

REGRESS

This program is a GUI program for DOS. It will not run under Windows Vista/7 and above. To run it, the freeware software DOS-box can be used, which is simulating a DOS machine in a normal window.

Regress calculates altitude dependent gradients for input data of any time steps. The regression is done for two separate altitude ranges which can be specified by the user. If the regressions does not cross each other in a given altitude range, the profile may consist of up to three sections.

If the input data are not only consist of high resolution data (e.g. hourly values) but *also* of data of conventional stations, which may be represented by a number of observations at given times of the day, these data are also included in the regression. This integration is done in a second order temporal interpolation: for the times with valid data of both input types (high resolution *and* conventional observations) two regressions are calculated, one for the high resolution data only, the other for all data including the conventional observations. This is done for each time when all data are available. The deviations between both regressions are then temporally interpolated between the observation times. Using the interpolated deviations, the algorithms estimates “observation” data for the conventional climate stations for the unobserved times. The last step is the re-calculation of the altitudinal regressions using now all data, including the estimated data for the conventional stations in-between the observation times.

The gradients can be viewed on the screen and also be sent to a HP-Desk-jet printer (as raw bitmap) or to a HPGL-plotter in HPGL-format. This can be done by typing <p> during the display of the gradients. This HPGL-files can usually also be printed on most Postscript printers, also there is a freeware called printgl available for printing such files on other windows printers.

The parameters for REGRESS are saved in a parameter file. This file is also used by REGR, the non interactive version of REGRESS (if all the parameters were optimized, no graphical user interface is necessary). However, it is highly recommended to use REGRESS for at least a part of the input data in order to be sure to specify the right parameters, especially the right inversion altitudes. REGRESS generates an ASCII-result file (and some ASCII-files containing efficiency criteria and the original and temporally interpolated input data). The regression file contains for each time step a set of parameters for 3 linear equations for the at maximum 3 valid ranges and 3 parameters for the areal regression of the residuals of the altitudinal regressions (see also description of the regression in chapter 2.3.2 of the manual).

The maximum number of stations to be considered is 200. For each station, a 0/1 code in the last row of the control file (interactively checked in REGRESS after specifying all parameters) specifies the use of the station for the regression.

Command: `regress <parameter_file>`