

Station data

GHCN-D, GSOD, ECCC, Mexico

Format unification

Observation length limitation (8 year)

Identical station merging

Overlapped station merging

Quality control of temperature and precipitation

Unified station data

Reanalysis products

ERA5, JRA-55, MERRA-2

Temperature lapse rate

Concurrent precipitation and downscaled temperature

MERIT DEM

Filling and reconstruction

(loop for each target station and each day of year)

Rank neighboring stations based on correlation coefficients

Obtain empirical CDF of station and reanalysis data

Infilling/reconstruction based on 16 strategies

Estimation and validation using all records

Estimation using 70 % and validation using 30 % records

Best strategy during the observation period

Best strategy during the reconstruction period

Serially complete dataset (SCD)