# S1. Supplementary materials

*Chamber environment and the isotopic composition of evapotranspiration fluxes*

Modification of the evaporative environment caused by the chamber can lead to biases in the determined isotopic composition. Changes to the temperature at the evaporation site, relative humidity, isotopic composition of the ambient water vapour and the relationship between turbulent transport and molecular diffusion could all influence the isotopic composition of the flux. The meteorological measurements within the chamber provided a means to assess this impact. The temperature increases observed were generally less than 4°C, but as high as 8°C (figure S2). At a temperature of 20°C a 4°C increase could lead to an increase of 3.5, 0.3 and 0.7‰ increase in the $^2H_{ET}$, $^{18}O_{ET}$ and d_{ET}, respectively. The majority of chamber measurements showed relative humidity increased by less than 10%, although values as high as 20% were observed. Using the Craig and Gordon model and the average conditions within the chambers, an increase of 10% in relative humidity could cause the evaporative fluxes isotopic composition to change by 0.2, 0.3 and –1.8‰ for $^2H_{ET}$, $^{18}O_{ET}$ and d_{ET}, respectively. These estimates of the impact of the chamber environment on the isotopic composition of evaporative fluxes probably represents an upper estimate, as it assumes the chamber environment has an immediate effect on the fluxes. Importantly, these estimated impacts of increased temperature and relative humidity in the chamber are much smaller the differences between the isotopic composition of ambient vapour and the ET fluxes.
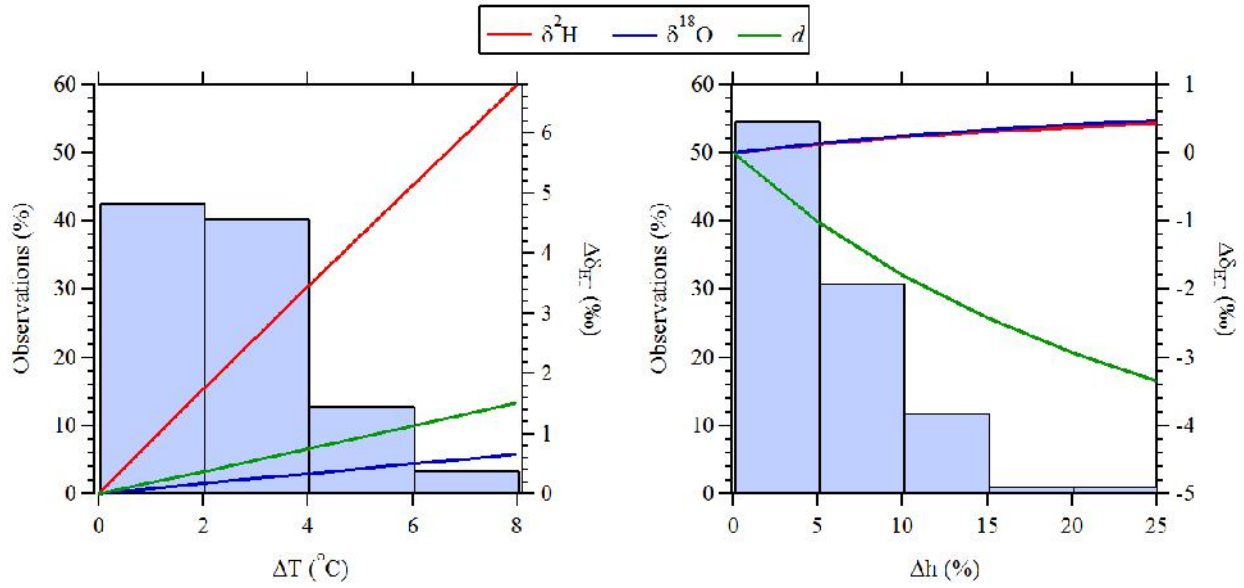
Figure S1: Distribution of the change in evaporation conditions within the chamber for all chamber measurements, including both bare soil and vegetated chambers.
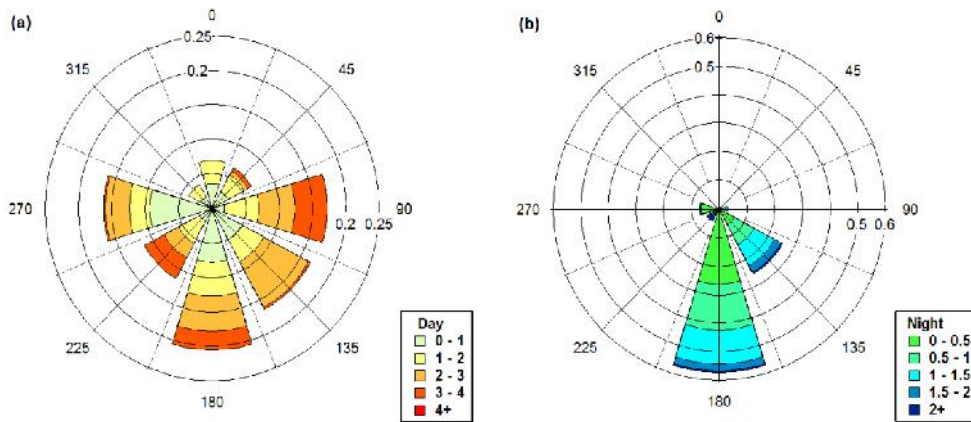
Figure S2: Wind roses determined for the daytime and nocturnal wind observations.
