

Reaching the Sky and Revealing the Underground with Interactive 3D GIS

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The Agenda

- Data Collecting
 - Ntrip
 - Collect by smart phone
 - Forestry Inventory
- Data Processing and Analysis
 - Import table to Oracle Database
 - LiDAR Data Conversion
 - Viewshed Analysis
- Web GIS
 - 3D data visualization
 - JavaScript API

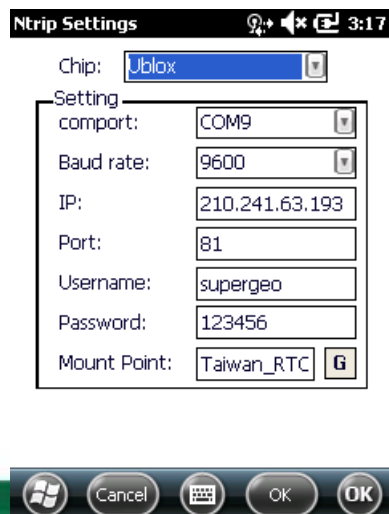
Data Collecting





Receive Ntrip Data

- GPS Chips
 - U-blox
 - NovAtel
 - Hemisphere
- Mode indicates the correction level.
 - GPS, DGPS, Fix / Float RTK



The signals



- NTRIP
- GPS

Laser Range Finder

Determine the distance to an object.

- Add the position of the object.
- Activate the **Laser** extension.



Collect GIS Data in Smart Phone

- Android / iOS 7
- Collect data in Shape file
- Load shape file and raster data
- GPS editing
- Way point
- Track log



Forestry Inventory



Data Schema

1.Planning

Set sample plots

Enter Plot Code and Plot Name

Select attributes to describe the site



Add New Sample Plot

Plot | Tree | Create

Plot Code
Task1_plot_1

Plot Name
Plot_1

Deselected	Selected
<input type="checkbox"/> Estimated Stand Hight	<input type="checkbox"/> Terrains
<input type="checkbox"/> 2nd Understory	<input type="checkbox"/> Crown Density Scale
<input type="checkbox"/> Understory Hgt.	<input type="checkbox"/> Stand Age
<input type="checkbox"/> Understory Dens.	<input type="checkbox"/> Understory
<input type="checkbox"/> Soil Type	<input type="checkbox"/> Memo
<input type="checkbox"/> Soil Depth	
<input type="checkbox"/> Soil Hardness	
<input type="checkbox"/> Soil Moist	



Add New Sample Plot

Plot | Tree | Create

Additional factors to distinguish Tree No.

Identify Subplots

Identify Branches

Deselected	Selected
<input type="checkbox"/> BranchHgt	<input type="checkbox"/> DBH
<input type="checkbox"/> CrownWdth	<input type="checkbox"/> Sp.
<input type="checkbox"/> CrownClass	<input type="checkbox"/> TreeHgt
<input type="checkbox"/> Status	<input type="checkbox"/> Memo

Input field data

Plot	Tree
Profile	
Plot Code	Task1_plot_3
Plot Name	Plot_3
Date	2014/09/03
Surveyor	
Area	0.0
Measure	
Photo List	<input type="button" value="Photo"/>
Quick Statistic	<input type="button" value="Stat."/>
Plot Description	

Specialized
Plot data
collecting interface

2.Inventory Collect field data

Specialized
Tree data
collecting interface

Plot	Tree
Subplot B	DBH Sp. Tre 7.8
Tree No. 3	Save
LAST INPUT	Subplot Tree Sp. B 1 04 pine
Subplot Tree No. DBH Sp. Tree	
A 1 10.507 beech	
1	2
4	5
7	8
,	0
	.
	Done

Quick Statistic

Key Feature-Collecting **Plot data** (Part 2)

Photo List Photo

Quick Statistic Stat.

	Mean	Min.	Max.
DBH	8.8	3.6	12.3
TreeHgt	0	0	0
BranchHgt	0	0	0

Plot Description

Terrains 5. Hillside

Crown Density Scale 3. 40-70% Moderate

Stand Age 15

Understory 2. Shrubs

Memo

Quick Statistic:
Calculating the mean, min. and max.
of the numeric Tree attributes

Plot Description:
Record information of the sample plot using
customized input boxes and dropdown menus

Besides the default plot attributes, users are
allowed to customize the attributes before
creating the plot.

Data Management

Select Tree

Plot	Tree
Subplot B	DBH Sp. Tre
Tree No. 3	7.8
	Save

Select Tree attributes
Enter/Edit/Delete data

Confirm the last input

LAST INPUT	Subplot	Tree	DBH
	B	3	7.8

Delete Tree Data

	Subplot	Tree No.	DBH	Sp.	TreeHgt
X	A	1	10.5	07 beech	
X	A	2	12.3	04 pine	
X	A	3	9.7	03 larch	
X	B	1	7.8	04 pine	
X	B	2	3.6		

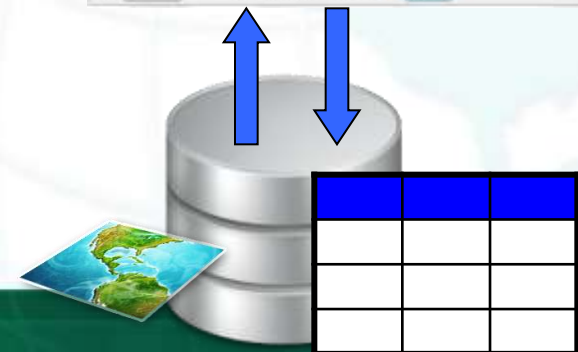
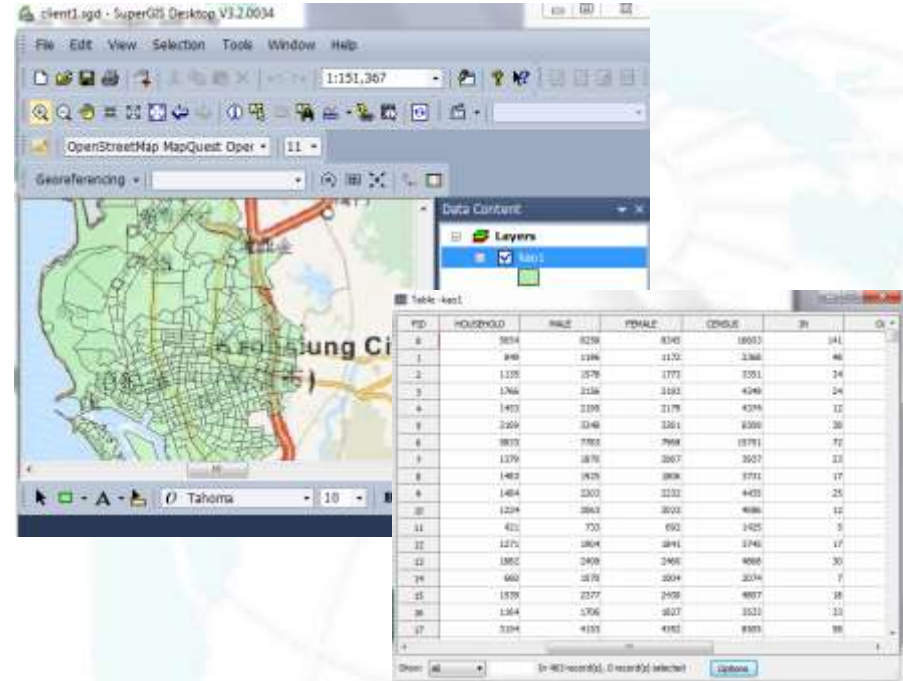
Inspect the table of Tree data



