

Chinese Satellite Programmes

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1. TOU and SBUS on the FY-3 Satellite

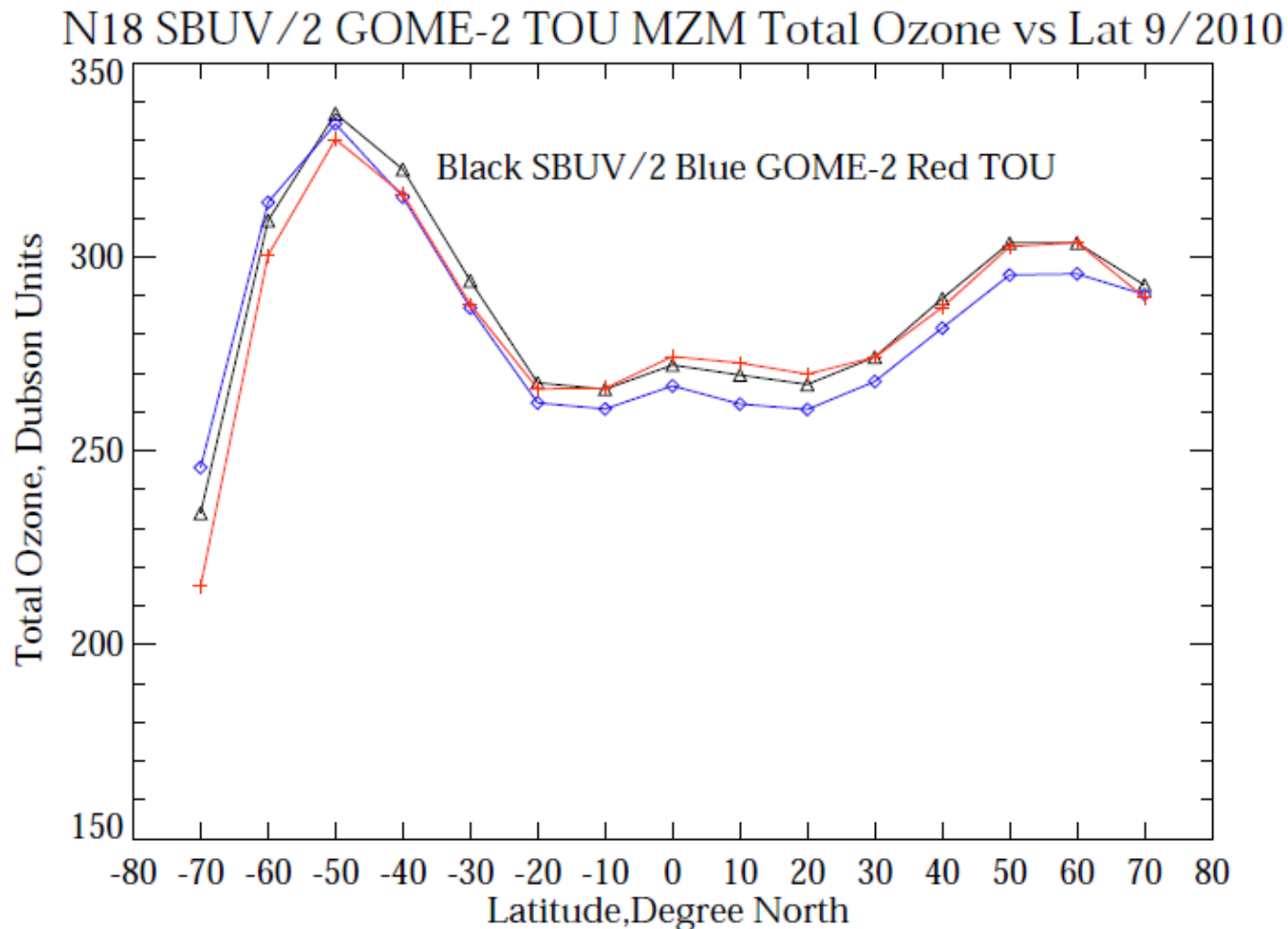


TOU and SBUS on the FY-3 satellite

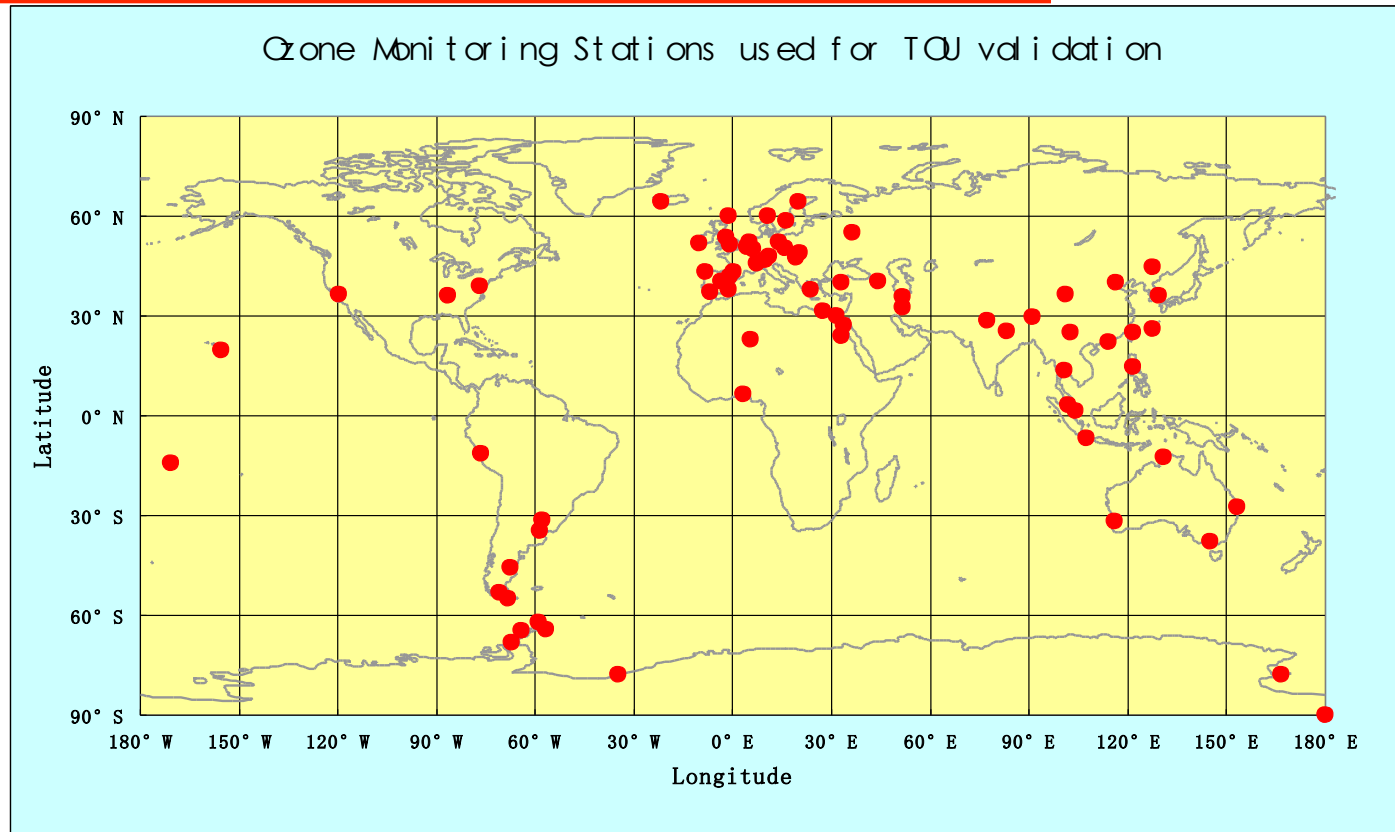
- ❑ TOU(Total Ozone Unit) has 6 channels. The main purpose of TOU is to map the total column ozone in the Earth's atmosphere.**
- ❑ SBUS(Solar Backscatter Ultraviolet Sounder) has 12 channels. It is used to detect ozone vertical profiles from the global atmosphere.**
- ❑ The FY-3A,B and C were launched in 2008, 2010 and 2013 respectively. For the present, 3 TOU and 2 SBUS are in operation.**

