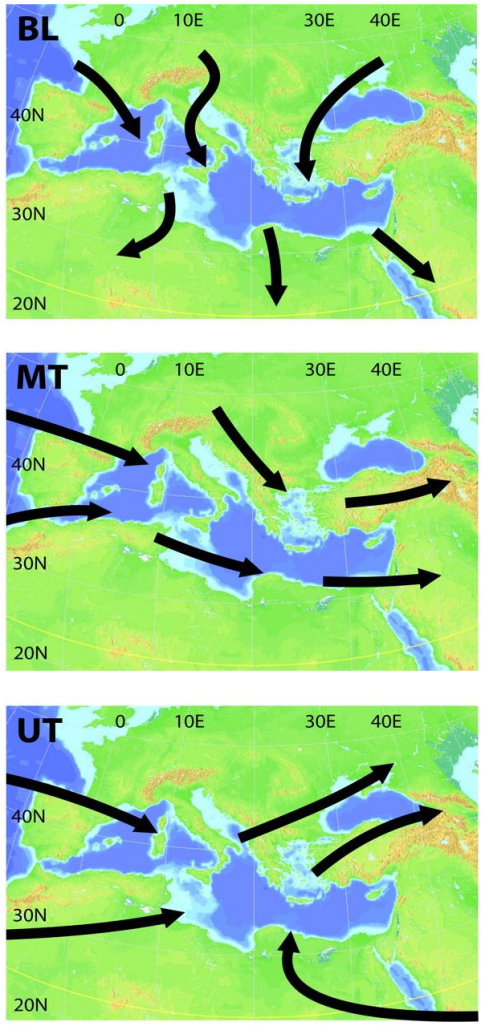
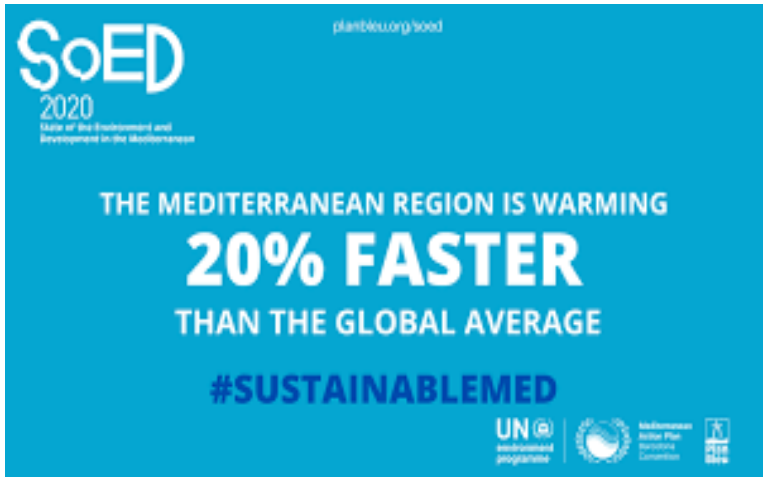
Wildfires in Greece and their impact on air quality: Is this the new normality?

D. Balis, K. Michailidis, M.E. Koukouli, K. Garane, D. Karagkiozidis, A. Pseftogkas, M. Mermigkas, T. Panou, G. Peletidou, K.A. Voudouri , M. de Graaf, T. Giannaros and A. Bais

