

# Integrating Agriculture Experts in Participative National Drought Monitoring

Monika Bláhová

[blahova.m@czechglobe.cz](mailto:blahova.m@czechglobe.cz)

Global Change Research Institute CAS, Brno, Czechia

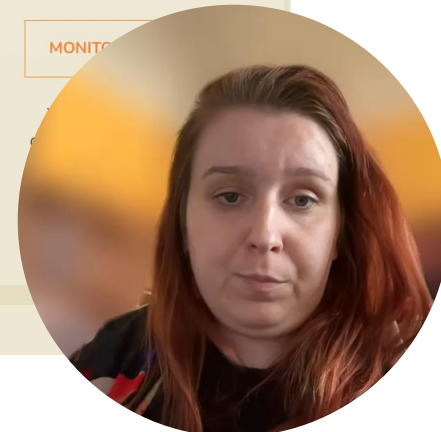
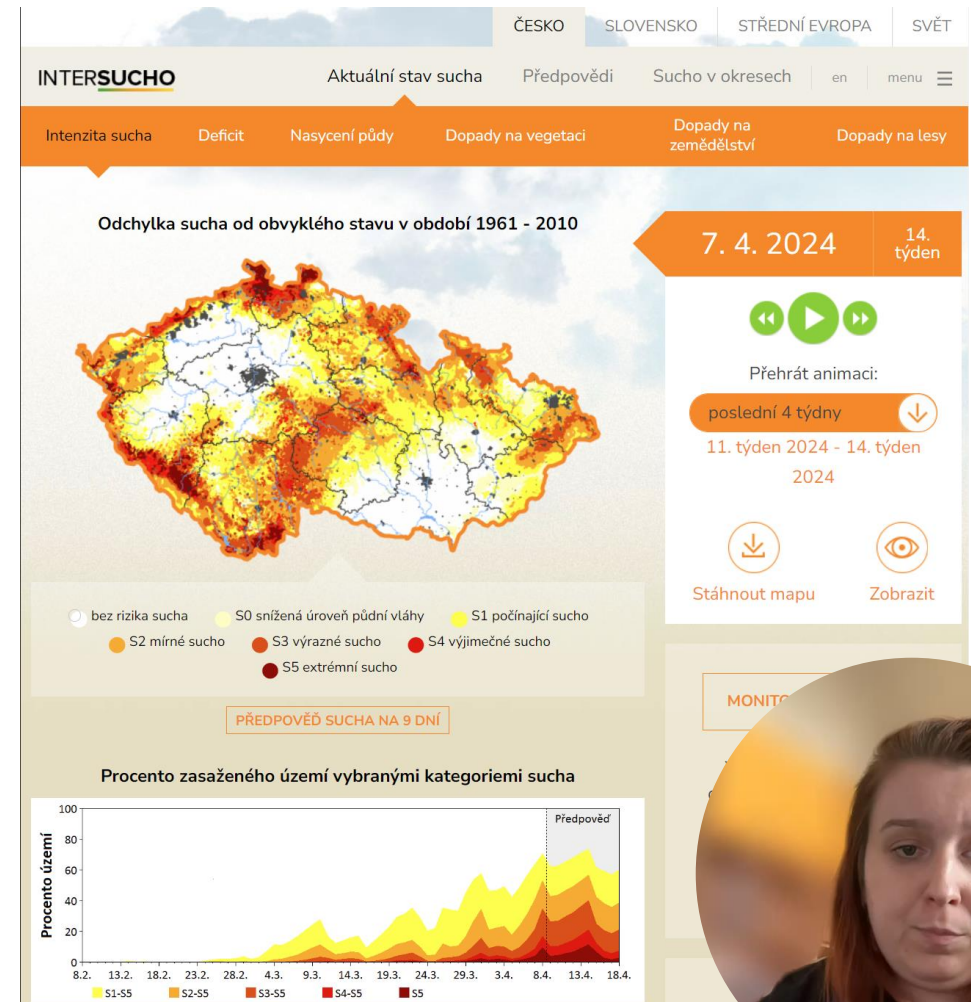


