

The Asian Water Cycle Initiative (AWCI)

**Demonstration Project on Flood Forecast in
the Huaihe River Basin of China**

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The Location

The HRB is located in between the Yangtze River and the Yellow River, which is one of the 7 largest river basins in China.

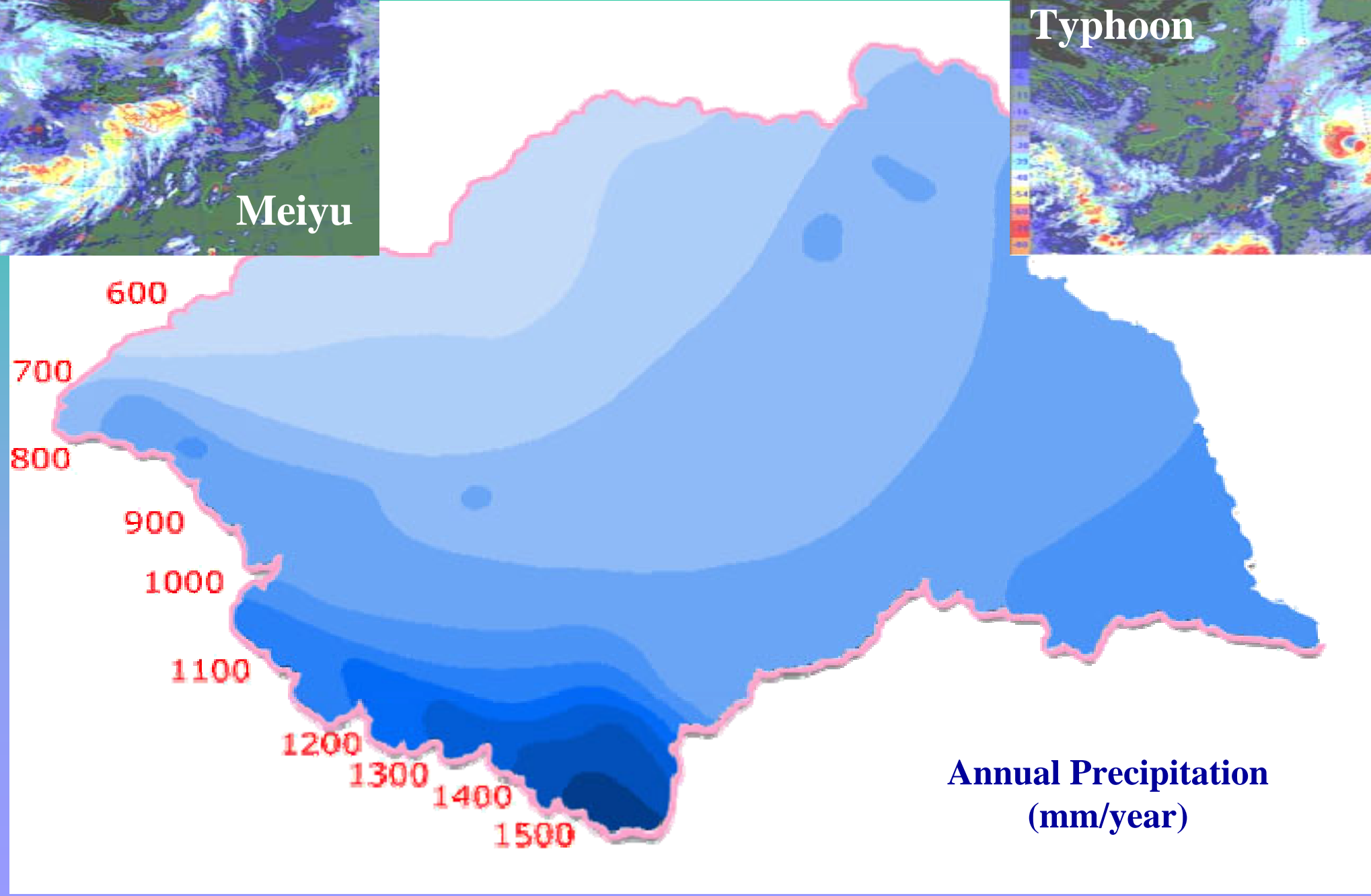
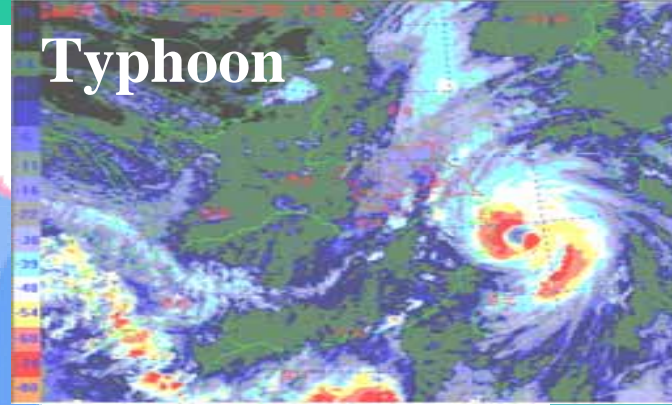
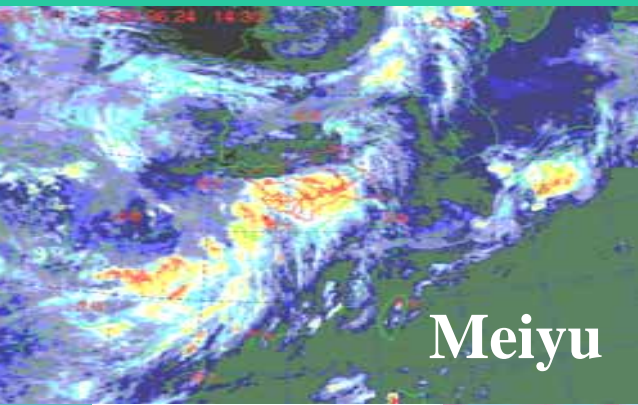