2.Data Validation and Evaluation

(1) Comparisons of N18 SBUV/2, GOME-2 and TOU monthly zonal mean of total ozone



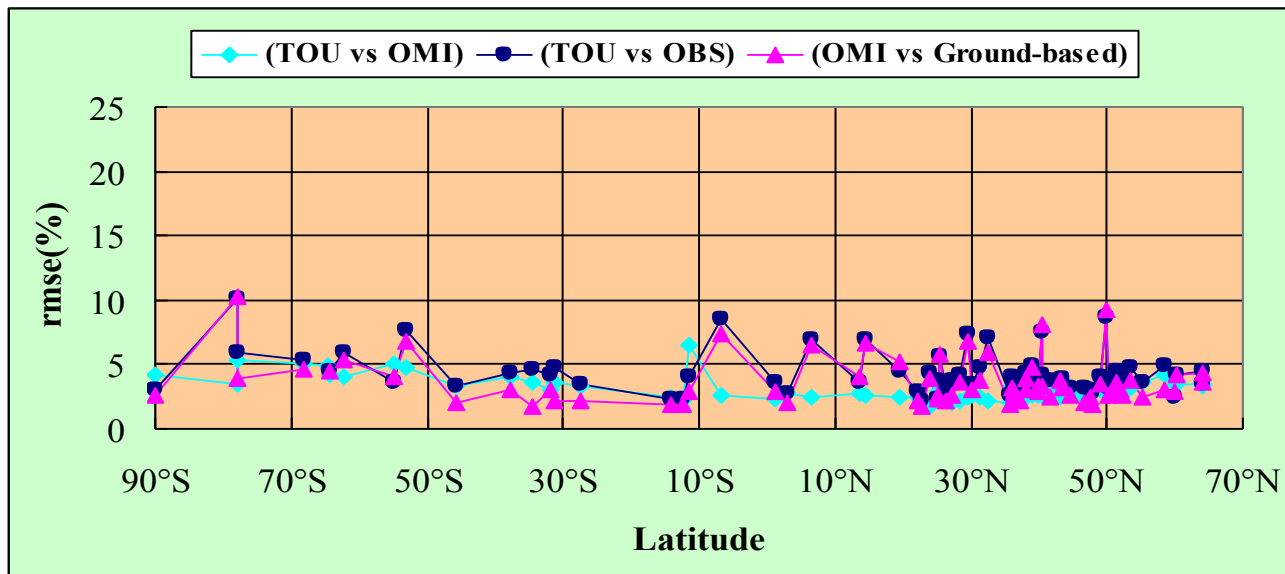
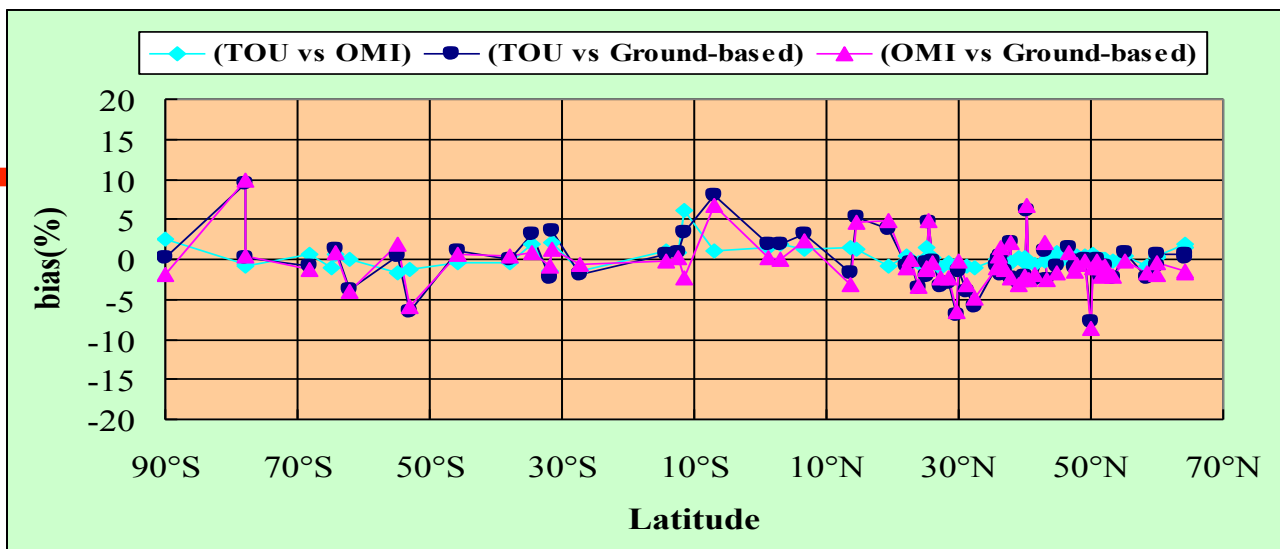
Comparisons of FY-3A TOU with ground-based total ozone measurements



