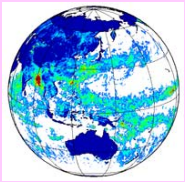
Local ownership of flood forecasts

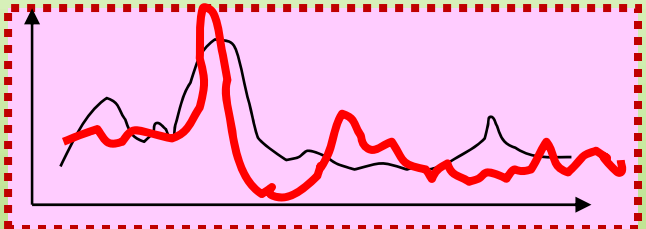
System

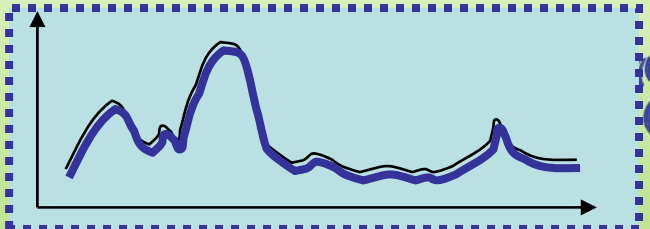
Training

Global Data



Local Data





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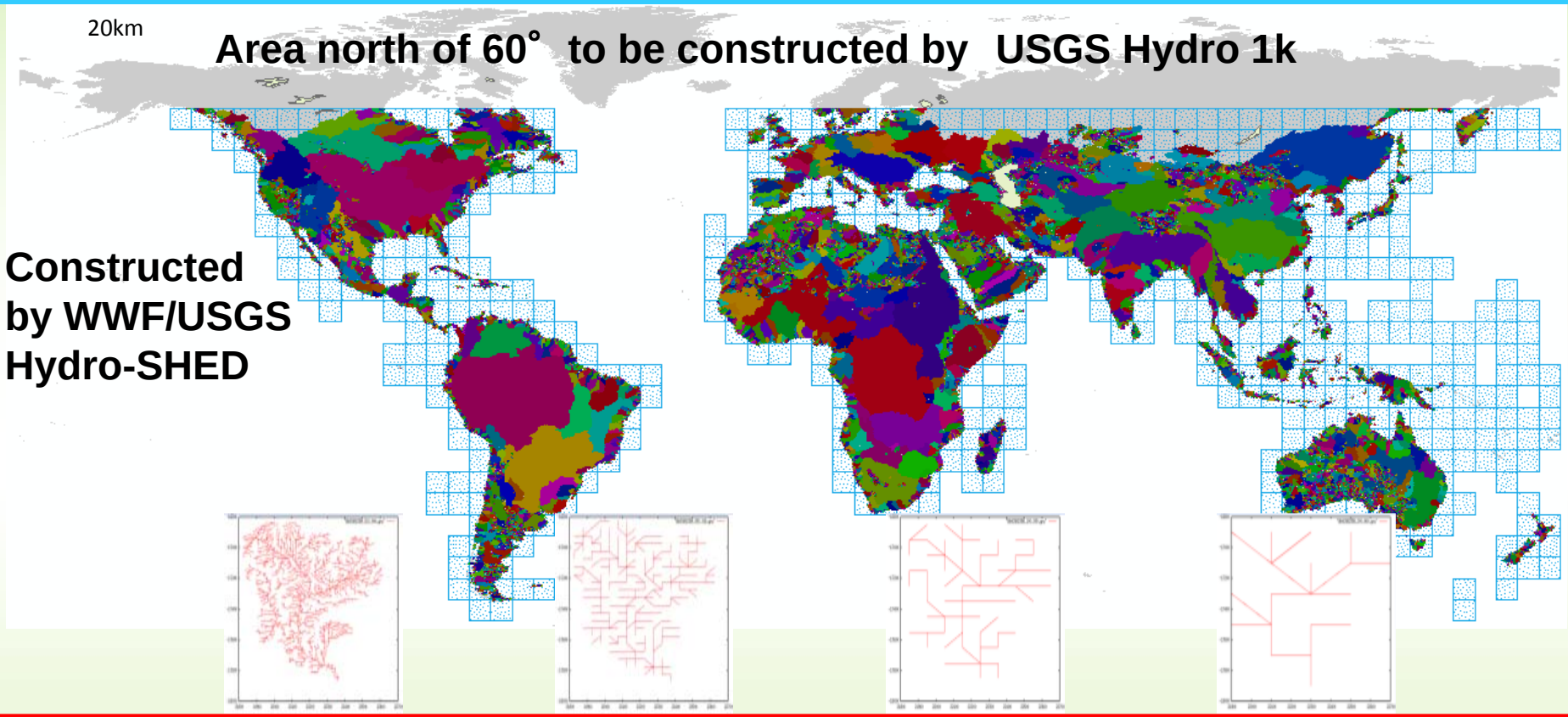
Global coverage of scale free stream network in resolutions from 90m to 2km

