Figure 2. The average footprint sensitivity calculated from WRF-STILT is shown for all receptor points modelled within the profiles included in the analysis (2012–2014).
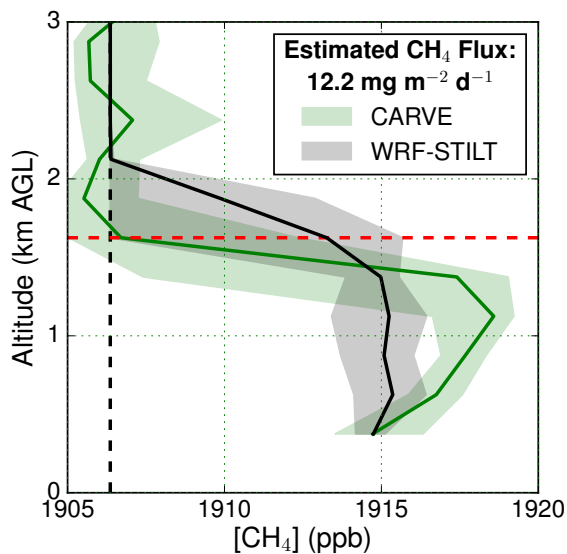

Figure 3. A sample profile from 3 Sep 2014 at 65°N, 148.6°W. Shaded regions denote the minimum/maximum of the ranges and the solid line is the median. The dashed red line represents h, and the dashed black line is $[CH_4]_0$.
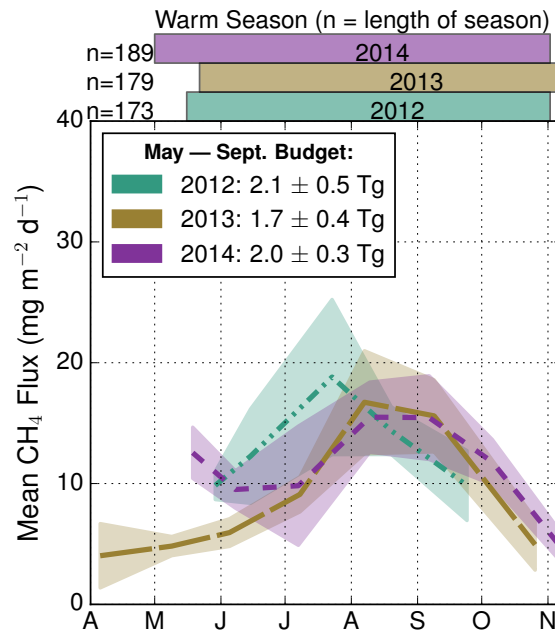
Figure 4. Monthly mean CH$_4$ flux estimates. Values are centered on the mean measurement date for a given month and the shaded regions are the standard error of the mean. The bar plot above the graph marks the days when average soil temperatures from NARR were above zero, with the total number of unthawed days given by n.
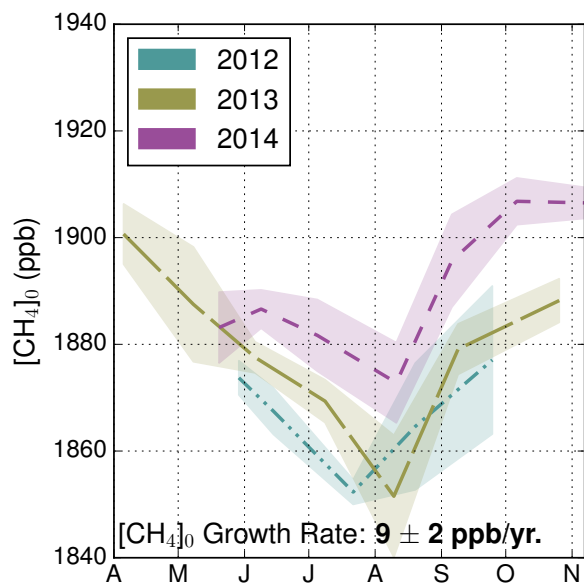
Figure 5. The mean tropospheric $[CH_4]_0$ estimated from profiles (shaded areas indicate 1σ). Values are centered on the mean measurement date.
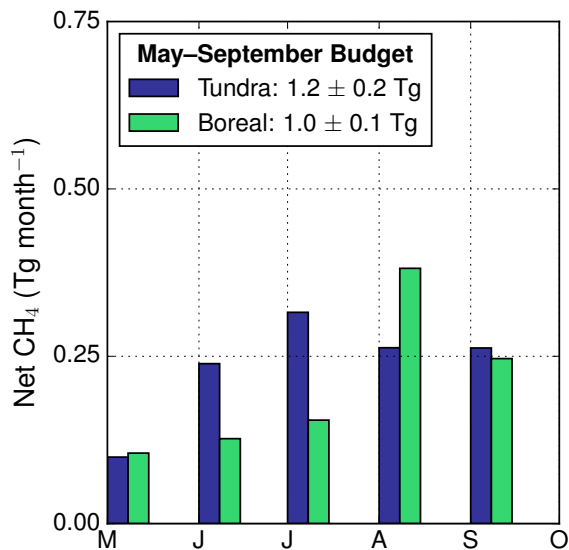

Figure 6. Estimated CH_4 emissions from tundra and boreal eco-regions averaged over all years.
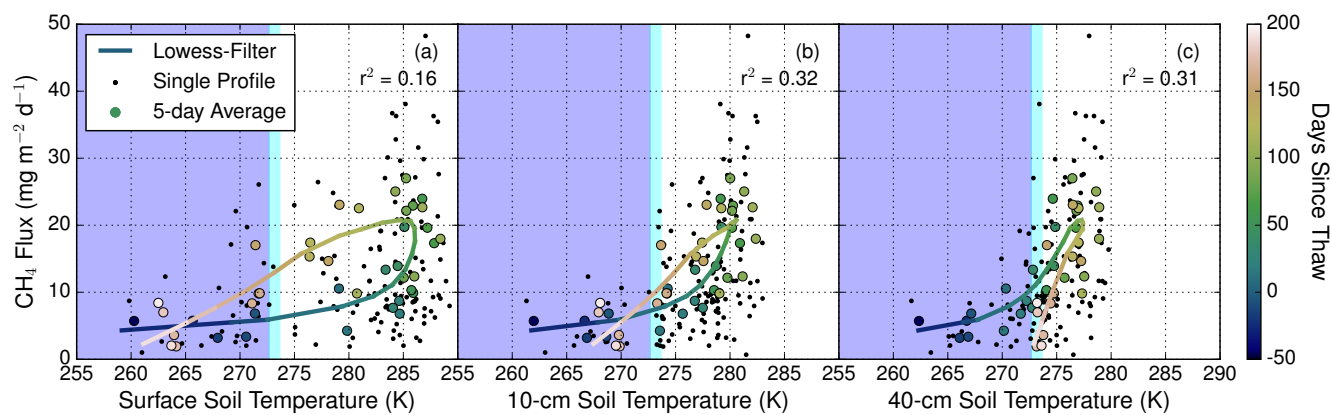
Figure 7. (a – c) CH_4 flux estimates from atmospheric profiles are shown versus footprint-weighted mean soil temperatures at different depths. The shaded background denotes when the soil temperature was at (cyan) or below (blue) the fusion point of water.