

문서번호 APCC-출장-16-0847(2016-08-09)

TRAVEL REPORT FORM

출장보고서

결 재	선임연구 원	팀장	부서장	원장
	08/08	08/08	08/08	08/09
협 조	이승수	조재필	김형진	정홍상

I. Reporter 보고자

Department 소속	Position 직위(직급)	Name 성명	Travel Date 날짜	Note 비고
응용사업본부	선임연구원	이승수	8/4	

II. Major Activities 주요업무 수행내용

1. Main Contents and Activities 주요내용 및 활동

기후변화 자료의 제공 (기후서비스)에 있어, 현재 제공자의 입장에서 일방적 제공이 아닌 End user가 필요한 포맷에 맞춘 시간적 공간적 해상도로의 변환이 필요함에 따라 제공자와 수요자들이 함께 만나 의견을 조율하고, 향후 기후서비스에 필요한 인프라 구축에 대한 협의를 수행하였음 (KISTI, WMO, 부경대학교, APCC, 서울대학교 등). 향후 이러한 모임을 정례화 하기 위해 APAN (Asia Pacific Advanced Network) 에서 Working Group 으로 발족 시키기 위한 전단계의 발표 모임(BoF)을 수행하였음.

※ 발표 순서

August 5, Friday 2016

13:30-15:00 Session 1 : Introduction for Climate Services

- Jaiho Oh (PKNU, S. Korea),

"Introduction of Climate Services BoF: Motivation and Perspectives"

- Byong-Lyol Lee(CAgM, WMO)

"Challenges in Climate Services: WMO/CAGM perspective"

- Woojin Seok (KISTI, S. Korea)

"using ICT Infrastructure to Climate Services"

- Seungsoo Lee (APCC, S. Korea)

" Early Warning for Urban inundation under Climate Variability"

- Kwangsoo Kim (SNU, S.Korea) * remote presentation

"Seasonal-to-Subseasonal Crop Yield Prediction under Cloud Computing Environment "

15:30-17:00 Session 2 : Panel Discussion for Pacific Rim Climate Service Research Platform (PaRiX)

- Panel discussion: Pacific Rim Climate Service Research Platform

2. Relevance to APEC Climate Center's Activities 결론 및 소감

- 적극적인 기후데이터의 사용을 장려하기 위해서는 End User가 필요로 하는 공간적 시간적 downscaling 이 무엇보다 필요한 선행과제임을 확인
- 이를 위해서는 제공자와 사용자들 간의 지속적인 협의가 필요함.
- 또한 기후변화 자료의 활용도를 높이기 위해서는 대규모의 데이터들이 합리적인 속도내에서 download될 수 있는 인프라 확충이 중요함.
- 국제적인 기후서비스에서 있어서 APCC의 위상과 역할을 명확히 하고 추진해 나갈 필요성을 느낌.

III. References 참고사항

(with attachment of any information or report in case of attendance of conferences, workshops and meetings) 학술대회, 워크숍, 회의 등 참석 시 관련 정보 및 문서 첨부

1. Presented and Collected Materials 주요 수집자료

2. Suggestions and Remarks 건의사항

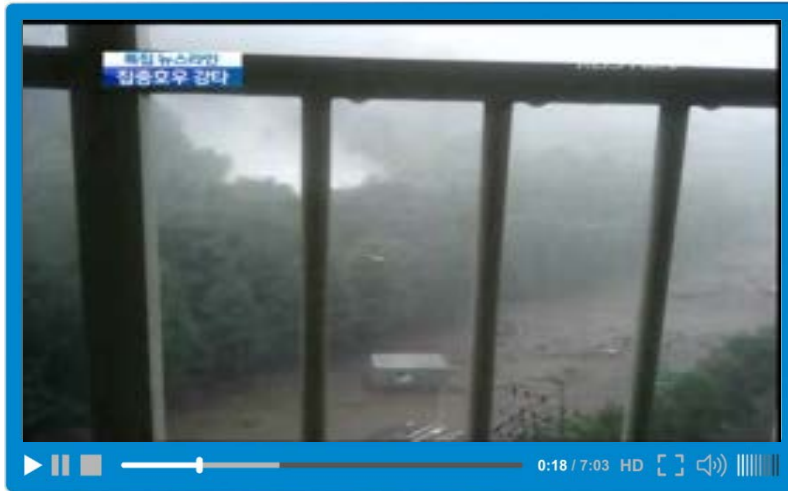
APCC Real-time Urban Inundation Forecasting System using Remote Sensing Technology

