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Flood Disaster Map using UAV

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Jihyuk, CHOI

Republic Of KOREA

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Korea Land and Geospatial Informatix Corporation



Korea Land and
Geospatial Informatix Corporation



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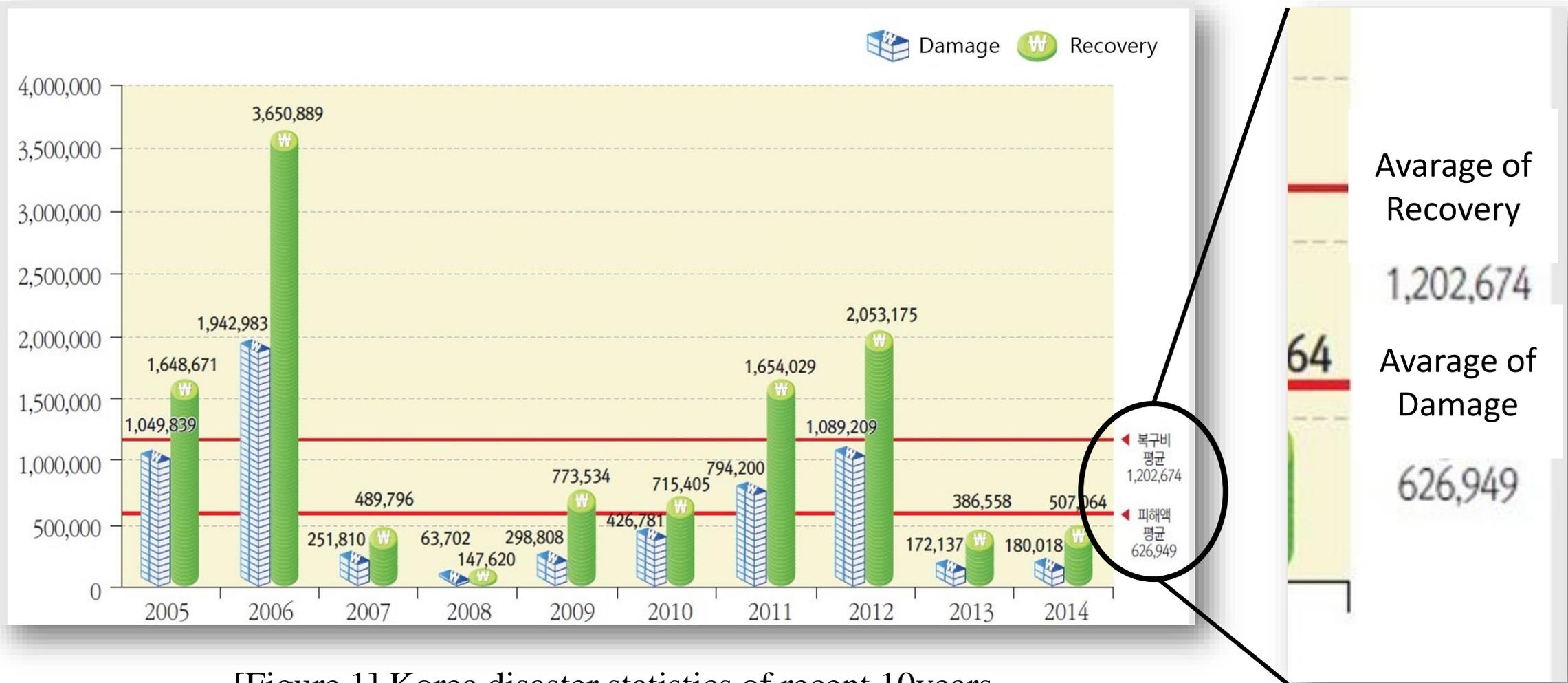
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- SECTION 3** Research methodology
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Background of research



Background of research



[Figure 1] Korea disaster statistics of recent 10years

Are we prepared to respond to flood disasters?

☞ Natural Disasters Prevention Act

- Writing Inundation Trace Comprehensive Report
- Operating Inundation Trace Management System

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- Writing Inundation Trace Comprehensive Report**
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Are we prepared to respond to flood disasters?

