



Comparison of orbital and ground based spectroscopic measurements of CO and CH₄ total content in background and industrial regions

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The results of ground-based regular spectroscopic measurements of CO and CH₄ total content (TC) in Moscow, Zvenigorod (53 km to the West from the Moscow), ZOTTO station (Central Siberia) and Beijing (China) during 2010-2013 years for typical and anomalous emission rates are presented and compared with satellite TC data (the latest versions of MOPITT, AIRS, IASI products). Using simplest dispersion and trajectory models locations of transported main pollution air masses were calculated. This approach allowed to obtain empiric coefficients of correlation between ground-based and satellite CO and CH₄ TC data. The comparison has demonstrated a good agreement of satellite and ground-based data in low pollution conditions and systematic underestimation of satellite CO TC (130-200 %) in condition of intense surface emissions. MOPITT v05, v06 data (TIR, Joint) have demonstrated the better sensitivity in ABL than previous v04 and AIRS and IASI CO TC products.