QUALITATIVE MODEL-BASED FAULT DETECTION IN ROME-FIUMICINO

First results have been achieved by using the qualitative model-based approach for fault detection in Rome-Fiumicino. Fig.1 shows the air outlet temperature of an AHU Cooler and it can be seen that between time step 600 and 1100 the qualitative model predicts a temperature below 16.8 °C with a high probability. However, the data points do not coincide with the forecast, but are located in a partition where the probability of presence tends to be zero.
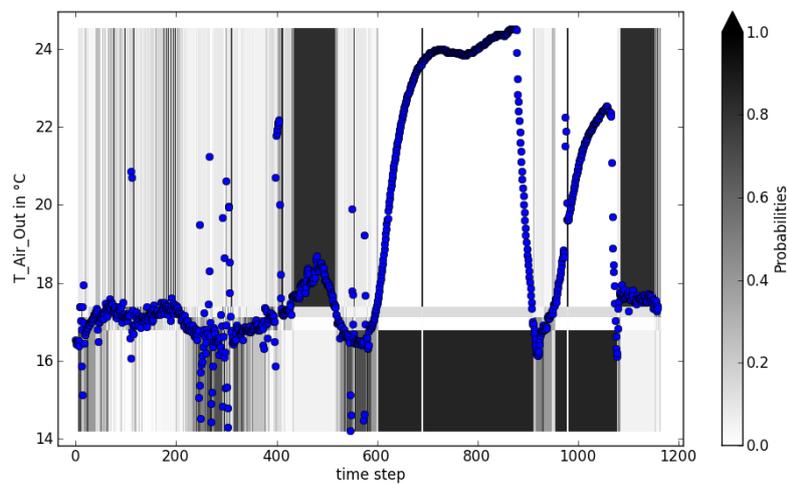

Fig. 1: Air outlet temperature of the Cooler (blue) and prediction of the qualitative model (gray scales). One time step is equal to 5 Minutes.

After the fault has been detected by the qualitative model, further manual investigations have been performed to obtain a diagnosis. In the case at hand, the faulty condition was based on a too high chilled water temperature. The water temperature rose from 8 °C to over 24 °C and as a result the cooling coil valve opened to 100%. Due to this malfunction, the air was heated by the cooler.