The transient climate zone

The HRB is located in the transit climate zone from humid and warm temperate climate to semi-humid and temperate climate. Its rainfall is concentrated in summer and with high intra-annual variability.



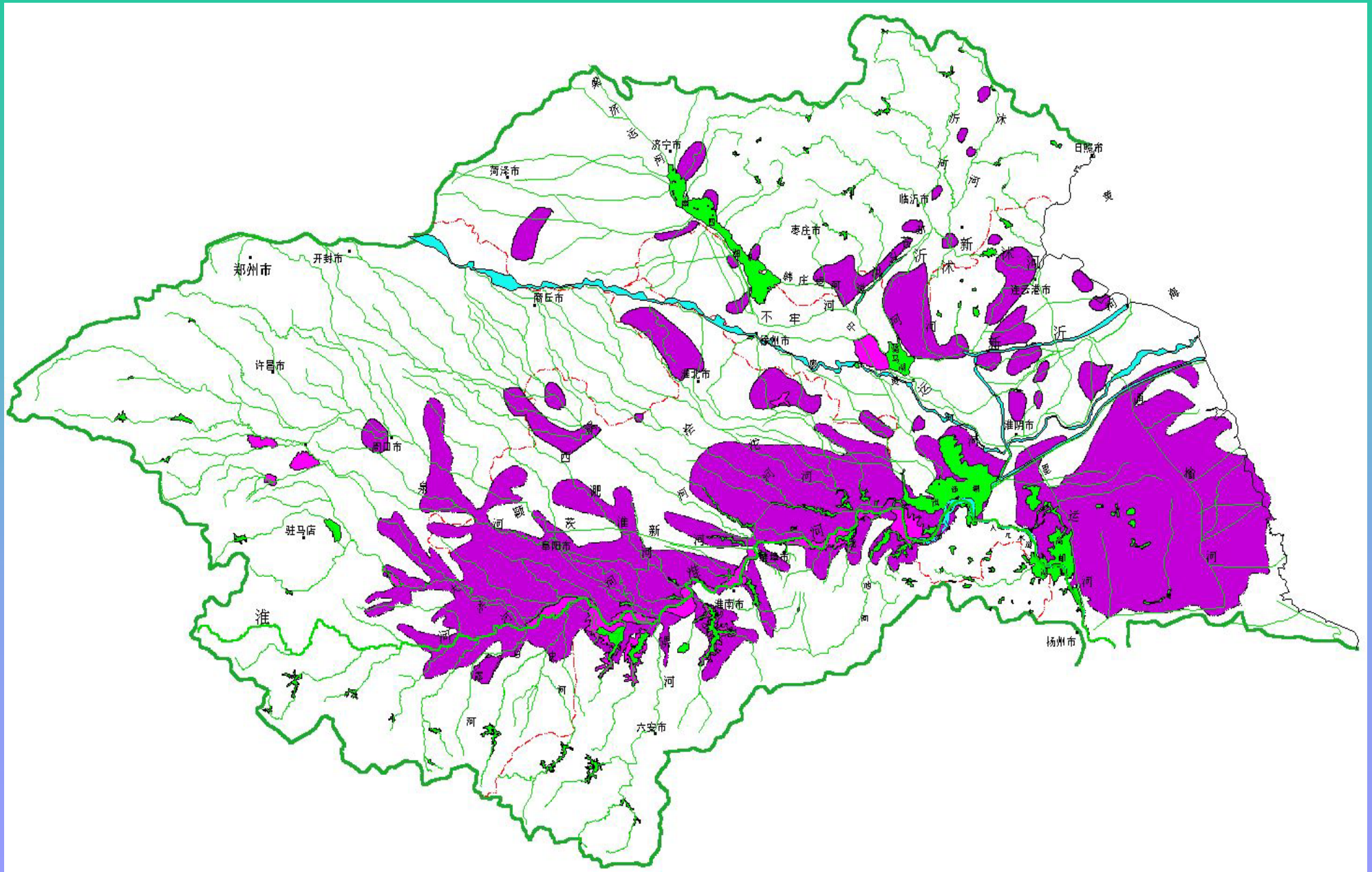
Mean annual precipitation is 880 mm, Geographically, it is decreased from south to north, ranging from 1,500 ~ 600 mm.



