

Standards of Practice - SNOWPACK Validation

Manual Observations

Manually submitted snowpit observations (reference snow profile), downloaded from SnowPilot or Propagation Labs, can be used to compare and validate SP model outputs. Manually submitted snowpits must be full depth, include layer hardness and grain type for each layer identified, and each layer must only include one hardness classification (i.e. one layer cannot be labeled as 4F and 4F+). Elevation, aspect, date, and time must also be included in manual observations.

Validation

1. Calculate dynamic time warping alignment of two snow profiles
 - 1.1. Atwater snowpit observations
 - 1.1.1. If using a reference snow profile from the Atwater SP, an alignment should be used without re-scaling the profiles to match snow height. Use Herla et al., 2021 similarity approach.
 - 1.1.1.1. 'rescale2refHS' = FALSE
 - 1.1.1.2. 'checkGlobalAlignment' = TRUE
 - 1.1.1.3. simType = "HerlaEtAl2021"
 - 1.2. Snowpit observations outside of Atwater SP
 - 1.2.1. If using a reference snow profile that is not within the Atwater SP, model output should be rescaled to match the snow height of the reference snow profile.
 - 1.2.1.1. rescale2refHS = TRUE
 - 1.2.1.2. 'checkGlobalAlignment' = TRUE
 - 1.2.1.3. simType = "HerlaEtAl2021"
2. Calculate similarity between the two profiles
 - 2.1. Use simple2 similarity measure (HerlaEtAl2021)