

# Pollen, chemical air pollution and health: a progress update

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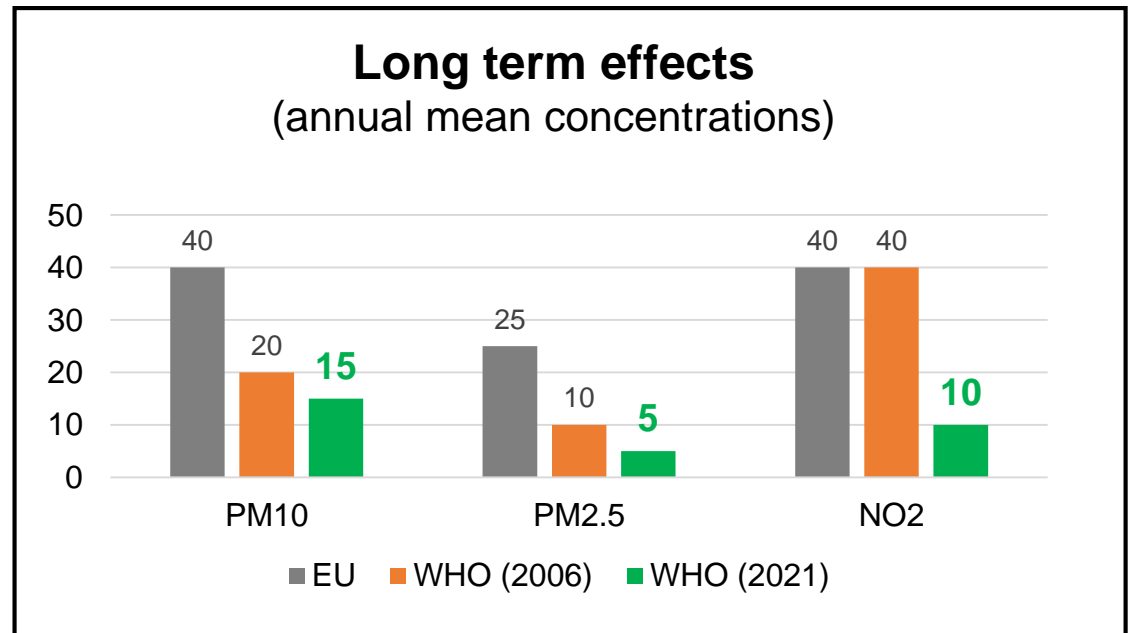
## GLOBAL HEALTH & WELL BEING



Webinar “Imaging global health in a less polluted Earth” (5 March 2024)

# WHO global air quality guidelines

- Quantitative health-based recommendations
- PM<sub>2.5</sub>, PM<sub>10</sub>, O<sub>3</sub>, NO<sub>2</sub>, SO<sub>2</sub>, and CO
- Only evidence of high-to-moderate certainty
- Long- and short-term effects



# Revision of the Ambient Air Quality Directives

- European Commission proposed to revise AAQDs ([26 Oct 2022](#))
- EU Council and European Parliament reached a provisional political agreement ([20 Feb 2024](#))



1. Lower AQ standards by 2030
  - **Not WHO recommended levels**
  - **Postponements up to 10 years**
2. Roadmaps and plans
3. Review clause
4. Justice and compensation



## EU cuts toxic air limits but still falls short of WHO guidelines

Rules hailed as once-in-a-generation chance to improve air quality but loopholes will let member states delay by up to a decade



📹 The Milan skyline. A Guardian investigation found that 98% of Europeans were breathing air dirty enough to exceed WHO limits. Photograph: Luca Bruno/AP

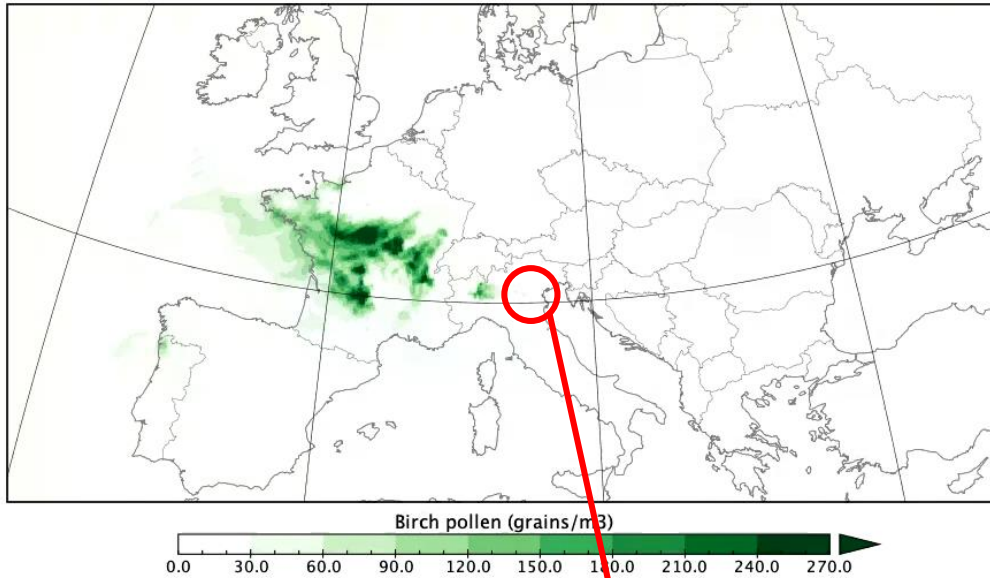
The **European Union** has agreed to set stricter limits on the toxic particles and dangerous gas that dirty its air, but will not aim for the levels that doctors and economists recommend.

