

## A multi-instrument measurement of a mesospheric front-like structure at the equator

# Kazuo Shiokawa[1]; Shin Suzuki[1]; Yuichi Otsuka[1]; Tadahiko Ogawa[1]; Takuji Nakamura[2]

[1] STELAB, Nagoya Univ.; [2] RISH, Kyoto Univ.

<http://stdb2.stelab.nagoya-u.ac.jp/member/shiokawa/index.html>

We have made a comprehensive measurement of a front-like structure in the mesosphere at the equator at Kototabang, Indonesia (0.2S, 100.3E), using an airglow imager, an airglow temperature photometer, a meteor radar, and the SABER instrument on board the TIMED satellite. The event was detected in airglow images of both OH-band (peak emission altitude: 87 km) and 557.7-nm (96 km) emissions, as east-west front-like structure propagating northward with a velocity of 52-58 m/s. Wave trains with a horizontal wavelength of 30-70 km are observed after the passage of the front. The airglow intensity decreases for all the mesospheric emissions of OI (557.7 nm), OH-band, O2-band (altitude: 94 km), and Na (589.3 nm) (90 km) after the front passage. The rotational temperatures of both OH-band and O2-band also decrease  $\sim 10$  K. An intense shear in northward wind velocity of 80m/s was observed at altitudes of 84-90 km by the meteor radar. Kinetic temperature profile at altitudes of 20-120 km was observed near Kototabang by TIMED/SABER. On the basis of these observations, we discuss generation and ducting of the observed front-like structure in the context of mesospheric bore phenomenon.