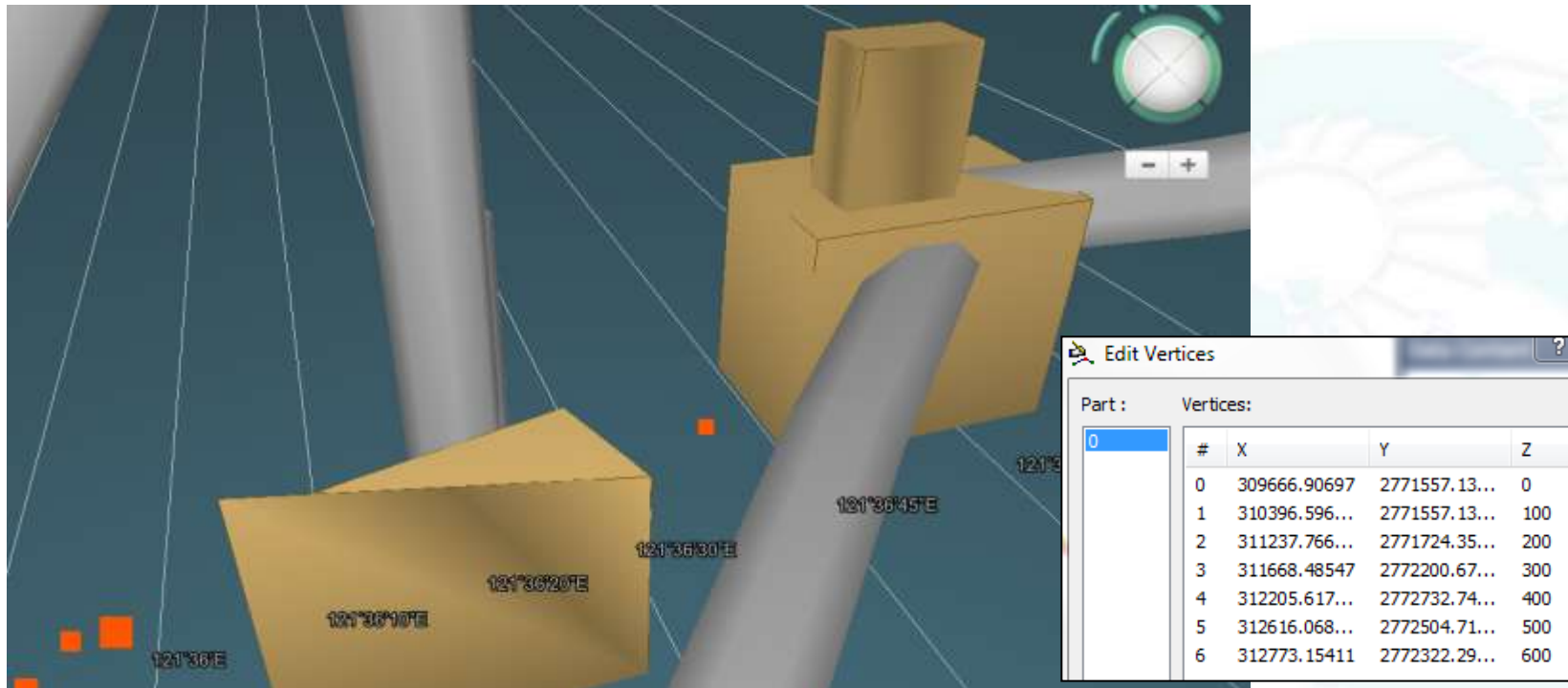
Data Processing and Analysis

Read / Write Oracle Database

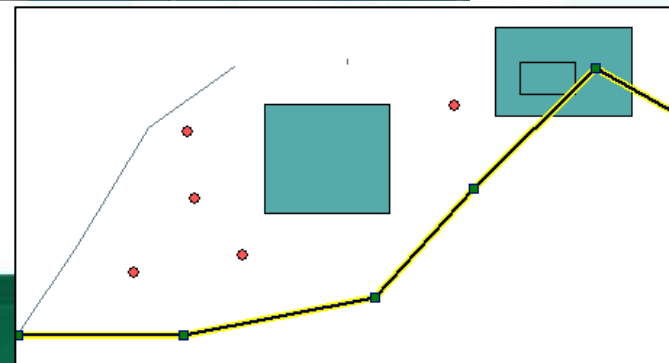
- **No middleware or extra software required**
- Save raster data to database
- Import table from external file
- Append to existed table
- Edit table in Oracle
- MSSQL / PostgreSQL



Pull Up Z Value

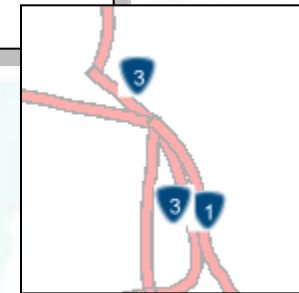
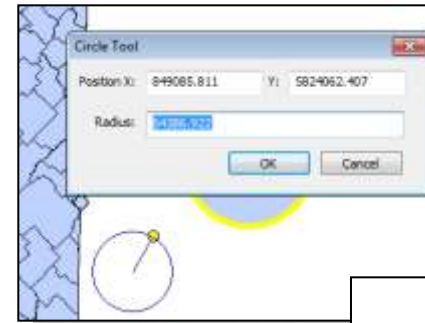


Stereo Visualization of Shape file with Z value



New tools

- Draw the circle by input center and radius
- Label text with picture as background