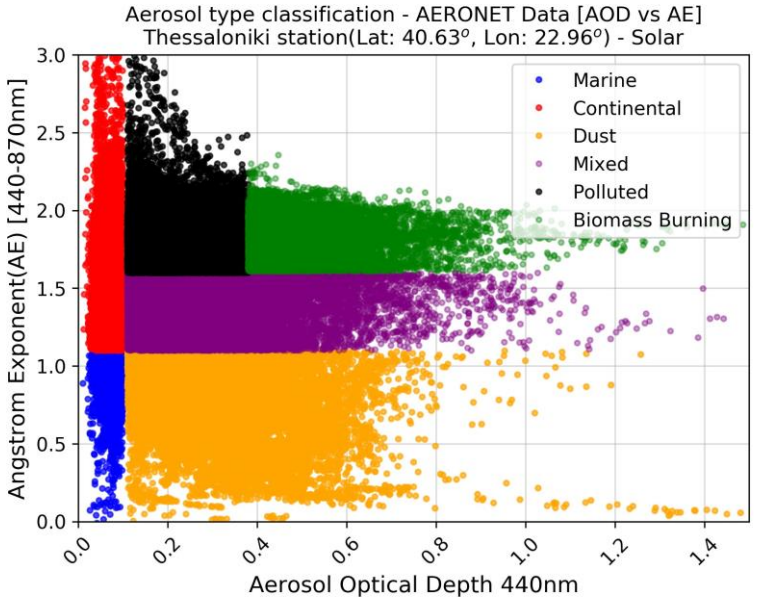
MOTIVATION

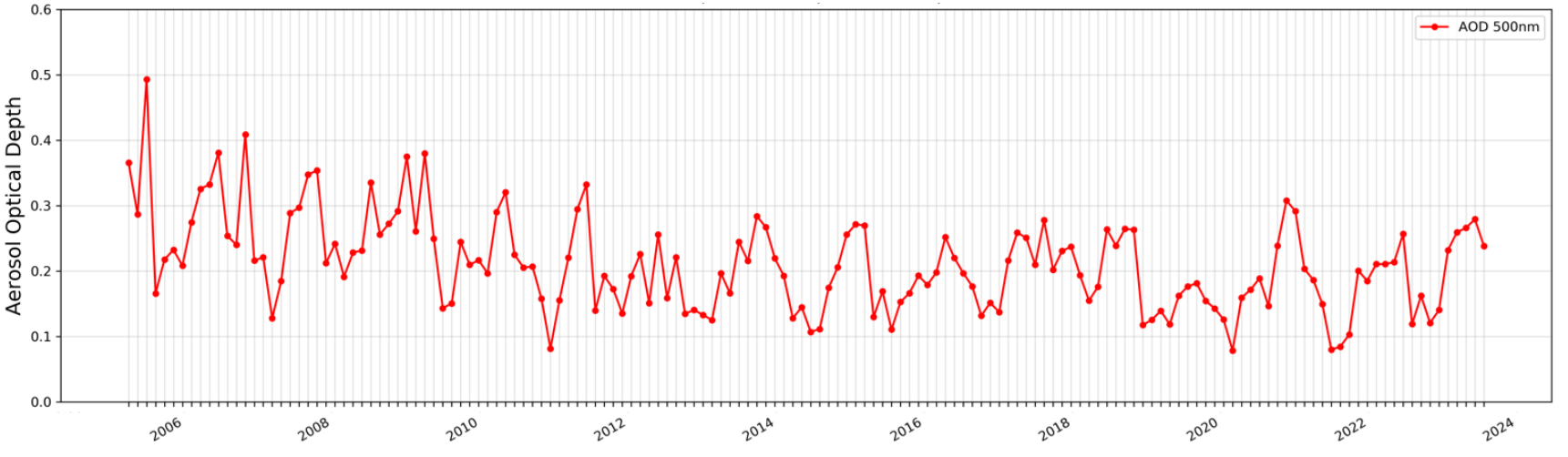


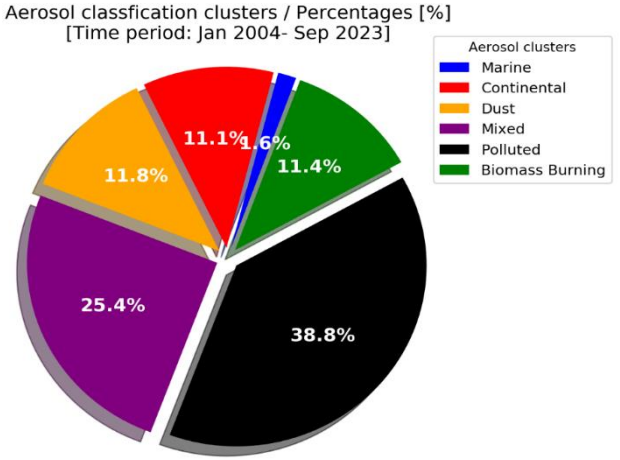
- The SE Mediterranean is a crossroad for different pollution sources
- The Mediterranean is considered as a hotspot in most future climate scenarios.
- Extreme weather events (heatwaves, floodings) seem already more intense and frequent.
- At Thessaloniki we have a unique infrastructure to monitor related changes in atmospheric composition

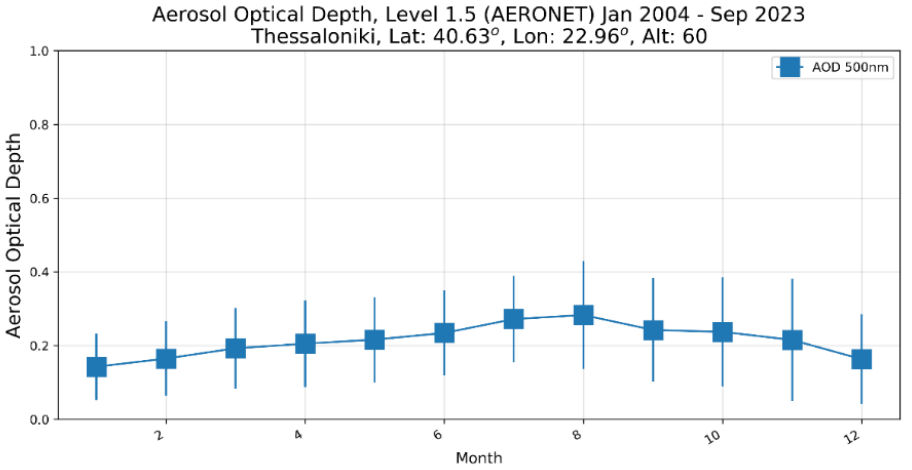


Characteristics of urban background pollution using remote sensing | The case of Thessaloniki, Greece









Massive wildfires in Greece during summer 2023

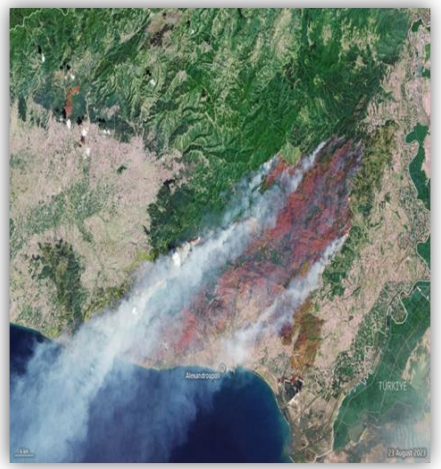
Rhodes

More than 13,500 hectares of forest burned

Athens

More than 30000 hectares of forest burned

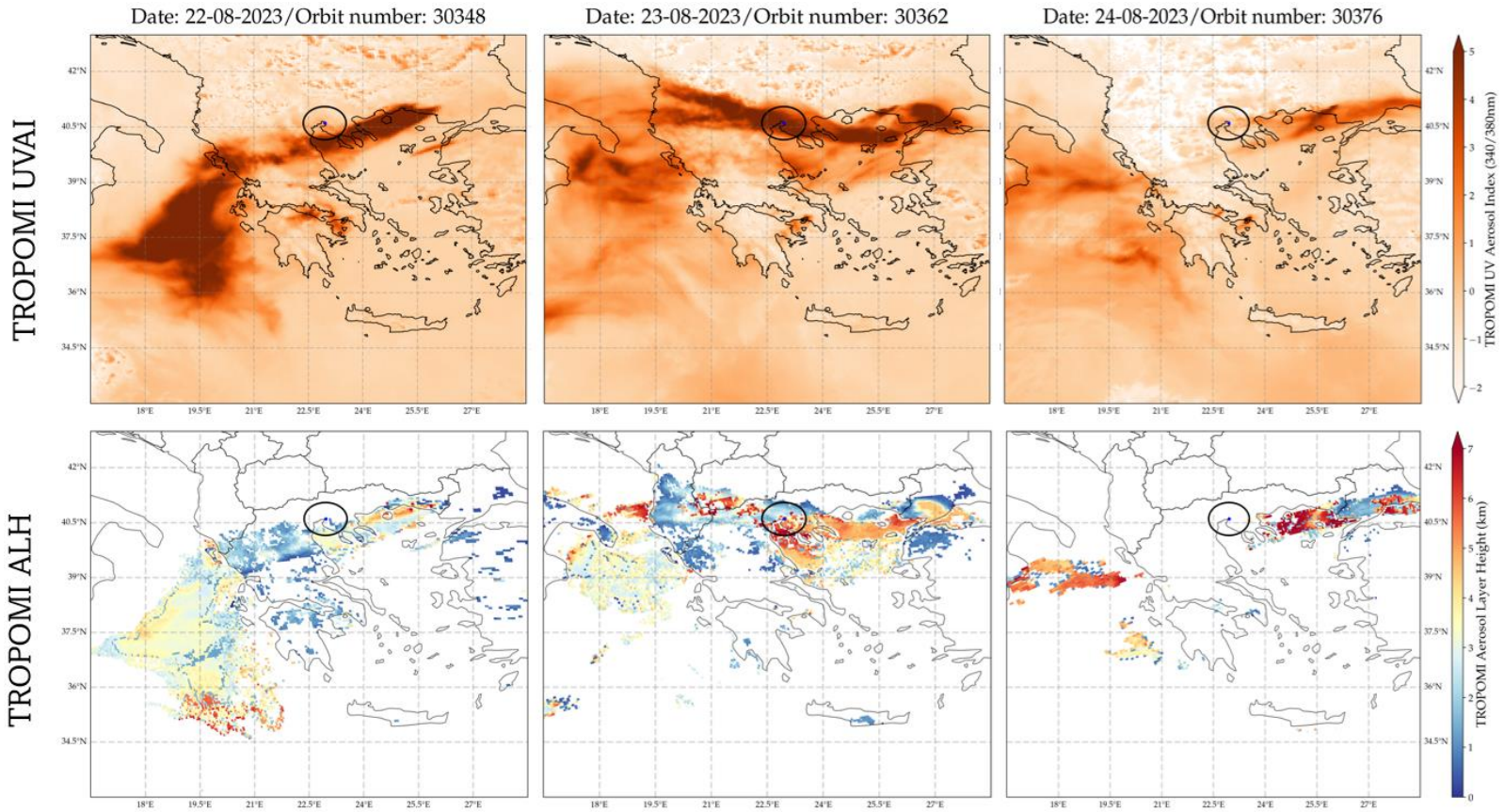
Dadia National Park (NE Greece)

