**WCRP Conference for
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Biosphere/Atmosphere Interactions and the Improvement of
Climate Monitoring and Prediction in LAC

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Climate Monitoring and Prediction in South America requires special attention to some aspects of modeling that are particularly relevant to regional climate. An important process for improving the quality of climate modeling in South American is the land/atmosphere interaction through the biosphere.   The partition of energy between sensible and latent heat still varies a lot among models and the ability to reproduce observations (quite limited in terms of the coverage of the various ecosystems) is a major challenge. Recent climate model results also tend to indicate that the dynamic treatment of the biosphere system feeds back in the climate. Special attention should also be given to the possible climate changes that are likely to occur due to the intensification of the natural greenhouse effect associated with anthropic actions, including land use change. In this context, carbon dioxide has become the focus of numerous studies, but there many questions about the carbon balance are still unanswered. One of them is the contribution of the Amazon region, since the Amazon rainforest stores large amounts of carbon in its biomass. The concern has gained attention over the past decades due to anthropogenic land use changes and large emissions of pollutant gases and aerosol particles. Role of aerosols (biogenic and pollution) also exert a significant impact in cloud microphysics and in the radiative transfer.   The complexities associated with the role of biosphere/atmosphere interaction in South America poses an additional problem: data assimilation of land data. This is an important issue for climate monitoring in South America because of the need for long term measurements of vegetation properties, gases and aerosols from the point of view of local measurements and remote sensing.   This presentation indicates that it is important to develop integrated environmental models for the scientific community dedicated to climate modeling in South America, requiring multidisciplinary teams with a strong observational component in order to validate model results.