

MONSOON EXPERIMENT IN SOUTH AMERICA (MESA)-SYNERGY WITH CEOP-CIMS

Jose A. Marengo
Member of MESA-SSC
CPTEC/INPE
Sao Paulo, Brazil

MESA is an internationally coordinated, joint CLIVAR – GEWEX program, and is part of the VAMOS (Variability of American Monsoon Systems) linked to CLIVAR and dedicated to the study and understanding of the South American Monsoon System SAMS. The other component of VAMOS is the NAME (North American Monsoon Experiment), dedicated to the North American Monsoon Systems NAMS.

MESA is aimed to provide: (a) a better understanding of the South American monsoon system and its variability; (b) a better understanding of the role of that system in the global water cycle; (c) improved observational data sets, and (d) improved simulation and prediction of the monsoon and regional water resources.

The science objectives of MESA are directed towards a better understanding and improved simulation of: (a) Diurnal cycle and seasonal evolution of the SAMS, (b) 3-dimensional description of the low-circulation east of the Andes; (c) Mesoscale convective processes; (d) Role of aerosols from biomass burning in SAMS, (e) Dynamics of the South American see-saw pattern between SALLJ and SACZ; (f) ITCZ-SACZ interaction; (g) Influence of MJO on SAMS; (h) Relative roles of internal vs. forced low-frequency variability; (i) Land surface forcing – Impacts of land use change; (j) Role of remote and local SST – South Atlantic; (k) Global response to SAMS forcing; and (l) Sources and limits of predictability on SAMS region. On modeling we expect to improve simulations in the (a) the seasonal cycle of SAMS; (b) Diurnal Cycle of circulation and precipitation; (c) Monsoon onset; (d) Mean and variability of the SACZ. Synergies and collaboration are expected with CEOP-CIMS, especially on the issues of role of aerosols on the functioning of the hydrological cycle in the SAMS region.