

“New possibilities of GIS in Korea”



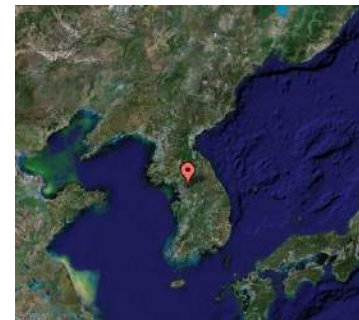
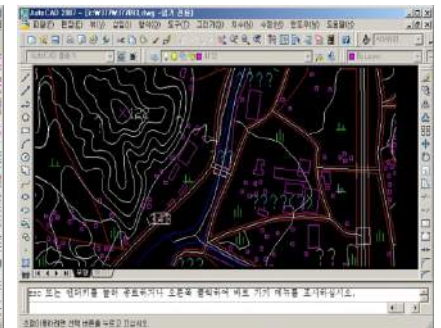
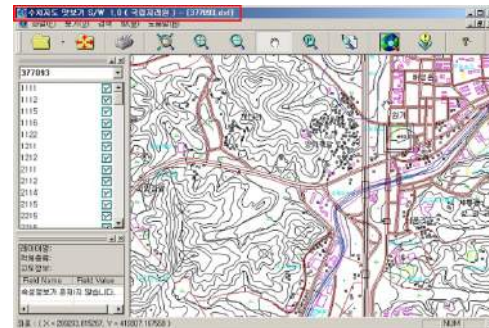
# GIS & Disaster Management

2015. 03

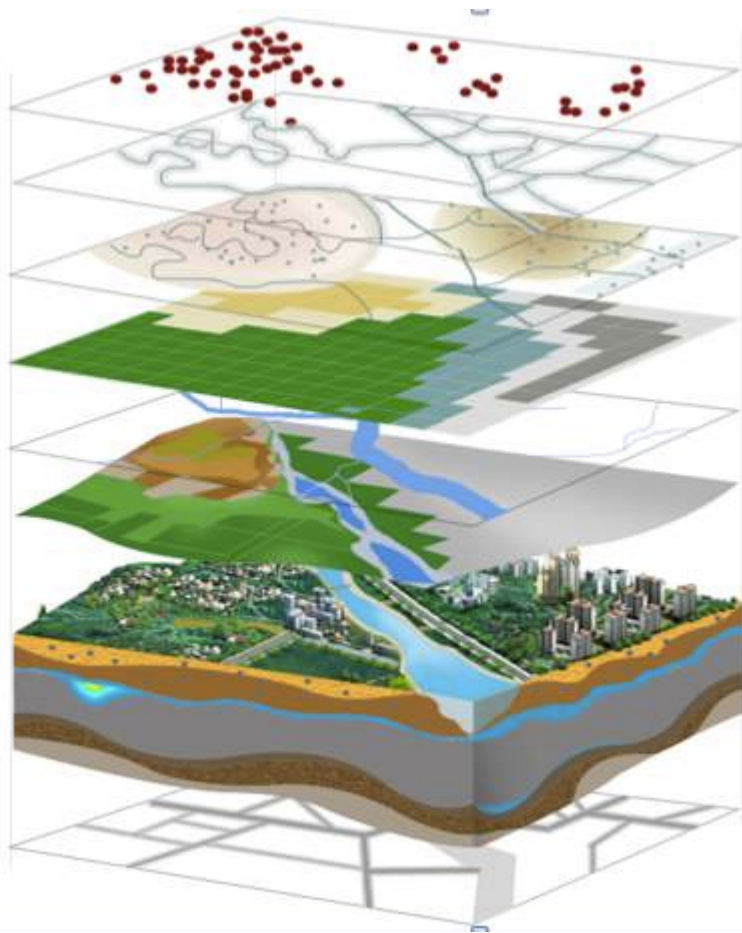
Sang-chul Noh  
Sales Director, SPH  
([scnoh@supermap.co.kr](mailto:scnoh@supermap.co.kr))