During Jul2008-Aug2009

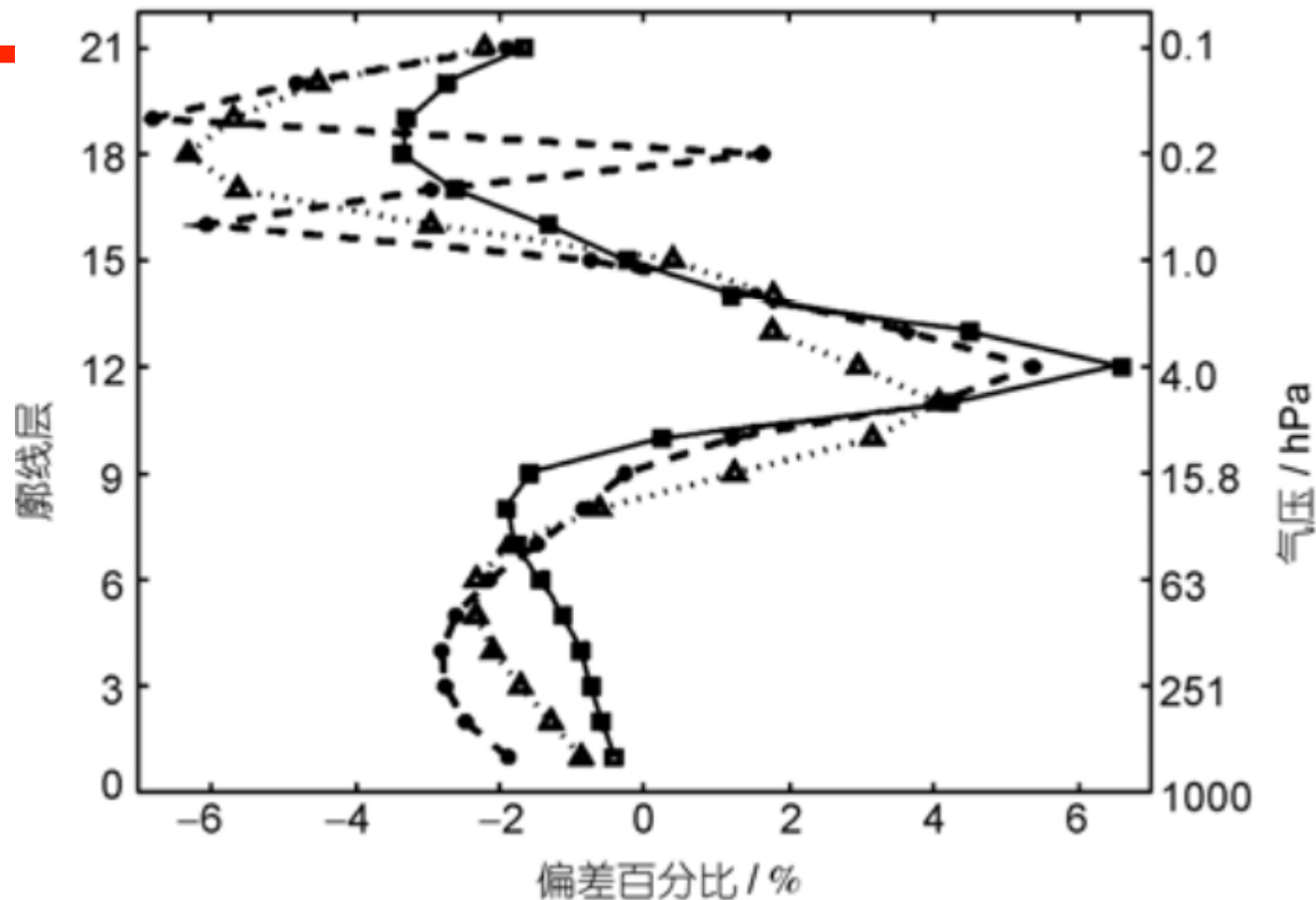
Instruments: Brewer, Dobson, Multi-band and Microtops

Some results of total ozone comparison



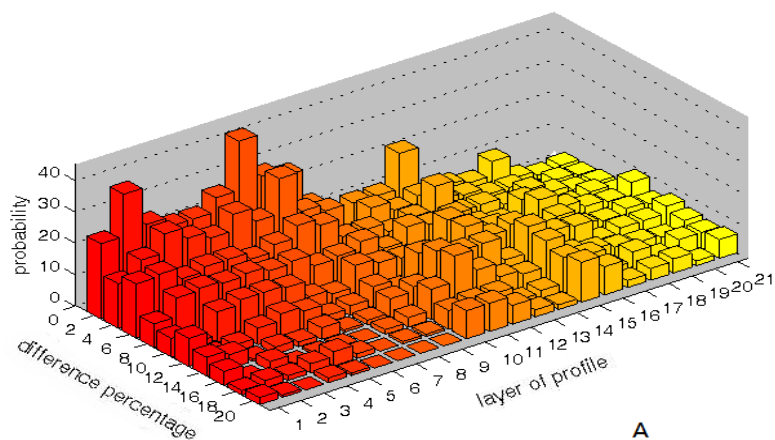
Comparison of FY-3 TOU total ozone with that of OMI and ground-based observations

(2) Comparison result of FY-3B SBUS and NOAA SBUV/2 ozone profiles

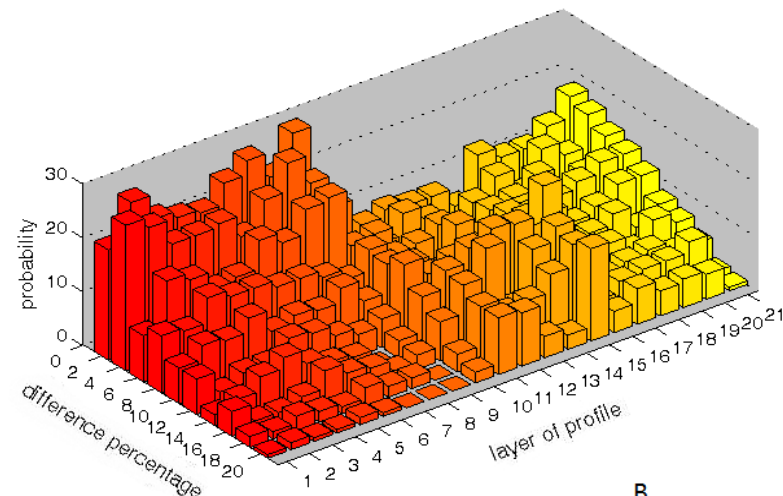


During Jul 2008- Nov 2008
FY-3A SBUS vs NOAA-16,17 and 18 SBUV/2

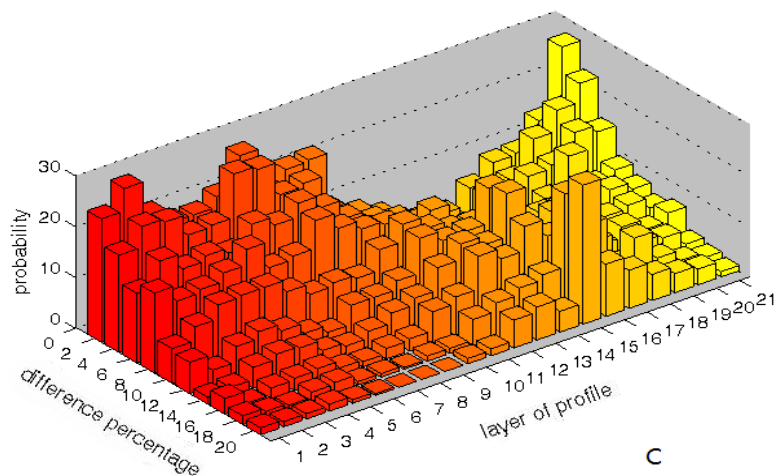
Histogram of layer difference percentage for profiles from FY-3B SUBS with NOAA SBUV/2



