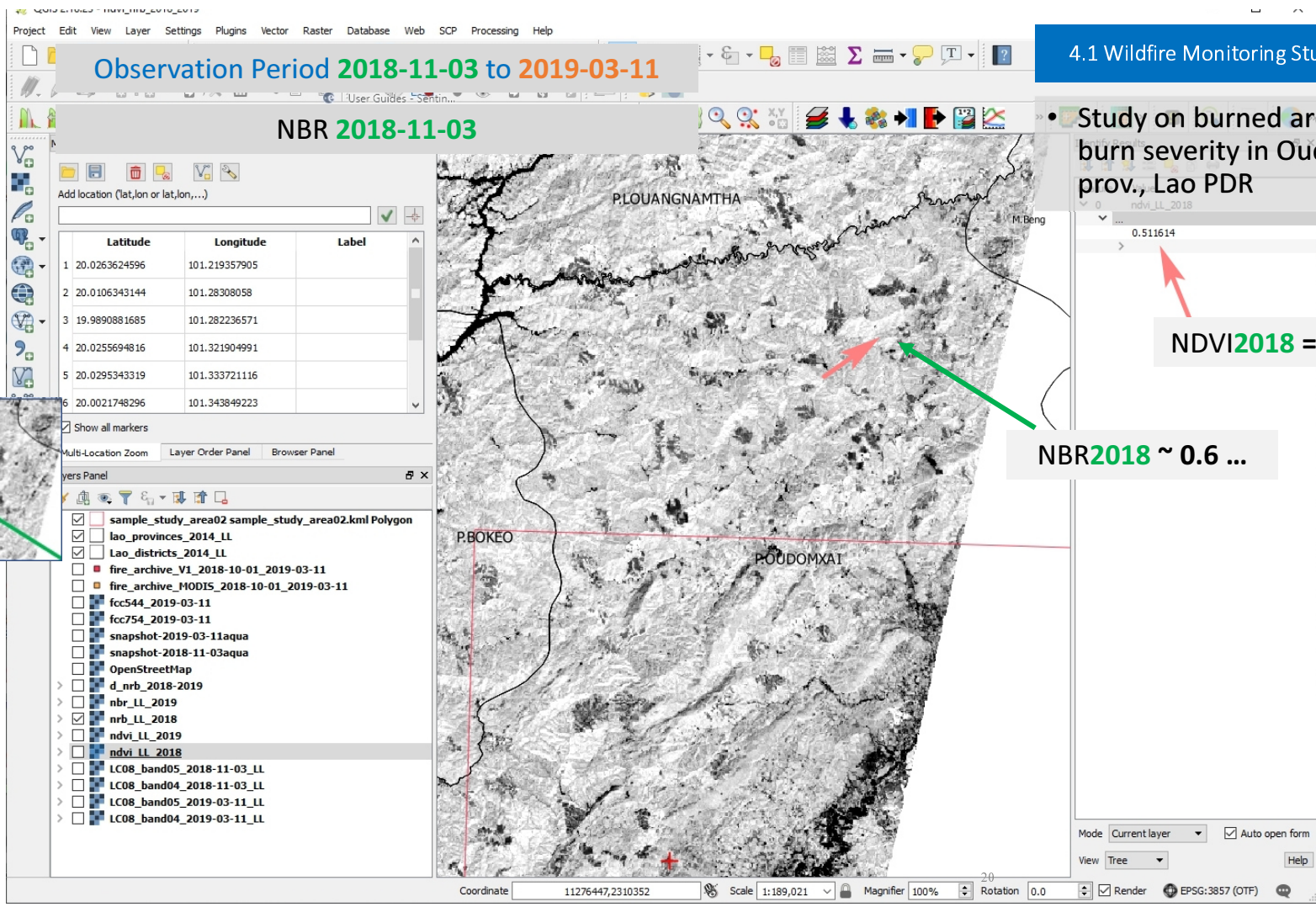
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Observation Period **2018-11-03** to **2019-03-11**

NBR 2018-11-03

Add location (lat,lon or lat,lon,...)

