





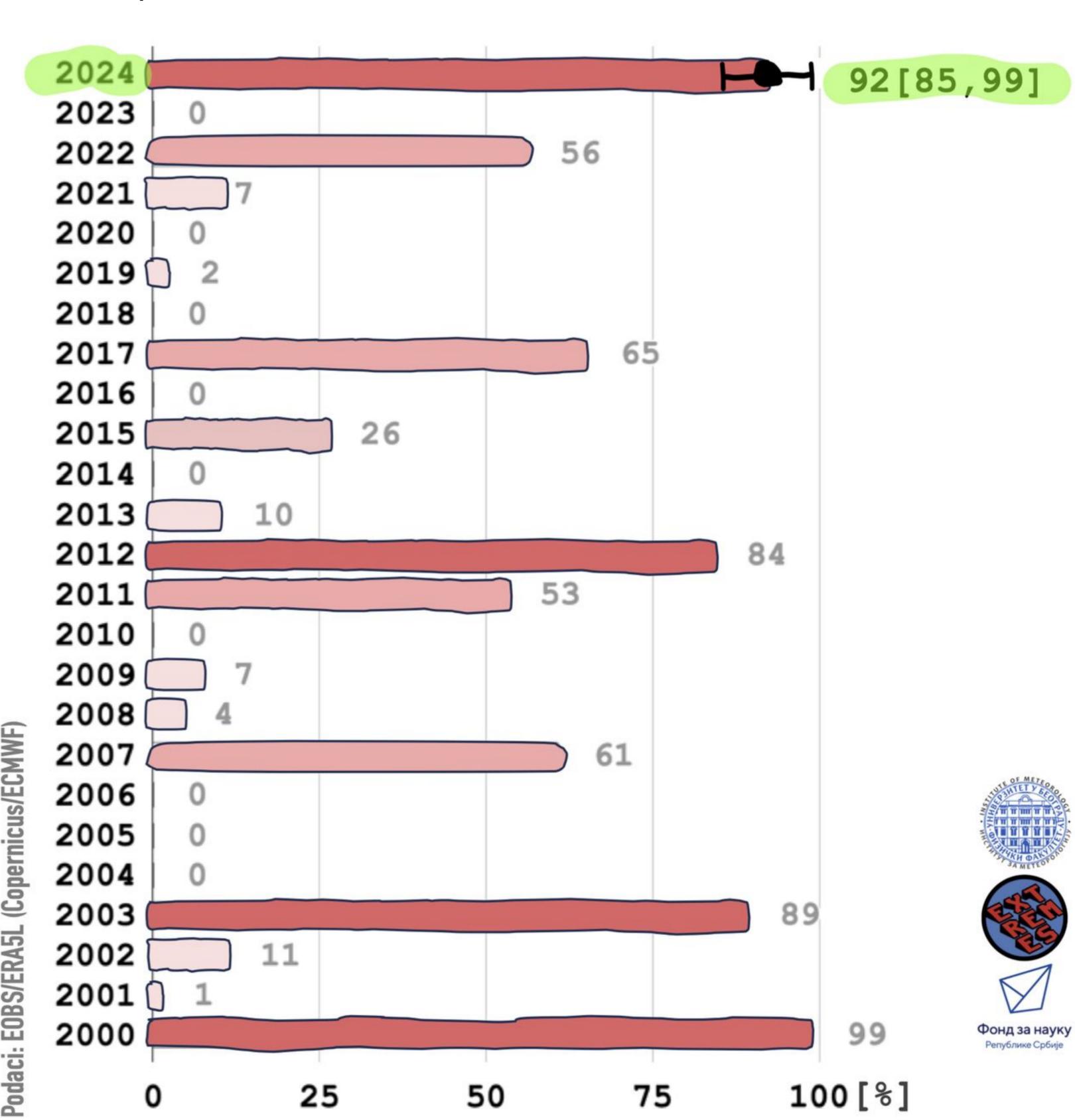
Drought resilience and impact monitoring on the Balkans under global change: current picture and possible solutions

Maria Kireeva, Oskar Marko, Gordan Mimić, Mirjana Radulović, Branislav Živaljević, Branislav Pejak