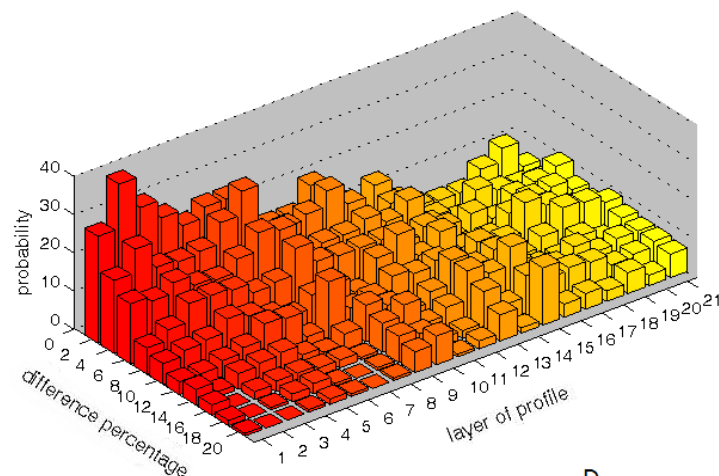
A



B



C

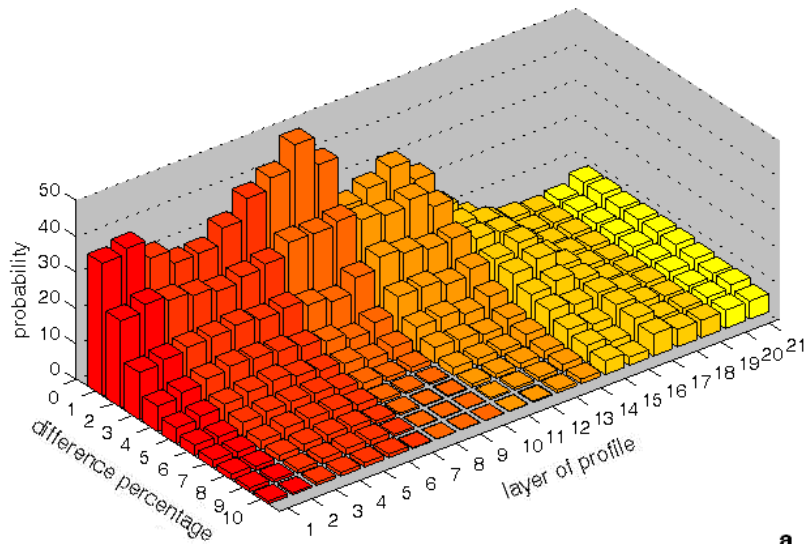


D

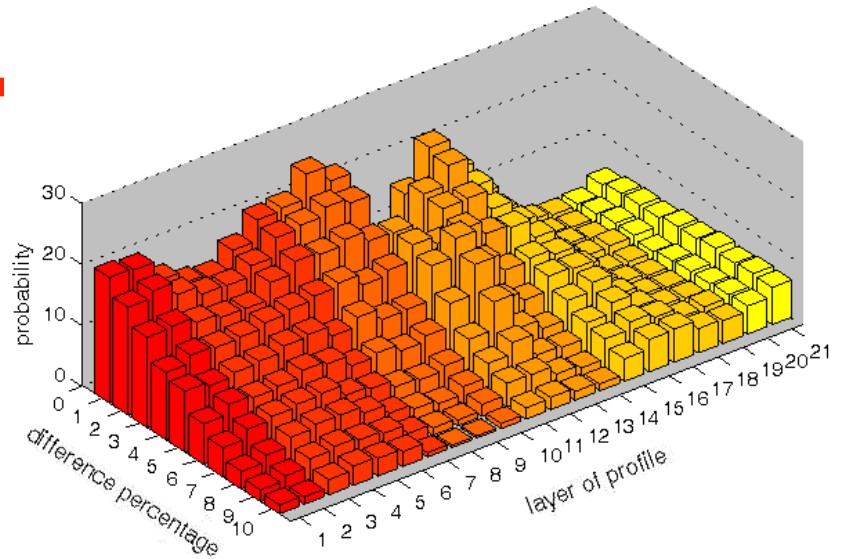
During Jan 2011- Dec 2011.

A: FY3-N16, B: FY3-N17, C: FY3-N18, D: FY3-N19

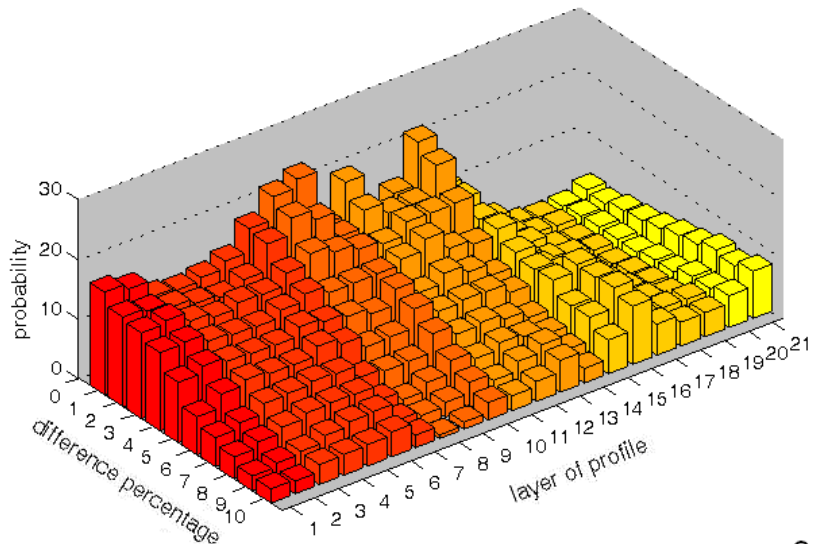
Histogram of layer difference percentage for profiles from NOAA-16,17,18 and 19 SBUV/2