- Area: 270,000 km²; Population: 160 million
- Arable land: 12 million hectares
- One of the most important bases for food and natural resources
- The main water issues are flood, drought and water pollution



Flood Inundated Areas in 1991

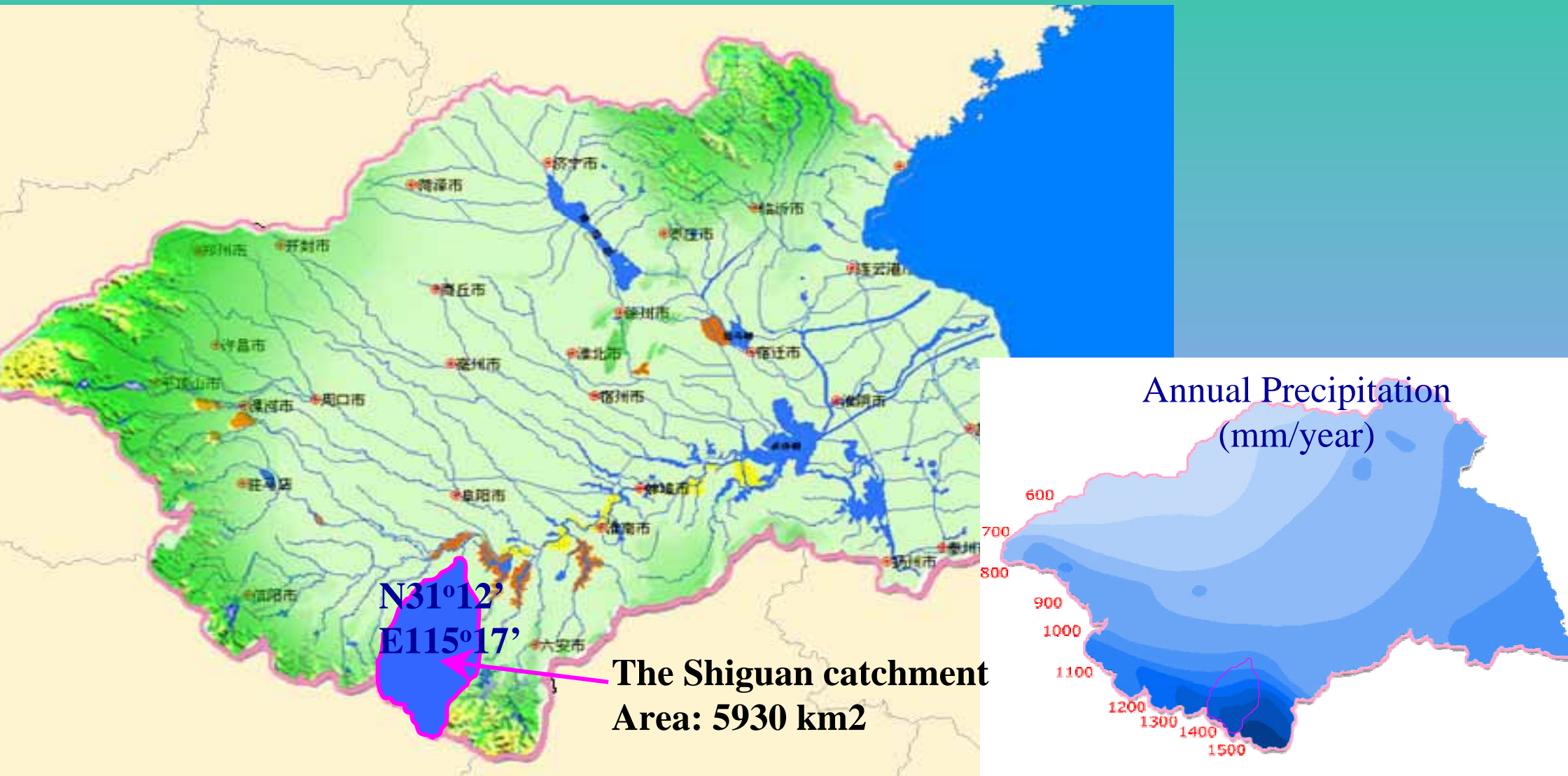


Water Deficiency Following with Floods

- Floods are very frequent in the Huaihe River basin due to its monsoon climate;
- At the same time, relatively less rainfall and higher water demand during the off-flood season leads water deficit for demand and the Huaihe River basin suffers sever drought in the same year with flood.