LiDAR Data Display and Analysis

Overlay GIS data to LiDAR data



Explore more facts from
LiDAR with GIS data

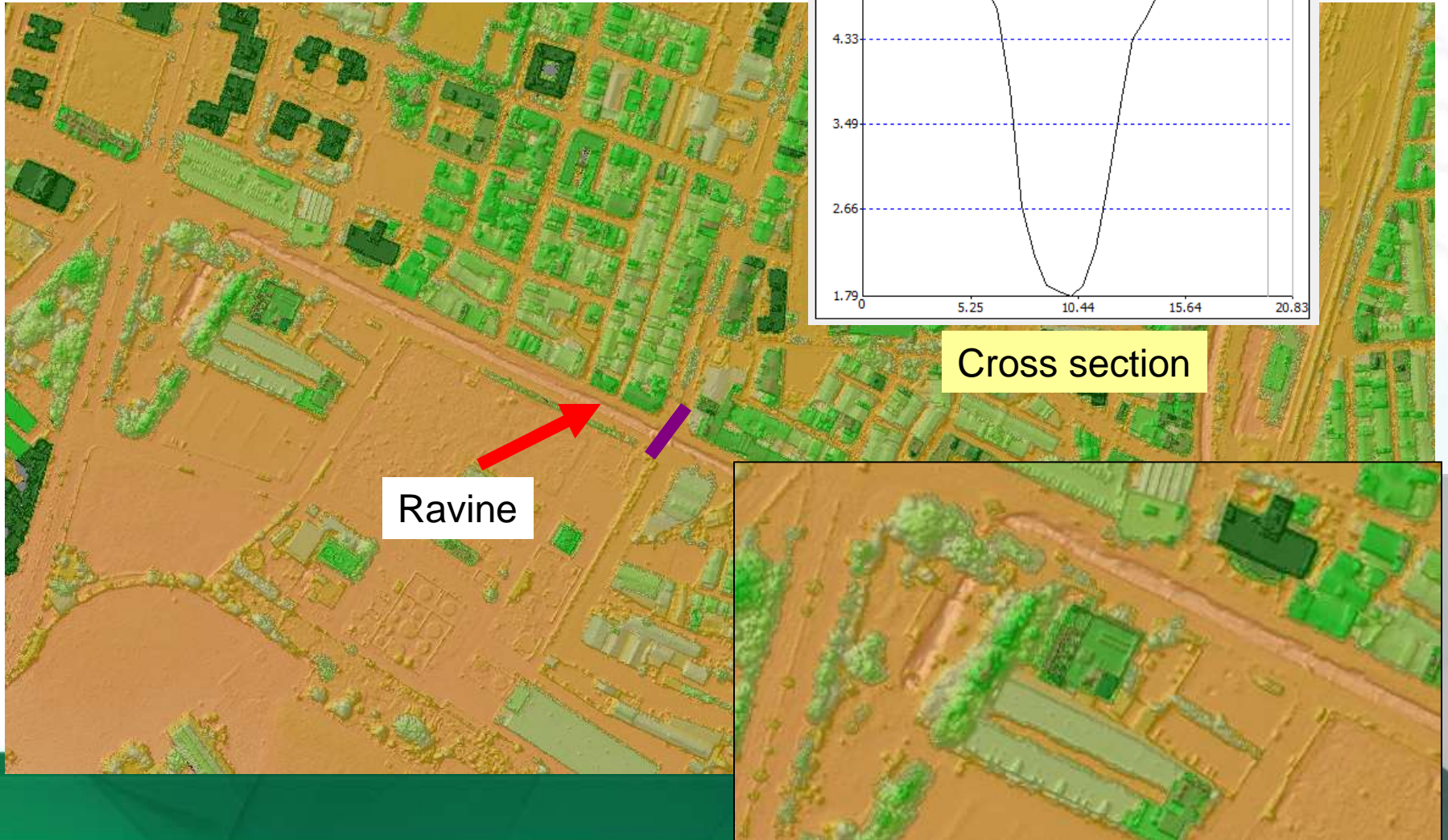
LAS Process Tools

- Las to Raster
 - Digital Surface Model
 - Aerial Image
- Las to Point

Urban viewshed
Micro Air Pollution model building
Damage Assessment
Detect Extra Floor



