

# Streamflow Forecasting Without Models

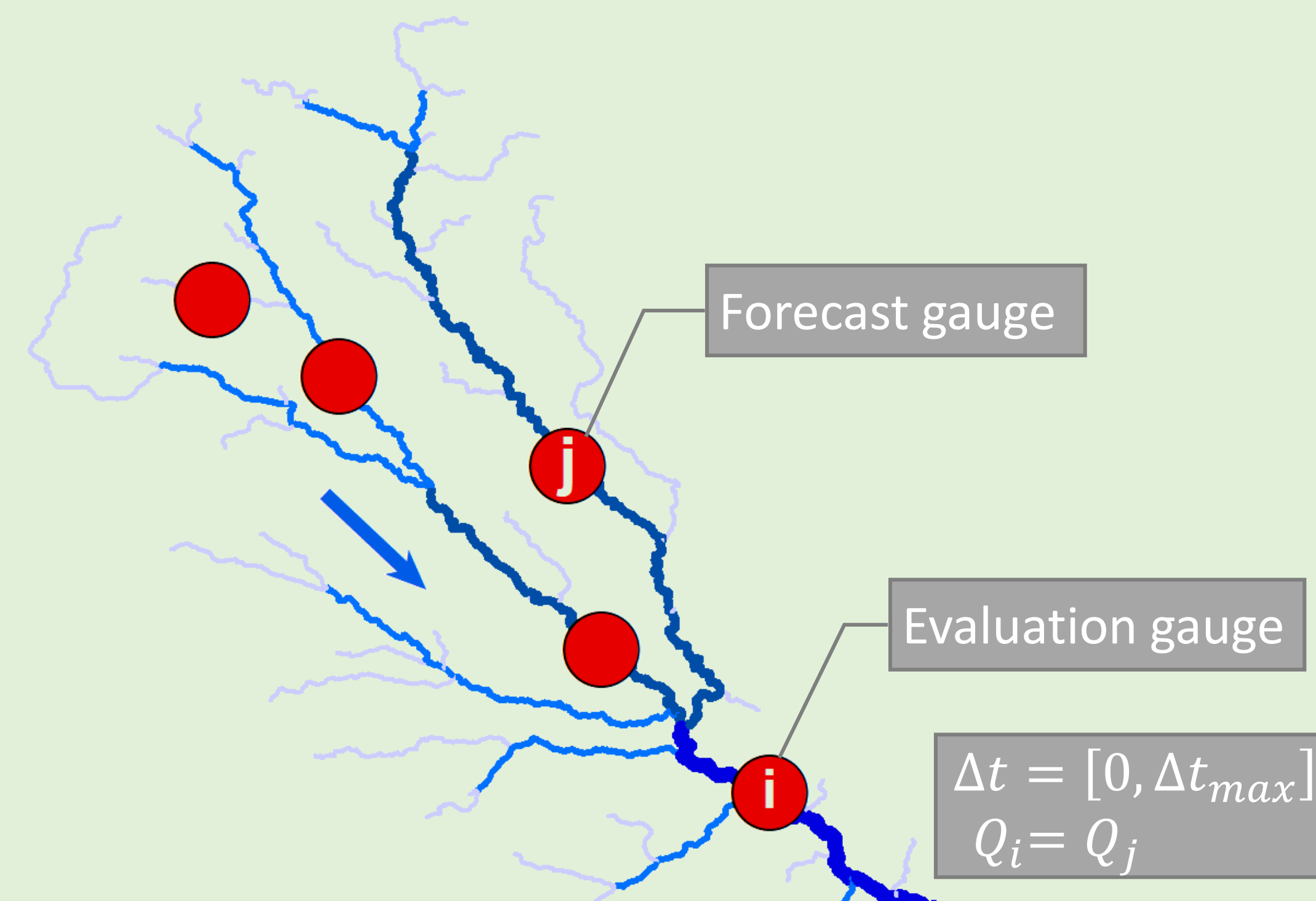


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## MOTIVATION

- Establish a benchmark for model-based forecasting
- Explore streamflow forecasting by persistence