# Geographic Information System

# Map

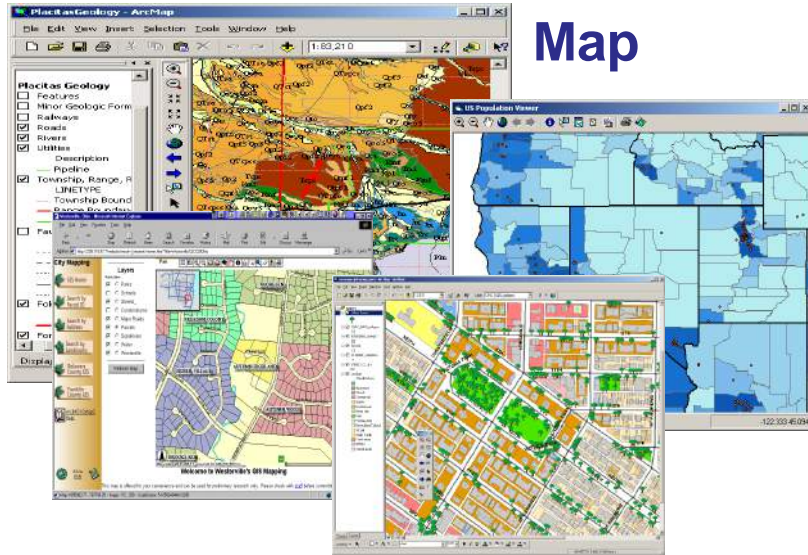


# Geographical Expression

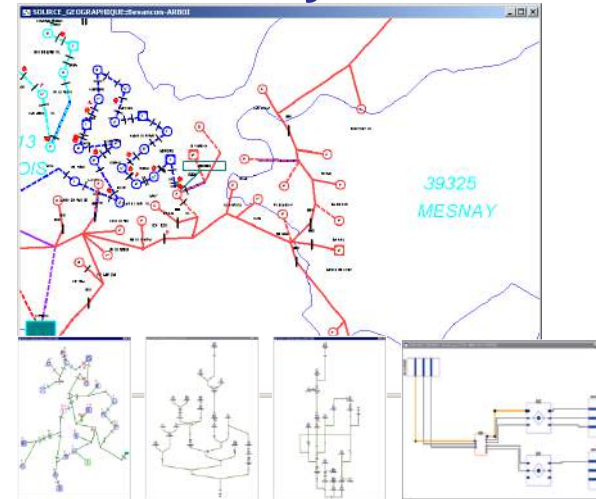


The relationship of different types of information can be depicted on one digital map through the overlay of layers

