EMS7/ECAM8 Abstracts,
Vol. 4, EMS2007-A-00046, 2007
7th EMS Annual Meeting / 8th ECAM

Development of a Java-based graphical user interface to control/monitor a real-time forecast and alert system

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A regional heat waves forecast and alert system has been implemented at the meteorology department of CEAM. The system is based on the Regional Atmospheric Modelling System (RAMS), which has been configured to run into an operational model that forecasts meteorological variables at a high spatial resolution over the Valencia region (western Mediterranean Area).

An operational model involves a series of processes, each of them consisting of one batch file or more, according to its level of complexity. The batch files start running in the background at specified times, executing a set of systematics steps for the operational model.

A graphical user interface (GUI) has been developed for remote control/monitoring of the process state. The use of a GUI allows user-friendliness of the software that controls the alert system, so decreasing potential errors caused by the user. This is accomplished using a Java-based GUI. The design of the interface is based on the client-server architecture, using socket connections as the communication mechanism between client and server. The server application is installed at the computer where the alert system runs, running in the background. At the same time, the client can be installed in any computer with Internet connection. When the server receives a client request it performs the requested operations and sends back the results to the client.

We have defined three types of requests. The first type corresponds to the requests that allow the user to look up the state of an individual process, showing at the client side if the process is active or not as well as how it was started for some selected cases. The second type of requests conform with those that show the step of the process when the

request was solicited. The third and last type is defined by the request that allows the restart of the system, or any individual process, by relaunching the appropriate batch file.