

Wood River Valley Model Construction Update

Jason C. Fisher

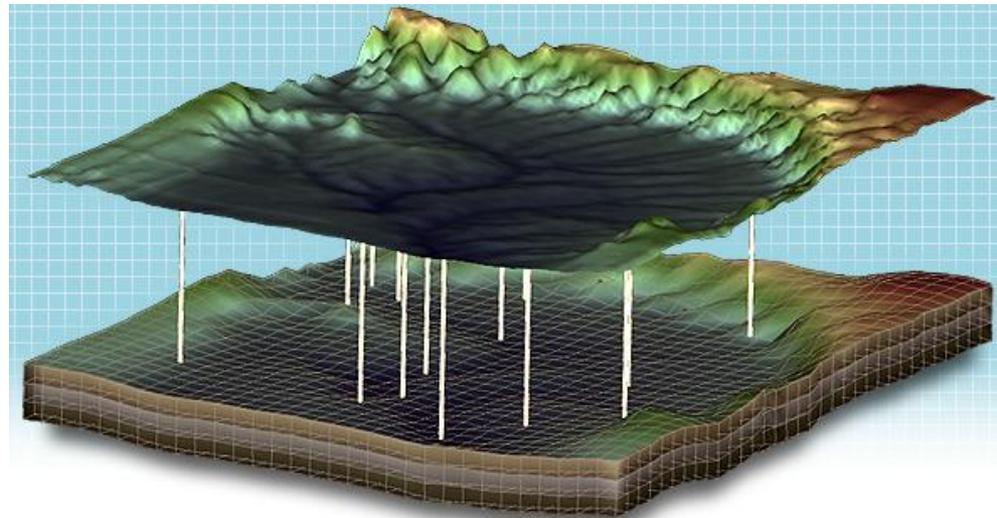
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These slides were presented at the Wood River Valley Modeling Technical Advisory Committee meeting Thursday, 12/4/2014, 10am-3pm at the Community Campus, Conference Room C, in Hailey. Taken outside the context of the original presentation, these slides may not provide a complete or accurate representation of the speaker's intent.

Released Version 0.2-1 of *wrv* R-package

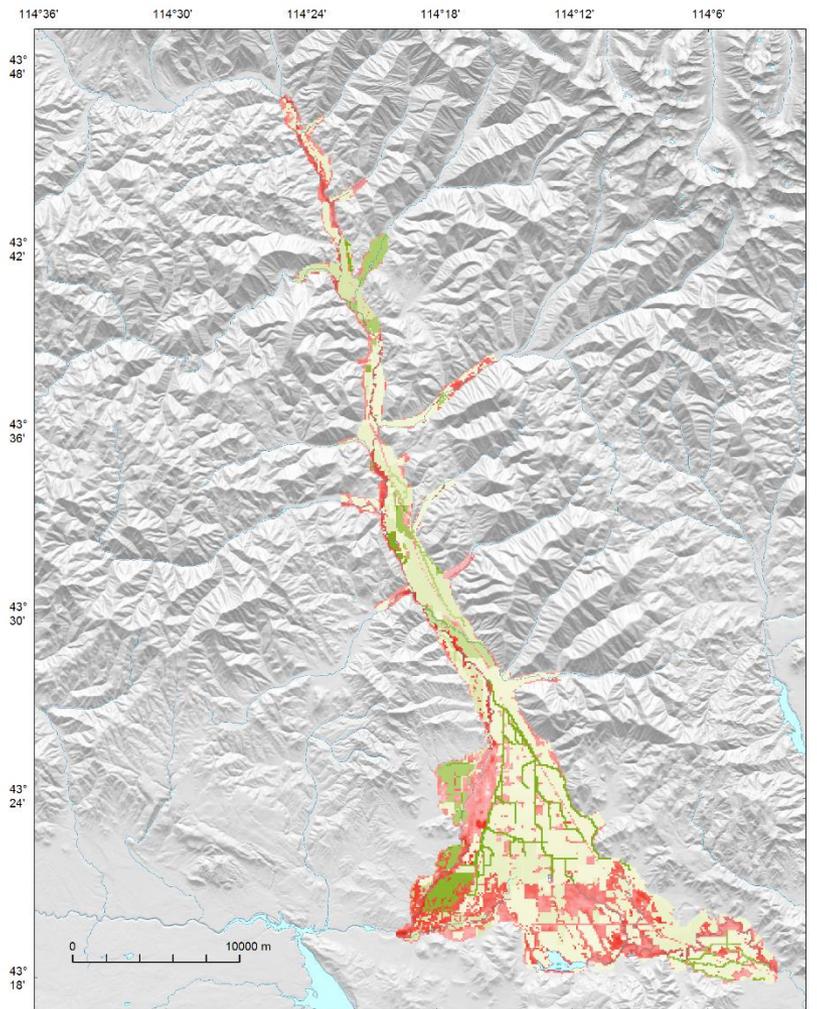
- **Aerial recharge** and **specified flows** in the major tributary canyons are placed in the **Well Package** file.
- Land-surface raster is **aggregated** to a lower resolution (large model cells) using the “**median**” function; replaces the “**mean**” function.
- Revised calculation of **river stage** and **river bottom** elevations.
- Account for **episodic dry-bed periods** in the stream reaches located between Glendale and Wood River Ranch.

- Ready for PEST with the addition of the “RechargeUpdate” function.

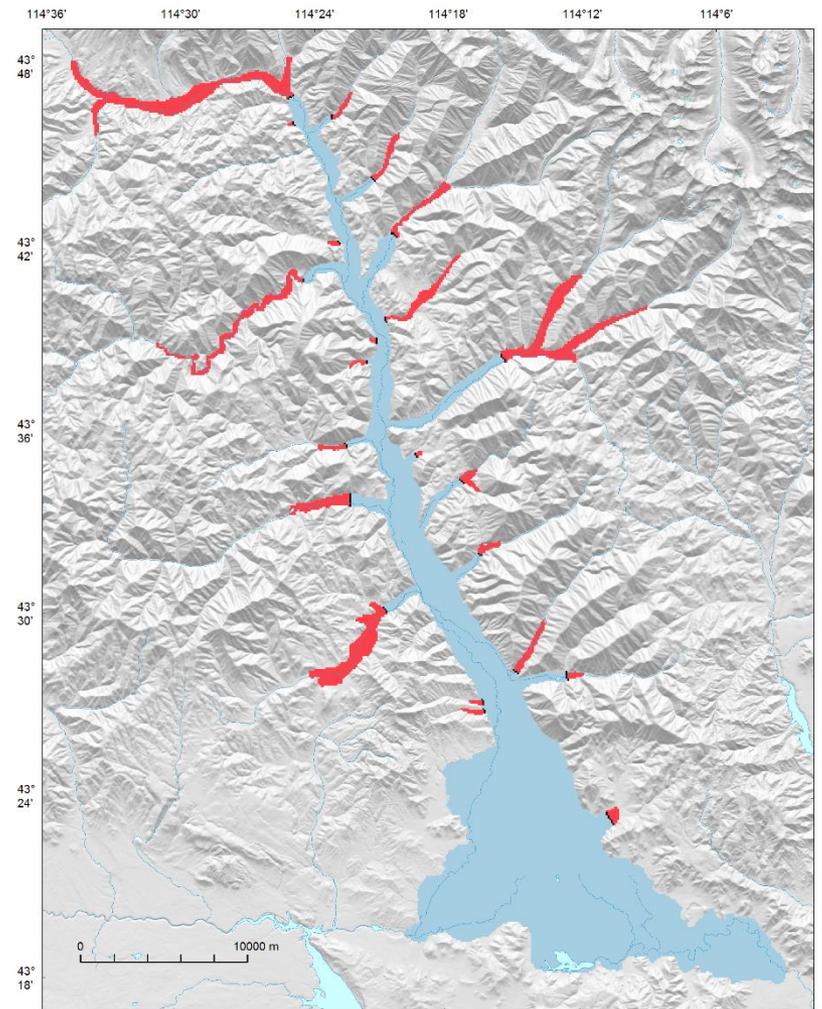
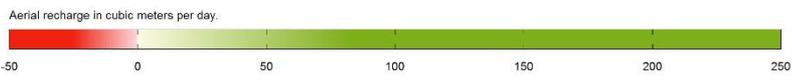


