



## EGU General Assembly 2022

Session: NH7.1: Spatial and temporal patterns of wildfires: models, theory, and reality

Section: Fire prevention: modelling and mitigation (abstract #13361)

Vienna, Austria & Online | 23–27 May 2022



# Transformation of Forests to Close-to-Nature Forest Management in Ukraine: Nature-based silvicultural and fire management methods for increasing the resilience of pine stands to drought and wildfire (RESILPINE project)

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<sup>1</sup>*Regional Eastern Europe Fire Monitoring Center (REEFMC), Kyiv, Ukraine*

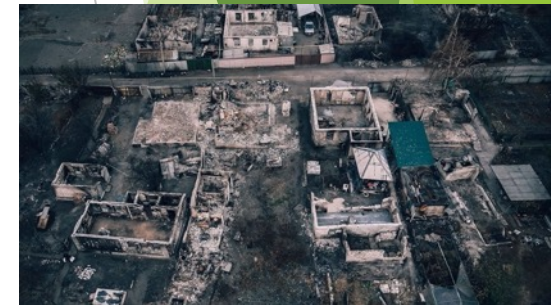
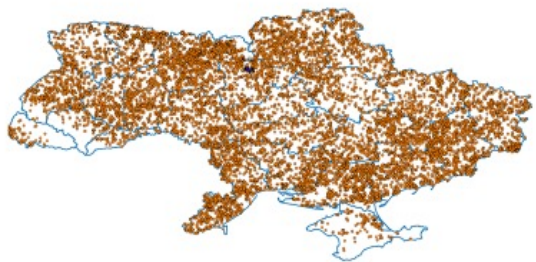
<sup>2</sup>*National University of Life and Environmental Sciences of Ukraine, Kyiv, Ukraine*

<sup>3</sup>*Global Fire Monitoring Center (GFMC), Max Planck Institute for Chemistry, Freiburg, Germany*

# During last decades areas of landscape fires in Ukraine increased in orders of magnitude

## Reasons: wide use of fires in agriculture and climate change

- ▶ Annual area of fires on cultural landscapes (crop lands, pastures, flood lands, abandoned lands, etc) reaches 0,5–1 m. ha (2014, 2015) (Zibtsev et al., 2019)
- ▶ Annual area of forest fires reached unprecedented 180 000 ha (2020), including 67 000 ha in the Chornobyl Exclusion Zone
- ▶ During fires of 2020 first time in Ukraine 22 villages impacted by fires, 800 houses burned with 17 fatalities



