Supplementary Material to:

Design and performance of a Nafion dryer for continuous operation at CO_2 and CH_4 air monitoring sites

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Summary

This document contains plots of the dry-air and wet-air experimental data not shown in the published manuscript, but summarized in Table 1.

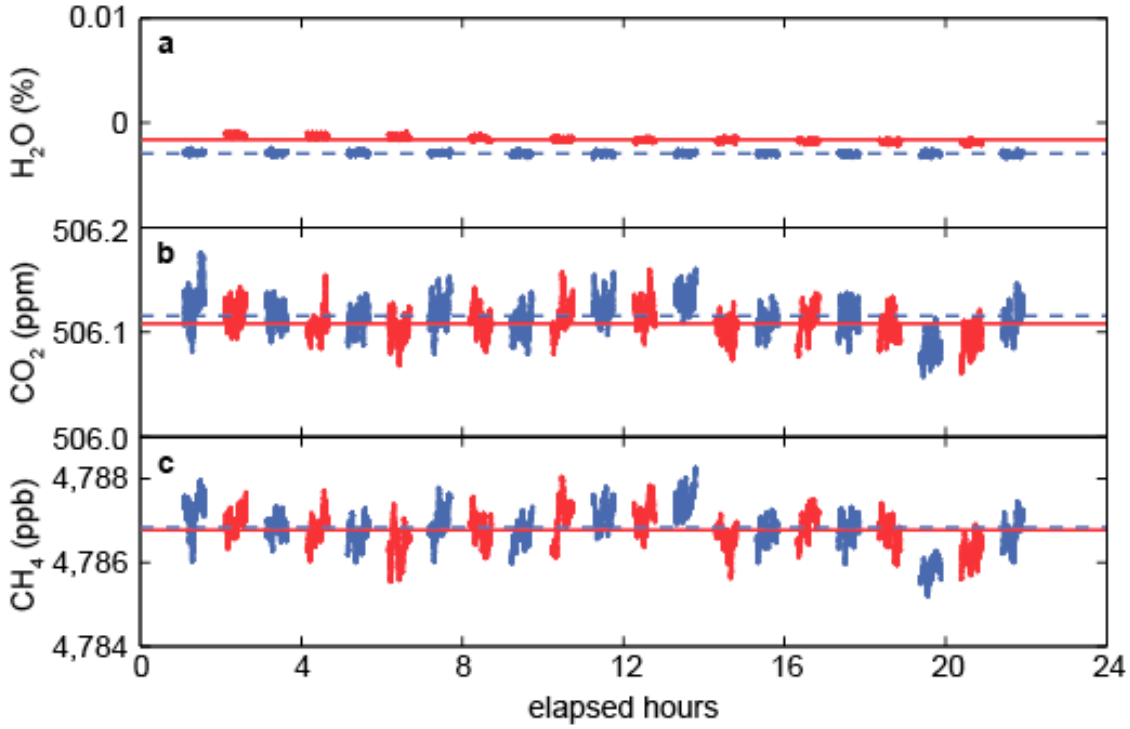

Figure S1: Dry-air Exp. 1.1 on 29 July 2011. The cryotrap treatment is shown in blue and the Nafion treatment is in red for (a) H_2O, (b) CO_2, (c) CH_4. The first 30 minutes of data were excluded for each treatment. The straight lines are mean values for the cryotrap (blue dashed) and Nafion (solid red) over the entire experiment. H_2O values are less than zero because the H_2O factory calibration is not perfect. No water vapor correction was applied. Results are summarized in Table 1.

