# ICBMbaseprograms

Olle Andrén 2013-10-18 [www.oandren.com](http://www.oandren.com), ollexxl@live.se

\*\*ICBM – the weapon of mass description\*\*

There was a need for a baseline/mother program for the *re\_clim*/ *re* calculations since there are some different versions circulating. Also for ICBM base version and as simulation (e.g., with *i* and *re* as driving variables). Therefore Thomas Kätterer and I collected mother programs for ICBM. These can be downloaded from [www.oandren.com/ICBM](http://www.oandren.com/ICBM).

There are programs in R and in SAS:

**ICBM\_function\_2.R**, Basic ICBM with constant parameters. Uses R definition of functions and plots nice

fig.

**ICBM\_mother\_sim\_func\_4.r**, ICBM as simulation with i and re different every year (or day) – reads

‘Ult1970.txt’ and uses daily re from this file, with Swedish weather and re NOTE: v.3 had serious

bugs – rerun with this one. Now with ICBMsim defined as function.

**re\_mother\_v2.sas**, the current version of calculating re from climate data, including when Et0 is not measured (Penman-Monteith). See Allen et 1998, Crop evapotranspiration - Guidelines for computing crop water requirements - FAO Irrigation and drainage paper 56. Many other options there. Reads ‘Ult30yr\_SAS\_re.txt’.

**re\_mother\_v2.R**, , the current version of calculating re from climate data. Reads ‘Ult30yr\_SAS\_re.txt’or equivalent file.

**Et0calc\_function\_Swe\_3.R**, Calculates Et0 from other meteorological variables when pan evaporation missing, according to Allen et 1998, *Crop evapotranspiration - Guidelines for computing crop water requirements - FAO Irrigation and drainage paper 56.* Many other options there, but only gives rough estimate-needs calibration against pan. Reads ‘Swedclim.csv’.

And some data files for these:

Ult30yr\_SAS\_re.txt – Weather data from 30 years in Sweden – used for calibration

Ult1970.txt – One year weather data from Sweden

Excel files:

**Excel\_Mother\_ICBM\_1.xlsx**, the current version of base ICBM for Excel. Good for exploration.

**Excel\_mother\_reclim\_5.xlsx**, the current version for calculating re\_clim/re from weather data. The Excel file for calculating re\_clim has some flaws and may be replaced soon. Use SAS or R for safer results.

**Excel\_ ICBM \_mother \_1.xlsx,** ICBM as simulation with i and re different every year (or day)