# Cross-sectoral Dimension of Fire and Fire Management in Ukraine

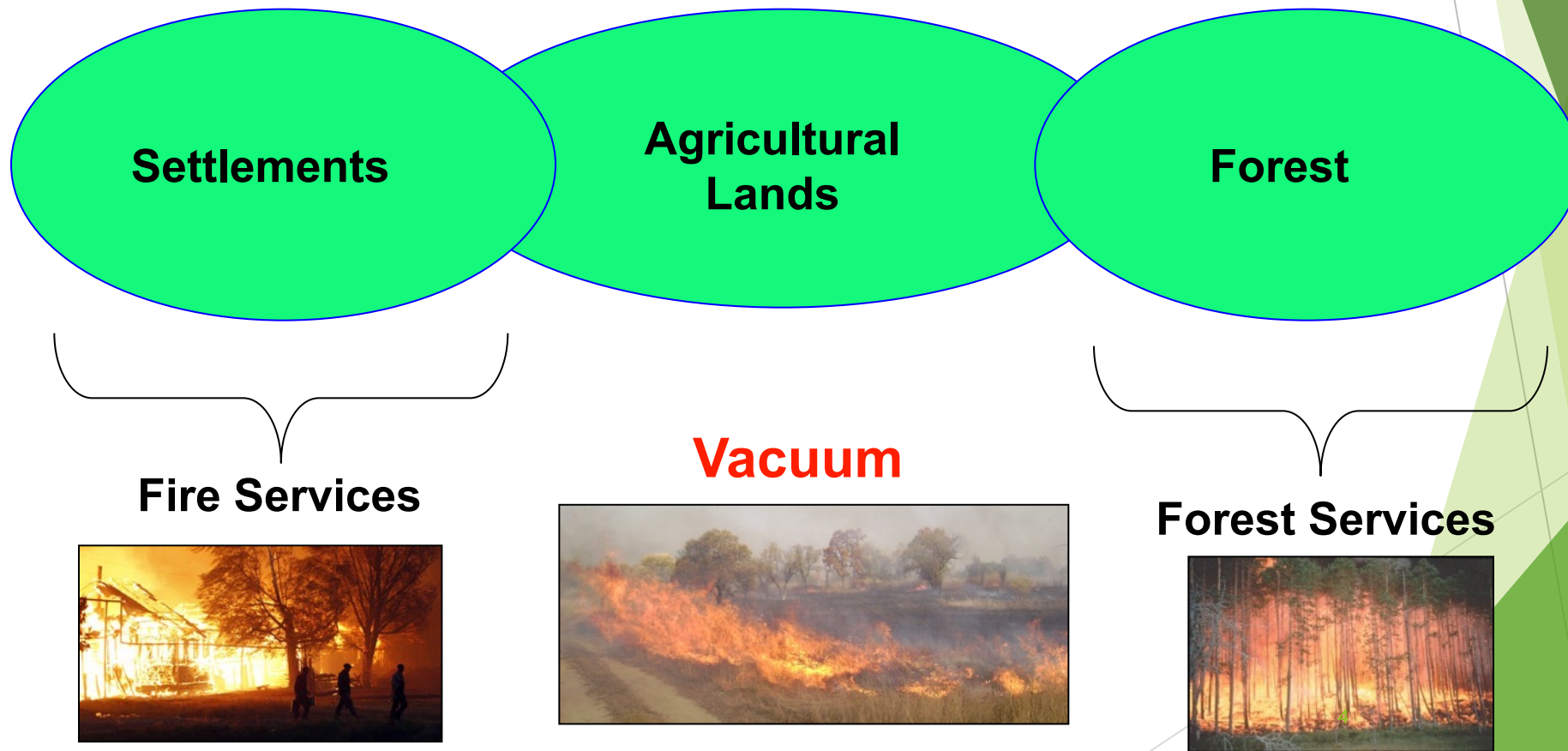
**Wildfires and land-use fires affect the intermix of natural, cultural and urban-industrial landscapes**

- Natural ecosystems: Forests and other protected areas (9,6 m. ha)
- Agricultural and pasture lands (> 40 m. ha)
- Farms, villages and peri-urban areas
- Infrastructures (incl. critical infrastructures), traffic
- Waste deposits and otherwise contaminated lands





**Legal / technical vacuum for managing agricultural fires which are the prime source of wildfires affecting forests, other ecosystems and rural / peri-urban settlements**



