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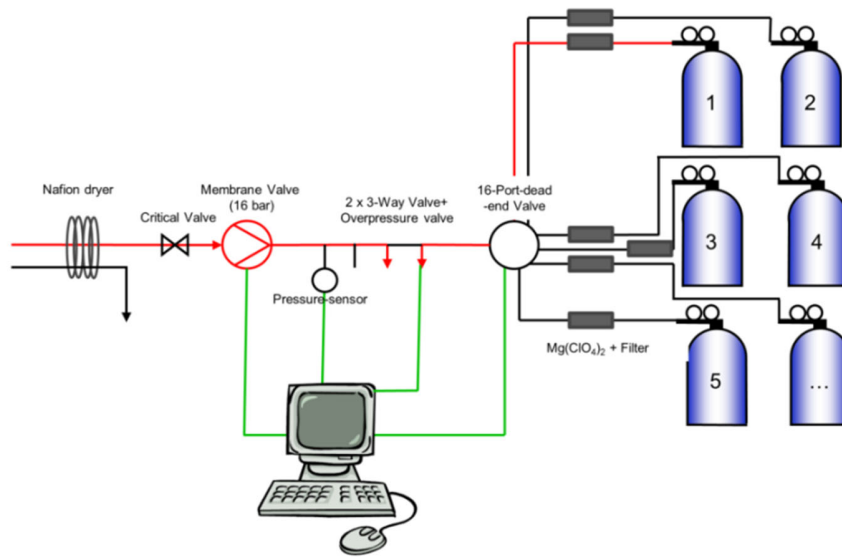
Supplement of

The isotopic composition of atmospheric nitrous oxide observed at the high-altitude research station Jungfraujoch, Switzerland

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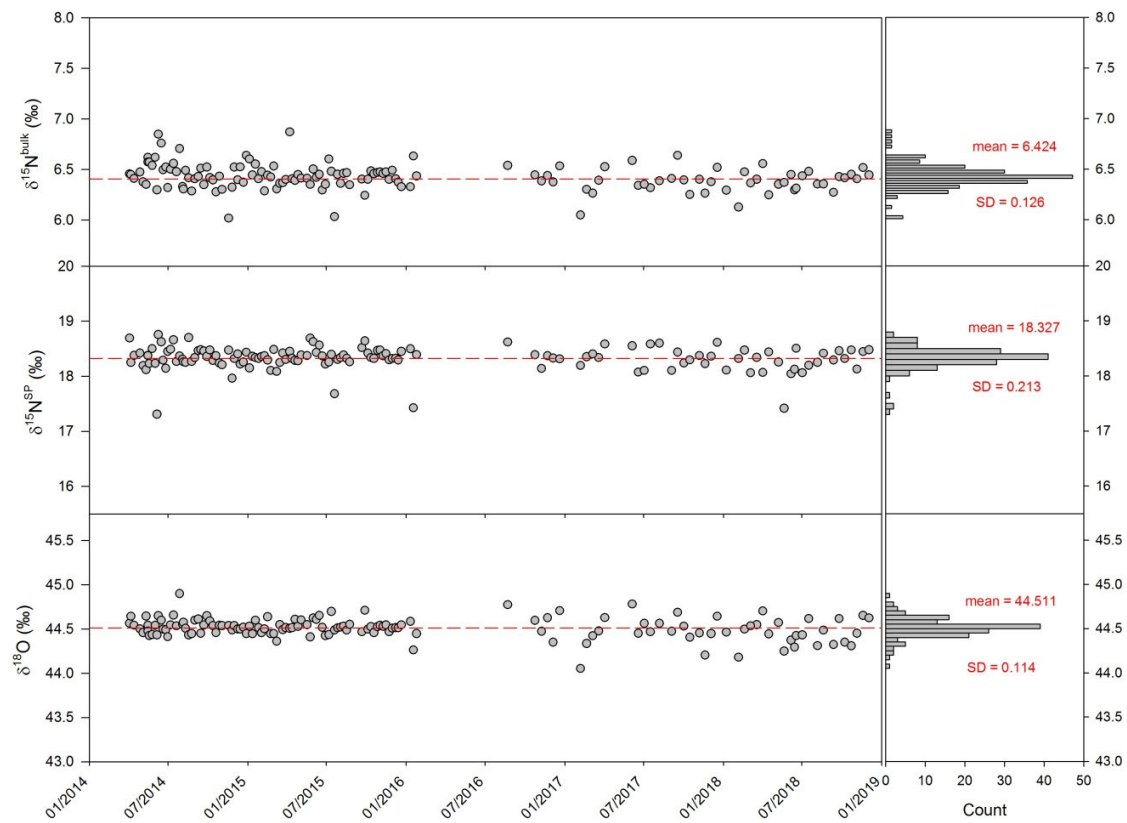
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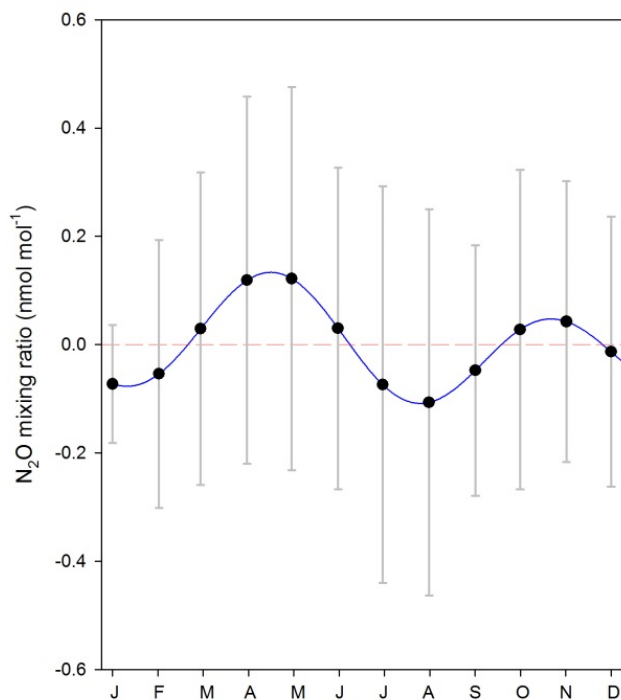
13 Figure S1 Set-up schematic of the auto-sampler for N₂O isotopic measurements at the Sphinx observatory
 14 at Jungfraujoch research station.

