

**Title:** Extreme weather events modelling projections: a case study of indirect social impacts in Brazil

This article proposes an analysis for extreme weather occurrence forecast, considering quantitative data from modelling projections and qualitative data from local social perception. The method consist on modelling simulation made by a regional climate change projection using the Eta model, with a 20 km resolution, for the RCP4.5 and RCP8.5 scenarios. Meteorological data from 1960 to 2018 was also and meteorological were obtained from official institutes, and the meteorological forecast parameters from 2018 to 2050 were downscaled from the web platform PROJETA. Social perception was obtain by a participatory diagnosis containing dialogue meetings, questionnaire preparation, and perception surveys carried out with rural producers in the region. The study area is located in the rural area of the Chapada Diamantina region in northern Brazil. The method used in this study was based on study of two extreme weather evets in the region: fire and drought. Drought is one of the most significant hazards that farmers face in rural areas. Fire is one of the most important types of disturbance affecting forest landscape ecosystems, especially in semiarid biomes and grassland.

The results of the qualitative data indicated the fire occurrence is mainly related to climate conditions and do not consider human activities caused accidentally. The results obtained with the social perception indicated aspects related to emotional values from an integrated perspective, indicating impacts that were not considered in the modelling results, such as migration, and health changes.

We conclude that the study understands the social perception of extreme events considering more than the direct impacts. The perceptions depend on what their society has experienced. The methodology adopted in this research allowed to conduct an integrated assessment of the extreme weather impacts. Societal participation has the potential to adjust modelling for consider indirect impacts and vulnerabilities.