Tropospheric methane in the West Siberia derived from AIRS/Aqua

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Abstract

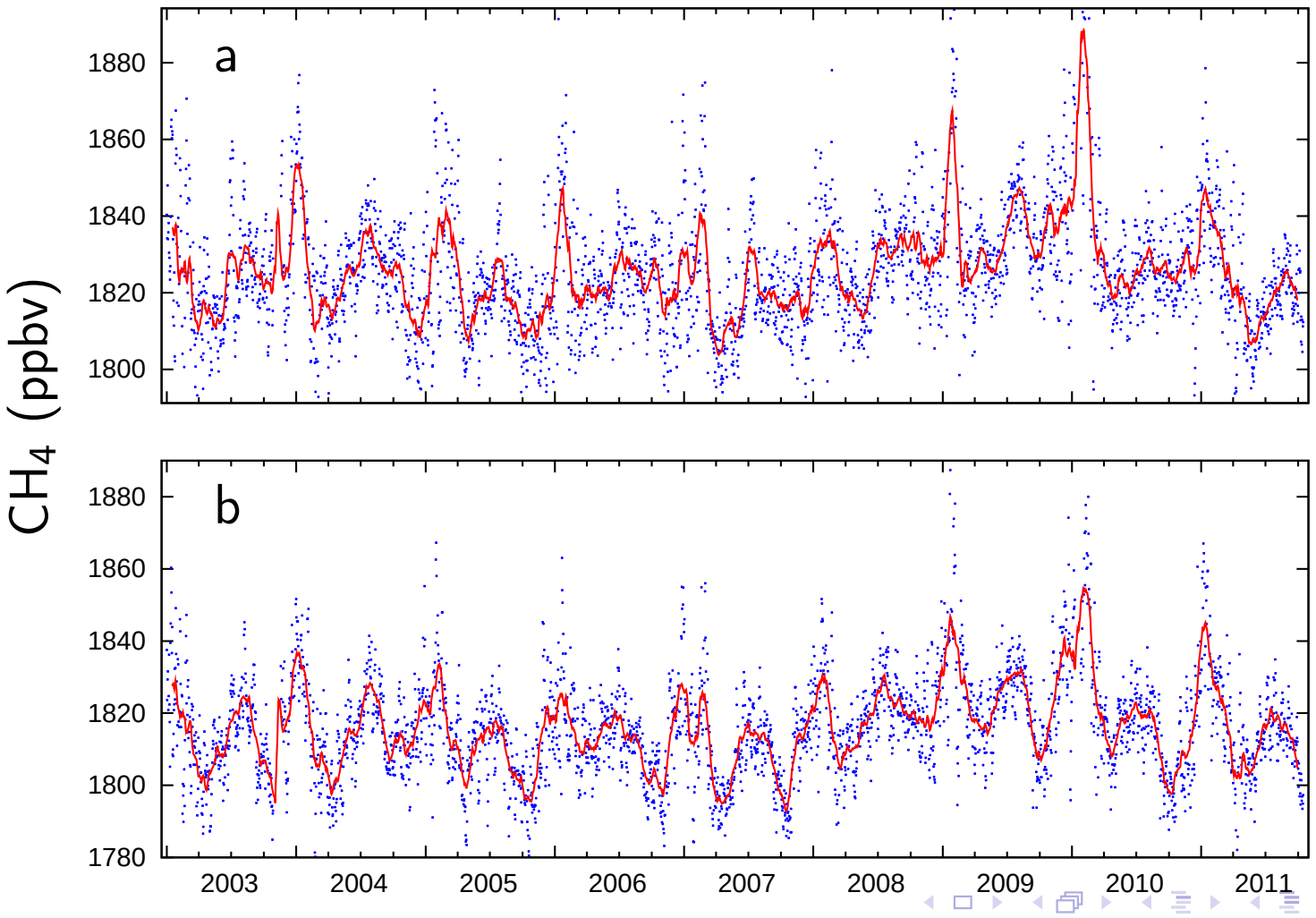
The results of retrieval of the methane mixing ratios in the troposphere of the West Siberia by the AIRS/Aqua sounding suite are presented. We've found that each yearly cycle belonging to the 2003—2011 period studied the methane contents has not only the winter (January to February) maximum usual for the background territories, but also a summer (July to August) peak.

