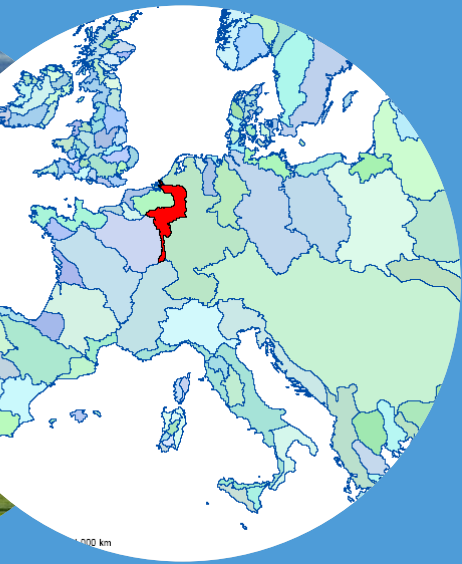
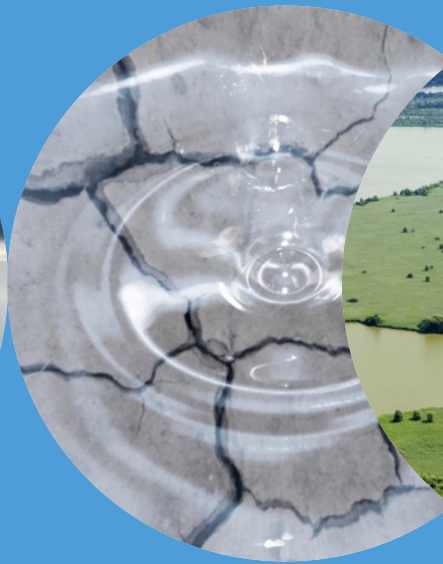


GEWEX SSG Past Member Reflections

Five years of science, acronyms and fun in the SSG

GEWEX SSG 31, Feb. 26th 2019, Remko Uijlenhoet



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Royal Netherlands Meteorological Institute
Ministry of Infrastructure and the Environment

Wageningen University & Research

- 
- August 20, 2018 **NTU ranking 2018: WUR best-ranked university in agriculture and environment / ecology**
- July 20, 2018 **Shanghai Ranking 2018: WUR ranks #1 in agricultural sciences and in food technology**

Hydrology and Quantitative Water Management Group @ Wageningen



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Ministry of Infrastructure and the Environment

Our mission and research area

- “The Hydrology and Quantitative Water Management Group focusses on understanding and prediction of hydrological processes in river basins and deltas for improved water management”

Remko
Uijlenhoet



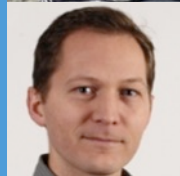
Victor
Bense



Ton
Hoitink



Ryan
Teuling



Lieke Melsen



Claudia Brauer



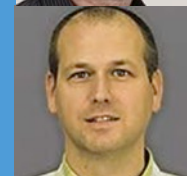
Paul
Torfs



Henny van
Lanen



Roel
Dijkema



Albrecht Weerts



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Tim van Emmerik

Suleyman Naqshband



Royal Netherlands Meteorological Institute
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My time as an SSG member

- SSG 26, 28–31 Oct. 2013, Boulder (incoming)
- [SSG 27, 16–19 Feb. 2015, Medellin (GDAP rapporteur)]
- SSG 28, 25–28 Jan. 2016, Zurich (GDAP rapporteur)
- SSG 29, 06–10 Feb. 2017, Sanya (GDAP rapporteur)
- SSG 30, 29 Jan. – 1 Feb. 2018, Washington DC (GDAP rapporteur)
- SSG 31, 25 Feb. – 1 Mar. 2019, Geneva (rotating off)



11th International Precipitation Conference



IPC11 2013

- 30 June – 3 July 2013, Wageningen, The Netherlands



10th European Conference on Radar in Meteorology and Hydrology, 1–6 July 2018



IPC12

Irvine 2019

June 19-21, 2019

- 12th International Precipitation Conference (IPC12)
- Important Dates
 - Registration Opens: Jan. 30, 2019
 - Abstract Submission: Mar. 15, 2019
 - Travel Grant Application: Mar. 15, 2019
 - Early Registration Deadline: Mar. 30, 2019
 - Conference: June 19–21, 2019



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The Netherlands National IHP-HWRP Committee

is a platform of Dutch scientists, policy-makers and practitioners



- The Committee is a platform of Dutch scientists, policy-makers and practitioners. Since its establishment in 1964, it connects academic, operational, and research institutes and the three ministries focused on water.
- Together, the Committee members define the Dutch position regarding the water programmes of UNESCO (IHP) and WMO (HWRP).
- The Netherlands hosts two UNESCO Water Centres: IHE Delft Institute for Water Education and IGRAC for international groundwater resources assessments.



Observations from a hydrology perspective

- A lot of acronyms, which makes it sometimes challenging for outsiders to become part of the GEWEX community
- Given its mission, GEWEX has a strong focus on global models and global observations over long time periods, which makes it sometimes difficult to connect to for (catchment) hydrologists.
- Hydrological scientists probably have closer ties to UNESCO, whereas hydrological practitioners have closer ties to WMO (not to mention FAO, UNEP).
- One coherent UN vision / program on hydrology, uniting both weather and climate scales, might make it more attractive for hydrologists to get (and stay) involved.
- For GEWEX: involve more large-scale hydrological modellers in addition to hydrometeorologists.