PEST

Model-Independent Parameter Estimation & Uncertainty Analysis



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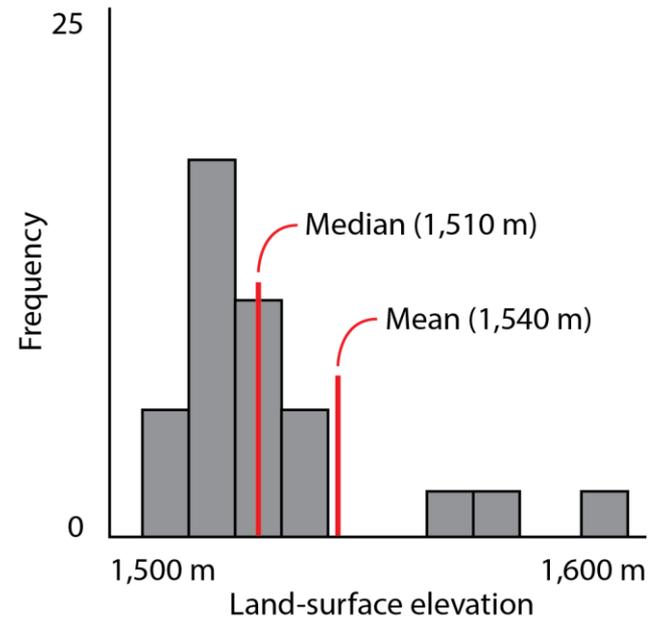
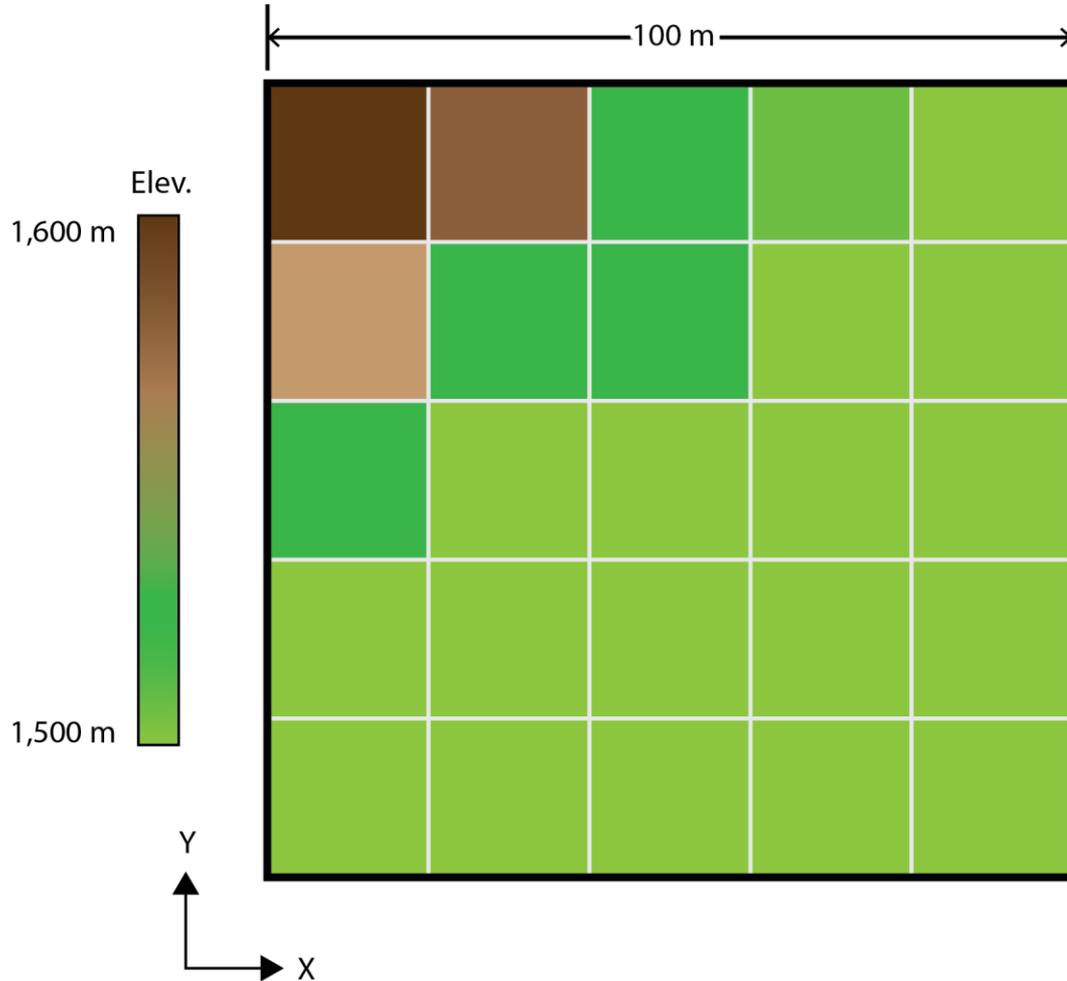