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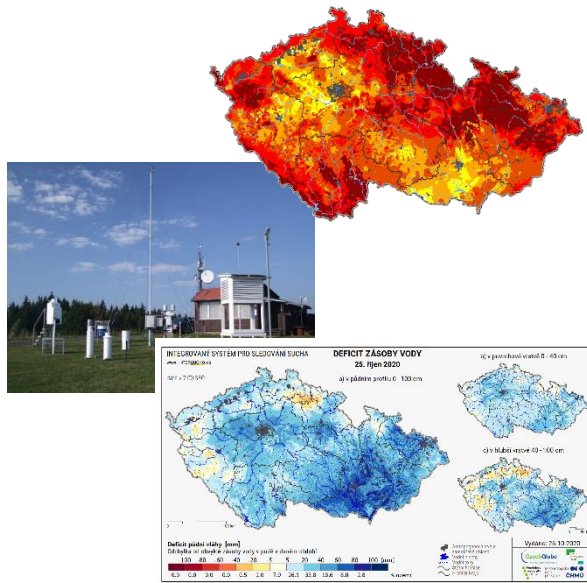
# Czech National Drought Monitoring System

- [www.intersucho.cz](http://www.intersucho.cz)
- Monitoring and prediction of agricultural drought
- Czechia, Slovakia, Central Europe
- 2012
- Weekly and daily updates
- 500 X 500 m spatial resolution
- Comprehensive drought evaluation

