

UNIVERSITY OF COLORADO BOULDER

Future Features and Enhancements

2019 RiverWare User Group Meeting David Neumann

## **The Future**

- 1. Ensemble Viewer
- 2. Web Maps
- 3. RPL
- 4. Slot Editing

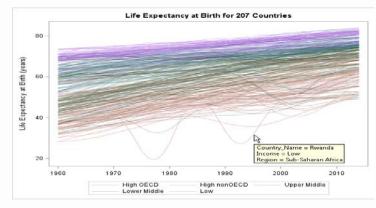
## **Ensemble Data Viewer**

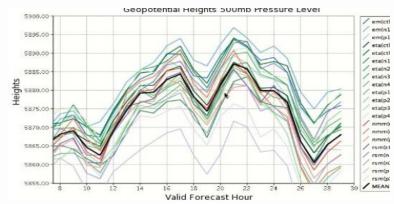
#### The idea: new tool to view ensemble data

- Accessible from within RiverWare
- MRM input and output series data
- Compare results of multiple ensembles
- Perform statistical analysis
- Quick & easy visualization
- Not a replacement for dedicated statistical tools (e.g., Tableau, GPAT, Excel, ...)

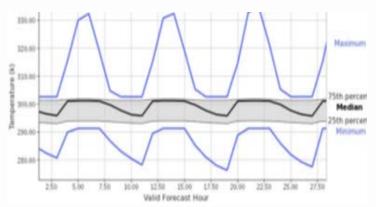
#### **Ensemble Series Data Visualization Techniques**

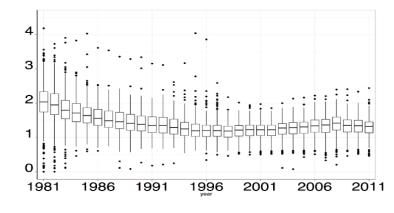
## Over plotting





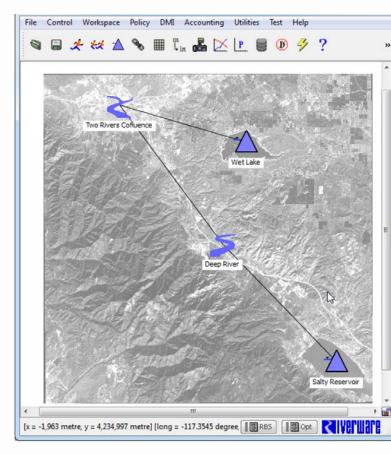
#### Statistical data reduction





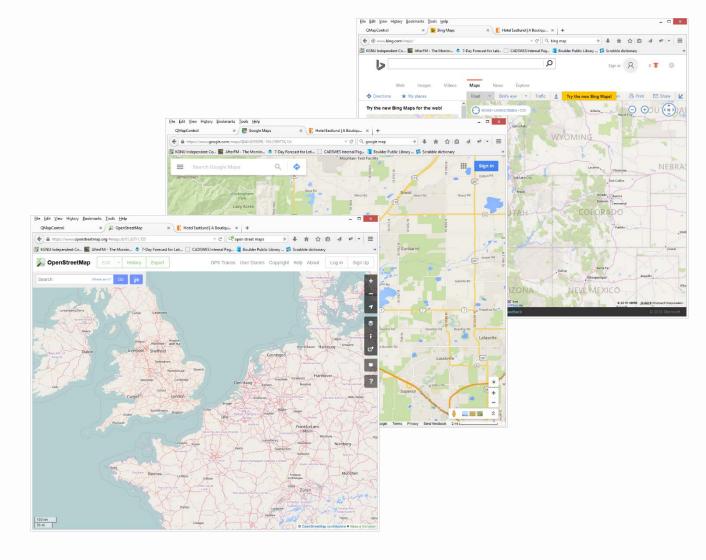
# Web Map View Motivation

- RiverWare's Geospatial View shows a static georeferenced map image
  - Doesn't zoom well
  - Doesn't update automatically
  - Can be hard to set up
  - Detailed map = Large files



