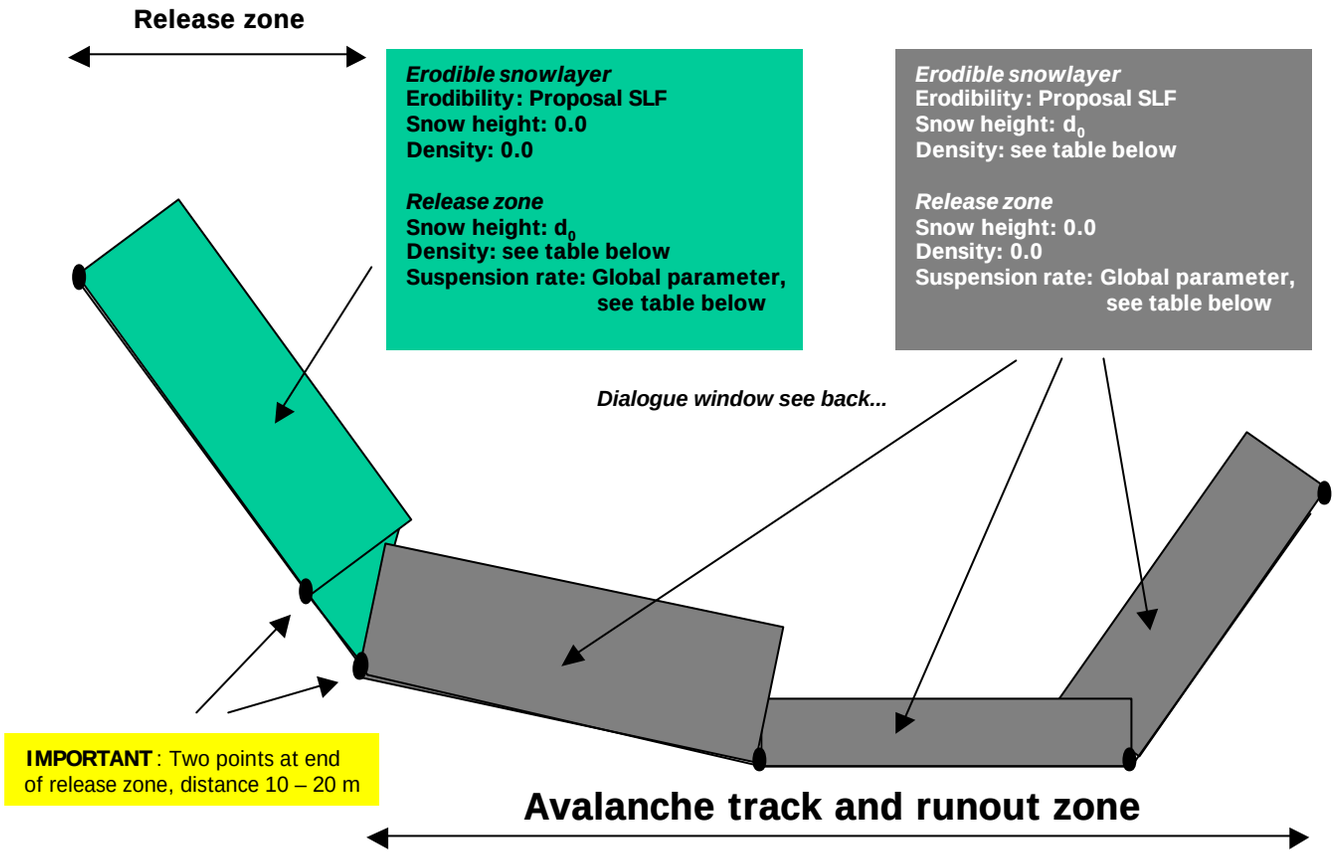
AVAL-1D: Calculation steps for powder snow avalanches

Choose: *Edit* ➔ *Avalanche parameters...* ➔ *Powder snow* or Toolbar ➔



- ➔ **Avalanche width is only required for information purposes, not for the calculation! SL-1D uses a unit width. The program was validated for wide avalanches.**
- ➔ **No widening / narrowing is taken into account! Pressure forces have to be reduced in case of widening after channeled area / gully. Experience of expert is required.**
- ➔ **Definition of release zone and release height d_0: See „dense flow avalanches“!!**

Recommended values for mean snow density against climatic region and altitude. Lower values for one day snowfall, upper values for several days' snowfall.