a



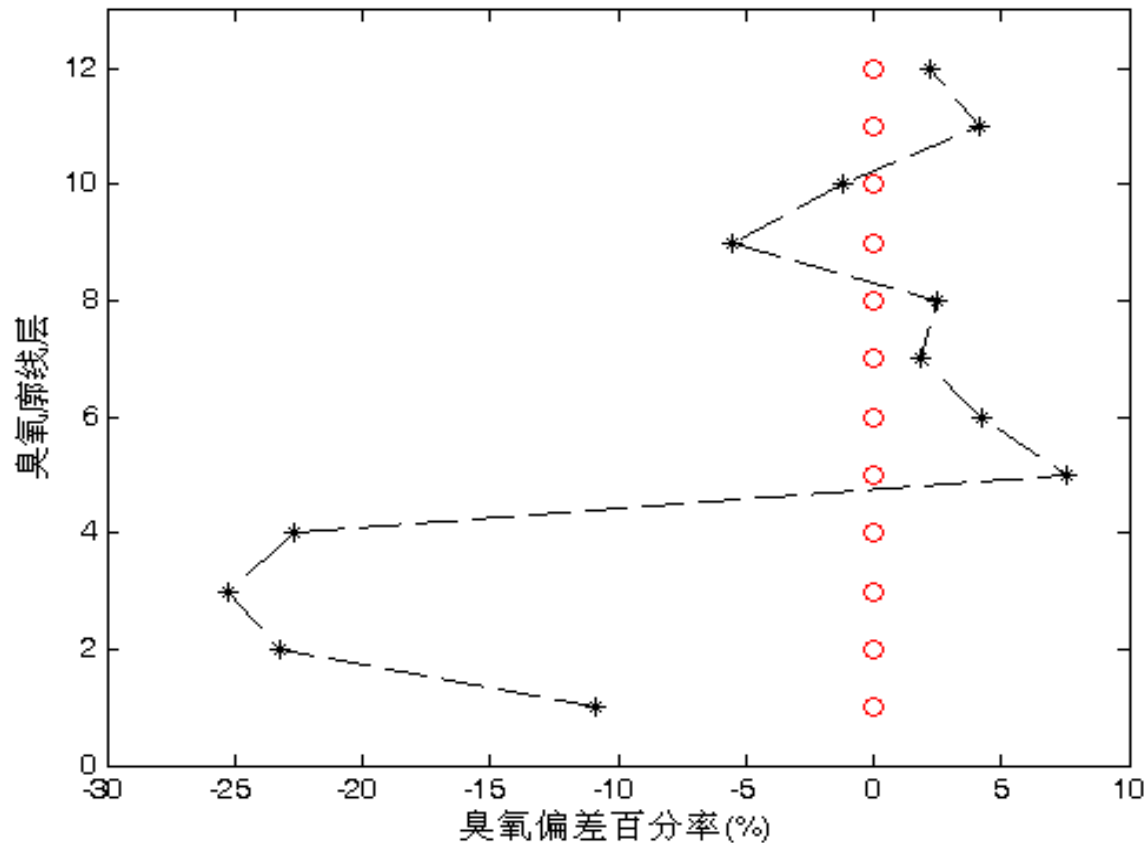
b



c

During Jan 2011- Dec 2011.
A: N16-17, B: N16-18, C: N16-19

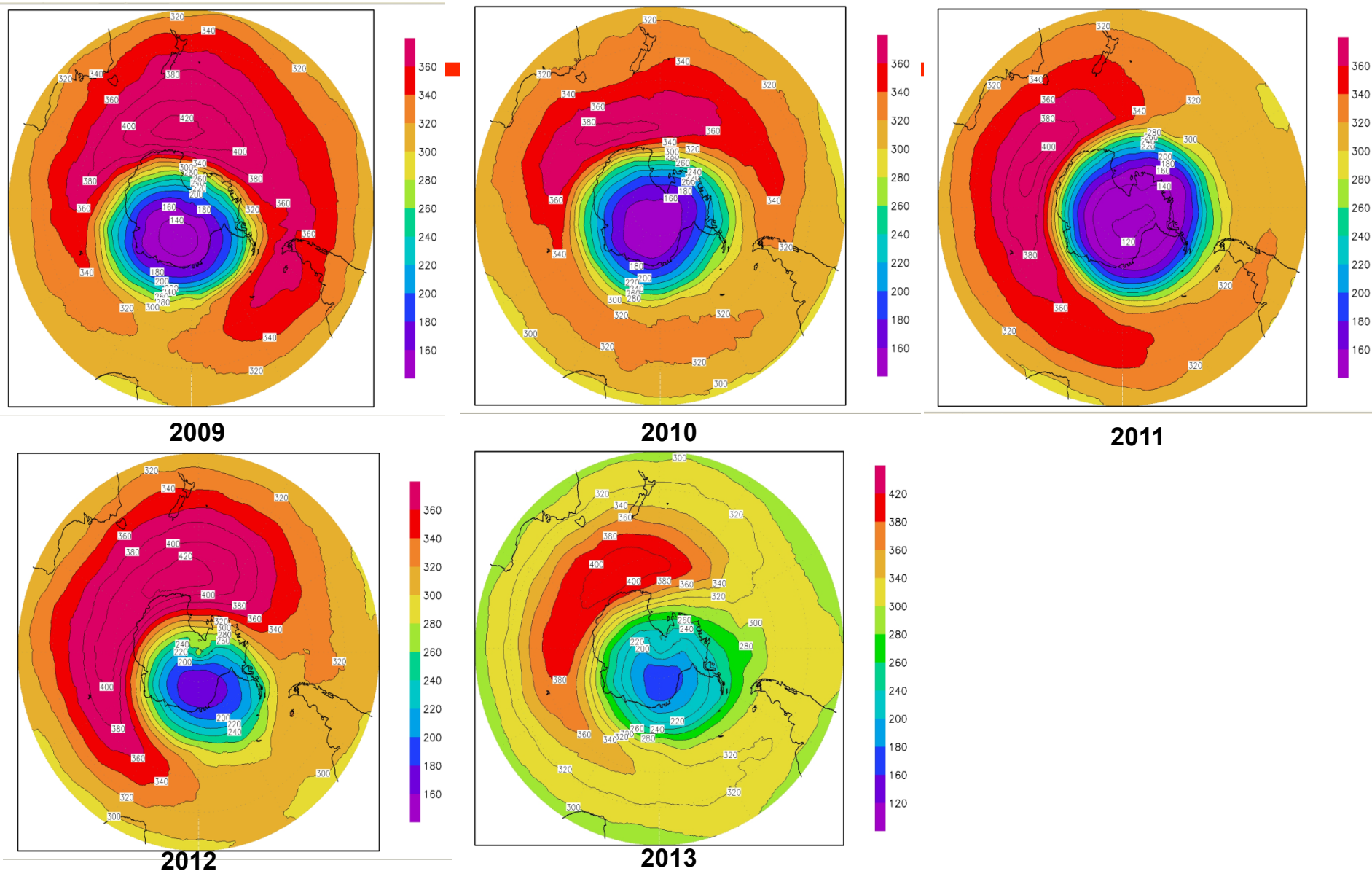
Comparison of FY-3B SBUS with ozone sonde profiles



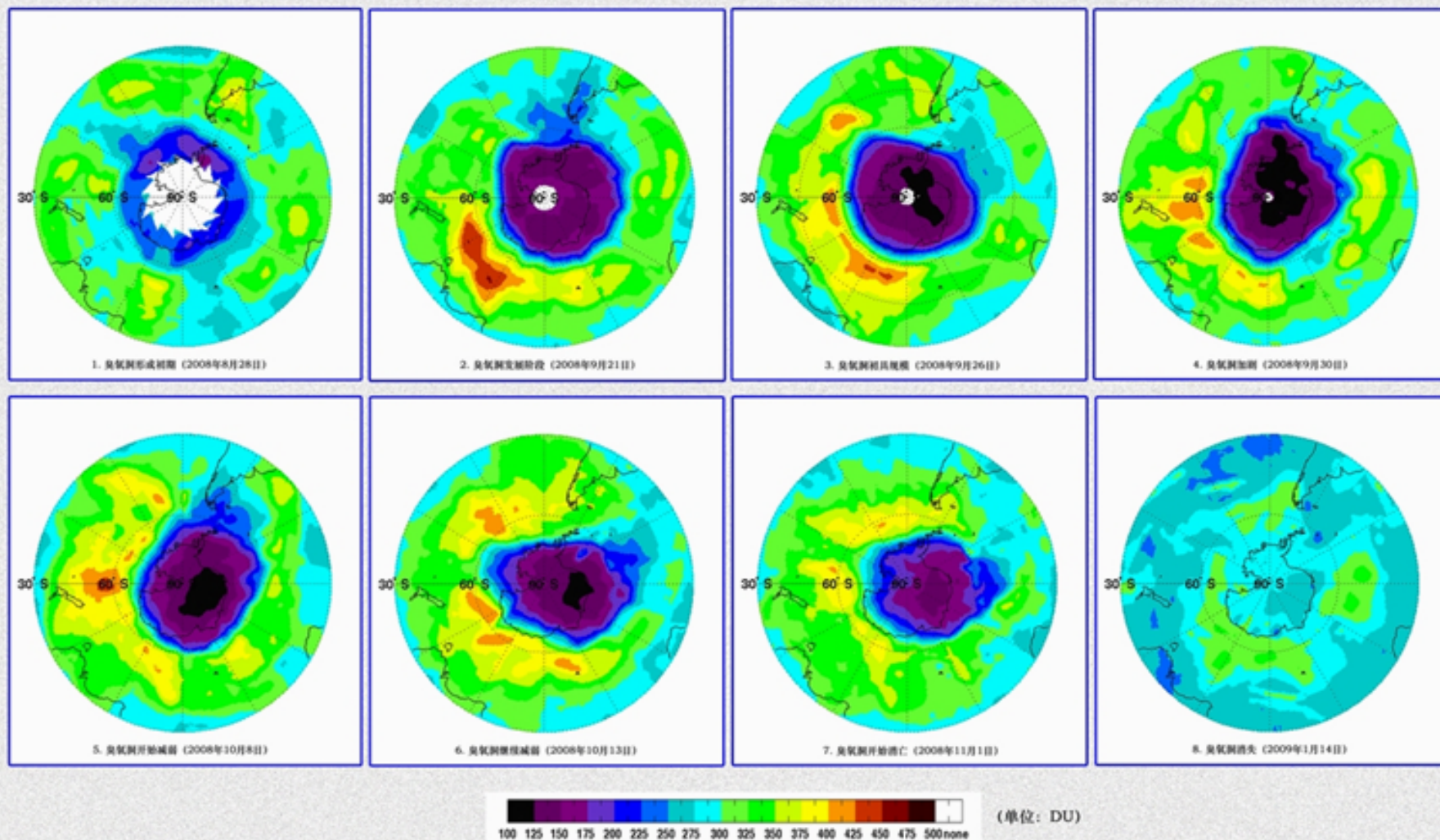
During Dec2010-Mar2011
FY-3B SBUS with ozonesode profiles

