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| How to | URBS - Modify URBS model parameters |
| Description | Modify URBS parameters to match model outcome with observed data |
| Comments | <i>italic</i> phrases taken from the book "Flood Forecasting: a Global Perspective". Please be aware that the screenshots may deviate slightly from the application |
| version | 2016-01 |

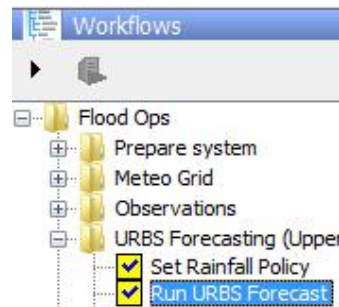


When a change is made to a parameter the value will turn blue. Changes can be made to each tab before a Modifier is applied. Once you hit the Apply button, the Modifier is listed in the top panel of the Modelling display. You can remove the Modifier by clicking on the Delete button in the second last column. You can re-access any Modifier at a later stage by clicking on it in the list and the Modifier panel will open. Modifiers that have been used in a server run, and have therefore been saved, will have a **green background**, while unsaved modifiers will have a **red background**.

Overview of steps:

While on the node "Run URBS Forecast" open the Modifiers display and here:

1. Select the URBS parameters modifier
2. Modify the URBS parameters
3. Apply
4. Re-run
5. Review the results in the Plots display or via Plot Overview



Ad 2. For an explanation of the specific URBS model parameters, the user is referred to the training material provided by Don Carroll, which is available in ROWS-Flood as [HowTo_URBS_course_2016-02-1X](#).

URBS Loss Model Type: The only option available is proportional runoff (ILPR). The continuing loss (ILCL) is not included. Both options model the continuing loss, but CL uses a fixed value, whereas the PR uses a percentage of the precipitation. The current URBS model has been calibrated using PR. If a future version will make us of CL, this modifier can be added.

Parameters: *After the start of the flood, the losses can be estimated, for example, by matching observed to simulated flows through adjustment of the loss parameters. No runoff is produced until the initial loss is satisfied, otherwise a continuing/proportional losses further removed and the remainder is effective (net) rainfall.*

URBS Routing *The effective rainfall becomes runoff and can then be conveyed across the landscape using 1. Parameter nonlinear reservoir catchment routing, and/or 2. Parameter Muskingum channel routing. URBS also has the ability to model reservoirs (the volume before spill or by an equation relating storage to discharge), baseflow, losses, and variable infiltration/recovering loss.*

URBS Matching *At the hydrologist's discretion (depending mostly on quality of data), URBS' simulated streamflow can be replaced with observed streamflow and routed down the river network in a process called "matching", aka "flow insertion". This is particularly useful when rainfall has ceased and an observed floodwave is traveling downstream. Use option with care.*

URBS Reservoirs Overwrite the level in a reservoir by replacing -99 with a value.

| URBS Loss model | URBS Routing | URBS Matching | URBS |
|--------------------------------|----------------------|---------------|------|
| attribute | upper_murray_upper_m | | |
| URBS Loss Model Type | ILPR | | |
| Initial Loss (mm) | 0.0 | | |
| Proportional Runoff (fraction) | 0.25 | | |
| Infiltration Capacity (mm) | 1.0E10 | | |
| Maximum initial loss (mm) | 90.0 | | |
| Recovering Initial Loss Factor | 0.0 | | |
| Infiltration Recovery Rate | 0.0 | | |

| URBS Loss model | URBS Routing | URBS Matching | URBS Re |
|--------------------------------|--------------------------|---------------|---------|
| attribute | upper_murray_upper_m | | |
| Alpha | 0.15 | | |
| Beta | 2.0 | | |
| M (Catchment routing exponent) | 0.8 | | |
| Baseflow | <input type="checkbox"/> | | |
| Baseflow Scaling Factor | 1.0 | | |
| Transmission Loss (ML/km) | 0.0 | | |