Jun Magome



・Conserves elevation, river length and gradient
Enables hydrological simulation independent of spatial resolution

High level resolution 3”(≒90m original), 6”, 9”, 12”, 15”
Middle level resolution 0.5’ (about 1km), 1’, 2’, 3’, 90m-20km 11 levels
Low level resolution 5’ (≒10km), 10”

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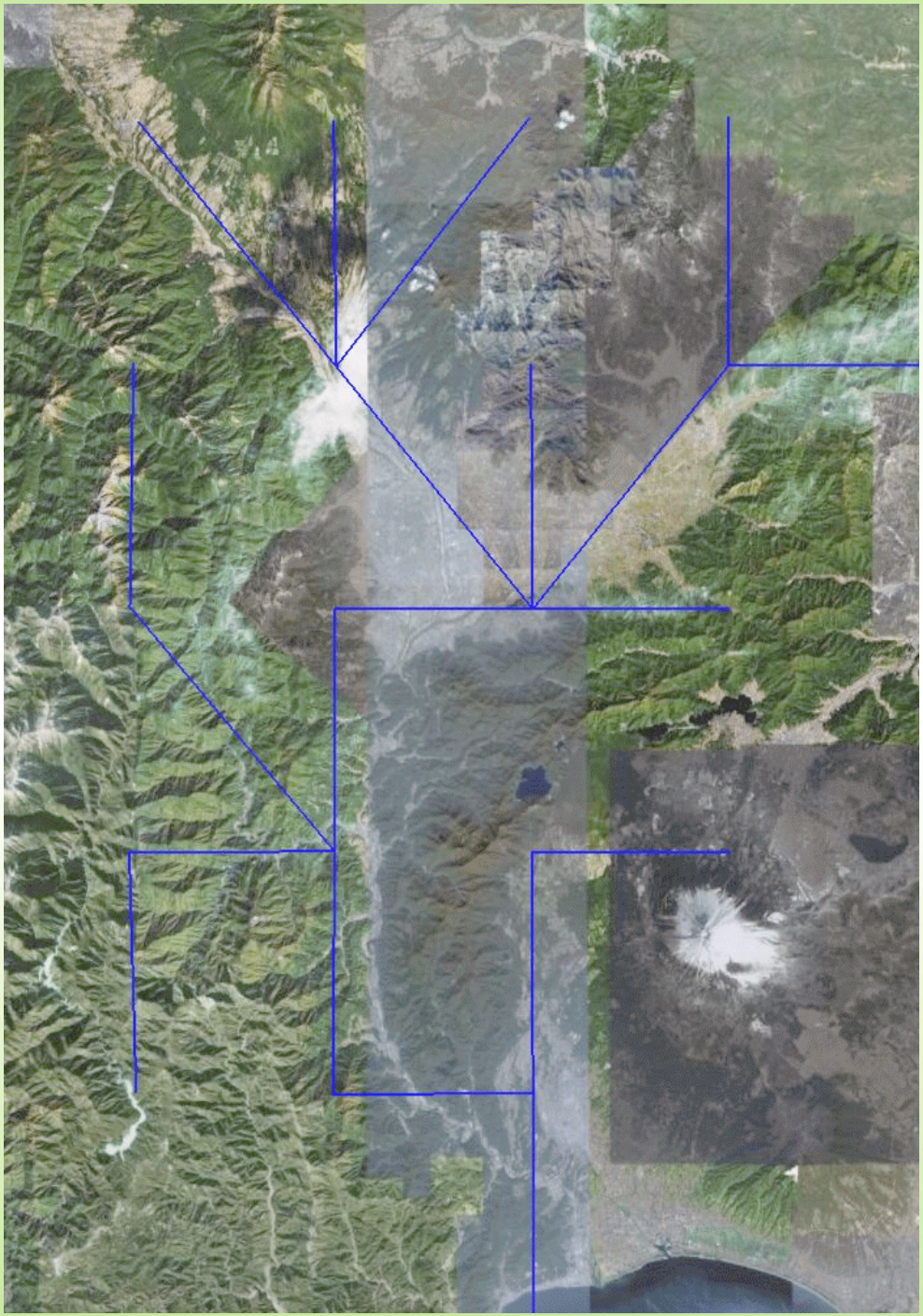