# Geographical Expression

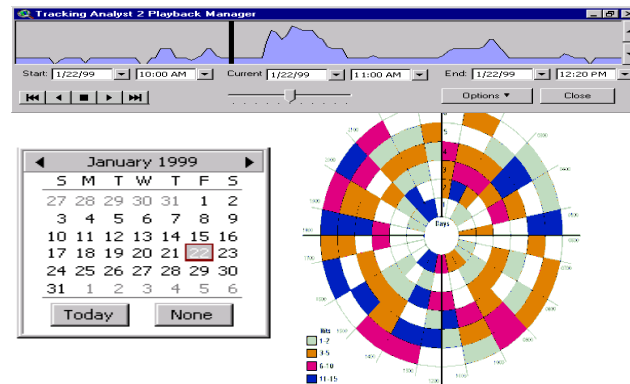


## Map

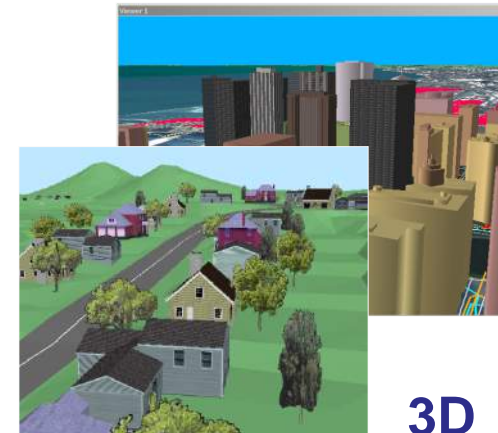


## Utility

## Globe / Scene



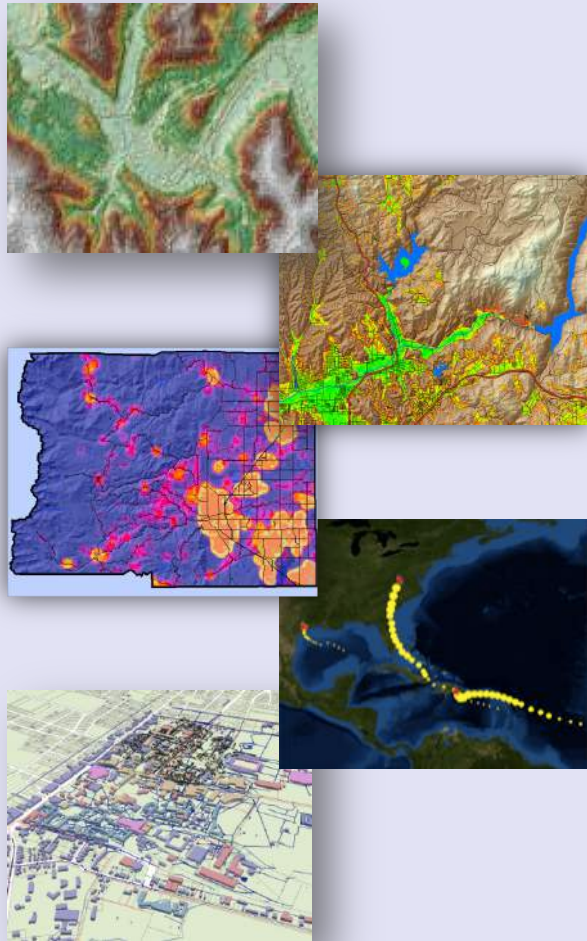
# Time Series



## 3D

# Geographic Information System

**G**eographic



**I**nfomation

“Map is **ONLY** the carrier  
but not GIS itself.”

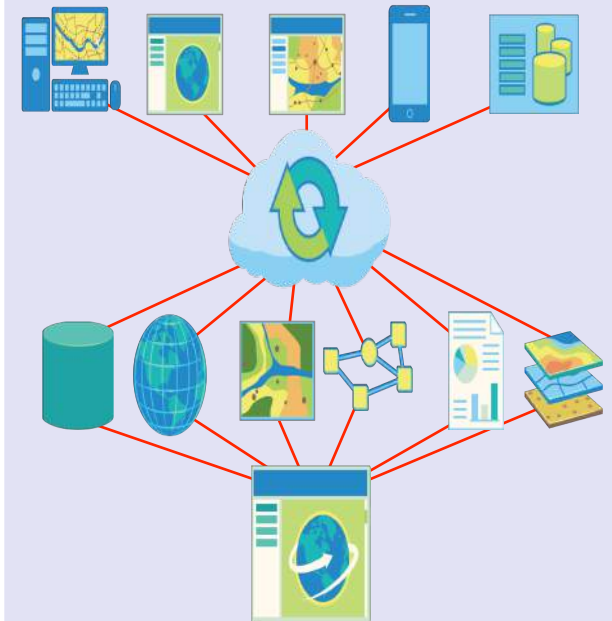
Where is the nearest  
gas station?

Which route is better  
For the relief  
supplies' transportation?

Which place is suitable  
for a new supermarket?

**S**ystem

“System used in  
various industries  
& IT Environment”



# GIS Function

- Spatial Data Management
- Display
- Query
- Modify
  - Add, edit, and delete spatial features
- Spatial Analysis
  - Buffer, overlay, network, raster...
- Output
  - Mapping and layout, map output