Ground Surface Inspection



View Shed Analysis with DSM



Visible

Invisible

Web-GIS

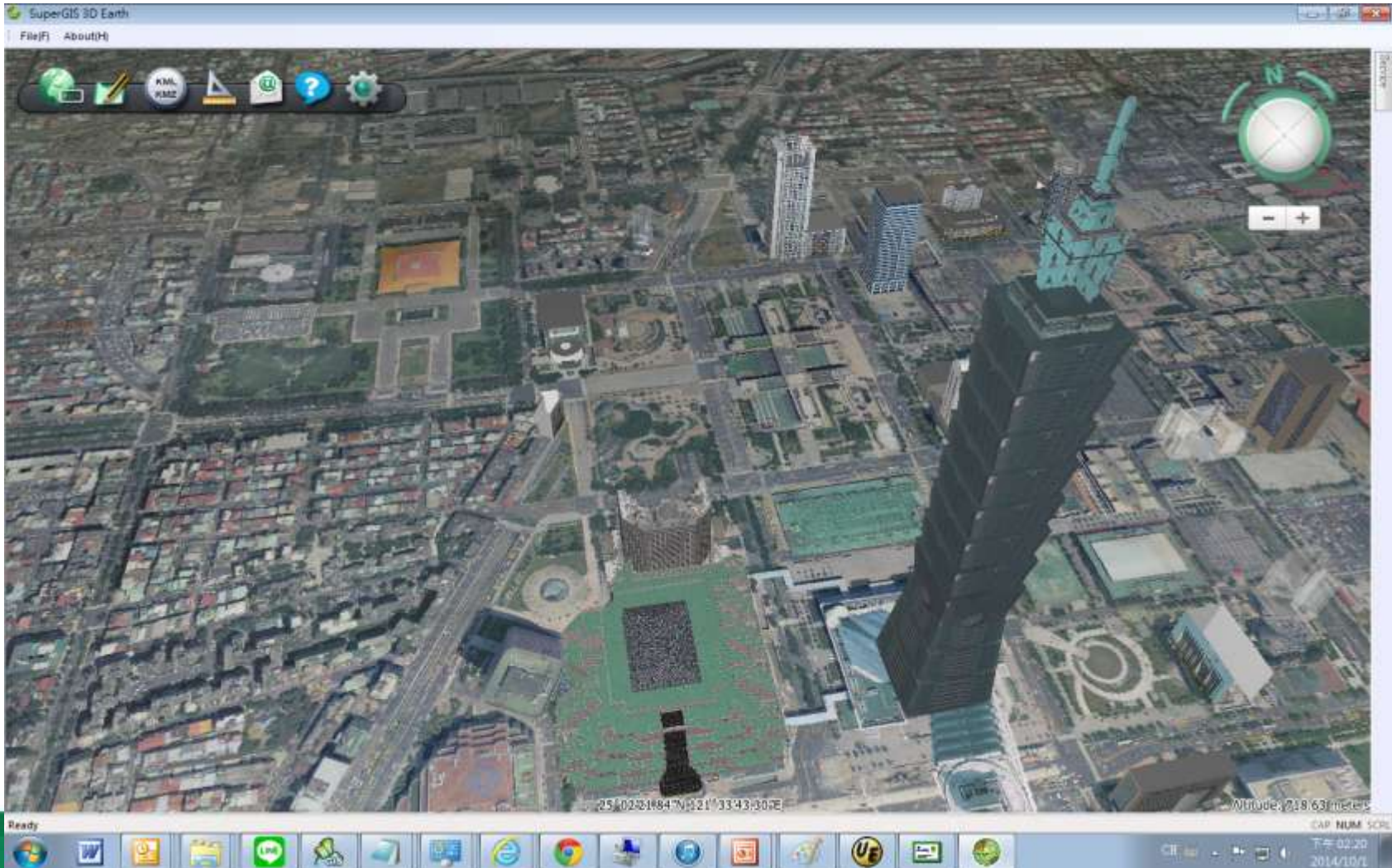


SuperGIS 3D Earth Server 3.2

SuperGIS 3D Earth Server Workflow



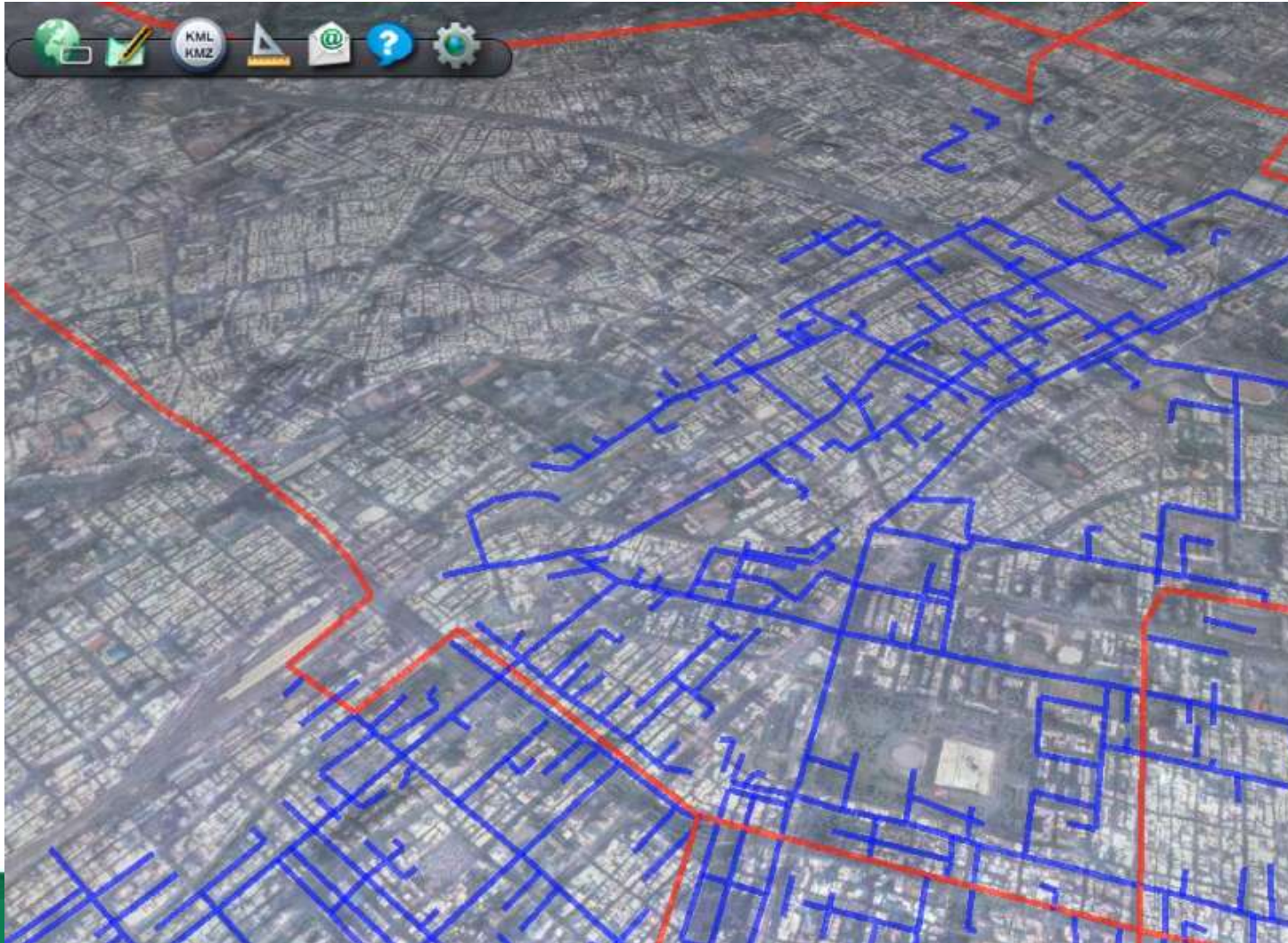
Ground Truth with 3D Model



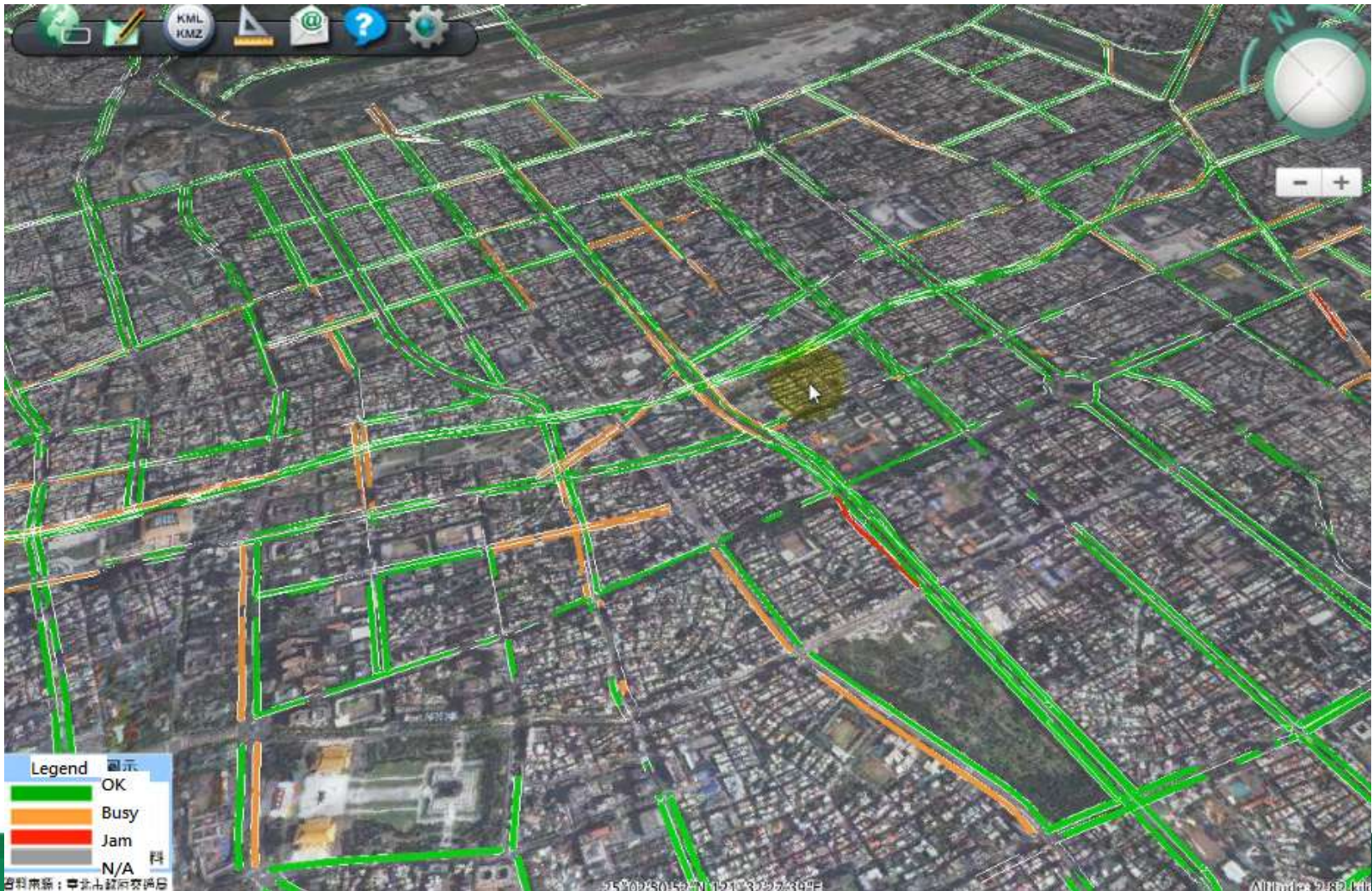
Geo Event on the earth



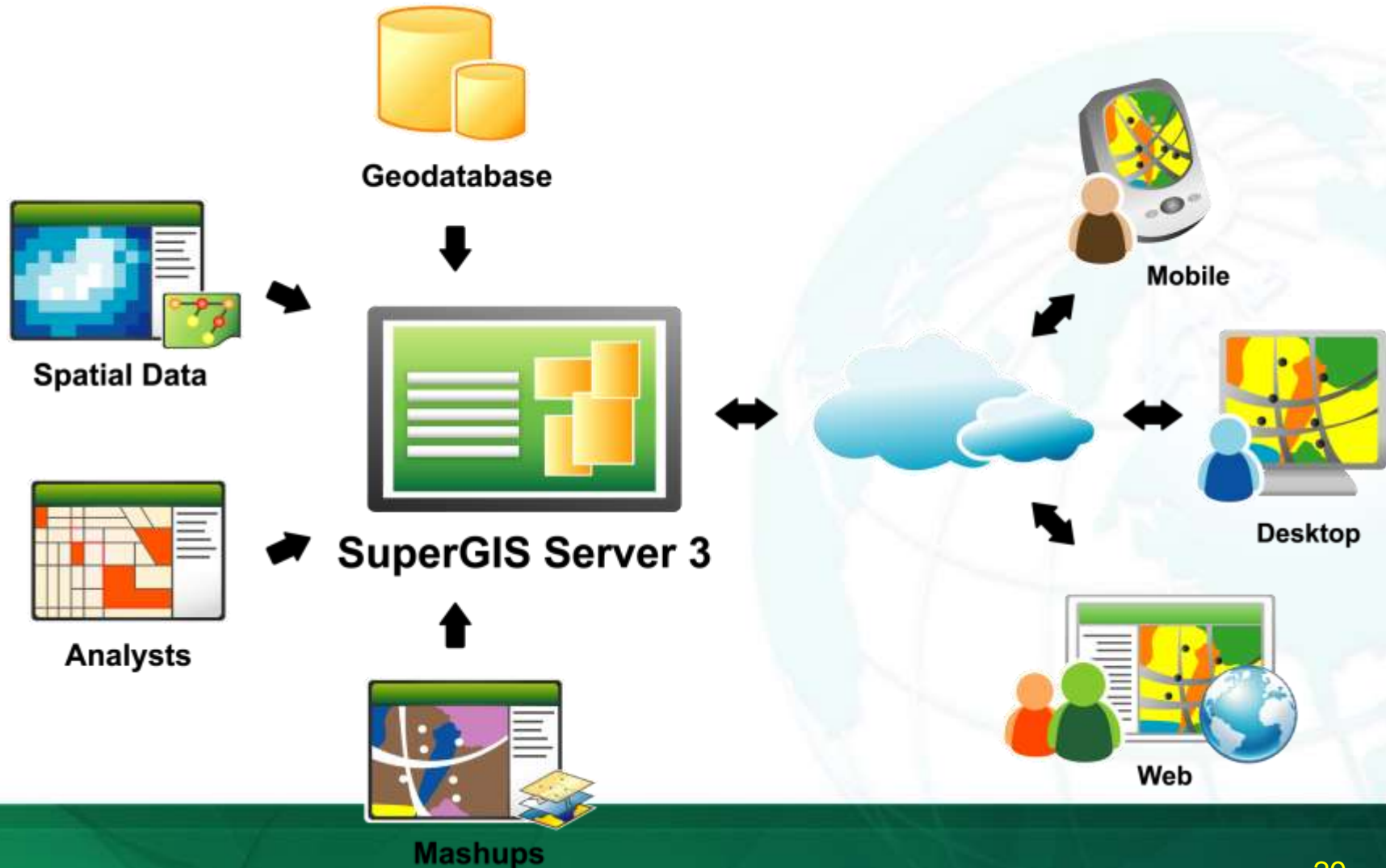
Gas / Oil Pipeline



