

Tropospheric ozone increases over Thailand in the late dry season and early wet season

Kazuyuki Kita[1]; Shin-Ya Ogino[2]; Taikan Oki[3]; Nobuo Sugimoto[4]; Atsushi Shimizu[5]; Kazuyuki Kita Science Team of 2003 Atmospheric Observation in Thailand[6]

[1] Ibaraki Univ.; [2] Graduate School of Science and Technology, Kobe Univ.; [3] RIHN; [4] Ntl. Inst. Environ. Studies; [5] NIES; [6] -

Intensive ozonesonde observation was carried out at Sri Samrong (17N, 99E), Thailand, between March and June, 2003, to investigate the influence of active biomass burning in Southeast Asia during this period. Observed ozone mixing ratios generally exceeded 60 ppbv and sometimes exceeded 90 ppbv throughout the troposphere, and were higher than those in Malaysia and Indonesia. There was a stable inversion layer at an altitude around 4 km over Thailand during the observation period. Water vapor and aerosol were concentrated below this layer, indicating that ozone precursors emitted from biomass burning and industrial activities were upwardly transported up to this layer. However, ozone mixing ratios did not show significant variation around this layer. Meteorological analyses combined with analyses of aerosol characteristics indicated that biomass burning in Southeast Asia was not only dominant ozone source, but the pollutant from South Asia and the transport from the middle latitude also contributed to the high ozone concentrations, even below the inversion layer. Above this layer, transport from the middle latitude was rather significant factor affecting ozone concentration over Thailand.