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Summer seasonal forecast in the Mediterranean area: a multiregressive approach.

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Seasonal forecasting represent the attempt to predict, in a statistical framework, the spatial and temporal distribution of weather anomalies a few months into the future. Even though the detailed dynamical evolution of atmospheric systems is not predictable on those time scales, some of their statistical features and behaviours can be predicted. In particular it is possible to infer on the average behaviour over a month or season, and how much the probability distribution of such averages, or anomalies, differs from the "climatology". Since late 90's seasonal forecasts experienced a growing role, despite the large uncertainties still present. Precipitation and temperature anomalies knowledge, available a few months early, could be useful for technical services and organizations on managing water resources, crop and energy. At the same time, methods and results of this recent branch of atmospheric sciences must be as simple and accessible as possible for any potential users. For this reasons, the Institute of Biometeorology developed a simple, physically-based, statistical approach to obtain monthly outlooks, regarding rainfall and temperature anomalies over the Mediterranean basin, tuned for the summer period and based on the NCEP - NCAR Reanalysis dataset. The forecasting strategy is a multi-regressive method based on physical atmospheric indices and sea surface anomalies. Using the state of the art of the atmospheric behaviour knowledge, at monthly time scale, for the Mediterranean basin, we select potential predictors among a list of monthly large scale circulation indexes (SV - NAM, Modified Zi, NAO), sea surface temperature anomalies (Atlantic Tripole, Guinea Gulf) and OLR anomalies. The selected indexes and their coefficients, in the multi - regressive model, have been chosen according to a maximization of the regression values between observed and forecasted rainfall and temperature anomalies. Therefore the "adaptation" is performed through the best choice of predictors

which provides a maximum probability of detection for the selected anomalies (Web Site: http://web.fi.ibimet.cnr.it/seasonal/). A validation strategy was developed with respect to the 1979 - 2005 period. Skill scores analysis show encouraging results of the method useful for a monthly outlook evaluation.