Fuji River, Japan

Shown are rivers with catchment area $\geq 2km^2$

90 m	3”
200 m	6”
300 m	9”
400 m	12”
500 m	15”
1 km	0.5’
2 km	1’
4 km	2’
6 km	3’
10 km	5’
20 km	10’

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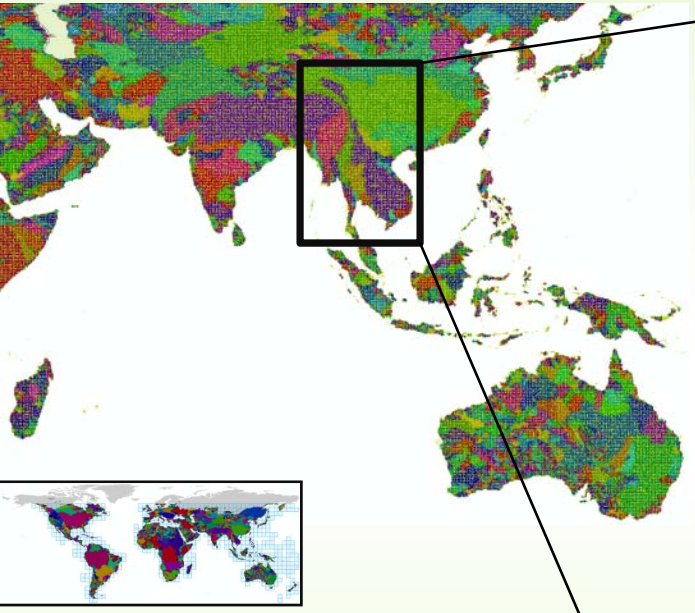
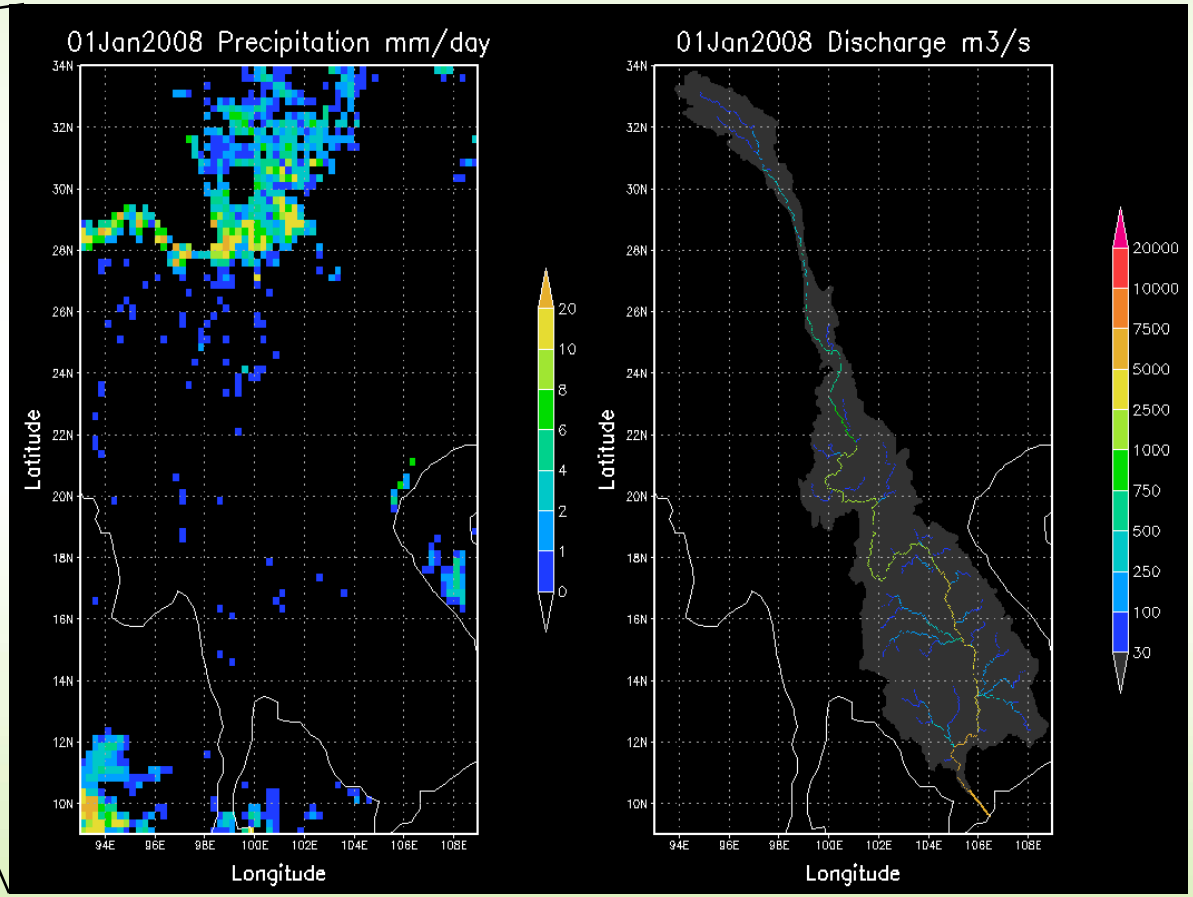
“Real-time” “worldwide” nowcasts