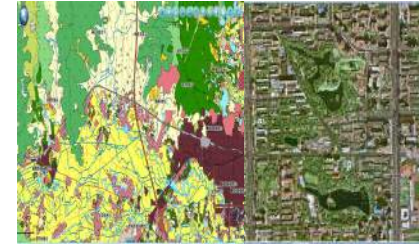
SURVEY



RS



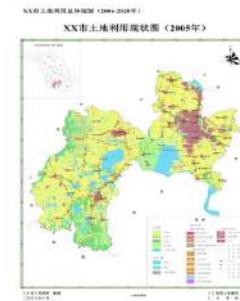
Display



Analysis



Map Output



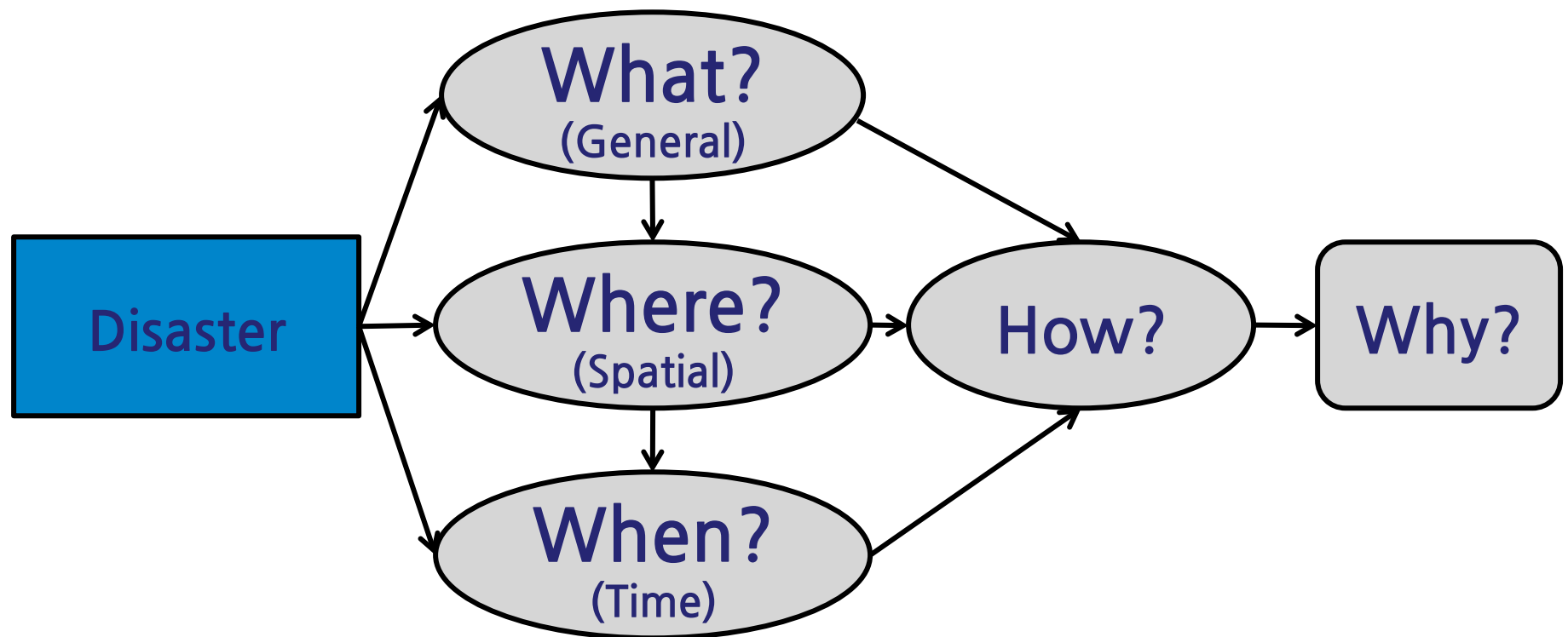
# GIS in Disaster Management

# Disaster



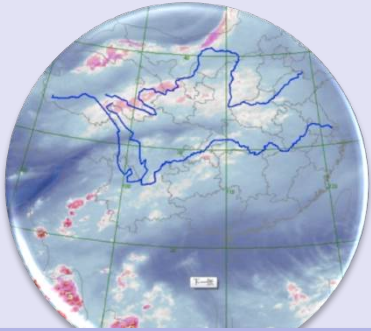
# Problems to Solve in Disaster Management

The occurrence, development, and impact of disasters possess spatial characteristics  
The command and dispatch, disaster relief, site search in disaster rapid response are carried out within a certain spatial extent



Where + How → Geographic position, distribution, impact → Measures

# GIS in Disaster Management



## Mitigation & Prevention

- Disaster risk identification and priority assessment
- Disaster plan management
- Plan exercise and visualization



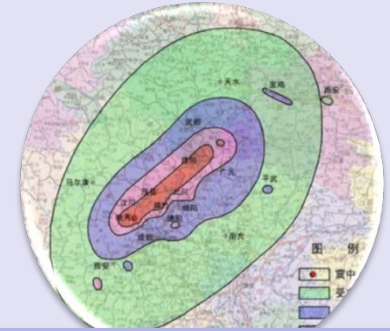
## Preparedness

- Disaster monitoring & early warning
- Disaster simulation



## Disaster Response

- Disaster response & emergency rescue
- Command and dispatch
- Disaster information display and real-time publishing



