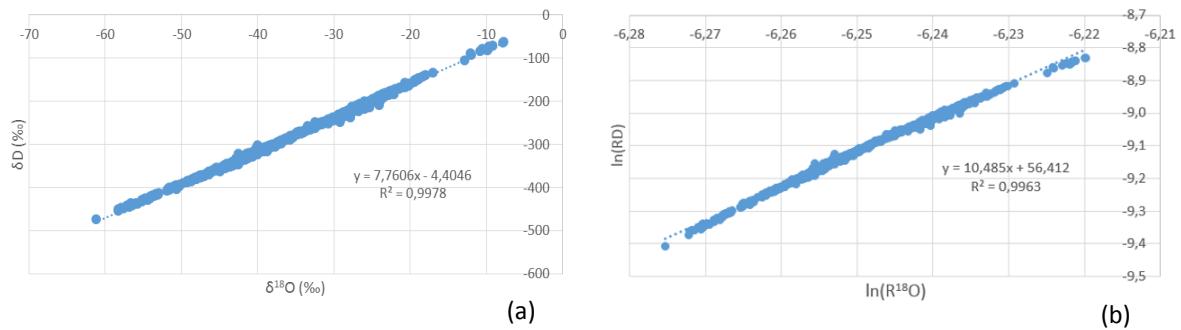
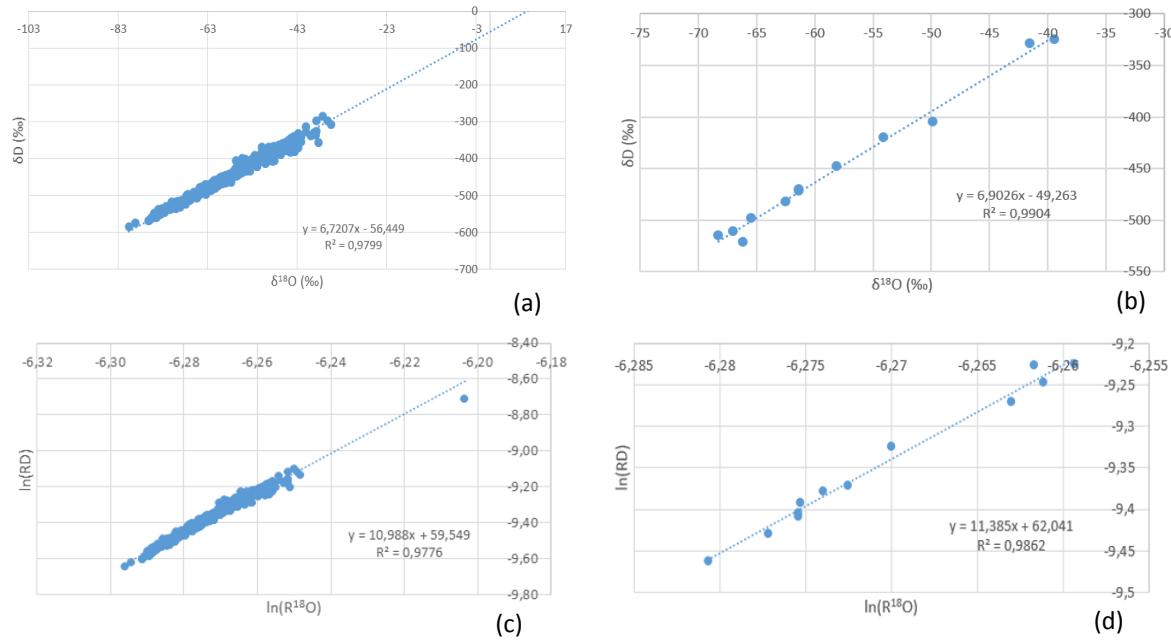