Using the globally available data as default inputs

Jun Magome, 2008





Example : BTOP Model + TMPA 3B42RT

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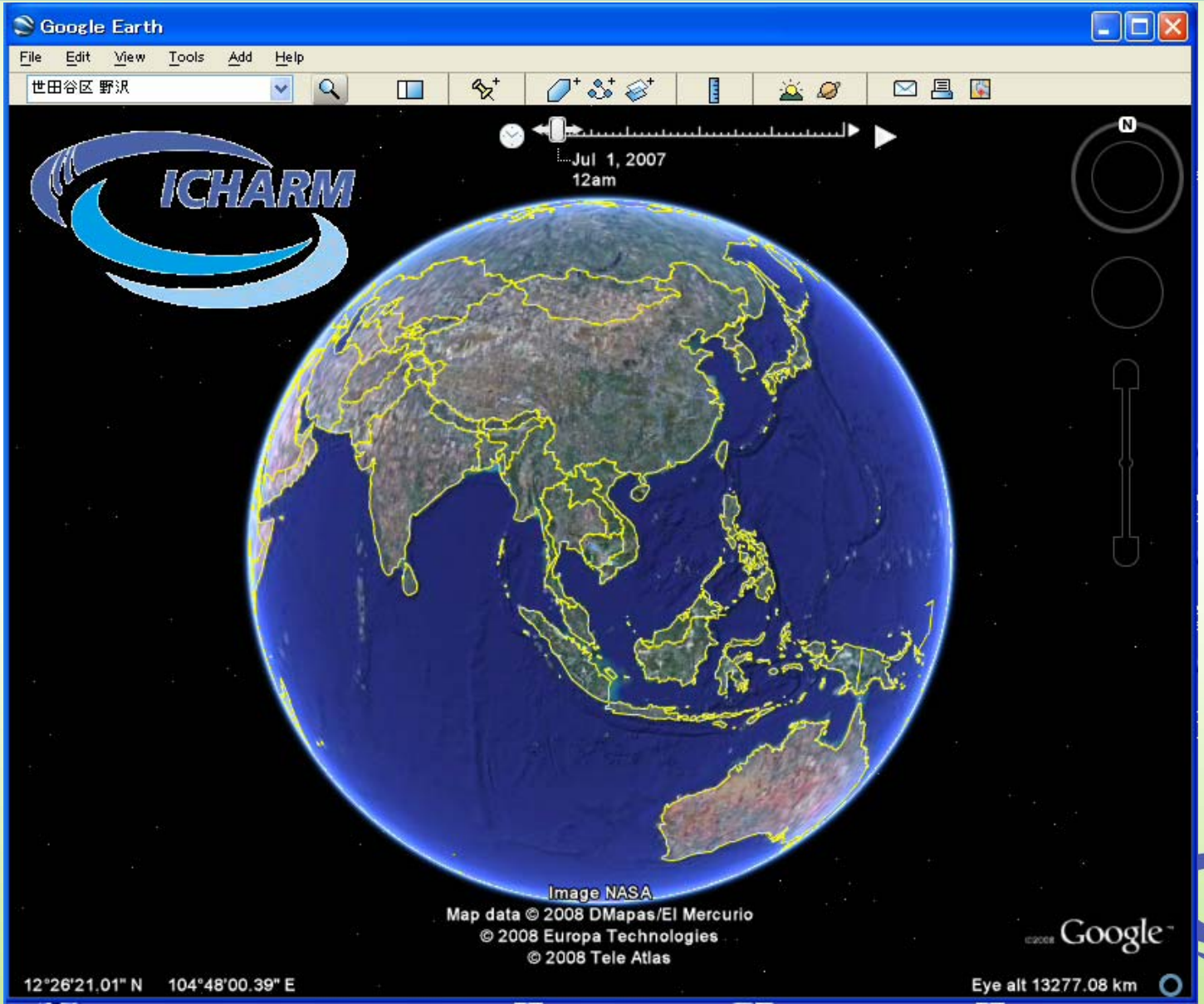
“Real-time” “worldwide” nowcasts

Integration with Flood Inundation Model



PT Hai & Jun Magome 2008

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“Real-time” “worldwide” nowcasts