Seungsoo Lee, Research Fellow, APCC
[2016. 8. 5]

Agenda

- Motivation
- System Creation Process
- Demonstration
- Anticipated Impact

MOTIVATION: Past Extreme Events



Landslide at Mt. Woomyeon
16 deaths, 51 injured



Torrential rainfall, 130mm/h
4 deaths, 2,000 flood victims

8 huge flood and inundation damage events due to typhoon and torrential rainfall in Korea were happen within 10 years (2005 ~ 2014)

MOTIVATION: Effects of Extreme Events

➤ Urban inundation damages...



Residential area



Underground space



House inundation



Traffic jam



Huge property damages



Waterborne epidemic

MOTIVATION: Current mitigation

➤ Hard Countermeasures



Source : <http://www.cnews.co.kr/photo/photo/2010/06/24/201006240955539100888-2-9851.jpg>

<Flood control facilities>



Source : http://gift.kisti.re.kr/data/file/GTB/jaslee/jaslee_img1_1420274398438.jpg

<River bank improvements>



http://www.issuejeju.com/data/photos/20130728/art_1373247700.bmp

<Sewerage systems construction>

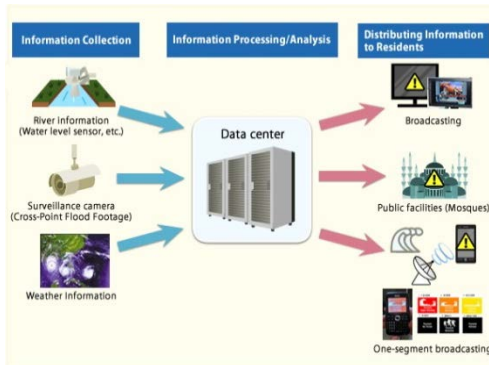


http://www.ggilbo.com/news/photo/201302/116604_83335_0711.jpg

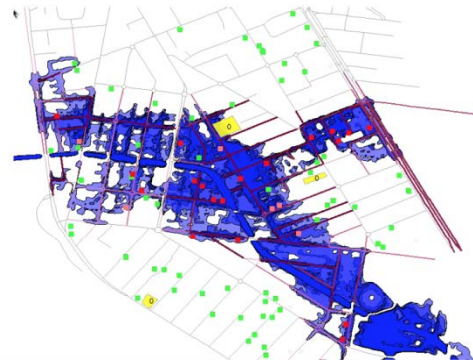
<Permeable layer extension>

MOTIVATION: Current mitigation (cont.)

➤ Soft Countermeasure



Source :
http://www.soumu.go.jp/menu_seisaku/ictseisaku/asean_smartnetwork/en/img/indonesia_ict_new.jpg



Source : <https://ajem.infoservices.com.au/htmlimages/AJEM-29-04-06?image=simshot.png>



Source :
<http://www.riskmanagement365.com/wp-content/uploads/2014/03/exit-emergency.jpg>

