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Validation of the SMILES Level 2 version 2.1 ozone data by using ozonesonde measurements

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Superconducting Submillimeter-Wave Limb-Emission Sounder (SMILES) onboard International Space Station has provided global measurements of ozone (O3) profiles in the middle atmosphere from 12 October 2009 to 21 April 2010. We present validation studies of the SMILES version 2.1 ozone product in the altitude range from 16 km to 30 km using ozonesonde measurements.

A total of 225 ozonesonde profiles from 33 ozonesonde stations worldwide are compared with a total of 471 coincident SMILES ozone profiles. The agreement between the SMILES and the ozonesonde measurements is within 5% and better at higher latitudes in the altitude range from 26 km to 30 km.

Keywords: International Space Station, Kibo, SMILES, O3, ozone