

## **Evaluation of lightning parameterization using WRF for severe weather cases on Brazil**

Lightning Occurrence Relative to Meteorology

Wendell R. G. Farias, Izabelly C. Costa, Marcos L. Rodrigues (CEMADEN/National Early Warning and Monitoring Centre for Natural Disaster, Rodovia Presidente Dutra, Km 40, SP-RJ, 12630-000, Cachoeira Paulista, SP, Brazil; wendell.farias@cemaden.gov.br).

Recently was available on Weather Research and Forecasting (WRF) model the lightning parameterization based on convective cloud-top height in order to simulate the lightning distribution. Previously, methods like this were commonly used for predicting flash rate in global chemistry models. Currently the mesoscale simulations allow implementing flash rate predictions at resolutions that partially resolve convection, this fact being possible to implement lightning parameterization in mesoscale models. In this work was evaluated the skill of parameterization in simulate Intra-Cloud (IC) and Cloud-to-Ground (CG) flash rate. The studied domain was chosen based on the covered area of Rindat and Zeus lightning networks and is limited to the Center-South of Brazil. The period of analysis was concentrated at the summer of 2012 (December, January and February). The results show the degree of representativeness between the simulated and observed fields, beyond the some statistics about the IC and CG flash rate.