<Disaster information transmission system>

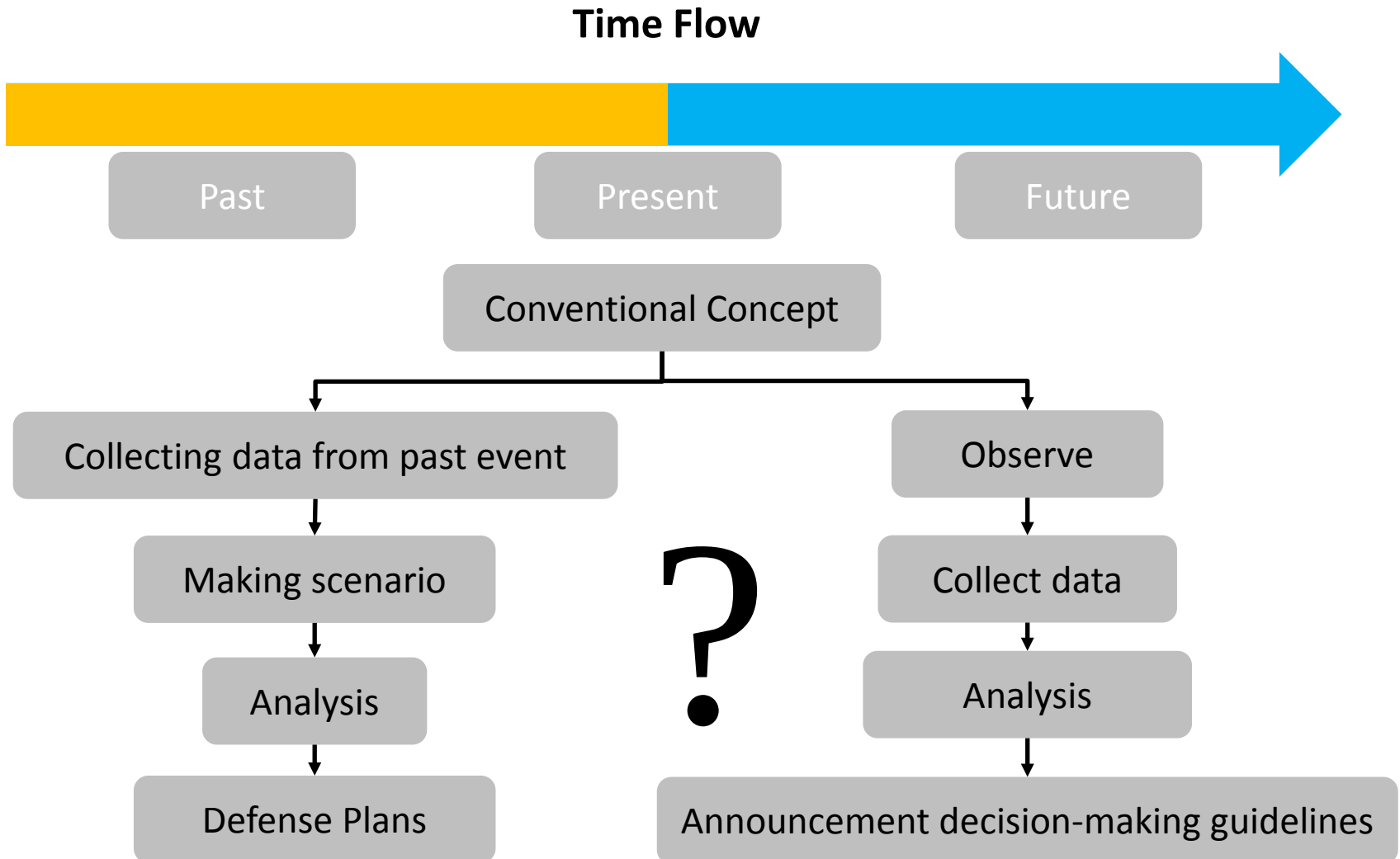
<Numerical analysis>

<Emergency action plan>

MOTIVATION: Current mitigation (cont.)

