

2012.12.15 #18 Int'l AIM WS

# Water sector analysis in the ISI-MIP project

Yoshimitsu MASAKI and Naota HANASAKI

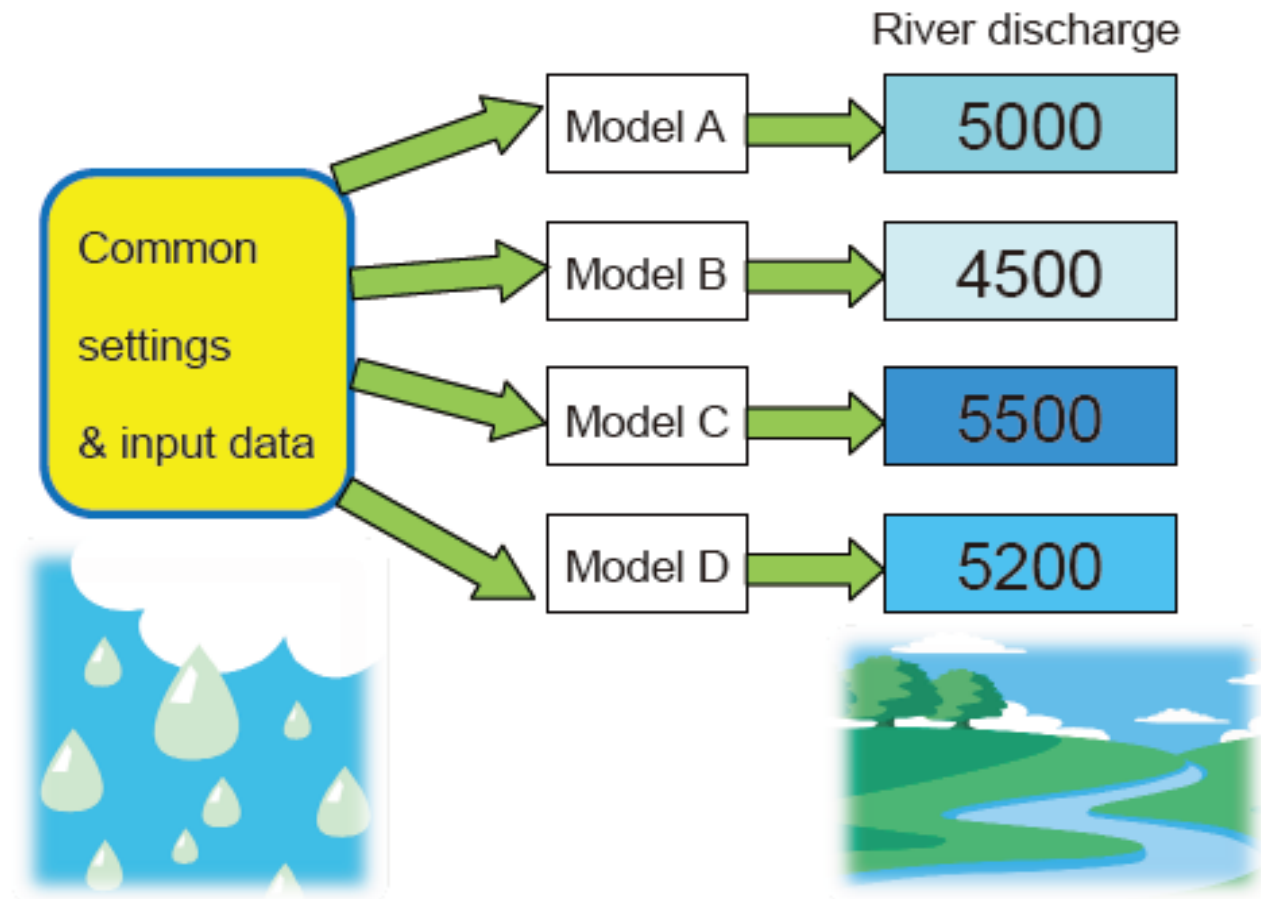
8 min presentation

- Inter-Sectoral Impact Model Intercomparison Project (ISI-MIP)
  - cross-sectoral global impact assessment
  - 4 specialized sectors (**water**, biomes, agriculture and health)
  - with recently developed **climatic and socio-economic scenarios**
  - coordinated by Potsdam Institute for Climate Impact Research (Germany)
  - >30 model teams are participating



- Different GCMs and future socio-economic scenarios produce different future projections
  - Projection with **multi-GCM** and **multi-scenario** has been standard for impact studies
- Impact studies largely depend on adopted models
  - **Discrepancies between models would sometimes become larger than signals themselves**
  - Characteristics of individual model (esp. **in comparison with others**) are UNKNOWN

- ISI-MIP also aims to clarify characteristics of models
  - “multimodel comparison”
  - **common** settings and meteorological forcing data sets are required → prepared & distributed by ISI-MIP



