



Ozonesonde observations in March-April 2006 during the Sodankylä Total Ozone Intercomparison and Validation Campaign (SAUNA)

R. Kivi (1), P. Heikkinen (1), E. Kyrö (1), B. Bojkov (2) and E. Brinksma (3)

(1) FMI Arctic Research Center, Tähteläntie 62, FIN-99600 Sodankylä, Finland, (rigel.kivi@fmi.fi), (2) NASA Goddard Space Flight Center, Code 613.3, Greenbelt, MD 20771, United States, (3) KNMI, PO Box 201, NL-3730 AE De Bilt, Netherlands

Ozonesondes have been used during many polar ozone research campaigns and there are several long-term ozonesonde programs in the polar region. The recent Sodankylä Total Ozone Intercomparison and Validation Campaign (SAUNA) in March -April 2006 provided an excellent opportunity to assess the accuracy of the currently used ozonesonde systems. During the campaign in total 33 ozonesondes were flown in the time period of March 22- April 14, 2006, 28 of them using the EN-SCI model z ozonesondes and the DigiCora-3 system with RS92-SGP radiosondes by Vaisala. Dual sonde flights involved also the SPC model 6a ozonesondes and RS80 based telemetry system. The sondes reached the average altitude of 7 hPa, which allows reliable total column estimation. The total ozone from sondes is compared to the total ozone measurements based on five Brewer spectrophotometers operated in Sodankylä during the campaign and OMI instrument on board AURA satellite. In addition profile comparison with ozone LIDAR and space born profiling instruments is provided, and results from 2 dual sonde flights. In both dual sonde payloads an EN-SCI ozonesonde was flown using 0.5 % KI sensing solution and a SPC ozonesonde using 1% KI solution showing agreement within 2 % in the stratosphere. During the campaign period the use of 0.5 % KI sensing solution for EN-SCI sondes led to relatively small differences (in average -0.8 +/- 1.5 %) compared to the best total ozone estimate from 5 Brewer instruments. Similar difference using the OMI measurements was 1.0 +/- 2.0 %. The campaign period was characterized by large amount of short-term ozone variability (lowest ozone column 416 DU, highest 501 DU during the ozonesonde ascents, average total ozone 459 +/- 24 DU) and strong horizontal gradients in ozone, which are

likely to explain part of the scatter in the comparison data, especially during the first half of the campaign.