

INFINITE ACCESS TO SATELLITE DATA FOR SMART CITY

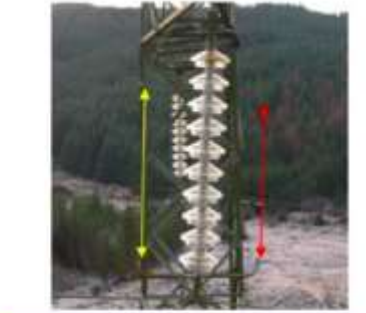
Dr Sukanta Kumar Jena
Head – China, HK & SEA
11th April 2018



Background

27/04/2018

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4 - Damaged/Missing	3 - Rusty/Slack
	
2 - Lightly/moderately rusty / with debris	1 - No visible/quantifiable deterioration or damage



Background

Project:SSE12057ph2

Line:GP1/GA2

Tower:125

Untagged Images



Grid of 14 untagged images showing various views of a power line tower and surrounding landscape. The images are arranged in two rows of seven. The first row shows the tower from different angles, including close-ups of the structure and wider shots of the surrounding green fields and hills. The second row shows similar views, including a close-up of the tower's base and a view of the tower's arm extending over the landscape.

Tagged Images



Grid of 9 tagged images showing close-ups of tower components and safety signs. The images are arranged in a single row. The first three images show close-ups of the tower's structure, including a yellow safety sign with a black triangle and the text 'DANGER'. The remaining six images show close-ups of the tower's base, including the concrete foundation and the surrounding vegetation.

Overall Progress

56%

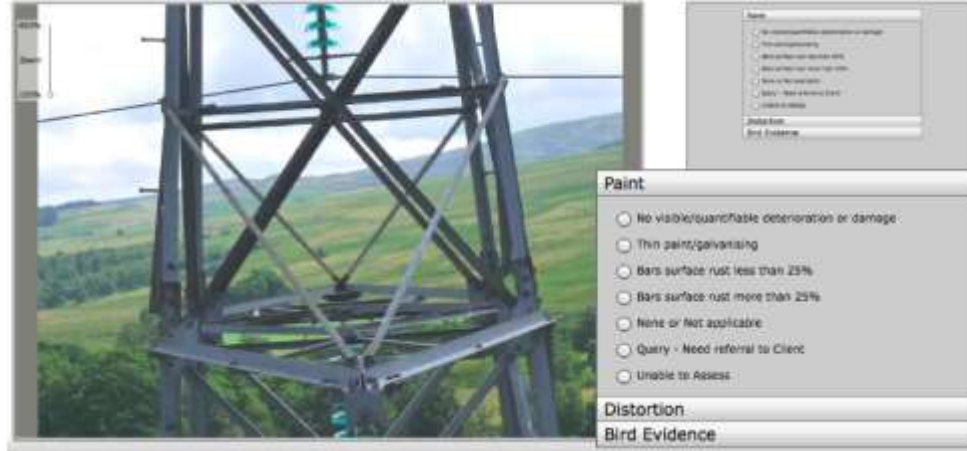
ID PLATES	100%
STUBS AND MUFTS	100%
ACD	100%
SAFETY SIGN	100%
FLAG SOCKET	50%
SPAN	100%
OVERVIEW	50%
PEAK/EARTHWIRE	50%
EARTHWIRE	50%
X-ARM OBLIQUE	50%
X-ARM ACROSS	33%
FITTINGS S	42%
INSULATOR OVERVIEW S	50%
INSULATOR TOWER END S	33%
INSULATOR LIVE END S	33%
STEELWORK/BRACING	57%
LEGS	50%
MISC	0%

Back

Edit This Tower's Information

Background

27/04/2018



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Background

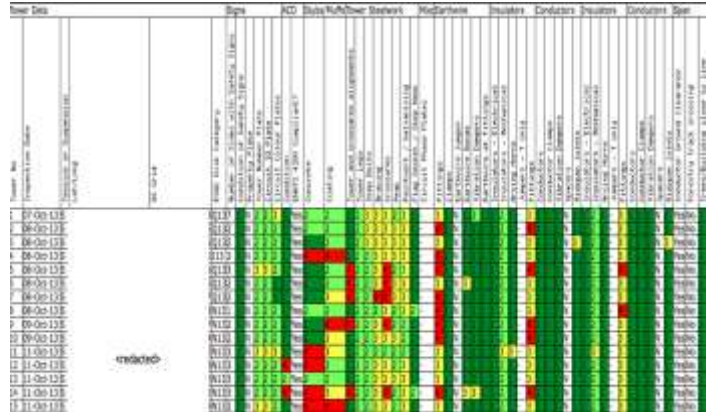


27/04/2018

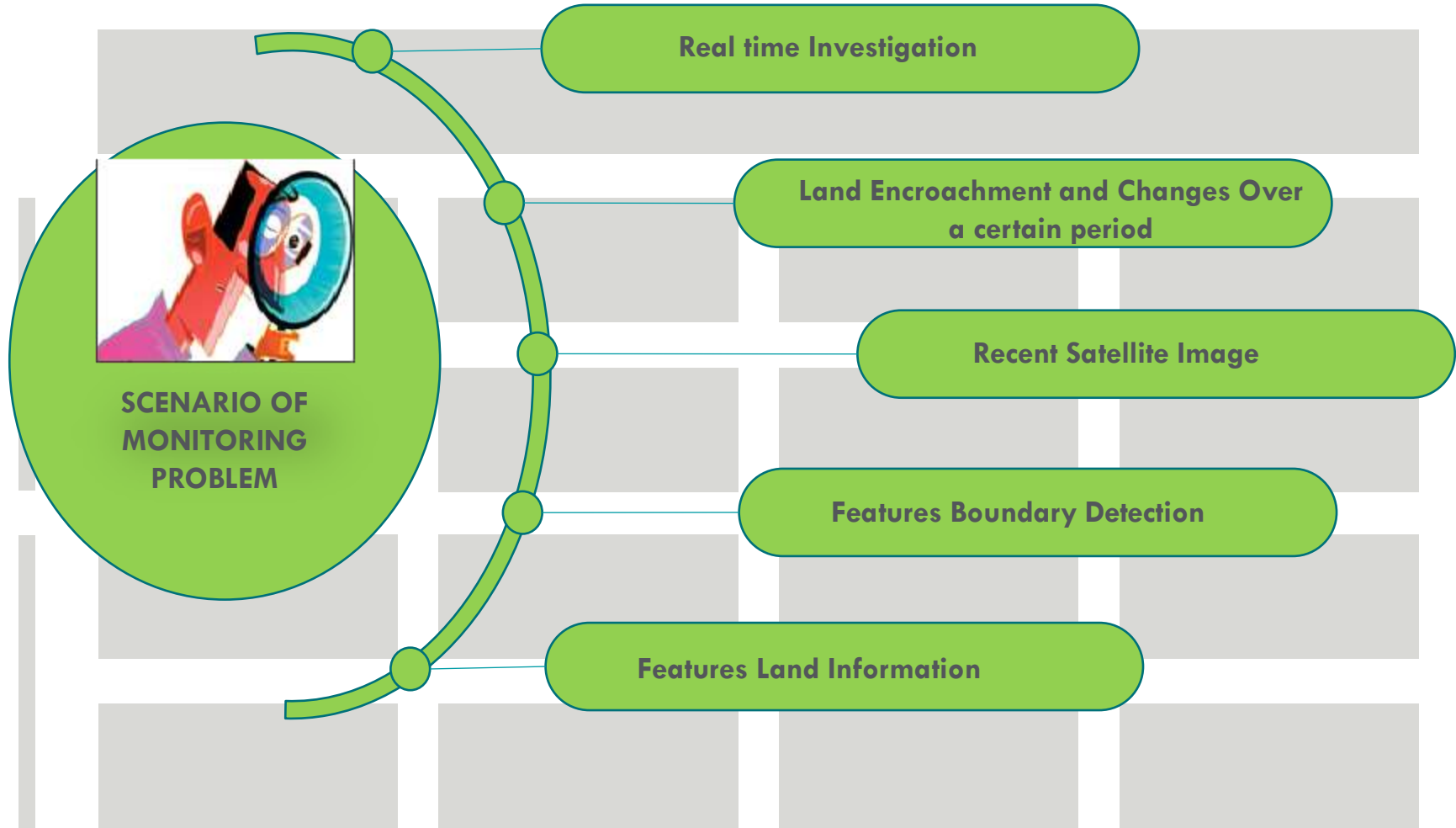
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●