Current Traffic Jam



SuperGIS Server 3.2



SuperGIS Server 3.2

- Share GIS data with internet
 - Map service
 - Feature service
 - Cache service
 - OGC web services
 - KML service
- Build web application

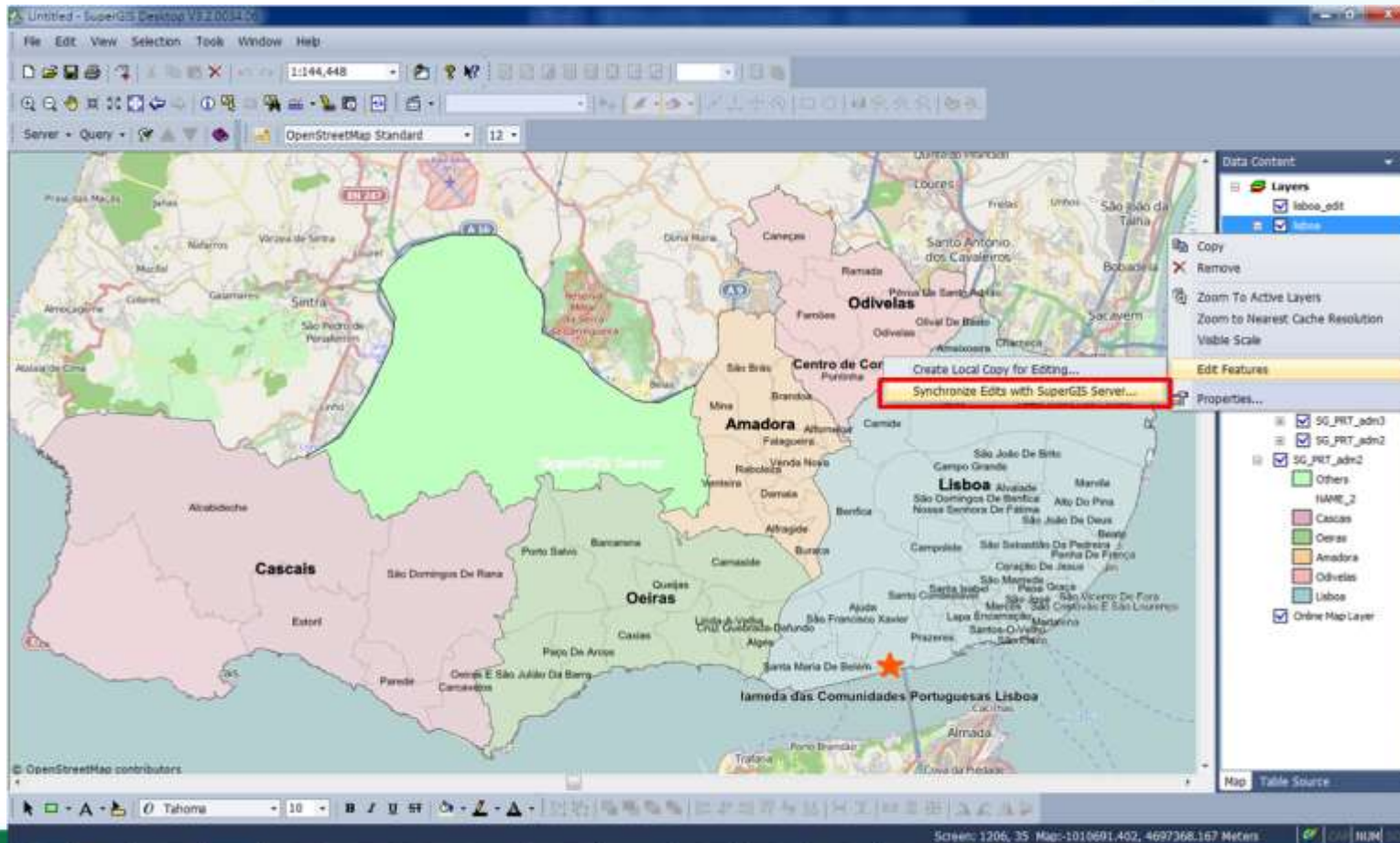


SGS JavaScript API

- Customize the SuperGIS Server web site with JavaScript API
- New API Functions:
 - Graduated Color
 - Graduated Symbol
 - Dot map
 - label