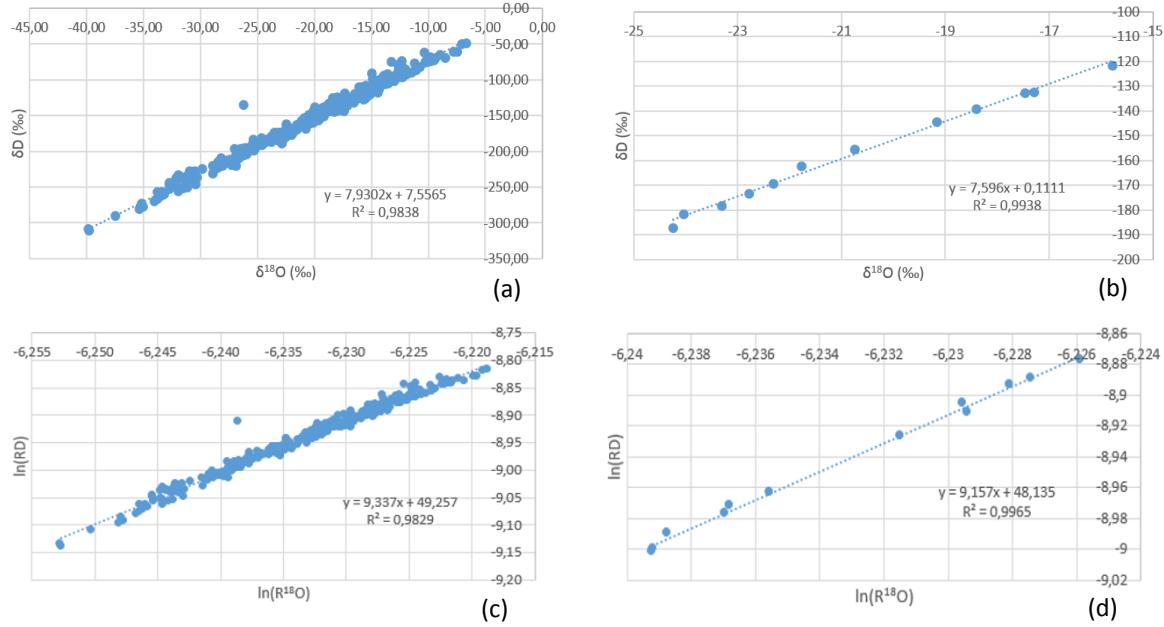
S1: Linear relationships between (a) δD (in ‰) and $\delta^{18}\text{O}$ (in ‰) using all (time-averaged) data points from our database, (b) $\ln(\text{RD})$ and $\ln(^{18}\text{O})$ using all (time-averaged) data points from our database (excluding 9 outliers, thus making a total of 323 points).



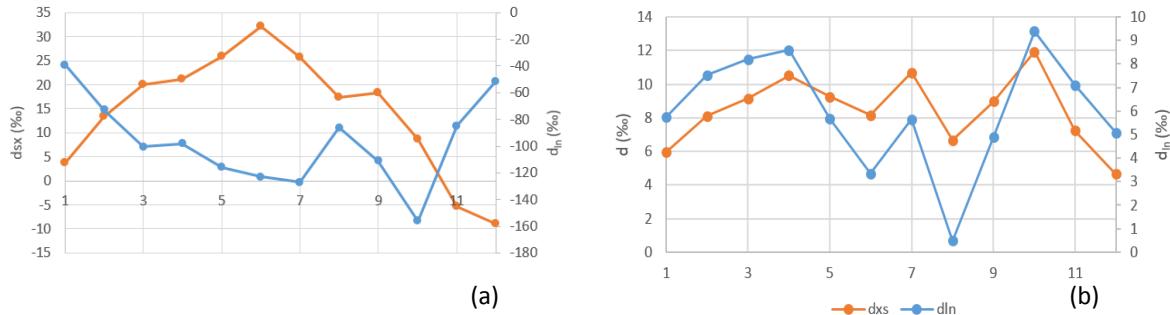
S2: Linear relationships between δD (in ‰) and $\delta^{18}\text{O}$ (in ‰) (a) using all data points (501 points), (b) data points of the mean seasonal cycle (12 points) of precipitation data measured at Dome C (Stenni et al., 2016), and used in our database, and linear relationships between $\ln(\text{RD})$ and $\ln(^{18}\text{O})$ (c) using all data points, (d) data points of the mean seasonal cycle from the same measurements monitored.



S3: Linear relationships between δD (in ‰) and $\delta^{18}\text{O}$ (in ‰) (a) using all data points (342 points), (b) data points of the mean seasonal cycle (12 points) of precipitation data measured at Neumayer (Schlosser et al., 2008), and used in our database, and linear relationships between $\ln(\text{RD})$ and $\ln(^{18}\text{O})$ (c) using all data points, (d) data points of the mean seasonal cycle from the same measurements monitored.



S4: Mean seasonal cycle using the classical deuterium excel definition (orange solid line), and the logarithmic deuterium defined by Uemura et al. (2012) as $d_{ln} = \ln(1 + \delta D) - ((-2.85 \times 10^{-2}) \times \ln(1 + \delta^{18}O))^2 + 8.47 \times \ln(1 + \delta^{18}O)$ (orange solid line) (a) using the precipitation data measured at Dome C (Stenni et al., 2016) and (b) precipitation data measured at Neumayer (Schlosser et al., 2008).



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