

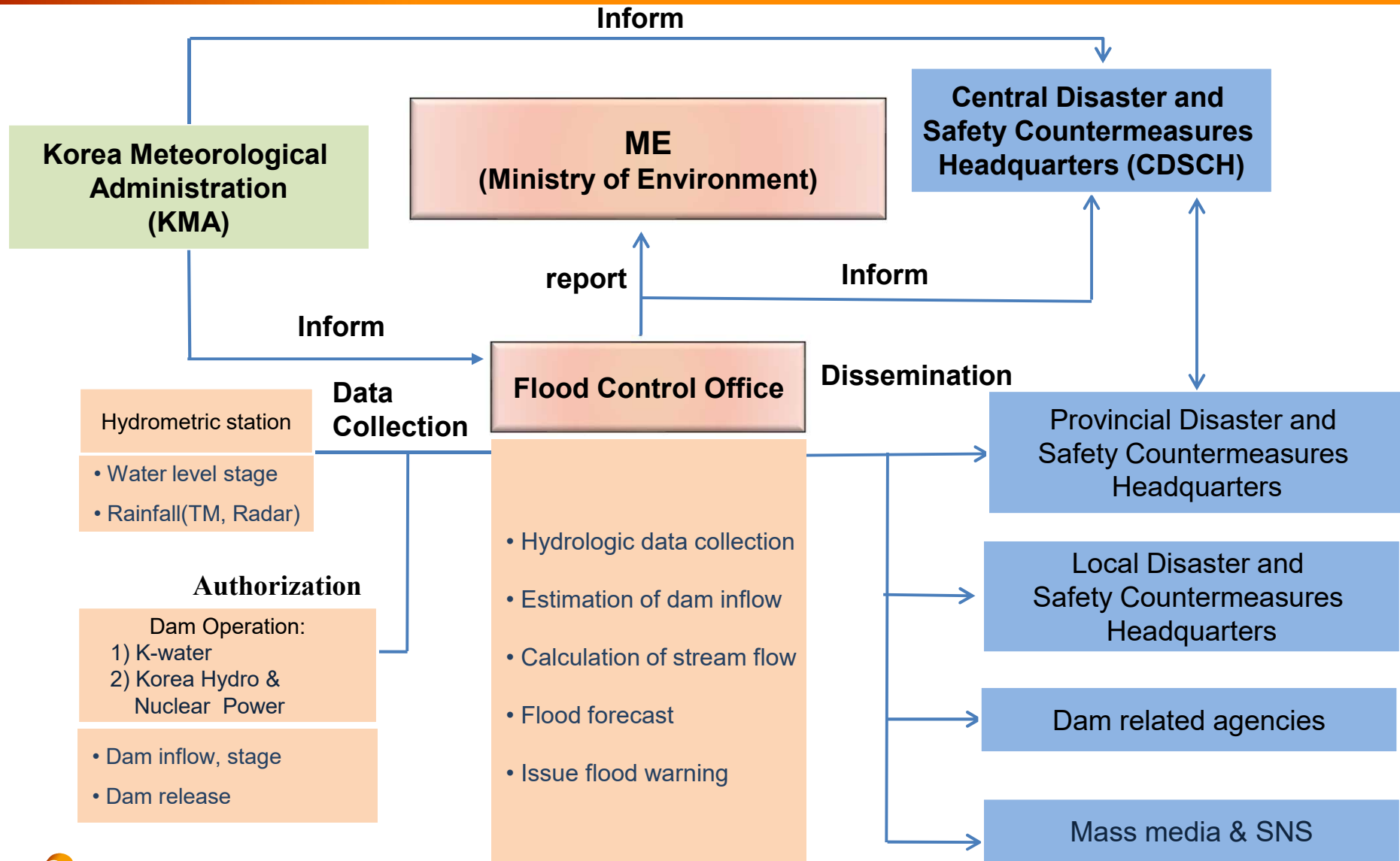
Cooperation for risk reduction related to water disaster between with meteorology, hydrology and disaster reduction part in Republic of Korea

