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Strategies for measuring canonical tracer relationships in the stratosphere

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Abstract. A high-resolution simulation of stratospheric long-lived trace gases is subsampled in ways resembling various commonly used measurement platforms. The resulting measurements are analyzed with respect to whether they allow an accurate determination of stratospheric tracer relationships, as a prerequisite for a quantification of mixing processes from them. By varying the simulated locations, frequencies, and, in the case of satellite data, accuracies of the measurements we determine minimal requirements that the measurements need to satisfy in order to be suitable for a derivation of tracer relationships.

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