A plea for opportunistic sensing of our environment



(Victoria Roberts, 2000)

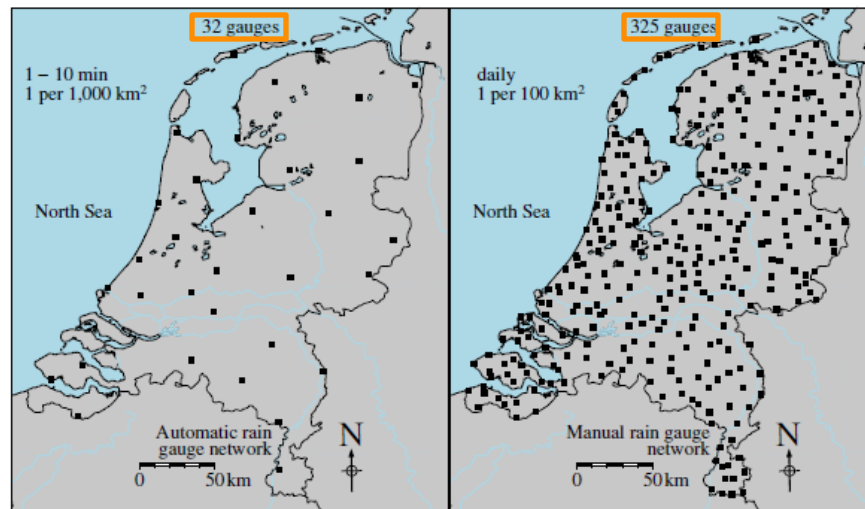


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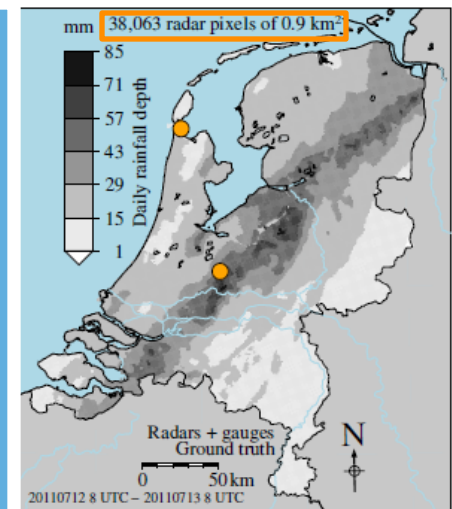


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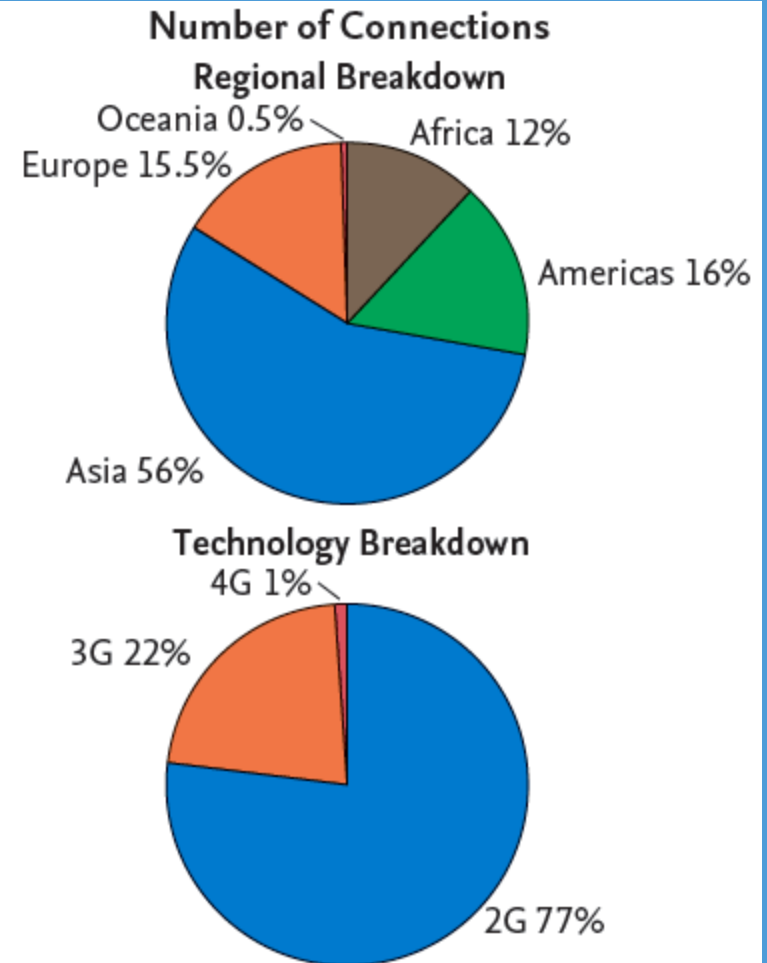
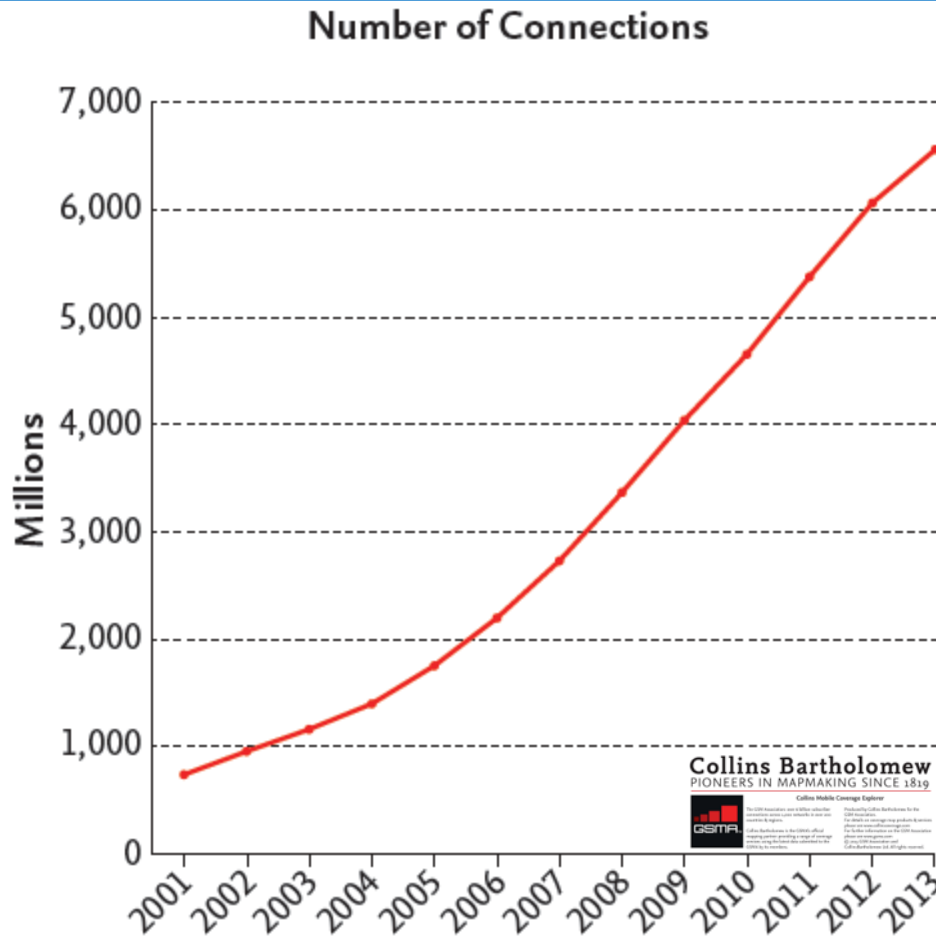
Rainfall observations in The Netherlands