**Globally – most forest fires are caused by agricultural burning**

## Two main approaches for solving problem of extreme fires

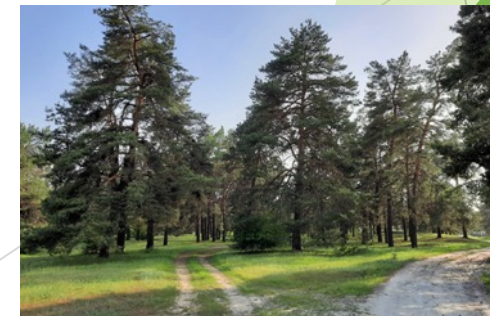
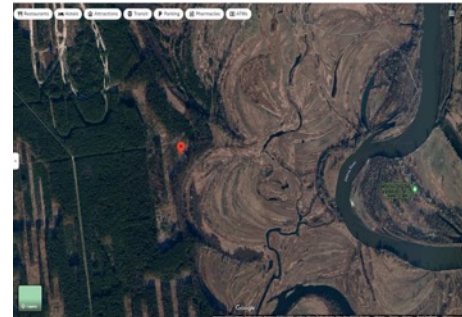
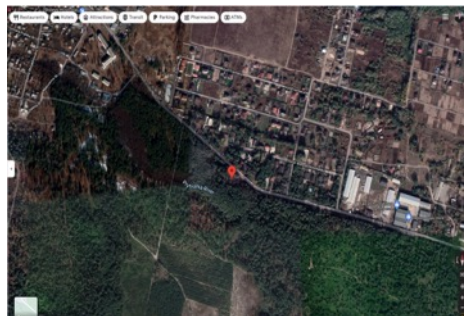
- ▶ **Traditional fire suppression approach:** increasing technical and human capacity of fire suppression e.g. - more funding to fire engines, fire airplanes, fire teams
  - ▶ Could not be only solution in the era of climate change as it was shown by fires in Australia (2020), Greece (2021), Turkey (2021), Ukraine (2020), USA (2020-2022) etc.
- ▶ **Complex approach with accent on prevention:**
  - ▶ better interagency co-operation and implementation national prevention strategy
  - ▶ long – term silvicultural measures toward fuel reduction, creating fire resilient landscapes and communities



# German - Ukrainian project “RESILPINE”

## Within the project next actions taken in Ukraine:

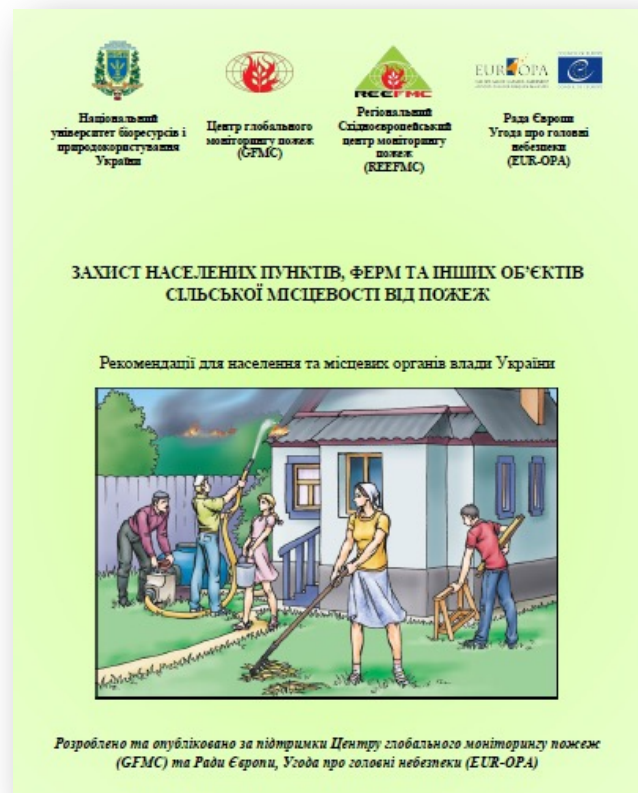
- ▶ National Strategy for the Integrated Landscape Fire Management <https://nubip.edu.ua/en/node/9087/10>
- ▶ Silviculture measures for conversion of pure pine stands to complex mixed with broad leaves fire resilient stands
- ▶ Planted fire resilient edges and fuel reduced in fire prone landscapes by applying of prescribe burning
- ▶ Trainings with local communities and volunteers on increasing of settlement resilience to fires
- ▶ Fire management in forests contaminated by UXO