# Pollen

- Pollen-induced allergies affect ~20% of the world's population
- Climate change is extending the duration of pollen seasons, increasing pollen load and allergenicity of pollen grains
- Pollen and chemical air pollution can interact
- Since pollen can travel many kilometers in the wind, prevention strategies based on emission reduction are difficult to implement
- There is mounting interest in the development of high-resolution spatiotemporal models of pollen exposure

# Copernicus Atmospheric Monitoring Service (CAMS)

CAMS Birch Pollen Forecast 25 to 29 March 2022 (Hours from 25 March 0h UTC)  
FORECAST time from 20220325: 0.00000



<https://atmosphere.copernicus.eu/>

**MEETOUT project**  
**Veneto region**  
(year 2019)



Alder



Birch



Grass



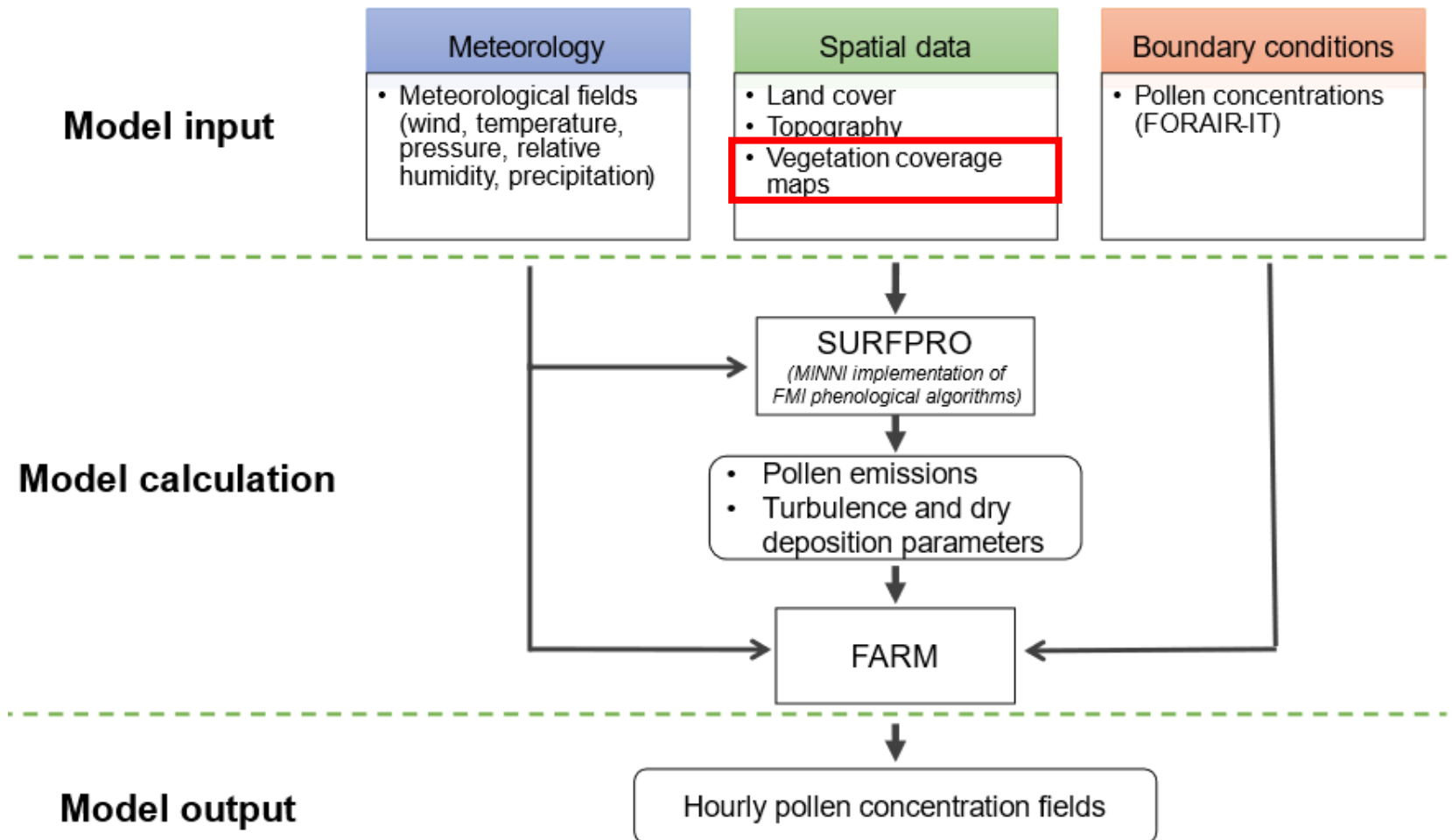
Ragweed



Olive

# Development of a pollen modelling system

MEETOUT project



## Pollen modelling systems: final remarks

- Addressing the limitations of pollen modelling systems can enhance short-term pollen forecasts
- Personal pollen forecasts provided through a smartphone App can improve the quality of life of individuals with allergies
- Research is now addressing the complex interplay between chemical, aerobiological air pollutants, and meteorology

# Thank you for your attention



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