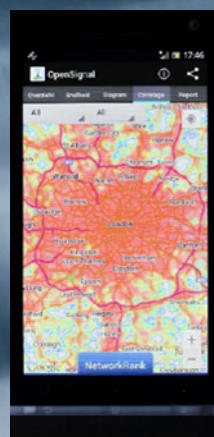


Room for
opportunistic
sensors



Rapid growth cellular telecommunication





(identim / Shutterstock)

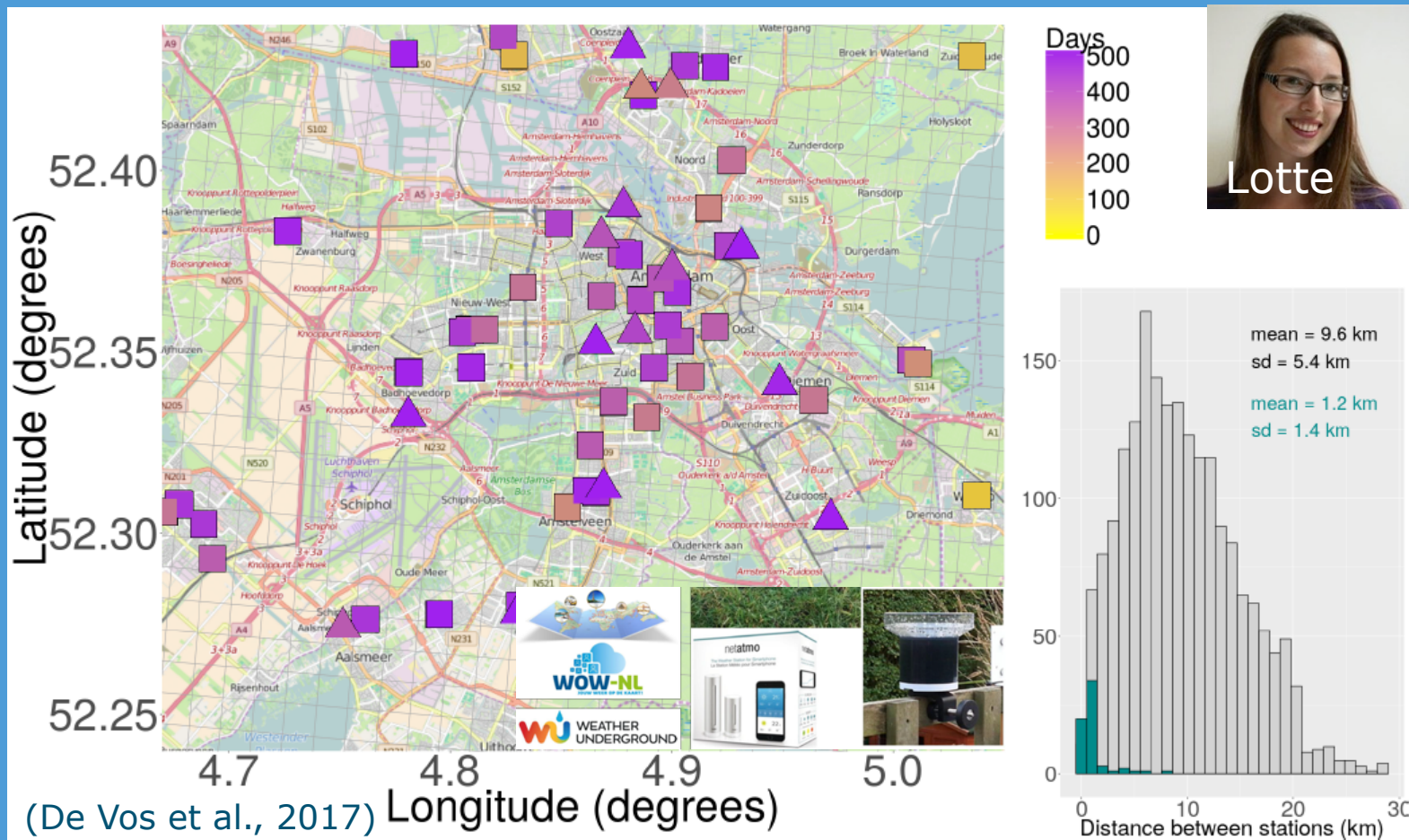


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Urban