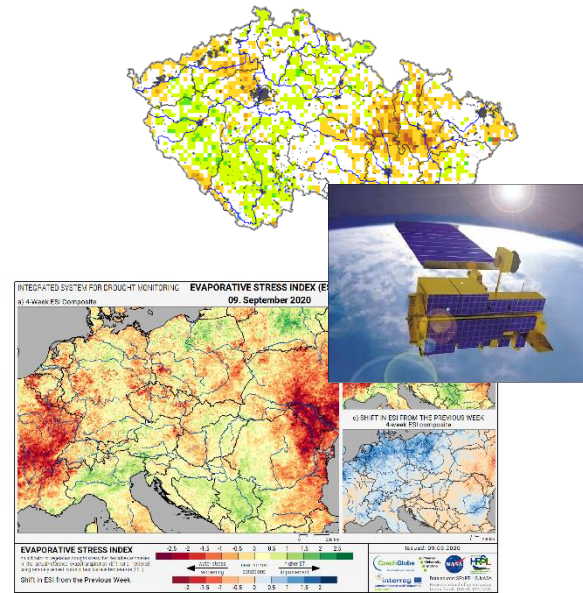


# Czech National Drought Monitoring System

SoilClim water balance model



Remote sensing products

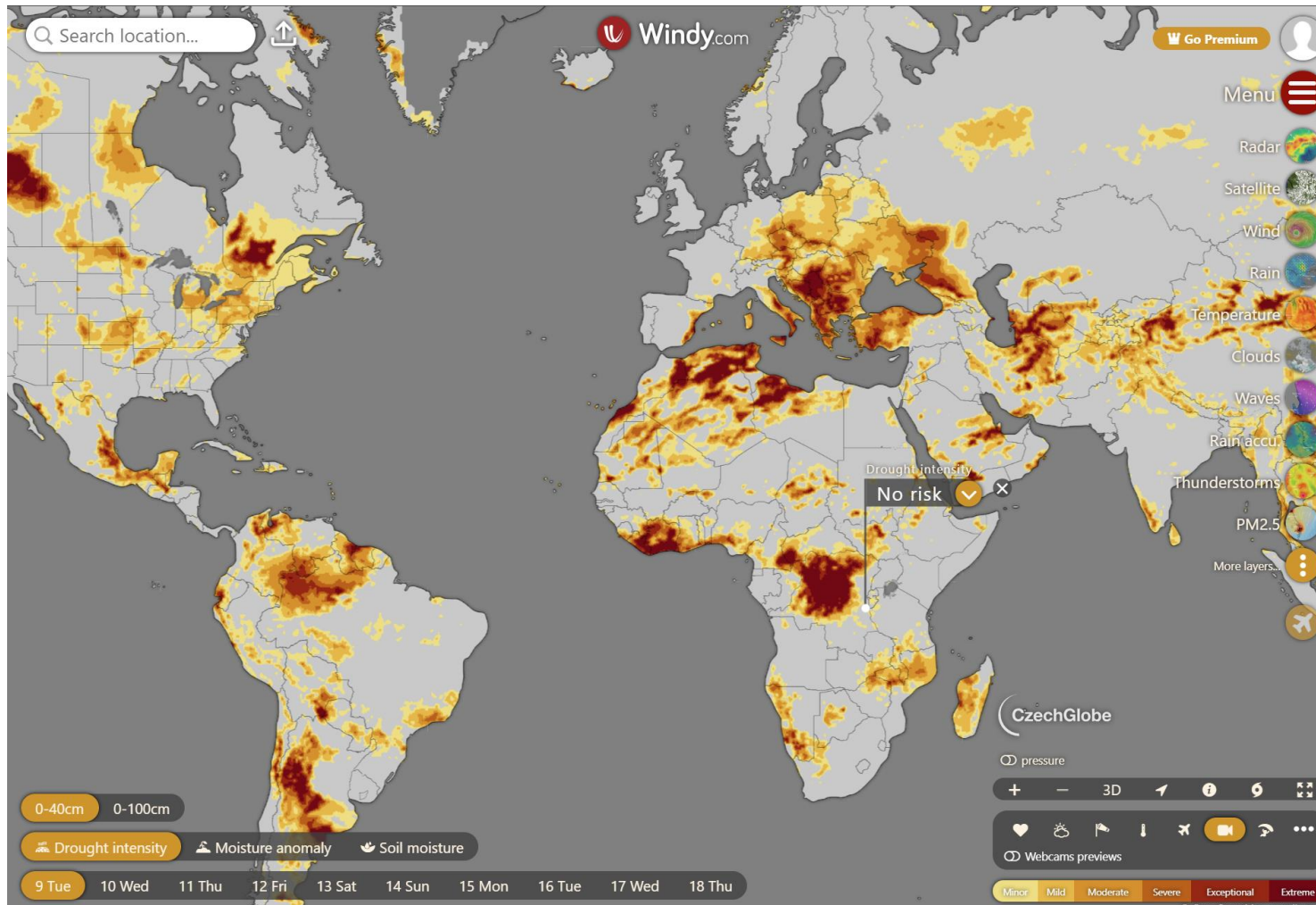


National reporting network

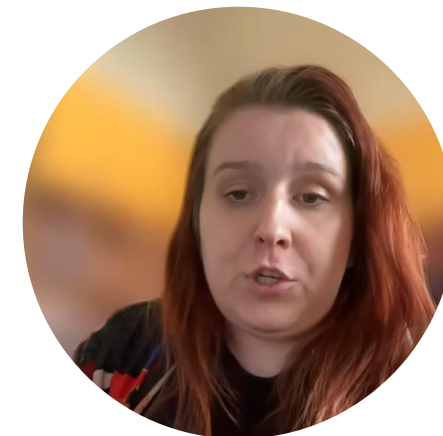




# Czech National Drought Monitoring System – Global layers



- Global version of SoilClim drought layers
- Windy.com -> Drought monitoring
- 9 day forecast
- Drought and fire danger



# National Reporting Network – Who is that?

- Voluntary group of farmers and other experts
- Weekly feedback from their locality
- Evaluation of drought conditions and drought impacts based on expertise
- No measurements
- Online questionnaire



# National Reporting Network - Questionnaire

- Available directly at [www.intersucho.cz](http://www.intersucho.cz)
- 4 types based on expertise
  - Agriculture
  - Fruit and viticulture
  - Forestry
  - Seedlings
- Evaluation of soil moisture
- Impacts on crops
- Comments, pictures

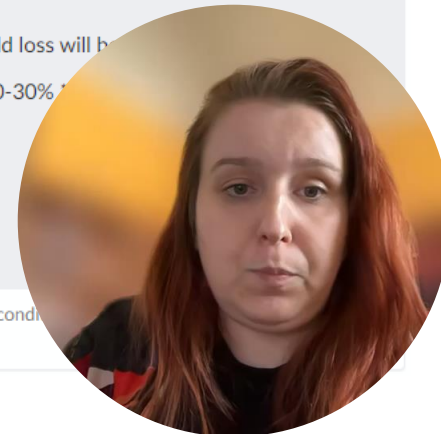
1. Assessment by Finger-print: what is the state of soil moisture in the layer 20 cm from the surface?

- Soil is dry and dusty by touch, without possibility to make any form
- Soil is drier by touch, it has loose structure; without moisture impact
- Soil is moderately moist, it's possible to make a form but low consistence, it gives the feeling of moisture in fingers
- Soil is moist with good workability and possibility to make a finger-print
- Soil is fully saturated by water, it sticks to fingers - it's muddy
- CANNOT BE EVALUATED

