

## WaSiM Regress Format

Meteorological input data may also be interpolated by altitude dependent regression. This is done during the preprocessing using the programs “regress” (a graphical DOS-program) or “regr” (a console version of “regress”). The program “regress” generates ASCII-output which is also directly useable by WaSiM. The model recognizes the format by analyzing the header. If the first characters are “jr mo tg st” (separated by single spaces!), then an ASCII-format is assumed, otherwise a binary format is assumed. Both formats have the same structure except that the binary format does not have a header. The binary file contains all data as single precision values (4 byte per value), the first four data columns for date and time are stored as long integers (4 byte). An example of such a regression file is given below:

jr	mo	tg	st	a[1]	b[1]	igu	a[2]	b[2]	igo	a[3]	b[3]	af	bf[1]	bf[2]
84	1	1	1	-17.954	0.0000	0.0	-17.954	0.0833	969.2	117.001	-0.05591	51.126	-7.21913E-05	-7.45598E-05
84	1	1	2	-29.724	0.0000	0.0	-29.724	0.1048	872.6	105.243	-0.04981	39.8687	-6.95074E-05	-8.48521E-05
84	1	1	3	-46.493	0.0000	0.0	-46.493	0.1350	822.3	104.321	-0.04835	30.1048	-8.14217E-05	-7.85187E-05
84	1	1	4	-34.818	0.0000	0.0	-34.818	0.1050	970.4	117.607	-0.05205	13.8404	-3.43135E-05	-0.000102529
84	1	1	5	-23.550	0.0000	0.0	-23.550	0.0680	1275.7	140.102	-0.06021	11.6198	-1.80593E-05	-9.44962E-05
84	1	1	6	-44.244	0.0000	0.0	-44.244	0.1083	1103.7	140.419	-0.05898	-26.0965	-6.67409E-07	-7.49243E-05
84	1	1	7	-25.346	0.0602	820.0	-17.291	0.0504	1400.0	125.643	-0.05163	-7.7026	-1.50661E-05	-2.84531E-05
84	1	1	8	-17.163	0.0387	820.0	-40.929	0.0677	1400.0	122.876	-0.04930	-17.3485	2.76033E-06	-7.57734E-06
84	1	1	9	-28.146	0.0677	820.0	-7.093	0.0420	1400.0	114.150	-0.04457	-7.1713	-2.59317E-05	-9.54698E-06
84	1	1	10	-14.794	0.0514	820.0	-6.893	0.0418	1400.0	106.073	-0.03888	14.4881	-3.8284E-05	-7.03115E-06
84	1	1	11	-22.906	0.0934	820.0	32.876	0.0253	1400.0	138.656	-0.05017	-15.7421	-1.69895E-05	2.13564E-05
84	1	1	12	-18.494	0.1048	820.0	49.093	0.0224	1400.0	163.018	-0.05894	-5.4302	-2.60689E-05	2.40711E-05

description:

jr, mo, tg, st: this rows contain date and hour, for which the following gradients are valid (each a 4 byte long integer). separated each by **only one space**, hours must be given like in station data files as 0...23 or 1...24 consistent to the station files which are used at the same time

a[1], a[2], a[3]: constants of the linear equation  $y = a + bx$  for the lower, the middle and the upper line.

igu: upper validity limit of the lower regression line

igo: upper validity limit of the middle regression line and lower validity limit of the upper regression line.

af, bf[1], bf[2] regression parameter of the areal regression of the residuals in  $z = a + bf[1] \cdot x + bf[2] \cdot y$

Note: when using the interpolation methods 10 or 11, no input file with precomputed gradients is required, since the gradients will be estimated directly in WaSiM during the model run.

Note 2: When using a smaller time step than one hour, then the hour entry may be simply used again. Running WaSiM in 10 minute time steps would mean to use any year-month-day-hour header 6 times for each hour. WaSiM will recognize the time step by a parameter provided with each sub model, so the meteorologic input data only needs to refer to the integer hour.