Sessão de Pôsters 1 / Poster Session 1

Análise descritiva e exploratória e o uso de outras aplicações metodológicas

[*Descriptive and exploratory statistics and the use of other methodological applications*]

CP1 – SAS codes for quantifying influence of the El Niño/Southern oscillation phenomenon on climate variable distributions

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Abstract: El Niño/Southern oscillation (ENSO) is an oceanic/athmospheric phenomenon related to warming or cooling of the Equatorial Pacific Ocean, known to influence climate variables worldwide via teleconnections, such as rainfall, temperature or wet season timing. ENSO is measured by standardized temperature anomalies of the ocean surface, a continuous variable, usually categorized into three phases: El Niño (warm phase), Neutral or La Niña (cold phase). Here we present SAST codes for quantifying lag-relationships between ENSO predictors and monthly rainfall distributions by using a novel approach for seasonal forecasting, the proportional hazards Cox Model with continuous predictors. We developed SAST codes for: (i) fitting the Cox model and producing associated parameter estimates with respective standard errors, (ii) testing linear hypothesis on model parameters, (iii) estimating predicted probabilities od exceedance for any predictor value and (iv) plotting predictive cumulative distribution functions (CDFs) or probability of exceedance functions (PEF=1-CDF) for any particular value of ENSO derived predictors with respective confidence bands. This information is critically important seasonal forecast output, useful for planning of climate-related economic activities such as agriculture, fisheries or hydroelectric sector. As application examples, we present studies for investigating the influence of ENSO predictors on seasonal rainfall in Quixeramobim, Ceará, Brazil.