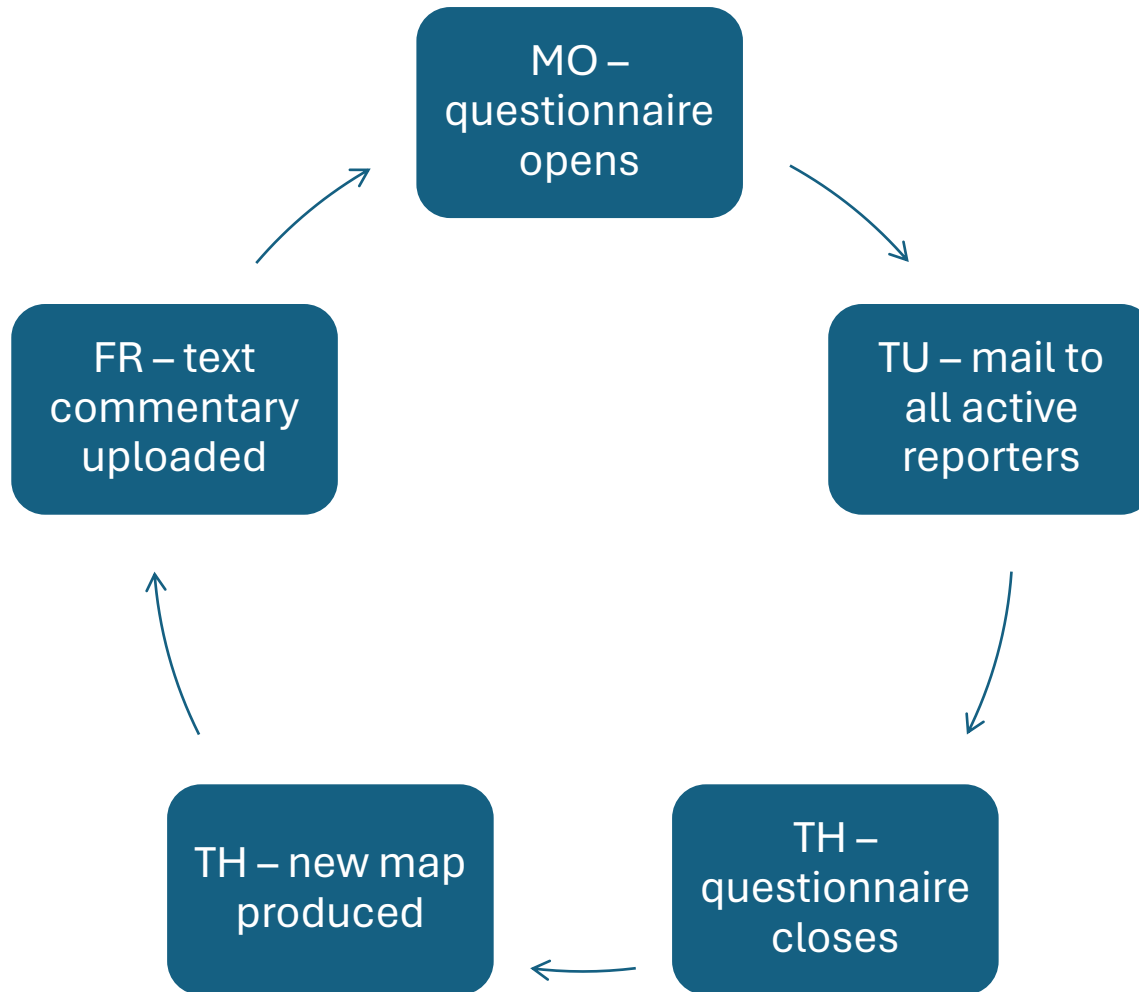
8. Estimate drought impacts on potatoes for the yield of 2023

- No effect of drought; vegetation is optimal
- No effect of drought but vegetation is worse for other reasons
- Drought effected development of vegetation but considerable losses aren't expected, yield loss will be to 10-30% \*
- Middle level of damage, considerable decrease of yield is expected, yield loss will be to 10-30% \*
- Hard damage of vegetation, yield on 10-year minimum, yield loss will be to 30-40% \*
- Vegetation extremely damaged by drought, yield loss bigger than 40% \*
- CANNOT BE EVALUATED

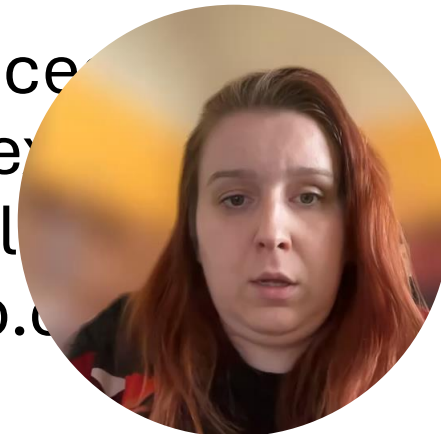
\* In comparison with the average of last 3 years; before harvest, it's the qualified estimation based on vegetation condition (e.g. offshoots). After harvest, replies reflect the observed yield decreased by the effect of drought.