areas: more personal weather stations (PWS) than official rain gauges



Netatmo tipping bucket rain gauge

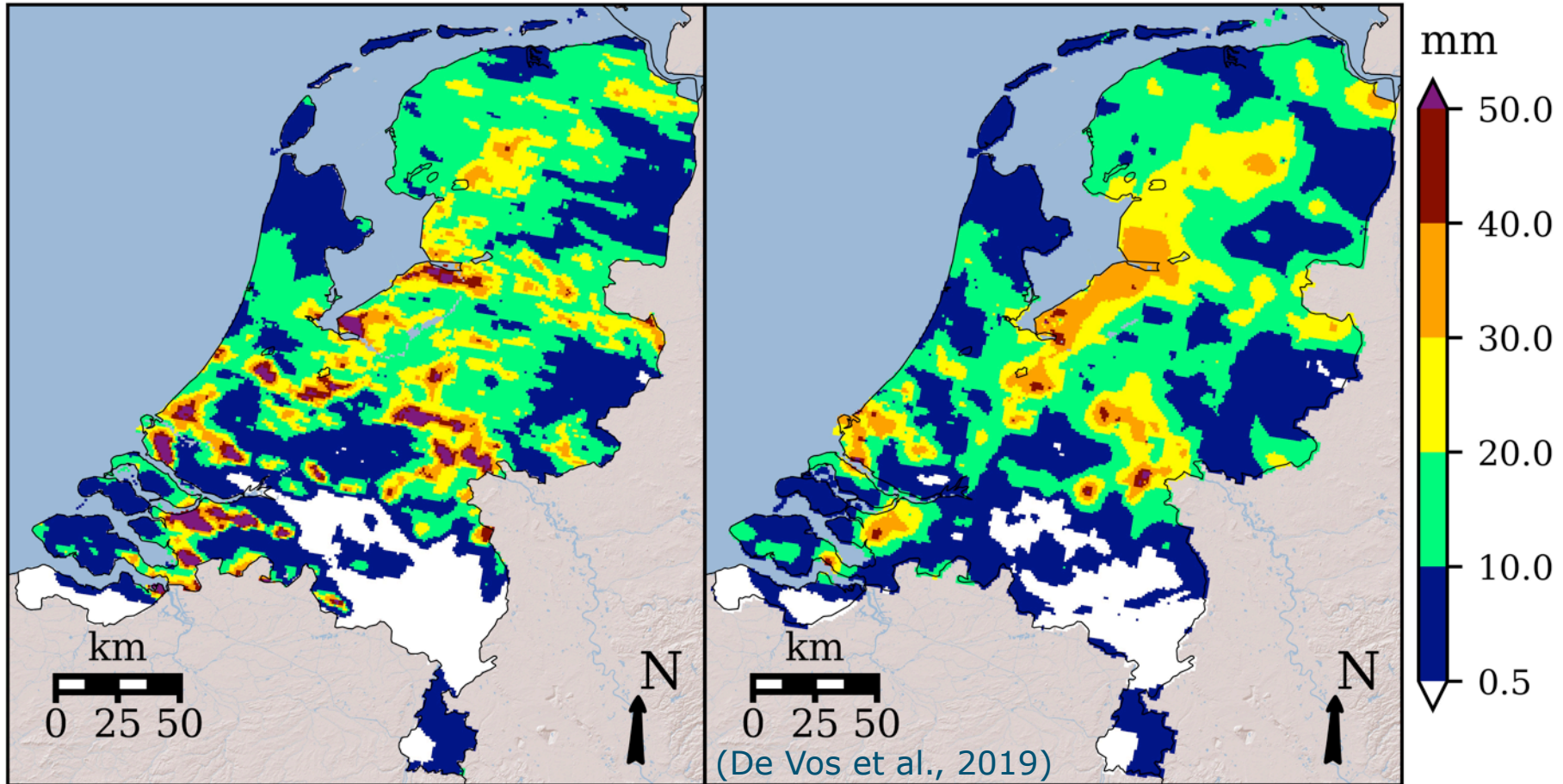
(De Vos et al., 2017)



Daily rainfall, 29–30 May 2018 (8–8 UTC)