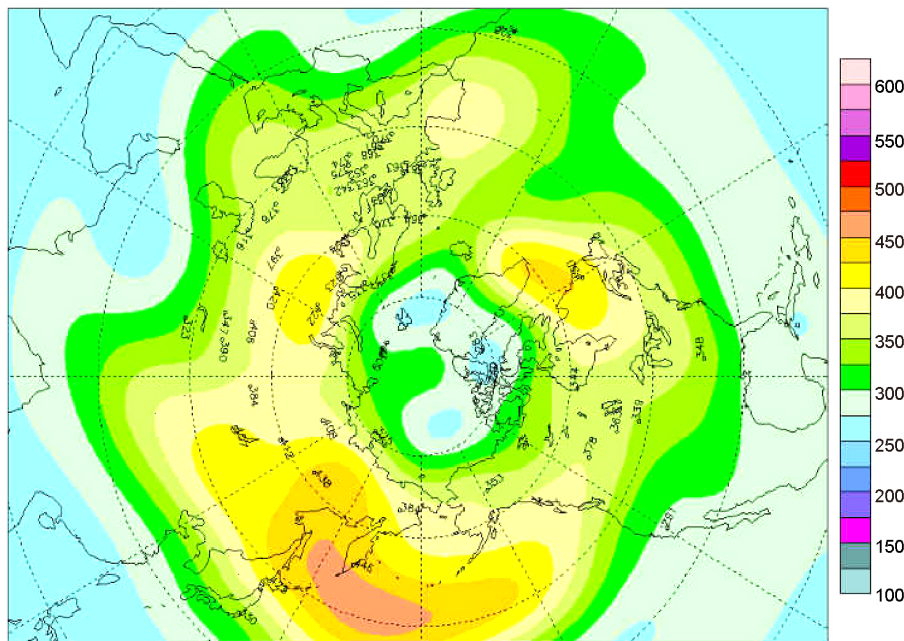
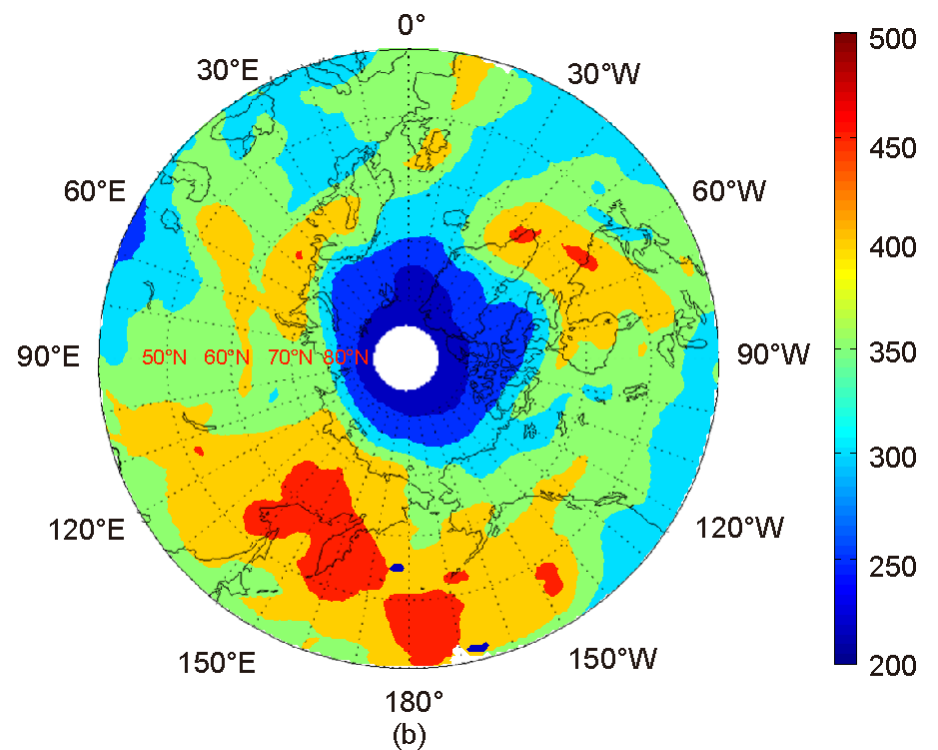
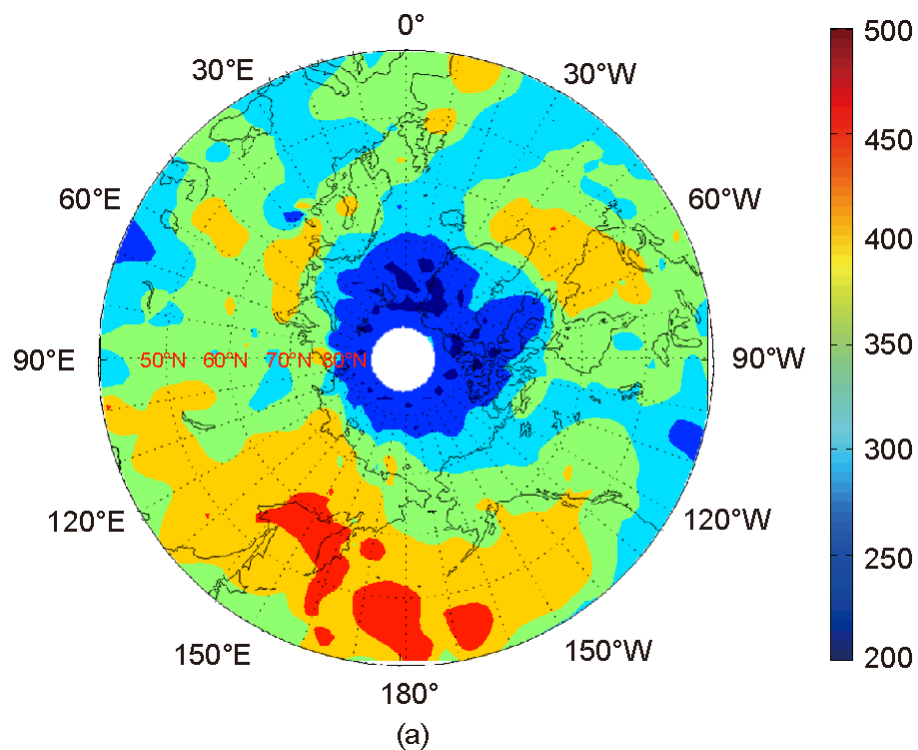
3. Data Applications