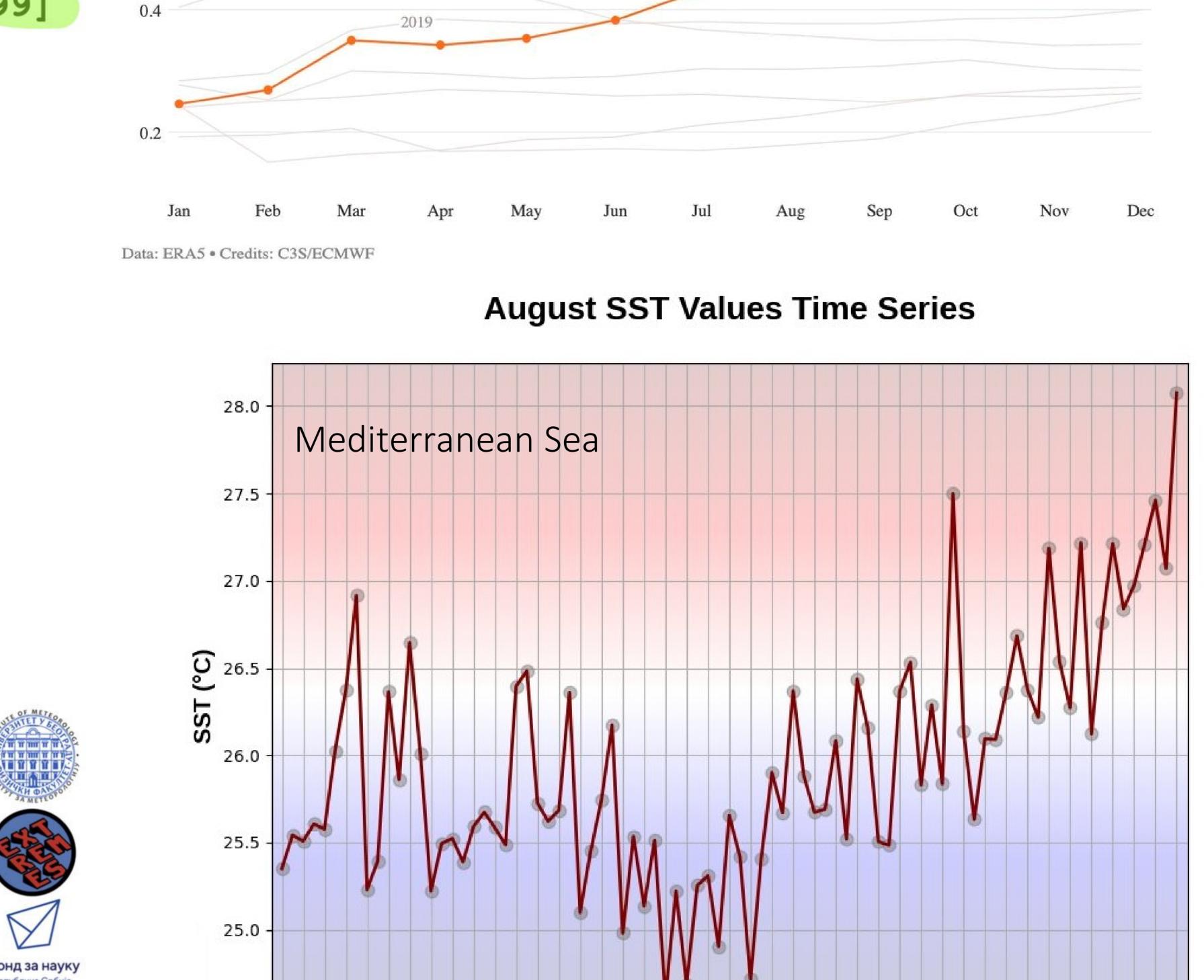
2024 drought impacts and consequences:

- Total direct loss of yield in Serbia from 10-15 to 30-40 % (total loss from 1,1 to 3 bln. euro)
- Agro producers indicate that food supply for livestock is enough only until winter in Serbia
- - 30% electricity production on HYPs in Bosnia and Herzegovina (August 2024)
- Water levels in BIH rivers dropped below ecological minimum, aquatic ecosystems were suffered
- Sarajevo City facing serious water supply crisis, in some wells water levels were near to critical for pumping
- Croatia: lower yield for maize (50%), soybean (70%), sugar beet (80%)
- Hungary: drought damaged area reached 400 ths he