11 Nov. 2019

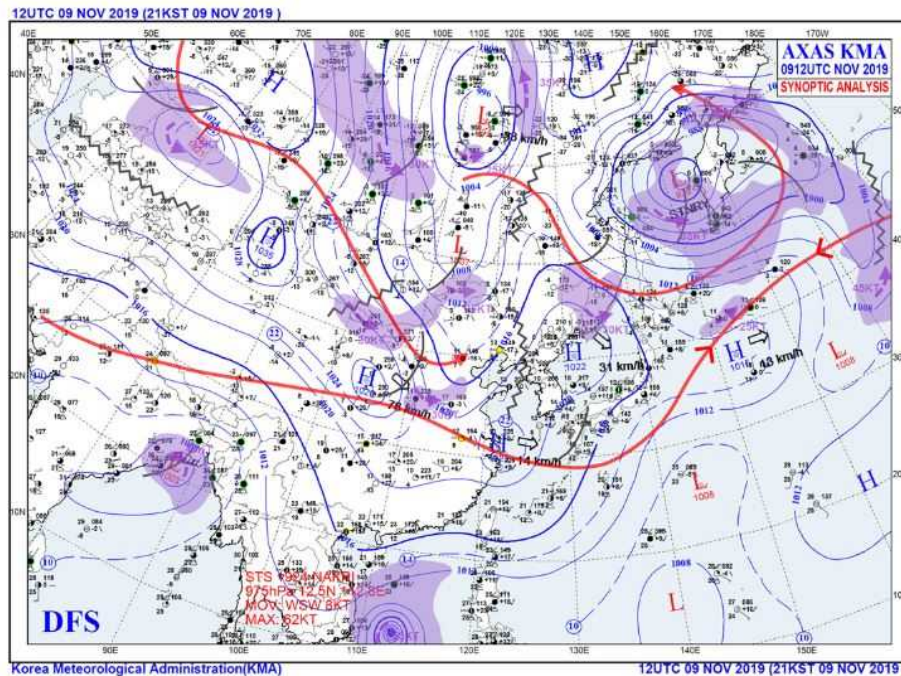
Ph. D. Chung-Soo Kim

Korea Institute of Civil Engineering and Building Technology

National Framework for Flood Management

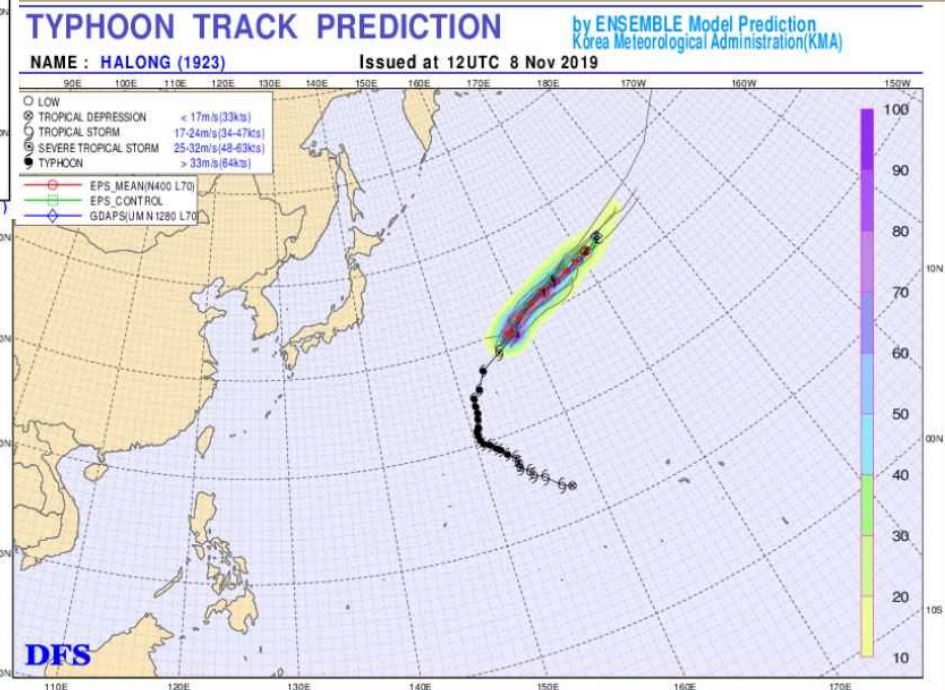


Meteorology Information from KMA



- GCM, Regional Climate Model (Numerical Model)
- Radar, Satellite (Physical Model)
- **Predicted Precipitation**
(Total Rainfall, Rainfall Period, Rainfall Moving Path, etc.)

