Using R for producing a monthly Agrometeorological report

R. Rea, G. Toller, E. Eccel

Unità operativa Agrometeorologia e Clima,
Istituto Agrario San Michele all'Adige, Italy.

Corresponding author address: Roberto Rea, Istituto Agrario San Michele all'Adige, Unità operativa Agrometeorologia e Clima, via Mach 1, I-38010 S.Michele all'Adige (Trento - Italy). E-mail: roberto.rea@ismaa.it

In the present work a procedure is described for publishing a monthly Agrometeorological report for the province of Trentino (Italy).

Two types of report are generated: a general report which shows the agrometeorological development of the previous month all over the province and a specific one which describes the situation at every site where a weather stations is present.

The input data for this report are collected by the Agrometeorological Observation Network of the Istituto Agrario San Michele all'Adige, which actually manages about 80 weather stations.

The data recorded by the stations are stored twice a day in a MySQL Database.

The R-procedure automatically starts when the data of the previous month are complete. The data of different variables such as air temperature, precipitation, soil temperature, day degrees, humidity and leaf wetness are extracted by using the library *RMySQL*. Daily and monthly tables reassuming the agrometeorological situation of the previous month are generated using base *R* commands and finally written in .tex format by using the library *xtable* .

Various plots that give a picture of the wheather situation in the previous month over the region and in the various stations are generated by using *base package* and the *lattice* library. Maps of mean monthly temperature and total precipitation to be included in the general report are built using *gstat* library for spatial interpolation.

The *R* procedure writes a .tex file in which all the graphics and tables are included and formatted. At the same time notes and captions are added.

Finally the .tex file is compiled by using a latex compiler and reports are generated in .pdf format. Further developments include the generation of weekly and daily reports.