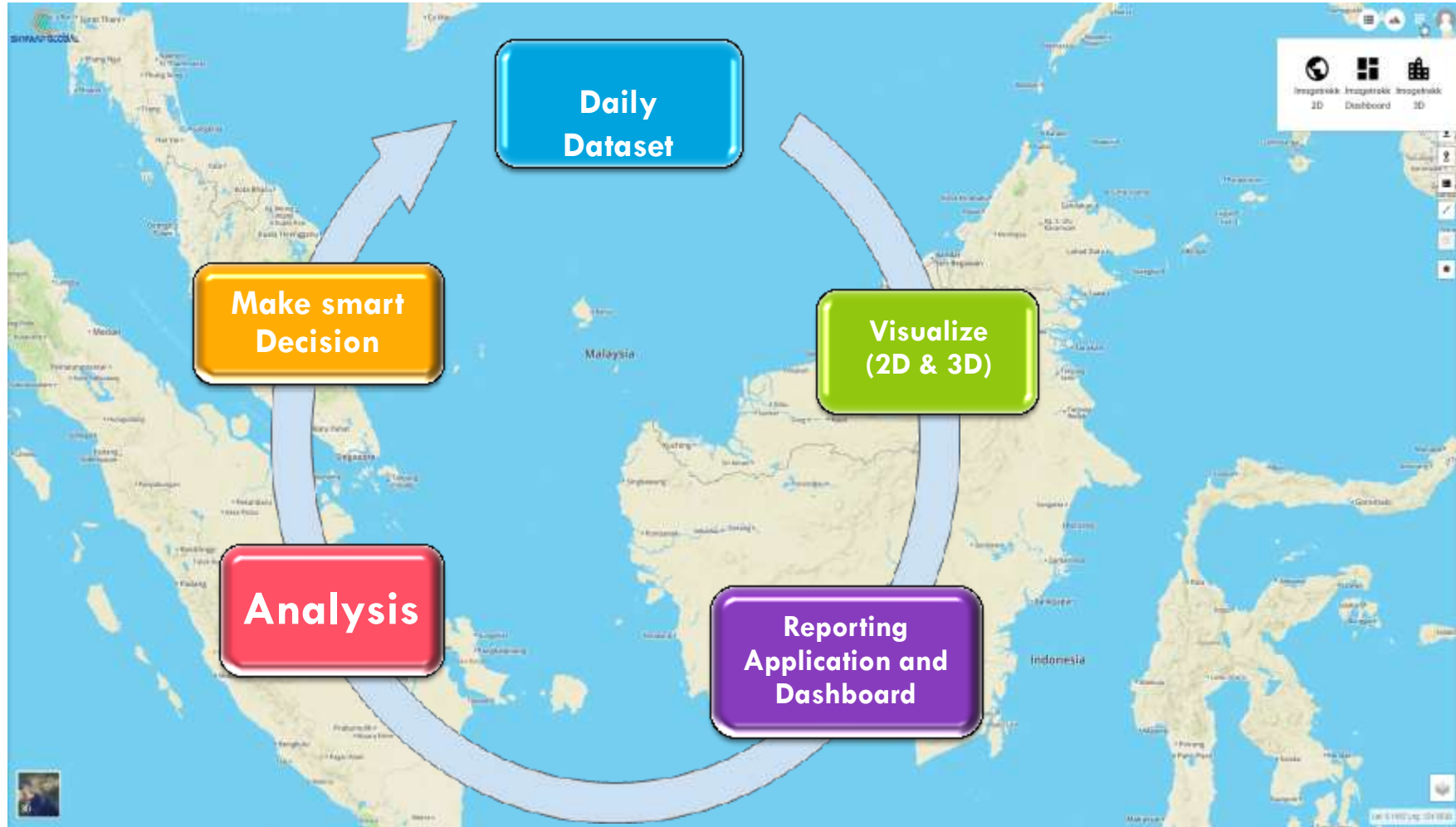
7



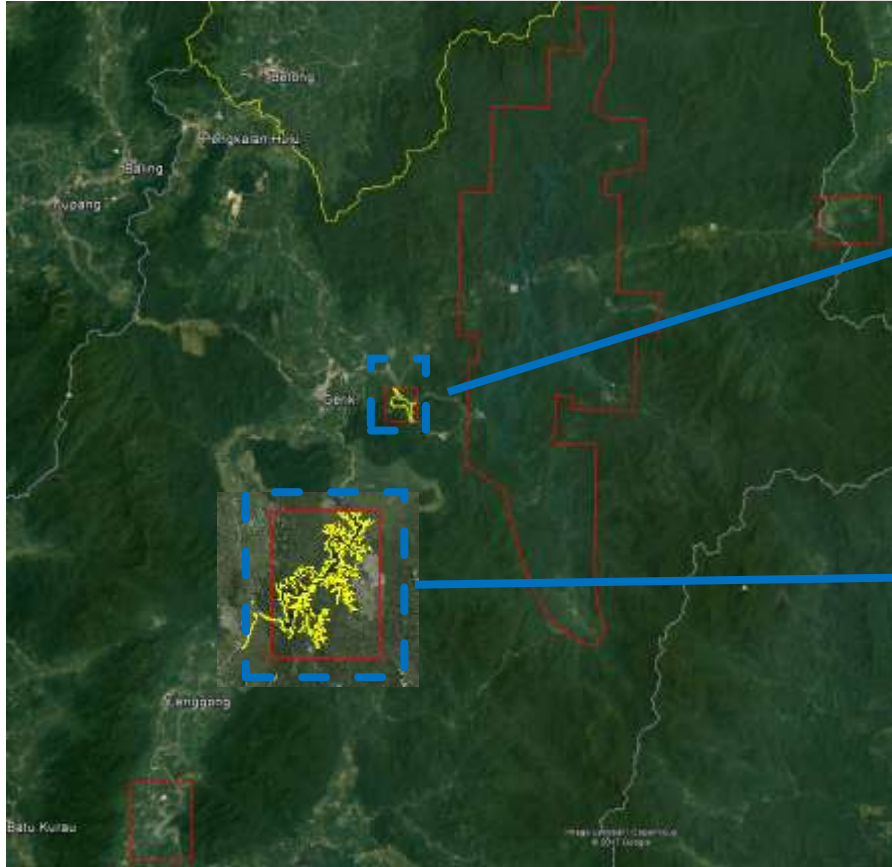
New Problem



Large area monitoring



Large Area Monitoring



Optical Image



SAR Active Radar

●



Infinite continuous supply of data

The image displays a web application for searching satellite imagery. On the left, a sidebar titled "Imagery Coverage" shows a list of 11 items found, each with a thumbnail and details like date and scene type. The main area shows a satellite view of a landscape with a search filter overlay. The filter overlay includes a date range selector, a "Sources" dropdown, a "Cloud cover" dropdown, and a calendar view for selecting dates. The calendar shows two months, 2016 Jan and 2016 Feb, with dates 1 through 28 visible. The "Search" button is highlighted in blue.

Imagery Coverage
Golf resort Enkaiyong
Saved [Clear search](#)

1/1/2016 - 7/22/2017 [Edit filters](#)

All results

111 items found

- Thu Jul 20 2017
4-band PlanetScope scene
5 items
- Mon Jul 17 2017
4-band PlanetScope scene
5 items
- Thu Jul 13 2017
Landlot 8 scenes
2 items
- Thu Jul 13 2017
4-band PlanetScope scene
2 items
- Tue Jul 11 2017
4-band PlanetScope scene
4 items
- Mon Jul 10 2017
4-band PlanetScope scene
2 items
- Sun Jul 09 2017
4-band PlanetScope scene
5 items
- Thu Jul 06 2017
4-band PlanetScope scene
3 items
- Wed Jul 05 2017
4-band PlanetScope scene
4 items
- Tue Jul 04 2017
4-band PlanetScope scene
3 items
- Sun Jul 02 2017
4-band PlanetScope scene
5 items
- Fri Jun 30 2017
4-band PlanetScope scene
2 items
- Wed Jun 28 2017
4-band PlanetScope scene
2 items
- Tue Jun 27 2017
Landlot 8 scenes
1 item
- Tue Jun 27 2017

[Compare](#) [GIF](#)