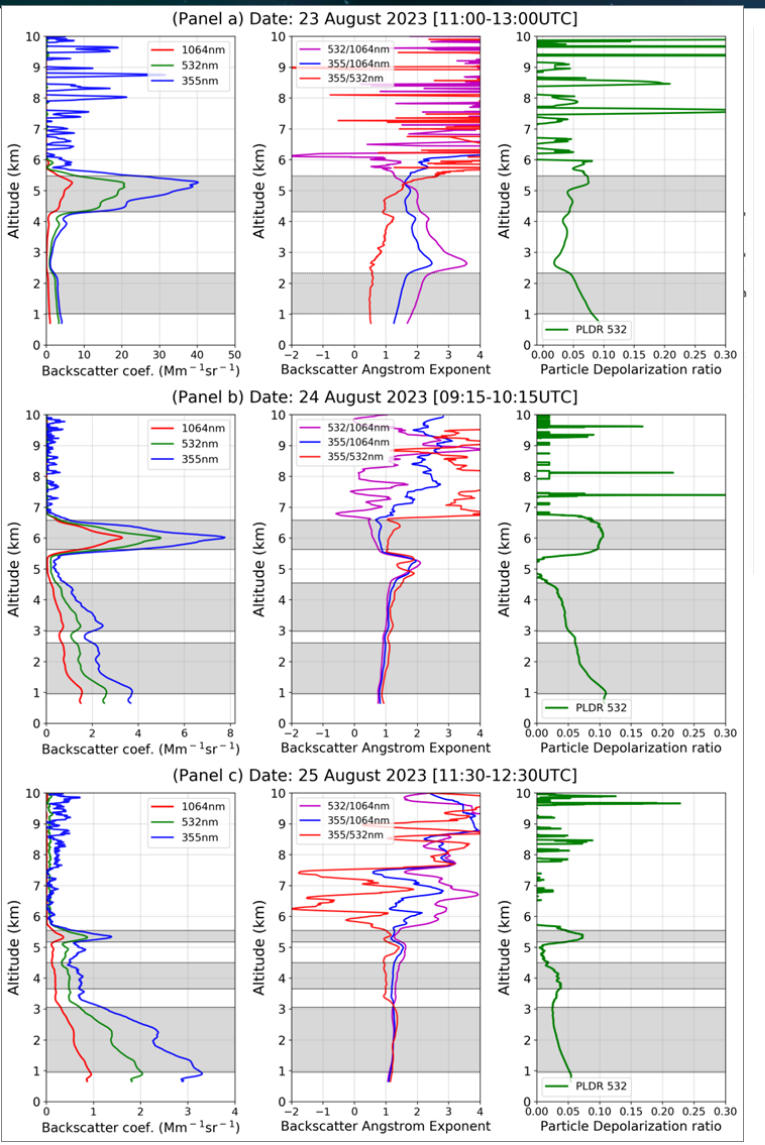


More than 100000 hectares of forest burned.