## Recovery

- Disaster assessment
- Post-disaster reconstruction planning



## Mitigation & Prevention

- Disaster risk identification and priority assessment
- Disaster plan management
- Plan exercise and visualization

- Disaster risk identification and priority assessment
- Disaster plan management
- Plan exercise and visualization



# GIS in Disaster Management

## Data Acquisition

- Collect monitoring data
- Collect other data

## Prediction

- Select disaster prediction model
- Input monitoring data

## Early Warning

- Extract units in warning zone
- Warning notification
- Generate warning map



## Preparedness

- Disaster monitoring & early warning
- Disaster simulation

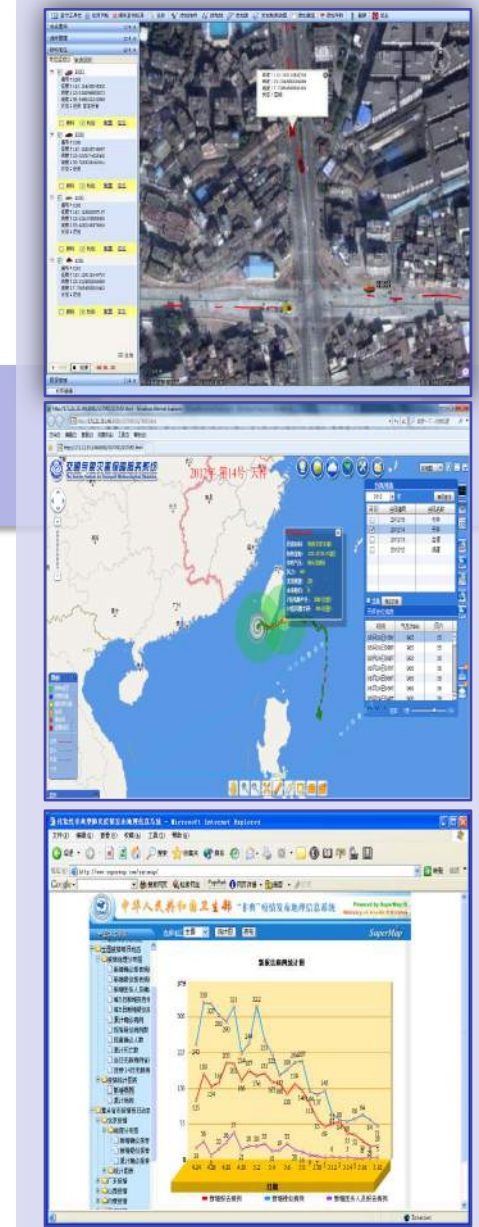


# GIS in Disaster Management

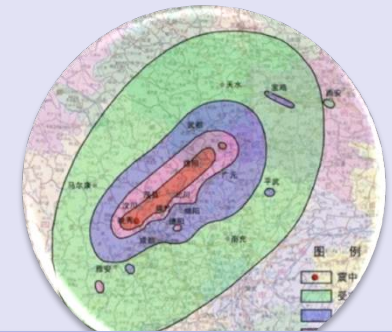
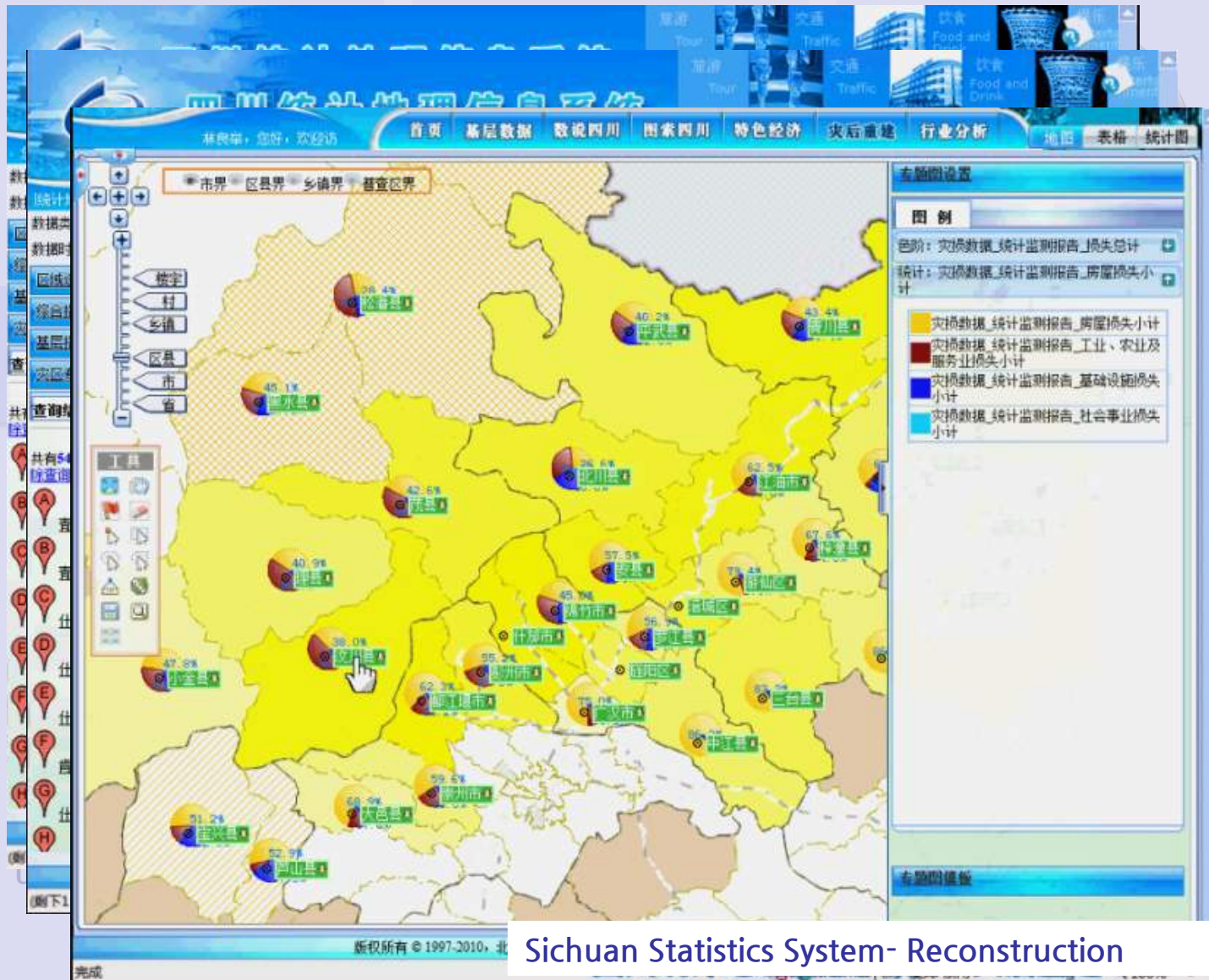


## Disaster Response

- Disaster response & emergency rescue
- Command and dispatch
- Disaster information display and real-time publishing



