RAMMER NETWORK OBSERVATIONS DURING THE SUMMER OF 2011/2012

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The RAMMER Project (Automated Multi-camera Network for Monitoring and Study of Lightning) is a network of automatically triggered high-speed cameras, designed to observe lightning flashes in the region of São José dos Campos-SP, Brazil. The cameras were assembled in weatherproof boxes with all equipment necessary to automatically trigger lightning flash events with the help of a photo sensor. Their initial set up provided high-speed videos of 2500 frames per second at 1200 x 500 pixels. They were strategically positioned to cover a total area of ~1000 km^2 and a common area of ~70 km^2. All cameras may capture flashes occurring inside the common area almost at the same time. The videos recorded simultaneously can be used for tridimensional reconstruction of the lightning channel. During the summer of 2011/2012, it was conducted the first campaign with two cameras operating continuously, and a third camera set up during some events. This first campaign was conducted in collaboration with a joint experiment with several institutions called CHUVA Project (Cloud processes of the main precipitation systems in Brazil: A contribution to cloud resolving modeling and to the Global Precipitation Measurement). Examples of analysis made with RAMMER data and other sensors installed during the CHUVA experiment will be shown. Among the examples there is an important study on the formation of bipolar flashes, a study of luminosity versus peak current, some observations of the same flash by two cameras, and the detection efficiency of the LLS (Lightning Location System) networks. As for the detection efficiency analysis, the high-speed camera data can be used as ground truth to evaluate the performance of the networks installed during the CHUVA experiment.