Search Images

Date range: 2016-01-01 - 2017-07-21

* Sources

Cloud cover

Last week
Last month
Last 3 months

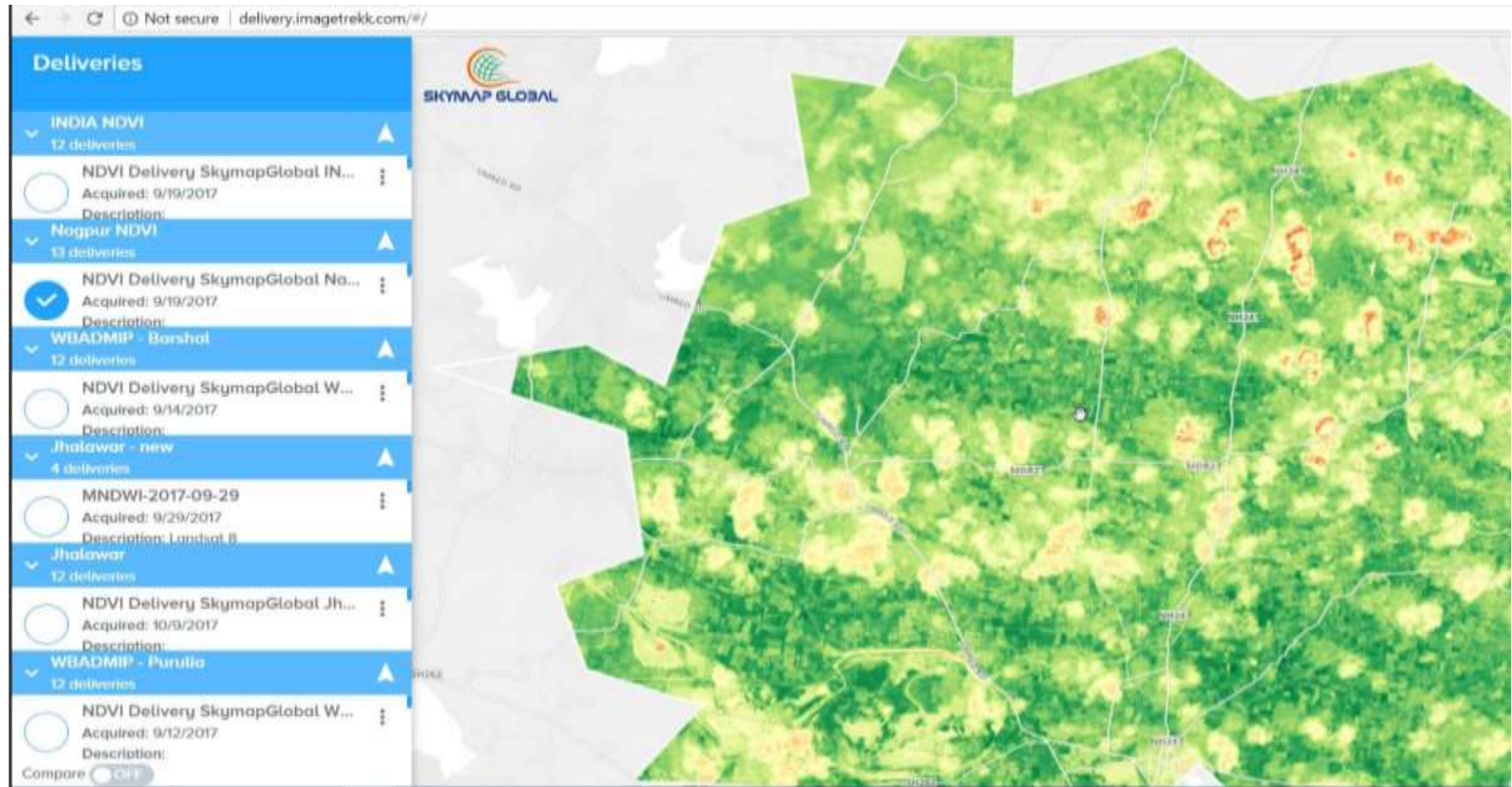
2016 Jan
Sun Mon Tue Wed Thu Fri Sat
21 22 23 24 25 26 27
28 29 30 31
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31

2016 Feb
Sun Mon Tue Wed Thu Fri Sat
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29
1 2 3 4 5 6 7 8 9 10 11 12

[Reset](#) [Search](#)

Lat: 5.0219 Long: 100.8674

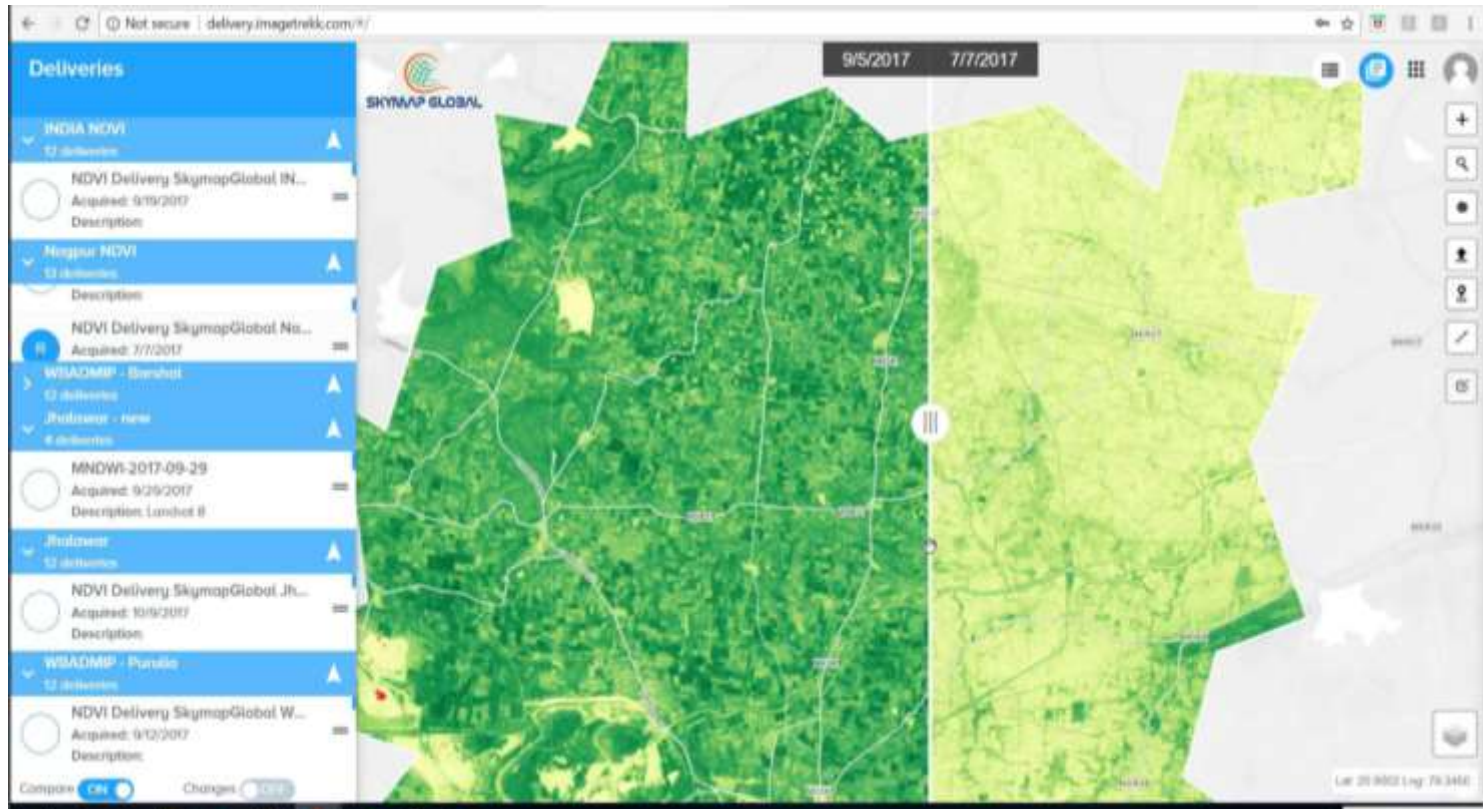
Infinite continuous supply of Analysis



27/04/2018

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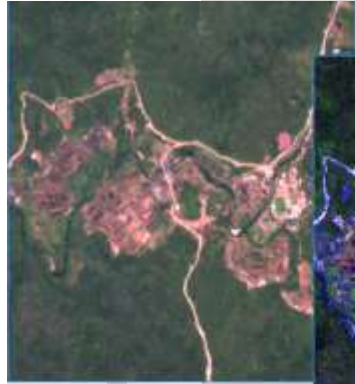
Temporal analysis



