



Center for Advanced Decision Support for  
Water and Environmental Systems (CADSWES)

UNIVERSITY OF COLORADO **BOULDER**

# Future Features and Enhancements

2019 RiverWare User Group Meeting  
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# The Future

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

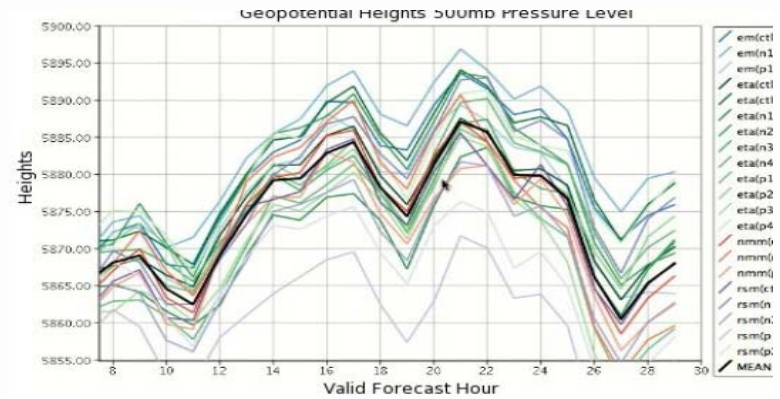
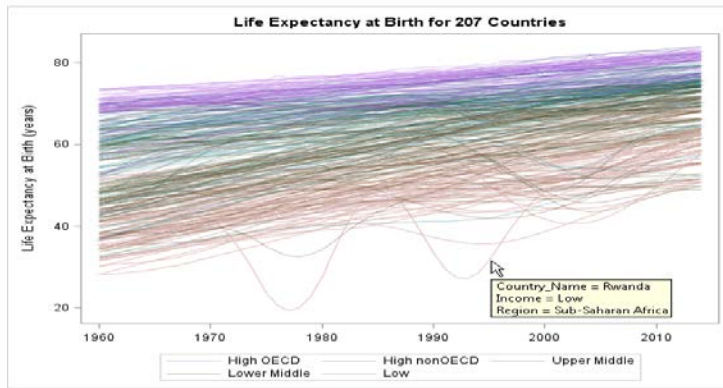
# Ensemble Data Viewer

The idea: new tool to view ensemble data

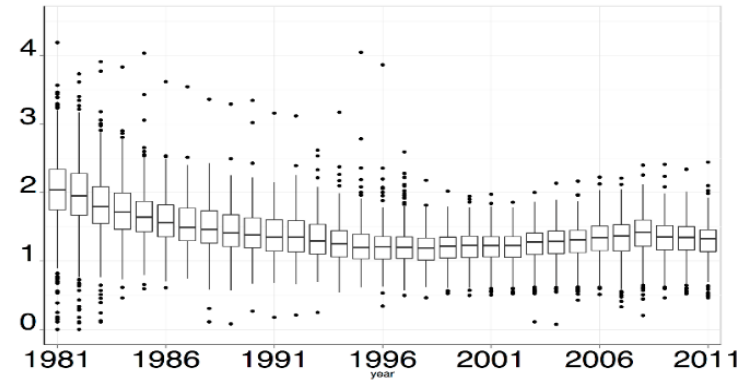
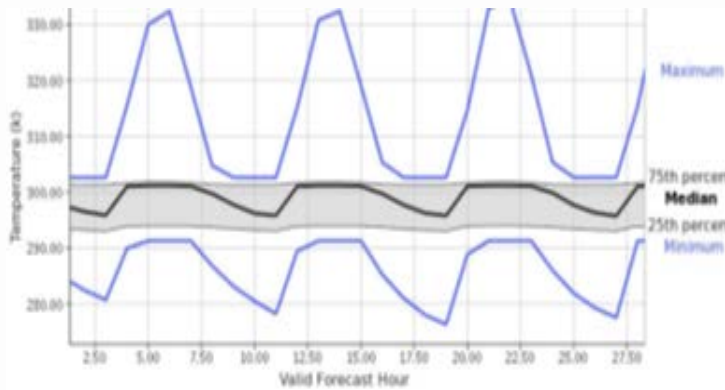
- Accessible from within RiverWare
- MRM input and output series data
- Compare results of multiple ensembles
- Perform statistical analysis
- Quick & easy visualization
- Not a replacement for dedicated statistical tools (e.g., Tableau, GPAT, Excel, ...)