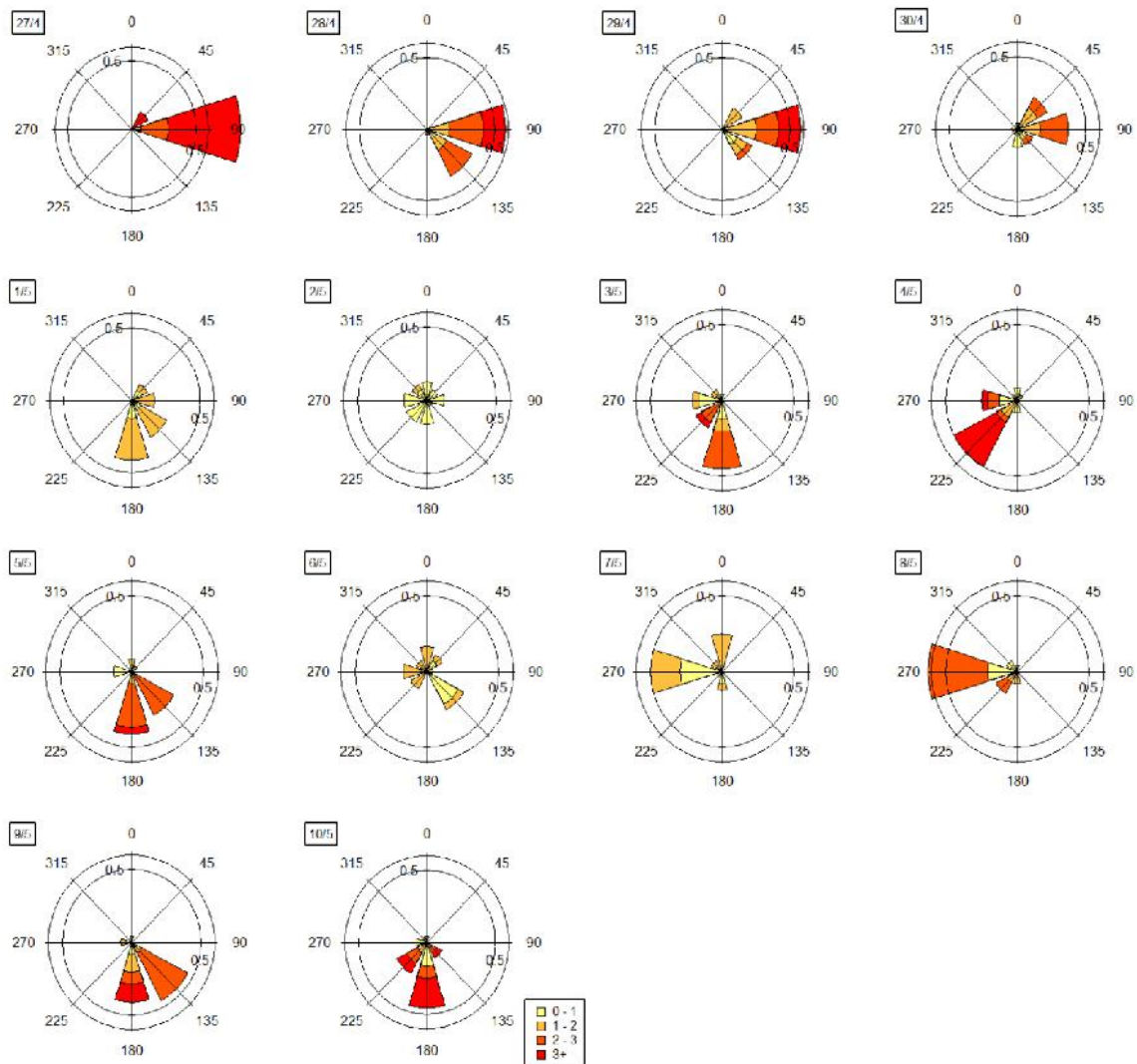
Figure S3: Wind roses determined for the daytime observations on each day of the campaign. Date of the observations are shown on each plot.