

Response to Community Comments of EGU sphere 2023-1409

Opinion: Stratospheric Ozone – Depletion, Recovery and New Challenges

by Martyn Chipperfield and Slimane Bekki

Community Comment #1 by Albert Ansmann.

We thank you for your comment on the importance of wildfire smoke and for alerting us to your work related to wildfire observations and ozone loss at high northern and southern latitudes. Specifically, you referenced the following three papers:

- Ansmann, A., Ohneiser, K., Chudnovsky, A., Knopf, D. A., Eloranta, E. W., Villanueva, D., Seifert, P., Radenz, M., Barja, B., Zamorano, F., Jimenez, C., Engelmann, R., Baars, H., Griesche, H., Hofer, J., Althausen, D., and Wandinger, U.: Ozone depletion in the Arctic and Antarctic stratosphere induced by wildfire smoke, *Atmos. Chem. Phys.*, 22, 11701–11726, <https://doi.org/10.5194/acp-22-11701-2022>, 2022.
- Ohneiser, K., Ansmann, A., Chudnovsky, A., Engelmann, R., Ritter, C., Veselovskii, I., Baars, H., Gebauer, H., Griesche, H., Radenz, M., Hofer, J., Althausen, D., Dahlke, S., and Maturilli, M.: The unexpected smoke layer in the High Arctic winter stratosphere during MOSAiC 2019–2020, *Atmos. Chem. Phys.*, 21, 15783–15808, <https://doi.org/10.5194/acp-21-15783-2021>, 2021.
- Ohneiser, K., Ansmann, A., Kaifler, B., Chudnovsky, A., Barja, B., Knopf, D. A., Kaifler, N., Baars, H., Seifert, P., Villanueva, D., Jimenez, C., Radenz, M., Engelmann, R., Veselovskii, I., and Zamorano, F.: Australian wildfire smoke in the stratosphere: the decay phase in 2020/2021 and impact on ozone depletion, *Atmos. Chem. Phys.*, 22, 7417–7442, <https://doi.org/10.5194/acp-22-7417-2022>, 2022

As explained in our response to the two anonymous reviewers, we have expanded our discussion of wildfire smoke. Your 2022 papers are the ones most relevant to our discussion on ANY and we have added citations to them