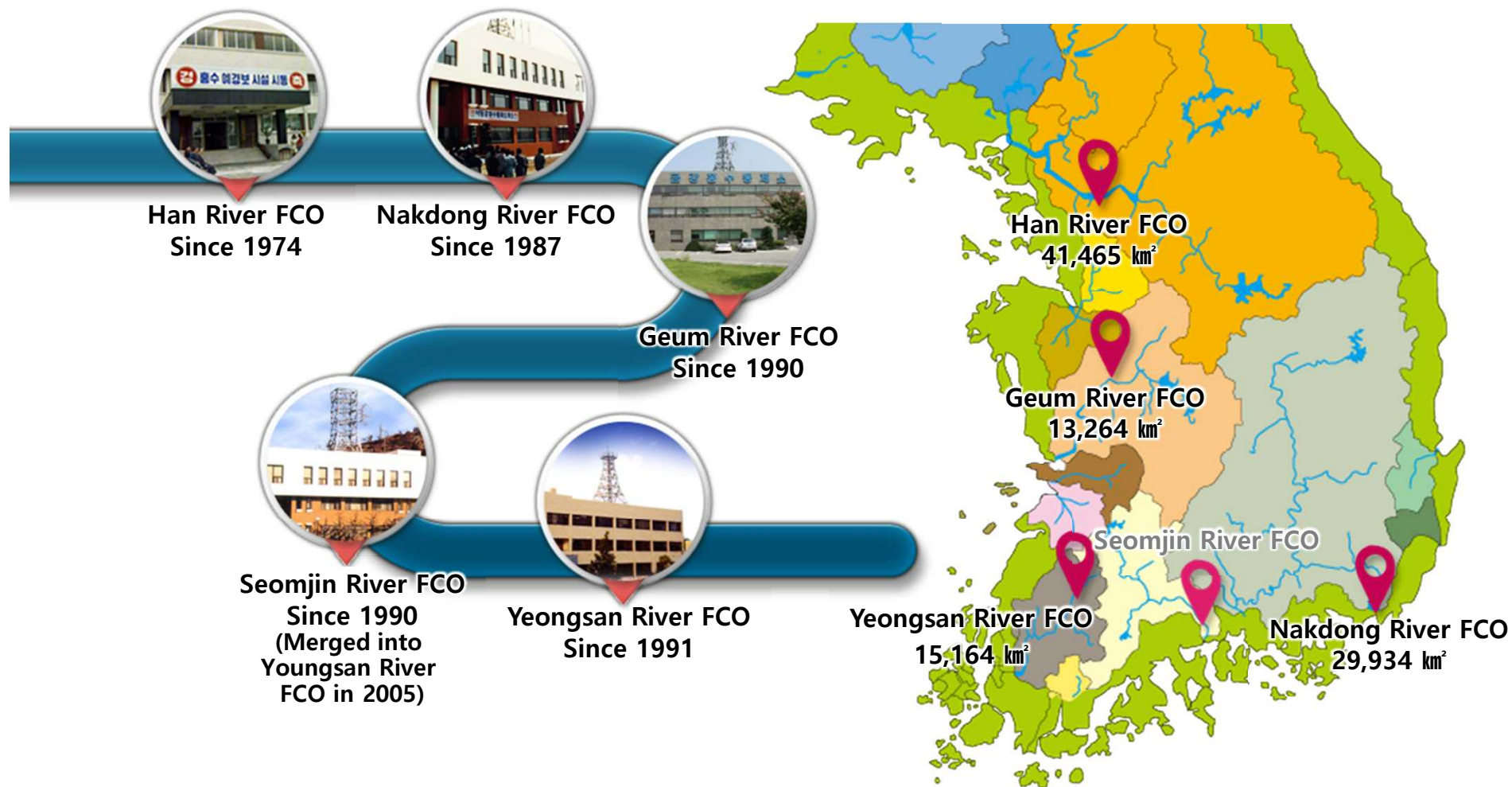
제 23호 태풍 할롱(HALONG) 기상청 | 2019년



- Typhoon Tracking Model
- **Predicted Typhoon Moving Path, Intensity, Wind Speed, etc.**
(Total Rainfall, Rainfall Period, Rainfall Moving Path, etc.)
- Storm Surge, Climate Factors, etc.

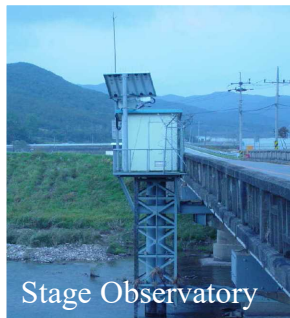
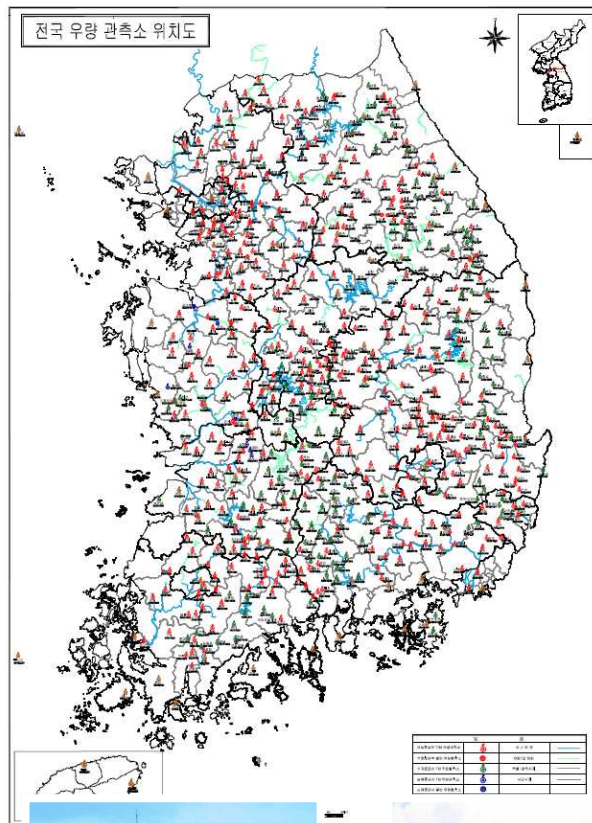
FCO (Flood Control Offices) in Republic of Korea