☞ Natural Disasters Prevention Act

Thorough analysis is often not initiated or overlooked due to...
Writing Inundation Trace Comprehensive Report

- Initial investigation insufficiency
- Operating Inundation Trace Management System
- Time constraint
- Big economic cost
- A lot of post-disaster management elements

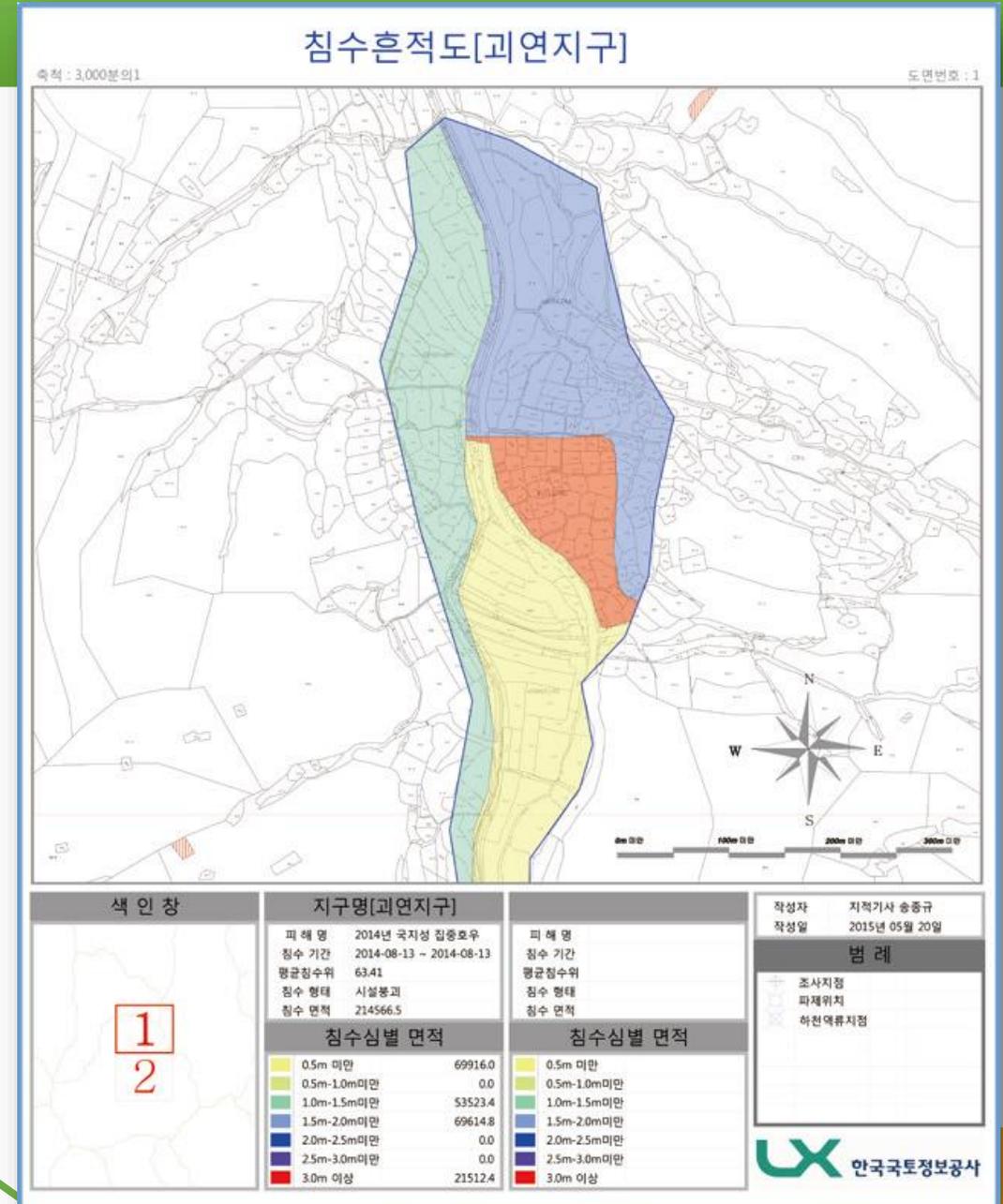
How about using **UAV** to solve these problems?