# GIS in Disaster Management



## Recovery

- Disaster assessment
- Post-disaster reconstruction planning

# Reference

# Disaster Type

## Meteorological disasters

- Typhoon, rain and snow, ice, sand and dust storm

## Geological disasters

- Earthquake, volcano, landslide, debris flow

## Flood and Drought disasters

## Marine Disasters

- Tsunami, storm surge

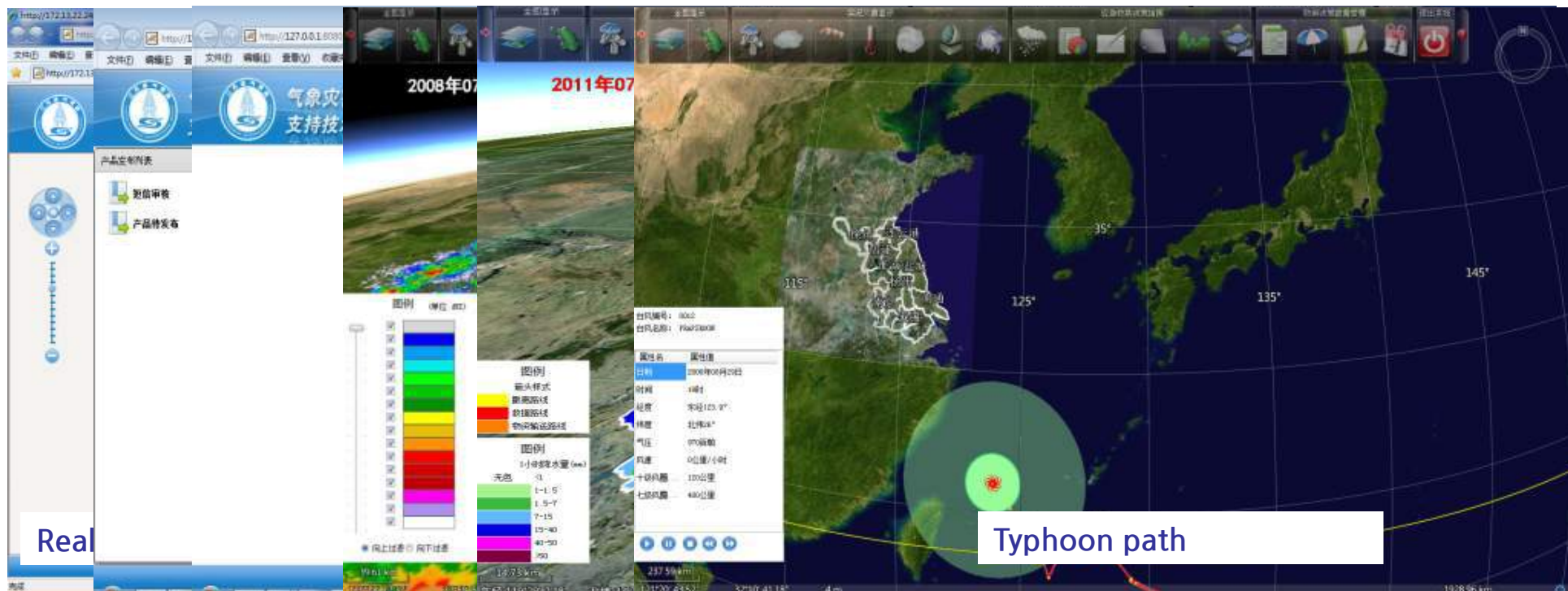
## Forest and Grassland Fire

# Meteorological Bureau of Jiangsu Province: Meteorological disaster warning and emergency decision-making system

- System Target
  - Monitor and warn disasters, e.g., rainstorm, typhoon, snowstorm, low temperature, high temperature, fog, etc.
  - Forecast, service product publishing and warning information publishing via Internet
  - Auto generate plans of the disaster emergency and decision-making command

