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Reduction of airmass-dependent biases in TCCON XCH_4 retrievals during polar vortex conditions

Jonas Hachmeister et al.

Correspondence to: Jonas Hachmeister (jonas_h@iup.physik.uni-bremen.de)

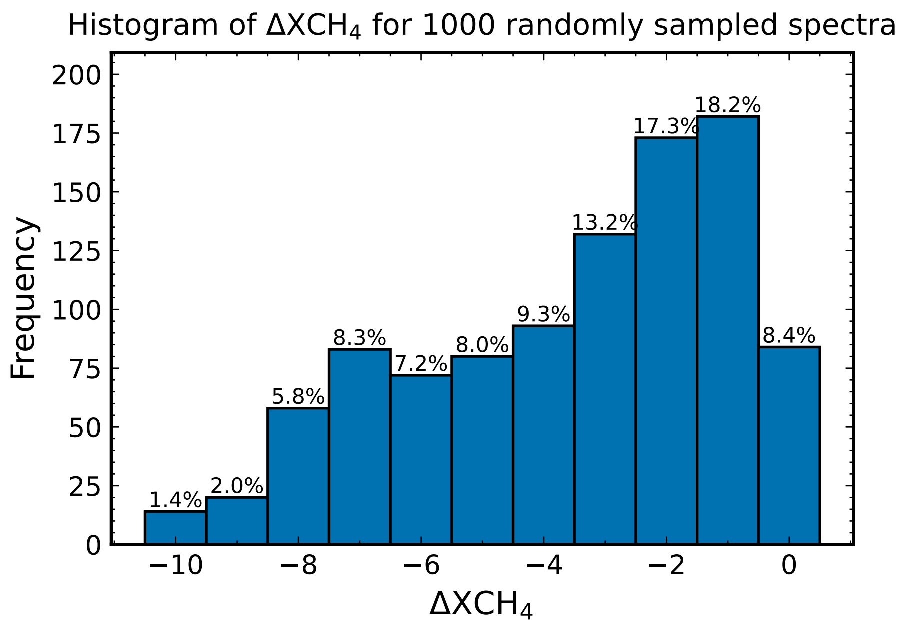

Figure S1: Histogram showing the influence of the averaging kernel on XCH_4 when using a fixed profile shape and different averaging kernels. Averaging kernels compared are from the standard retrieval and the retrieval with the modified dynamic prior. See Fig. 19 and Fig. 20, and Equation (3).

