

Soil moisture under grass and sandy loam in % plant useable water

Like the real and potential evapotranspiration, the soil moisture is also calculated with the agro meteorological model AMBAV, so that all values are consistent with each other. In the model, the soil moisture is calculated for depth intervals of 10 cm. The quantity is integrated between the surface and 60 cm depth. More details of the model are listed under

http://link.springer.com/chapter/10.1007/978-1-4020-4479-3_2#page-1

The soil used in the model has a wilting point of 13 volume % and a field capacity of 37 volume%, so that 24 volume % can be used by the grass. Over the whole 60 cm soil depth, the plants have 144 mm plant useable water.

To make the grids comparable, always the same 315 stations are used for the interpolation for the entire period from 1991 to now. Gaps in the input data sets were filled by data from adjacent stations. Special parameters like global radiation are derived from measured sunshine duration at the location.

The results at locations are interpolated by optimal linear regression over geographical coordinates and height for 16 different overlapping regions in Germany. Depending from distances to the center of the regions, the regression coefficients were weighted and result computed for each grid point. To ensure that all values are exactly reproduced at a given location, all differences which are not declared by the regression are additionally distributed over a triangulation. The gridded data are given in Gauss Krüger coordinates. Dividing the model output values by 10 yields the correct value in mm. The definitions of the grid are described in the first six lines of each file. The grid can be imported directly into ArcGis.

The regional representation of the result depends strongly from the amount of used stations and uncertainly special in mountains may be not correct.