### 3. Water sector

## Participating model teams

- Water sector
  - 12 model teams are participating
    - ➔ frequently used in impact studies

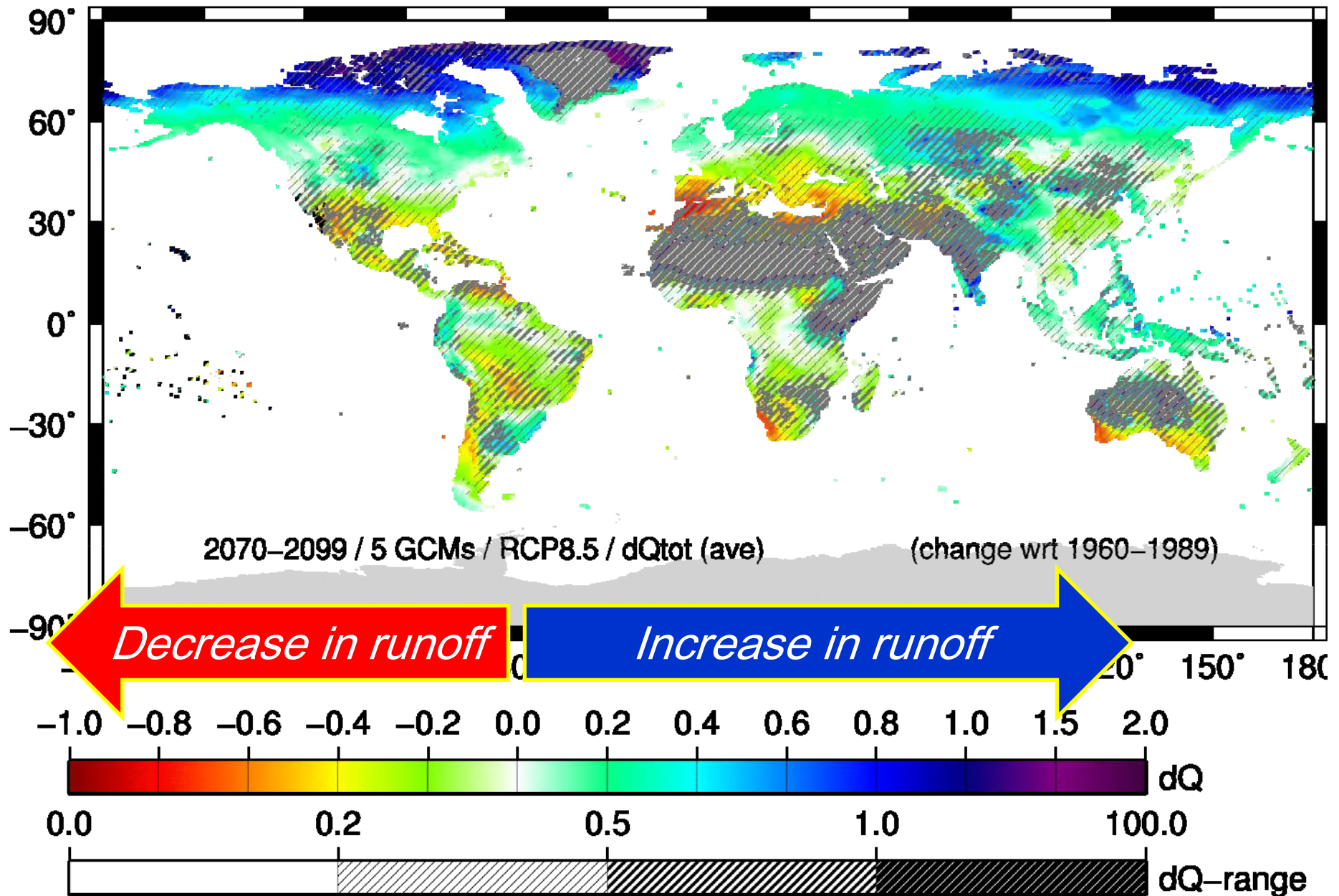
Model	Country	Model	Country
LPJmL	Germany	MacPDM	UK
ORCHIDEE	France	WBM	USA
JULES	UK	MPI-HM	Germany
VIC	Norway The Netherlands	PCR-GLOBWB	The Netherlands
<b>H08</b>	<b>Japan</b>	DBH	China
WaterGAP	Germany	MATSIRO	Japan

- Analysis
  - period 1970-2099 (1950-1969 for spin-ups)
  - 5 GCMs (HadGEM, IPSL, MIROC, GFDL and NorESM)
  - 4 scenarios (RCPs 2.6, 4.5, 6.0 and 8.5)
- Elements to be reported:
  - natural hydrological elements  
(e.g., runoff, river discharge, evapotranspiration, soil moisture, snow amount)
  - water consumptions by human activities  
(e.g., agricultural irrigation withdrawal, industrial water withdrawal).