Percentage of area under extreme drought conditions in Serbia based on SPEI for March - August, created by EXTREMES project https://extremes.in.rs/



Credentials: Vladimir Durdevic

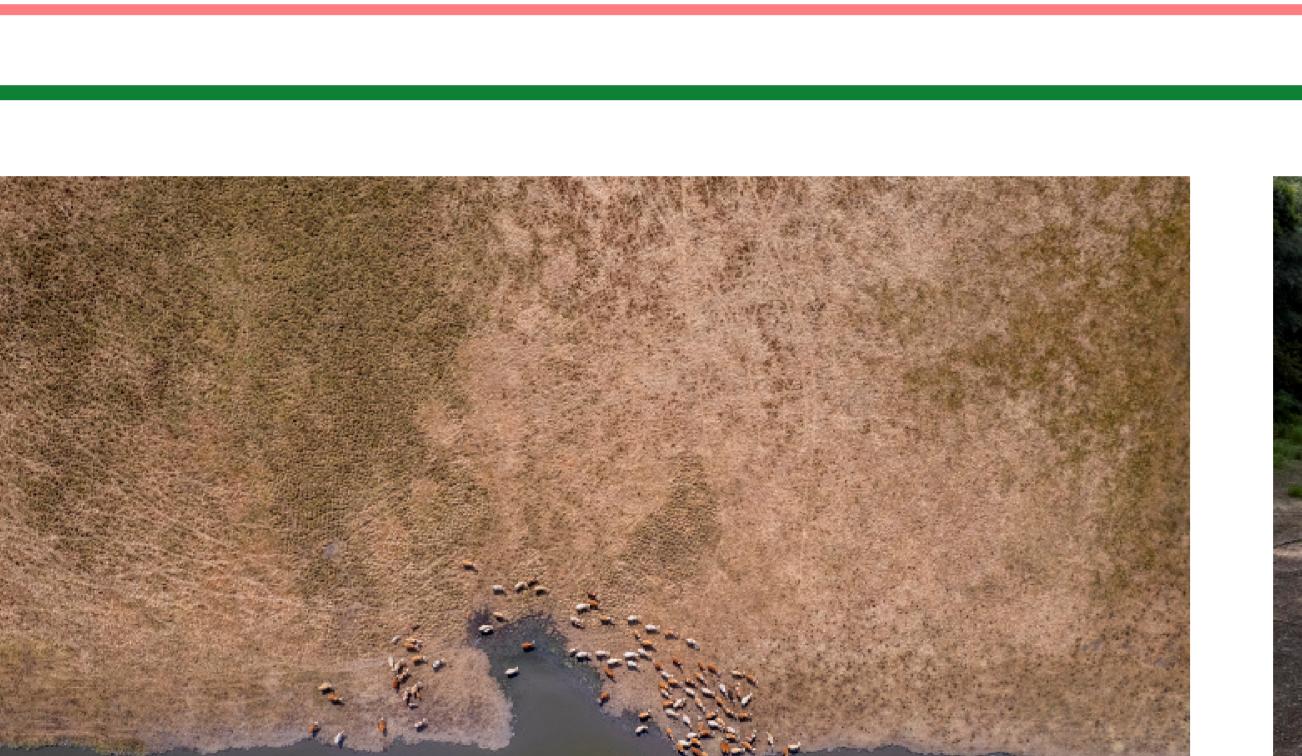


Surface temperature global anomaly:

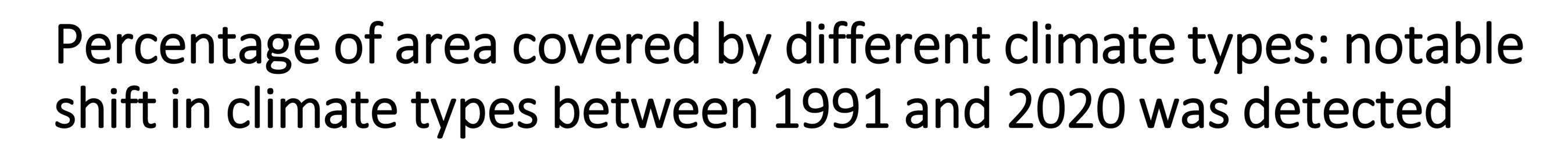
+0,7 to average, +0.23 to 2023

2024. augusztus 31.

