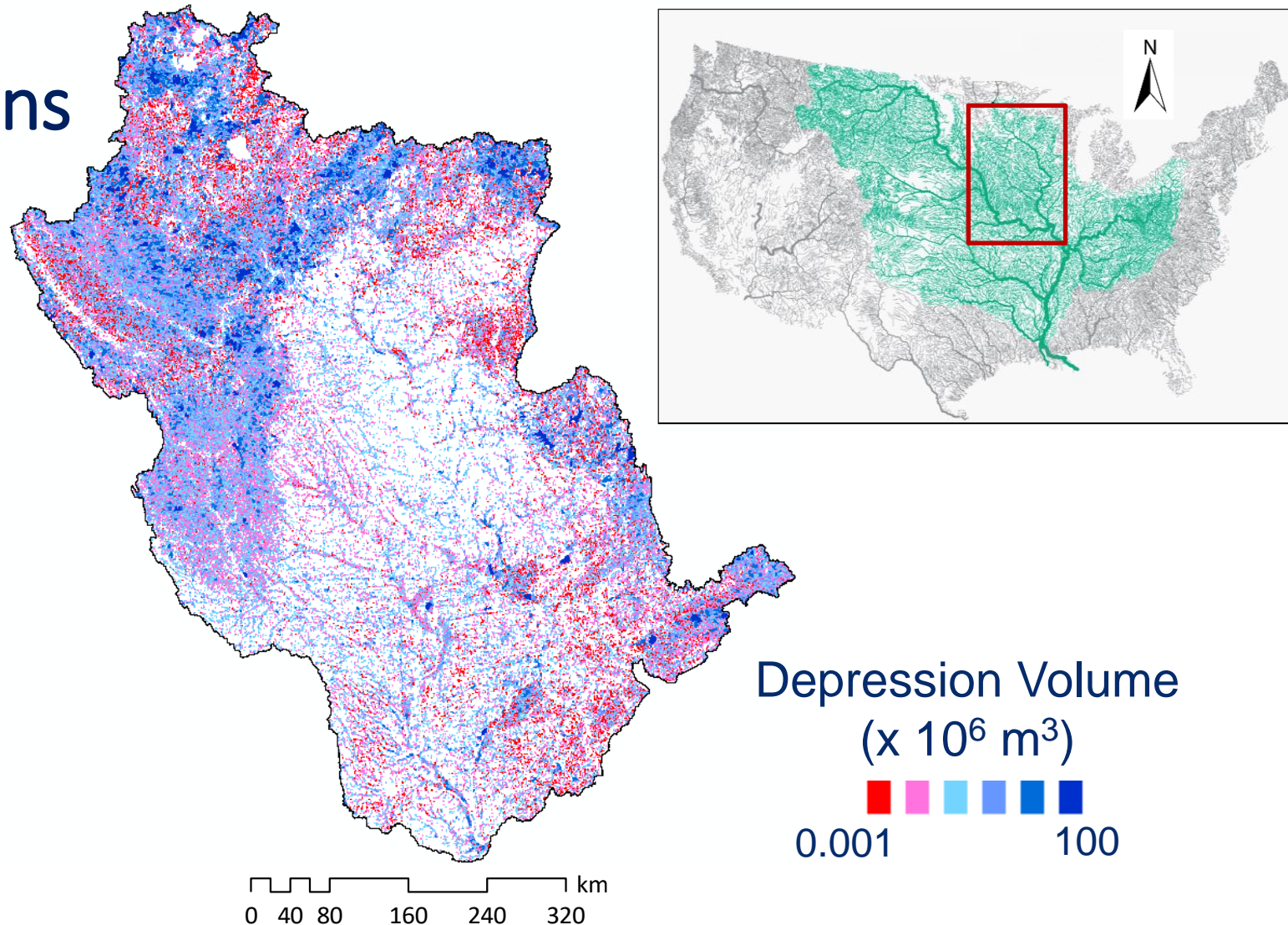


Small surface waters in the world's major basins

- Small surface water storage systems perform sink-lag-source functions
- Hydrologic models typically don't account for small water bodies (i.e., wetlands and surface depressions) and processes therein