AIRS, method measurement and zones

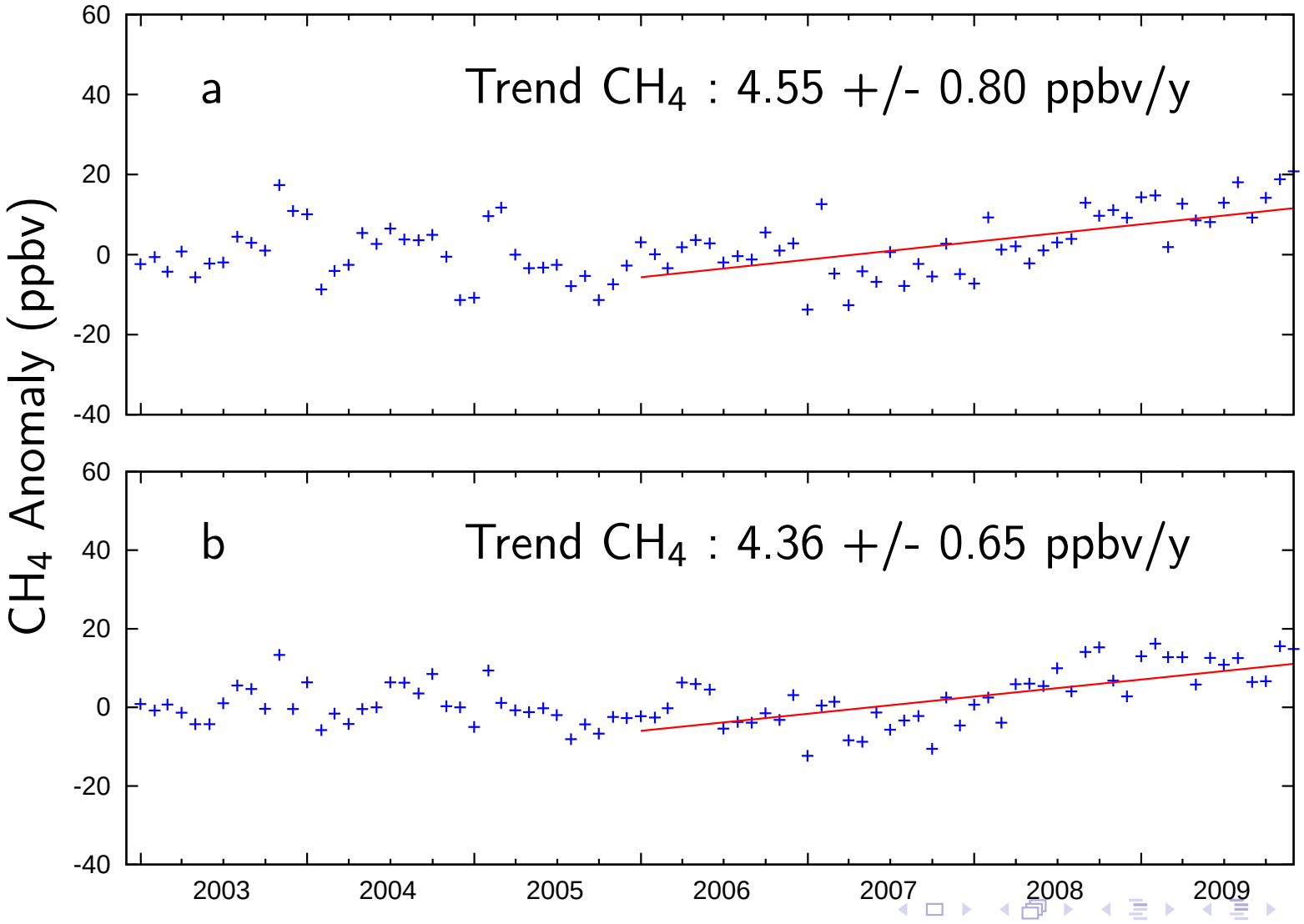
- AIRS (Atmospheric InfraRed Sounder);
- maximum sensivity layer — mid-upper troposphere;
- zone a — 55°–65° N, 60°–90° E (contains bogs);
- zone b — 45°–55° N, 60°–90° E.

Seasonal variation of CH_4 in mid-upper troposphere over West Sibiria.

Border from zones: a — (55°–65°) N, (60°–90°) E, b — (45°–55°) N, (60°–90°) E



CH_4 anomaly from zones 1 (a) and 2 (b), and trend in 2006–2009 years.



Seasonal variation of CH_4 in region ground station Karasevoe (58°14′ N, 82°24′ E.).

Curves — CH_4 in ground layer (Sasakawa M. et al. // Tellus., 2010), dots and red line — AIRS data in troposphere for region ($3^\circ \times 3^\circ$) with center in Karasevoe.