Flood disaster map using UAV

[Table 1] Definition of Flood Disaster Map

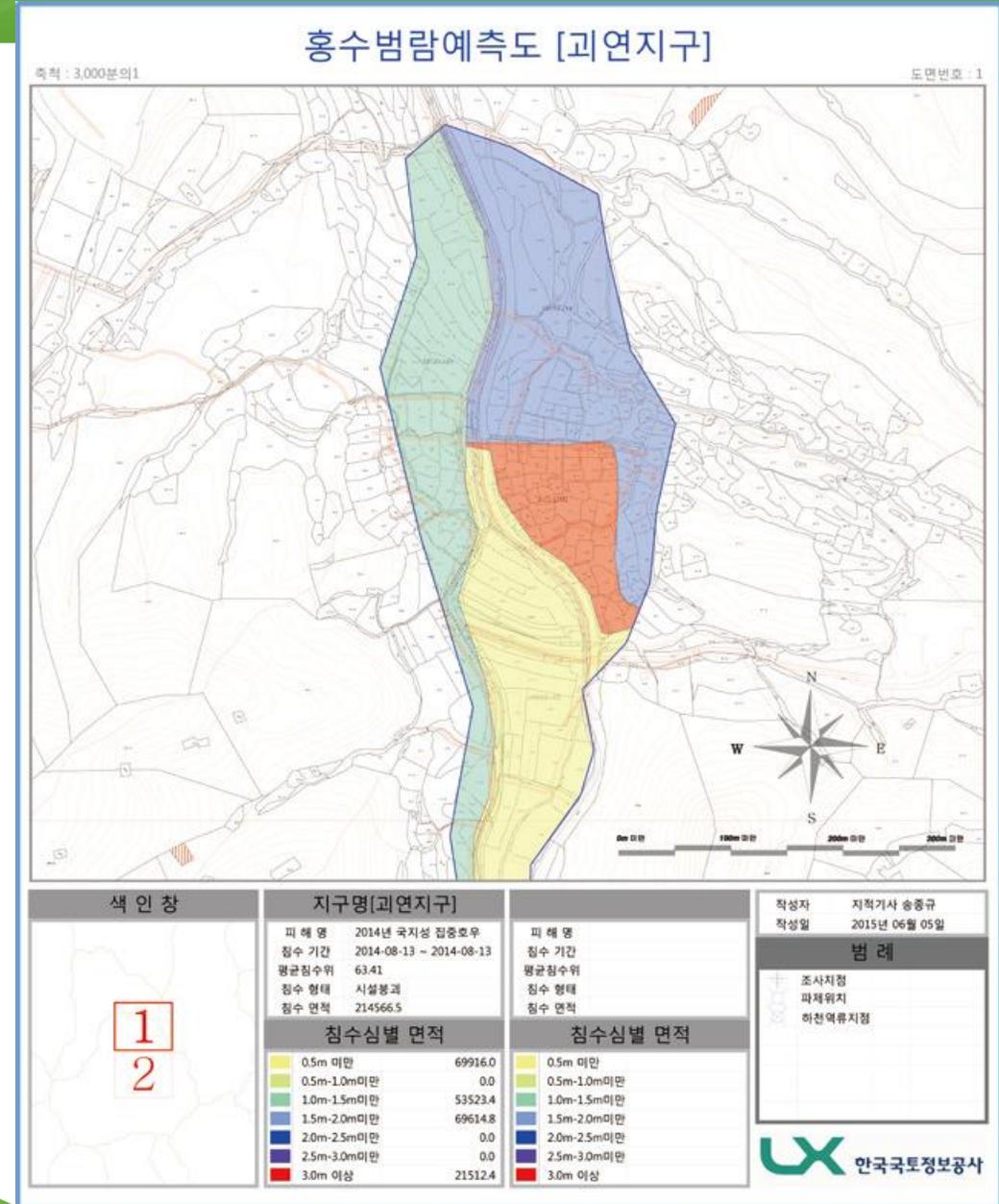
Inundation Trace Map	The inundation traces from typhoons, heavy rain, tsunami and specified on the floor plan
Flood Hazard Map	Expected flood range due to predicted rainfall, typhoons, flood, and tsunami and specified based on current topography
Evacuation Map	The evacuation guidelines, shelter and routes in occurrence of disasters based on Inundation Trace Map and Flood Expectation Map