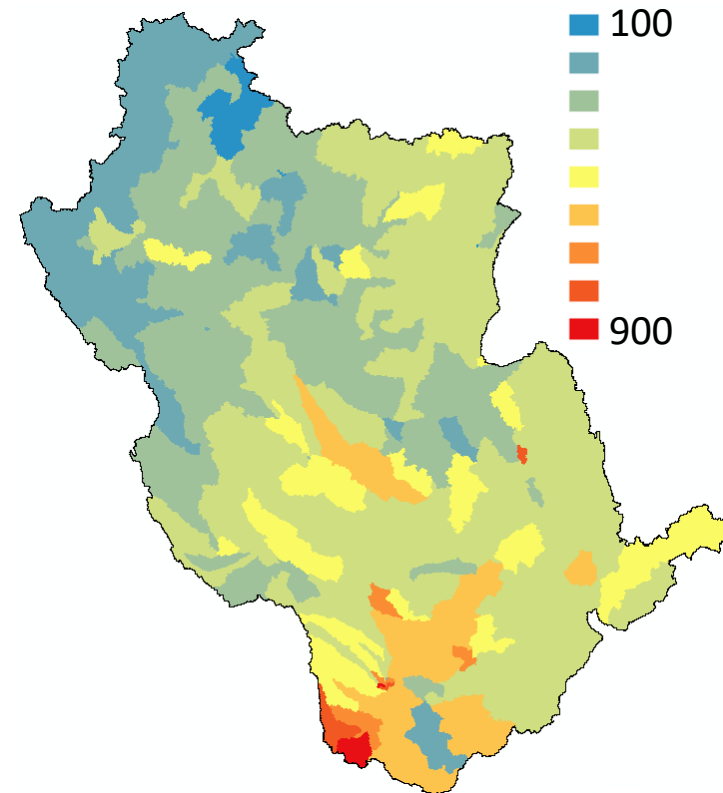


Small surface waters alter magnitude and distribution of basin water yield

- *Significantly* different water yield with the depression-integrated model
- Increased physical realism in model predictions
- Depression size is *not* the only driver of downstream hydrological influence

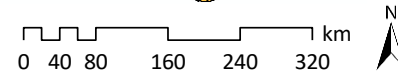
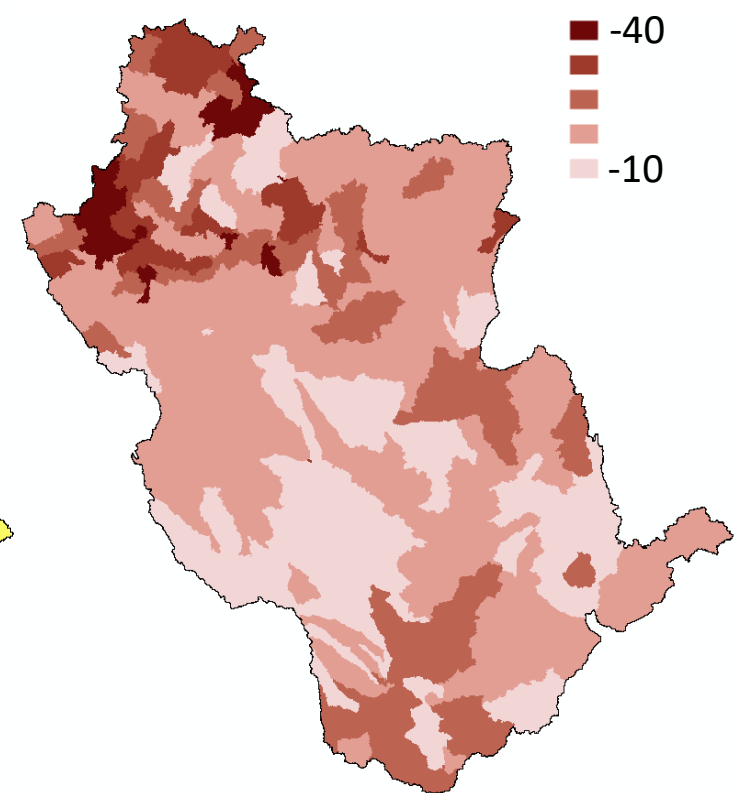
Conventional model

Average water yield (mm/year)



Depression-integrated model

% Reduction in water yield



Depression-integrated hydrologic modeling: Broader impact

- Conventional hydrologic models disregarding small surface waters may be overpredicting floods and underpredicting droughts
- Knowing where small surface waters impart significant hydrologic effects can inform management decisions in response to climate and land use change

Rajib, A., Golden, H., Lane, C., Wu, Q. 2020. Surface depression and wetland water storage improves major river basin hydrologic predictions, *Water Resources Research*. DOI:10.1029/2019WR026561

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