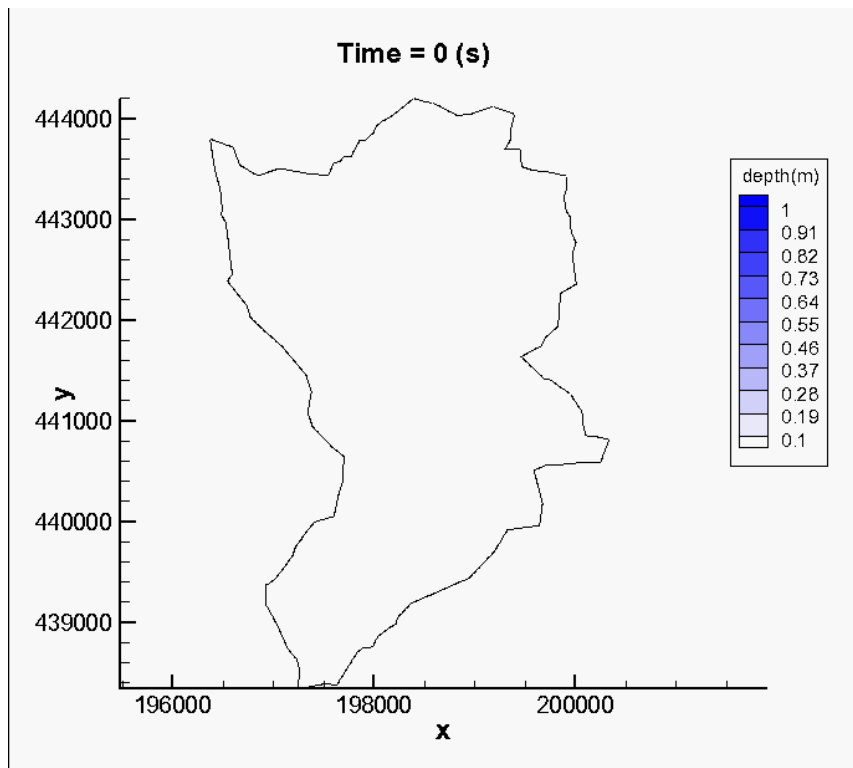
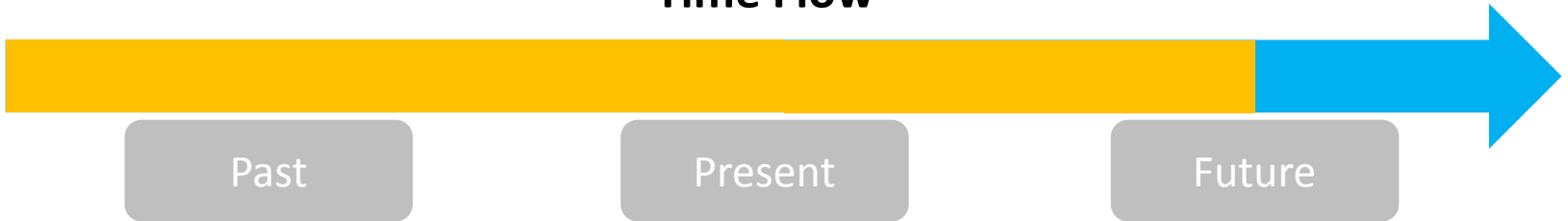
Hard Countermeasures		Soft Countermeasures	
- Flood control facilities - River bank improvements - Sewerage systems construction - Permeable layer extension		- Disaster information transmission system - Numerical analysis - Emergency Action Plan	
Advantages	Disadvantages	Advantages	Disadvantages
Clear effects	- Large budget - Long time for construction - Social conflicts	- Relatively low budget - Easy to get results	- Scenario-based - Hard to PR

