

## **RAINFALL PREDICTIVE MODELING TO SUPPORT AGRICULTURAL DECISION MAKING IN FUCINO HIGHLAND.**

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Pluviometric regime assessment is very important for making crop decisions, such as those regarding disease prevention and drought handling. Optimal crop management not only depends on rainfall amounts but also on the time scale of intervention which may extend well beyond short term (five days) meteorological forecasts. For example, irrigation systems, territorial planning and company investments depend on a months-to-years time frame. Moreover, even on a short time scale of five or more days, predictions may help to assess the risk of such agricultural choices, as the correct time for agricultural treatments, or transplant time of vegetables, and more in general in both territorial and business management of the agricultural productions. From a more technical viewpoint, imputation of missing values may benefit from the availability of a predictive model. In this work we consider daily rainfall time series since 1951 measured in the Fucino highland, in the Abruzzi region of Italy. We developed a generalized linear model which has been selected by means of BIC scoring. A five days aggregation (pentad) was adopted because it is a good compromise among computation, post-aggregation variability and suitability for the correlated decisional process. The posterior distribution of model parameters was approximated by MCMC sampling. Sampled parameters were then exploited to obtain one year predictions. Further output from model fitting includes seasonal components to be used in the comparison of different sites because they reveal structural features that involve medium-to-long time scales.