	Latitude	Longitude	Label
1	20.0263624596	101.219357905	
2	20.0106343144	101.28308058	
3	19.9890881685	101.282236571	
4	20.0255694816	101.321904991	
5	20.0295343319	101.333721116	
6	20.0021748296	101.343849223	

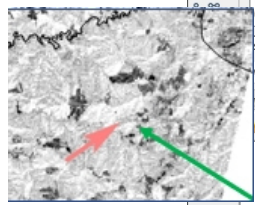
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0.511614

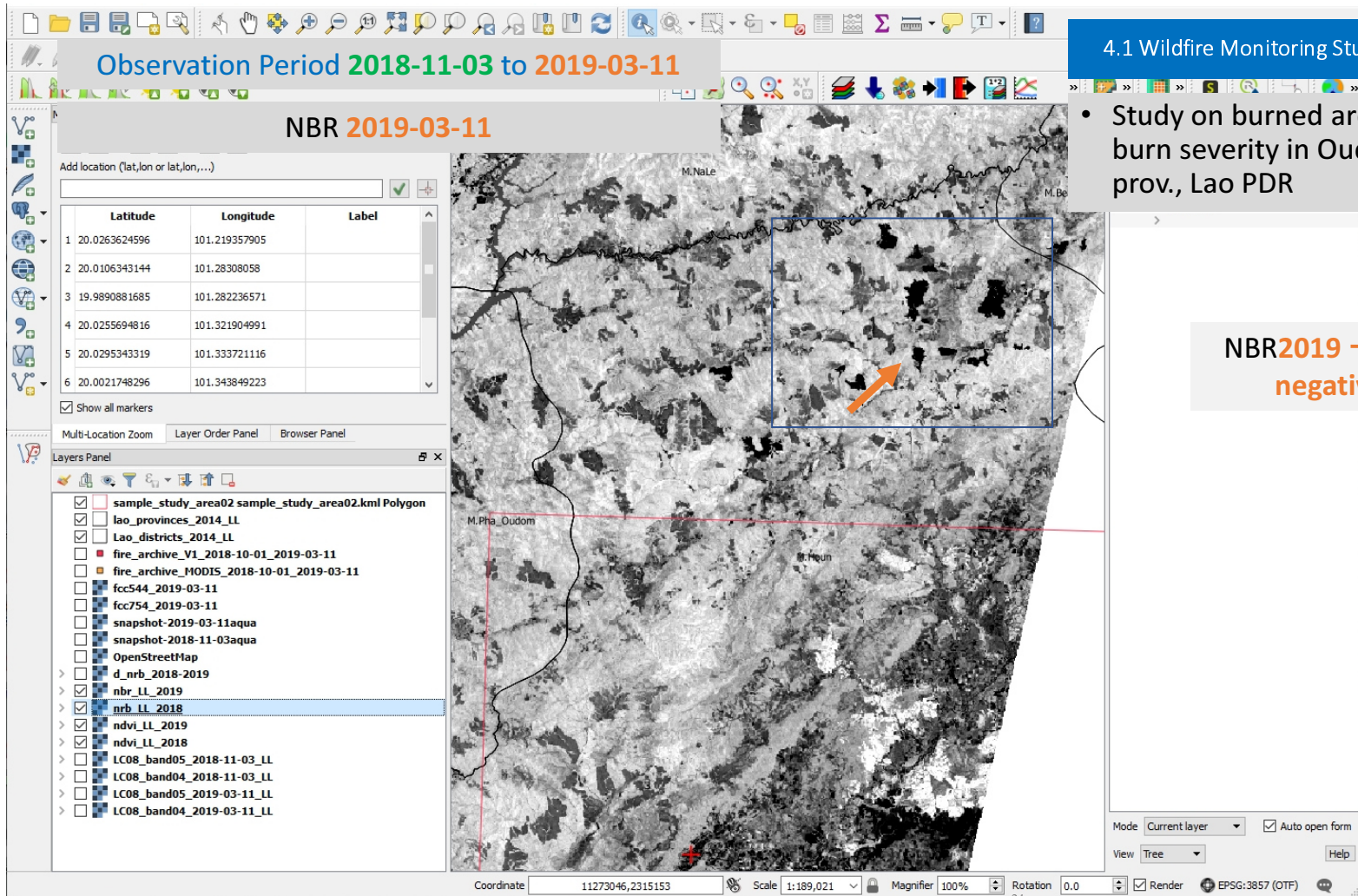
NDVI2018 = 0.5116

NBR2018 ~ 0.6 ...