MOTIVATION: Soft Countermeasures



MOTIVATION

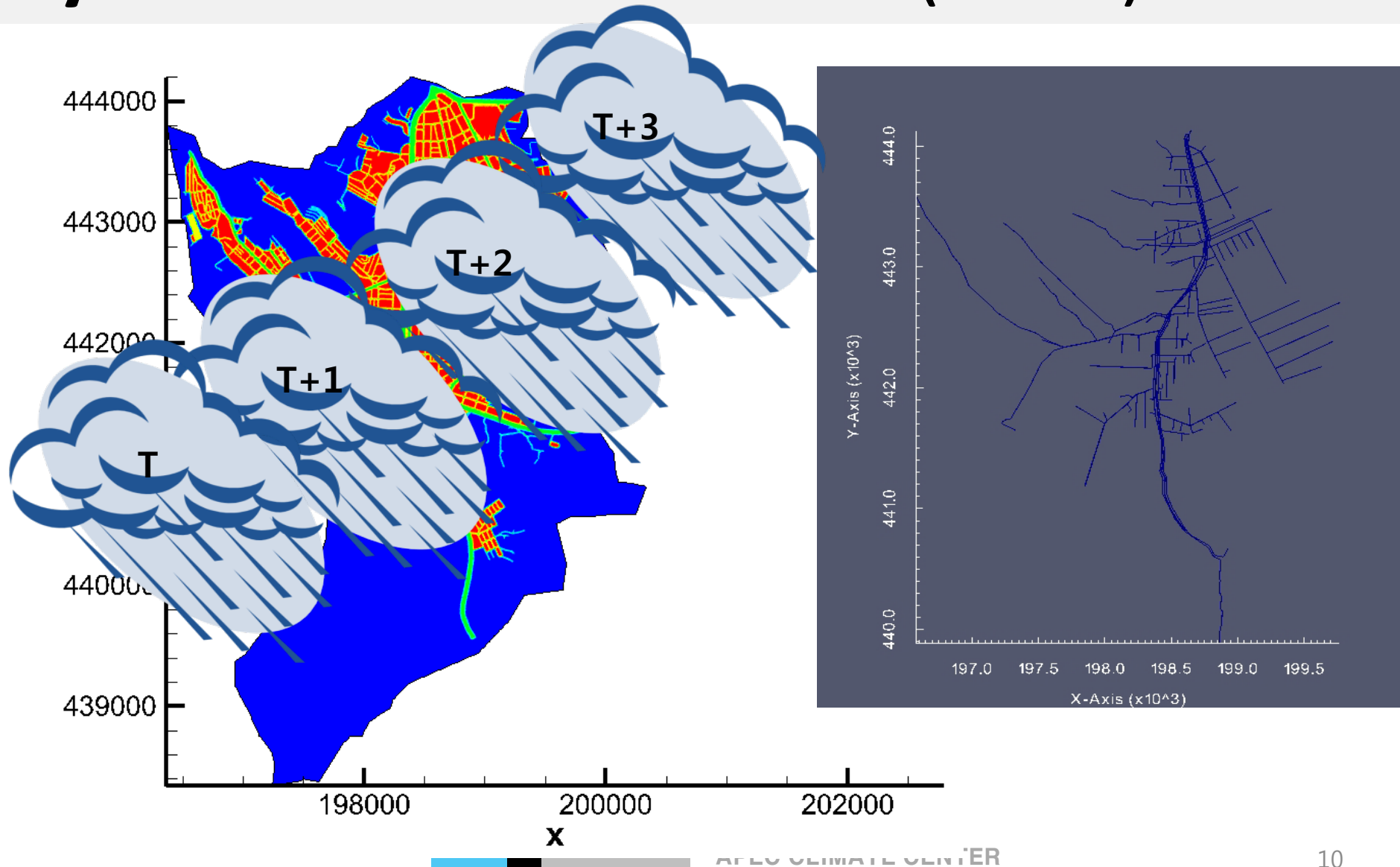
Time Flow



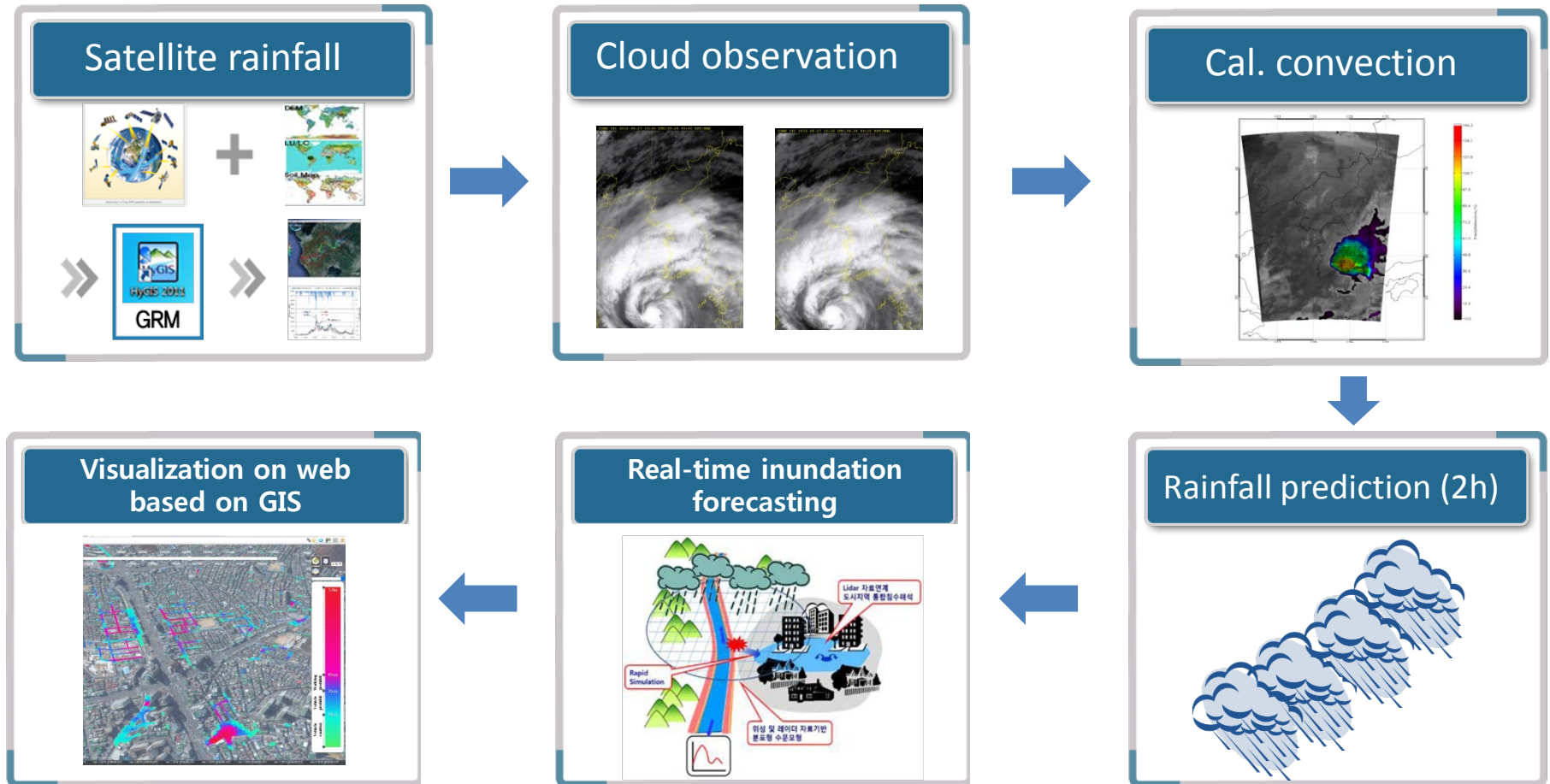
Past data can help us to make only scenario based plans

It's time to move forward to defend against disasters using prediction results

System Creation Process (cont.)



