Exploratory analysis of hourly precipitation data measured by citizen observations over Scandinavia

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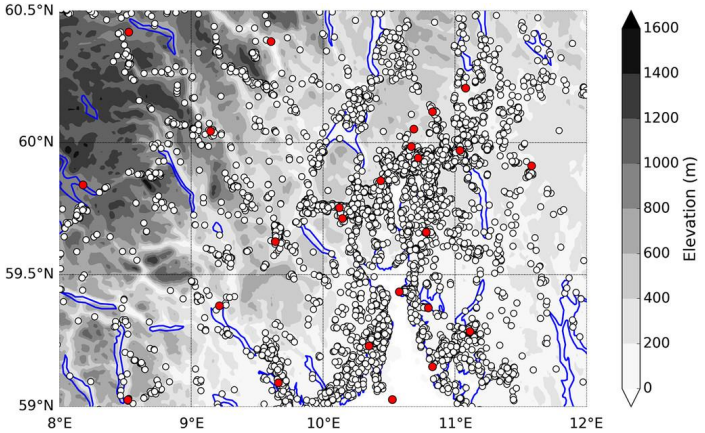
1. Universita' degli studi di Bologna, Bologna, Italy
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Norwegian Meteorological Institute

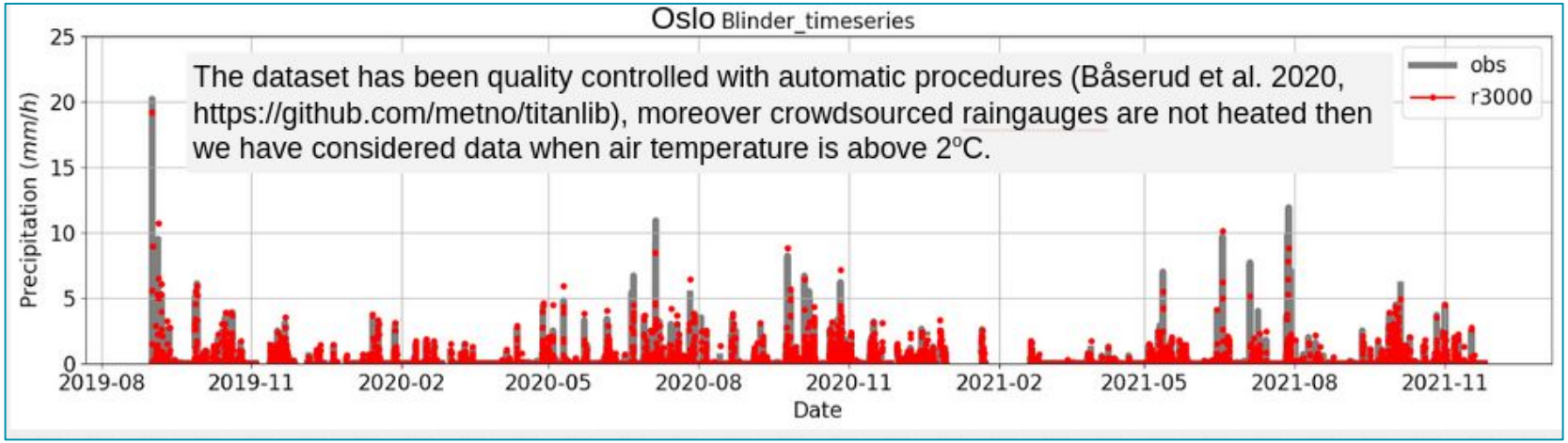
SCREEN CAPTURE WELCOME

2022-09-09

Motivations



Nipen, T. N., Seierstad, I. A., Lussana, C., Kristiansen, J., & Hov, Ø. (2020). Adopting Citizen Observations in Operational Weather Prediction, Bulletin of the American Meteorological Society, 101(1), E43-E57. Retrieved Sep 3, 2022, from https://journals.ametsoc.org/view/journals/bams/101/1/bams-d-18-0237.1.xml



Research Questions

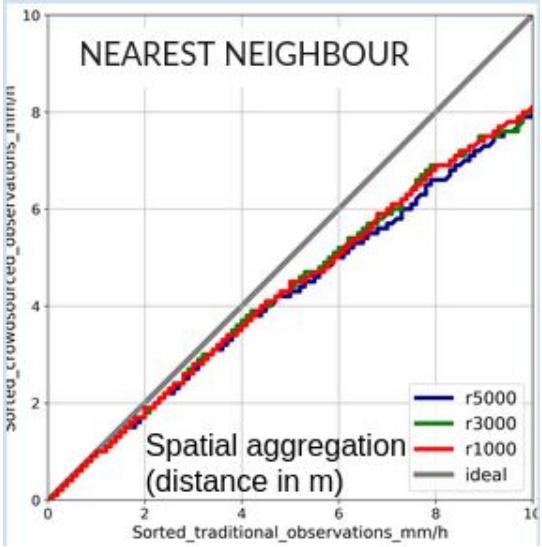
- Determination of the accuracy and precision of crowdsourced data
- Does the spatial aggregation of crowdsourced data increase their accuracy and precision?
- Study the local variability of hourly precipitation based on the very dense network available

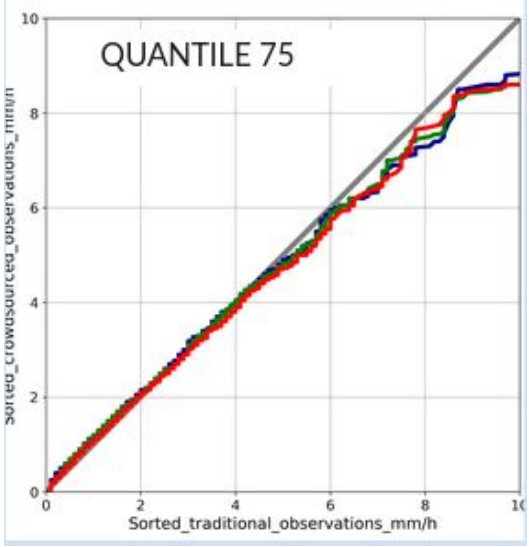
Data: Hourly precipitation 01-09-2019, 28-02-2022 Norway, Sweden and Finland.

Strategy: Compare crowdsourced data against WMO reference stations

Conclusions

- Precision and accuracy decrease with the increase of precipitation intensity
- Spatial aggregation helps in improving crowdsourced data accuracy
- Large Spatial variability





75th-percentile of crowdsourced data neighbourhood of reference observations (1- to 3- km apart) the accuracy of the estimates is improved