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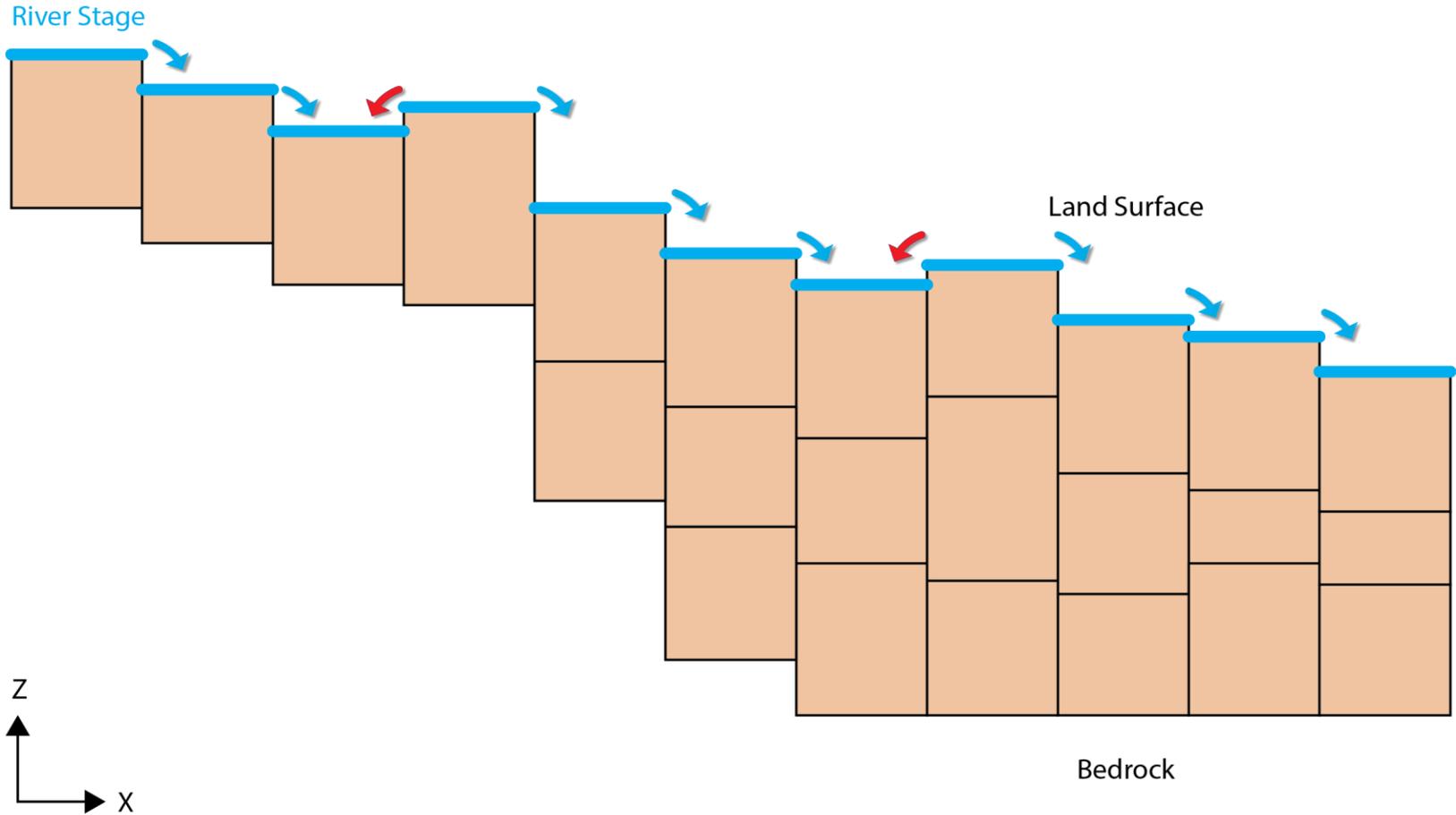


