

Anmeldung eines Themas für eine Bachelorarbeit

Thema Datum	Differences in the optical properties between the European and North American smoke in the upper troposphere/lower stratosphere (UTLS)
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Kurzbeschreibung:	Wildfires are becoming more and more a common phenomenon, due to climate change. Lidar systems are ideal for observing smoke layers in the upper troposphere/lower stratosphere (UTLS) and studying their evolution. PollyXT lidar systems have been deployed all over the world, thus, capturing several large wildfire events e.g., the Australian wildfire, the Californian wildfires, etc. The optical and microphysical properties of smoke are highly variable, depending on the burned vegetation type, location, fire type (smoldering or flaming combustion), altitude, and the age of the smoke particles. In the scope of the thesis, case studies from different wildfire events, with a specific focus on European and North American events, will be analyzed in detail in terms of optical properties. An intercomparison between the case studies is also foreseen to identify the differences in the optical properties of the smoke particles and potentially reveal the reason for the differences.
Literatur:	Ohneiser, K., Ansmann, A., Baars, H., Seifert, P., Barja, B., Jimenez, C., Radenz, M., Teisseire, A., Floutsi, A., Haarig, M., Foth, A., Chudnovsky, A., Engelmann, R., Zamorano, F., Bühl, J., and Wandinger, U.: Smoke of extreme Australian bushfires observed in the stratosphere over Punta Arenas, Chile, in January 2020: optical thickness, lidar ratios, and depolarization ratios at 355 and 532 nm, <i>Atmos. Chem. Phys.</i> , 20, 8003–8015, https://doi.org/10.5194/acp-20-8003-2020 , 2020. Baars, H., Radenz, M., Floutsi, A. A., Engelmann, R., Althausen, D., Heese, B., et al. (2021). Californian wildfire smoke over Europe: A first example of the aerosol observing capabilities of Aeolus compared to ground-based lidar. <i>Geophysical Research</i>

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