Snow profile data and observations of snow instability

Variable (units)	**Description**
No	Consecutive number (1 to 589)
Profile_ID	Internal profile ID from SLF's profile data base
Date_time	Date and time of snow profile observation
Aspect	Aspect of slope where profile was observed
X-Coordinate (m)	Easting in Swiss coordinate system
Y-Coordinate (m)	Northing in Swiss coordinate system
Elevation (m a.s.l.)	Elevation of profile location
Slope_angle (degrees)	Incline of slope where profile was observed
Profile_class	Snow profile hardness classification: 1 to 10 according to Schweizer and Wiesinger (2001)
5-class_Stability	Stability classification (1: very poor, 2: poor, 3: fair, 4: good, 5: very good) according to Schweizer and Wiesinger (2001)
RB_score	Rutschblock (RB) score (1 to 7) according to Föhn (1987)
RB_release_type	Rutschblock release type (1: whole block, 2: partial, 3: edge only) according to Schweizer (2002)
Fracture_plane_quality	Quality of the fracture plane (1: smooth, 2: rough, 3: irregular) according to Schweizer (2002)
S2008_1 [RB]	Classification of RB score (1: in critical range, RB $\leq$ 3; 0: RB > 3) according to Schweizer et al. (2008)
S2008_2 [RT]	Classification of RB release type (1: whole block; 0: partial or edge only) according to Schweizer et al. (2008)
S2008_3 [Lemons]	Classification of number of lemons (aka threshold sum) for failure layer (1: Lemons_FL $\geq$ 5; 0: Lemons_FL < 5) according to Schweizer et al. (2008)
3-class_Stability [sum S2008: 1+2+3]	3-class stability classification according to Schweizer et al. (2008): number of criteria (RB score, RB release type, Lemons) in critical range: 1 to 3
4-class_Stability [Techel]	4-class stability classification based on RB score and RB release type (1: very poor, 2: poor, 3: fair, 4: good) according to Techel et al. (2020)
RB_height (cm)	Height of failure interface in rutschblock test
Snow_depth (cm)	Snow depth at profile location
Slab_thickness (cm)	Thickness of slab: thickness of snow layers above failure interface
FL_Thickness (cm)	Thickness of failure layer
AL_Thickness (cm)	Thickness of adjacent layer (layer across failure interface from failure layer)
FL_Grain_size_avg (mm)	Grain size (average) in failure layer
AL_Grain_size_avg (mm)	Grain size (average) in adjacent layer
FL_Grain_size_max (mm)	Grain size (max) in failure layer
AL_Grain_size_max (mm)	Grain size (max) in adjacent layer
FL_Grain_type1	Grain type in failure layer (primary) (1: PP, 2: DF, 3: RG, 4: FC, 5: DH, 6: SH, 7: MF, 8: IF, 9: FCxr; 0: PPgp; according to Fierz et al. (2009))
FL_Grain_type2	Grain type in failure layer (secondary)
FL_Hardness	Hand hardness index of failure layer (1: Fist, 2: Four fingers, 3: One finger, 4: Pencil, 5: Knife) according to Fierz et al. (2009)
FL_Top_Height (cm)	Top height of failure layer
FL_Bottom_Height (cm)	Bottom height of failure layer
AL_Top_Height (cm)	Top height of adjacent layer

AL_Bottom_Height (cm)	Bottom height of adjacent layer
AL_Hardness	Hand hardness index of adjacent layer
Hard_Diff	Hardness difference across failure interface
Abs_Hard_Diff	Hardness difference across failure interface (absolute value)
Grain_Size_Diff (mm)	Grain size difference across failure interface
FL_location	Location of failure layer with regard to failure interface (1: below, 0: above)
Lemon1_E	Failure layer grain size in critical range (1: ≥ 1.25 mm) according to Schweizer and Jamieson (2007)
Lemon2_R	Failure layer hardness in critical range (1: ≤ 1.5; Fist to 4 fingers) according to Schweizer and Jamieson (2007)
Lemon3_F	Failure layer grain type (primary) in critical range (1: persistent; FC, DH, SH, FCxr) according to Schweizer and Jamieson (2007)
Lemon4_dE	Grain size difference across failure interface in critical range (1: ≥ 0.75 mm) according to Schweizer and Jamieson (2007)
Lemon5_dR	Hardness difference across failure interface in critical range (1: ≥ 1.7) according to Schweizer and Jamieson (2007)
Lemon6_FLD	Depth of failure interface (from snow surface) in critical range (1: [18 cm, 94 cm]) according to Schweizer and Jamieson (2007)
Lemons_FL	Threshold sum or number of lemons in critical range according to Schweizer and Jamieson (2007)
Whumpfs	Presence (1) or absence (0) of whumpf sounds on day of field observations
Cracks	Presence (1) or absence (0) of shooting cracks on day of field observations
Avalanche_activity	Presence (1) or absence (0) of recent avalanches on day of field observations
LN_Local_danger_level_nowcast	Assessment of danger level by observers after travelling a day in the field (LN: local nowcast; 1: Low, 2: Moderate, 3: Considerable, 4: High), intermediate values allowed
LN_rounded	Assessment of danger level by observers after travelling a day in the field: rounded to next full danger level
RF_Regional _danger_level_forecast	Avalanche danger level as forecast in the public bulletin for the day of observation (RF: regional forecast)
Deviation [LN-RF]	Agreement or deviation between local nowcast and regional forecast
SNPK_Index	Snowpack structure index according to Techel and Pielmeier (2014)
SNPK_Index_Class	Classification of snowpack structure index according to Techel and Pielmeier (2014)
HN24 (cm)	Height of new snow of the last 24 hours (median value of the stations in the surroundings of the profile location)
HN3d (cm)	Sum of height of new snow of the last 3 days (median value of the stations in the surroundings of the profile location)

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