## Case 1 - China

# Meteorological Bureau of Jiangsu Province: Meteorological disaster warning and emergency decision-making system



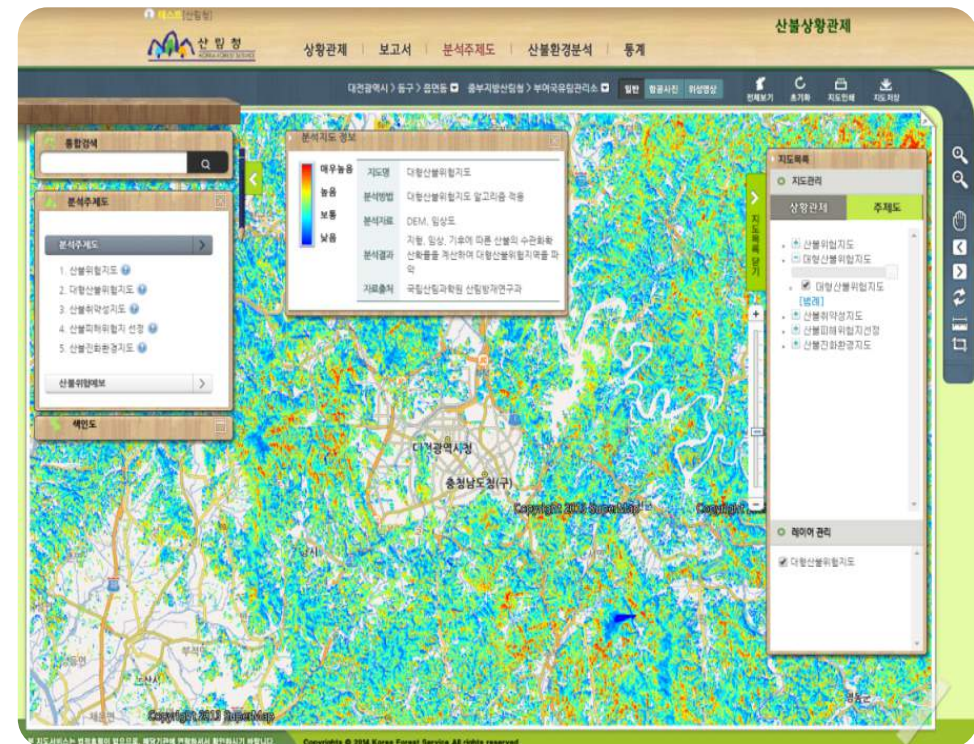
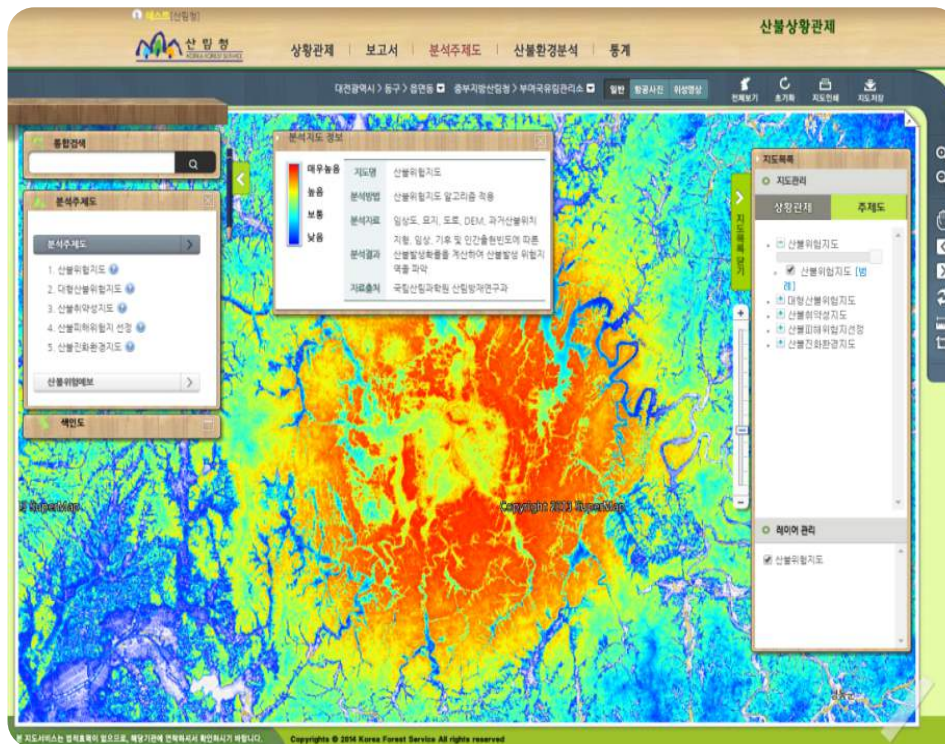
# Korea Forest Service

## Integrated Disaster Management System

- System Target

- Integrated Disaster Management System was placed as a service at the end of 2014, which is to prevent forest disaster in advance, take action promptly in the event of the disaster, and manage the database efficiently.
- The system was built as a complete enterprise GIS platform, and it is based on Service Oriented Architecture(SOA).
- Public: provide information on forest disaster's occurrence
- Local Government: prevention analysis for forest disaster
- Forest Related Institutes: connection between internal/external institutions to share database in the integrated system.
- Korea Forest Service and affiliated organizations: make quick decisions in the event of forest disaster

# Korea Forest Service Integrated Disaster Management System



The background of the slide is a blue world map with white grid lines. The map is centered on the Atlantic Ocean, showing the continents of North America, South America, Africa, Europe, Asia, and Australia. The text "Thank you" is centered over the map in a large, white, sans-serif font.

# Thank you