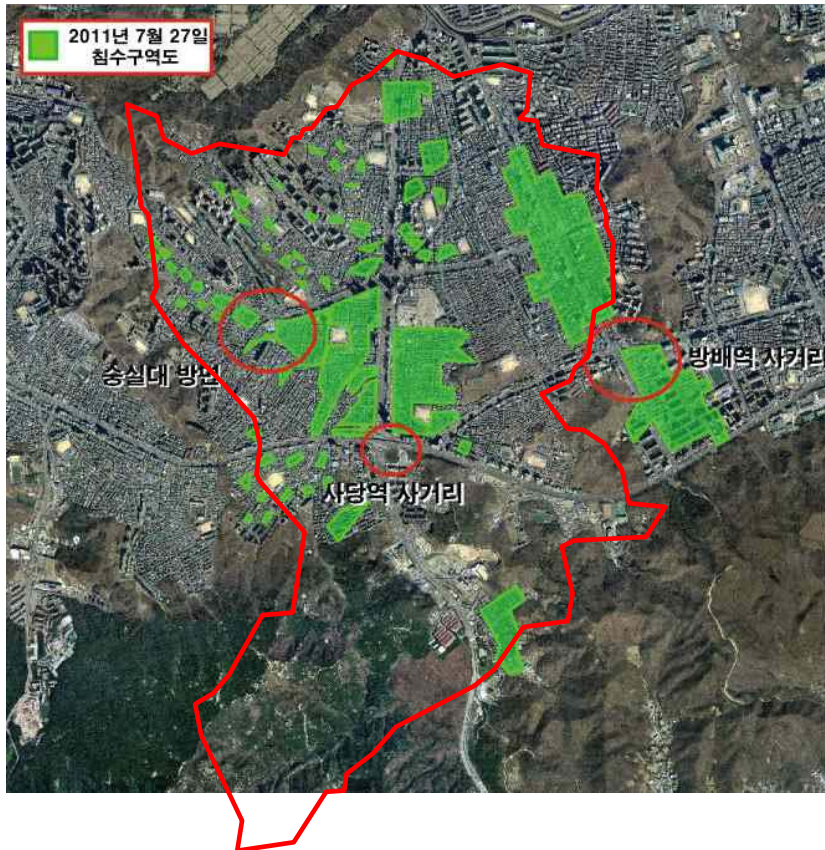
System Creation Process (cont.)



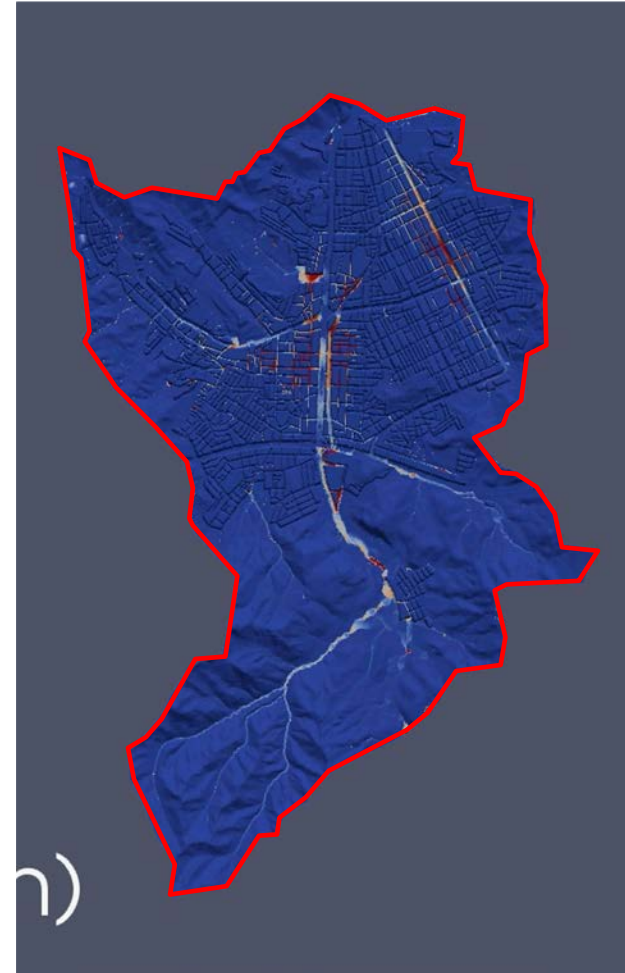
All above processes can be completed within **20 minutes**

We can **secure decision-makers 100 minutes** for action

Demonstration : 27. July. 2011, Sadang, Seoul



<Field survey data>



<Simulation result>

Demonstration



Anticipated Impact

What can we do using APCC's real-time inundation forecasting system?

