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Title: Ocean- Atmosphere- Land Interaction Over the East Asian Monsoon Area and Its Impacts on Climate in China

Abstract: A Key Research Project "Ocean- Atmosphere- Land Interaction Over the East Asian Monsoon Area and Its Impacts on Climate in China" funded by the Chinese Academy of Sciences under the Innovation Program was initiated in 2002. Scientists from different institutes, universities and the Chinese Meteorological Administration joined the research. Its general goal is to reveal the interactive physical processes among different climate sub-systems over the East Asia Monsoon Area (EAMA) and their roles in the seasonal and interannual climate variability in China. This project composes four sub projects: air- sea interaction, air- land interaction, land- sea interaction and coupled model development and simulation. During the past two years, preliminary results have been obtained and are summarized in this presentation. It is shown that the Indian Ocean Dipole is closely related to the ENSO events; a new mechanism is proposed to explain the annulus mode and the Arctic Oscillation; a quadruplet diabatic heating pattern is shown fundamental in the formation of the summertime subtropical circulations; a mechanism linking the tropospheric biannual oscillations (TBO) to the summer rainfall in the Changjiang- Huaihe River basin is constructed; and new evidences of the influence of vegetation coverage on the summer rainfall in different areas over China are found.

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