Well Package

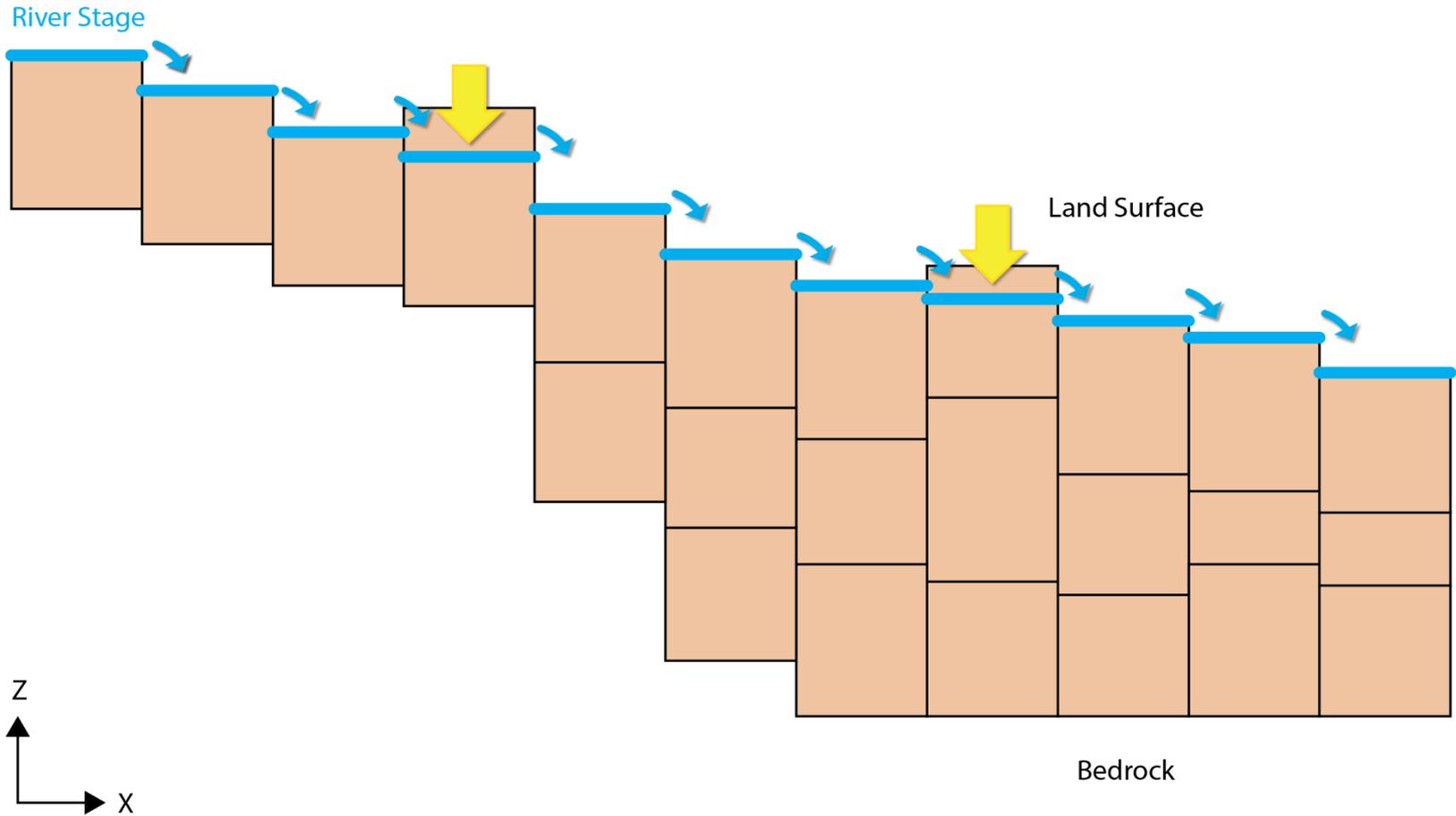
Aggregation of Land-Surface Raster

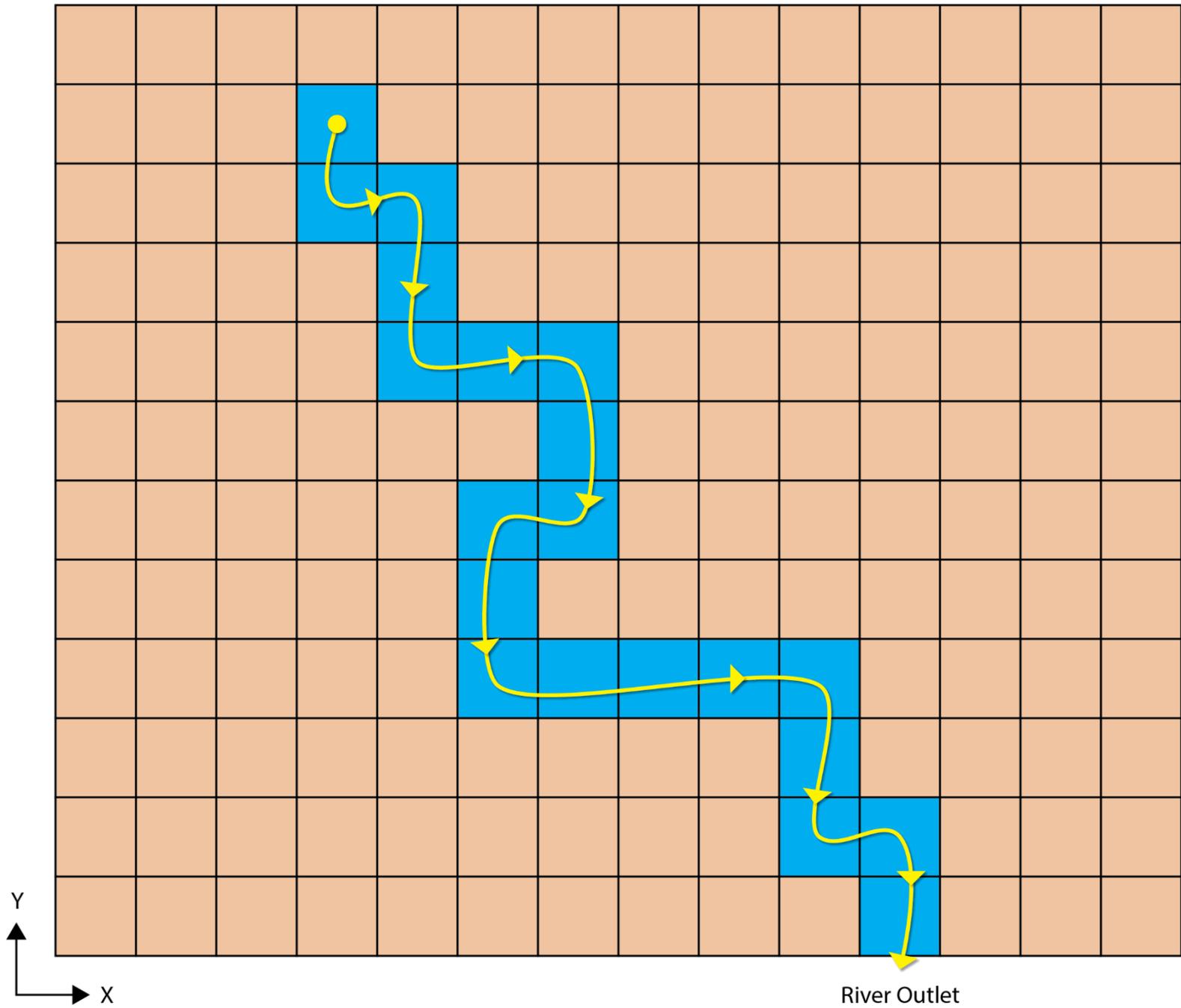


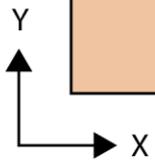
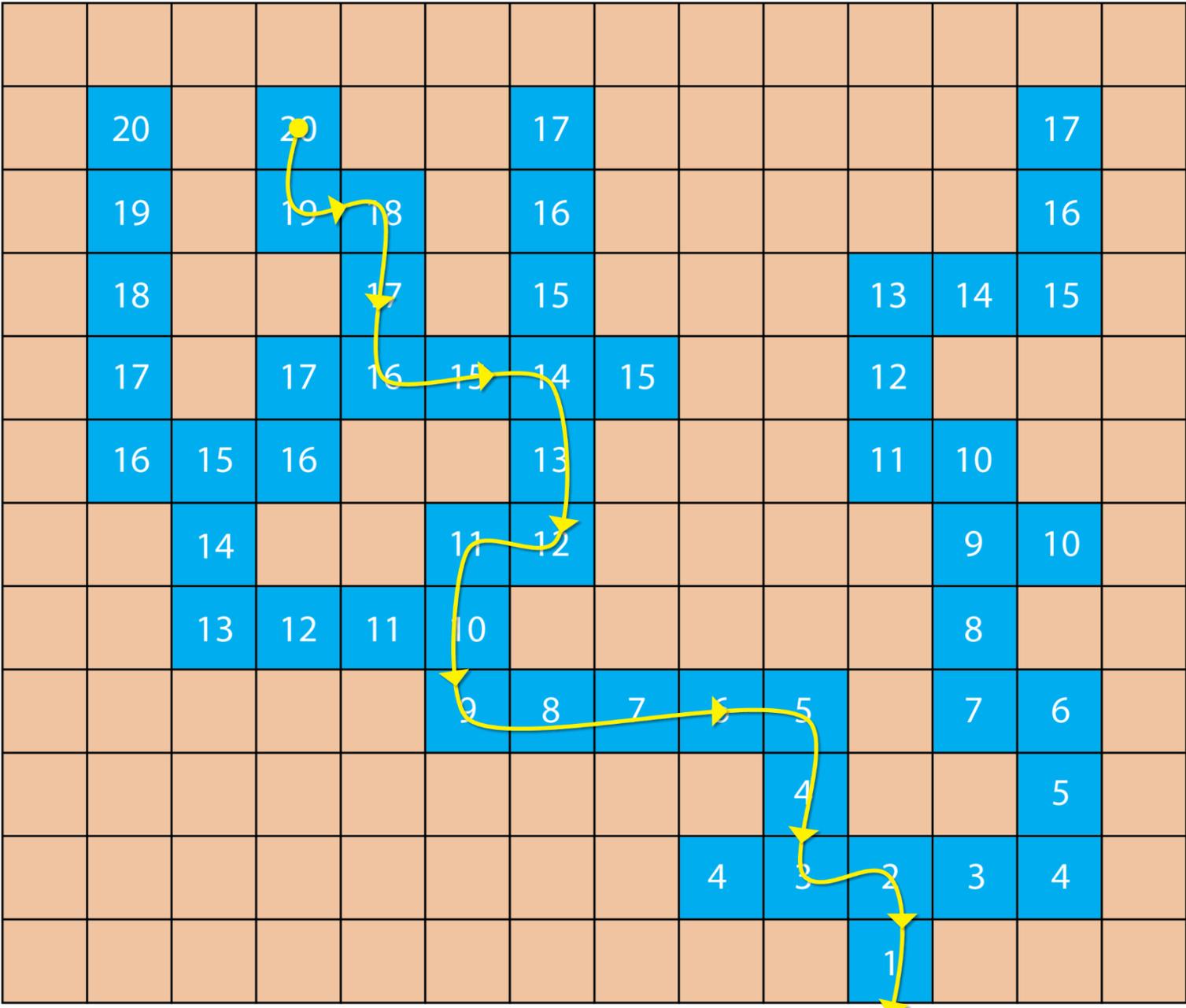
River Stage