Combined Satellite image of Middle Danube before and after 2024 drought period, https://www.idokep.hu







1961-1990:

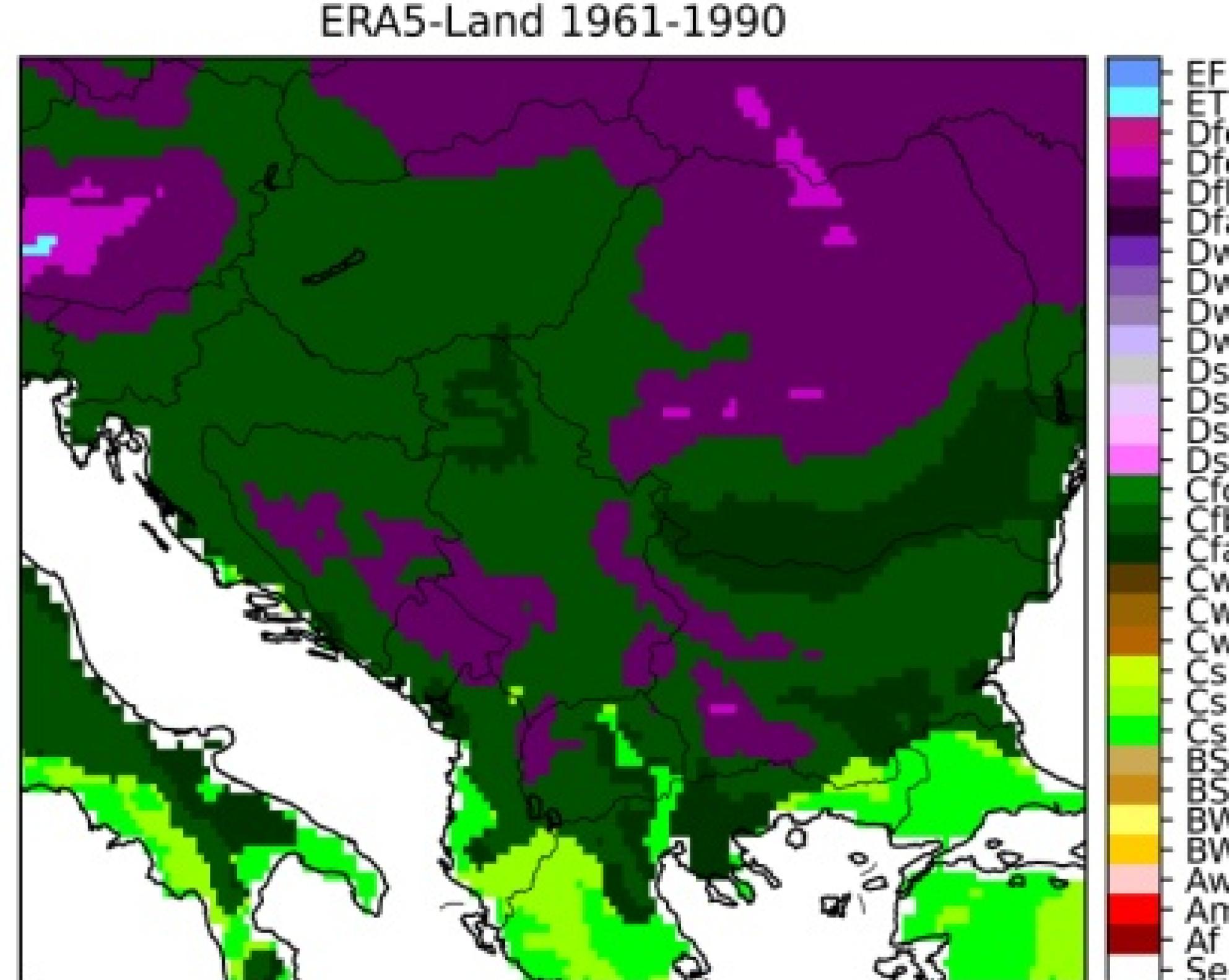
fully humid temperate climate with warm summers (Cfb) 52% fully humid continental climate with warm summers (Dfb) 31 %

fully humid temperate climate with hot summers (Cfa) 14%

1990-2020:

fully humid temperate climate with warm summers (Cfb) 45 % fully humid continental climate with warm summers (Dfb) 12 % fully humid temperate climate with hot summers (Cfa) 40 %