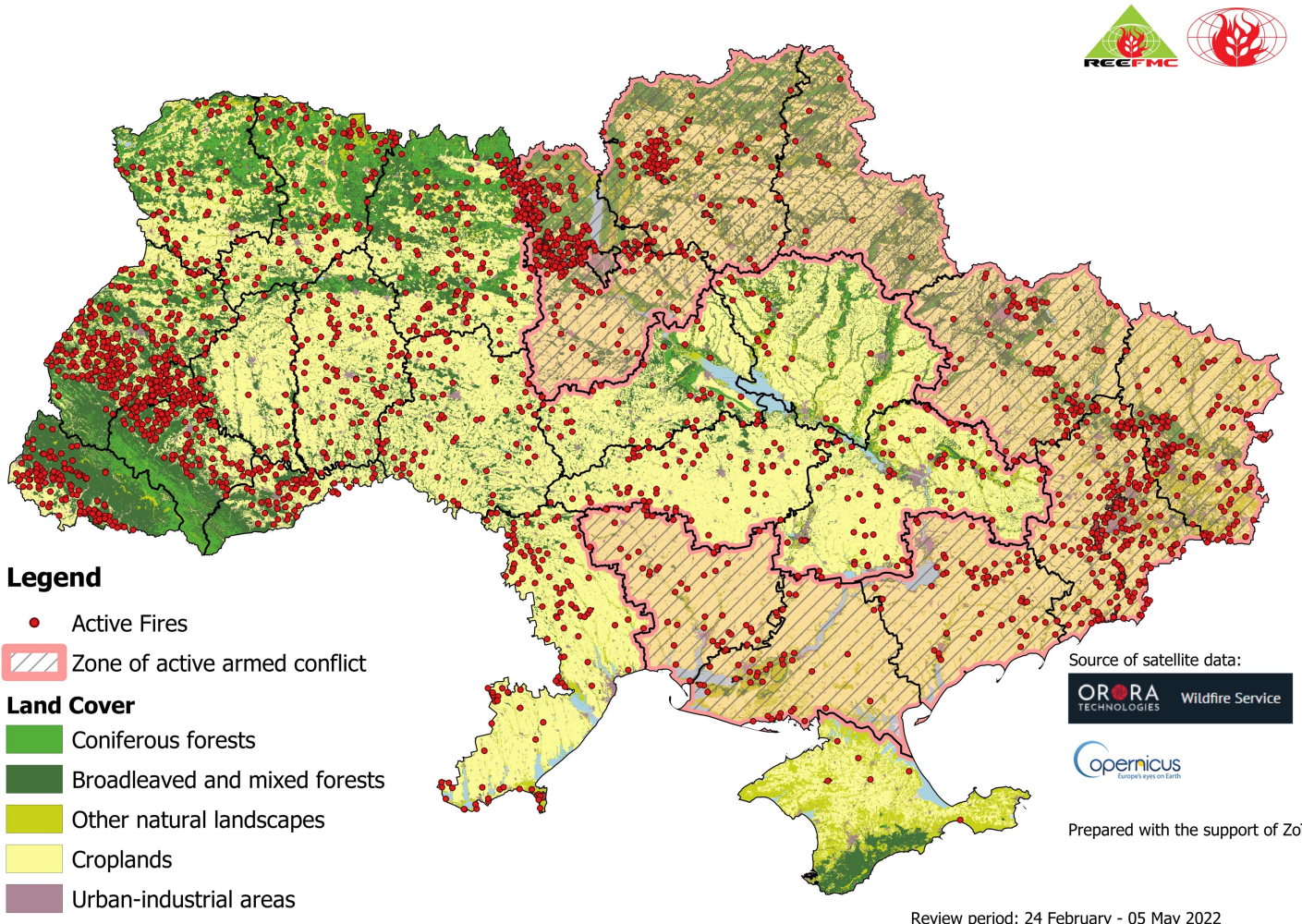
# Fire resilient communities: Guidelines for Village Defence against Fire for Local Communities and Municipality Leaders of Ukraine

[https://nubip.edu.ua/sites/default/files/u184/ua\\_guidelines-local-authorities\\_v14\\_2.pdf](https://nubip.edu.ua/sites/default/files/u184/ua_guidelines-local-authorities_v14_2.pdf)