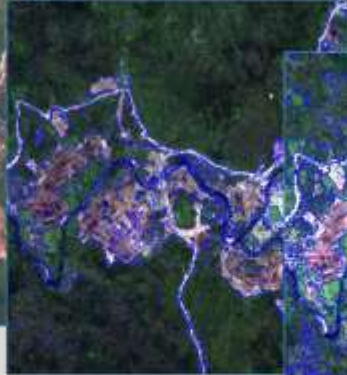
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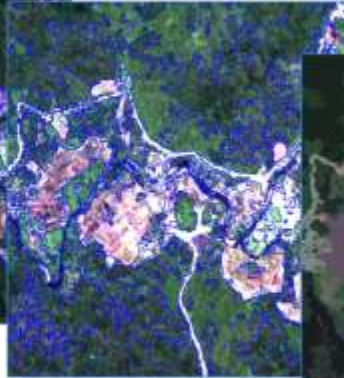
General Image analysis



Load Image



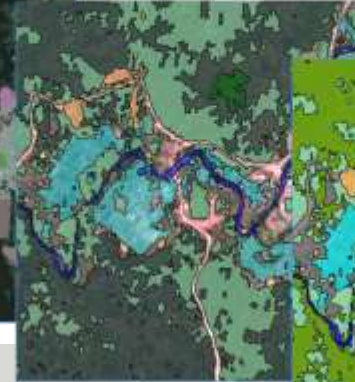
**Level 1
Segmentation**



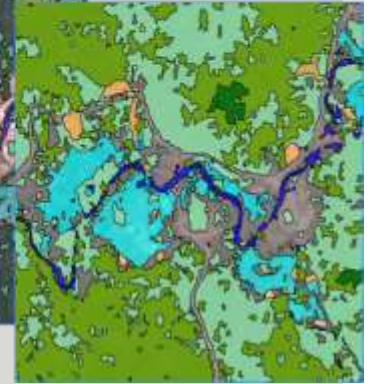
**Level 2, 3
Segmentation**



**Analyse Class
Separation**



**Knowledge-Based
Classification**



**Export Classify
Vector**



**Example of Water
Detection Overview**



Water Boundary and its surrounding



Optical Image

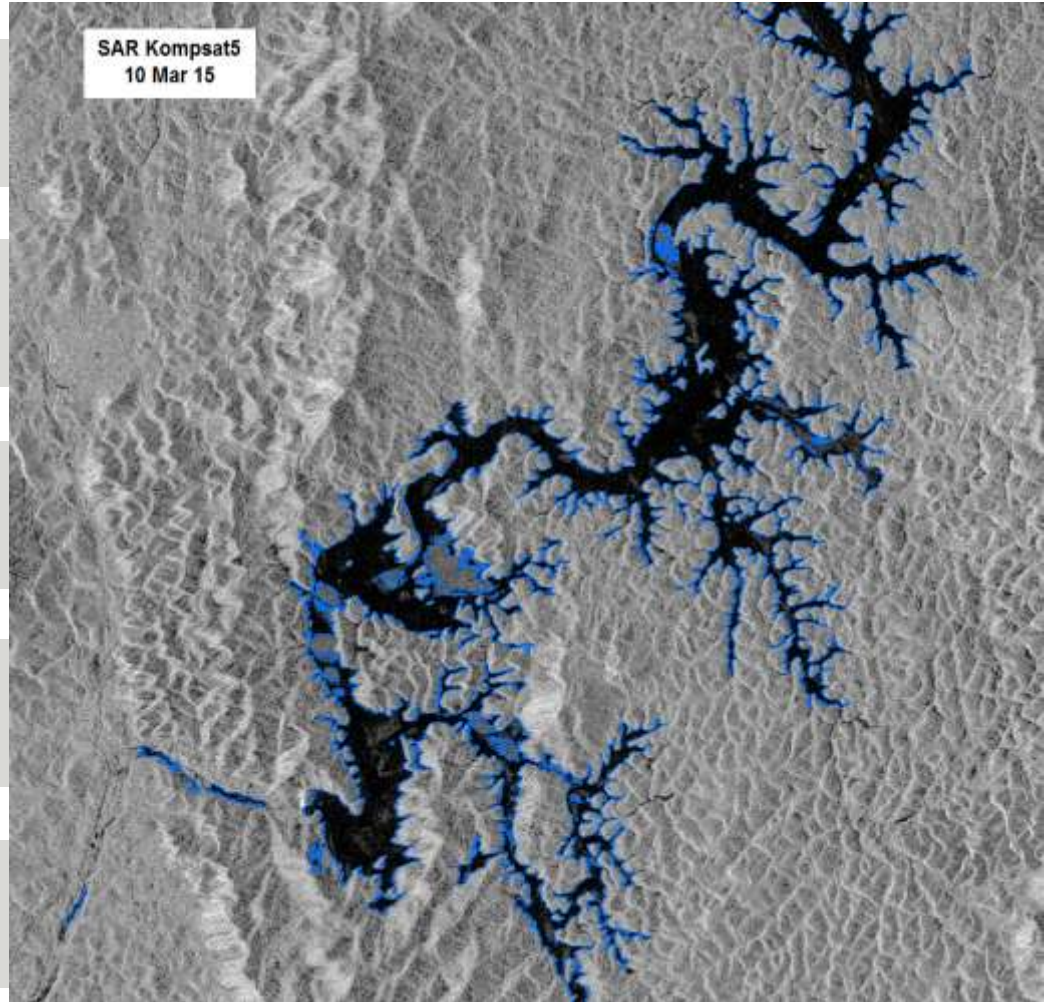
Boundary delineation and land classification
depending on features target



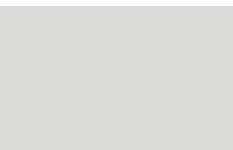
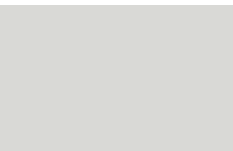
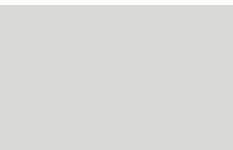
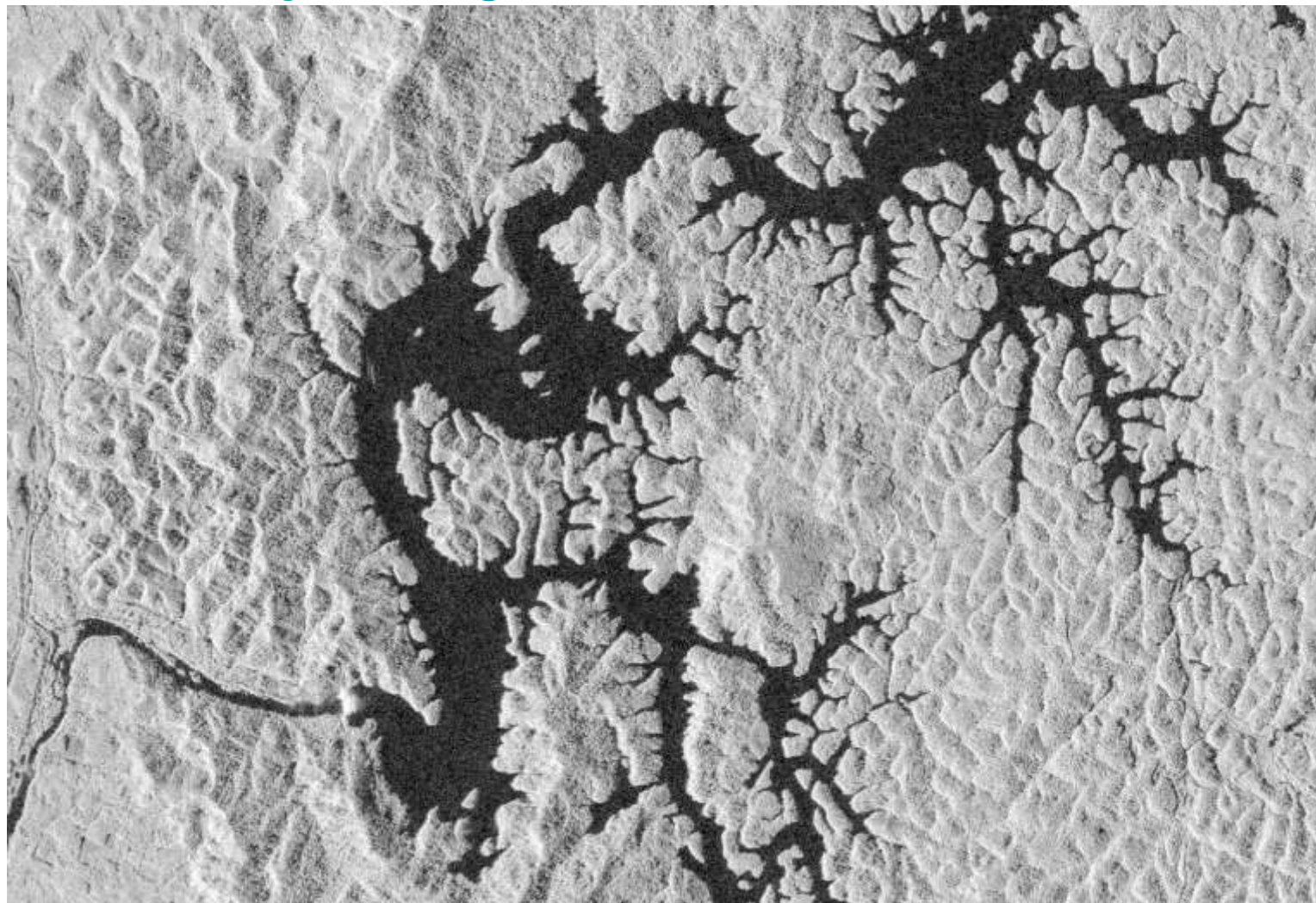
Water Boundary and its surrounding