River Stage



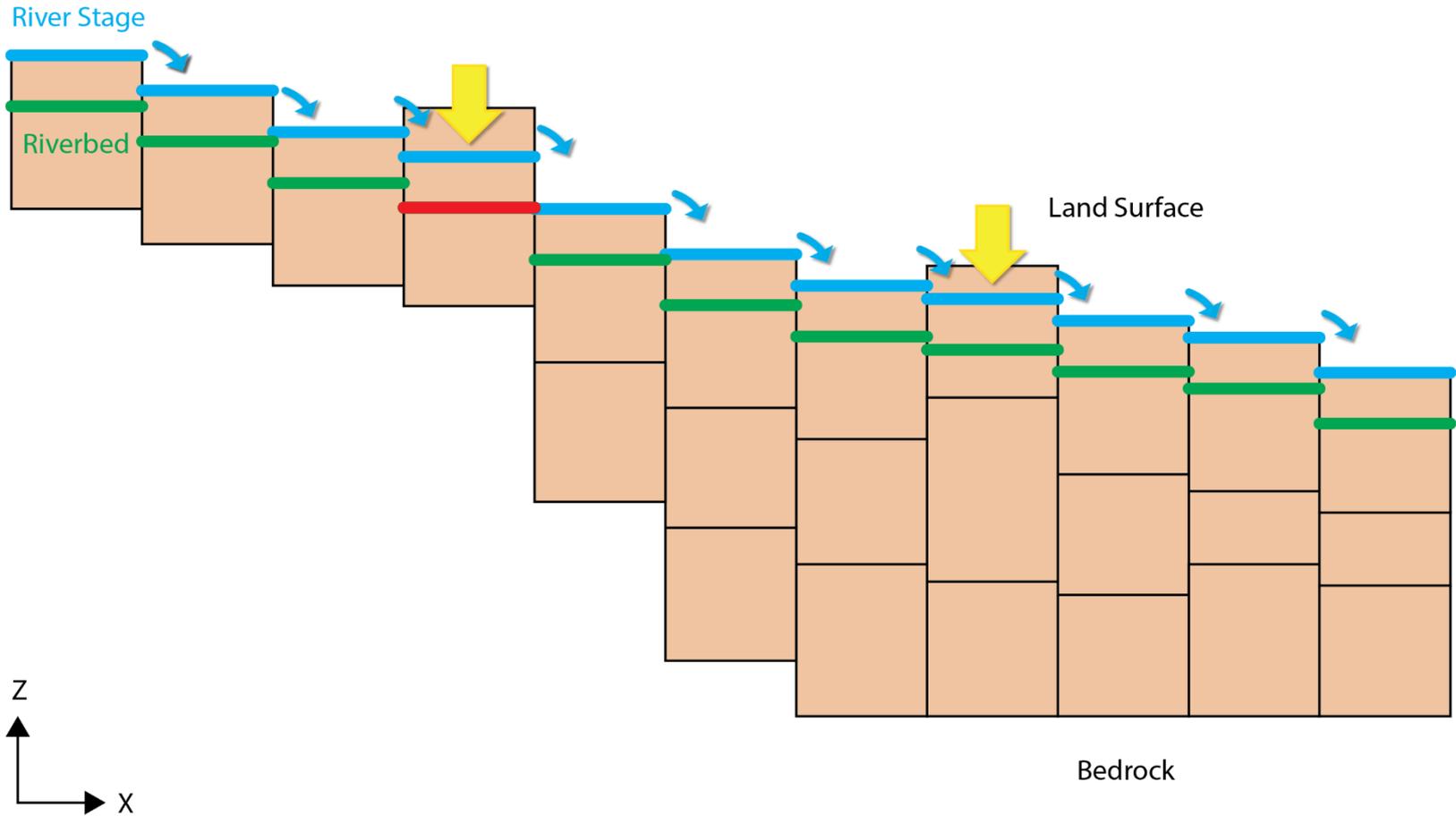




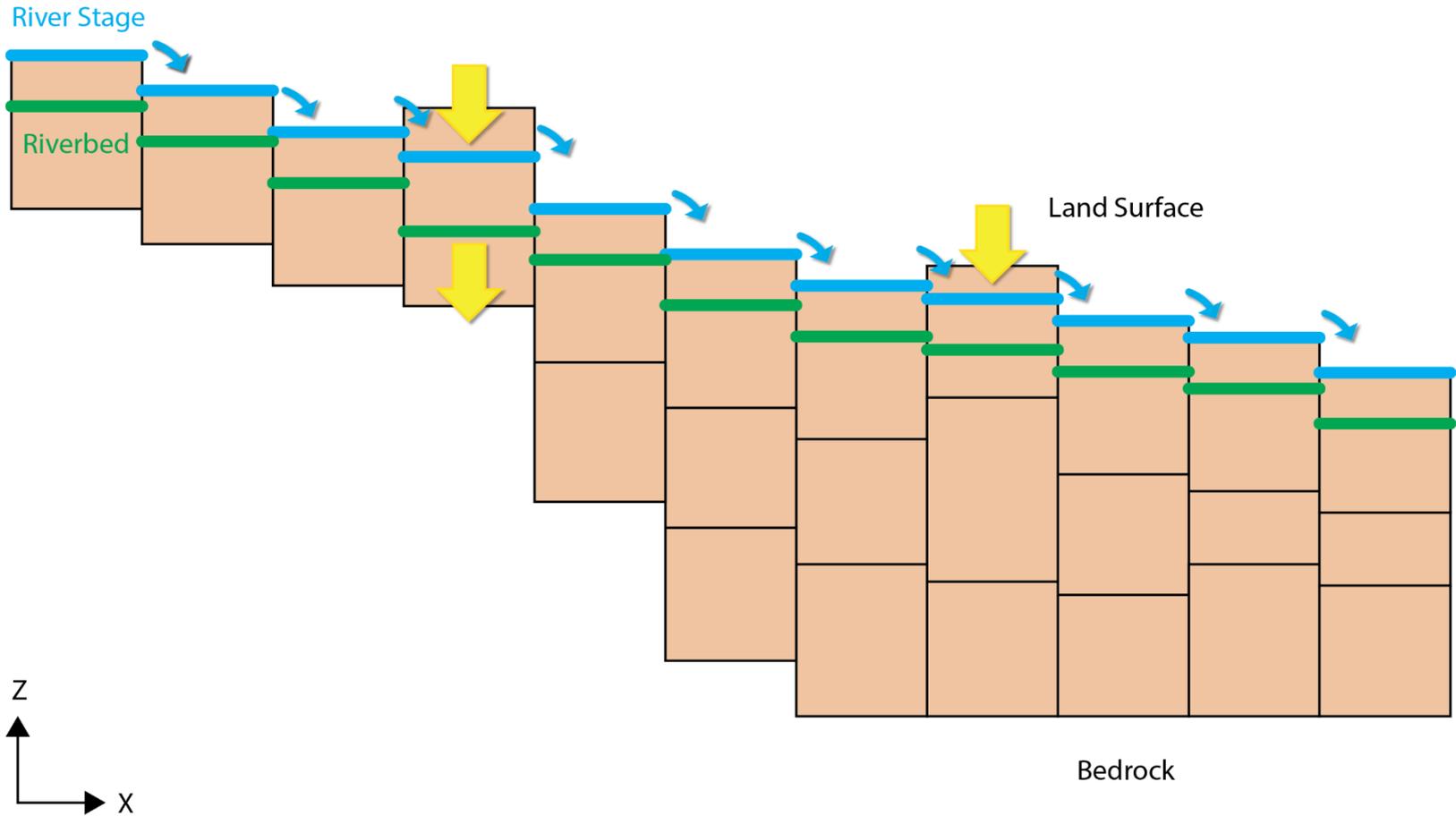
Lee's Algorithm

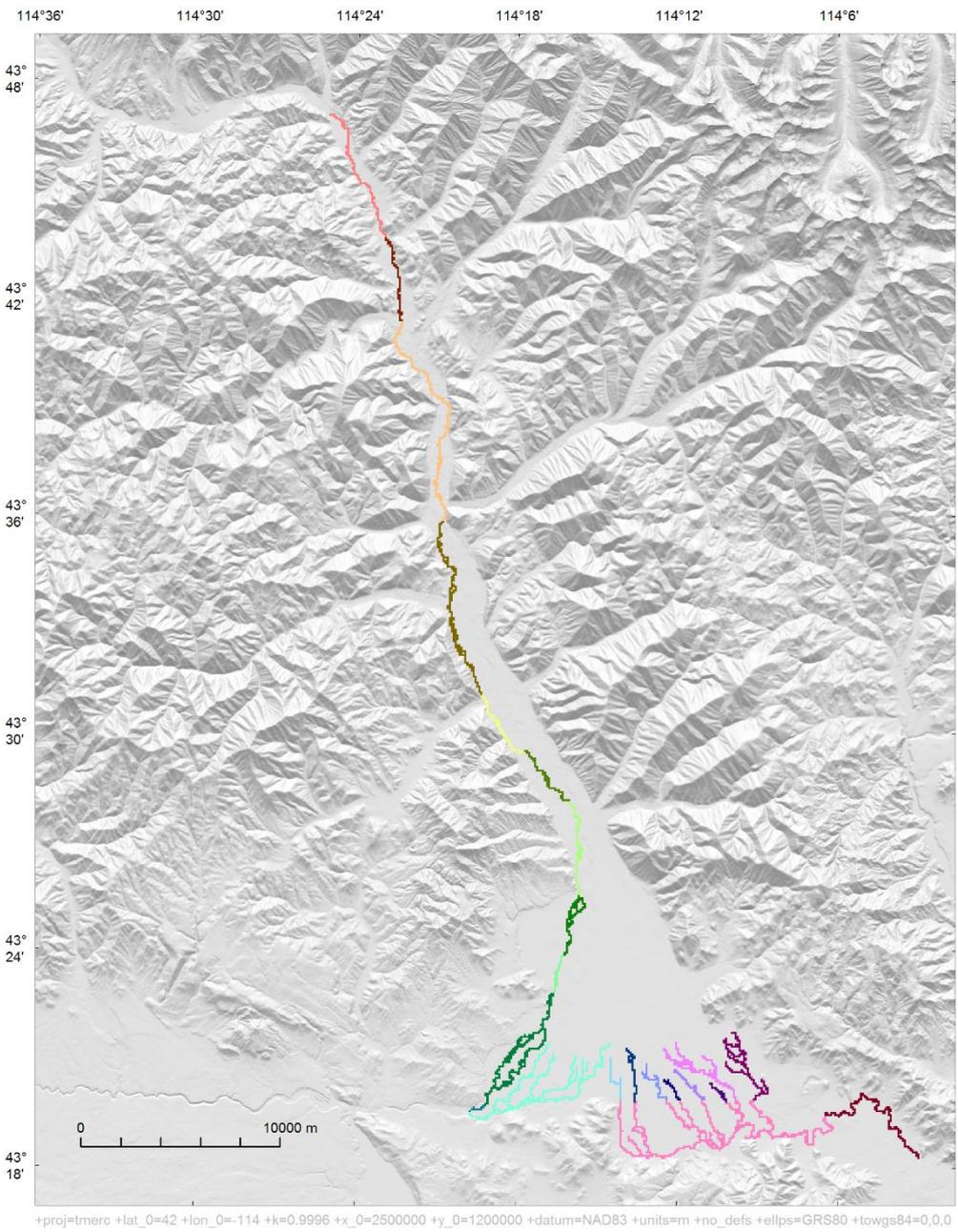
River Outlet

Riverbed

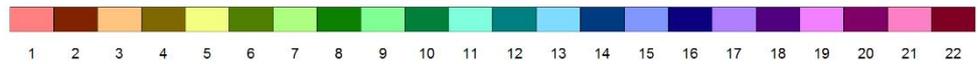


Riverbed





Map number used to identify a stream reach.