## APPROACH

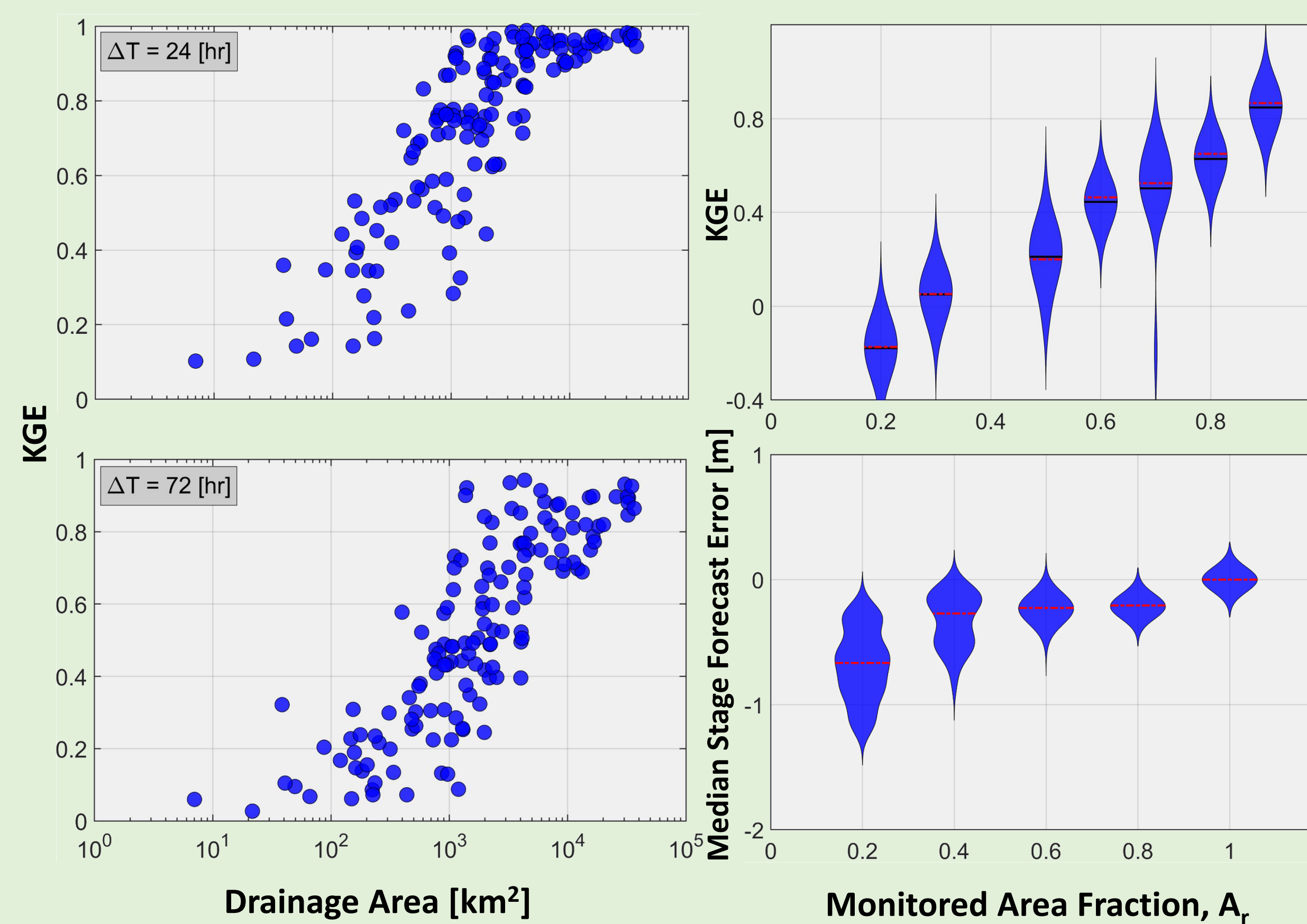


Temporal:  $Q_i(i, t_0 + \Delta t) = Q_i(i, t_0)$

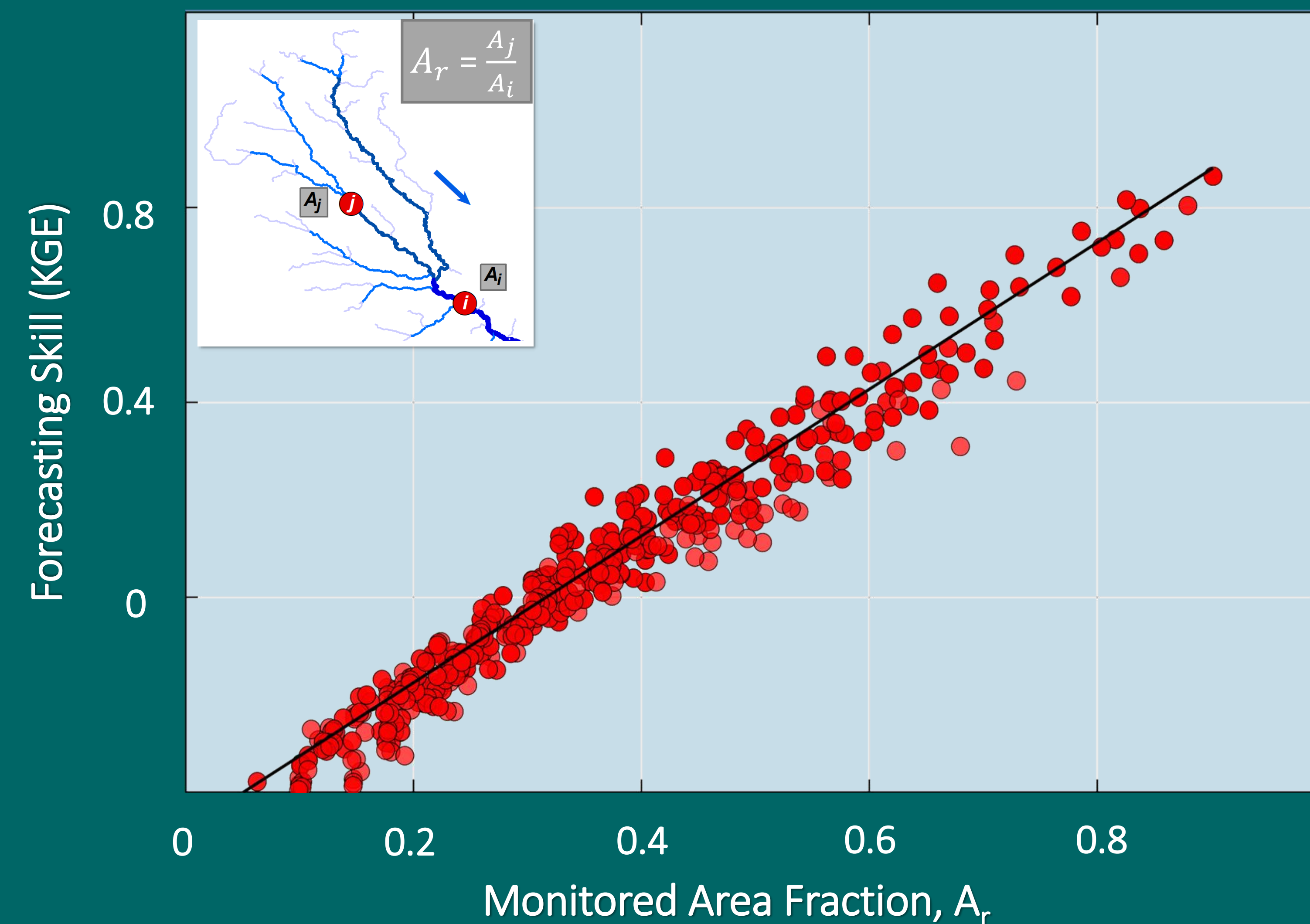
Spatial:  $Q_i(i, t_0 + \Delta t) = Q_j(i, t_0)$

## KEY RESULTS

Temporal persistence forecast skill shows strong spatial scale dependence. Spatial persistence forecast skill shows dependence on monitored area fraction.