# Ensemble Series Data Visualization Techniques

## Over plotting

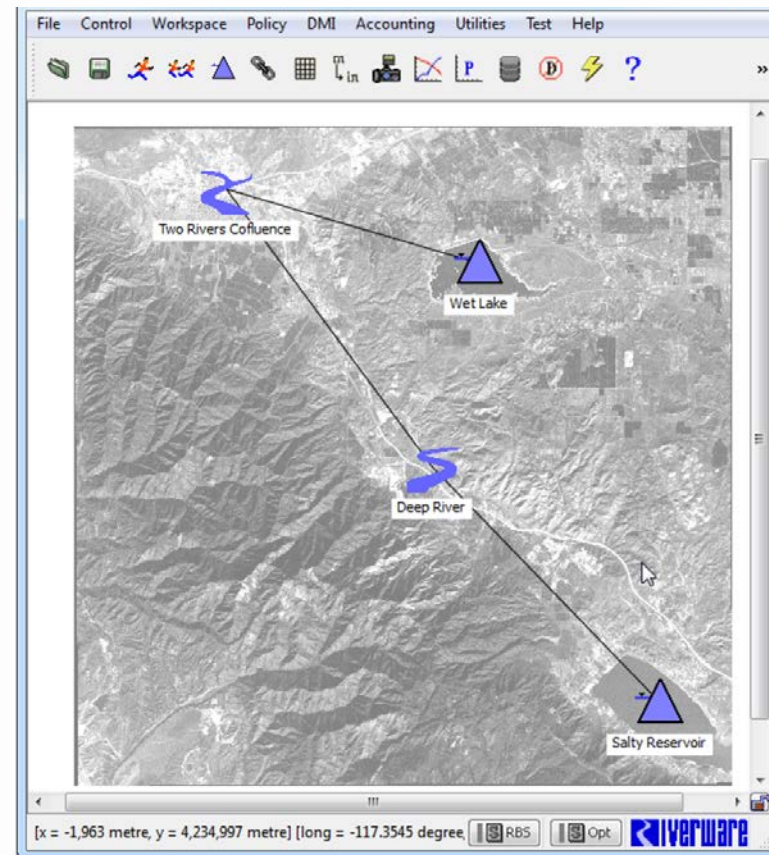


## Statistical data reduction



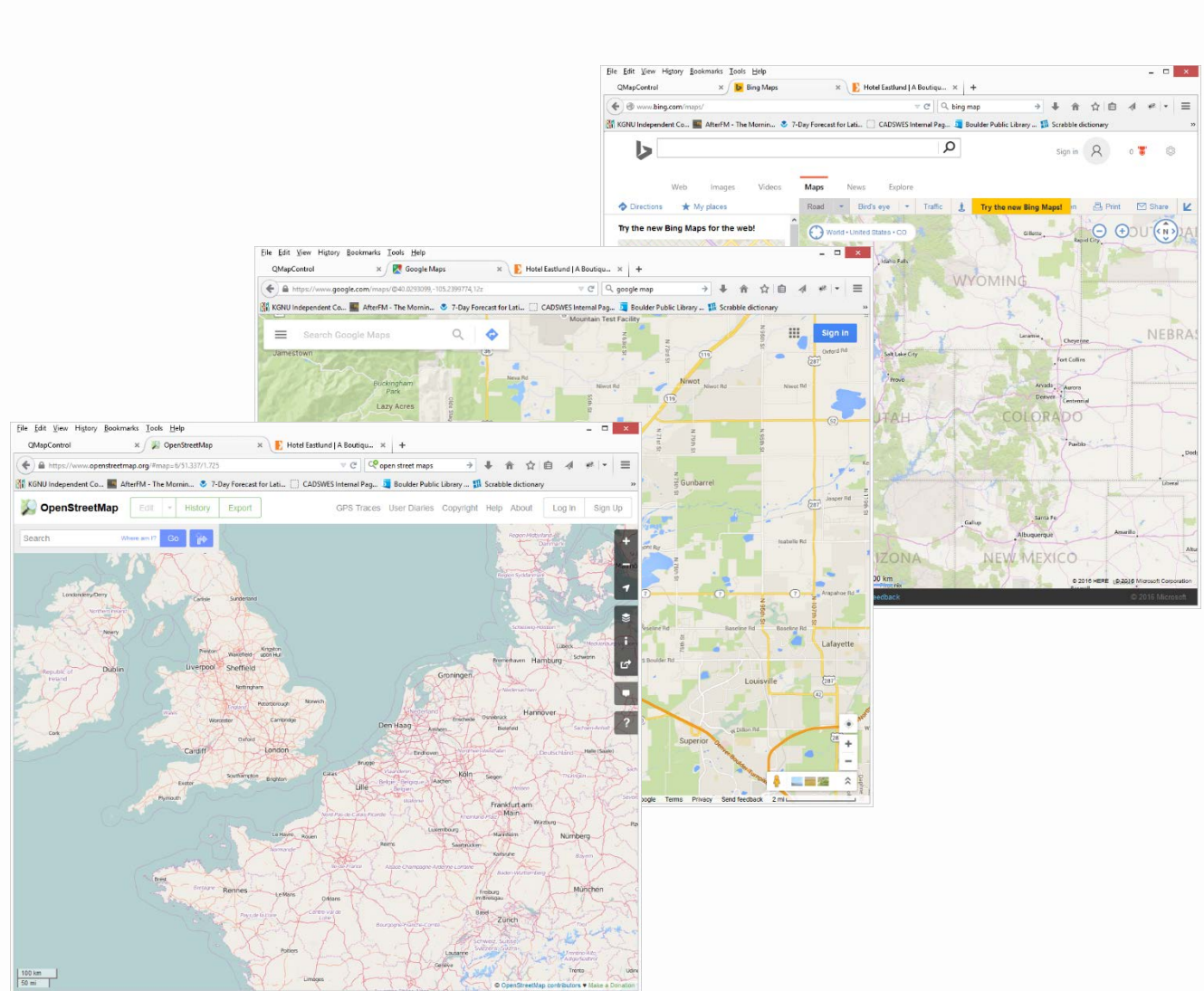
# Web Map View Motivation

- 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



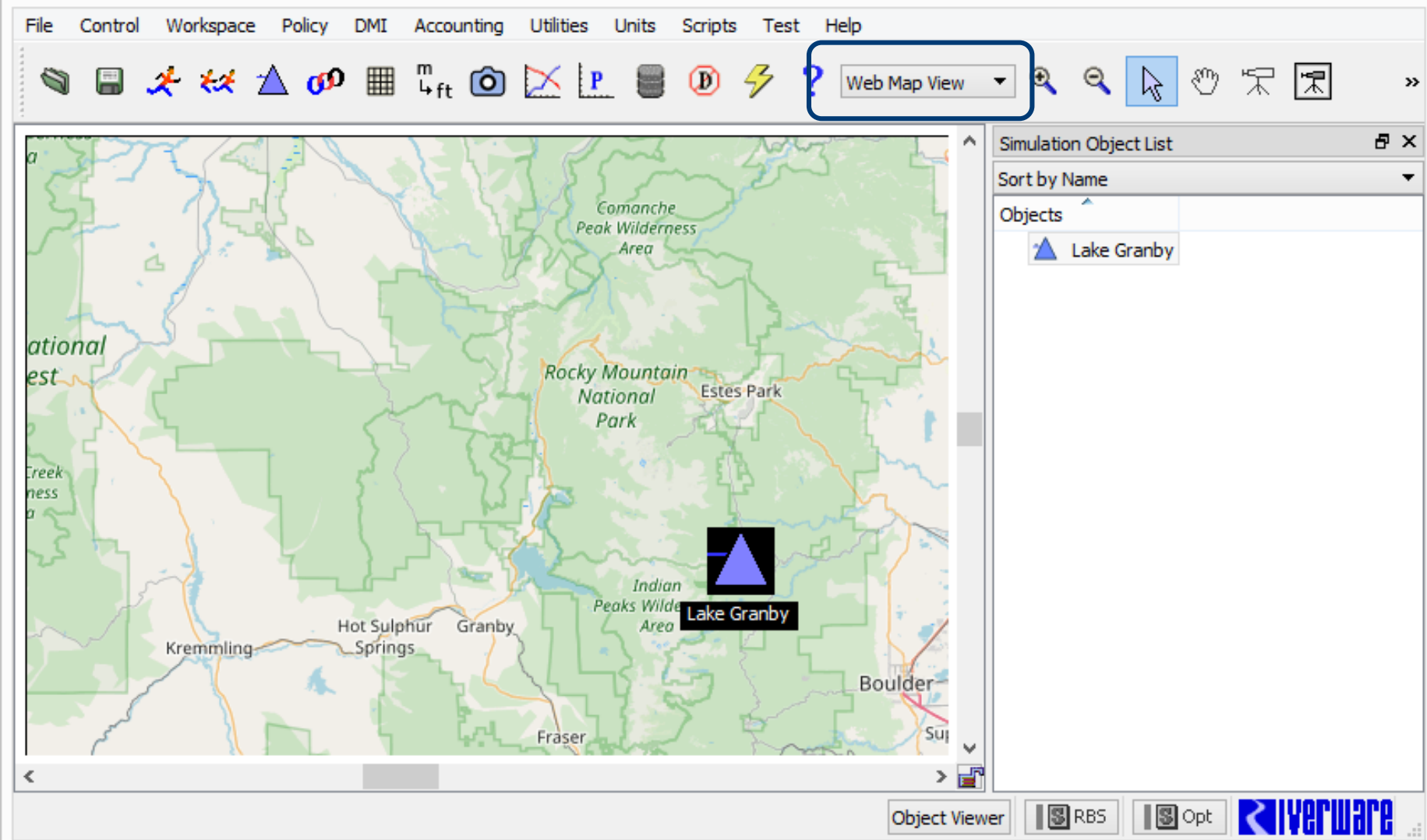
