

Build, measure, understand: Pupils contributing to meteorological measurement campaigns

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Background

- Field Experiment on **Submesoscale Variability** in Lindenberg (2021)
- Fostering weather & climate literacy among pupils by engagement in weather **citizen science** project in Bavaria (2020+21)

Research questions

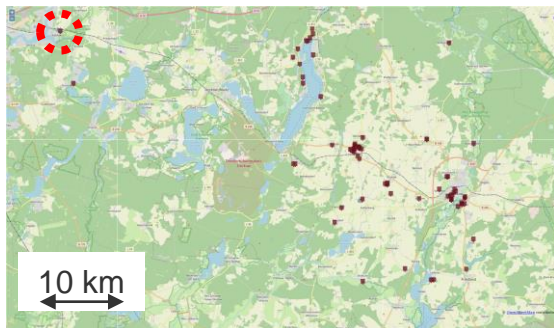
1. Are low-cost Internet of Things sensors suitable to **augment a professional network** ?
2. Does participation **improve** weather and climate **literacy**?

Approach

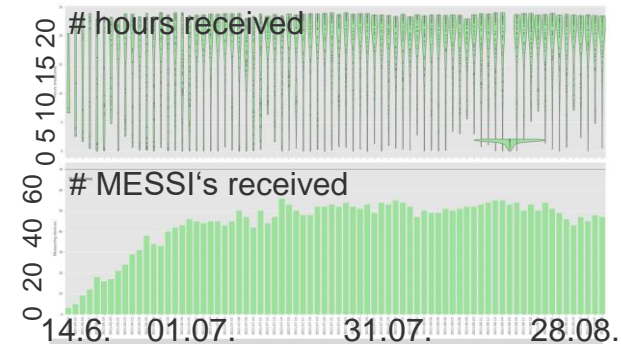
- Participants get a low-cost, autonomous **weather station** (called MESSI) to **self-assemble** and deploy in their garden, browser app for visualisation
- Virtual (COVID....) assistance workshops and digital material on weather and forecasts, **pre-post participation survey** on weather literacy



Are low-cost IoT sensors suitable to augment a professional network ?