SAR Komsat 5 Active
Radar



Boundary Change



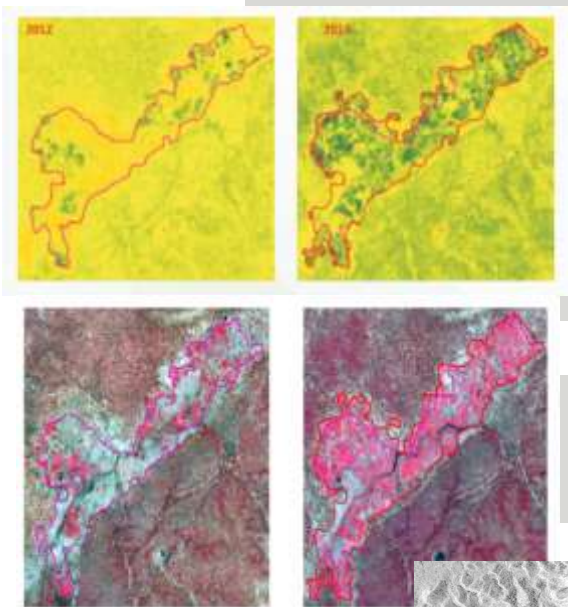
 **Change from
Water to Land**

 **Change from
Land to Water**

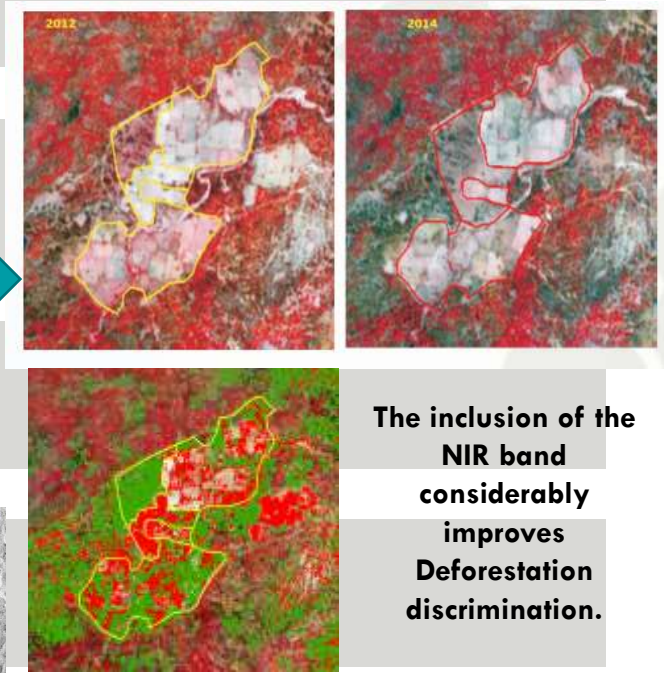


Change Detection

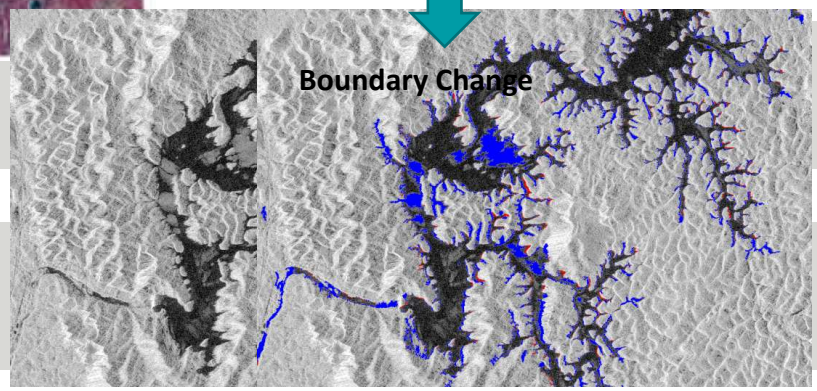
Land Encroachment



Deforestation



Boundary Change

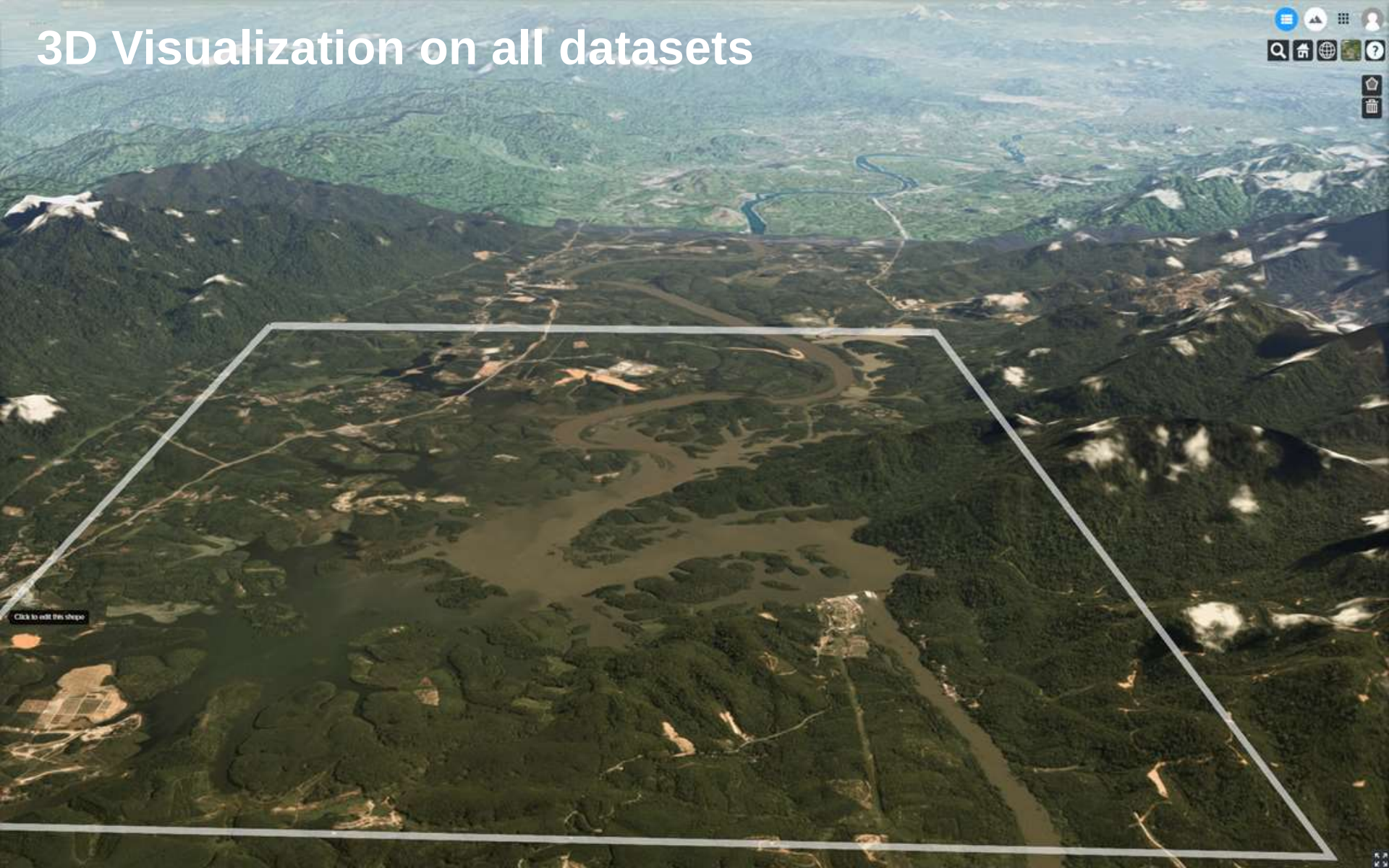


The inclusion of the NIR band considerably improves Deforestation discrimination.

