Precipitation measurements of snowfall are sparse in mountainous areas. Snowfall at an ungauged point must be estimated by rescaling precipitation measured some distance away. This study evaluates a method for scaling precipitation based on the snow disappearance date. The method is evaluated over 3 years at 144 surface stations. The precipitation basins span several different climate regimes, from arid desert regions to the eastern slopes of the Sierra Nevada near Yosemite National Park.

### Results

- **Performance Across Elevation Bands**
  - **1500 m Band Elevation (m MSL) – Lower Limit**
  - **300 m Band Elevation (m MSL) – Lower Limit**

- **Observed SWE vs. Modeled SWE**
  - **Observed SWE (mm)**
  - **Modeled SWE (mm)**
  - **Modeled SWE bias (mm)**

- **Temporal Metrics**
  - **Volume Ratio**
  - **Peak Ratio**

- **V. Precipitation Scaling Methods**
  - **Observed snow disappearance date**
  - **Model matches observed SWE**
  - **Model matches total observed SWE**
  - **Underestimates the SWE volume**
  - **Underestimates the SWE volume but predicts too much SWE**
  - **Volume but predicts too much SWE**

- **Challenges**
  - **SNOTEL**
  - **Daily precipitation under-catch**
  - **Monthly precipitation under-catch**

- **IX. Future Work**
  - **Future Work**

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**Citations**