Observation of upper stratospheric ozone by two sets of vertically separated balloon-borne optical ozone sensors

Masahiro Okabayashi [1], Isao Murata [2], Hiroshi Fukunishi [3]

[1] Graduate School of Science, Tohoku University, [2] Astronomy and Geophysics, Tohoku Univ., [3] Department of Geophysics, Tohoku Univ.

http://pat.geophys.tohoku.ac.jp/

Upper stratospheric ozone have been observed mainly by remote sensing techniques. We developed Balloon-borne Optical Sensor (BOS) on board a thin-film high-altitude balloon for in-situ measurement of upper stratospheric ozone. The observation altitude range and resolution of BOS are 20 - 42 km and 1 km, respectively. No other methods can derive ozone vertical distribution in the upper stratosphere with such high resolution. The distinct feature obtained from BOS observations is a wavelike structure of ozone vertical distribution in the altitude range of 30 - 40 km. To investigate the cause of this wavelike structure, We launched two sets of BOSs with 100 m separation in vertical at Sanriku on September 4, 1998 using a high-altitude balloon.