Images from Copernicus Sentinel 2

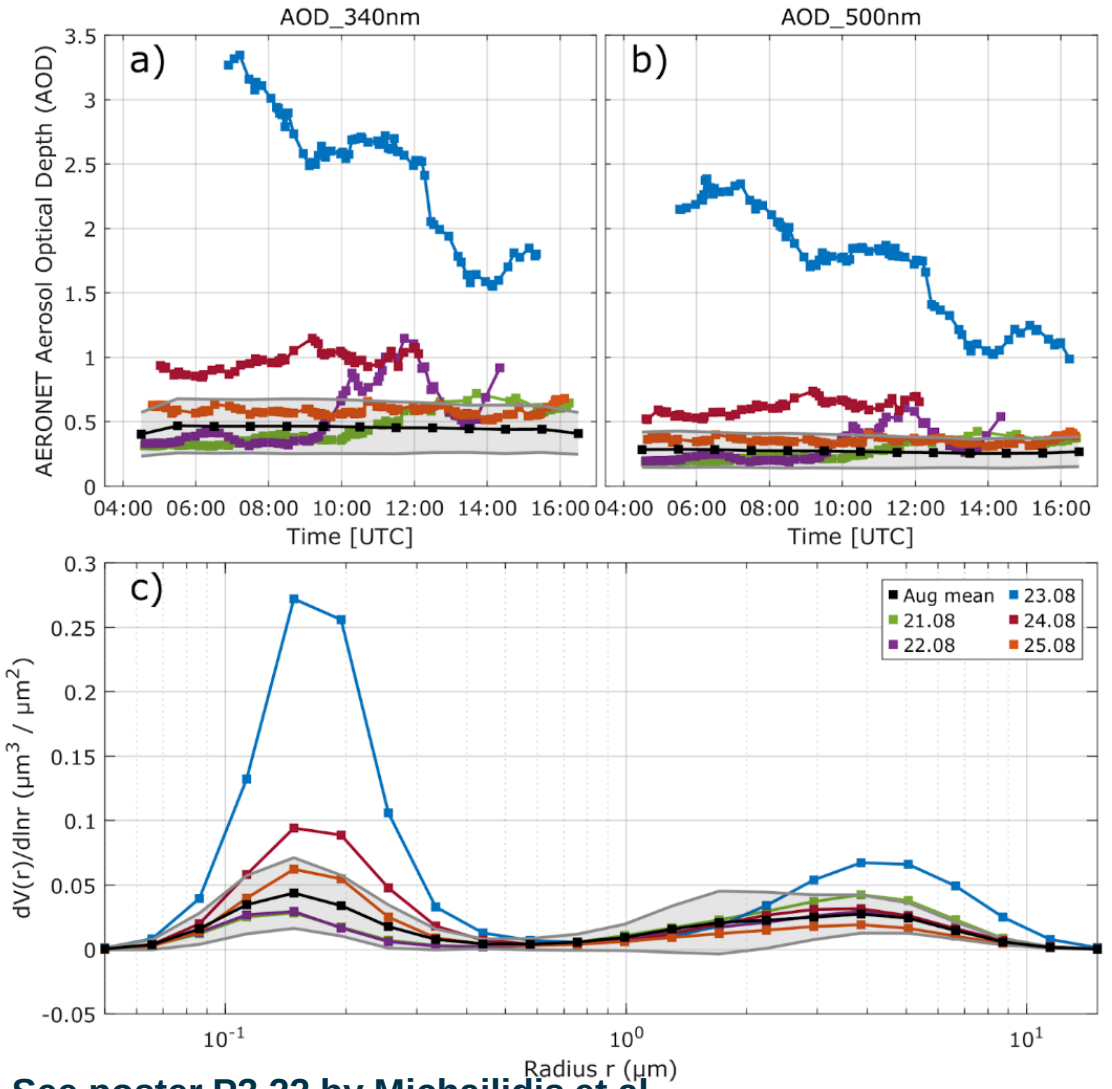
Impact on aerosol load in the region

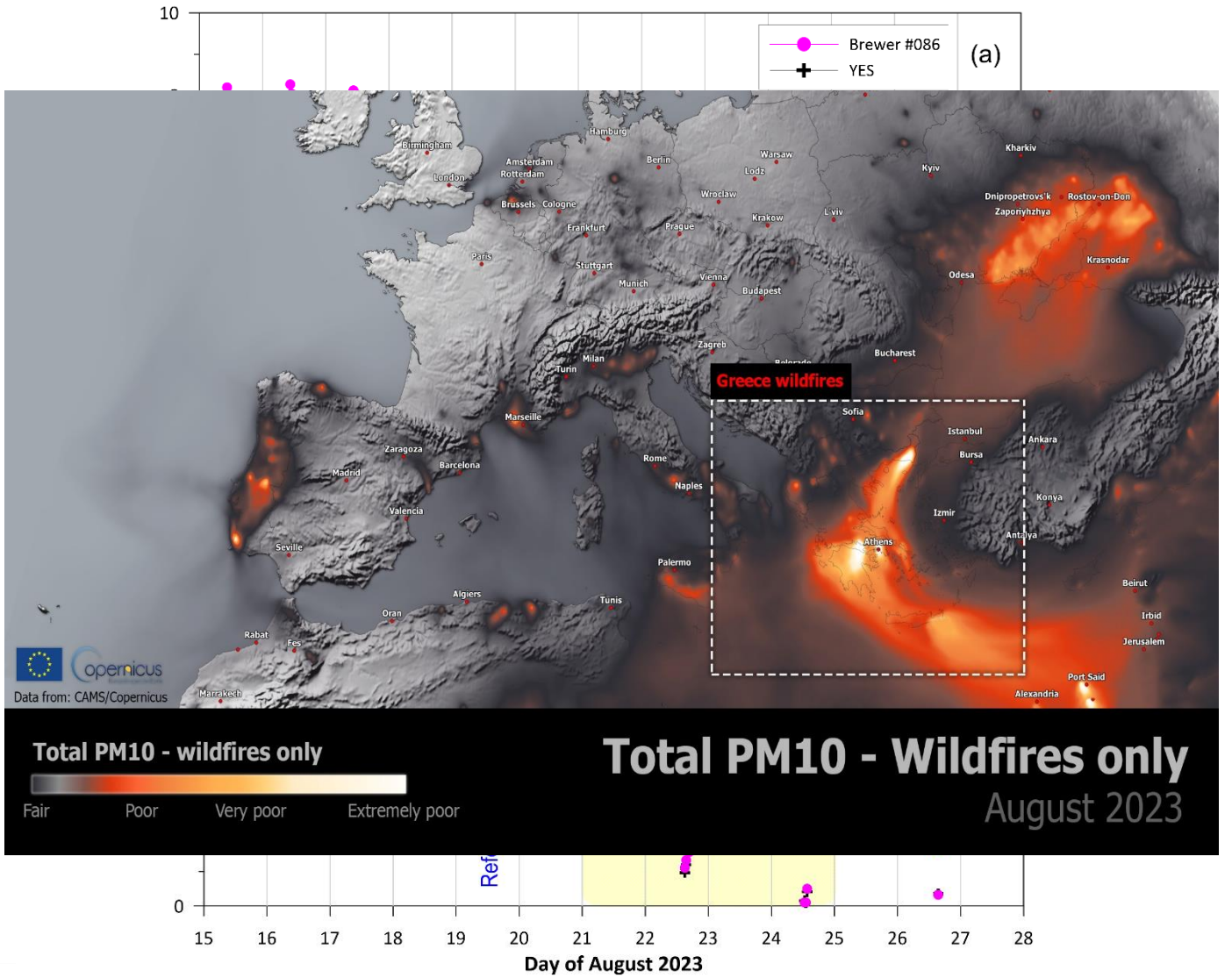




See poster P3.22 by Michailidis et al.

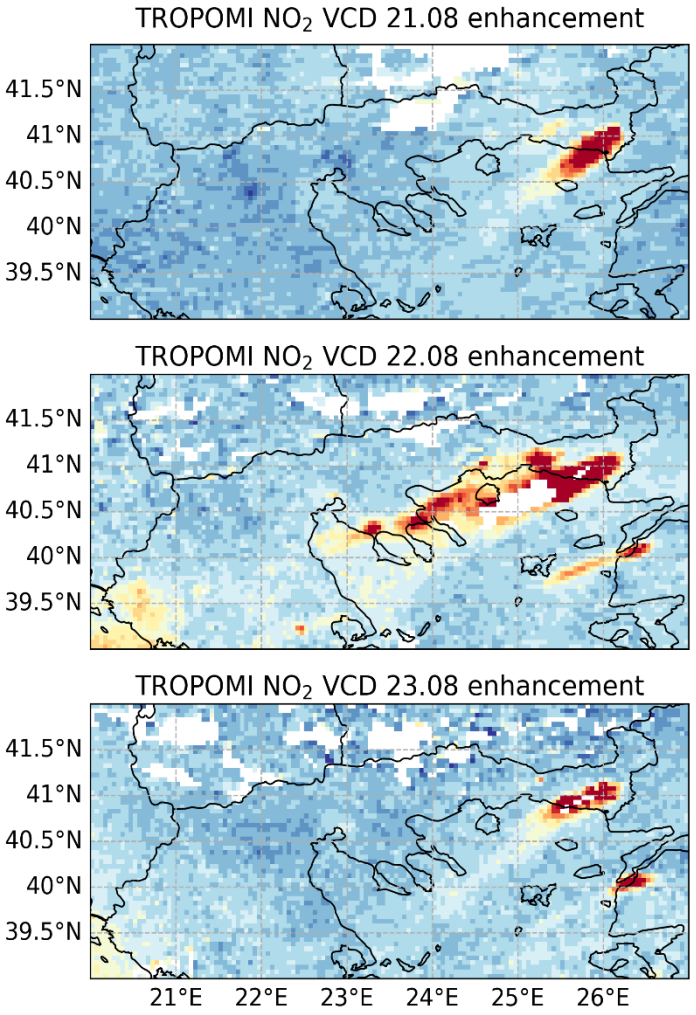
Impact on aerosols, UVI and PM10 over Thessaloniki