Mean snow density (kg / m³) Climatic region	Altitude	
	≤ 2200 m	> 2200 m
Wallis, Graubünden	120 – 200	100 – 170
Alpennordhang	140 – 230	120 – 200
Alpensüdhang	160 – 250	140 - 220

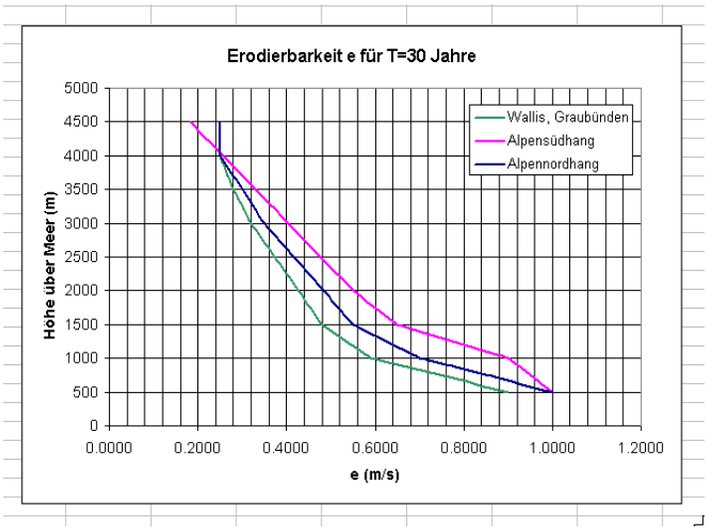
Estimated values for suspension rate (ratio between powder release mass and original snow slab mass) against climatic region and altitude.

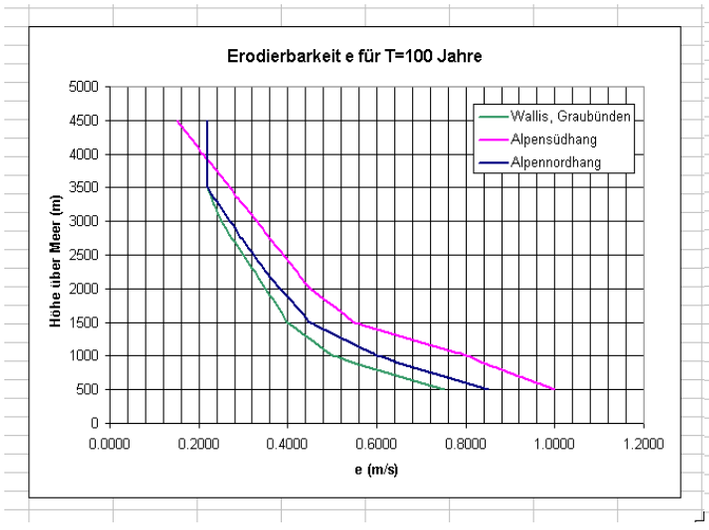
ATTENTION: Increase these values in case of rough terrain or flow over a cliff.

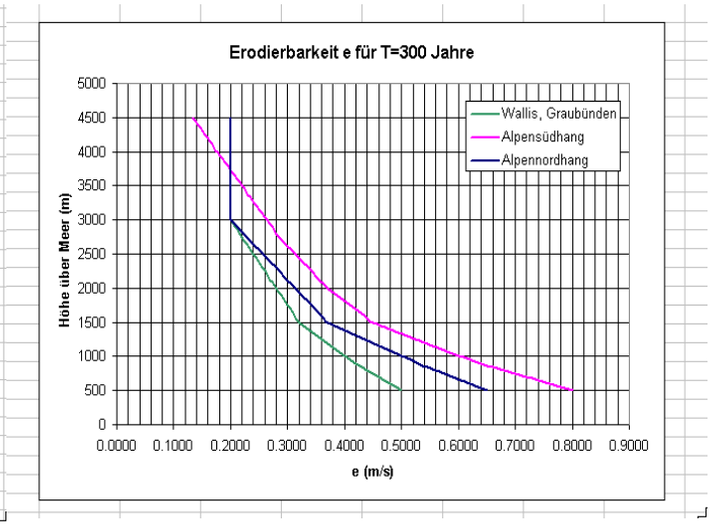
Suspension rate ( ) Climatic region	Altitude		
	< 2000 m	2000 – 3000 m	> 3000 m
Zentralwallis, Engadin	0.10	0.12	0.14
Alpennordhang	0.08	0.10	0.12
Alpensüdhang	0.06	0.08	0.10