✓ **Decision-maker**

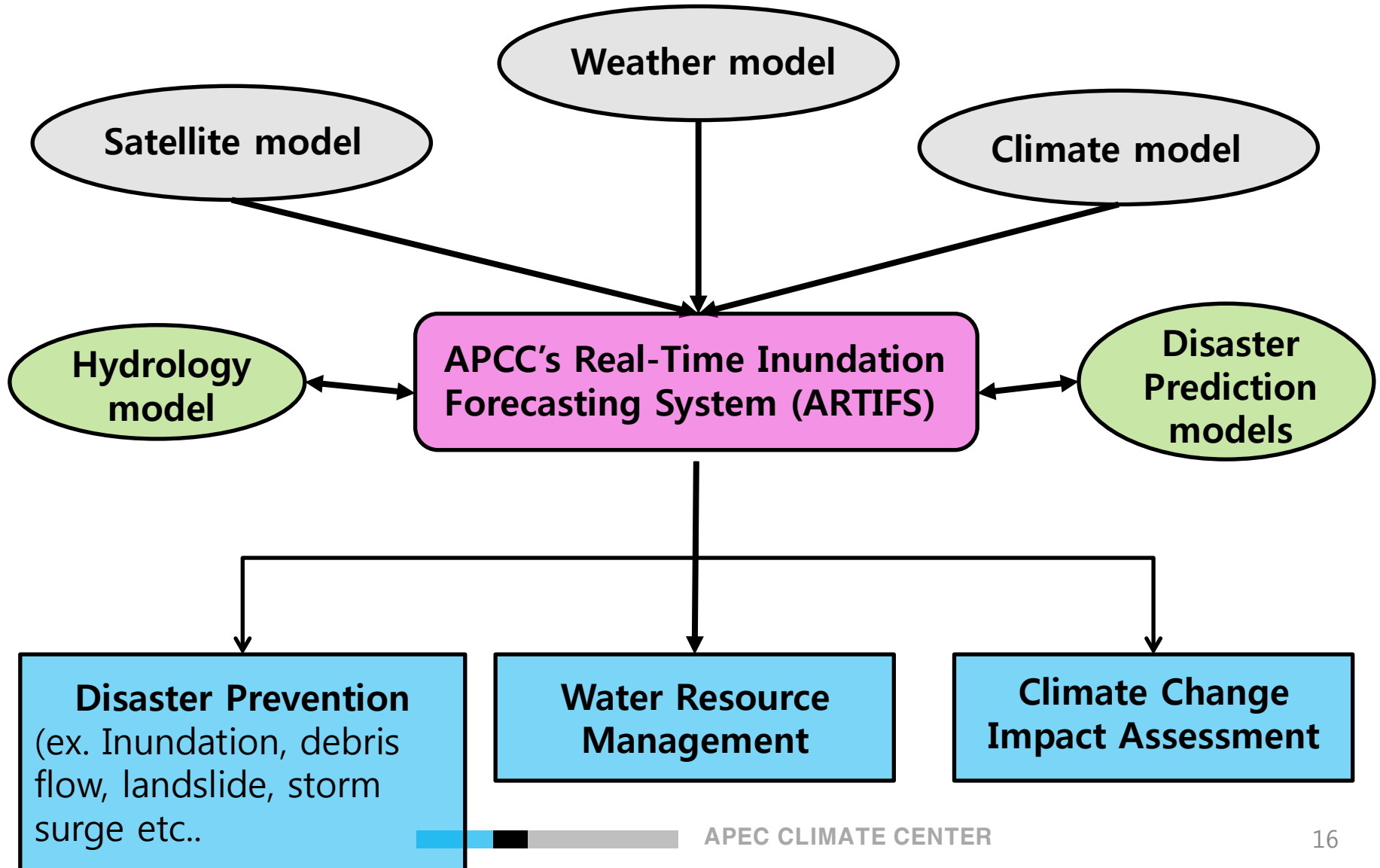
- Floods warning
- Evacuation announcement
- Blocking off a road
- Optimization of flood control facilities etc..

✓ **Citizen**

- Safer path finding using car navigation or smartphone

APCC's real-time inundation forecasting system may be versatile tool for saving lives and properties in the near future.

Anticipated Impact

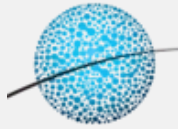




Thank you

System Creation Process





System Creation Process (cont.)