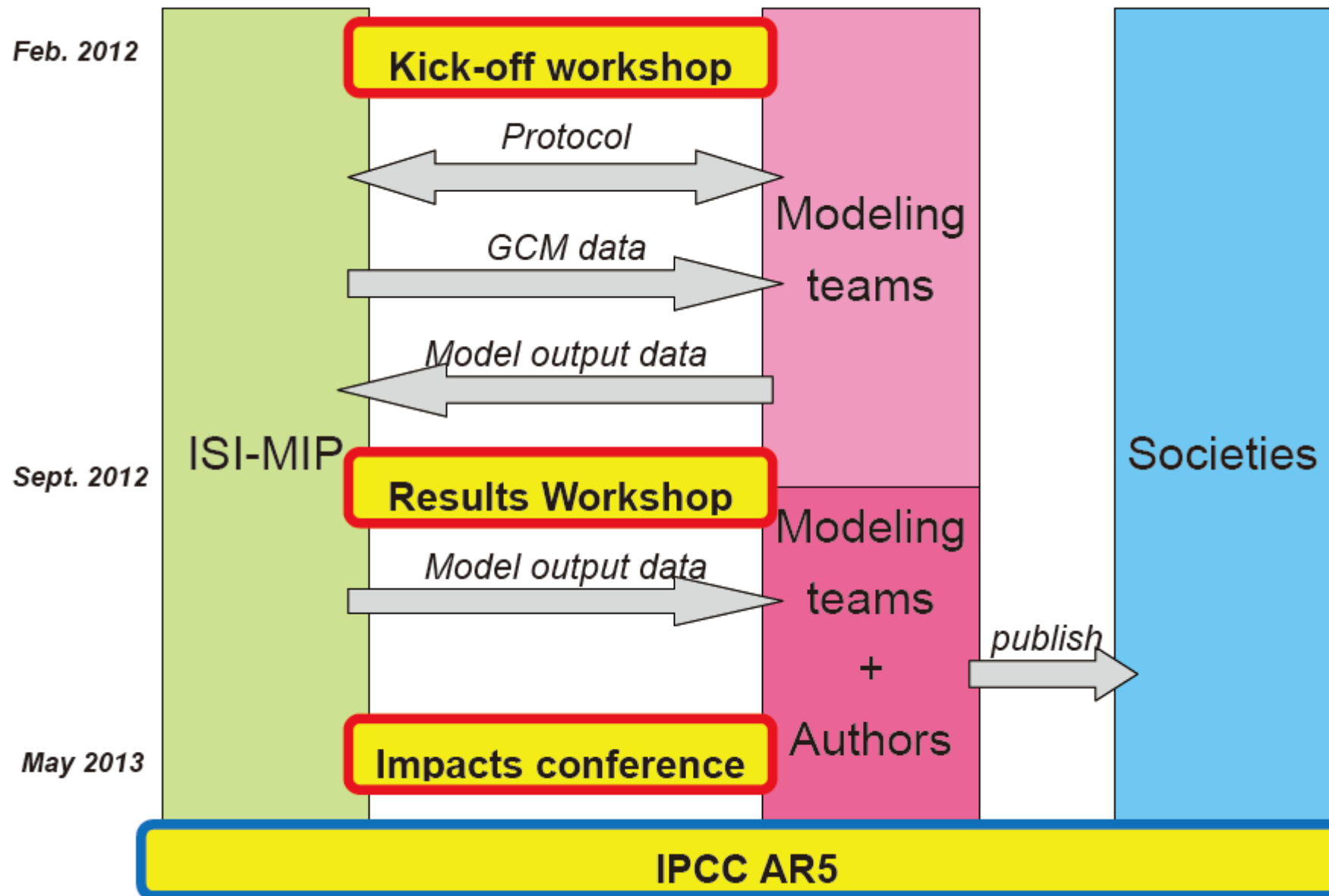
### 3. Water sector

### An example of fast-track results



## 4. Timeline

## Overview





- Ongoing & forthcoming activities
  - Writing reports on their fast-track results
  - **A special issue: to be published in 2013 (PNAS)**
  - Eminent results will be presented in an international conference (Potsdam, Germany, in May 2013)
  
- Further information on the ISI-MIP:  
<http://www.isi-mip.org/>

Thank you

## Supplement

## Uploaded data size

Total = (5GCMs) X (4RCPs+Historical) X (95 or 35yrs)  
X (# of elements) X (data size per year) for each model

- Daily output data ~ 100Mbytes / year
  - runoff
  - river discharge
  - etc.
- Monthly output data ~ 1 to 3Mbytes / year
  - evapotranspiration
  - potential evapotranspiration
  - soil moisture
  - withdrawals for human activities (irrigation, industrial, ...)
  - consumptions for human activities (irrigation, industrial, ...)
  - etc.

Supplement

Title

- Contents