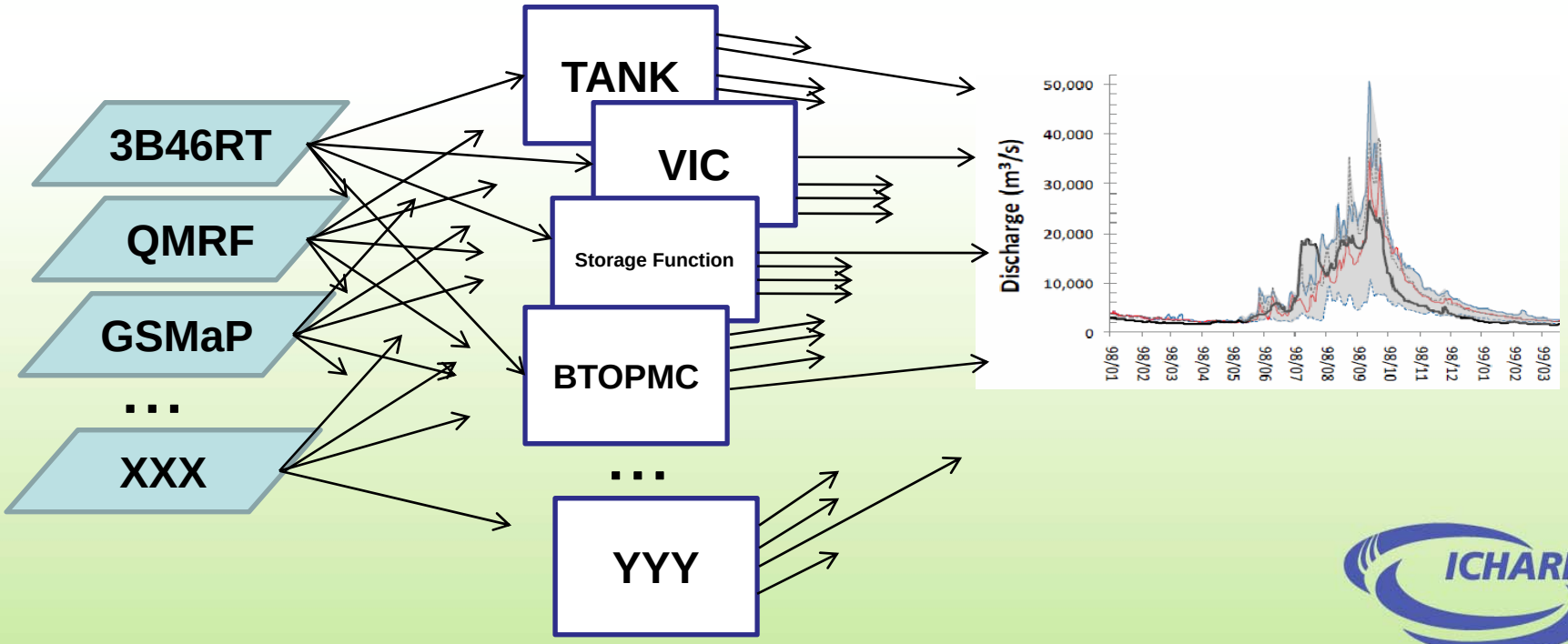
Using the globally available data as default inputs

Type	Elements	Source (standard data sets)
Topography, Land, Soil and Vegetation data	DEM	USGS-GTOPO30, Hydro1K, SRTM, HydroSHEDS, ICHARM(MSR)
	Flow direction map	USGS-GTOPO30, Hydro1K, SRTM, HydroSHEDS, ICHARM(MSR), IFAS-Tool
	(Sub) Basin Boundary	USGS-GTOPO30, Hydro1K, GDBD, SRTM, HydroSHEDS, ICHARM(MSR), IFAS-Tool
	Root Depth	literature values (LiteraSellers et al., 1994,1996)
	River width	Assumed from contributing area (Lu et al., 1989)
	Soil Map	FAO-DSMW
	Soil Type	USGS soil clasification (Rawls et al., 1982, 1985)
	Soil Properties	FAO
	Land Cover Type	GLCC/IGBP V2
	NDVI	NOAA-AVHRR (GIMMS etc), Spot Vegetation
Hydro-Met data	Precipitation	Satellite Delived Dataset (TMPA, CMORPH, GSMaP etc) Reanalysis Dataset (NCEP, ERA-40(ECMWF), JRE-25 etc) Local ground observations Forecast (NOAA/NWS, ECMWF etc)
	Temperature Cloud cover Daylight duration Radiation Vapour pressure Wind speed	Reanalysis Forecast Climatic data set (CRU TS(CRU/EAU))
	Observed discharge	Local ground obs. GRDC, Mekong River Hydrological Yearbook, etc.

