PC (Física do Clima) / *PC (Physical Climate)*

PC_Nuvens *(PC_Clouds)*

42.1-P: Microphysical evidence of the transition between predominant convective/stratiform rainfall associated to the large-scale variability of precipitation in Southwest Amazon

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The distinction between convective and stratiform precipitation profiles around various precipitating systems existent in tropical regions is very important to the global atmospheric circulation, which is extremely sensitive to vertical latent heating distribution. In South America, the convective activity responds to the Intraseasonal Oscillation (OIS). This work analyzes data from a disdrometer, a radar profiler and a polarimetric radar, installed in the Ji-Paraná airport, RO, Brazil, for the field experiment WETAMC/LBA & TRMM/LBA, in January and February of 1999. The methodology is based on the partion of the precipitation into convective and stratiform, and the classification of hydometeors by fuzzy logic systems. The microphysical analysis of the periods with the presence or the absence of the South Atlantic Convergence Zone (ZCAS), associated to the IOS, showed a large difference in type, size and microphysical processes of hydrometeor growth in each wind regime: periods without a ZCAS presented more intense convection, leading strong processes of the precipitation growth in both convective and stratiform types; during periods with a well stabilished ZCAS, there were small precipitating systems, with a less convective feature, similary to those from monsoon regions in their ative phase.

42.2-P: Drop Size Distribution Measurements in TRMM-LBA and beyond

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This paper presents drop size distribution measurements during NASA's Tropical Rainfall Measuring Mission (TRMM) - Large Scale Biosphere-Atmosphere Experiment in Amazonia (LBA) and follow-up field campaigns conducted in Kwajalein, Florida Keys, and Wallops Island. Each site represents different climate region. The rainfall in Amazon Basin of Brazil represents tropical continent rainfall, while Wallops Island receives both widespread and convective rainfall. Kwajalein represents the tropical oceanic rainfall, while Florida Keys receives continental rainfall with oceanic background. The differences in characteristics of rainfall have a direct impact on satellite rainfall algorithms including TRMM and upcoming Global Precipitation Measurement (GPM) mission. The error characteristics of drop size distribution measurements and small-scale variability will also be discussed through a regional study.

42.3-P: Modeling of LBA/EMfiN!/SMOCC-2002 Cloud Microphysics

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A parcel model with detailed microphysics was used to simulate different cloud microphysics regimes observed during the SMOCC/EMfiN!/LBA field campaign in Amazonia. The model is set to allow up to 300 particles categories, according to the specific needs on representing CCN of different sizes (including giant and/or ultragiant particles) and chemical composition. For representing the cloud/raindrop spectrum a total of 100 bins are allowed along with a comprehensive representation of microphysical process, including nucleation, condensational growth, collision-coalescence and collisioanal and spontaneous raindrop breakup. The model was capable of simulating the behavior of clouds in a wide range of environements, from very clean to heavily polluted. Results agree with previous works, which suggest that polluted environments suppress precipitation development in the liquid phase, especially when giant CCN are not present. On the other hand, if a significant amount of giant CCN becomes available, the increase of the effective diameter with height is almost insensitive for droplet concentrations greater than 1000 cm-3 regardless the aerosol and CCN chemical composition. The parcel model results can be used to develop better parameterizations of the aerosol indirect effect in large-scale models for climate studies.

42.4-P: Classificação de Nuvens em Imagens Multiespectrais GOES-8 na Região Amazônica: Comparação com Radiossondagens

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Um método de classificação do tipo "agrupamento dinâmico" foi utilizado para identificar a cobertura em imagens GOES-8 no período setembro de 2002 na região amazônica. O método utiliza imagens multiespectrais, considerando 11 diferentes variáveis associadas a cada pixel e sua distancia euclidiana a um conjunto de centróides num espaço vetorial de 11 dimensões. Cada classe se identifica pelas coordenadas do seu centróide. O método sugere a existência de em torno de 40 combinações básicas de tipos de cobertura. Os resultados da classificação de imagens foram comparados com perfis atmosféricos obtidos a partir de radiossondagens sobre a sitio da Fazenda Nossa Senhora durante o experimento Dry-to-Wet-LBA. Foram analisados os dados nos horários 00 e 12 UTC, comparando os perfis com as classes identificadas nas imagens GOES dentro de uma área de 3x3 pixels. Considerou-se a temperatura de brilho média (canal 4) das classes (centróides) identificadas nesta área. Resultados preliminares compreendendo diversas situações (céu claro, cúmulos,