Gauge-adjusted radar daily rain

PWS daily rain



Smartphones can be used as (urban) thermometers

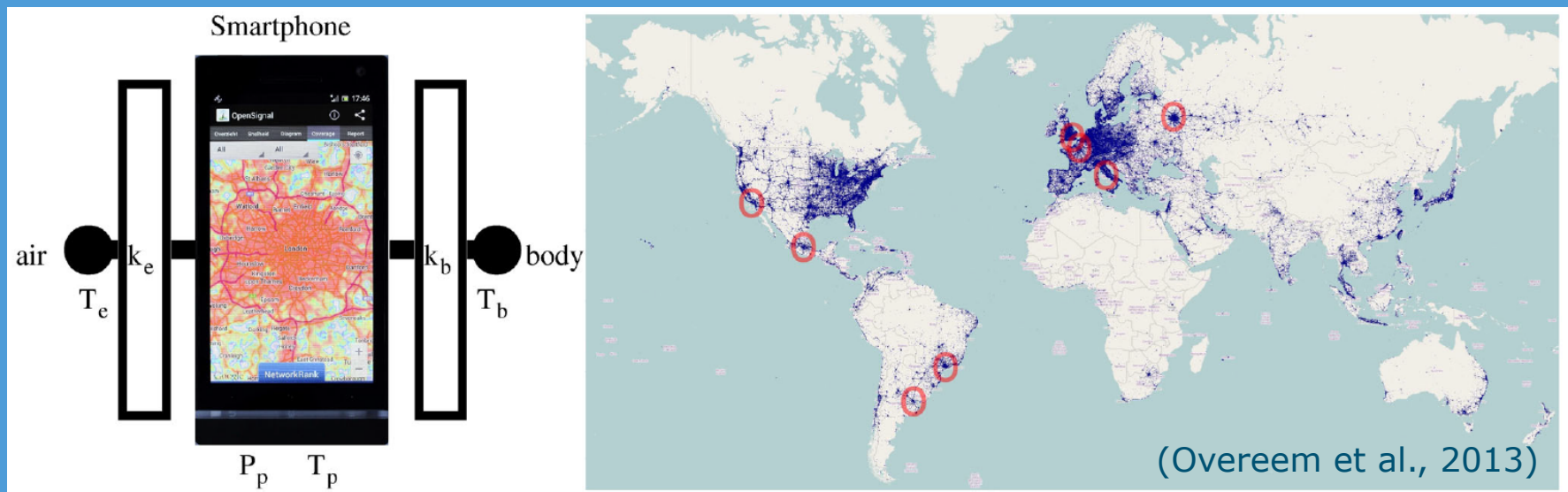


GEOPHYSICAL RESEARCH LETTERS, VOL. 40, 4081–4085, doi:10.1002/grl.50786, 2013

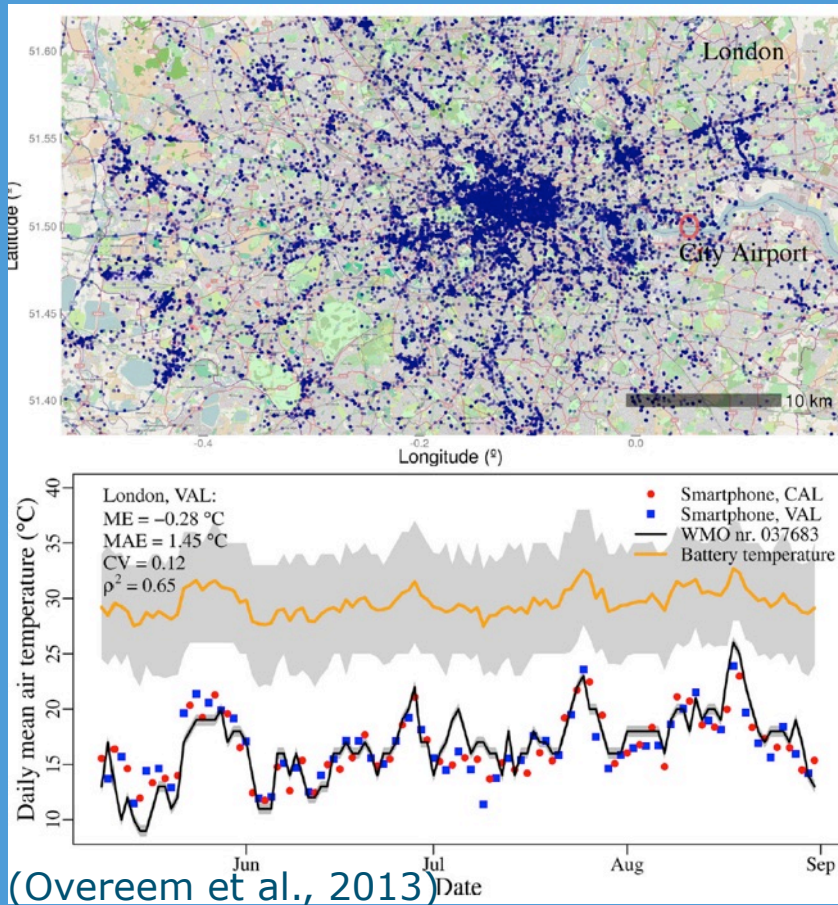
Crowdsourcing urban air temperatures from smartphone battery temperatures

A. Overeem,^{1,2} J. C. R. Robinson,³ H. Leijnse,² G. J. Steeneveld,⁴
B. K. P. Horn,⁵ and R. Uijlenhoet¹

Received 21 June 2013; revised 18 July 2013; accepted 22 July 2013; published 14 August 2013.