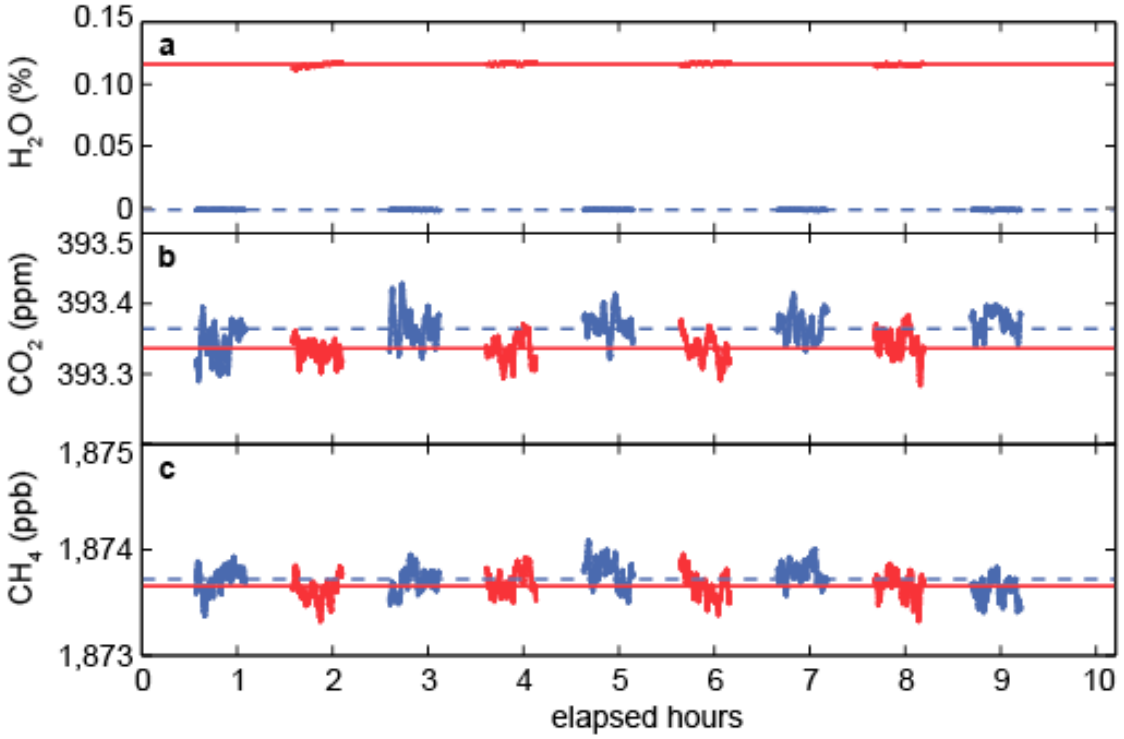

Figure S2: Wet-air Exp. 2.1 on 1 August 2011. The cryotrap treatment is shown in blue and the Nafion treatment is in red for (a) H_2O, (b) CO_2, (c) CH_4. The first 30 minutes of data were excluded for each treatment. The straight lines are mean values for the cryotrap (blue dashed) and Nafion (solid red) over the entire experiment. The secondary cyrotrap was not installed, so the water vapor correction was applied to this data. Results are summarized in Table 1.