More details in: G. Mimic, 2025 (in print)



ERA5-Land 1991-2020



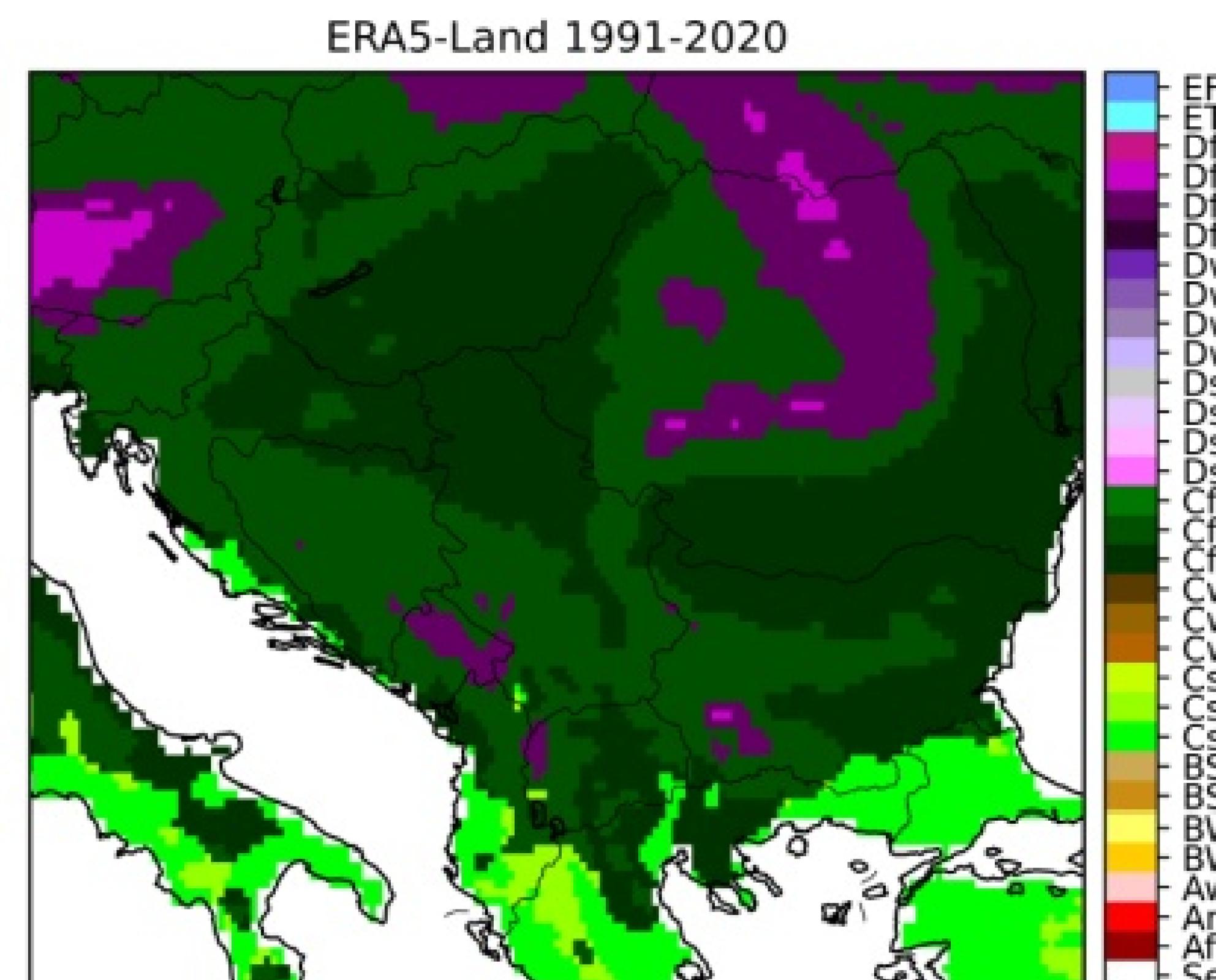




- 3, 4 A sunflower field affected by weeds near Vámosgyörk on August 13, 2024 Photo: MTI/Péter Komka 5,6 – dried irrigation canals on September 7, 2024 – Photo: Maria Kireeva
- 1-4 https://www.agroinform.hu/