2009-2013 Antarctic Ozone depletion monitoring with the FY-3 TOU



Monitoring the process of Antarctic 2008 ozone depletion with the FY-3A TOU data

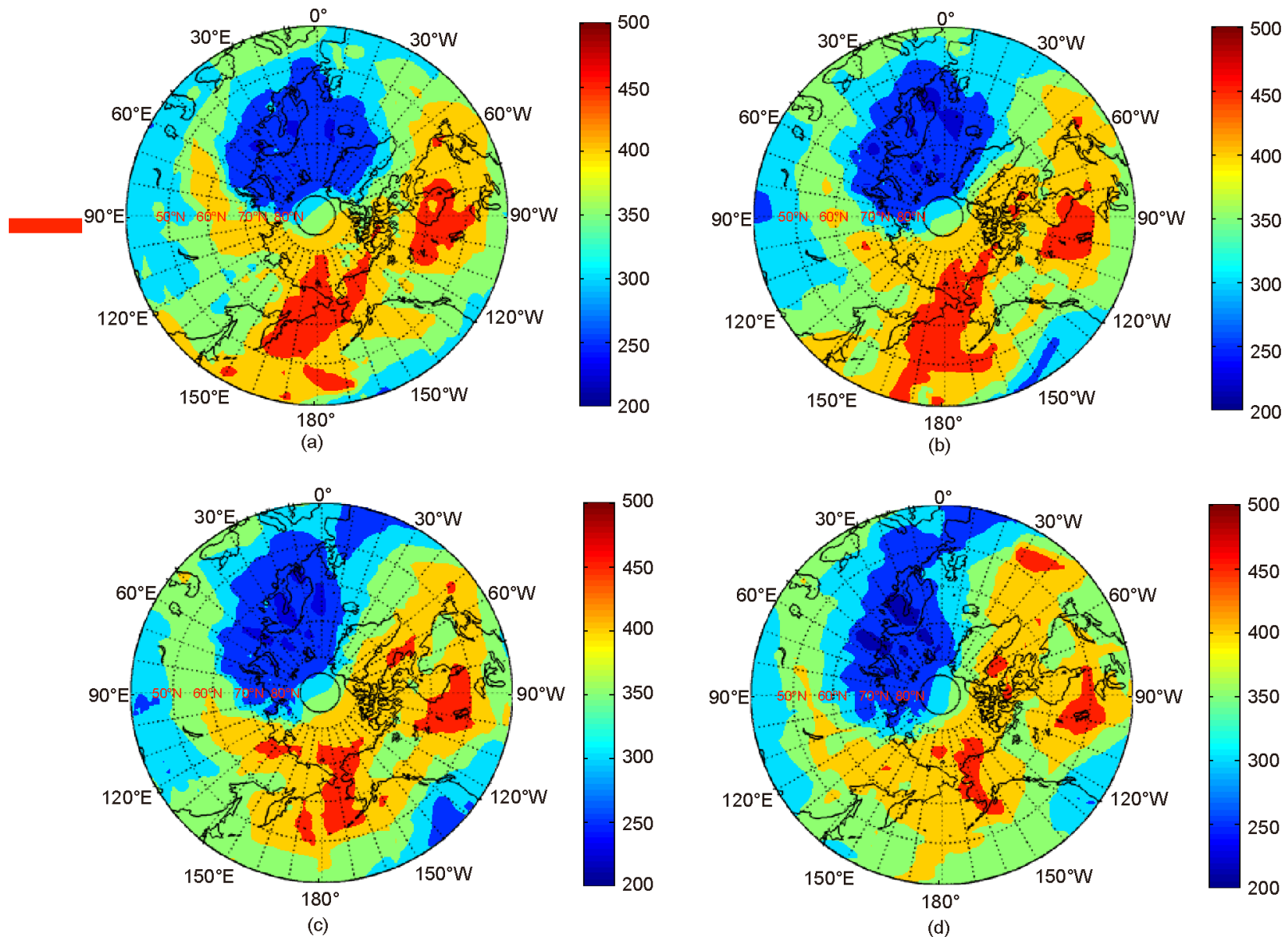




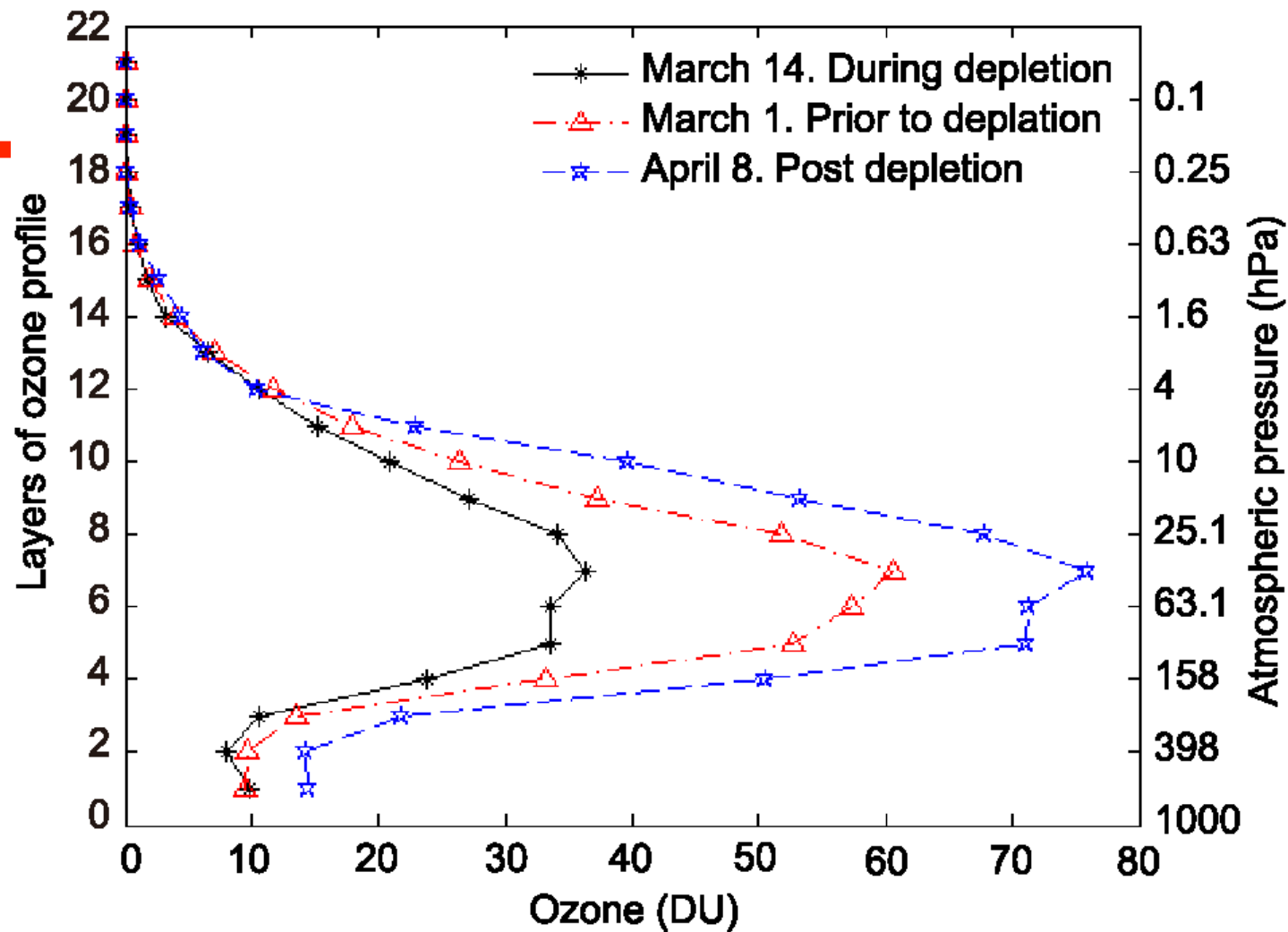
Comparison of total ozone Mar 14, 2011 from different measurements.