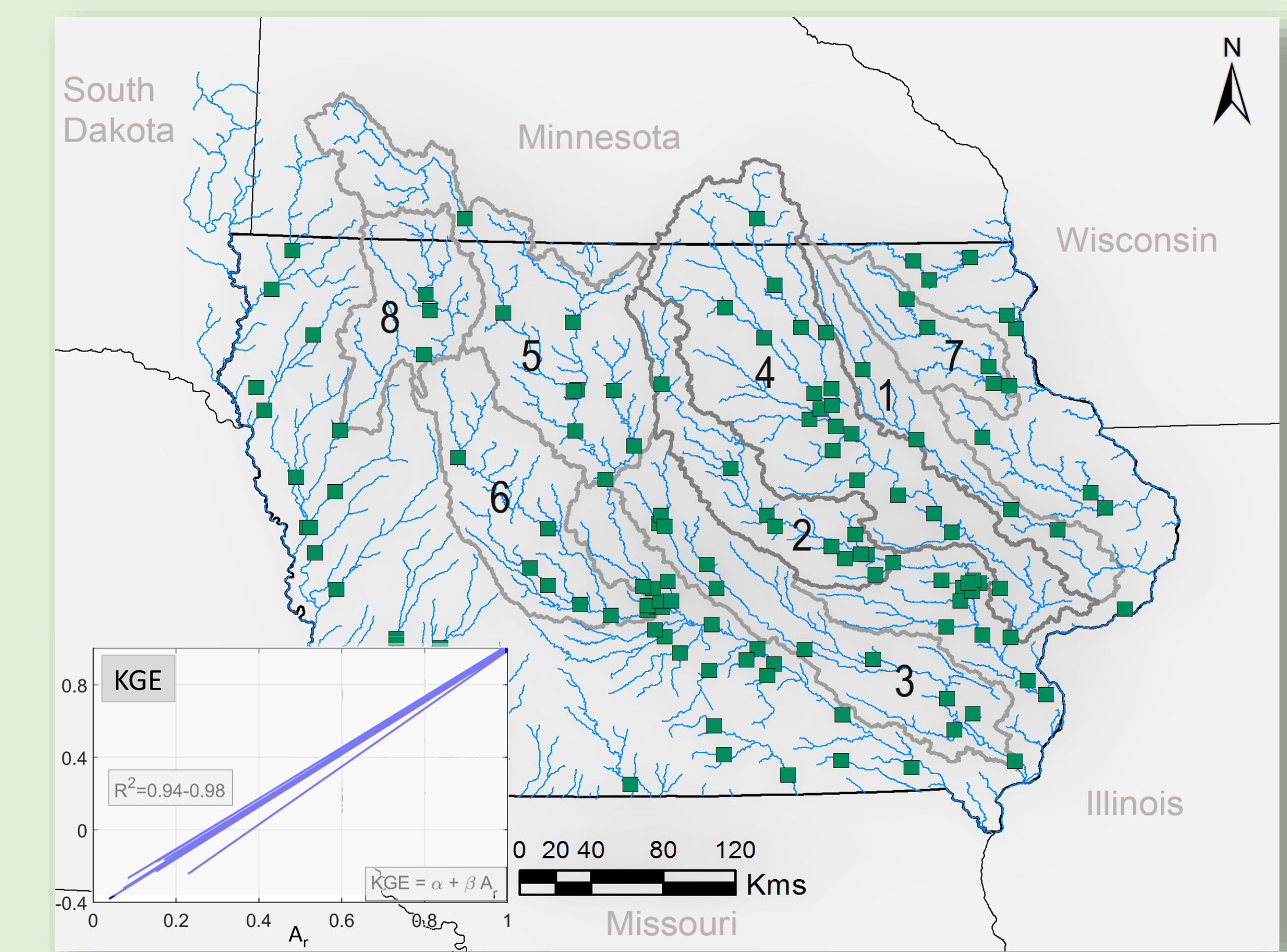


# Monitored area fraction explains the skill of streamflow forecasting by persistence.

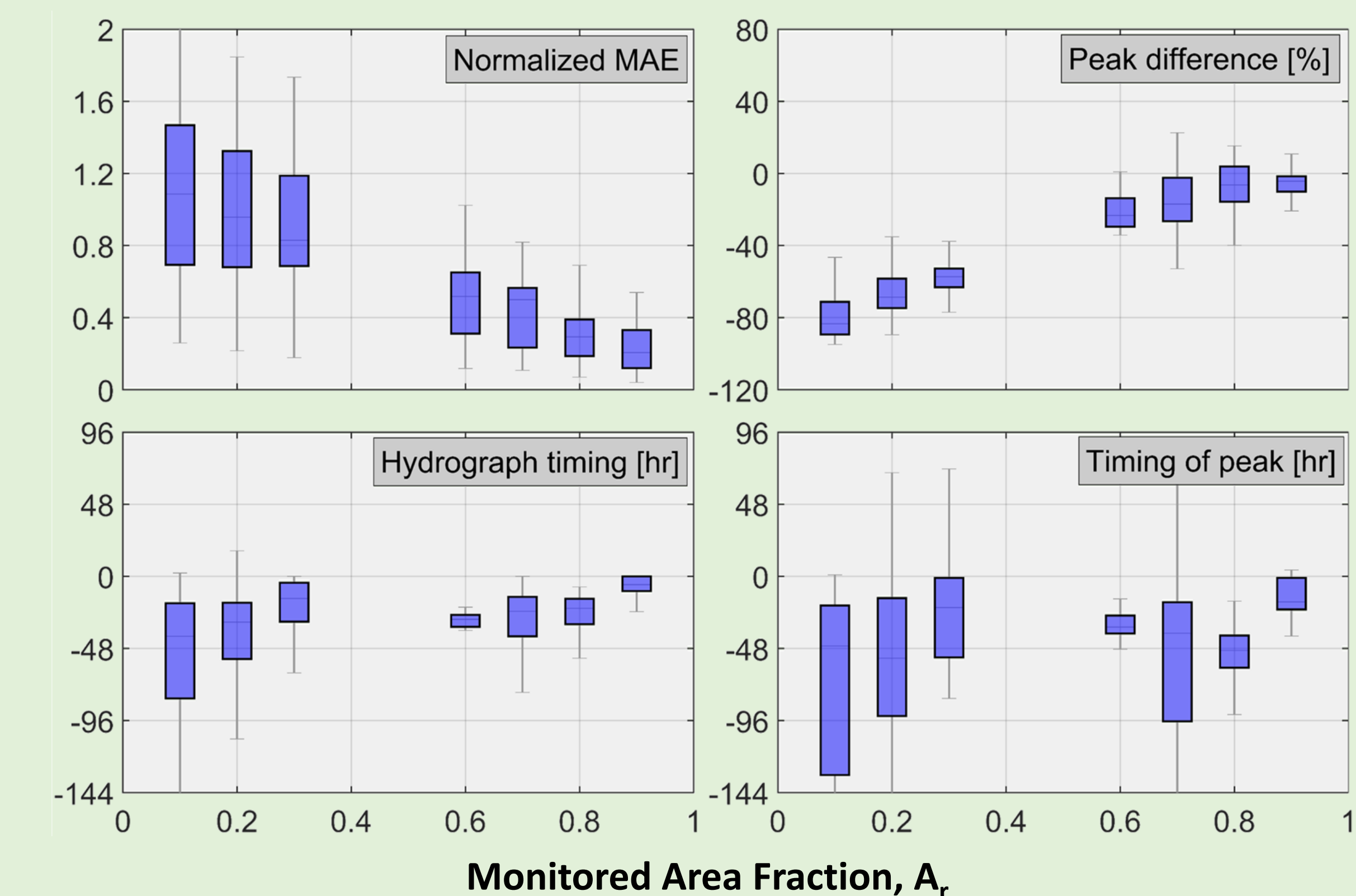


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Forecast skill (KGE) shows universal linear relationship with monitored area fraction for all basins.



Inter-annual (2002-2018) variability of skill measures show dependence on monitored area fraction.



Forecast skill (KGE) shows low sensitivity with respect to forecast lead time.

