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Corrigendum to "Momentum fluxes from airborne wind measurements in three cumulus cases over land" published in Atmos. Chem. Phys., 22, 7373–7388, 2022

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The originally published paper contains a few mistakes that were present upon submission. They are outlined in this corrigendum.

The correct version of Fig. 11 can be found below: it no longer shows the distance at the top *x* axis, which was not correct in the original paper.

1 Textual corrections

There were two oversights/mistakes in the Introduction.

1. Firstly, there was a typo (fights instead of flights). The correct sentence is as follows: Our understanding of turbulent wind fluctuations throughout the boundary layer largely stems from a handful of in situ turbulence measurements during research aircraft flights at selected height levels in subtropical settings.

2. Secondly, additional information was added resulting in the following: The Falcon flew at high altitudes deploying a downward-looking scanning 2 µm Doppler wind lidar (DWL), used here, as well as the 20° off-nadir looking ALADIN airborne demonstrator (A2D) lidar – the airborne prototype to the space-borne instrument ALADIN. A comparison of the A2D, DWL and Aeolus measurements can be found in Witschas et al. (2020), which also uses data collected during this campaign, and Lux et al. (2020).

In Sect. 2.1, there were two oversights/mistakes.

1. Firstly, the word "speed" should have been "speeds". This is the correct version: Because the two planes have different cruising speeds (the Cessna about 70 $\mathrm{m\,s^{-1}}$, the Falcon about 200 $\mathrm{m\,s^{-1}}$), the pre-defined tracks ensure overlap in space and time to the degree possible.

2. Secondly, the flight height of the Falcon was incorrect. The correct version is the following with details of mistakes in parentheses: Employing the downward-staring DWL at a measurement rate of 40 s, the DLR Falcon remained around 7.5 km (former and incorrect text mentioned 11 km) altitude throughout the flight. This is also the case for Sect. 2.1.4: Therefore, although flying at 7.5 km (before 11 km), the first wind velocities are obtained from approximately 7 km altitude down to the surface (formerly 500 m, which is misleading. We obtain data down to 500 m; this is not a limitation of the measurement technique, but caused by the measurement circumstances).

In Sect. 2.1.4, the scattering regime was incorrect: The coherent detection DWL employed in this study has a wavelength of 2022.54 nm (approximately 2 µm), being eyesafe and operating in the Mie (previously and incorrectly Rayleigh) scattering regime. Furthermore, the along-beam resolution needed to be adjusted: With a pulse width of

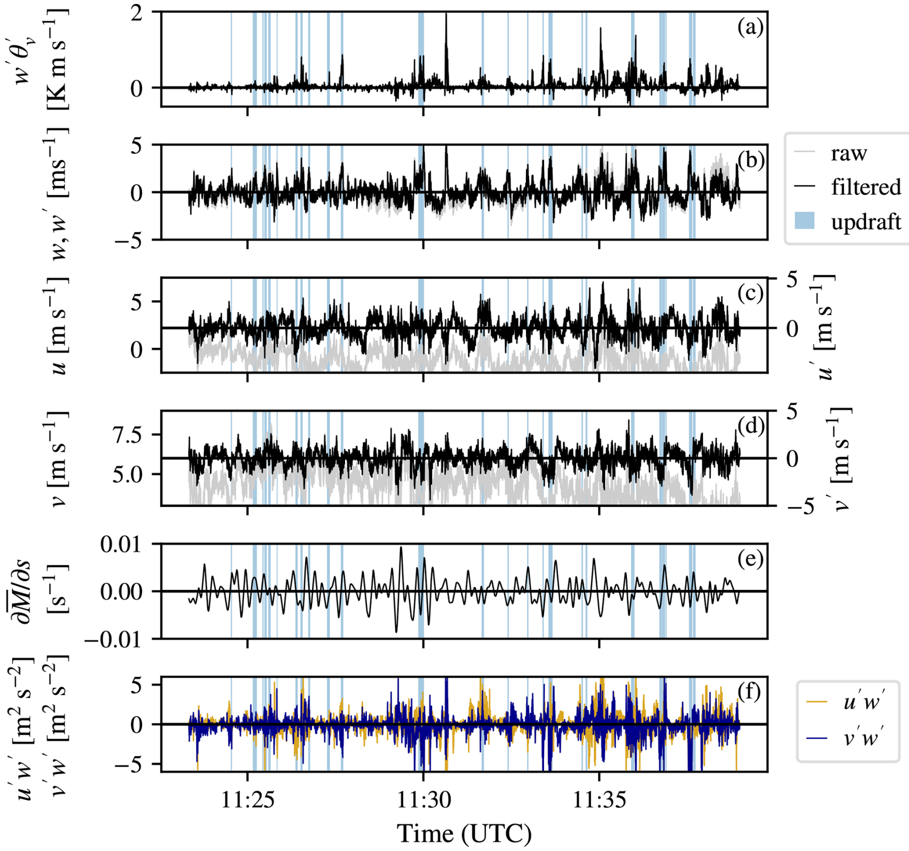

Figure 11. Raw (unfiltered) and fluctuating (filtered: linear detrended, high-pass filter cut-off 0.01 Hz) time series of **(a)** buoyancy flux, **(b)** vertical velocity, **(c)** zonal wind, **(d)** meridional wind, **(e)** convergence and divergence of the wind speed in the streamwise direction calculated using a low-pass filter that considers all scales larger than 700 m ($f_c < 0.1$ Hz), and **(f)** momentum fluxes measured on 4 June 2019 at 600 m, in the middle of the mixed layer of the western leg. Updrafts are indicated with light-blue shading.

~ 400 ns and an averaging time of 1 s, we have a vertical resolution of 100 m (i.e. along-beam resolution approx. 106 m (formerly 94 m, should have been an addition instead of subtraction)) (Witschas et al., 2017). For better clarification, "mean" should have been added to the errors: The DWL employed in this study has previously been compared to dropsonde measurements, in which the mean systematic error has been found to remain below 0.1 m s^{-1} and the mean random error to vary between 0.92 and 1.5 m s^{-1} (Weissmann et al., 2005; Chouza et al., 2016; Schaefler et al., 2018; Witschas et al., 2020).

Author contributions. AMK and LN conceptualized the study. AMK was responsible for the data analysis and writing of the manuscript. CM was responsible for the technical preparation of the flight data, and his experience aided the decision for an approach for eddy covariance estimation significantly. LN was also involved in the supervision. CL was the PI of the parallel Aeolus validation campaign (AVATARE) and of the A2D deployed in the DLR Falcon aircraft which was also used for the CloudBrake flights. Additionally, he supported the campaign preparation and flight planning. BW was responsible for the 2 µm DWL measurements, operated the system during CloudBrake flights and performed part of the data analysis. Furthermore, he contributed to the scientific interpretation of the DWL data as discussed in this paper. All authors provided critical comments on the quality of the work.

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