(a) combined with FY-3 SBUS and NOAA SBUV/2, (b) FY-3 TOU, and (c) ground-based observations.

From Liu and Huang et al., 2011

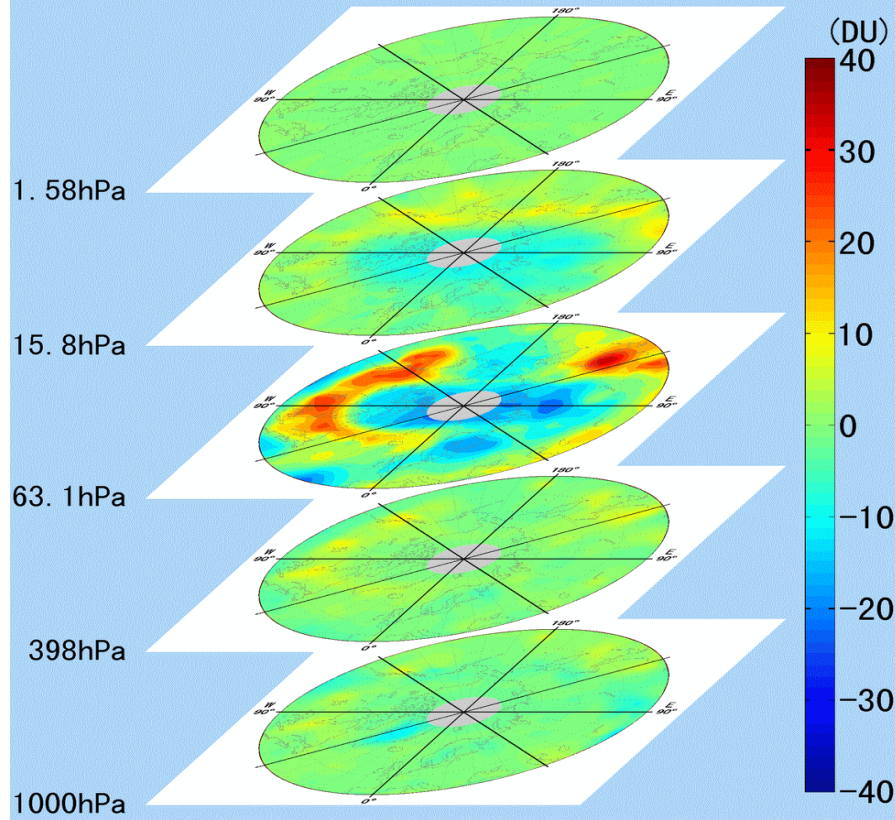


Monitoring the process of ozone depletion 28-31 Mar, 2011 using data of FY-3 SBUS combined with NOAA SBUV/2. *From Liu and Huang et al., 2011*

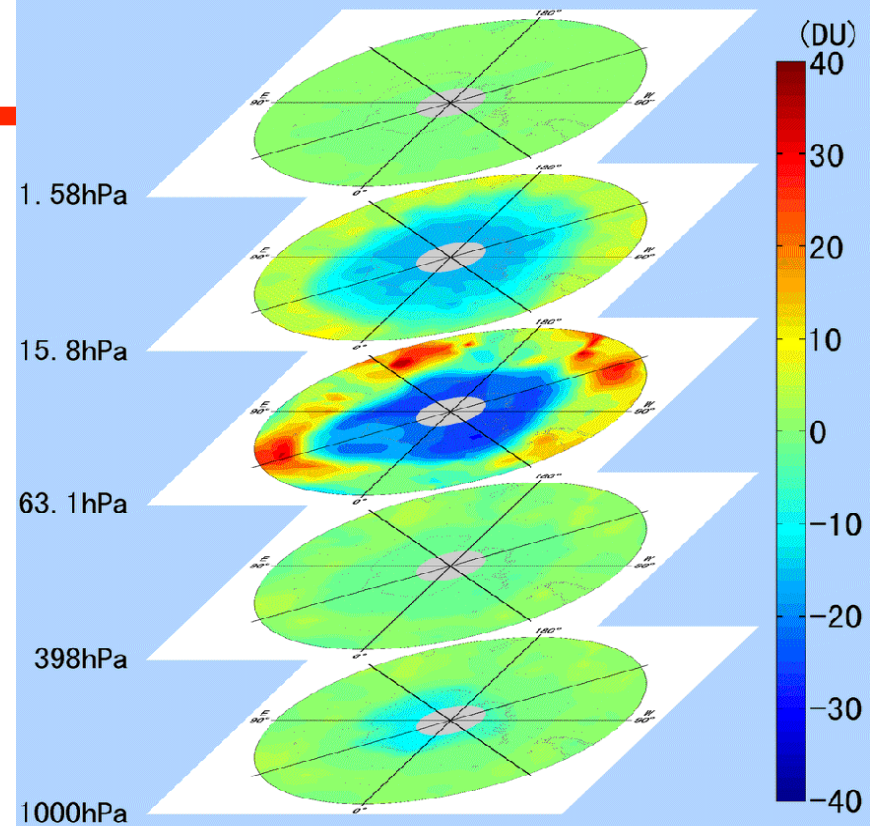


Comparison of ozone profiles prior to, during and post ozone depletion at same location near the north pole. *From Liu and Huang et al., 2011*

北极臭氧损耗立体结构
(2011年03月01日)



南极臭氧损耗立体结构
(2011年09月05日)



Comparison of 2011 ozone depletion processes in the Arctic and Antarctic.

4. The Future Programme

- China plans to develop new generation ozone monitoring instruments in 2017 or 2018.**
- Before that, the TOU and SBUS will provide operational measurements.**

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- The new generation ozone monitoring instrument will combine observations of total ozone, linear CCD nadir profile measurements and limb profile observing.**

Thank You!