# Web Maps in RiverWare

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

Support undo/redo for interactive edits to slot data

## Slot Dialogs

## SCT

## Edit Account

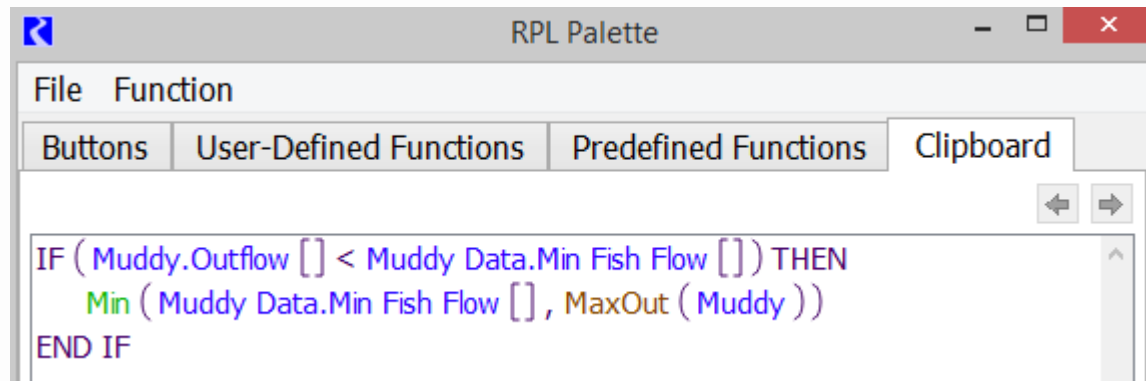
# Undo: Some Details

- 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?

# RPL

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

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



```
Muddy.Outflow []  
= # See if the outflow is less than the Natural Flow  
# 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



# 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