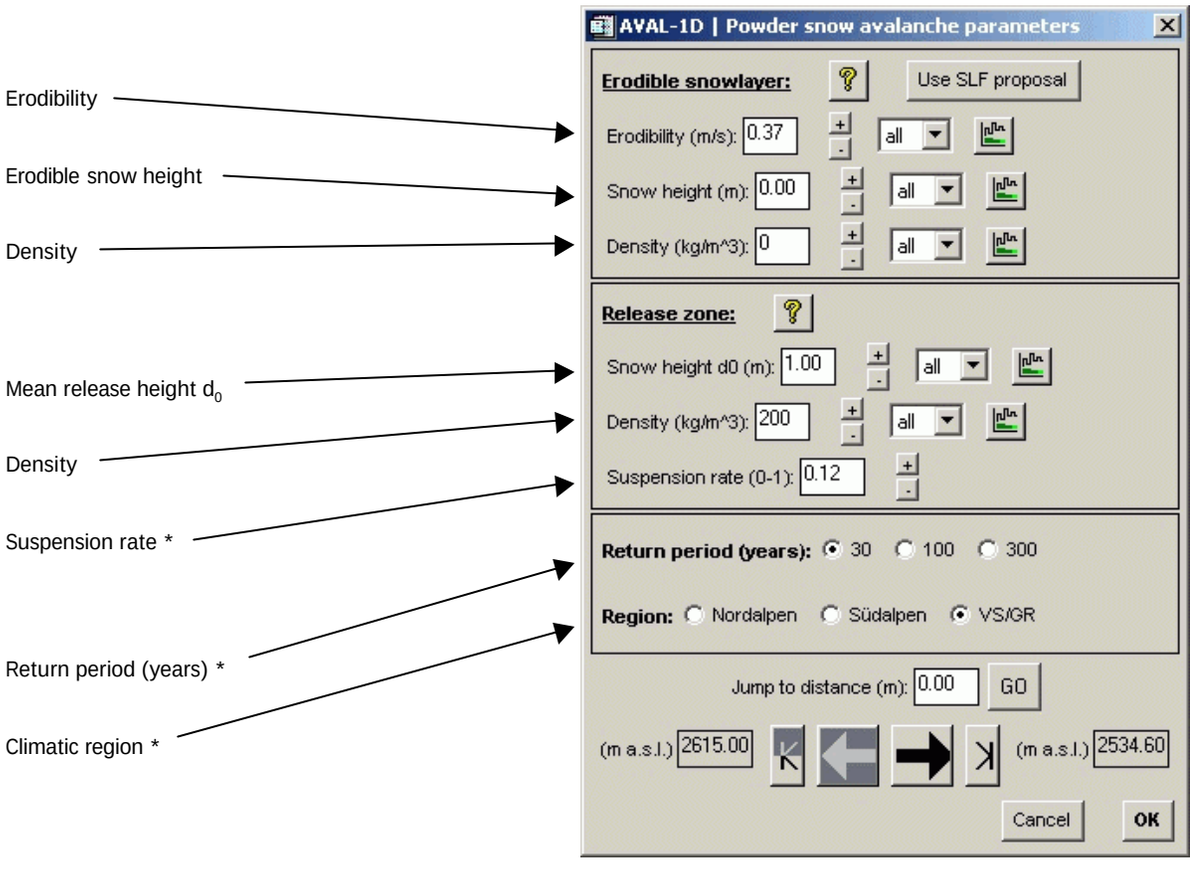
Erodibility

Threshold velocities for snow erosion, *e*, in powder avalanches depending on altitude (Höhe über Meer) and climatic zones for return periods of 30 (right), 100 (below left) and 300 (below right) years. These are rough standard values, that have to be adapted to local climatic and wind conditions.









* Suspension rate, return period and climatic region are global parameters; only input them once.