Jun Magome 2008

Multi-input multi-model ensemble Approach: **IFAS Platform**

- ***From Model Inter Comparison to Input/Model Ensemble Forecast to indicate uncertainty band***
- ***Identify the conditions of inputs and models to become a member of ensemble***



TRAINING WORKSHOP FOR THE GLOBAL FLOOD ALERT SYSTEM (GFAS) VALIDATION

3-8 Oct, 2008 JAPAN

IFNet International Flood Network

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Objective

- Capacity development for local practitioners to validate GFAS-rainfall and translate it to GFAS-streamflow in ungaged or poorly gaged basins.

Participants from

- Ethiopia, Zambia, Cuba, Argentina, Bangladesh, Guatemala, Nepal

  (7countries)

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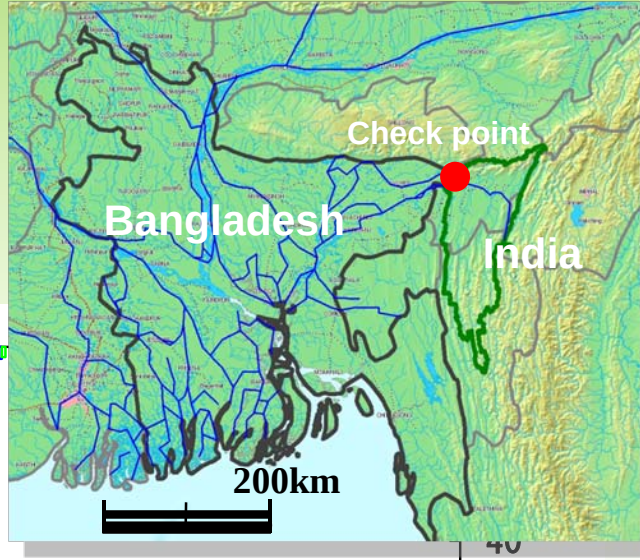
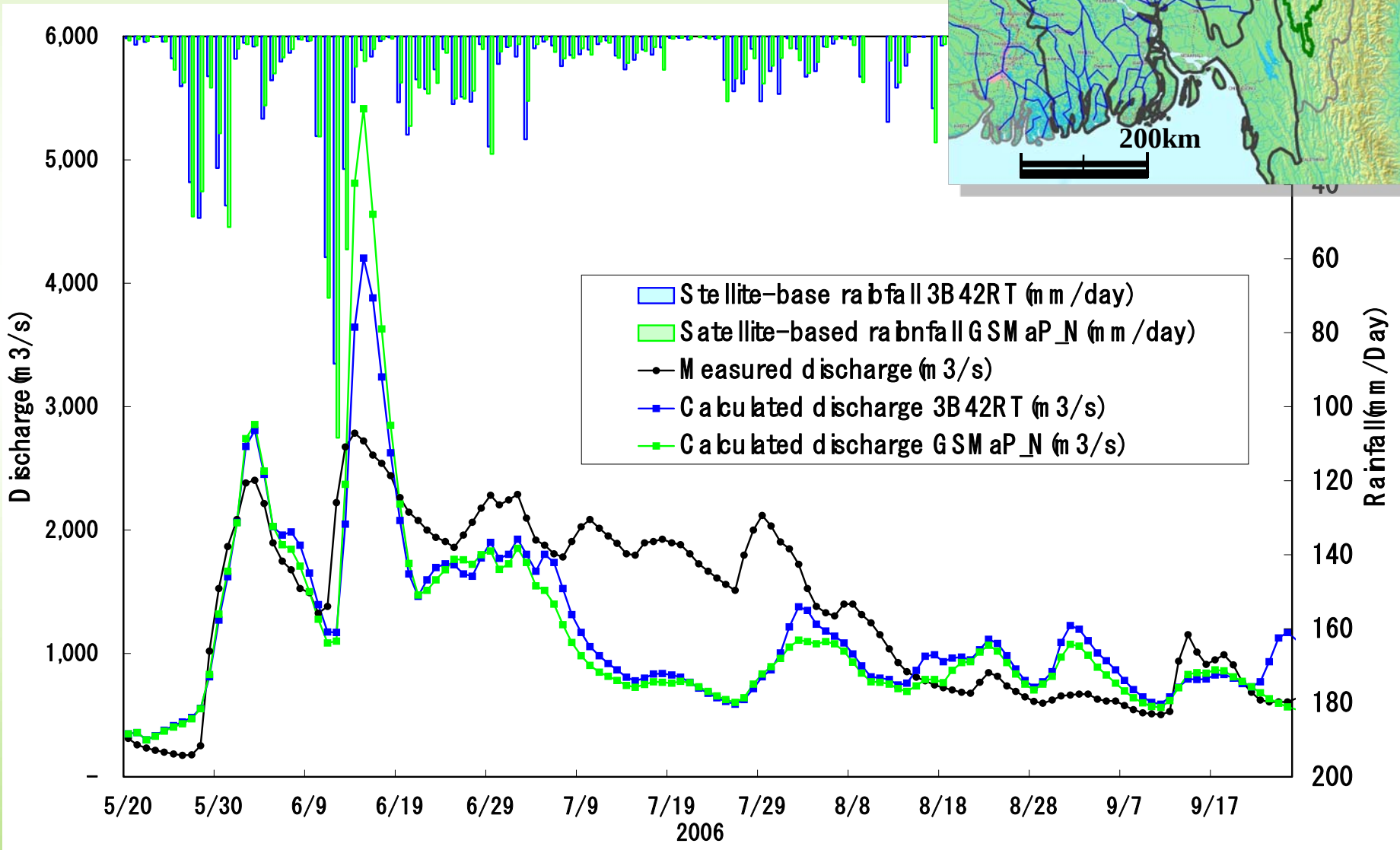
Bangladesh
Barak Basin:31,026km
Site:Sheole