# Web Map Advantages

- Dynamic
- Flexible
- Fast
- Familiar

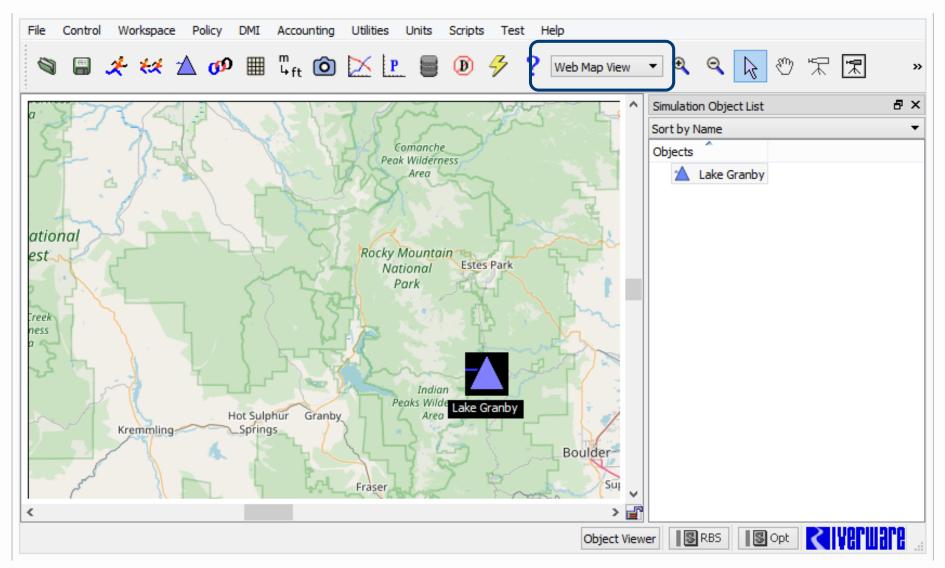


# Web Maps in RiverWare

Two options considered:

- 1. Map Viewer Separate window or application
- 2. Workspace View
  - Provide familiar RiverWare features and options
  - Configuration includes initial setup and object placement

## Web Map View



# Slot Edit Undo

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#### Support undo/redo for interactive edits to slot data

#### **Slot Dialogs**

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11-30-1995 Thu 12:00	16.00	0	130	0	I	0	7.00	0	130	
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# **Undo: Some Details**

- This is a big task!
- Focus on editing values, not changes to configuration
- Show confirmation dialog when external changes intervene (e.g., script, simulation, DMI execution)
- Slot dialogs: 7.6?

Objects / Slots			
Slot [E]	Slot [E,E]		
Slot []	NaNToZero N		
Obj . Slot	Object Selector		
Obj ^ Acct . Slot	Account Selector		
Obj ^ Acct & Slot	Slot Selector		

- Obj ^ Acct . Slot operator
- Account Selector button
- RPL Clipboard on the palette
- Highlighting of items equivalent to the selected expression

K	RP	L Palette	- 🗆 🗙						
File Fun	File Function								
Buttons	Clipboard								
	<b>4 4</b>								
	IF (Muddy.Outflow [] < Muddy Data.Min Fish Flow []) THEN Min (Muddy Data.Min Fish Flow [], MaxOut (Muddy)) END IF								

#### Muddy.Outflow

= # See if the outflow is less than the Natural Fk # bypass threshold and lower than the inflow t IF (Muddy.Outflow [] < Muddy Data.Natural AND Muddy.Outflow [] < Muddy.Inflow [ # Take the minimum of the Reservoir Inflow # or the maximum release whichever is s

## Feedback from Users and Open Mic

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# **Open Mic**

- Tell us about other applications or new projects
- Questions how to…?
- Unmet modeling or processing needs
- Issues with the software
- Requests for enhancements
- Anything else you would like to share

## **Some Questions to Consider**

- 1. If you could have one new enhancement, what would it be?
- 2. In your office, what is the big buzz word? How could/should RiverWare be involved?
- 3. Where do you see RiverWare modeling in 5 years, 10 years, 20 years?

# Major topics you might want to discuss

- Databases and data management
- Windowing
- Data visualization
- New physical process modeling
- Connections to other models or frameworks