Change Detection



3D Visualization on all datasets



7/9/2017

12/7/2016

Location Coordinate

5 000796, 100 956776

Side by Side comparison

Lat: 4.9939 Long: 100.9610

7/9/2017 12/7/2016



Side by Side comparison

●

●

●



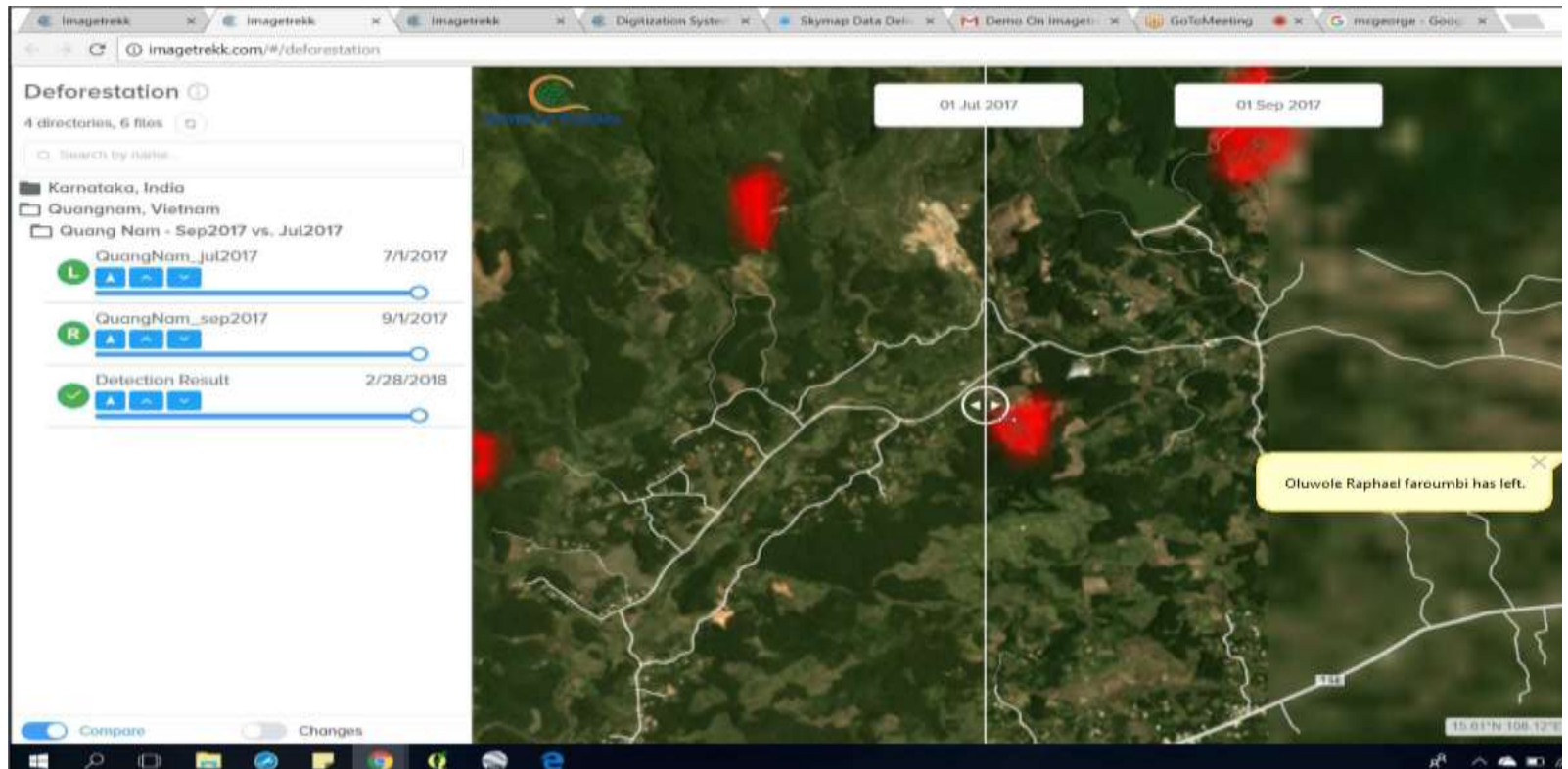
Auto Notification



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Highlight to location



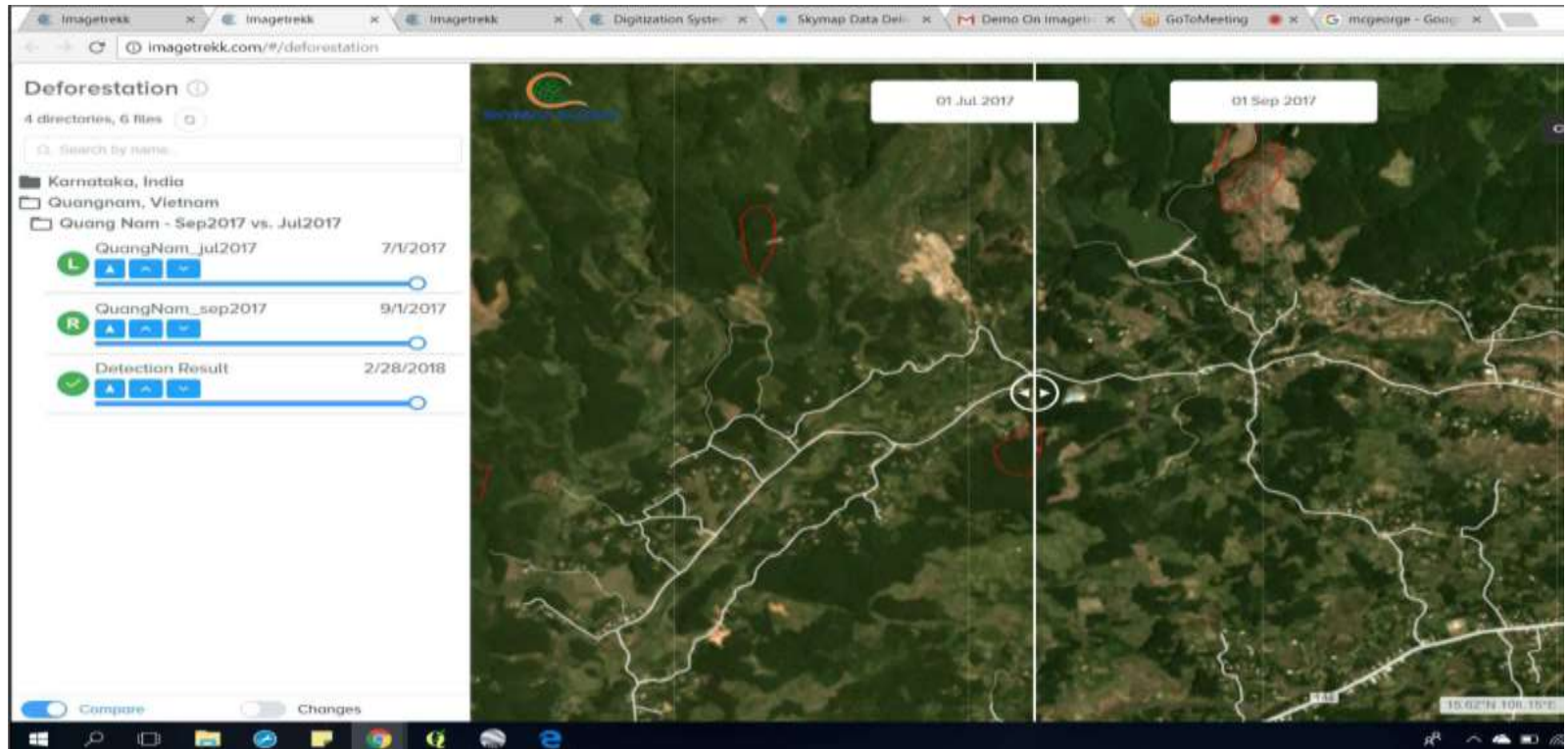