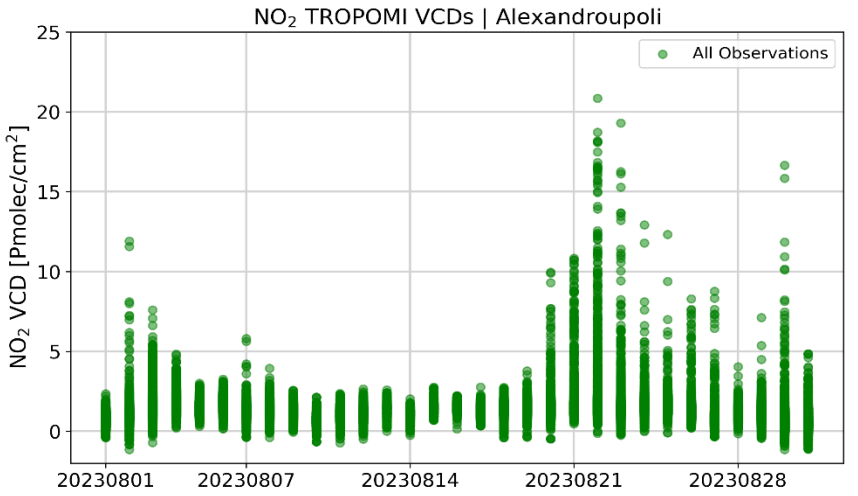


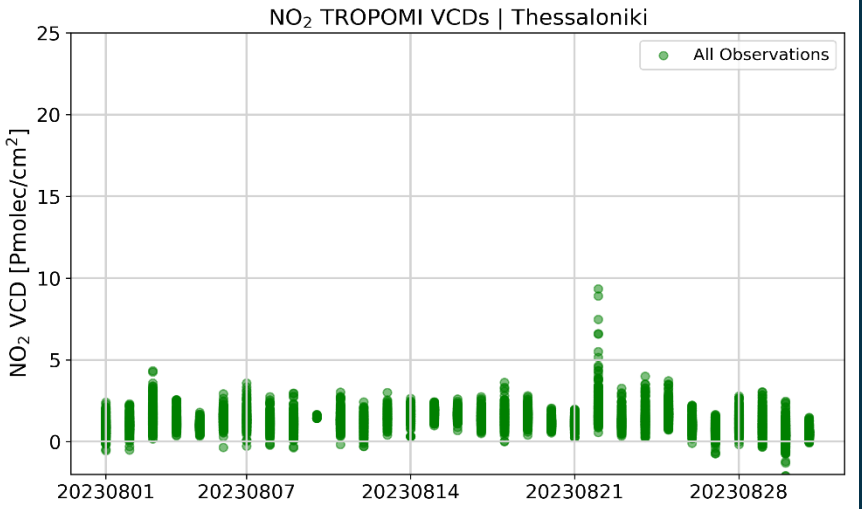


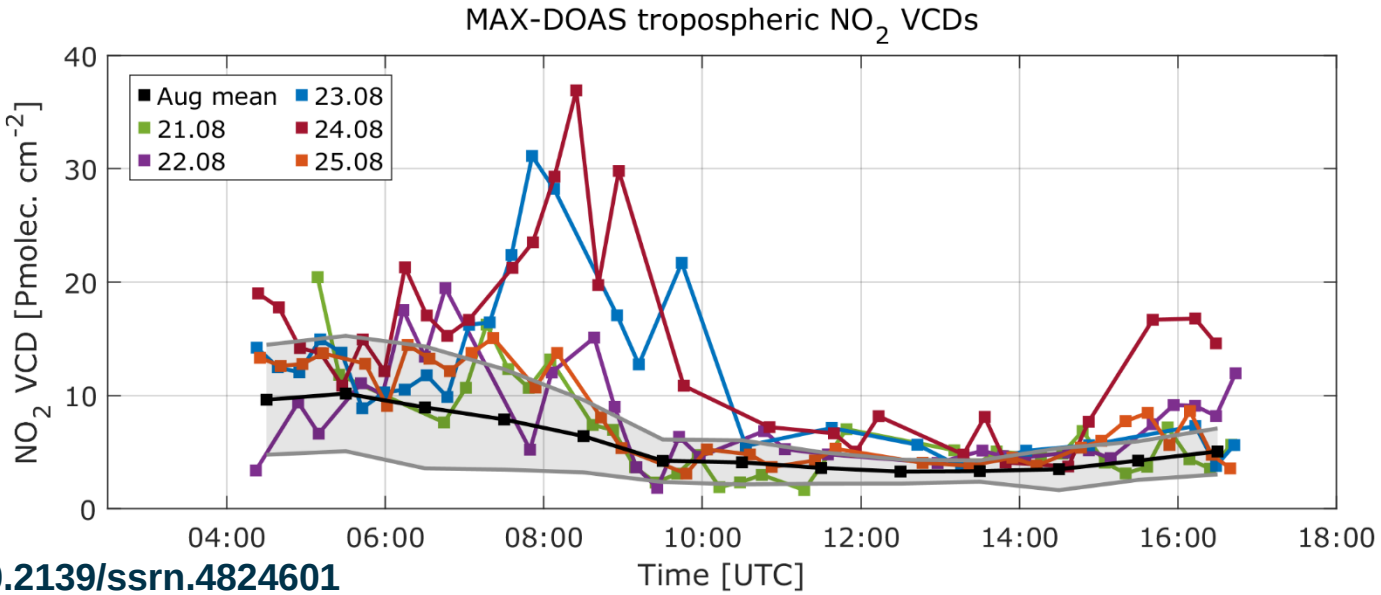
See poster P3.22 by Michailidis et al.

