



Challenges of spatial interpolation near country borders – case study of precipitation interpolation on the border between Slovenia and Austria

M. Dolinar (1) and M. Mole (2)

(1) Environmental Agency of the Republic of Slovenia, Climatological department, Ljubljana, Slovenia (mojca.dolinar@rzs-hm.si), (2) University of Ljubljana, Ljubljana, Slovenia (marusa.mole@gmail.com)

Due to lack and unisotropical distribution of available meteorological measurements in regions near the international country borders, interpolated values of meteorological variables are subject to higher errors and uncertainties in these regions. Higher errors and especially border discontinuities in meteorological fields, produced by two national climate services, can cause a lot of problems to end-users (for studies on regional or larger scale) and thus rises higher uncertainty to the climate service than it should.

On the example of spatialisation of long term average precipitation (period 1971-2000) we investigated the discontinuities of interpolated fields on the country border. With precipitation measurements available from both countries we accessed the rate of uncertainty of interpolated values near the border and the influence of border measurements on the interpolation results. Since the Slovenian – Austrian border runs on the higher, complex terrain (mountains up to 2000 m) and lower, flatter terrain, also the joint influence of terrain complexity and unisotropical distribution of measurements on interpolation results was studied.