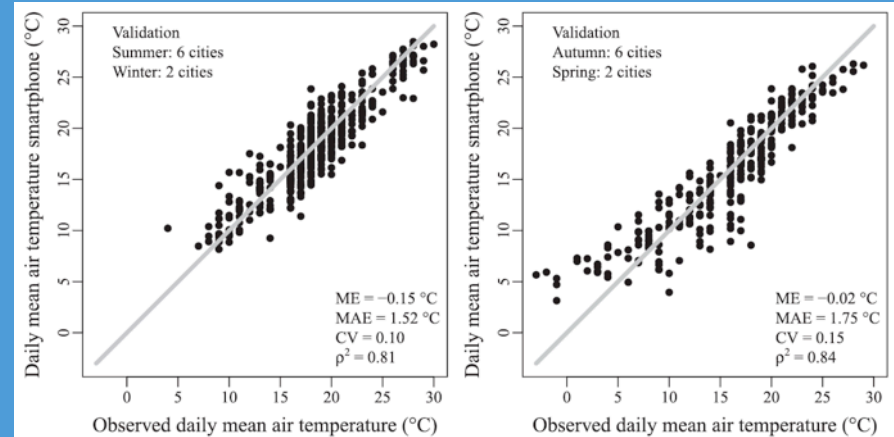


Daily mean urban air temperatures from smartphone battery temperatures



$$P_p = P_e + P_b = k_e(T_p - T_e) + k_b(T_p - T_b)$$

$$T_e = \left(1 + \frac{k_b}{k_e}\right) T_p - \left(\frac{k_b}{k_e} T_b + \frac{P_p}{k_e}\right)$$



Microwave links from cellular communication networks can be used as path-average rain gauges



(identim / Shutterstock)

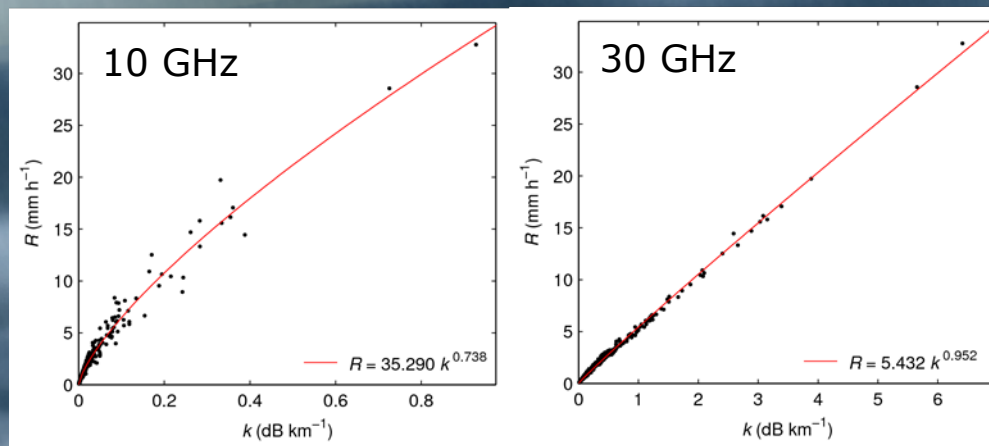
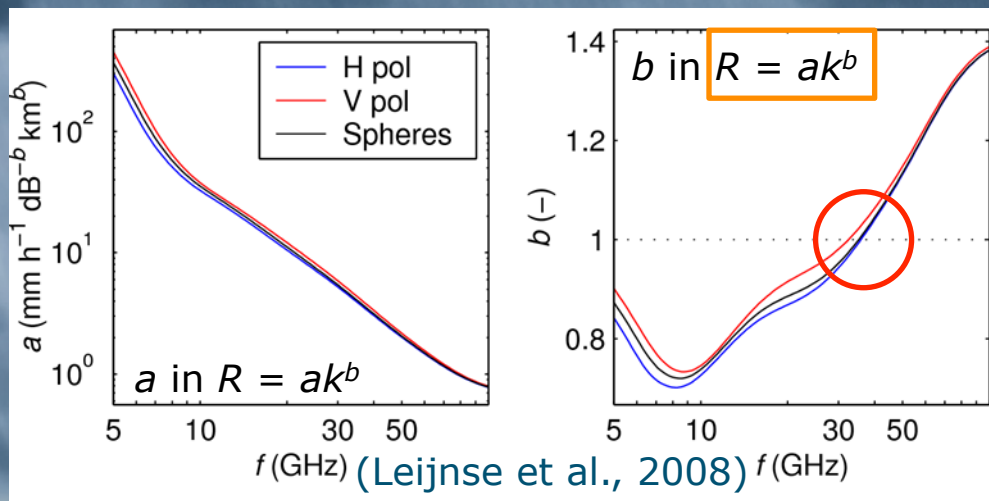