Impact on tropospheric NO_2 levels in the region



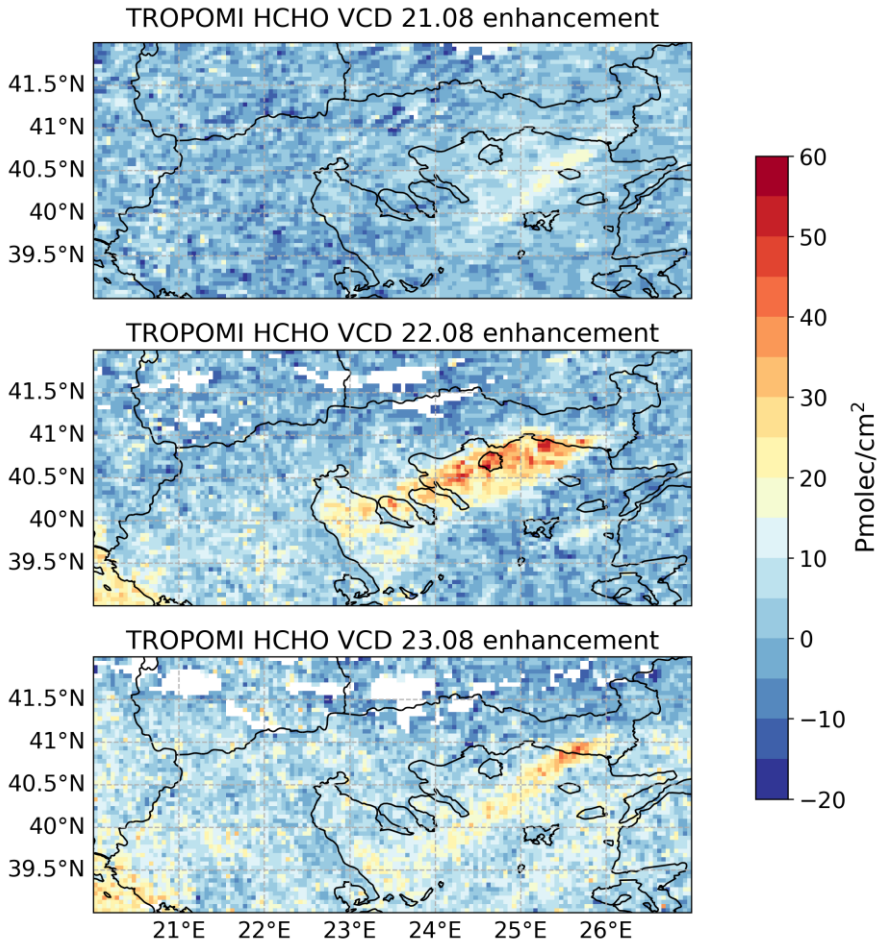


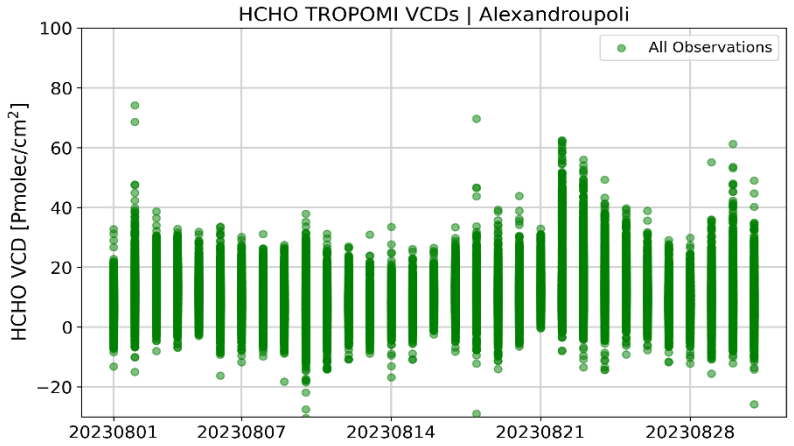


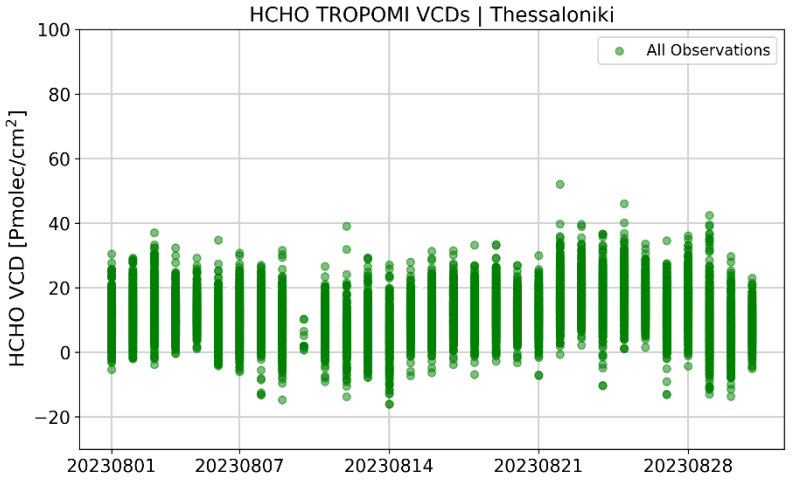


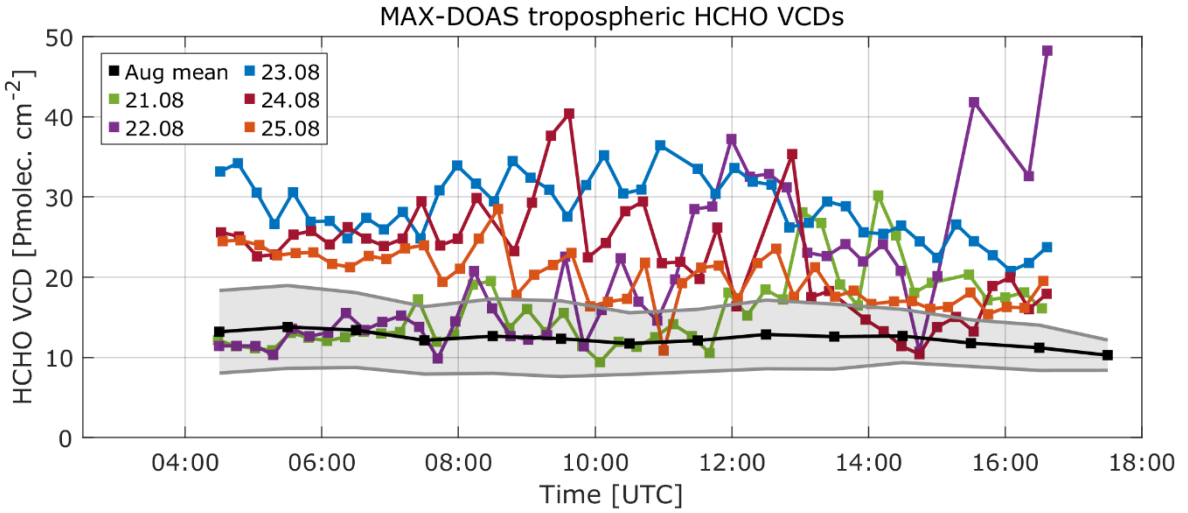
See poster P3.7 by Koukouli et al. & https://dx.doi.org/10.2139/ssrn.4824601