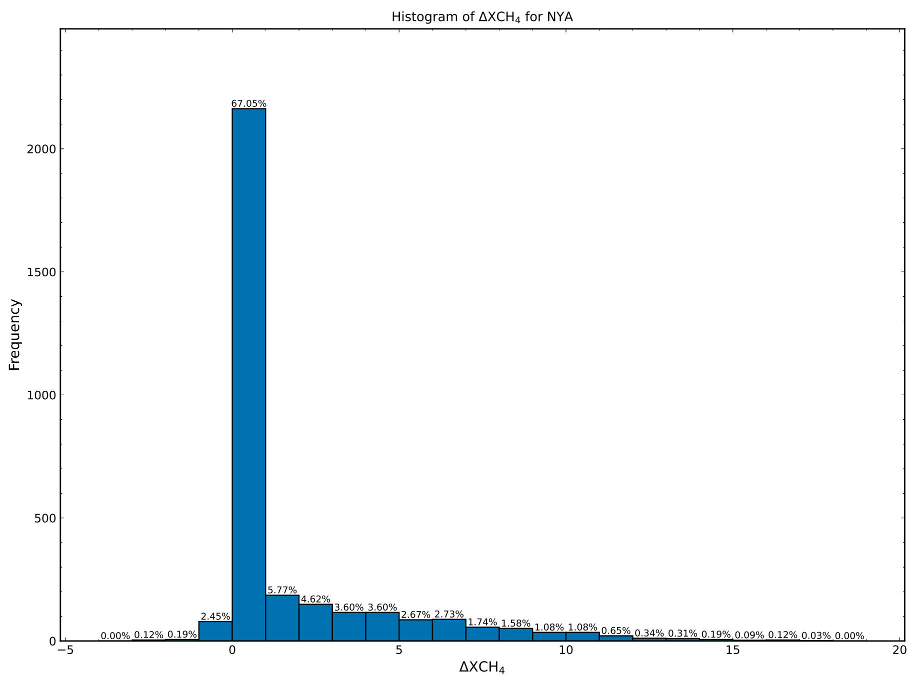

Figure S2: Histogram showing change in XCH_4 between the TCCON retrieval using the standard prior and the modified dynamic prior for the NYA site. See Fig. 22.

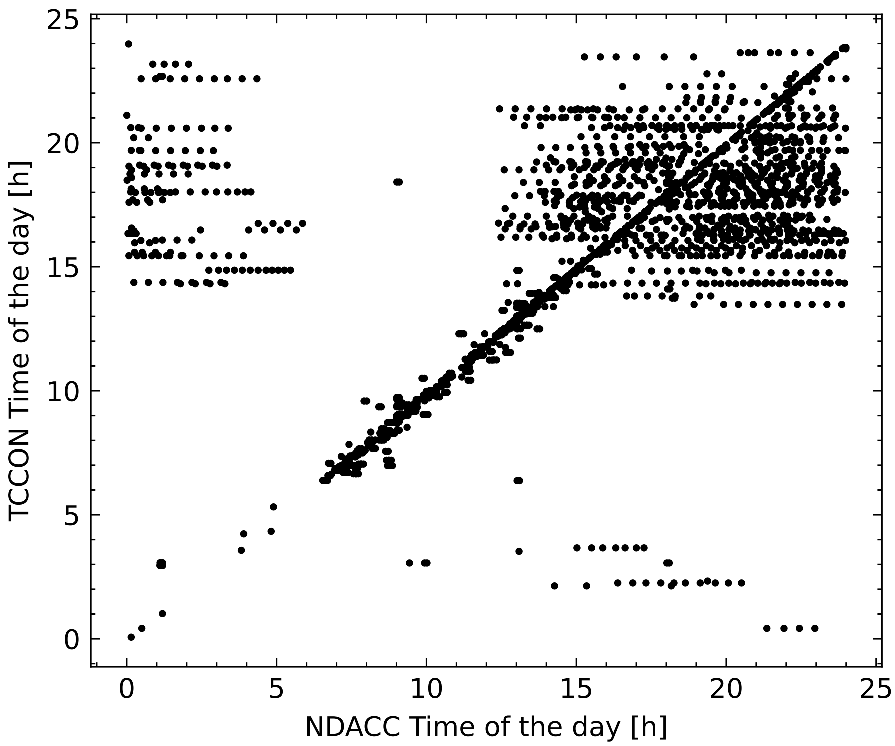

Figure S3: Scatter plot showing the difference in measurement time for collocated TCCON and NDACC measurements at the NYA and EUR site. See Fig. 7.

