ESA - MOST Dragon 2 Programme

2011 DRAGON 2 SYMPOSIUM

中国科技部-欧洲空间局合作 "龙计划"二期

"龙计划"二期2011年学术研讨会

Project Summary

Application of remote sensing and other space technology to hydrology and water resources

ID 5281

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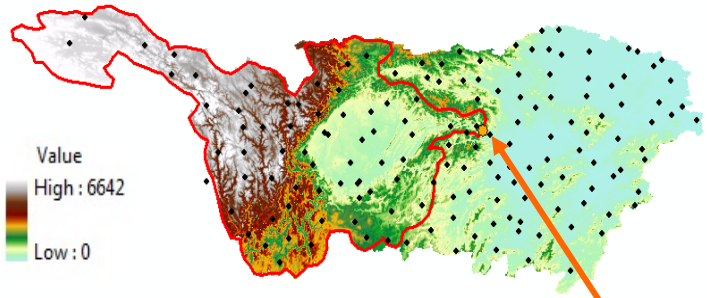
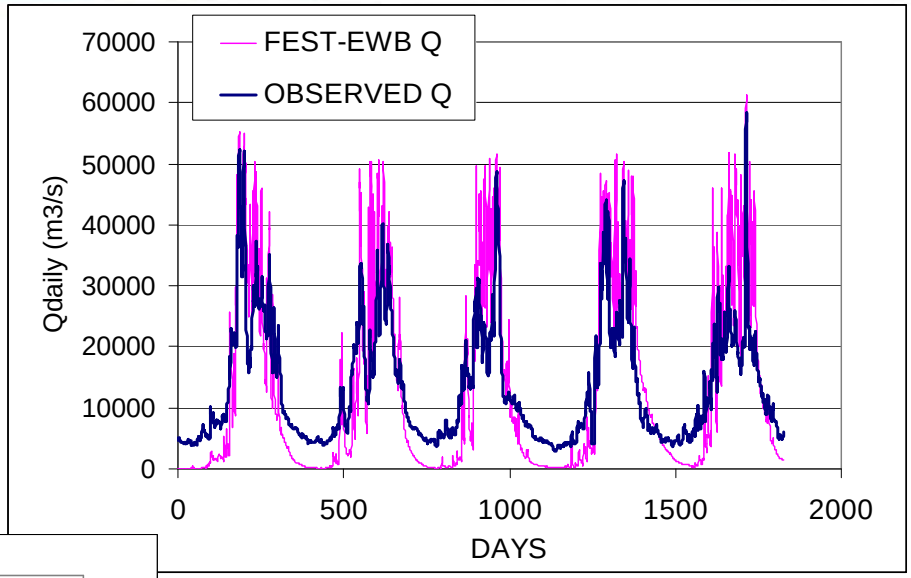
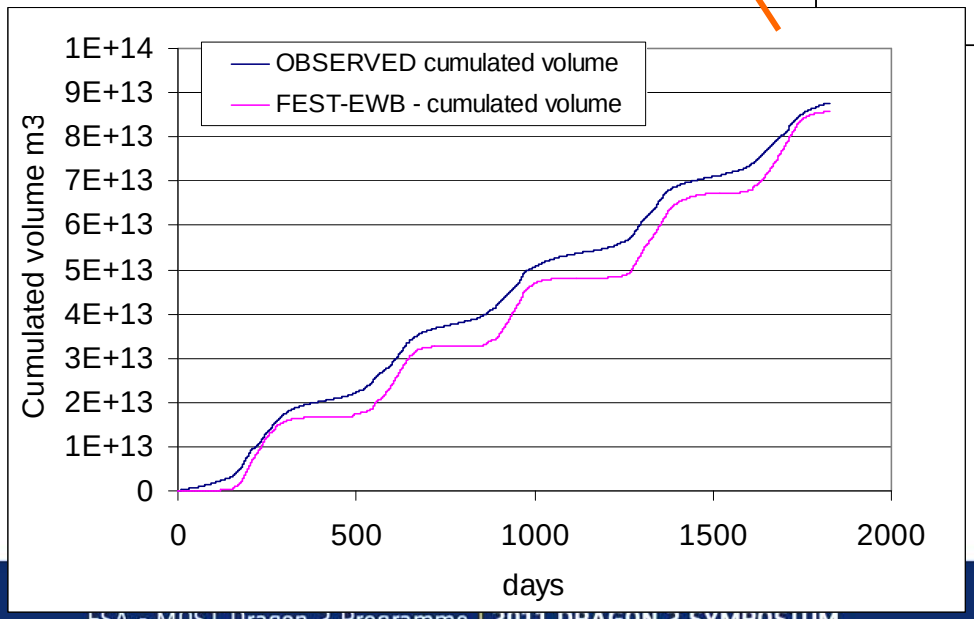
Main Results