Total Basin Area 99,827 km²

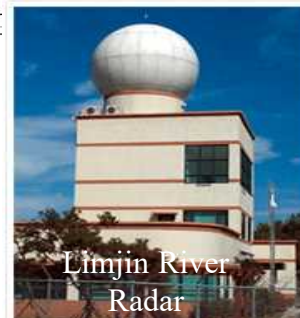
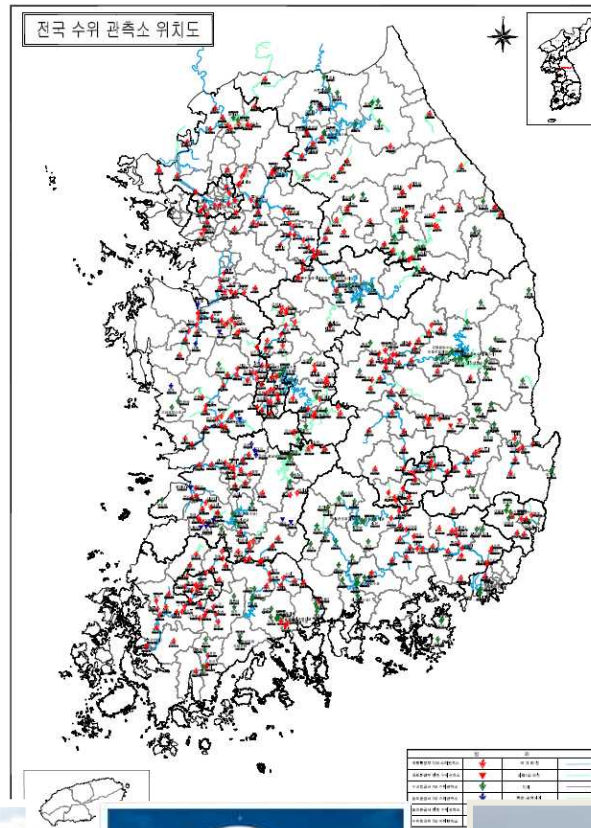


Telemetering Hydrological Stations

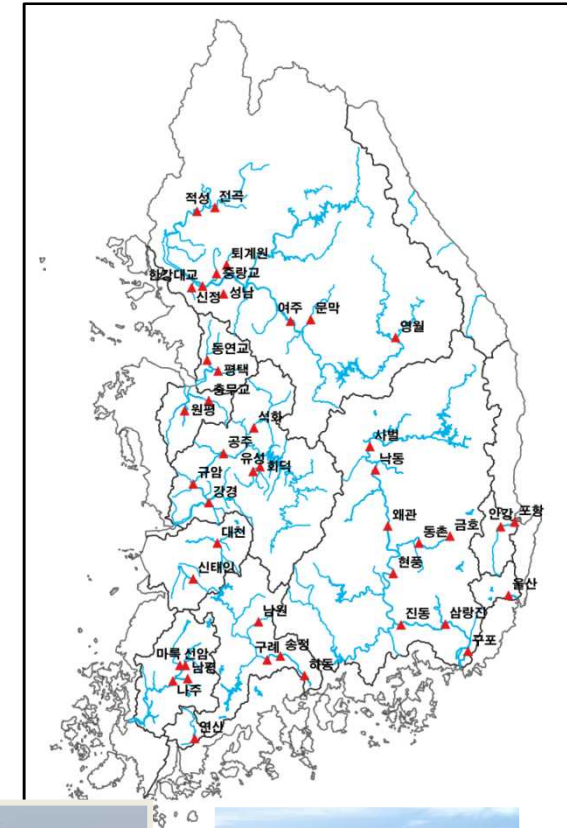
Rainfall stations (599)



Water level stations (570)



Flood Warning stations (43)



Data Collection for Flood Analysis

- Real time transmission of observation data every 10 minute
- Applying VHF, CDMA, Wireless communication, VSAT and etc
- Real time Monitoring by CCTV

홍수예보 종합상

주요예보지점 수위 - 홍수예보주요지점 수위를 30분단위로 제공(검색기간 표시시간 기준)

하천	예보지점	홍수예보 발령 및 해제	주요예보 발령 및 해제 시간	제방고 (자)	제방고 (우)	경보	주요예보	현재 수위	14:20	13:50	13:20	12:50
한강	한강대교	-	-	16.06	16.56	10.50	8.50	0.71▲	0.68	0.69	0.69	0.67
한강	여주	-	-	14.60	14.59	8.00	6.00	0.72▲	0.70	0.69	0.69	0.70
한강	영월	-	-	14.02	13.77	8.00	6.00	0.78→	0.78	0.78	0.78	0.78
한강	잠수교	-	-	-	-	-	-	2.88▲	2.82	2.83	2.83	2.81
안성천	평택	-	-	11.79	11.05	7.00	6.00	2.32→	2.32	2.32	2.32	2.31
안성천	동면교	-	-	13.04	13.10	8.50	7.50	2.67→	2.67	2.67	2.67	2.67
임진강	전곡	-	-	11.20	11.20	9.50	7.50	0.53→	0.53	0.53	0.52	0.50
임진강	적성	-	-	14.47	14.47	11.50	9.50	0.32▲	0.31	0.30	0.30	0.29
한강	중령교	-	-	9.21	9.13	6.50	5.00	0.85→	0.85	0.84	0.82	0.76
한강	성남	-	-	10.86	10.83	7.00	5.50	1.98→	1.98	1.98	1.98	1.98
한강	퇴계원	-	-	6.39	5.80	3.00	2.00	-0.19▲	-0.20	-0.21	-0.21	-0.21