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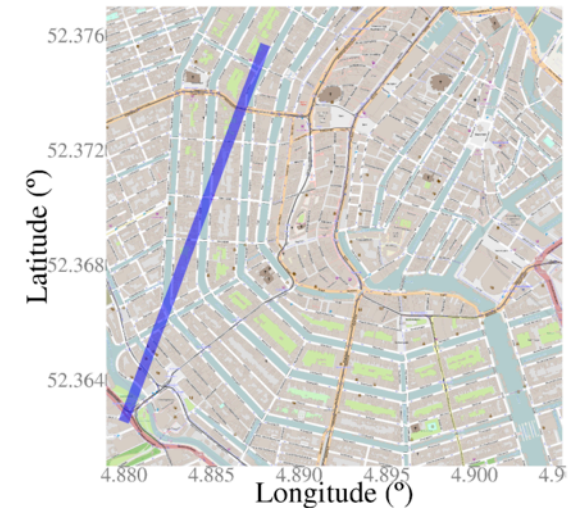
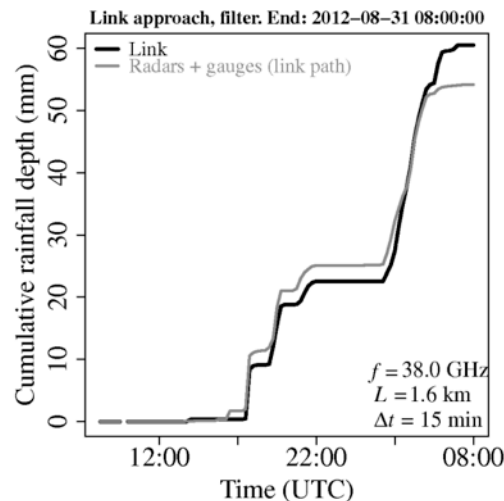
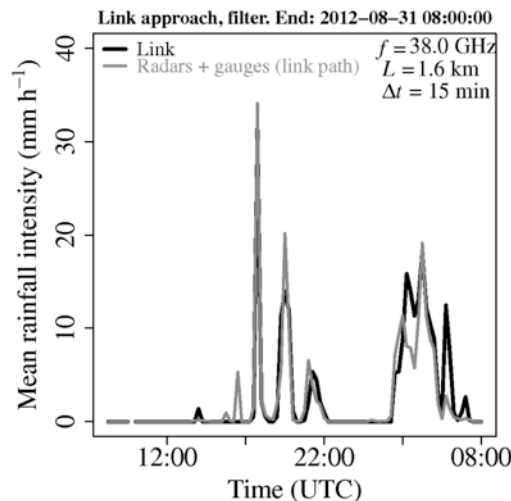
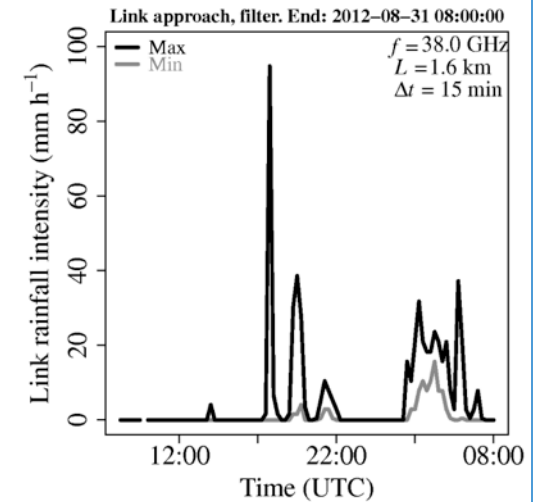
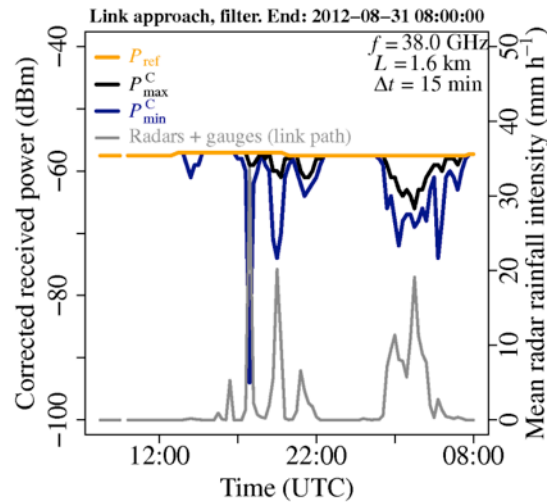
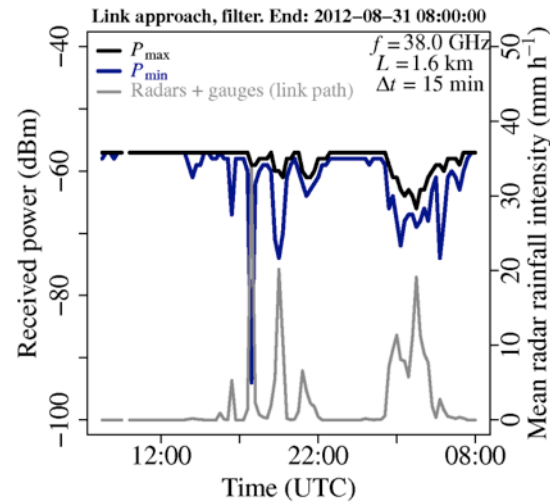
(power-law relations between rain rate R and extinction k)