- sample_study_area02 sample_study_area02.kml Polygon
- lao_provinces_2014_ll
- Lao_districts_2014_ll
- fire_archive_V1_2018-10-01_2019-03-11
- fire_archive_MODIS_2018-10-01_2019-03-11
- fcc544_2019-03-11
- fcc754_2019-03-11
- snapshot-2019-03-11aqua
- snapshot-2018-11-03aqua
- OpenStreetMap
- d_nrb_2018-2019
- nrb_ll_2019
- nrb_ll_2018
- ndvi_ll_2019
- ndvi_ll_2018
- LC08_band05_2018-11-03_ll
- LC08_band04_2018-11-03_ll
- LC08_band05_2019-03-11_ll
- LC08_band04_2019-03-11_ll

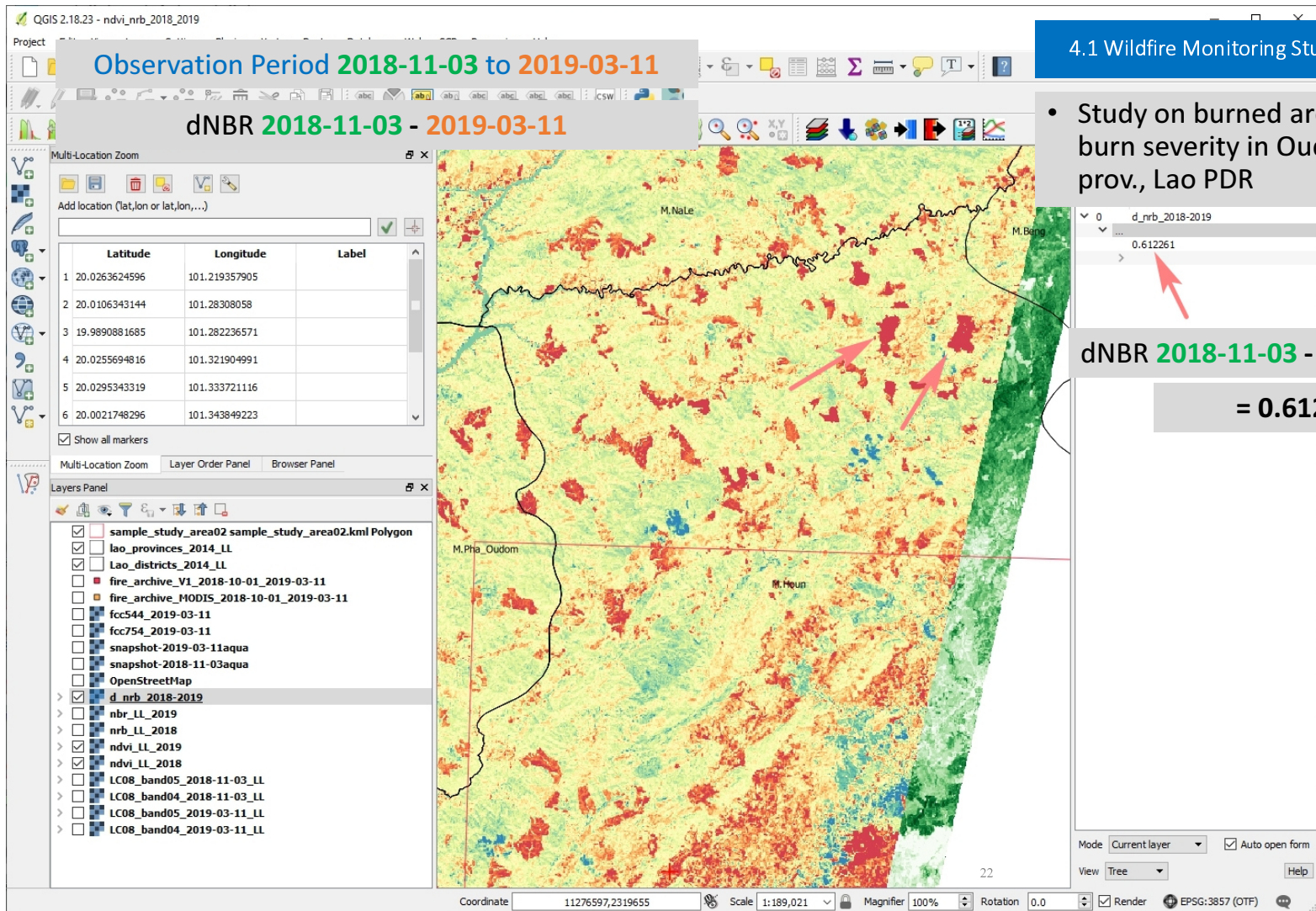
Coordinate: 11276447,2310352 Scale: 1:189,021 Magnifier: 100% Rotation: 0.0



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NBR2019 → 0 or negative



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dNBR 2018-11-03 - 2019-03-11

= 0.6122