Flood disaster map using UAV

[Table 1] Definition of Flood Disaster Map

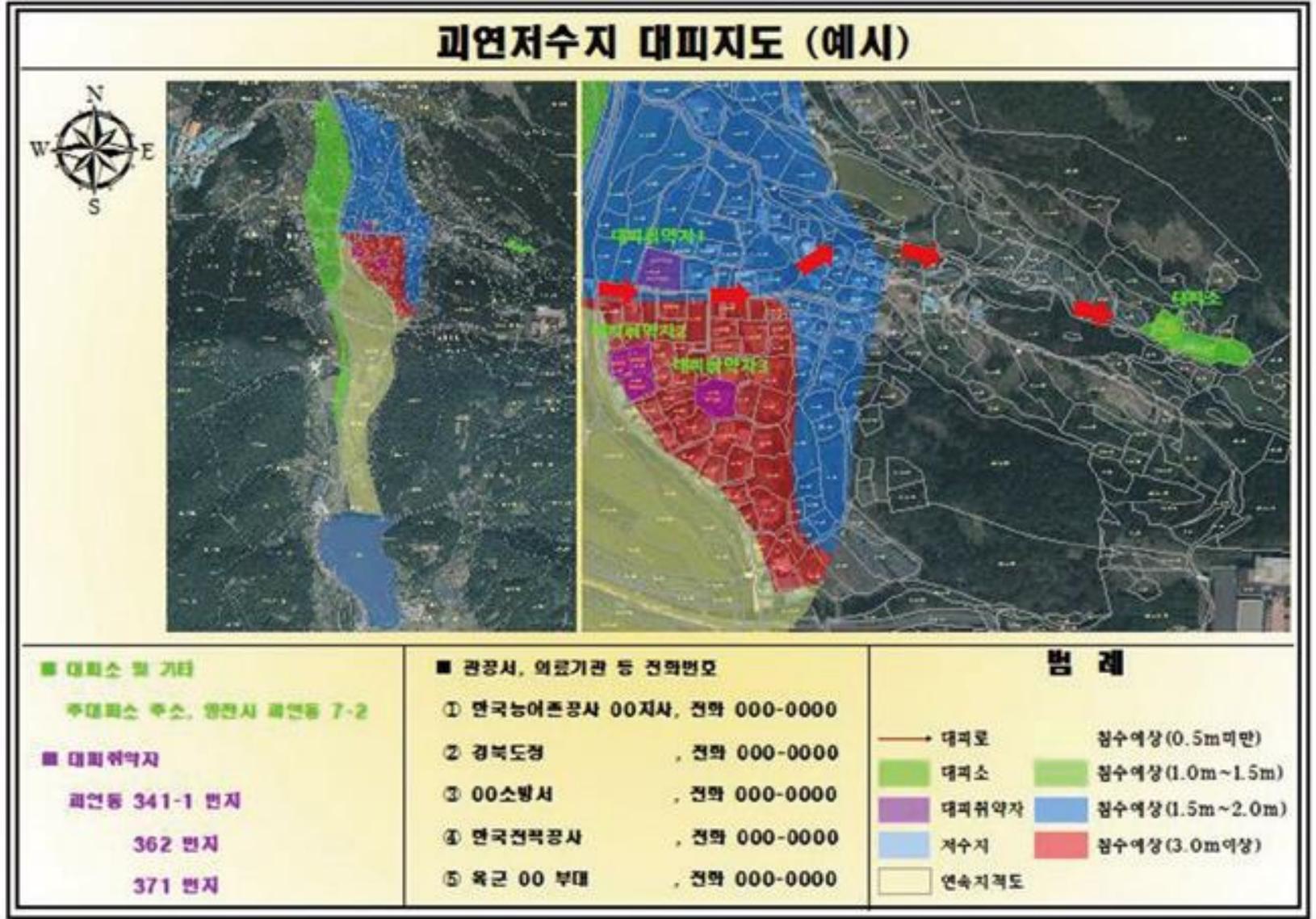
<p>Inundation Trace Map</p>	<p>The inundation traces from typhoons, heavy rain, tsunami and specified on the floor plan</p>
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Flood disaster map using UAV