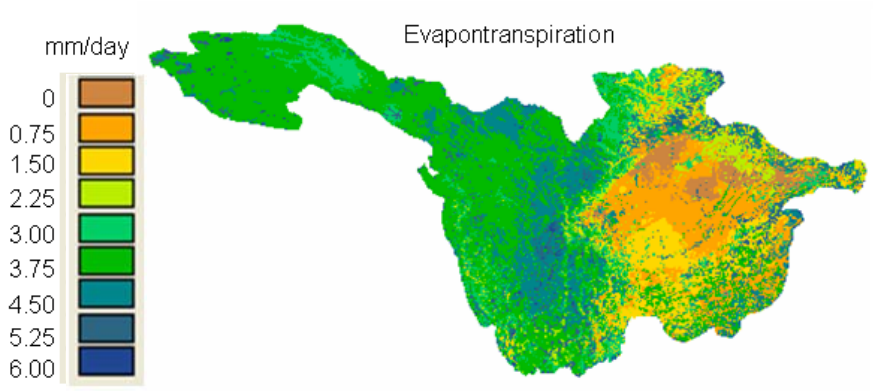
1. **Implementation** of the data base for the Yangtze (Changjiang) river basin: ground data (websites) and satellite data (ESA) at spatial resolution of 5 km.
2. **Calibration** of a distributed hydrological model (FEST-EWB) over the Yangtze river basin using: satellite Land Surface Temperature from AATSR and MODIS and discharge at the Three Gorges Dam.
3. **evapotranspiration and soil moisture maps** (preliminary) from calibrated model (FEST-EWB) for 2000-2004 at spatial of 5 x 5 km and hourly temporal resolution.
4. **Discharge duration curves** for quantitative estimate of Water Resource availability at the at Yichang river cross section (before 3 Gorges Dam construction)







Evapotranspiration



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From Chinese side:

1. **Effect of Three Gorge dam** operations on downstream discharges;
2. **Water quality** monitoring using Remote sensing data
3. **Lakes surface** dynamics assimilating satellite data

Issues and Recommendations

1. Data sharing and supply on ground, satellite as well as hydraulic structures on the main branch of river network need to be increased between European and Chinese groups.
2. Support from National Project in China (for Chinese side) could help.

Possible new issues for Water Resources project in Dragon-3:

1. Improving multi sensor intercomparison and DA of “state variable “ among Remote sensing, modeling simulation and ground data

2. Focusing on fluvial engineering problems as: hydropower potentiality, agricultural water withdraw; soil erosion and main river sediment transport for river bed and delta evolution.

3. Interest of additional Chinese partners to join the WR project

Project Planning – 2011 and 2012

1. Operative links with other Dragon2 projects (ID 5264 wetlands; ID5322 hydrology; ID5341 drought monitoring);

2. distributed maps of evapotranspiration from the hydrological model and satellite thermal infrared (LST from AATSR, MODIS and CBERS)

3. continuous soil moisture updating for flood forecast and irrigation management from FEST-EWB model and comparison with satellite soil moisture data (as SMOS, AMSR-E and ASCAT)

4. Flow duration curves in several river cross sections for quantitative water resources availability.

5. Joint publications in international journals.