Model Run Times

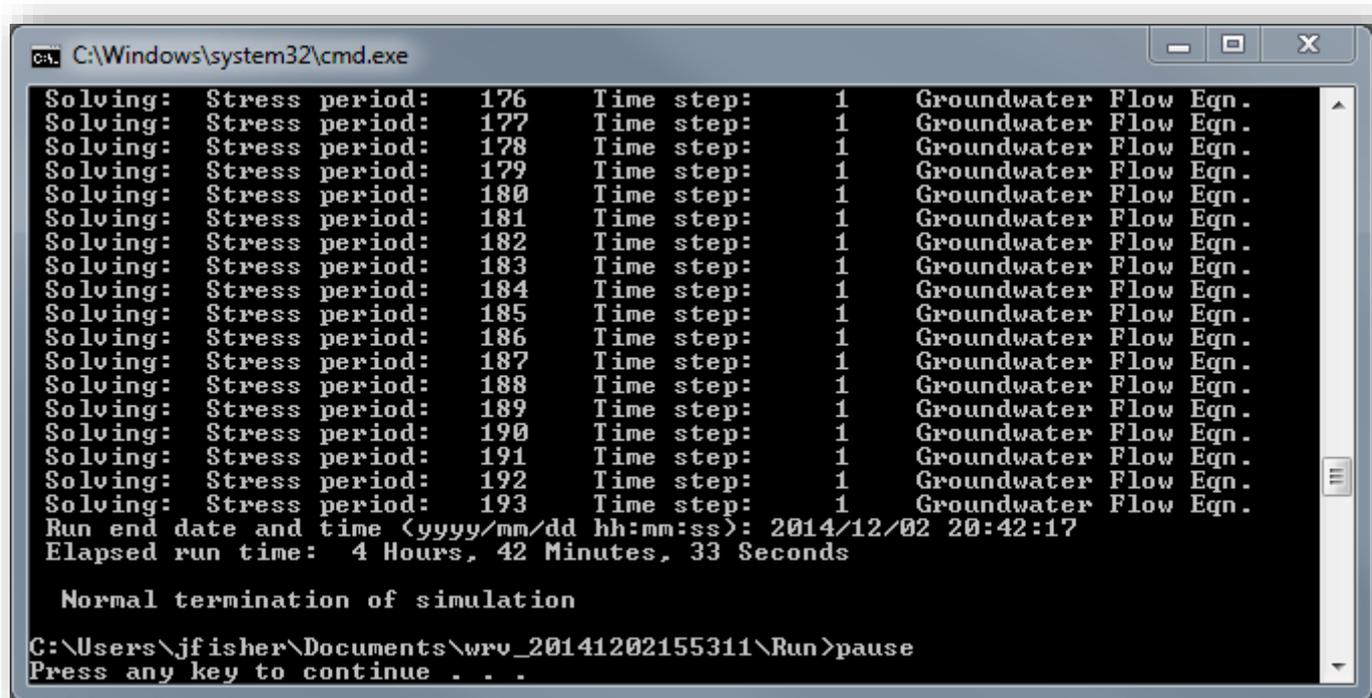
Steady-State, Confined: 14 sec

Steady-State, Convertible: 16 min 20 sec

Transient, Confined: 24 min 09 sec

Transient, Convertible: 4 hr 42 min 33 sec

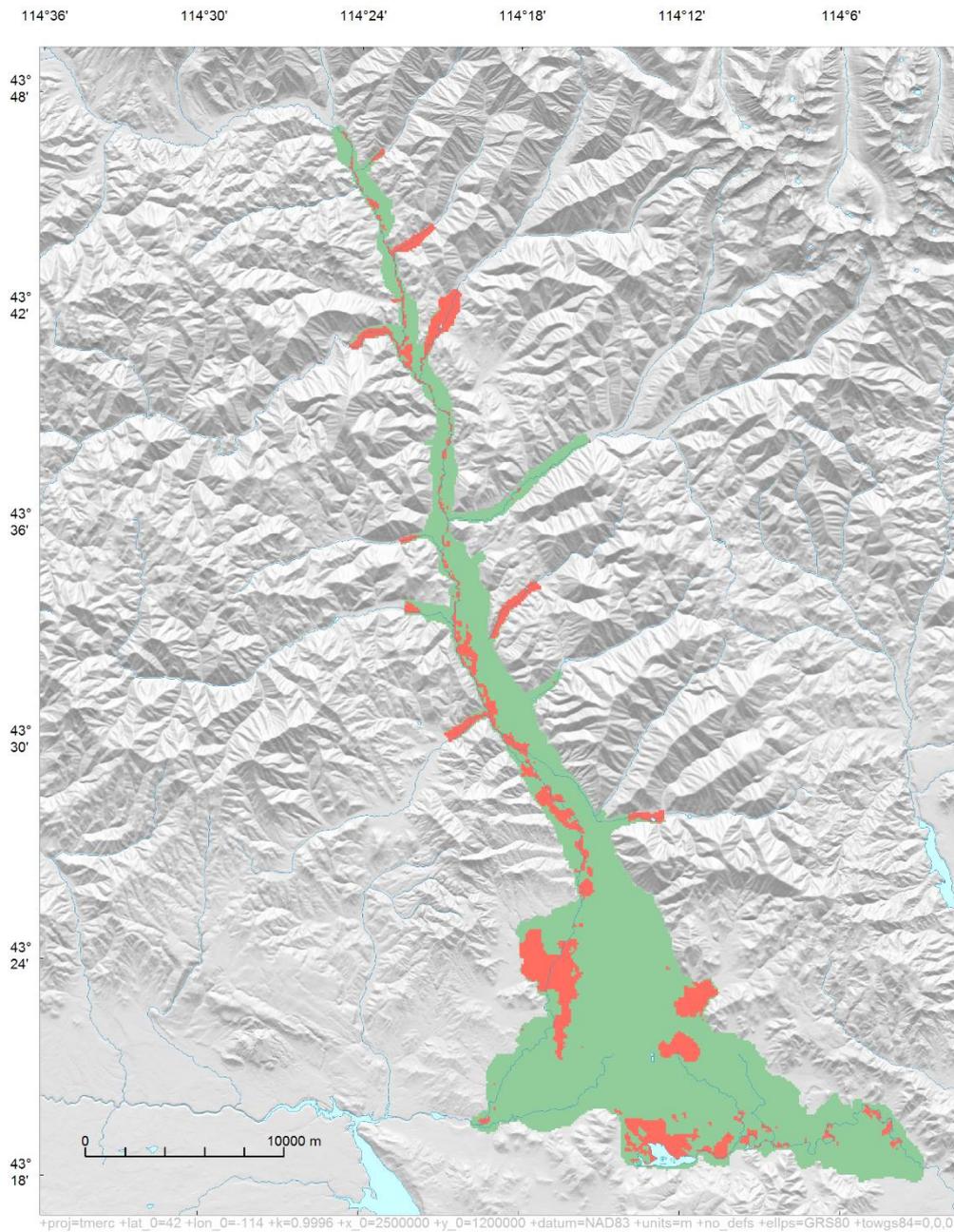
Model Results for Transient-Convertible Simulation



```
C:\Windows\system32\cmd.exe
Solving: Stress period: 176 Time step: 1 Groundwater Flow Eqn.
Solving: Stress period: 177 Time step: 1 Groundwater Flow Eqn.
Solving: Stress period: 178 Time step: 1 Groundwater Flow Eqn.
Solving: Stress period: 179 Time step: 1 Groundwater Flow Eqn.
Solving: Stress period: 180 Time step: 1 Groundwater Flow Eqn.
Solving: Stress period: 181 Time step: 1 Groundwater Flow Eqn.
Solving: Stress period: 182 Time step: 1 Groundwater Flow Eqn.
Solving: Stress period: 183 Time step: 1 Groundwater Flow Eqn.
Solving: Stress period: 184 Time step: 1 Groundwater Flow Eqn.