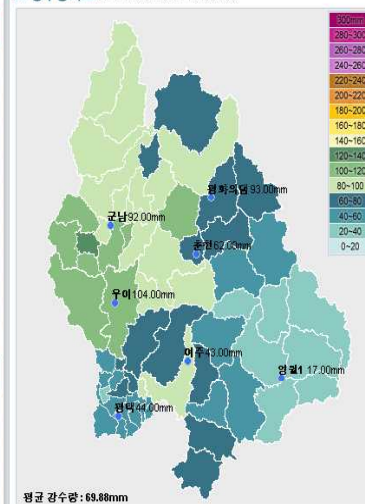
댐자료 - 댐의 수문현황을 제공(검색기간 표시시간 기준)

댐관측소	계획홍수량 (EL.m)	제한수량 (EL.m)	수위 (EL.m)	저수량 (%)	유입량 (m³/s)	총방류량 (m³/s)	수문방류량 (m³/s)	발전방류량 (m³/s)
평화익댐	221.50	191.00	166.09	0.16	31.00	30.00	0.00	0.00
화천댐	183.00	175.00	165.82	53.74	180.00	180.00	0.00	180.00
춘천댐	104.90	102.00	101.73	87.79	244.40	210.00	0.00	210.00
소양강댐	198.00	190.30	173.13	49.27	210.00	221.00	0.00	220.00
의암댐	73.36	70.50	69.94	70.95	209.00	319.10	0.00	319.10
청평댐	52.00	50.00	49.76	86.46	339.40	517.40	0.00	517.40
충주댐	145.01	138.00	133.34	59.47	332.00	329.00	0.00	329.00
괴산댐	136.93	134.00	133.57	78.76	0.00	0.00	0.00	0.00
충주조경지댐	67.30	-	64.11	87.37	269.00	123.00	0.00	123.00
형성댐	180.00	178.20	172.50	57.55	2.00	2.00	0.00	1.00
팔당댐	27.00	25.00	25.27	96.61	867.60	767.60	0.00	767.60
군남댐	40.00	23.00	23.82	2.22	102.00	98.00	98.00	0.00

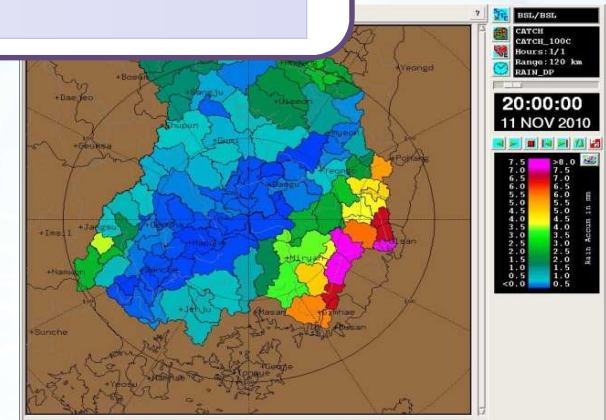
보자료 - 보의 수문현황을 제공(검색기간 표시시간 기준)

보관측소	계획홍수량 (EL.m)	관리수량 (EL.m)	상류수량 (EL.m)	하류수량 (EL.m)	저수량 (%)	유입량 (m³/s)	방류량 (m³/s)
강천보	45.57	38.00	37.92	33.34	97.47	255.00	383.00
여주보	40.64	33.00	33.07	28.35	102.39	269.00	204.00
이포보	36.24	28.00	27.83	25.30	92.17	249.00	92.00

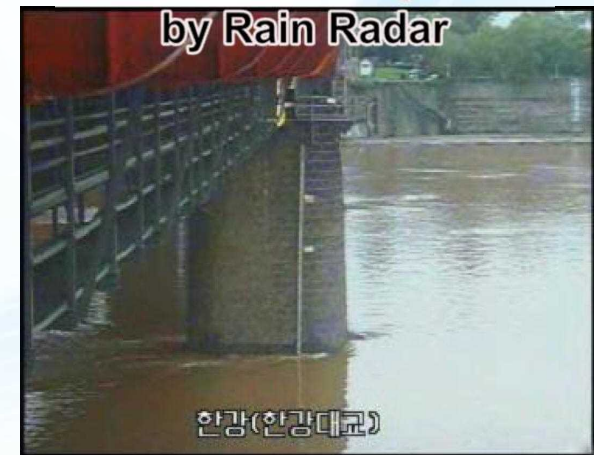
강수량자료 검색기간동안 평균누가강수량



기상특보 상황 - 현재 기상특보 현황 (기상청 자료제공)