Combined Drought Indicator (CDI) v4.0 **CLIMATE CLASSIFICATIO** CONTINENTAL By European Drought Observatory: //earthhow.com/koppen-climate-classification https://drought.emergency.copernicus.eu/

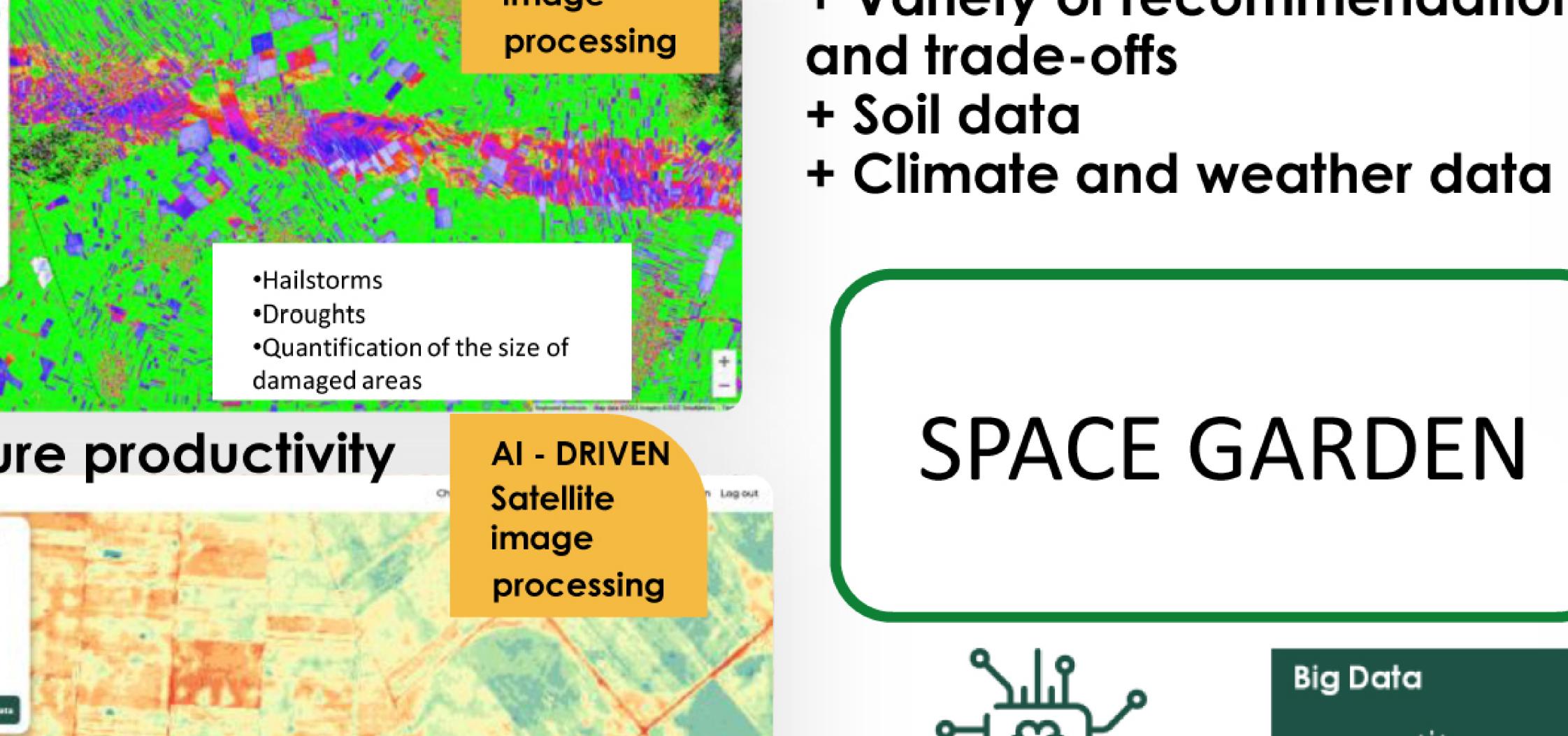
POTENTIAL

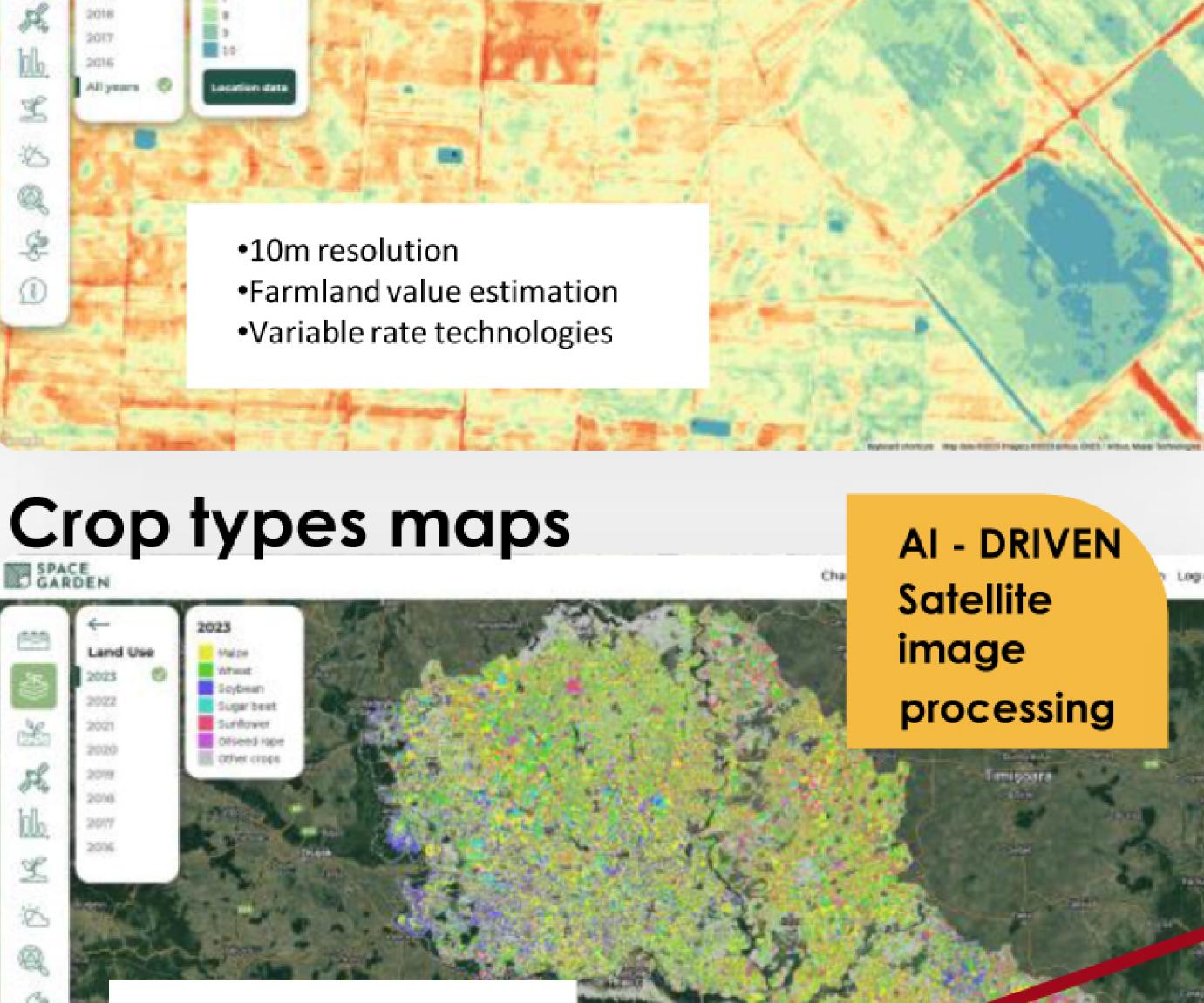


Empowering agriculture with data

Strategic insights in crop production based on cutting edge AI technologies

CROPT First spin-off of BioSense Damage detection processing Quantification of the size of Agriculture productivity AI - DRIVEN processing