[Table 1] Definition of Flood Disaster M

Inundation Trace Map	The inundation track of heavy rain, tsunami
Flood Hazard Map	Expected flood range areas, flood, and tsunami based on topography
Evacuation Map	The evacuation guide map showing the occurrence of disasters based on topography and Flood Expectation



Flood disaster map using UAV

① Inundation Traces Survey



② Inundation Traces measurement
and Flood Expectation Map
using 3D spatial information

Flood disaster map using UAV

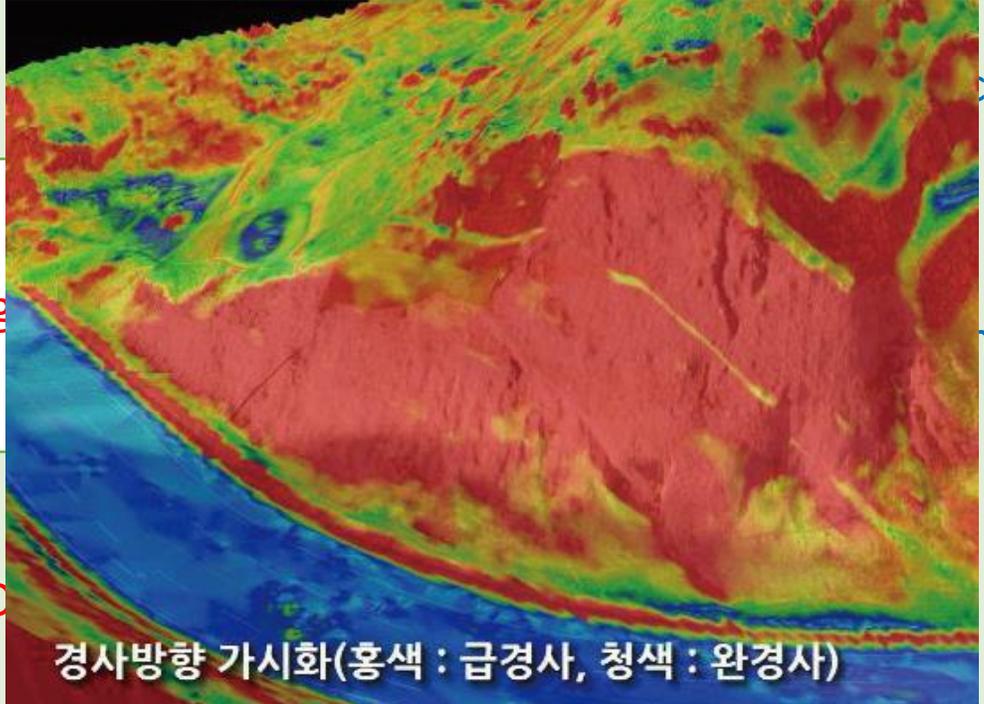
① Inundation Traces Survey through UAV

	Time	Contents	Image records through UAV	
Initial Investigation	Immediately (within 7days)	<ul style="list-style-type: none"> - Location - Cause, Date, Time - Depth, Extent - Regional characteristics - Aerial photos, Pictures 	<ul style="list-style-type: none"> - Without regional condition - Can finish the short haul - Wide investigation coverage 	
Detailed Investigation	A later day	<ul style="list-style-type: none"> - Consolidation of data - Prediction of hourly outflow - Water level on certain point - Other analysis on the basis of data 	More abundant information	

Flood disaster map using UAV

② Inundation Traces measurement and Flood Expectation Map using 3D spatial information

