2nd INTERNATIONAL PRECIPITATION WORKING GROUP WORKSHOP
25-28 October 2004, Monterey, California USA

I wish to participate in the Workshop and make a presentation on the following topic:

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Title of Presentation: SOME RELATIONSHIPS BETWEEN MCS LIFE CYCLE AND OBSERVED RAINFALL OVER DEL PLATA BASIN

Please include a brief one-page abstract using the template on the following page.

Please return this registration form, together with your abstract, as soon as possible and no later than **19 July 2004**, to the conference co-organizers:

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SOME RELATIONSHIPS BETWEEN MESOSCALE CONVECTIVE SYSTEMS LIFE CYCLE AND OBSERVED RAINFALL OVER DEL PLATA BASIN

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ABSTRACT

Based on a full-resolution GOES 8 dataset and using a tracking algorithm (ForTrACC), an extensive study of the life cycle of mesoscale convective systems (MCS's) over the Del Plata basin for the SALLJEX period (December 2002, January 2003 and February 2003) was carried out to document physical characteristic of MCS's along their life cycle.
The main features of the tracking algorithm used in this paper are the following: the cloud clusters detection method based on a threshold temperature (235 K); the evaluation of morphological and radiative parameters of each MCSs detected in the previous step; the tracking technique based on overlapping areas between successive images; the life cycle building (*'families');* and the virtual image generation (for covering the lack of information) .
This methodology has been applied in a region with larger than mean raingauge density (the Iguazú basin) in order to evaluate the behavior of MCS life cycle associated to spatially extended and intense rainfall (more than 25 mm over a larger than 50000 km^2 area) .
The main results are: (1) the mean lifetime is around three times larger for rainfall-associated MCS's than that of the general MCS dataset. (2) The cooling rate during the first stages of life cycle (from 2-4 to 6-8 hours) is greater than that of the general dataset, while the minimum temperature during the first detection stage does not allow to distinguish the evolution of a given MCS. (3) Area expansion rate and cold-top growth have a similar behavior to the minimum temperature evolution, with larger variations during the period between 2-4 hours and 10-12 hours compared to those of the full dataset (4) The MCS's reach the minimum temperature 1 – 2 hours before acquiring the maximum extent.
These results are applicable to IR satellite rainfall algorithms, improving the estimation of rain rates taking into account the life cycle of each MCS.