Mean Areal Precipitation
by Rain Radar

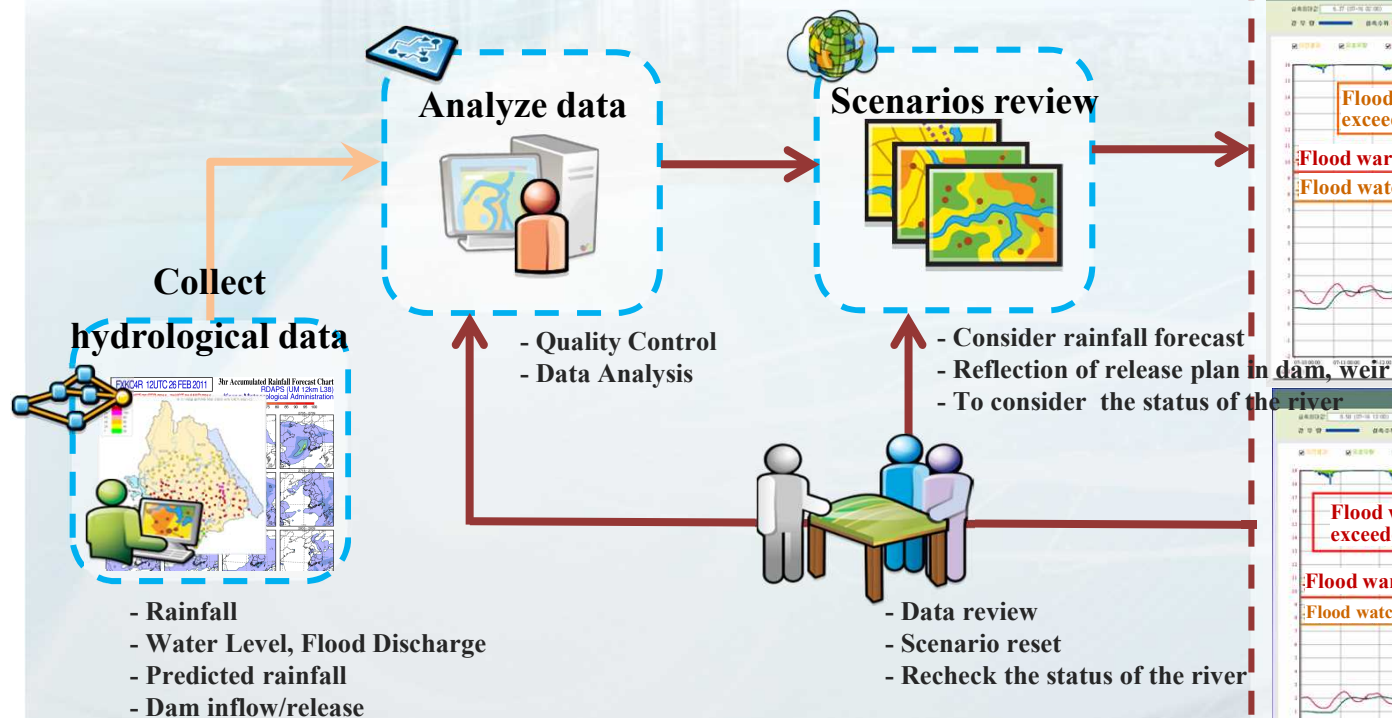


CCTV River Monitoring
(Hangangdaegyo)

Integrated Flood Monitoring
(Water Level, Rainfall, Dam, Weir, Weather report)

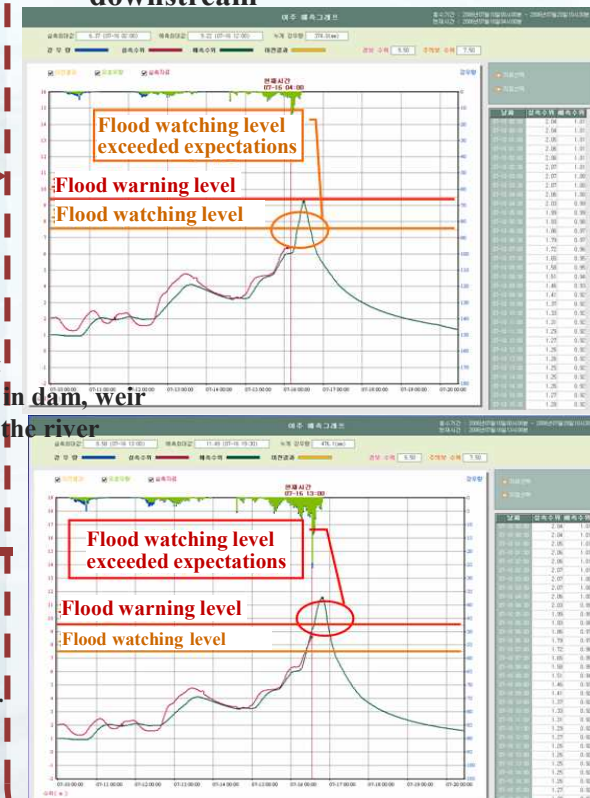
Flood Analysis and Prediction

- Flood Discharge and Water Level Prediction by observation data
- Flood Analysis by experts and advanced software system



