



## **Combining stochastic forecasts of attributes based on the Standardised Precipitation Index transformation design.**

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Forecasting is one of the most important tasks in many of the decision sciences areas. The search for an improved prediction based on several existing predictions is a natural approach in many settings. In this work one proposes a consensus forecasting method (Linear Combination Forecast Model) based on classical statistical forecast methodologies. The Holt-Winters, seasonal exponential smoothing, using multiplicative model, to smooth and forecast data which exhibit both a trend and a seasonal pattern; and the Auto Regressive Integrated Moving Average – ARIMA are weighted by their respective skill - the relative accuracy of the forecast over some reference forecast. These basic forecast methods are applied to a tool developed primarily for defining and monitoring drought, the Standardised Precipitation Index – SPI. The intend of this discussion is to propose a technique, which could serve as a versatile tool in drought monitoring, analysis and forecast. Drought has become a recurrent phenomenon in parts of the Brazilian territory in the last few decades. The country agricultural sector and water resources have been under severe constraints from the recurrent droughts. The Standardised Precipitation Index (SPI) method was widely used to detail geographical variations in the drought vulnerability based on frequency and severity of drought events at multiple time steps. One uses Holt-Winters and ARIMA to model continuous measures associated with the SPI time series behaviour to generate forecasts. The findings presented in this study show that the decision making in related climatology (as drought or flood prediction tool) is adequately acceptable.