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Preliminary results from SPIRALE balloon-borne in situ stratospheric measurements during 2009 polar summer

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The SPIRALE (french acronym for infrared absorption spectroscopy by tunable laser diodes) balloon-borne instrument has been launched twice within 17 days in the polar region (Kiruna, Sweden, 67.9°N – 21.1°E) during summer, at the beginning and at the end of august 2009. In situ measurements of the trace gases O3, CH4, CO, OCS, N2O, HNO3, NO2 and HCl have been performed between 10 and 34 km height, with very high vertical resolution (∼5 m). The stratospheric profiles of these species present specific structures associated with tropical intrusion in the low levels. The both flight results are compared between each other in order to evaluate the impact of the turn-around occurring during this season on the chemical composition of the stratosphere. Their interpretation is made with the help of results from several modelling tools and available satellite data.
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