Flood Analysis

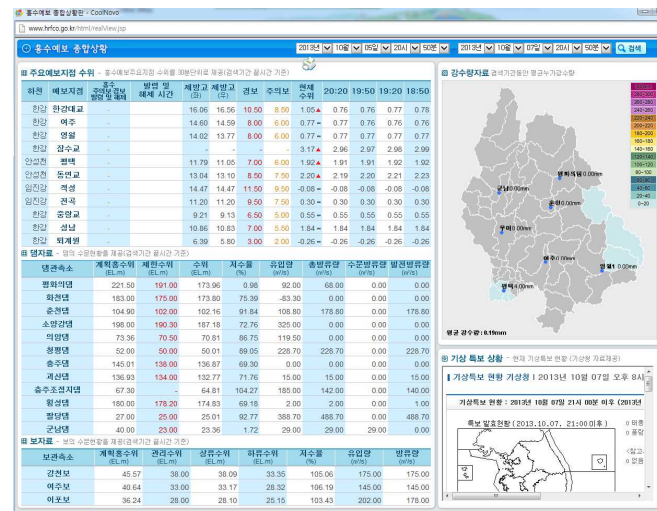
- Scenarios analysis
- Check the Dam & Weir Release
- Prediction of water level, flow in downstream



Dissemination of Flood Forecasting



Electrical transmission(SNS)



Flood Management Systems
(<http://www.hrfco.go.kr/html/realView.jNl>)

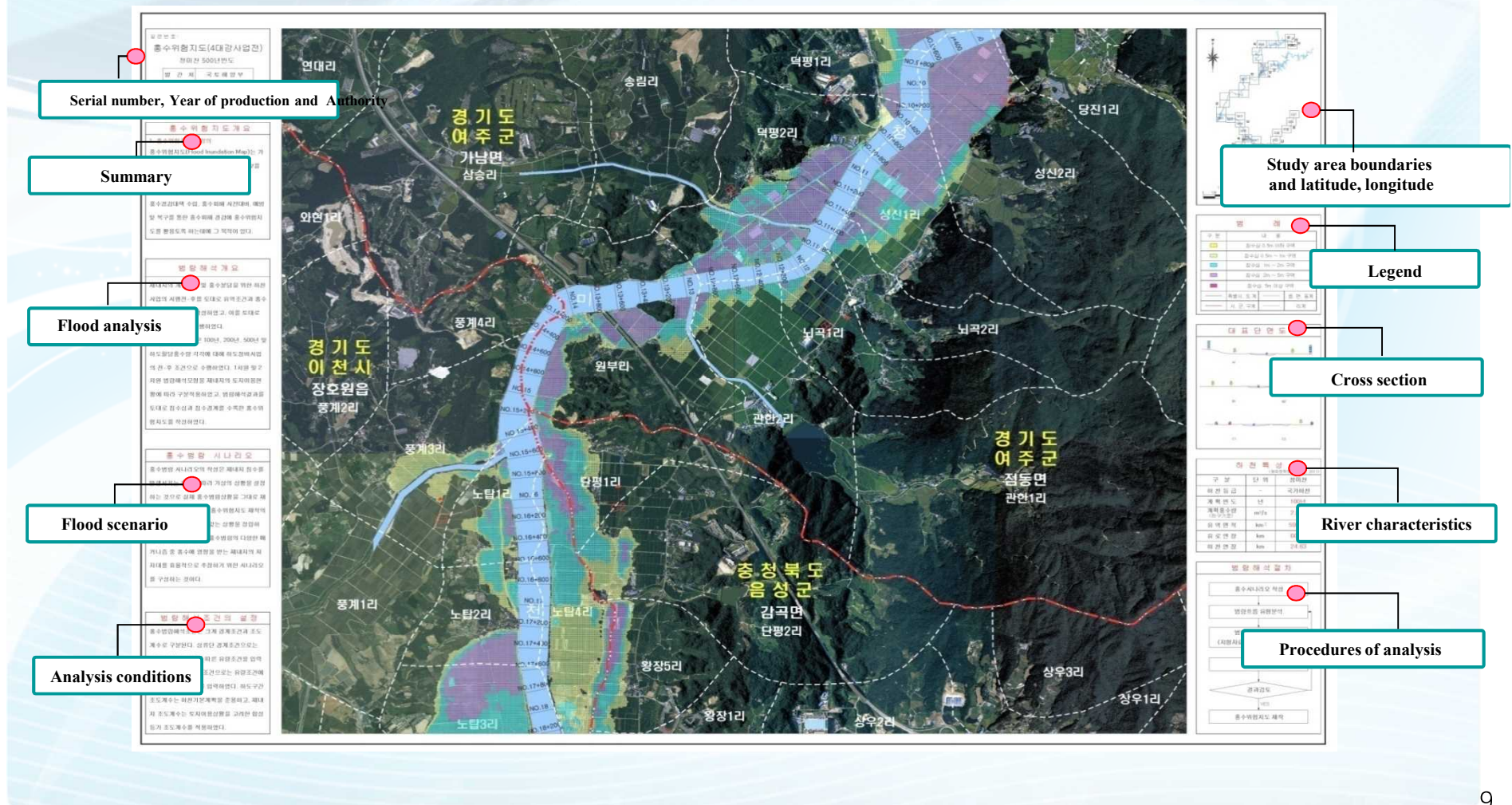


River Information Display System



Flood hazard map

- The flood risk map for national rivers completed in 2016
- The flood risk maps for local rivers and urban area will be completed by 2021



Inundation Information & EAP (Emergency Action Plan)

- **WAMIS**(Water Management Information System, <http://wamis.go.kr>) supply past inundation information (date, rainfall type, etc.)
- Publish the **Annual Disaster Report** (including flood damage cost, casualties, inundated area, pictures, etc.)