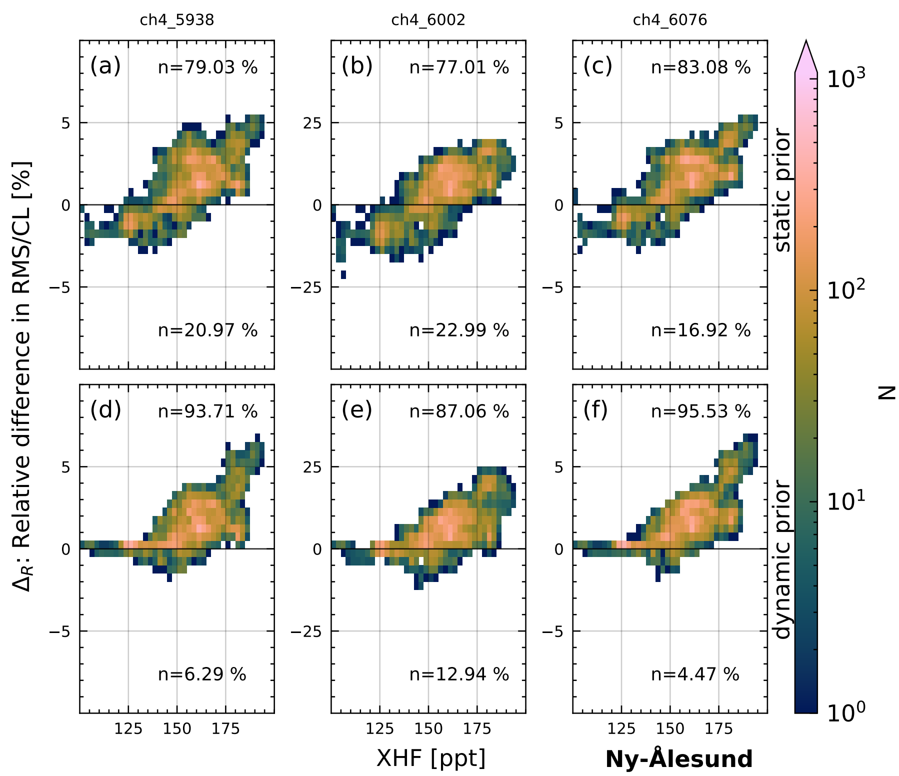

Figure S4: Same as Fig. 15 but only showing data inside the polar vortex according to the polar vortex mask.

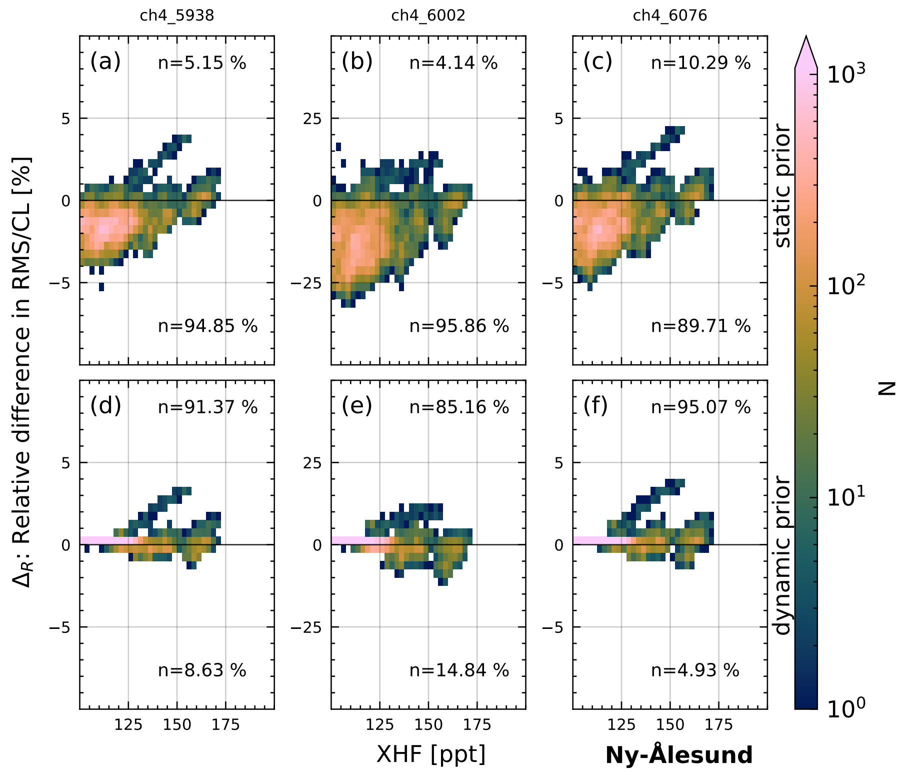

Figure S5: Same as Fig. 15 but only showing data outside the polar vortex according to the polar vortex mask.