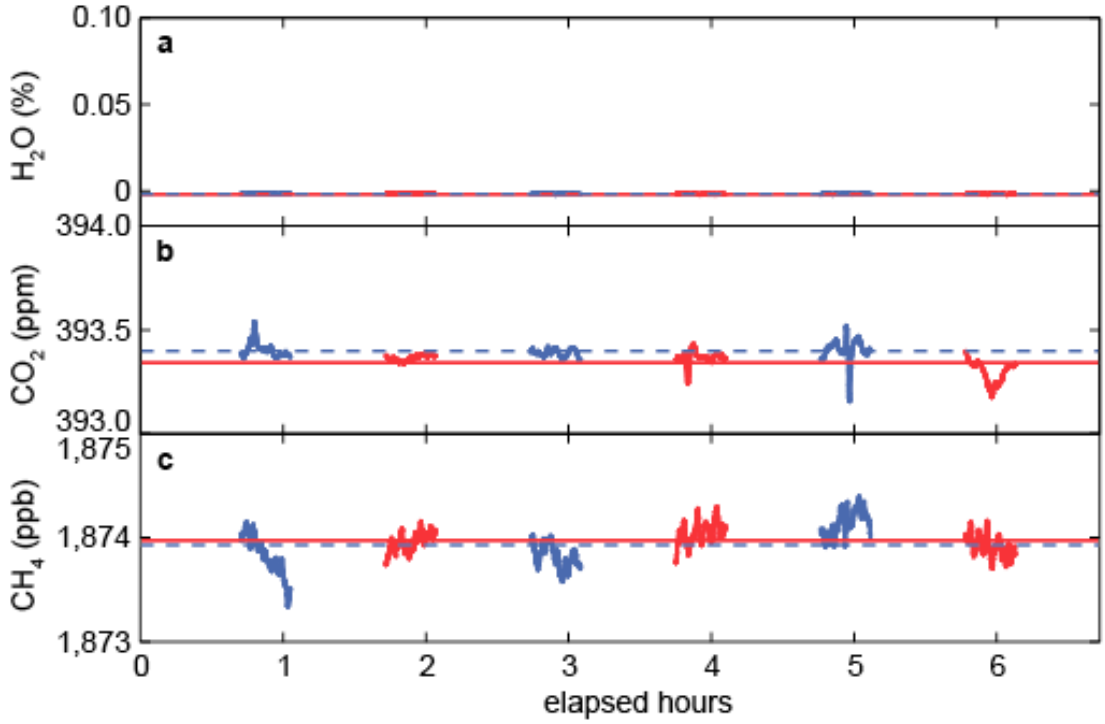

Figure S3: Wet-air Exp. 3.1b on 18 August 2011. The cryotrap treatment is shown in blue and the Nafion treatment is in red for (a) H_2O, (b) CO_2, (c) CH_4. The first 30 minutes of data were excluded for each treatment. The straight lines are mean values for the cryotrap (blue dashed) and Nafion (solid red) over the entire experiment. The secondary cyrotrap was installed, so no water vapor correction was applied to this data. Results are summarized in Table 1.

