

Overview of 2nd User Testing Workshop

By

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Goals and tasks of this CyberWater testing

Goals:

- Evaluate CyberWater system from users' view
- Provide us with your comments and feedback at the end

Tasks:

- Using generic model agent toolkit to **integrate** a simple one-layer water balance model into CyberWater (Sec. 2, 6 hrs)
- Using model agents (VIC and Routing) to **apply** VIC+Routing models to any watershed that you choose in U.S. (Sec.3, 4 hrs)
- Accessing HPC from Cyberwater on-demand (Sec. 4, 2 hrs)
- Adding your own model into Cyberwater using generic model agent toolkit (Sec. 5, 8 hrs)

Main functionalities of CyberWater so far

- Data agents (e.g., SMAP, MODIS17, GFS, NAM, USGS, etc.)
- Model agents (e.g., VIC, DHSVM, Routing)
- Generic model agent toolkit
- Model coupling
- Integration with GRASS GIS (e.g., re-gridding, watershed delineation, flow path, river network, etc.)
- On-demand access to HPC
- Data fusion using Multiscale Kalman Smoother (MKS) algorithm
- Graphical workflow environment
- Visualization & animation of spatial and temporal data
- Provenance
- ...

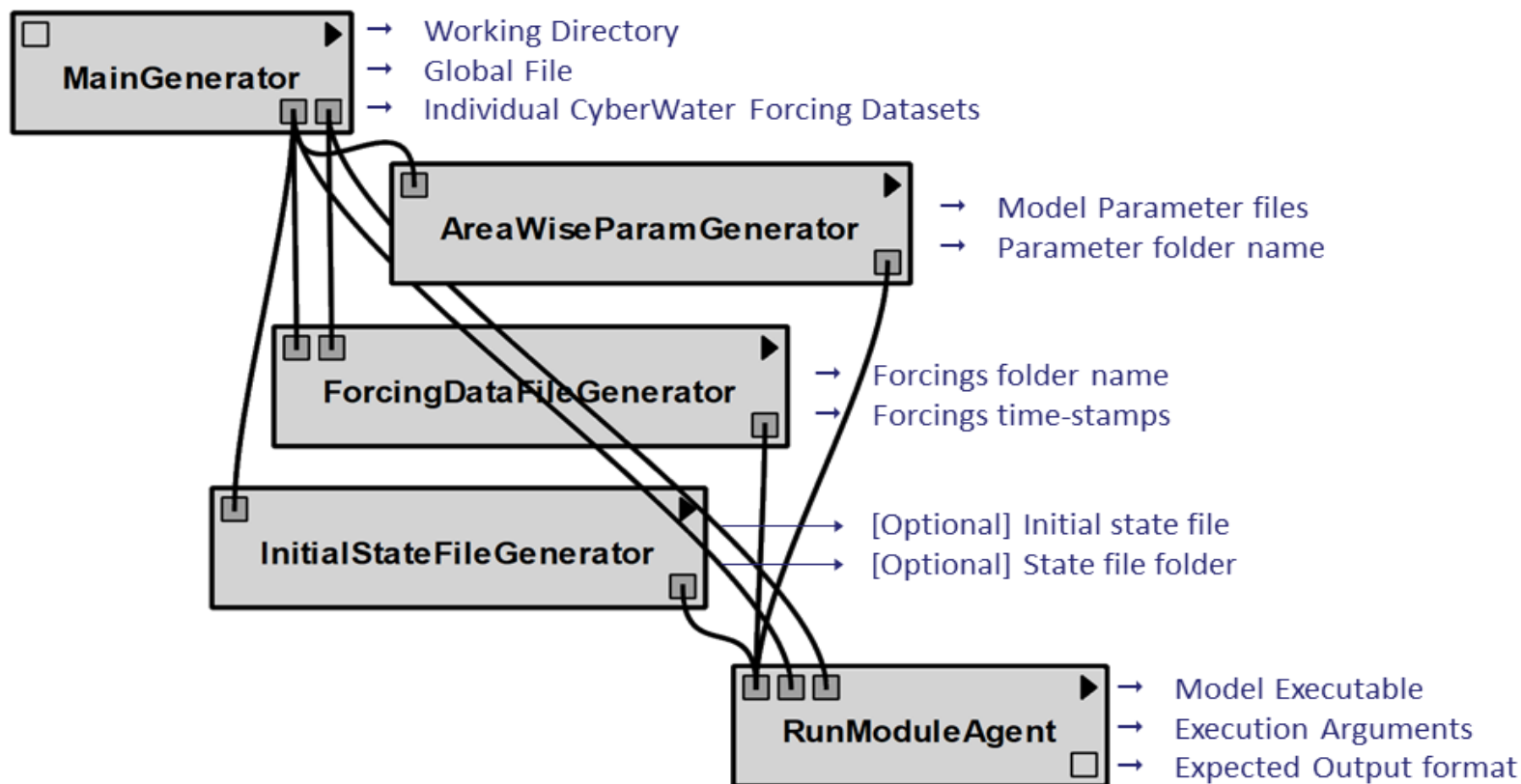
Timeline of this week

- **Mon. and Tue.:** Finish **task 1**, one-layer model (Sec. 2), and **task 2**, VIC+Routing at a watershed you choose (Sec. 3)
- **Wed.:** Reporting your experiences on tasks 1 and 2.
- **Wed. and Th.:** Finish **task 3**, accessing HPC from CyberWater (Sec. 4), and **task 4**, adding your own model to CyberWater using generic model agent toolkit (Sec. 5).