+ Variety of recommendations and trade-offs

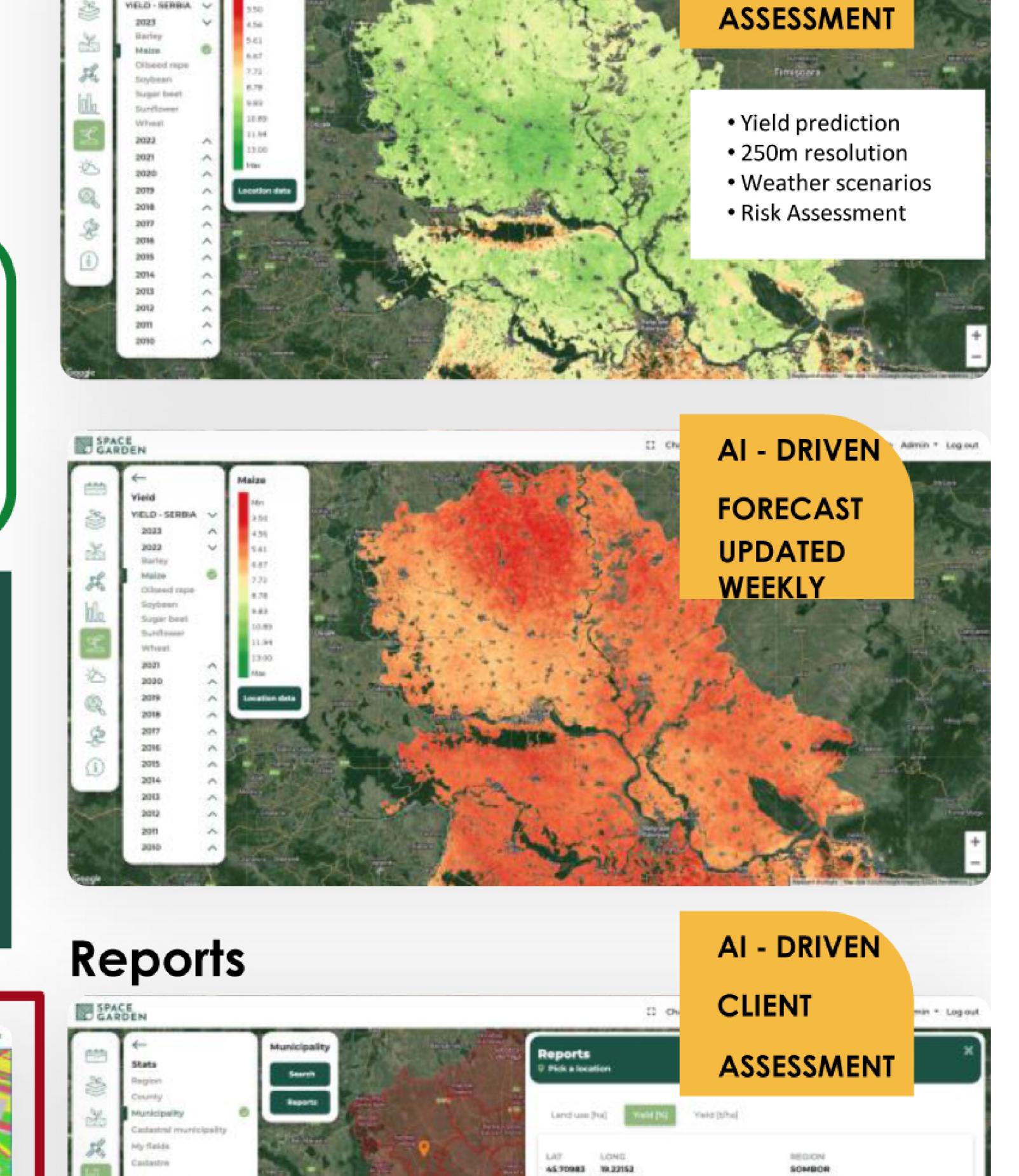
B2B

SPACE GARDEN

Big Data 8 Conventional ML + deep learning + evolutionary algorithms



www.cropt.ag



Crop Growth Monitoring

CHALLENGES:

- Increase production efficiency
- Use the right seeds, fertilisers
- Secure access to finance
- Optimise distribution, logistics
- Reduce environmental impact





Take-away massage:

- Collaboration and co-creation between science, the local community of farmers and businesses can benefit all participants
- •Identifying which municipalities are the most vulnerable to weather conditions is crucial for drought mitiagation
- •Making balanced decisions supported by spatial and temporal data is our future
- •Direct delivery of the latest updates to the business in near real time mode is the mission of drought resilient community