# National Reporting Network - Workflow



- Weekly evaluation
- Retrospectively - evaluating conditions from last week
- Reporters engaged to be active by constant communication
- Weekly data processing and maps and text commentary uploaded to [www.intersucho.com](http://www.intersucho.com)

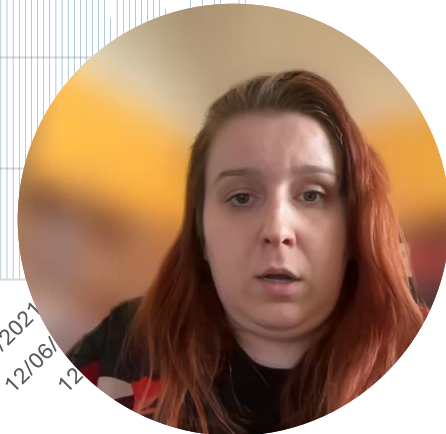
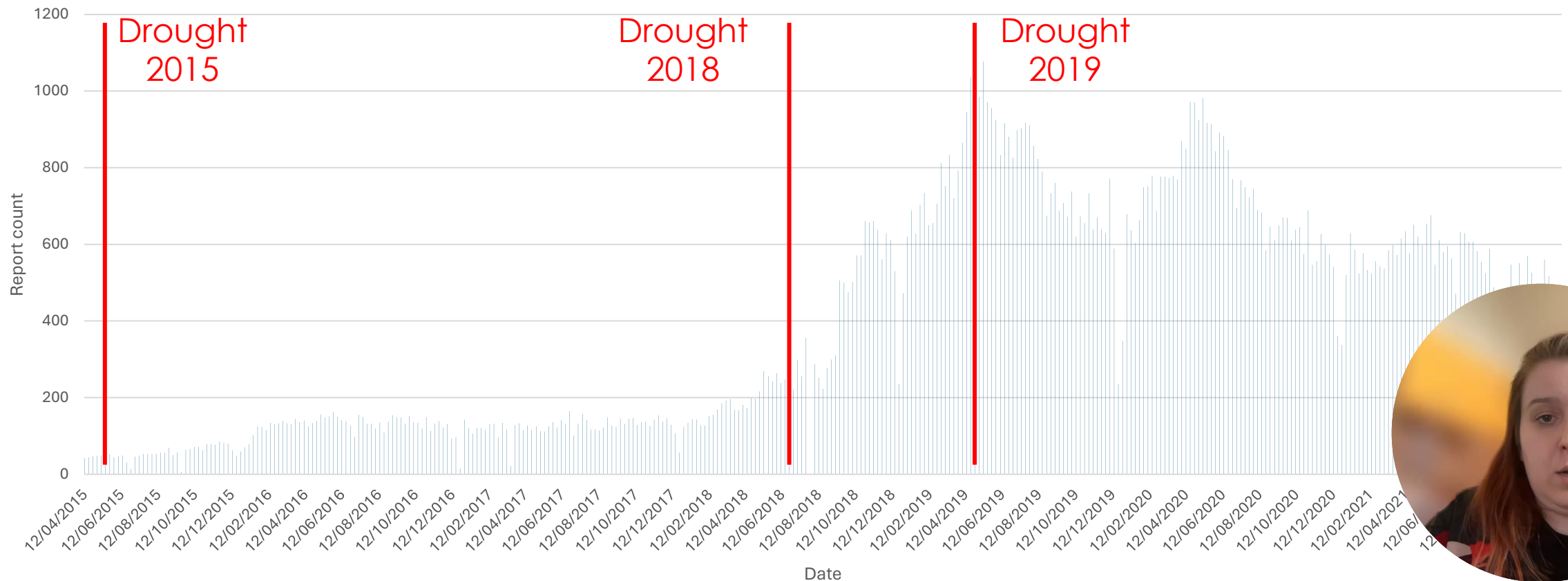




