6th European Conference on Severe Storms (ECSS 2011), Palma de Mallorca, España

EXTREME PRECIPITATION EVENTS AND THEIR SOCIO-SPATIAL IMPACTS **ON A BRAZILIAN URBAN CENTER: CAMPINAS-SP**

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INTRODUCTION

The study investigated the impacts related to extreme precipitation from 1958 to 2007 in Campinas, São Paulo State, Brazil (FIGS. 1 and 2). The city is a high-tech center with 1,080,999 inhabitants, but contrasting to its economic vigor, 7,527 families live in 92 risk-prone areas and every year floods and other hazards impose economic losses, fatalities and suffering to the population.





FIG. 5 shows that the population augmented more gradually over the years, while the hazardous episodes increased abruptly from third to fourth decade.



Daily data from four raingauges were analyzed, being considered extreme the days in which rainfall probability was higher than 95.0%. Based on these data, a survey of the occurrences that caused problems was carried out by consulting local newspapers and the Campinas Civil Defense archives. To evaluate the social-spatial patterns of the calamitous occurrences, the information was analyzed on the basis of the income of the heads of the households.

RESULTS

During the whole period the area registered 7,221 hazardous events, but no significant change was recorded in the frequency of extreme rainfall events (FIG. 3).

FIG. 5: Population and hazardous events per decade

By FIG. 6, that shows the five most frequent impacts during the 50 years per social groupings, one can see that the recent decades have experienced an increase in the number of affected people, and that the low-income areas were more constantly affected. Notwithstanding, regardless of class, all neighborhoods were affected, showing that practically the whole population is exposed to risk, no matter of which magnitude.





By Fig. 4 one can see that both types and quantities of recorded impacts have increased steadily along the decades.



FIG. 6: Quantity of records per social-economic level

CONCLUSIONS

The situation in Campinas is similar to that of other Brazilian cities, evidencing the increase of risk to hazardous episodes triggered by extreme precipitation events. However, the disproportional increase of the consequences is associated with the vulnerability of the affected group. It is also of note that the consequences vary according to social condition and are more negatives to low-income groups.

ACKNOWLEDGMENT

This work was supported by FAPESP (Proc. 08/57002-7). Lucí H. Nunes thanks CAPES (Proc. 4474-11-2) for providing support for attending this

meeting. Results will be valuable for project FAPESP 2008/58161-1.

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