Solving: Stress period: 185 Time step: 1 Groundwater Flow Eqn.
Solving: Stress period: 186 Time step: 1 Groundwater Flow Eqn.
Solving: Stress period: 187 Time step: 1 Groundwater Flow Eqn.
Solving: Stress period: 188 Time step: 1 Groundwater Flow Eqn.
Solving: Stress period: 189 Time step: 1 Groundwater Flow Eqn.
Solving: Stress period: 190 Time step: 1 Groundwater Flow Eqn.
Solving: Stress period: 191 Time step: 1 Groundwater Flow Eqn.
Solving: Stress period: 192 Time step: 1 Groundwater Flow Eqn.
Solving: Stress period: 193 Time step: 1 Groundwater Flow Eqn.
Run end date and time (yyyy/mm/dd hh:mm:ss): 2014/12/02 20:42:17
Elapsed run time: 4 Hours, 42 Minutes, 33 Seconds

Normal termination of simulation

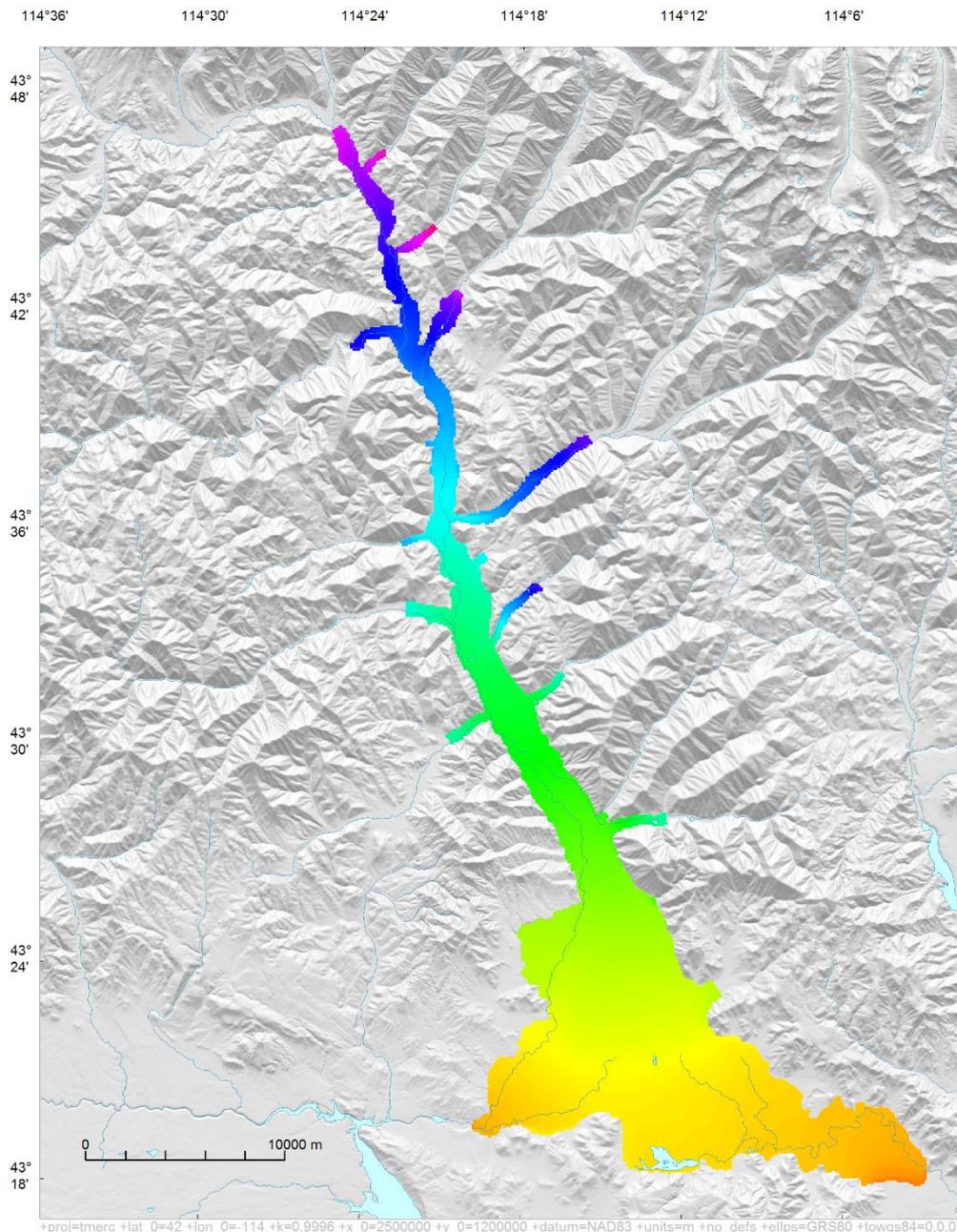
C:\Users\jfisher\Documents\wrw_20141202155311\Run>pause
Press any key to continue . . .
```