# National Reporting Network – In time

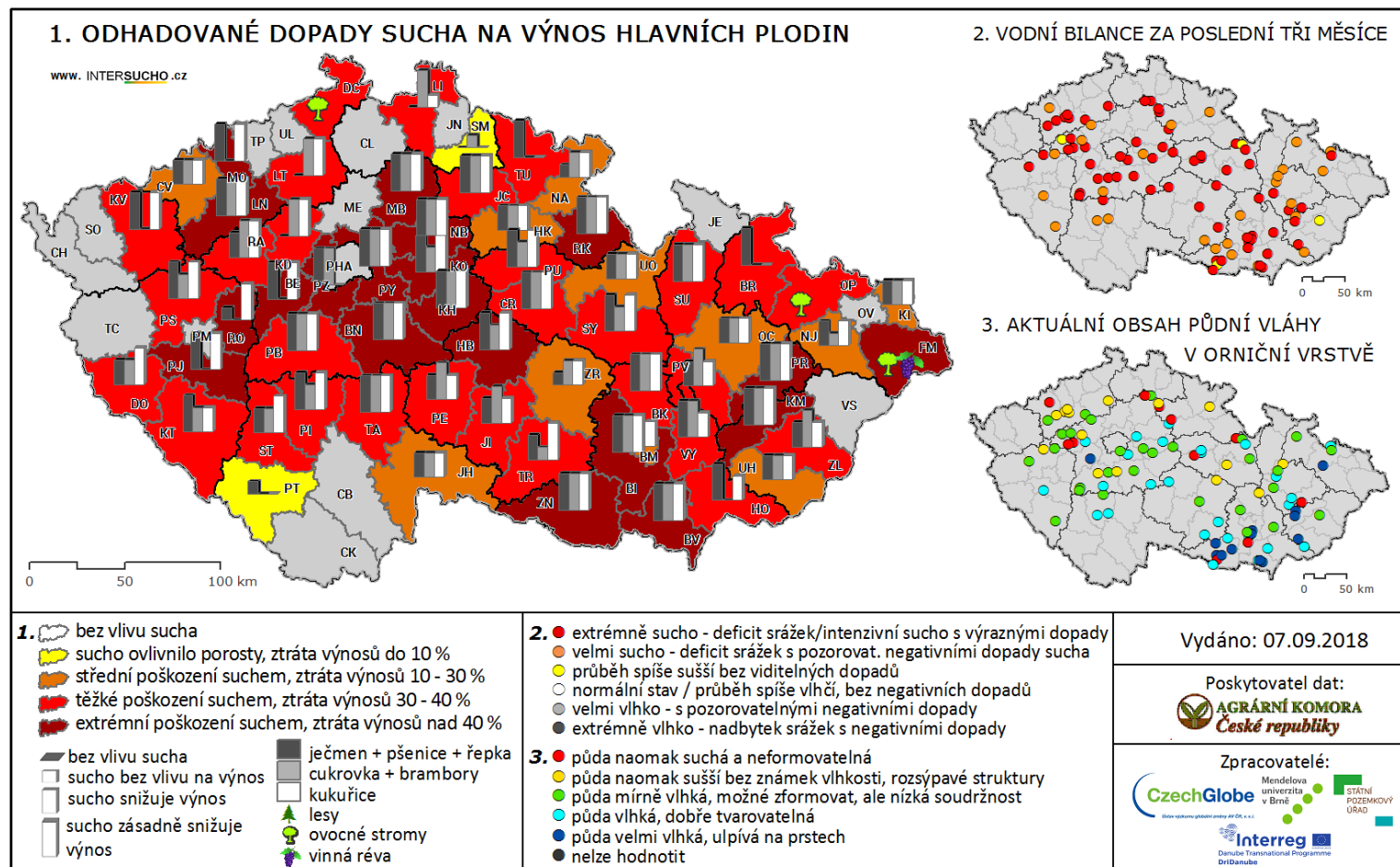
- Reporting since 2015, first 25 brave nominated by chambre of Agriculture