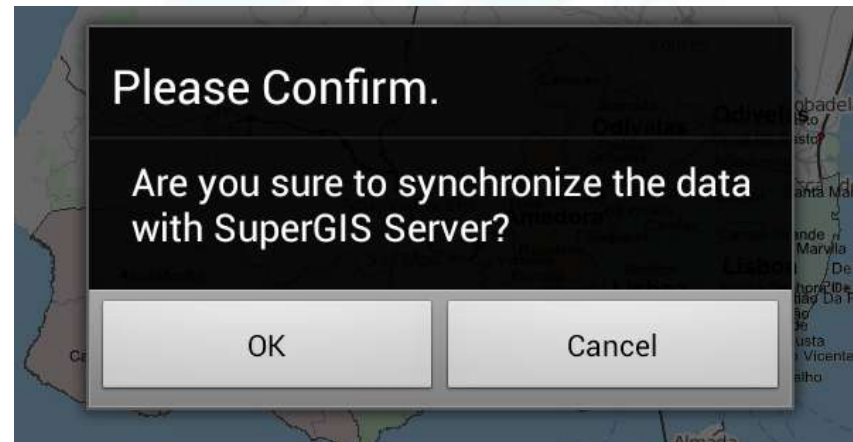
Desktop Client



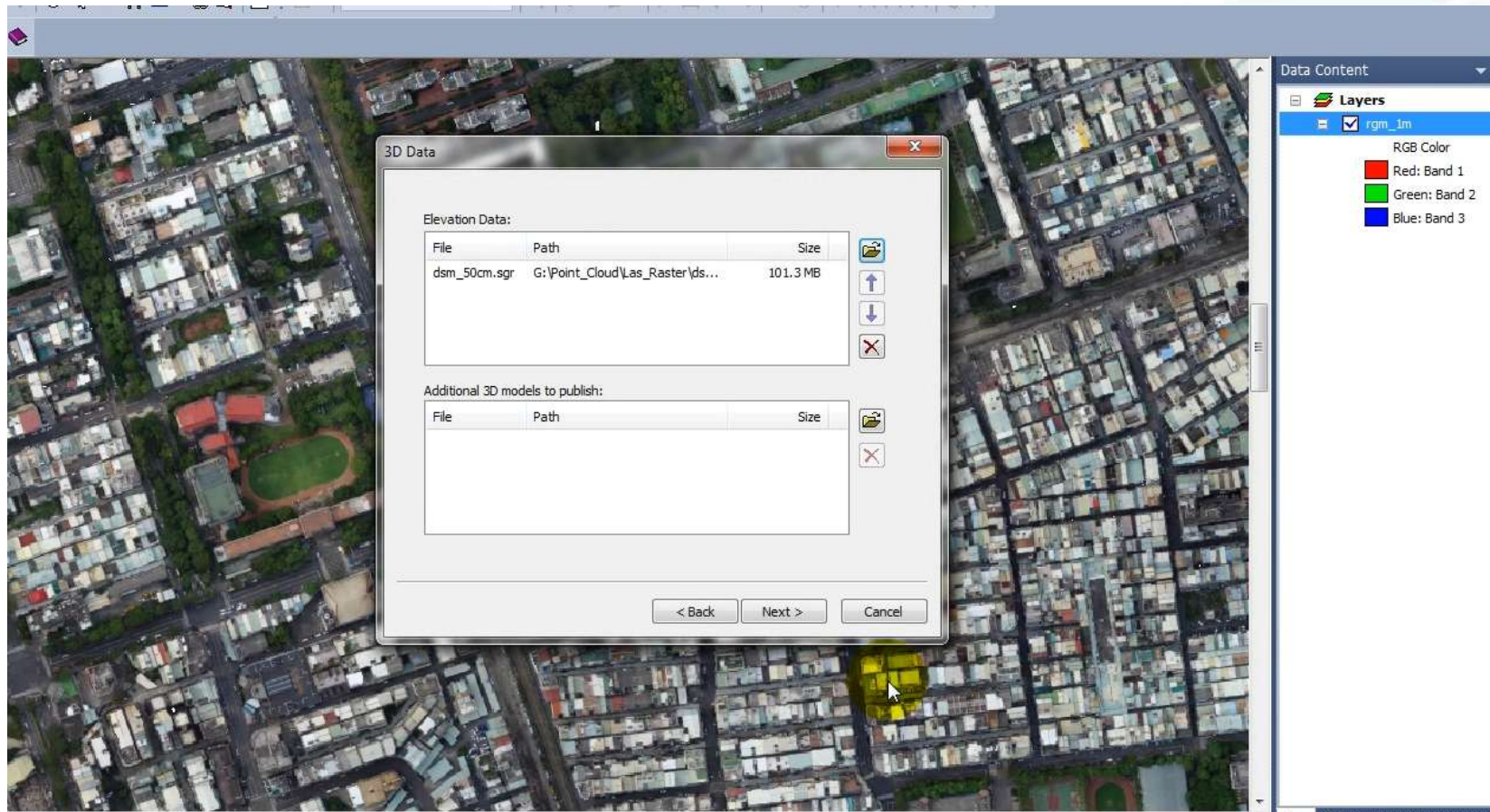
Web Editing



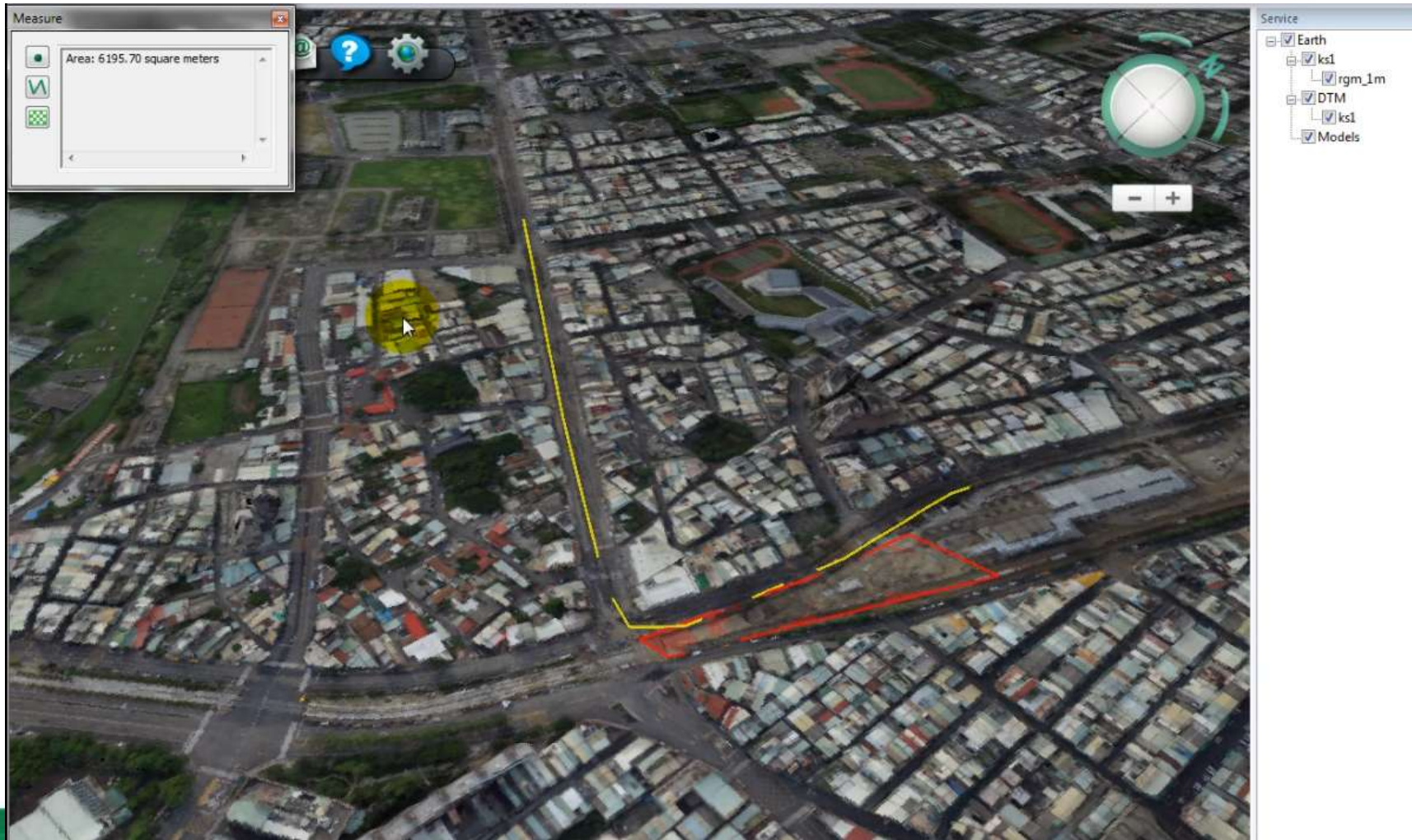
Mobile Editing



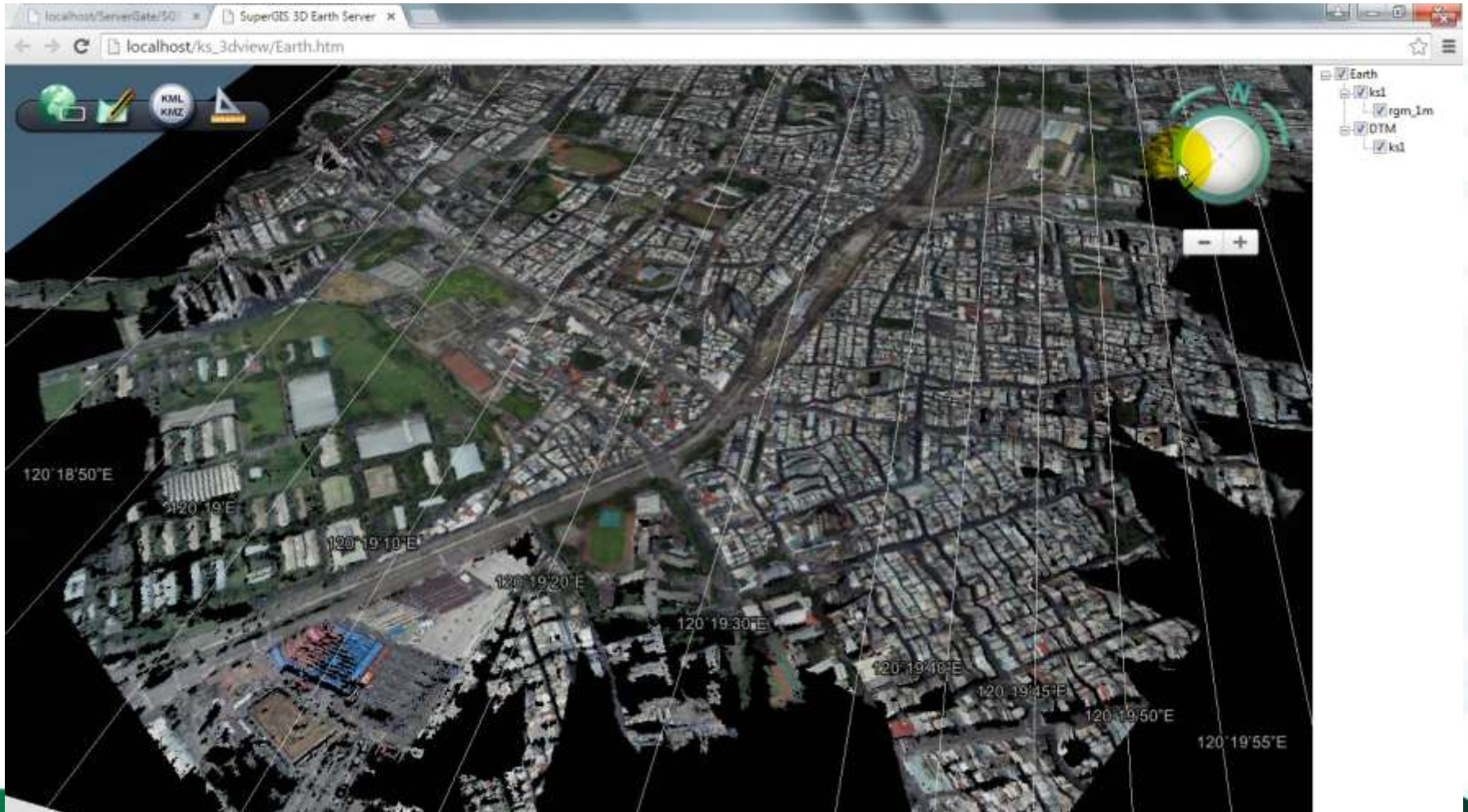
Video 1: Publish 3D data



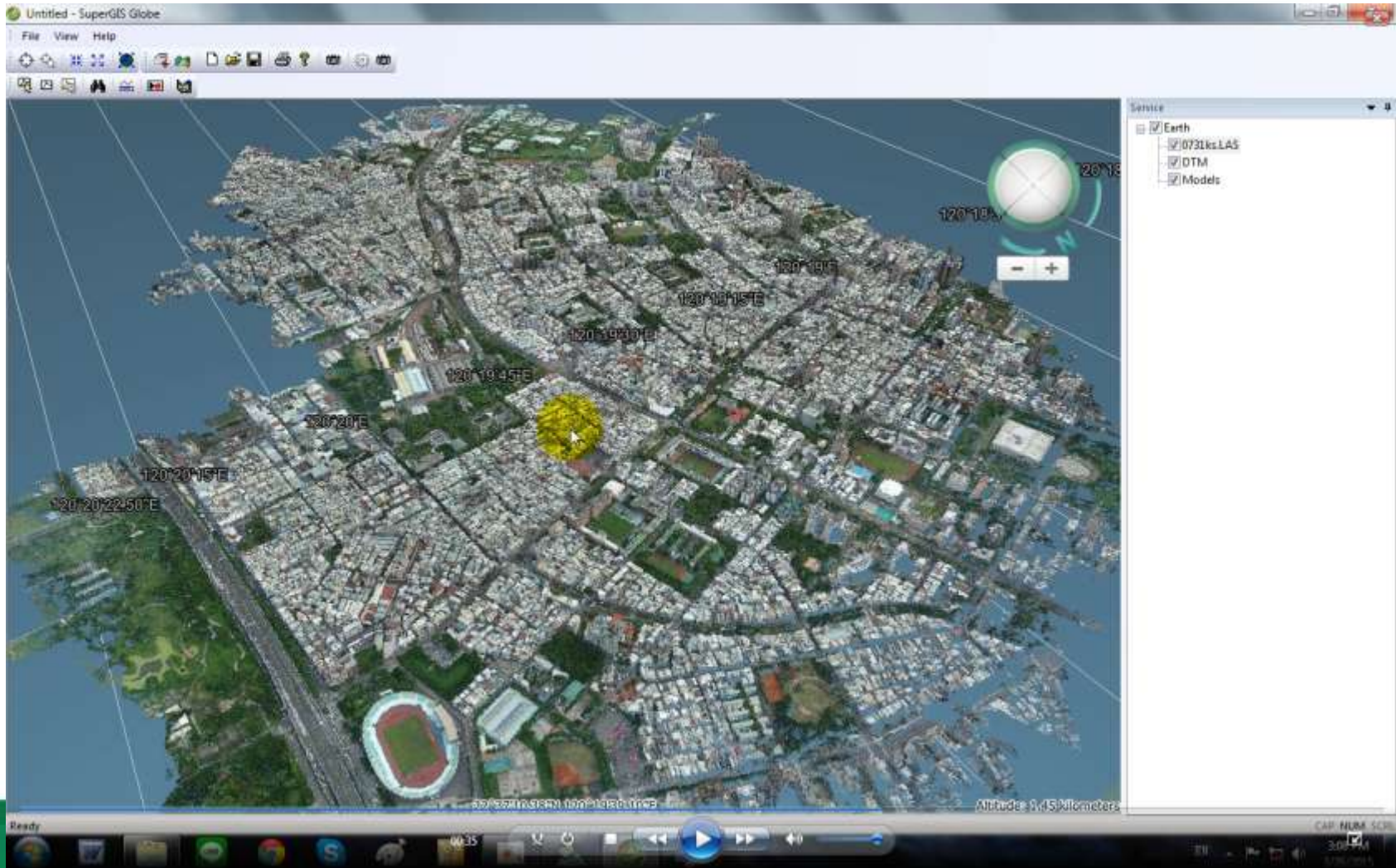
Video 2: View 3D in Client



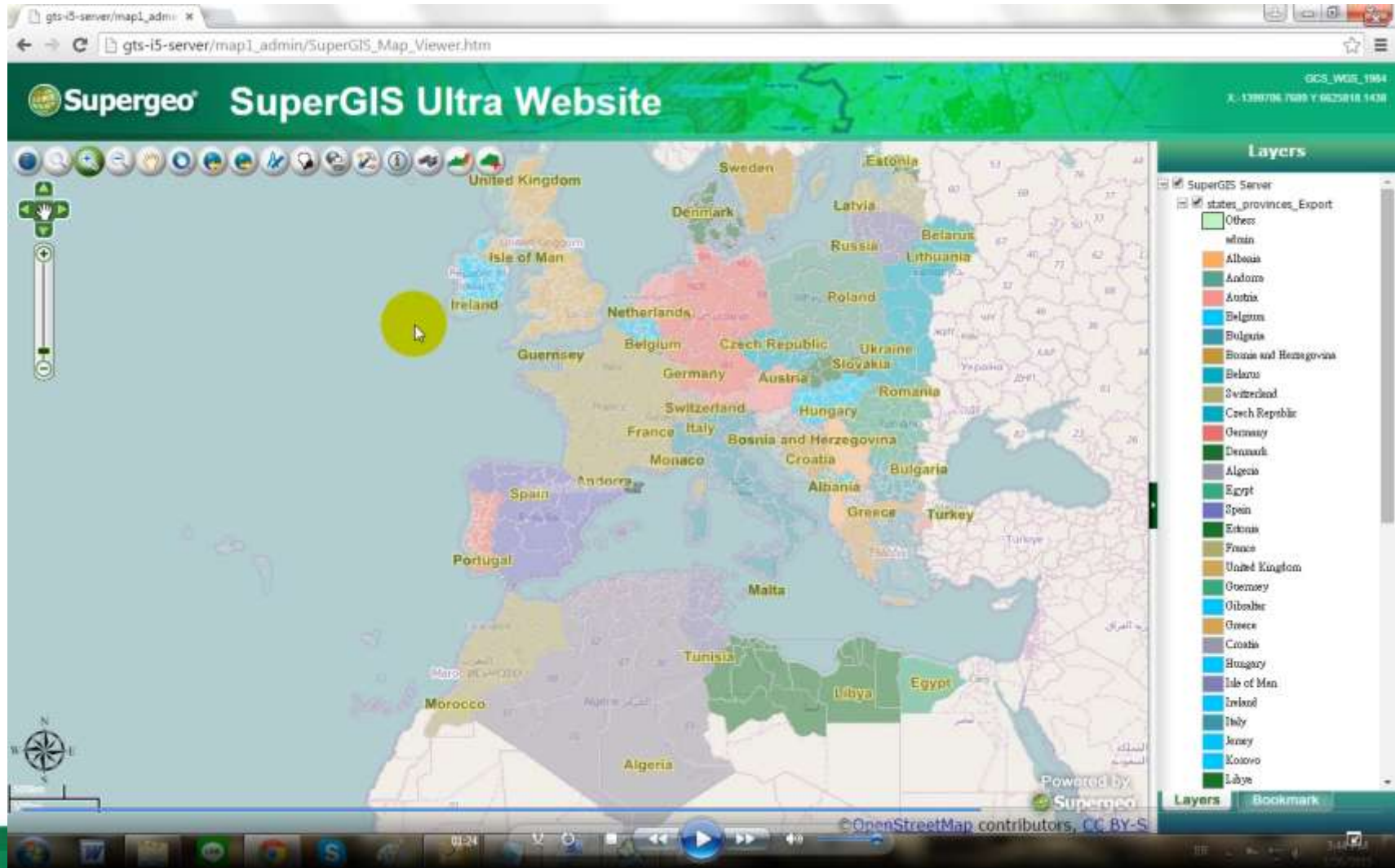
Video 3: 3d web application



Video 4: Display LiDAR data



Video 5: Publish data to SGS



The screenshot displays the Supergeo SuperGIS Ultra Website interface. The main map shows a geographical view of Europe and surrounding regions, with various countries color-coded. A yellow circle highlights a specific location in the Atlantic Ocean. The interface includes a toolbar with navigation and tool icons, a scale bar, and a north arrow. The 'Layers' panel on the right lists the following layers:

- SuperGIS Server
- states_provinces_Export
 - Others
 - admin
 - Albania
 - Andorra
 - Austria
 - Belgium
 - Bulgaria
 - Bosnia and Herzegovina
 - Belarus
 - Switzerland
 - Czech Republic
 - Germany
 - Denmark
 - Algeria
 - Egypt
 - Spain
 - Estonia
 - France
 - United Kingdom
 - Guernsey
 - Ossetia
 - Ossetia
 - Greece
 - Croatia
 - Hungary
 - Isle of Man
 - Ireland
 - Italy
 - Jersey
 - Kosovo
 - Libya

Video 6: Customize SGS