Impact on HCHO levels in the region



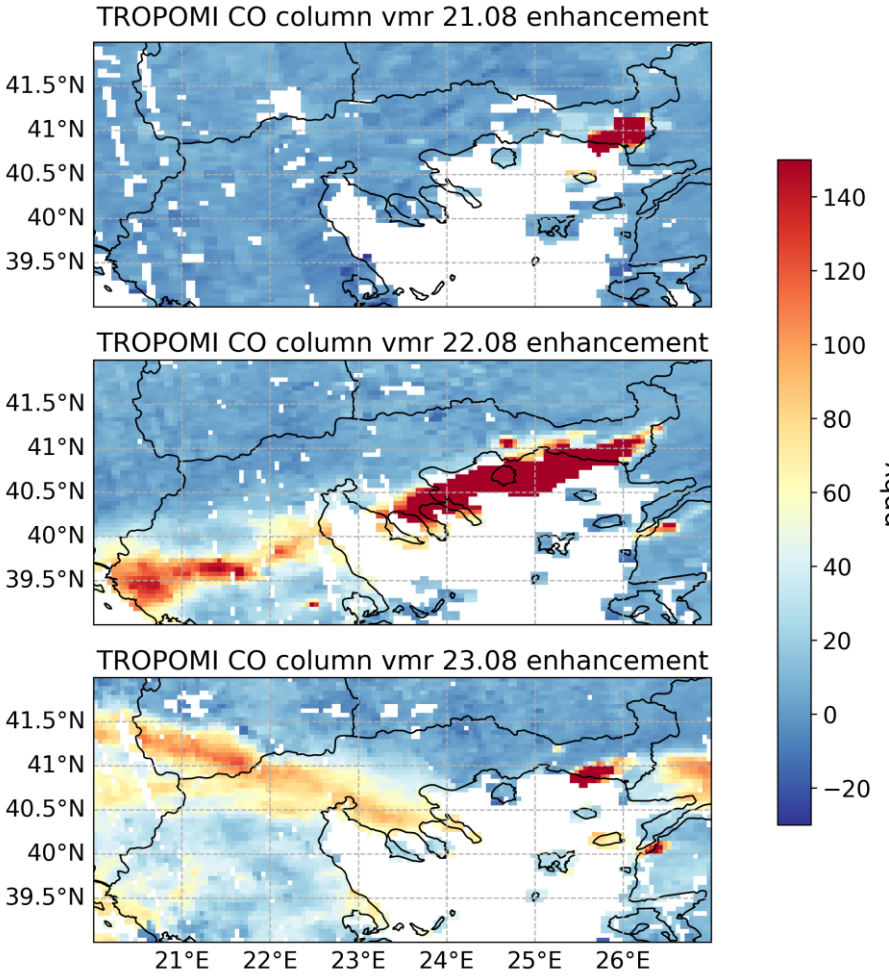


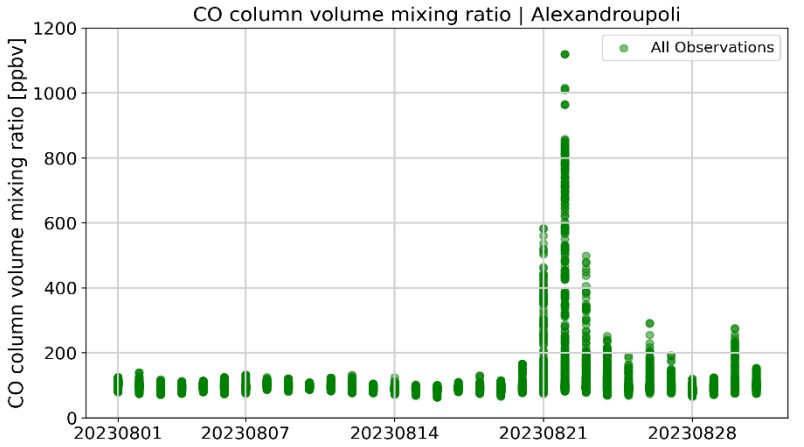


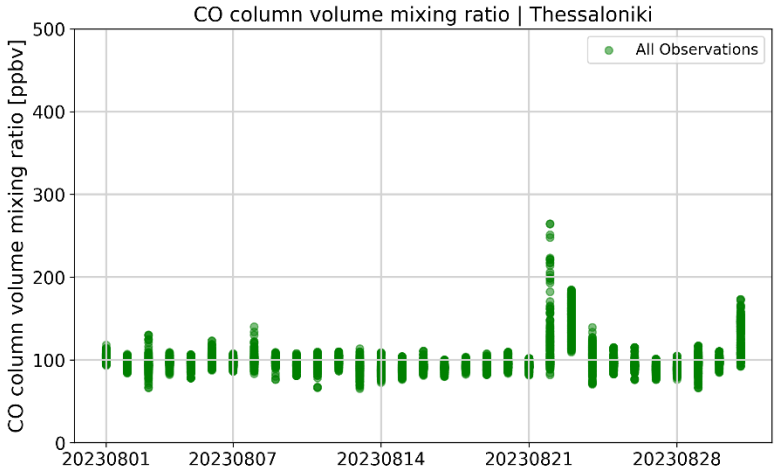


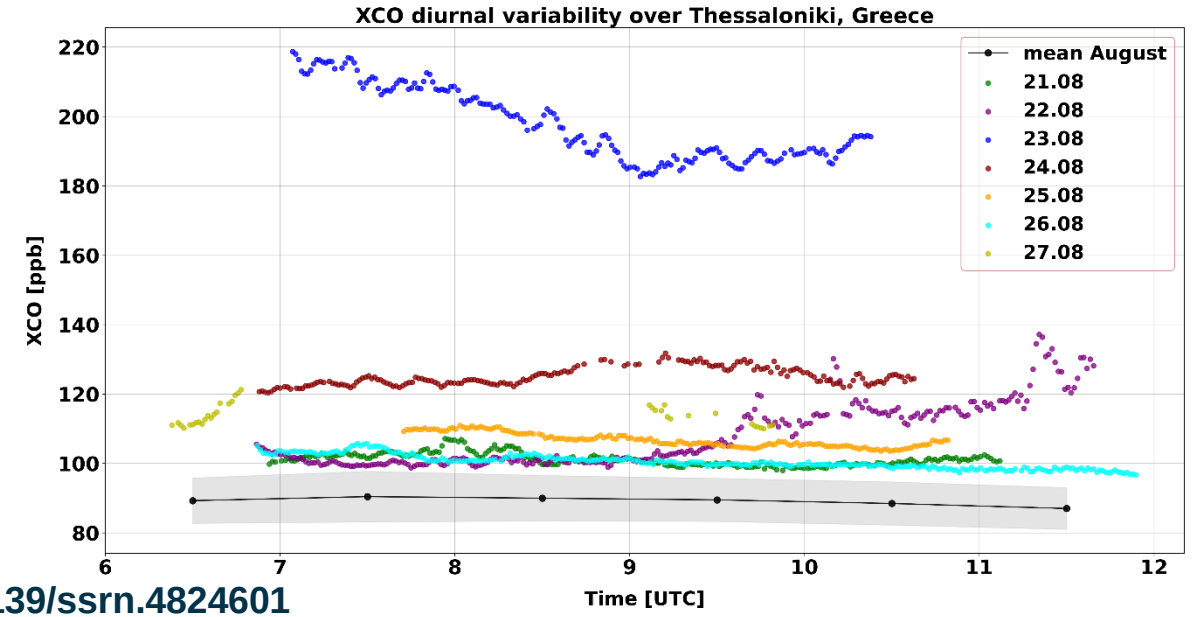
See poster P3.7 by Koukouli et al. & https://dx.doi.org/10.2139/ssrn.4824601