Weekly report count 2015-2021



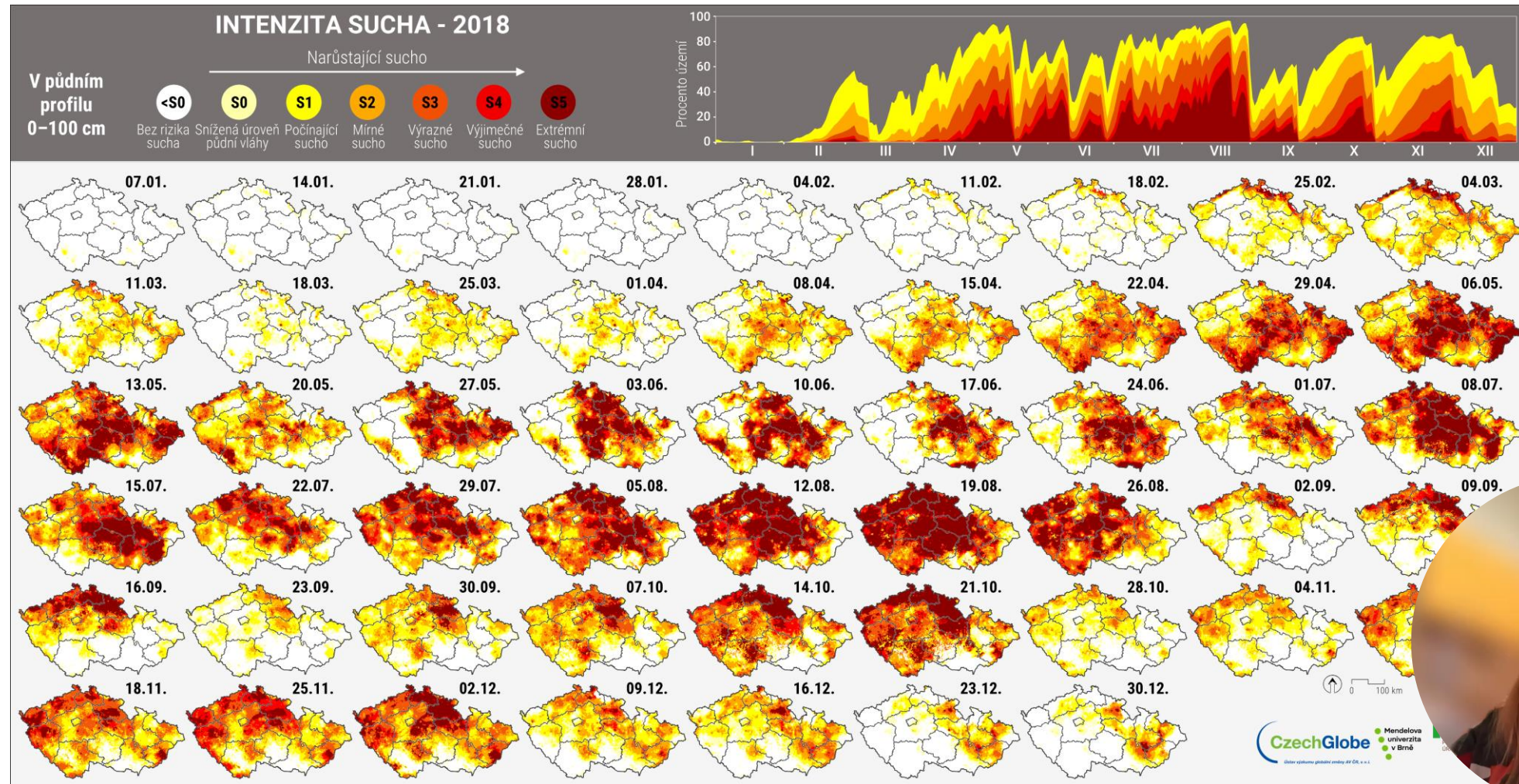


# National Reporting Network – Results (2018)





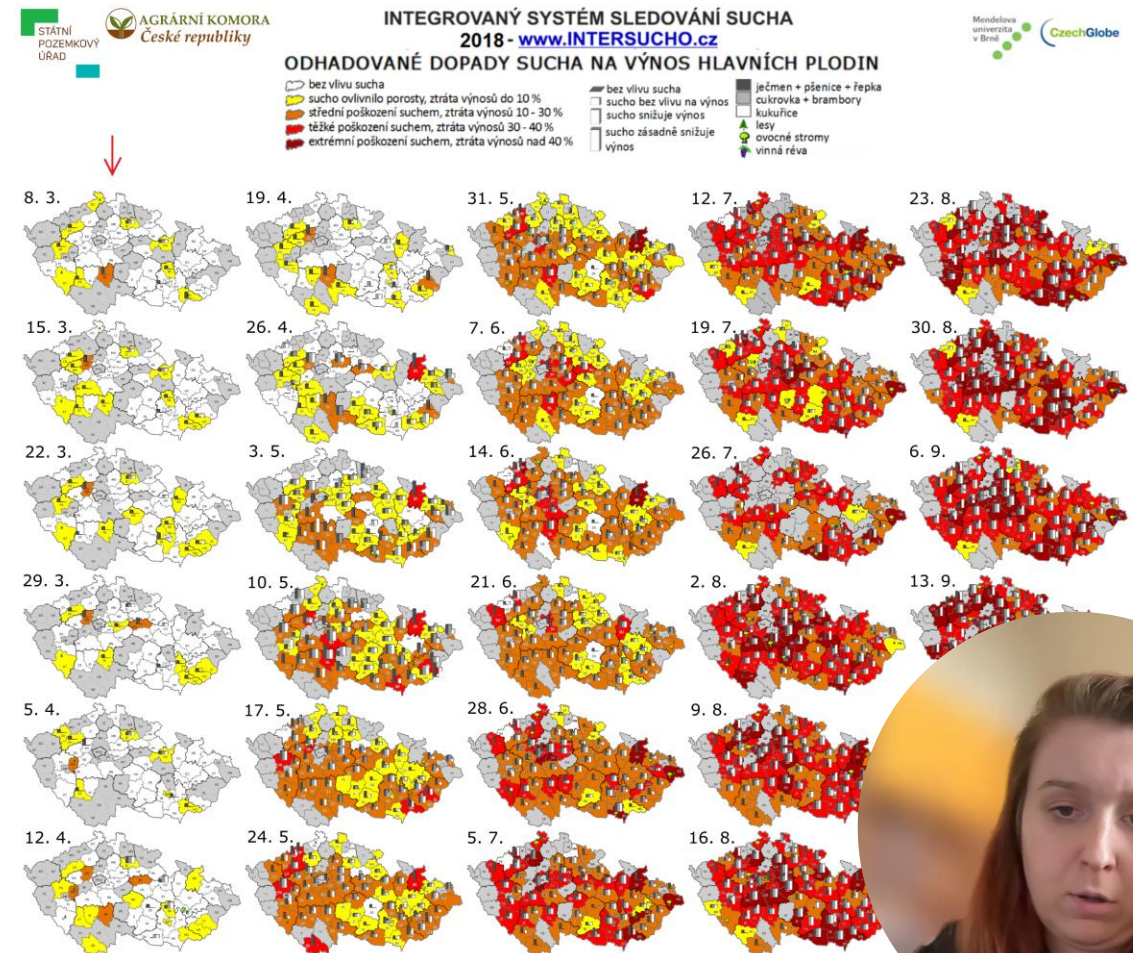
# National Reporting Network – Results (2018)





# National Reporting Network – Results (2018)

- Extreme drought event after 3 dry years
- Heavy impacts in yields
- Yields loss 60%
- Drought subsidies for agricultural sector
- **Drought reporters taken as the main source of crop damage and yield loss information**

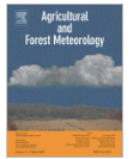


# National Reporting Network



- We learned that NRN is a viable tool for drought monitoring
- Near real-time information from the most concerned group
- Experienced reporters with a good sense of what is going on
- High level of detail
- Responsive network of contacts
- Feedback on any other drought monitoring tools