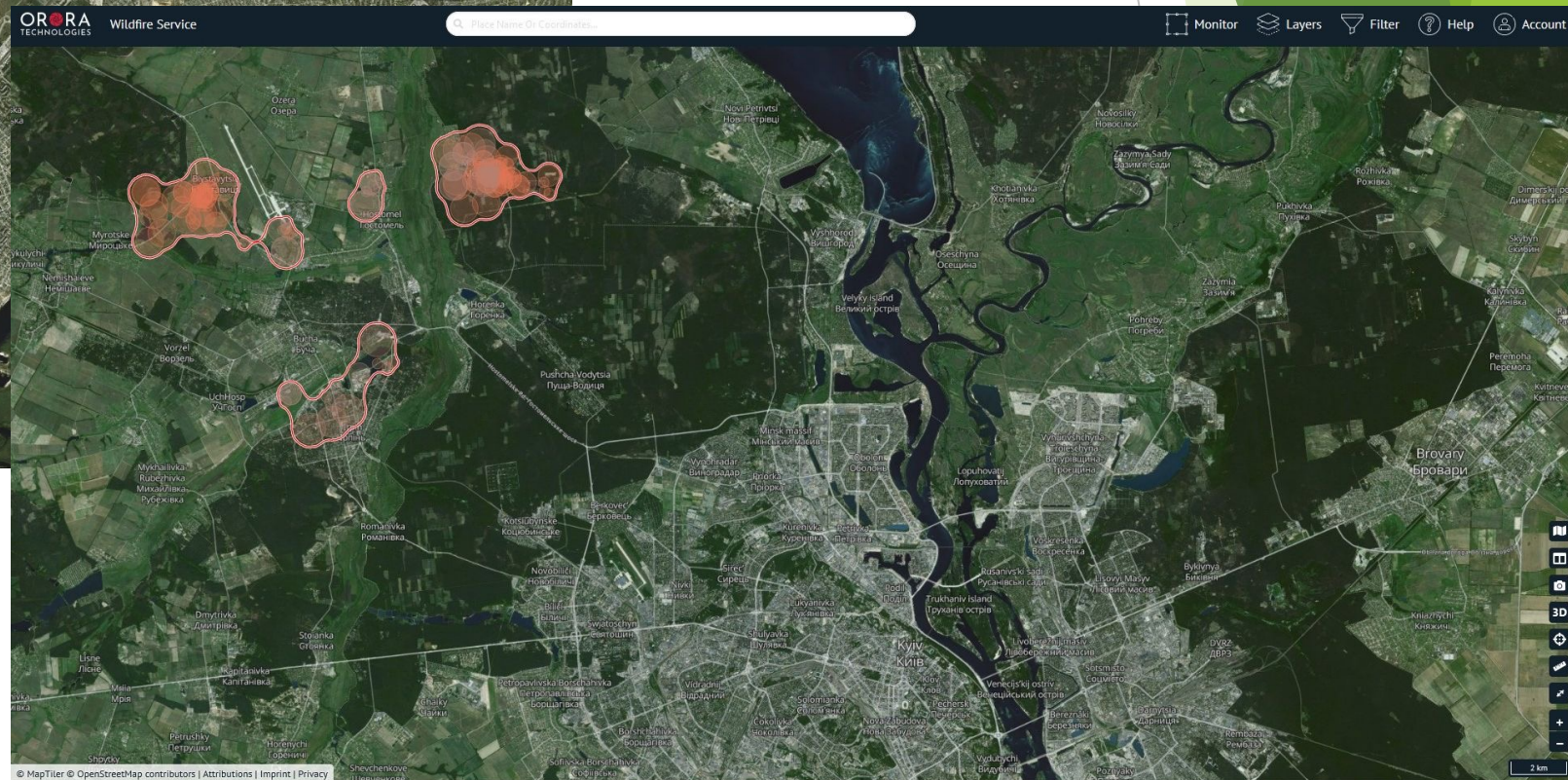
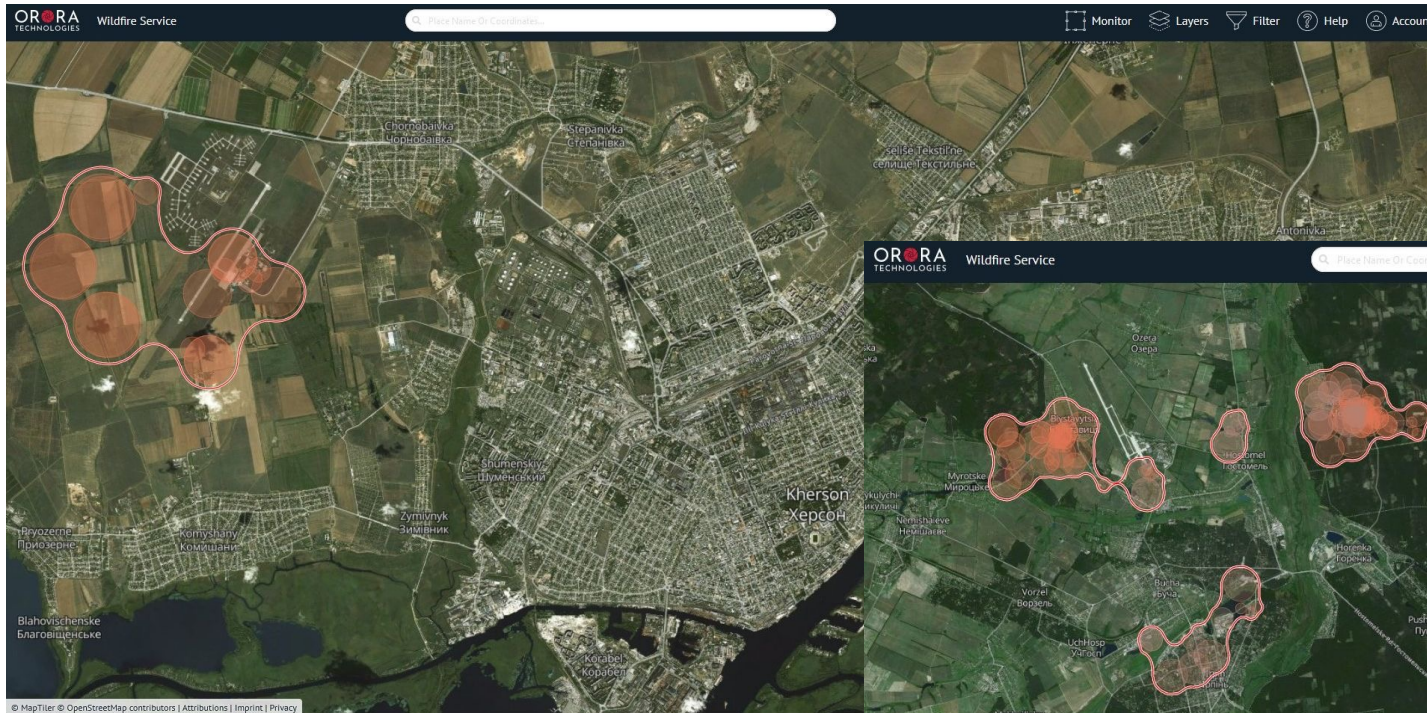
# Wildfire monitoring during the war in Ukraine 2022

Accumulated 24 February – 05 May 2022





# Wildfire and urban-industrial fire monitoring during the war in Ukraine 2022





# Wildfire and urban-industrial fire monitoring during the war in Ukraine 2022





## Luhansk and Donetsk, Ukraine, April 2022







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# Thanks for your attention!



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