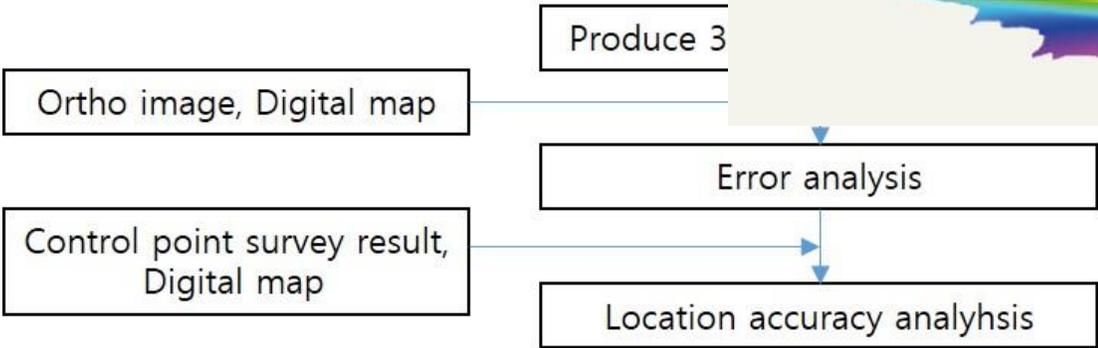
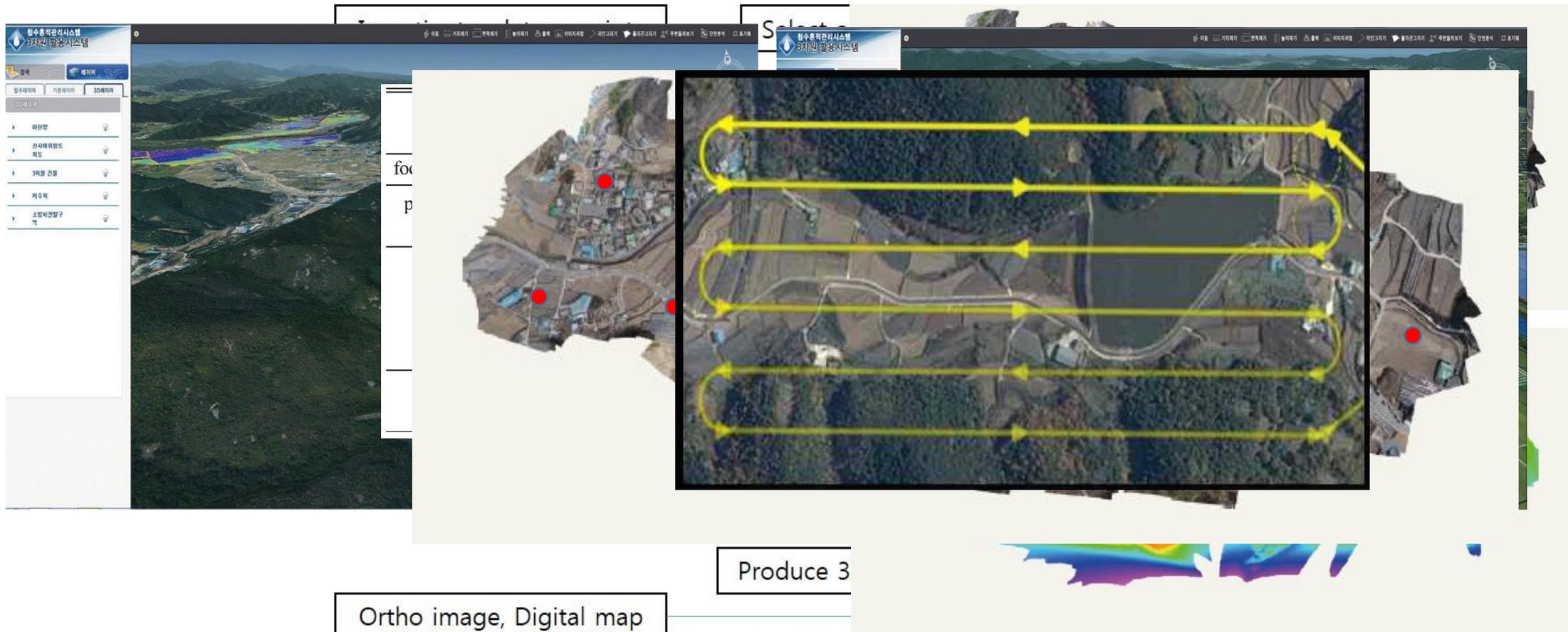
	Merit	Demerit		Expected effects
Aerial images / laser				
Ground photo / laser				
GPS / Totalst				



cost

density

Research methodology



Conclusion

- We need to pay more attention to improve response ability for natural disaster.
 - Expected effects of utilizing UAV
 - Acquiring quick and accurate data
 - Wide range of investigation
 - Relatively moderate costs
- ➔ Strengthen response system



Thank you



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