

Daily Cycles of Type and Amount of Cloud Cover Over Amazon Region Deduced From GOES-8 Imagery

Juan Carlos Ceballos, CPTEC/INPE, ceballos@cptec.inpe.br (Presenting)
Marcus Jorge Bottino, CPTEC/INPE, bottino@cptec.inpe.br

The type and amount of cloud cover over Amazon region (75W to 45W, 19S to 5N) was analyzed in different spatial scales for the period September 2002, that is, during the Dry-to-Wet AMC/LBA Campaign. Multispectral GOES-8 Imagery was classified following a clustering method developed at DSA/CPTEC, which is iterative (of the "dynamical centroids"-type), considering each pixel as an 11-dimensional vector (with components defined by brightness temperature in channels 2 to 5, and related variables as texture and difference between channels). VIS channel was not included, in order to avoid sharp discontinuities during one daily cycle. About 7 million pixels were clustered for five days, distributed in eight different times, defining 232 11-dimensional centroids. Factor analysis suggests the existence of no more than 4-6 principal modes (factors) and about 40 different groups of scenes. Resulting groups exhibit coherence with nephanalysis (visual inspection). Once defined the clustering method and typical centroids, classification of all images (eight by day) during one month allows to describe daily cover evolution for main types of cloudy (Cu, St, Ci, deep convective type) and clear-sky pixels, as well as transitions between them. Preliminary results (averaged over the region) suggest that clear-sky area varied between a minimum of 30% (at 06 GMT) and a maximum of about 45% (nearly constant between 12 and 24 GMT). Deep convection showed maximal area at 21-24 GMT, being minimal at 15 GMT. Cu cover showed influence of diurnal solar cycle, attaining up to 20% of the region at about 18 GMT.

Submetido por Juan Carlos Ceballos em 24-MAR-2004

Tema Científico do LBA: PC (Física do Clima)

Tipo de Apresentação: Poster

ID do Resumo: 458