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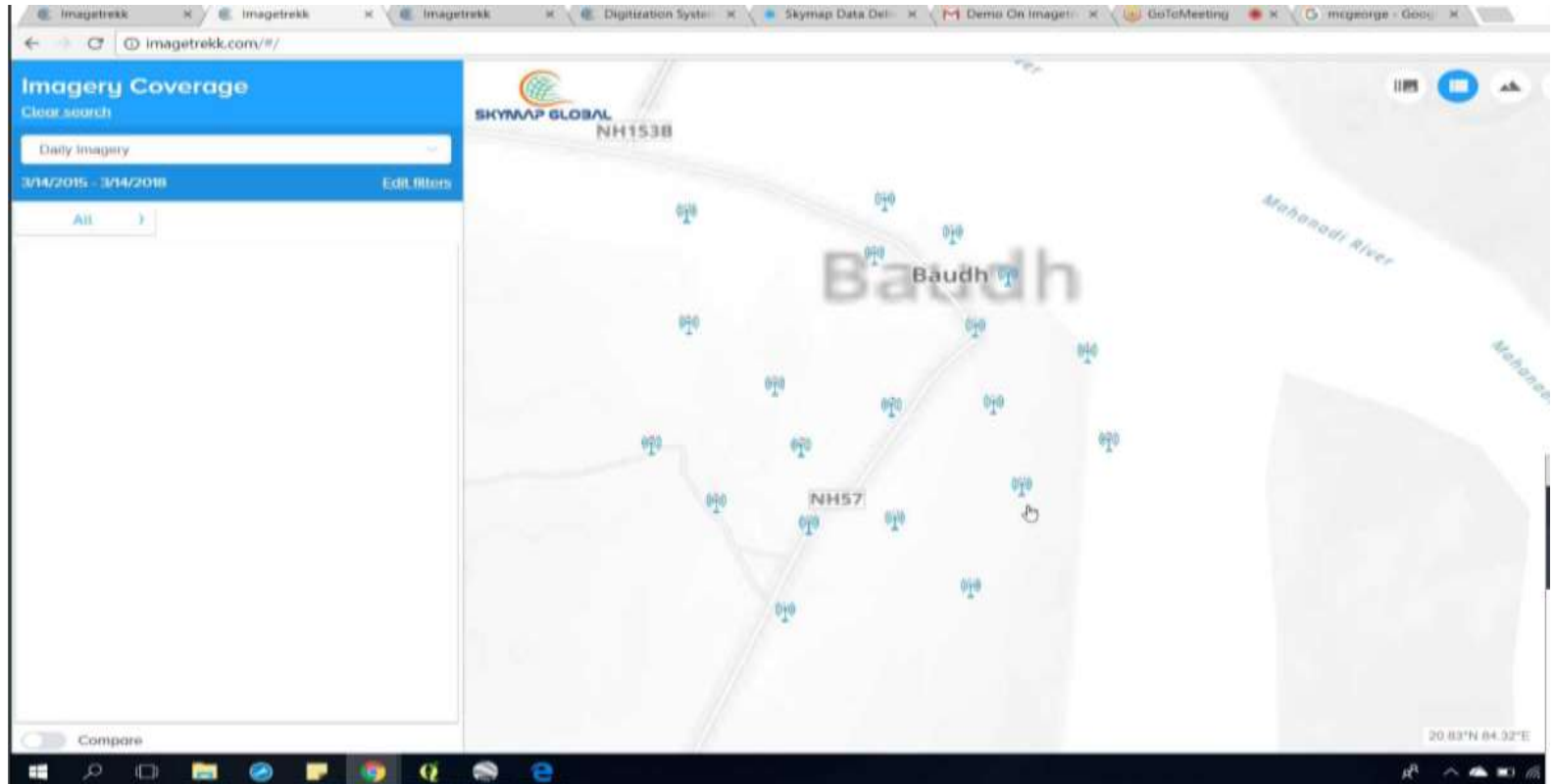
Highlight to location

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Integration to other system



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Integration to other system

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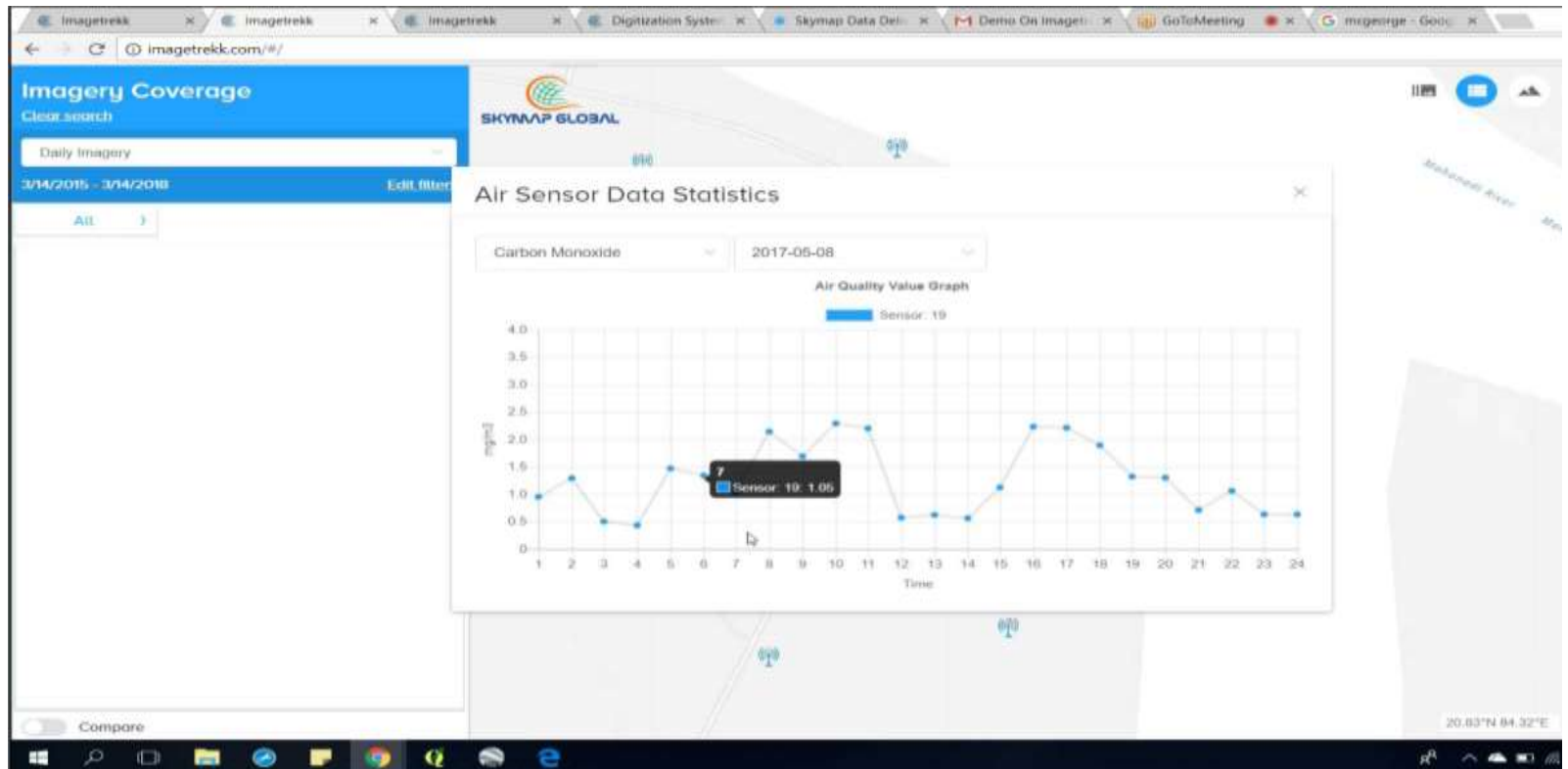