WAMIS
국가 수자원관리정보시스템

기초자료검색 물지도 도우미 Sitemap English 통합검색

수문기상 유역 하천 댐 지하수 이수 수도 환경생태 자연재해 지형공간

홍수

※ 홍수피해
※ 침수실적조사
※ 홍수기시우량
※ 홍수기시수위
※ 홍수위험지역

침수실적조사

유역별 침수실적조사 현황

행정구역별 | 유역별

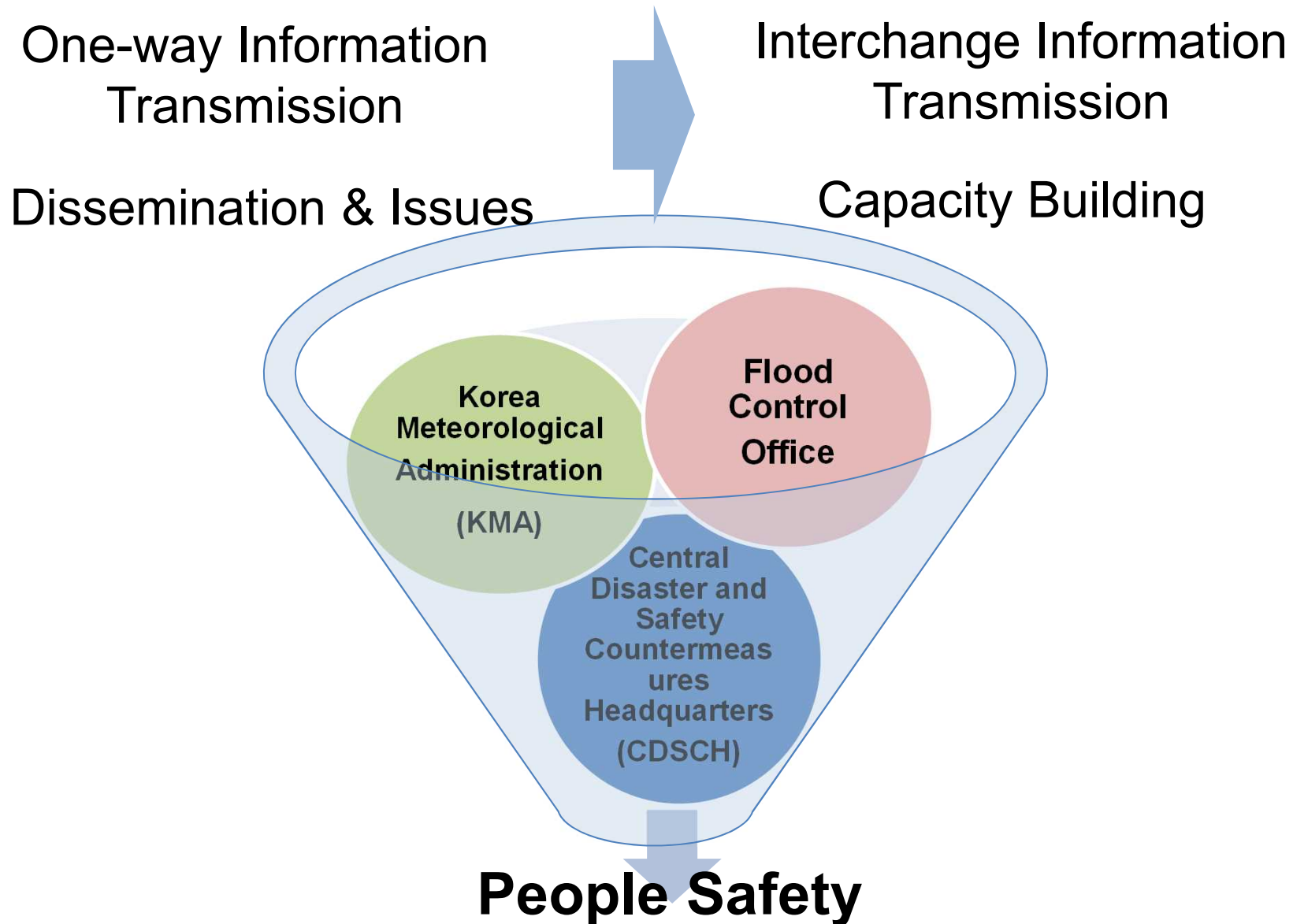
권역 대권역 종권역 검색 단위유역 검색

한강권역 남한강상류(1001) 종권역 침수실적조사

조서	위치	관련하천	발생년도	발생월일	종료월일	호우종류	토지이용
	강원도 영월군 영월읍 덕포4리	남한강	1990	09월09일	09월12일	집중호우	농경지
	강원도 영월군 영월읍 영흥6리	남한강	1990	09월09일	09월12일	집중호우	농경지
	강원도 영월군 영월읍 삼죽1리	한강	2002	08월03일	08월15일	집중호우	농경지
	강원도 영월군 영월읍 삼죽2리	한강	2002	08월03일	08월15일	집중호우	농경지



Improvements for Flood Management





Thank You