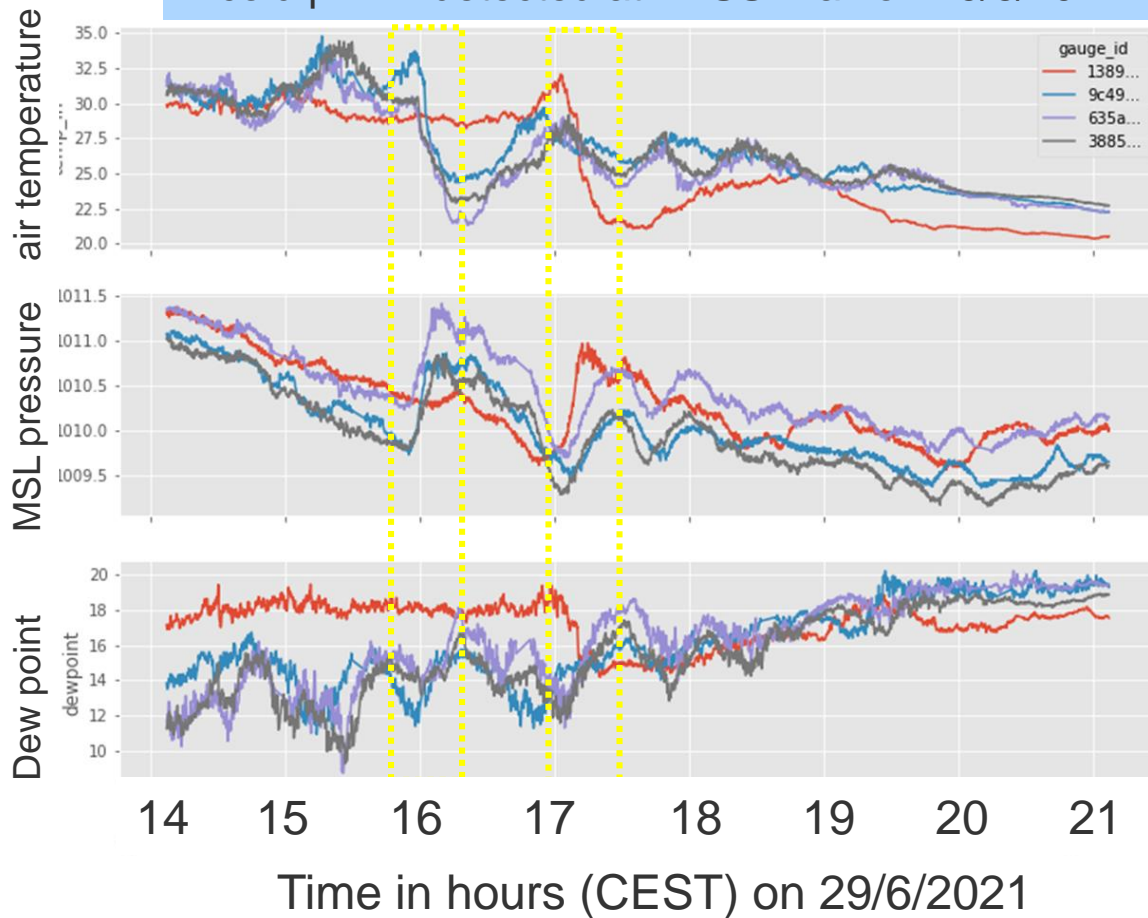


70 MESSI were distributed



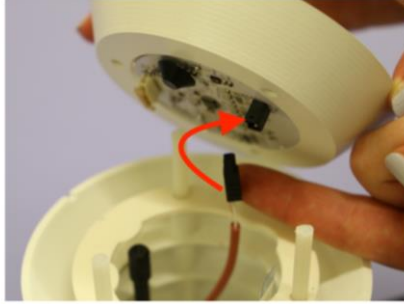
Daily time series data reception

2 cold pool's detected at FESSTVaL on 29/6/2021



Does participation improve weather and climate literacy?

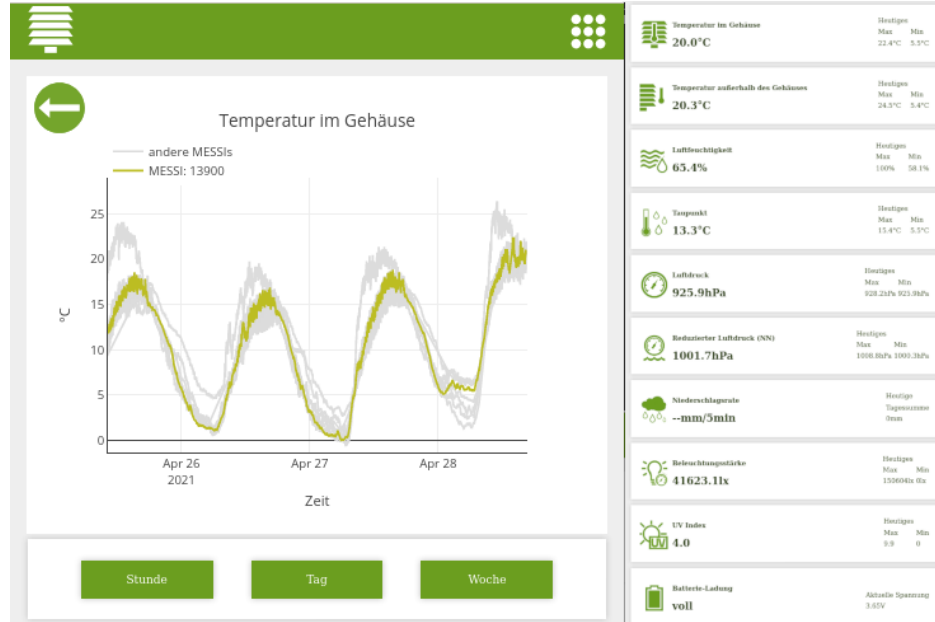
Als nächstes steckst du das Kabel
des Temperatursensors in den
Stecker auf der Platine.