Image Analysis

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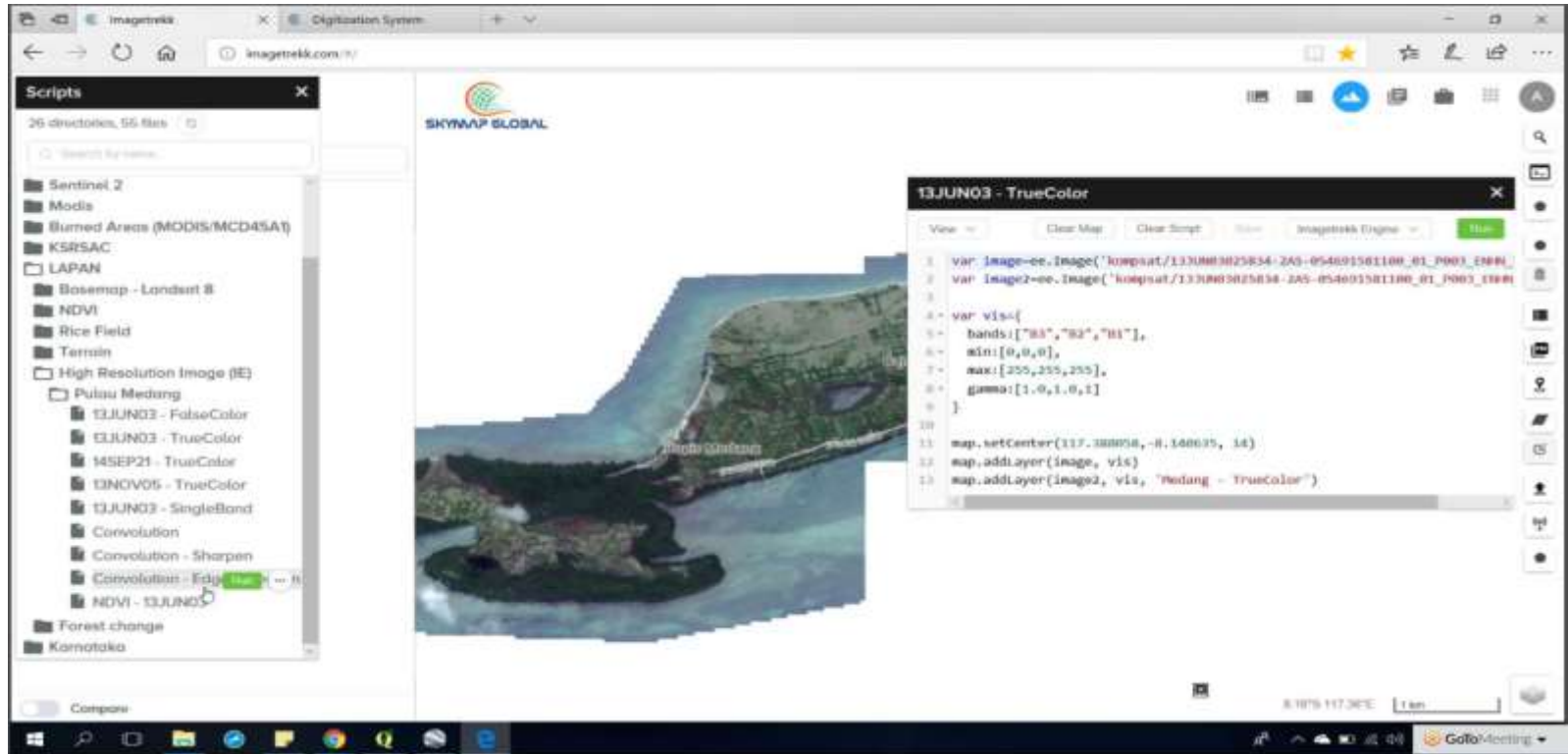
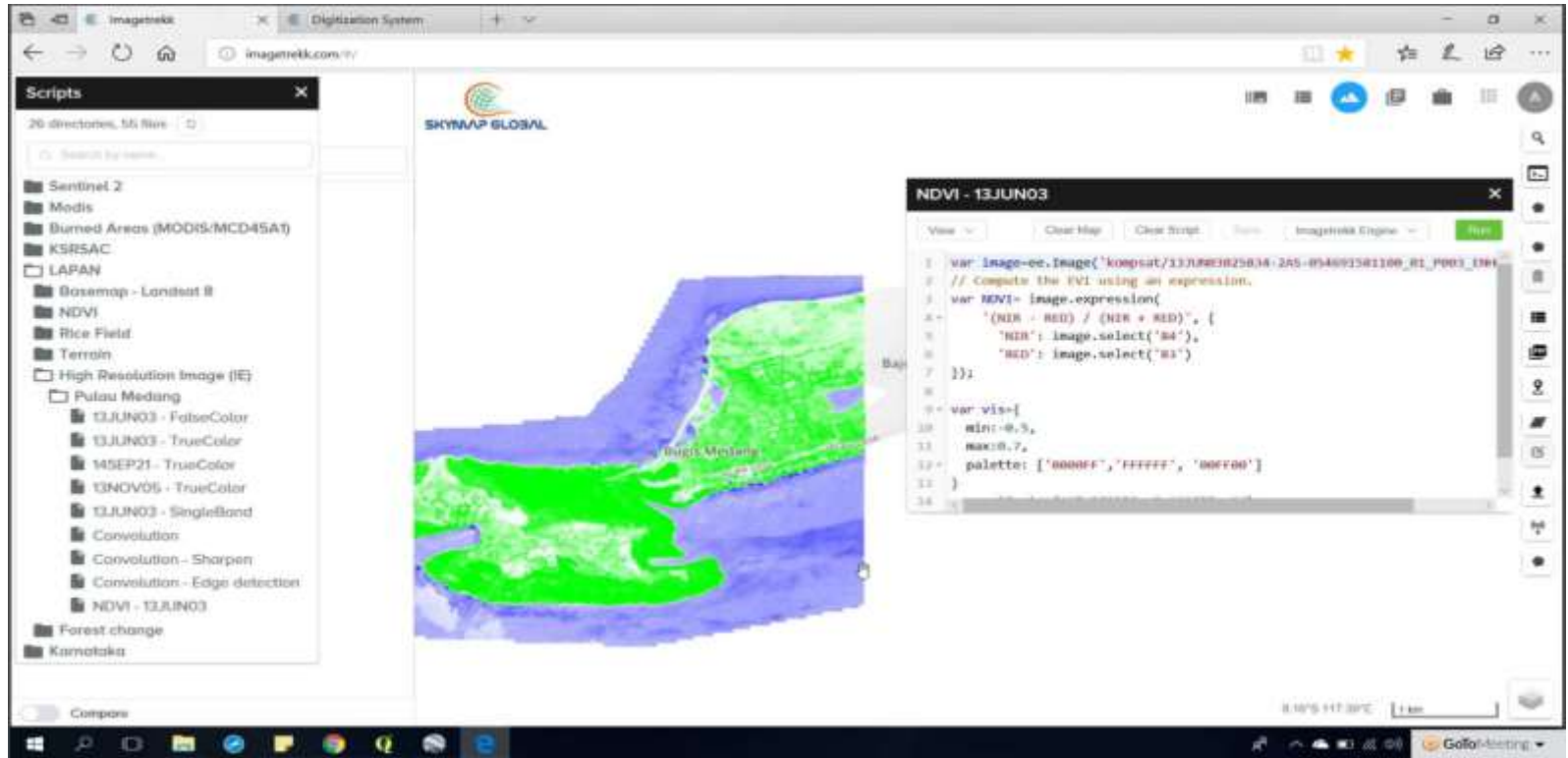


Image Analysis

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CYIENT Application

27/04/2018

- Housing Provision
- Traffic Management
- City Infrastructure
- Law Enforcement
- Zoning and Urban Planning
- Carbon foot print & Pollution
- Security

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Thank you
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Thanks to Cyberhawk and Skymap Global for their support to this presentation