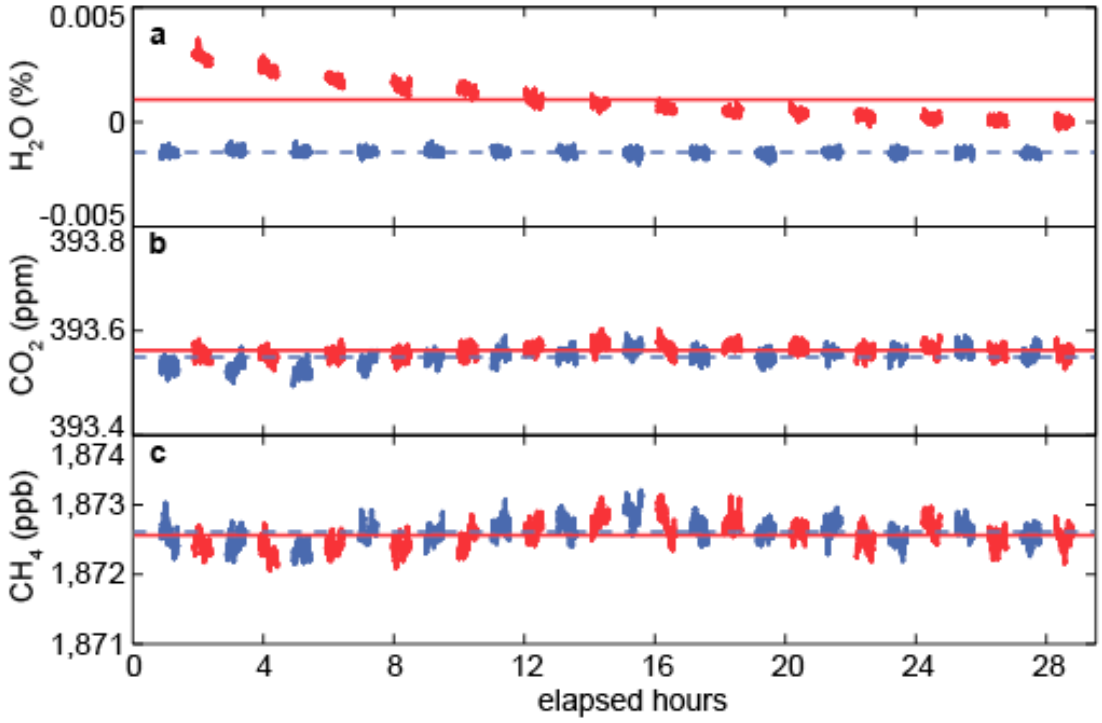

Figure S4: Dry-air Exp. 1.2 on 24 May 2011. The cryotrap treatment is shown in blue and the Nafion treatment is in red for (a) H_2O, (b) CO_2, (c) CH_4. The first 30 minutes of data were excluded for each treatment. The straight lines are mean values for the cryotrap (blue dashed) and Nafion (solid red) over the entire experiment. The Nafion retained some residual moisture and thus added a small amount of H_2O to the dry tank gas. The secondary cyrotrap was not installed, so the water vapor correction was applied to the Nafion treatment data. Results are summarized in Table 1.

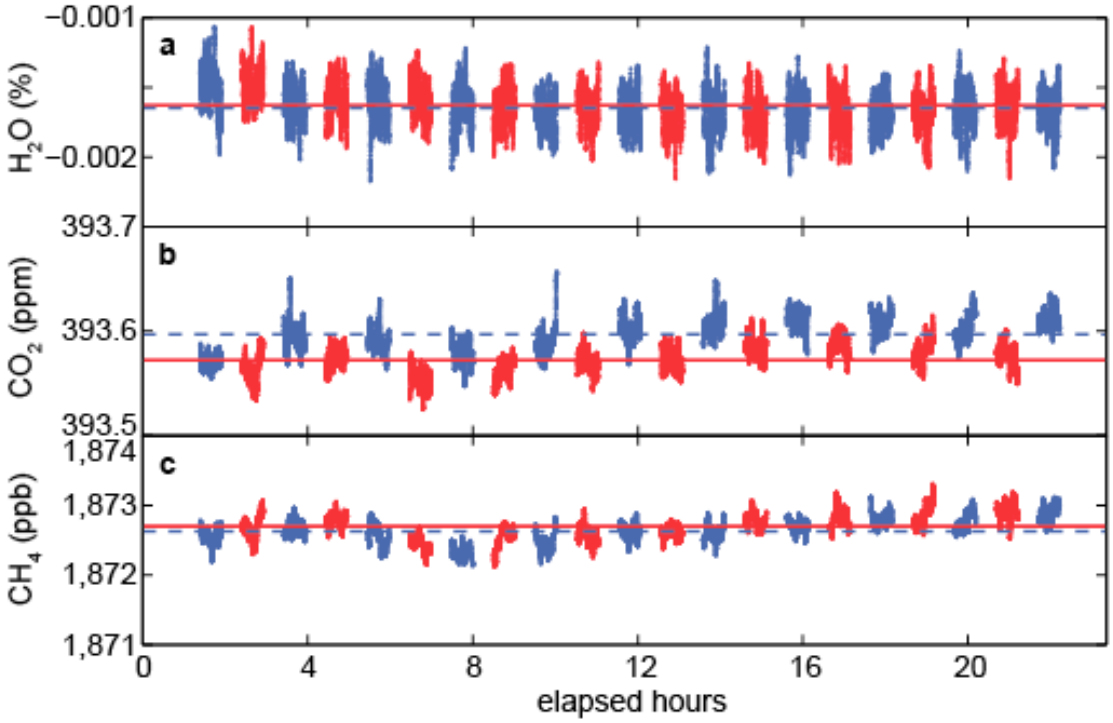

Figure S5: Wet-air Exp. 3.2 on 30 May 2011. The cryotrap treatment is shown in blue and the Nafion treatment is in red for (a) H_2O, (b) CO_2, (c) CH_4. The first 30 minutes of data were excluded for each treatment. The straight lines are mean values for the cryotrap (blue dashed) and Nafion (solid red) over the entire experiment. The secondary cyrotrap was installed, so no water vapor correction was applied to the data. H_2O values are less than zero because the H_2O factory calibration is not perfect. Results are summarized in Table 1.