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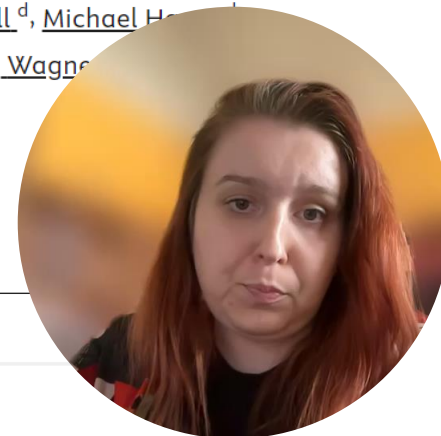
## Validity and reliability of drought reporters in estimating soil water content and drought impacts in central Europe

[Lenka Bartošová](#)<sup>a b</sup>  , [Milan Fischer](#)<sup>a b</sup>, [Jan Balek](#)<sup>a b</sup>,  
[Monika Bláhová](#)<sup>a b</sup>, [Lucie Kudláčková](#)<sup>a b</sup>, [Filip Chuchma](#)<sup>c</sup>, [Petr Hlavinka](#)<sup>a b</sup>,  
[Martin Možný](#)<sup>c</sup>, [Pavel Zahradníček](#)<sup>a</sup>, [Nicole Wall](#)<sup>d</sup>, [Michael H](#)  
[Christopher Hain](#)<sup>e</sup>, [Martha Anderson](#)<sup>f</sup>, [Wolfgang Wagne](#)  
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# Thank you for your kind attention

Monika Bláhová

[blahova.m@czechglobe.cz](mailto:blahova.m@czechglobe.cz)

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