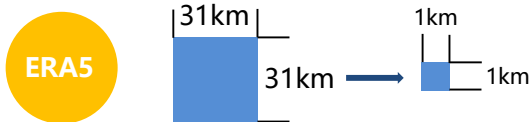


Statistical downscaling of wind speed time series data based on topographic variables

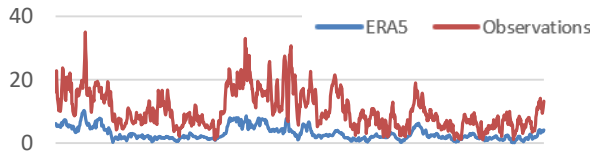
Wenxuan Hu¹, Yvonne Scholz¹, Madhura Yeligeti¹, Lüder von Bremen¹, and Marion Schroedter-Homscheidt¹

1. Research Goal

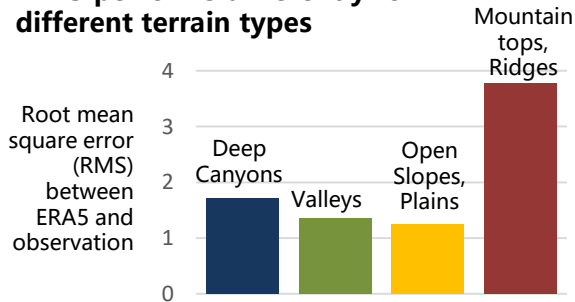


Examine the local effect

2. Compare reanalysis data with observation data

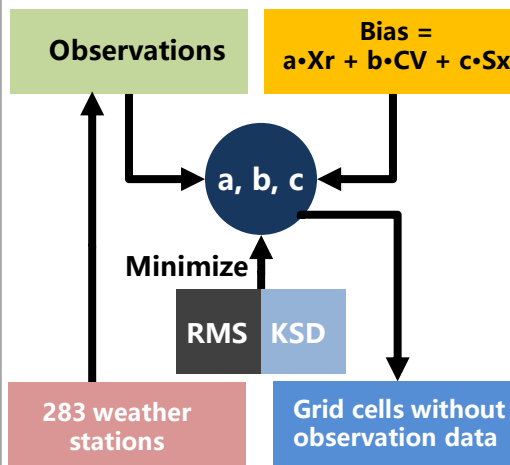


ERA5 performs differently for different terrain types



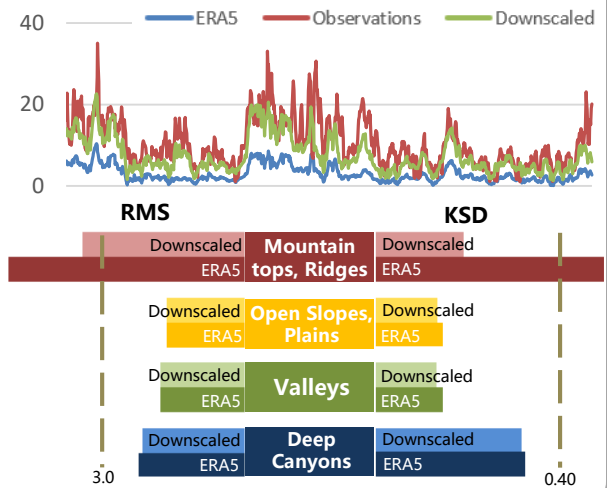
3. Downscaling Method

Objective: Minimize the bias between reanalysis and observation



X_r : Reanalysis wind speed
 CV : Coefficient of variation of each hour
 S_x : Describe upwind topography
 KSD : Kolmogorov-Smirnov Distance

4. Results



5. Validation

Validated the parameters with MeteoSwiss Observation data

- Significant improvement on mountain tops and ridges.
- Limited improvement on deep canyons.
- No improvement on others