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17 Figure S2 Repeated target gas measurements together with sample measurements; time axis is fit to the
 18 same time scale as the sample collection period to show the long-term stability of the isotopic
 19 measurements. Target measurements span a period of about four years. Histogram of all target gas
 20 measurements are shown on the right side of each figure, with mean and one standard deviation.



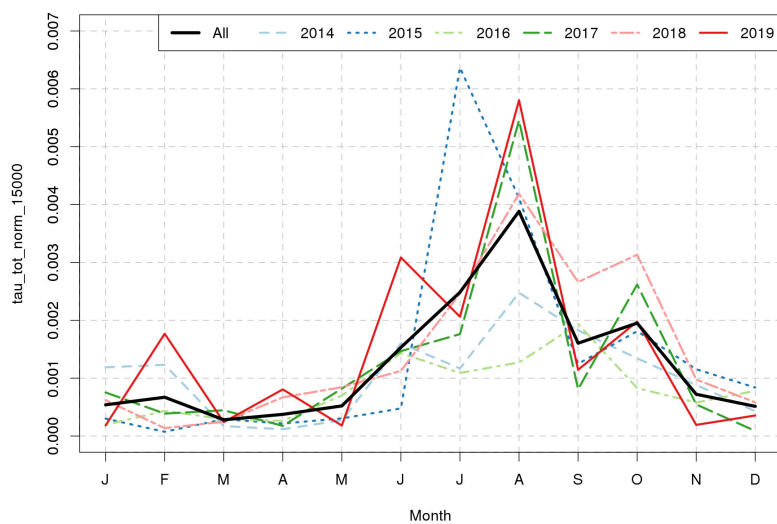
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22 Figure S3 Seasonality of N₂O mixing ratios with discrete measurements; error bars indicate one standard
 23 deviation of monthly residuals from the NLS model simulation for time-series.

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28 Figure S4 Contributions of upper tropospheric air (15 km) to the sampled air at Jungfraujoch estimated by
 29 FLEXPART transport model (derived from Henne et al., Personal Communication).