



The use of topoclimatic data to derive ground surface temperature during winter equilibrium period: permafrost distribution prediction on the Combeynot Massif, French Alps.

X. Bodin (1,2), P. Schoeneich (2), M. Fort (1)

(1) UMR 8586 PRODIG, CNRS/University Denis Diderot – Paris 7, France, (2) Institut de Géographie Alpine, University Joseph Fourier, Grenoble, France, (xbodin@hotmail.com / Tel: +33 4 76 82 20 82)

At regional scale, statistical-empirical modelling of BTS have proved to be an efficient tool, where convenient data is available, for reconstructing alpine permafrost distribution. A similar model can be designed for a small massif, the Combeynot Massif, French Alps, linking ground surface temperature during the winter equilibrium period (WEqT), which reflects the permafrost presence, to several parameters such as air temperature before the onset of snow, summer solar radiation or presence of a thermal offset due to a coarse debris mantle. This model, calibrated with BTS measurements and topoclimatic data on a rockglacier, provide a map of WeqT which is in a good agreement with geomorphological mapping of active permafrost related features.