partially saturated

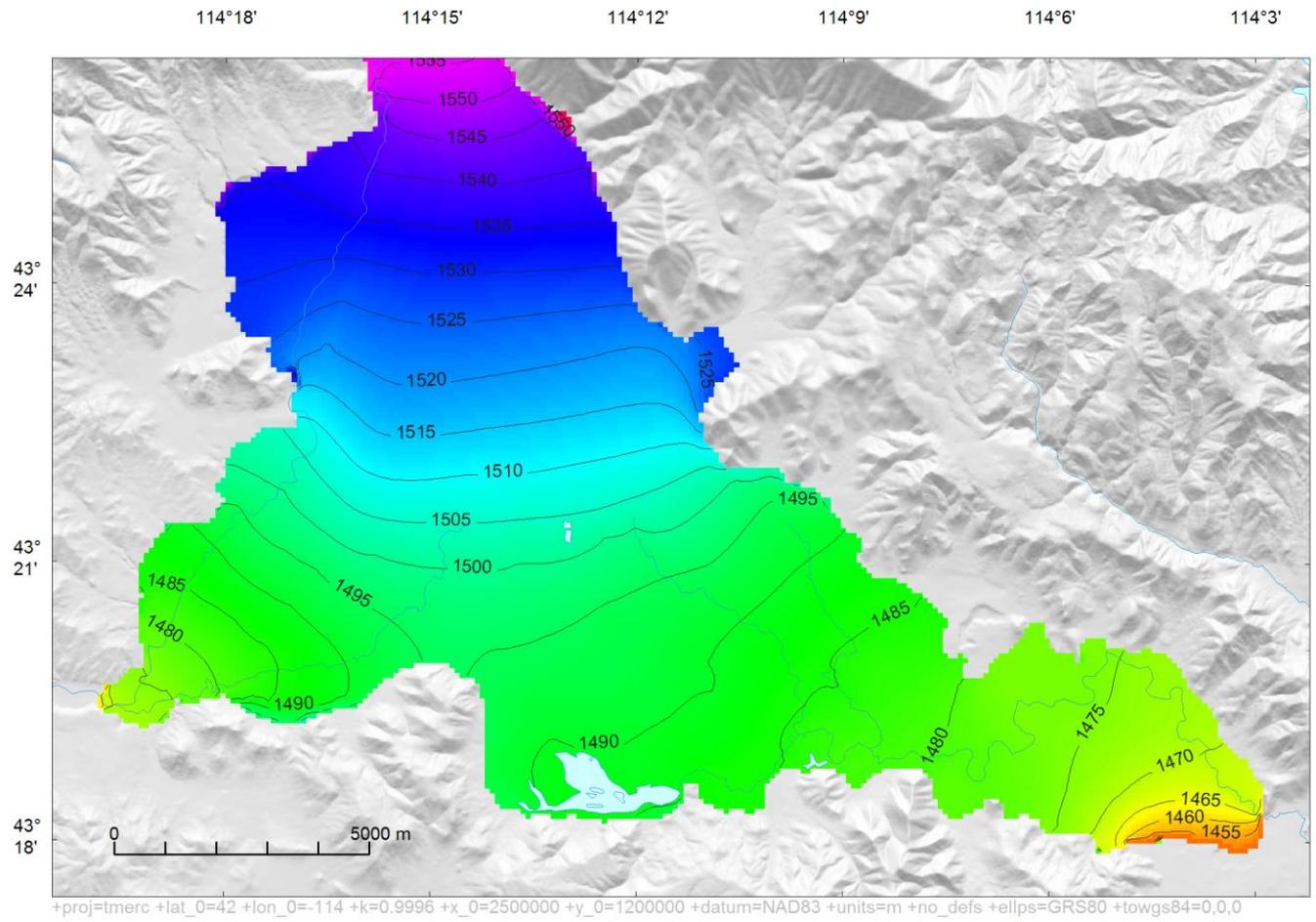


saturated



Hydraulic head in meters above the NAVD 88.





Hydraulic head in meters above the NAVD 88.



Volumetric Budget

cumulative volumes at the end of the 16-year simulation

	Volume (m ³)	Volume (acre-ft)	Rate (m ³ /d)	Rate (acre-ft/yr)
Storage in	995,915,671	807,397	170,417	50,461
Constant head in	0	0	0	0
Wells in	2,402,317,797	1,947,579	411,074	121,721
Drains in	0	0	0	0
River leakage in	771,966,564	625,840	132,096	39,114
Total in	4,170,200,032	3,380,817	713,587	211,296
Storage out	1,001,192,613	811,675	171,320	50,729
Constant head out	0	0	0	0
Wells out	1,552,356,236	1,258,508	265,632	78,655
Drains out	212,282,544	172,099	36,325	10,756
River leakage out	1,404,368,579	1,138,534	240,309	71,157
Total out	4,170,199,972	3,380,817	713,587	211,296
In minus out	61	0	0	0
Percent discrepancy	0	0	0	0

Questions