Japan Geoscience Union Meeting 2014
(28 April - 02 May 2014 at Pacifico YOKOHAMA, Kanagawa, Japan)

PEM06-05 Room:312 Time:April 30 12:15-12:30

Vertical and horizontal coupling processes in the equatorial atmosphere

YAMANAKA, Manabu D.[1*]

[1]JAMSTEC/Kobe U

Future targets of the equatorial atmosphere dynamics are discussed from viewpoints of recent progress of the lower-atmospheric parts including increase of climatological interests and rapid developments of tropical countries. From recognition of the importance of land-sea heat contrast on Earth we must consider again two types of diurnal cycles: sea-land breeze circulations and atmospheric tides, which have local and global phase structures, respectively. We must consider also two types of Earth rotation effects: solar radiation heating and Coriolis force, which are stronger and weaker, respectively, in the equatorial region. Furthermore, in the lower atmosphere, clouds govern winds in the equatorial region, in contrast to opposite relationship in middle and high latitudes. Because the equatorial convective clouds are dependent not only on dynamical and thermal instabilities but also by water and electrical budgets, we need to study again dynamical-chemical and atmosphere-ionosphere couplings.

Keywords: atmosphere vertical coupling, atmosphere observation network