Example from the construction manual

Online survey

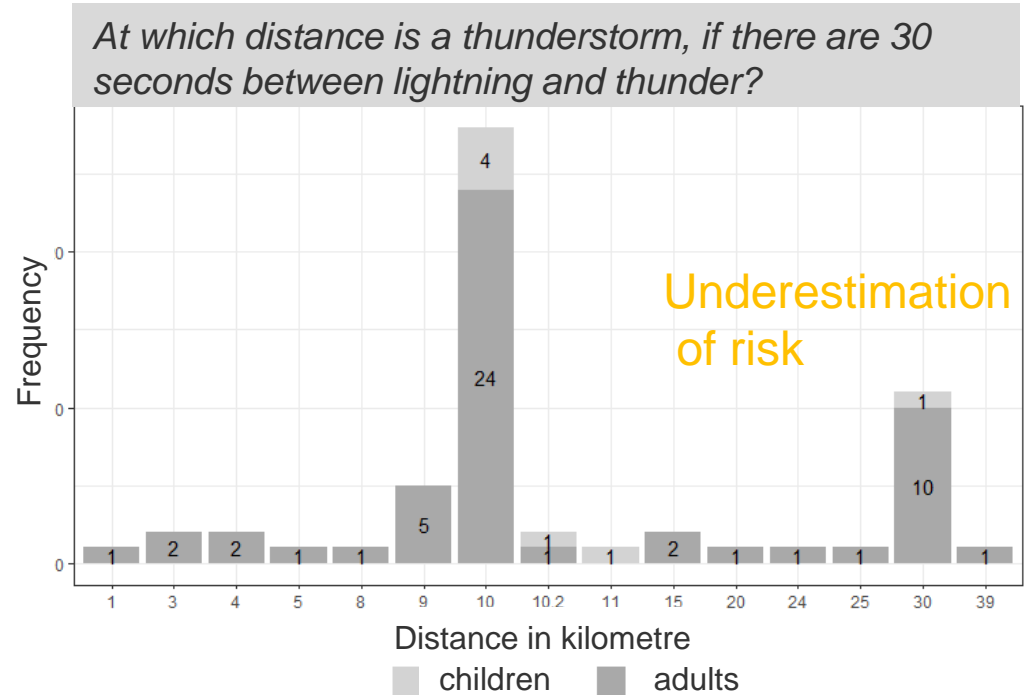
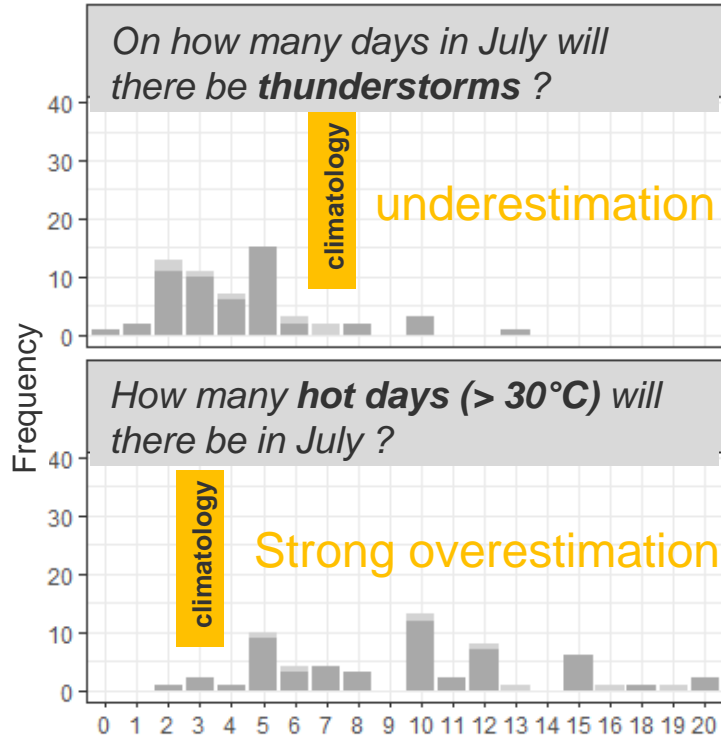
- Knowledge, perception, behavioral questions
- About climate change, extreme weather events and risks
- Interest in science, technology, engineering, mathematics
- Following *Fleischhut et al., 2020: Weather Literacy in Times of Climate Change. Wea. Climate Soc.*



Browser App

Left: time series Temperature, right: now, all variables

Does participation improve weather and climate literacy?



References:

- FESSTVaL campaign: <https://fesstval.de/>
- KARE-CS project: <https://energiewende-oberland.de/hp14913/KARE-CS.htm>
- WEXICOM project: <https://www.geo.fu-berlin.de/met/wexicom/index.html>
- Kox, T., Göber, M., Wentzel B., Freundl, E., Rust, H. (2021): [Fostering weather and climate literacy among pupils by engagement in a weather citizen science project](#). *Proceedings of Austrian Citizen Science Conference 2020 PoS(ACSC2020)*, 393, 002.
- Kox, T., Rust, H. W., Wentzel, B., Göber, M., Böttcher, C., Lehmke, J., Freundl, E., Garschagen, M., (accepted, subject to minor revisions): Build and Measure: First experience with an innovative citizen science approach, with pupils using self-built micro weather stations to collect weather data and report event impacts. *Australasian Journal of Disaster and Trauma Studies*.
- **Fleischhut, N.**, S.M. Herzog, and R. Hertwig (2020): [Weather Literacy in Times of Climate Change](#). *Wea. Climate Soc.*, 12, 435–452, <https://doi.org/10.1175/WCAS-D-19-0043.1>