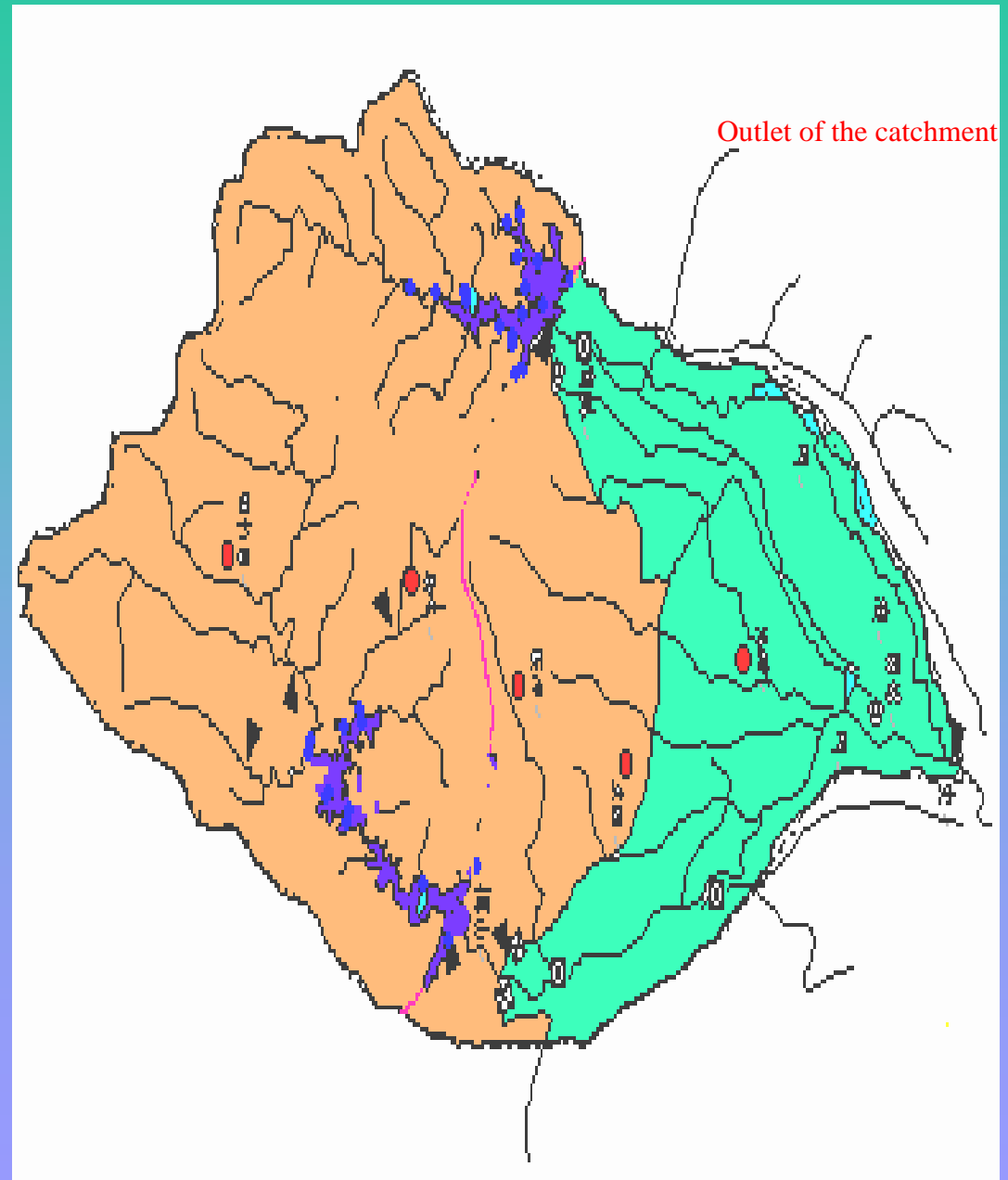
The Candidate River Basin

- The Shiguan catchment is selected as the candidate River basin for the demonstration project, where the HUBEX has been carried out;



The Shiguan Catchment ----Demonstration Basin

- **Area: 5930 km²**
- **Annual precipitation: 1200 mm**
- **Two large size reservoirs:**
 - (1) **Meishan Reservoir: 2.25 billion M³**
 - (2) **Lianyushan Reservoir: 1.17 billion M³**



Major Issues to be focused during the Demonstration Project

- Rainfall forecast using the numerical weather forecast model
- Flood forecast using comprehensive methodology incorporating distributed hydrological modeling approach with weather radar measurement and weather forecast techniques
- Integrating the rainfall forecast, flood forecast, reservoir operation and option analysis into a Flood management supporting system for demonstrating the possible applications of GEOSS techniques and data sources for river basin flood management.

Available Observations and Existing Data

Operational Observations:

- 48 rain gauges
- 7 discharge stations
- 3 evaporations
- 3 groundwater gauges
- 3 soilwater gauges during the HUBEX

Existing Data:

- hourly precipitation
- Daily pan evaporation
- 3-hourly discharge
- daily groundwater level
- daily soil moisture content during the HUBEX

On-going Project in the Demonstration Basin

- A Doppler radar will cover the Shiguan catchment in near future, it would be able to retrieve a good real-time rainfall fields for flood forecast by using of distributed hydrological model;
- During the 11th National 5-year Plan (2006-2010), several research projects are carried out for improving the management of floods in the Huaihe River basin;
- The flood and drought management supporting system is under construction, and it will be launched in the near future.

Future Plan on the Demonstration Project

- A coupled weather forecast model, distributed hydrological model and flood routing model will be established in this demonstration catchment for testing;
- International cooperation on the data sharing and capacity building is necessary;
- And, it is possible and necessary to have this demonstration project to be established in the Huaihe River basin due to urgent social needs and important scientific purposes.

Thank you!