Impact on CO levels in the region





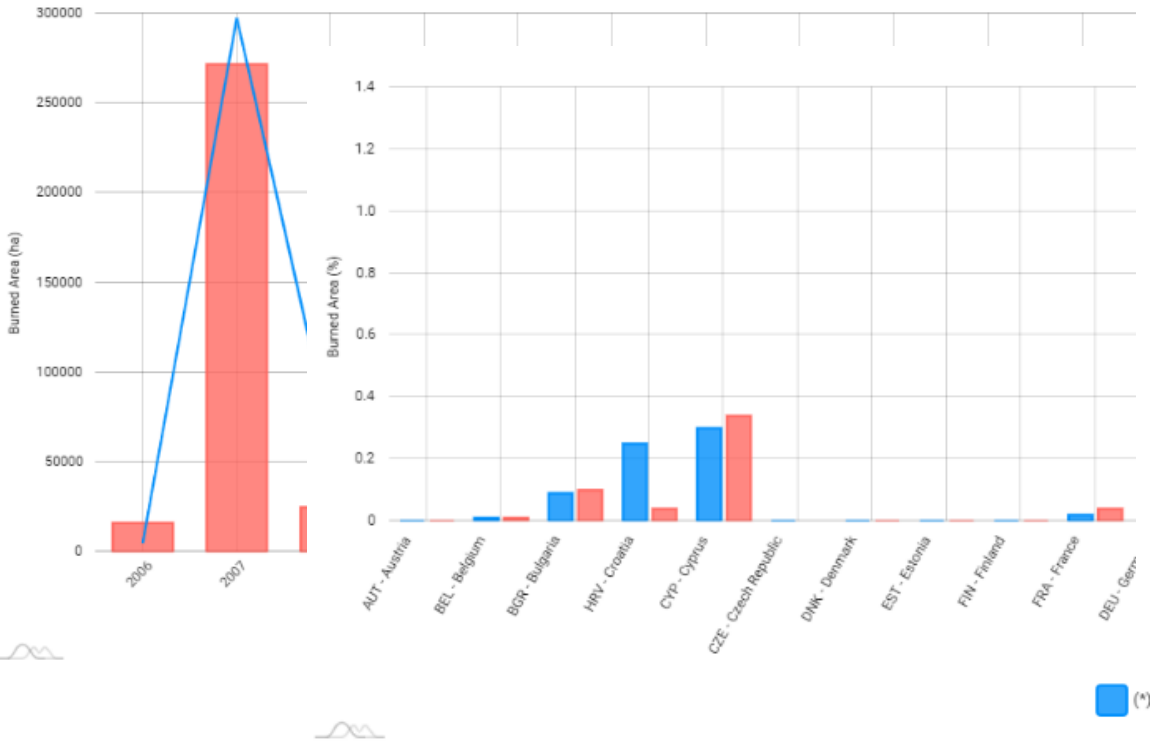


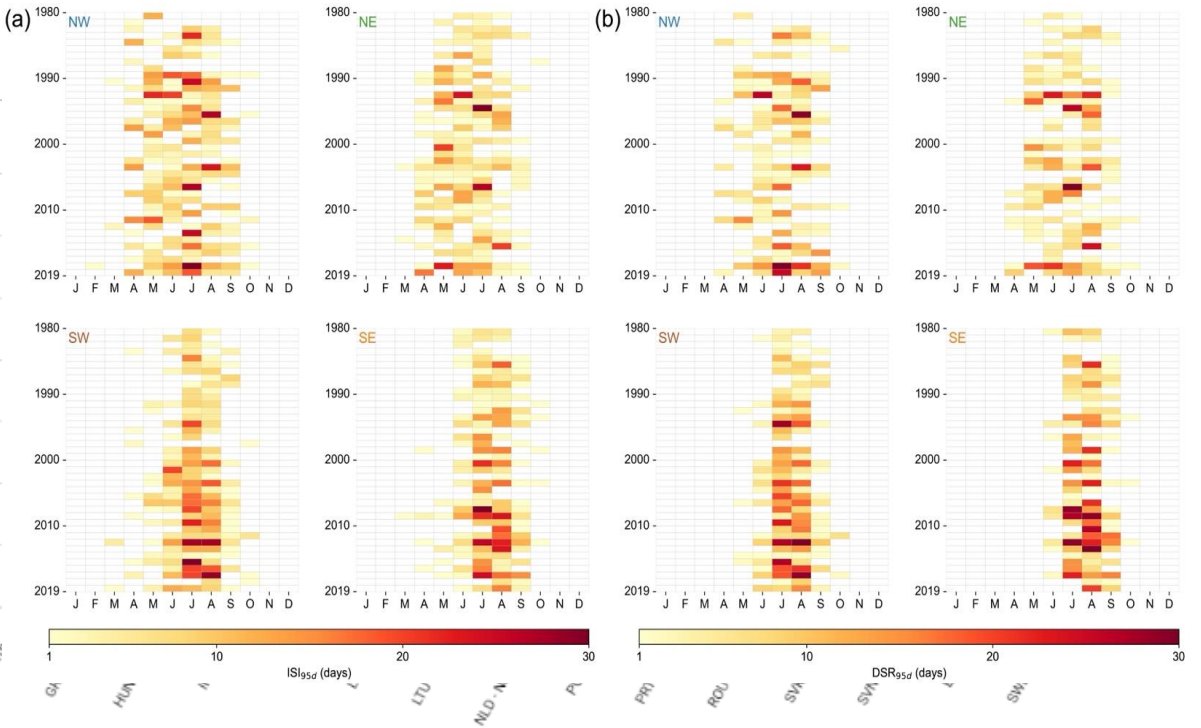


See poster P3.7 by Koukouli et al. & https://dx.doi.org/10.2139/ssrn.4824601

Are such events more frequent?

European Forest Fire Information System (EFFIS)
Annual statistics for Greece





Initial Spread Index (ISI)

ISI integrates the moisture content of fine fuels and wind speed to provide a numeric rating of the potential rate of fire spread

Daily Severity Rating (DSR)

DSR reflects the non-linear increase in the difficulty of control as the fire grows

Giannaros et al., https://dx.doi.org/10.2139/ssrn.4428674, 2023


Let’s hope that wildfires will not give the tone in a future climate
Thank you for your attention