Disaster Preparedness Indicators & Standards as a tool to guide local practices

Indicators to check and monitor &
Standards to guide
for society to come into a continuous positive spiral towards better preparedness against disasters.

The standard is not a list of facilities nor equipments to be installed, but rather a list of **institutional procedure** that any community commit to follow to assure **a positive spiral** operate in its community management system leading to a continuous improvement in disaster preparedness.

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Flood Disaster Risk Indicators
$R=HxV_BxE/C$

Disaster Risk

- Human Damage: deaths/causalities, affected, displaced
- Economic Losses: direct, indirect
- Goods: house hold gods, commercial goods, production goods, agricultural, energy, foods, cultural heritage
- Properties: buildings, public infrastructure, landscapes
- Livelihood: business continuity, traffic, lifeline services
- Environmental damage: Environment, ecology , pollution
- Duration, frequency, timing, spatial extent affected

Natural Hazard

- Magnitude, intensity, duration, frequency
- Timie and place of occurrence
- Human amplification activities: deforestation, slop development
- Human mitigation activities: artificial rainfall

Societal Basic Vulnerability

- Poverty: GDP, Economic Vulnerability Index
- Governance: accountability, compliance, political stability, administrative efficiency, discipline, legal preparedness, bribe control
- Health, nutritious, handicapped, sick population
- Demographic composition: infants, maternity, elderly population
- Education level: illiteracy, IT illiteracy
- Institutional arrangement for weak & vulnerable people, squatters
- Social Capital, mutual help

Exposure

- Population, economic activities and their density in risk areas: active faults, active volcanic areas, flood plain, high slopes, landslide areas, zero meter areas, reclaimed areas
- Land use control: industrial area regulation, urban inundation acceptance, regulation and incentives, tax reduction, subsidy

Coping Capacity

- Structural infrastructure: dams, dikes, diversions, sabo works, urban storage & infiltration facilities, piloti houses,
- Nonstructural infrastructure as below:
- Preparedness: risk assessment, hazard maps, its use, drills
- Early warning: observation stations, data transmission/processing, dissemination media, research
- Evacuation, shelter, relief &recovery supports, volunteers
- Institutional structure: central/local prevention/emergency response structure, local community defense forces
- Finance: prevention, emergency, recovery, ODA, S/T Research funds
- Culture, education, training: traditional/indigenous culture, school disaster education, multi hazard drills.

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