- **Fri.:** Reporting your experiences on tasks 3 and 4, and conducting the workshop survey

Office hours

- **Mon. - Th.: 5-6:30pm (EST):**
<https://pitt.zoom.us/j/94284871930> (passcode: cyberwater)
- PhD students **Daniel Luna (Pitt)** and **Ranran Chen (IUPUI)**, and **UG Ryan Young (PITT)** will provide technical help on your questions and problems encountered during your testing activities
- If you cannot attend the office hours but have questions and need help, please email:
Daniel: DEL47@pitt.edu
Ranran: ranrchen@iu.edu
Ryan: RSY3@pitt.edu
- They will arrange a time to help you individually through zoom meetings or emails outside the office hours.

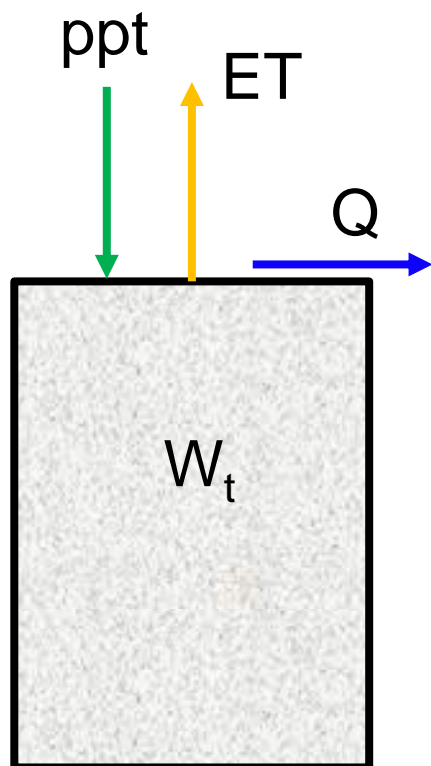
Relationships between generic model agent toolkit and their functions



One-layer water balance model

Water balance equation:

$$ppt - ET - Q = \Delta W$$



Inputs:

- Precipitation (ppt) time series
- PET time series where $ET = \beta \cdot PET$
- Parameters related to infiltration function
- Soil properties
- Initial soil moisture level

Outputs:

- ET time series
- Surface runoff (Q) time series
- Soil moisture content (W) time series

Brief self-introduction

- Background in hydrology and hydrological modeling
- Experiences with computer programming and other computer related skills
- Research interests and dissertation topic
- Year of graduate study in Ph.D. program if a GS, and adviser
- Anything else you'd like to share ...

Any Questions?

Thank you for your participation!