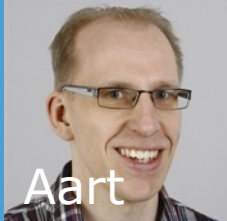
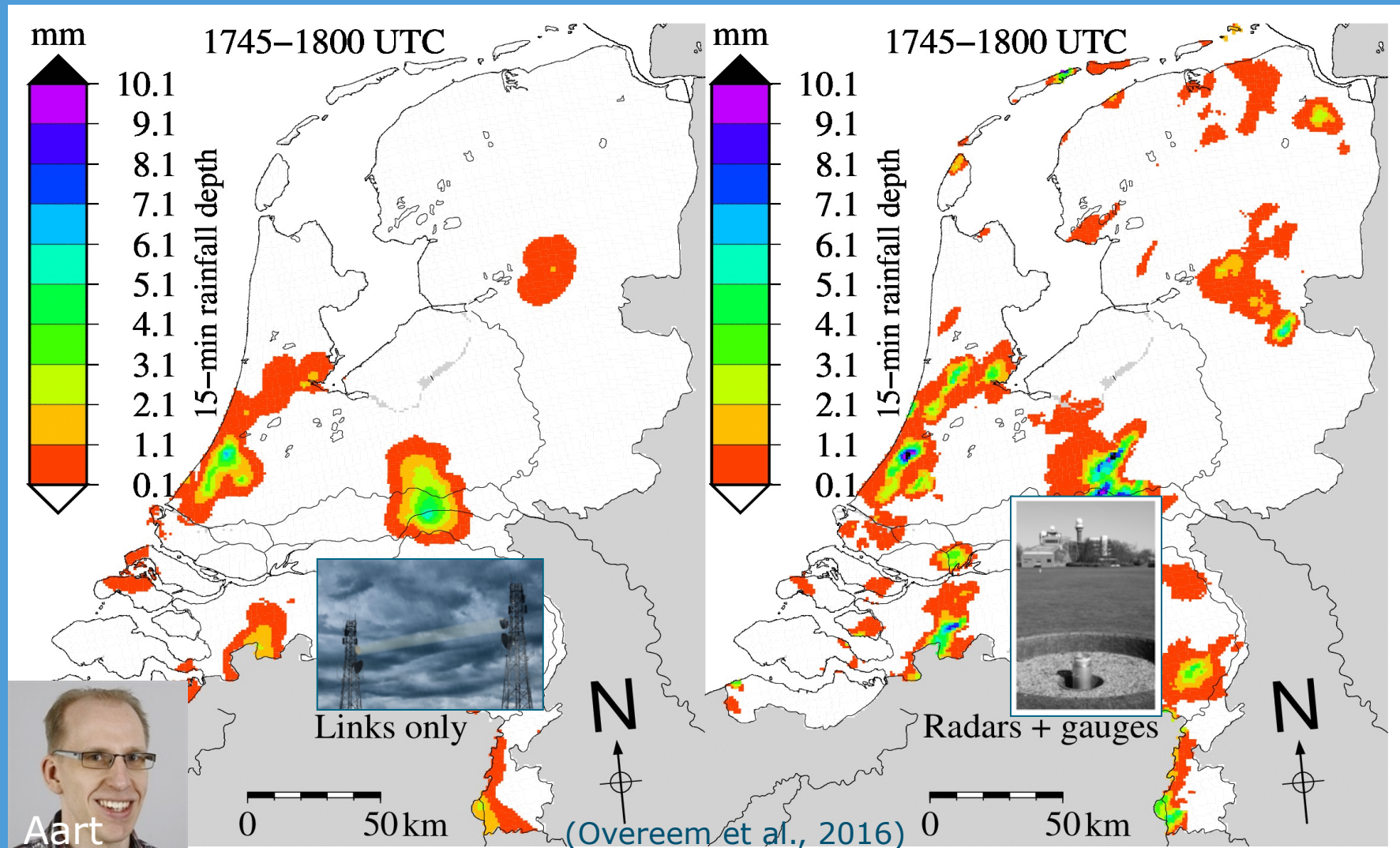
(identim / Shutterstock)



Rainfall retrieval in Amsterdam (08-30-12)



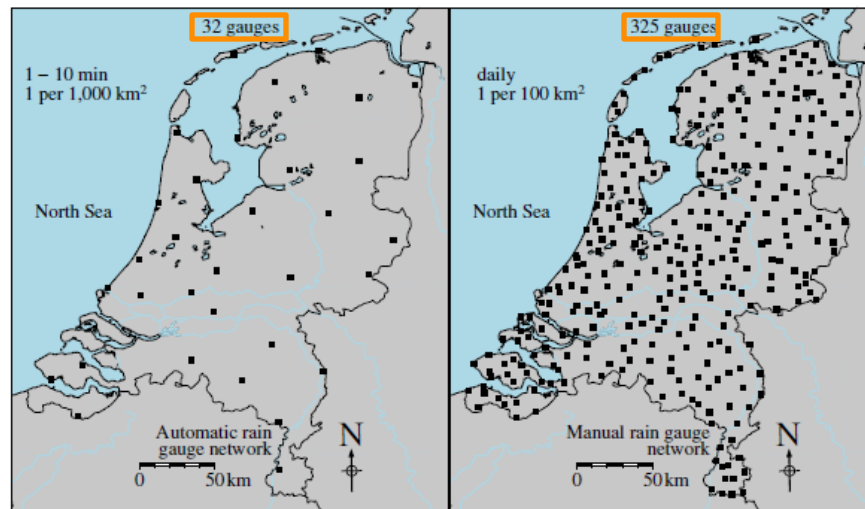
Microwave links versus radar + gauges



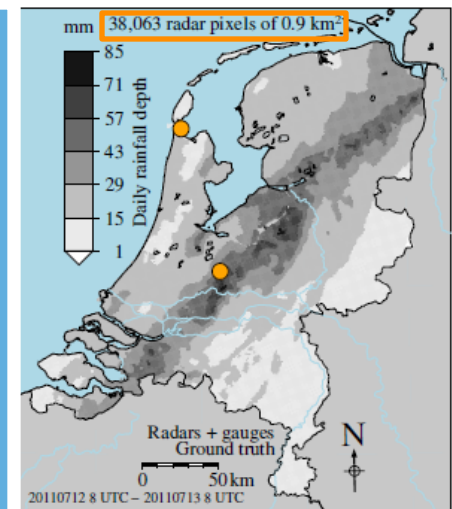
Aart



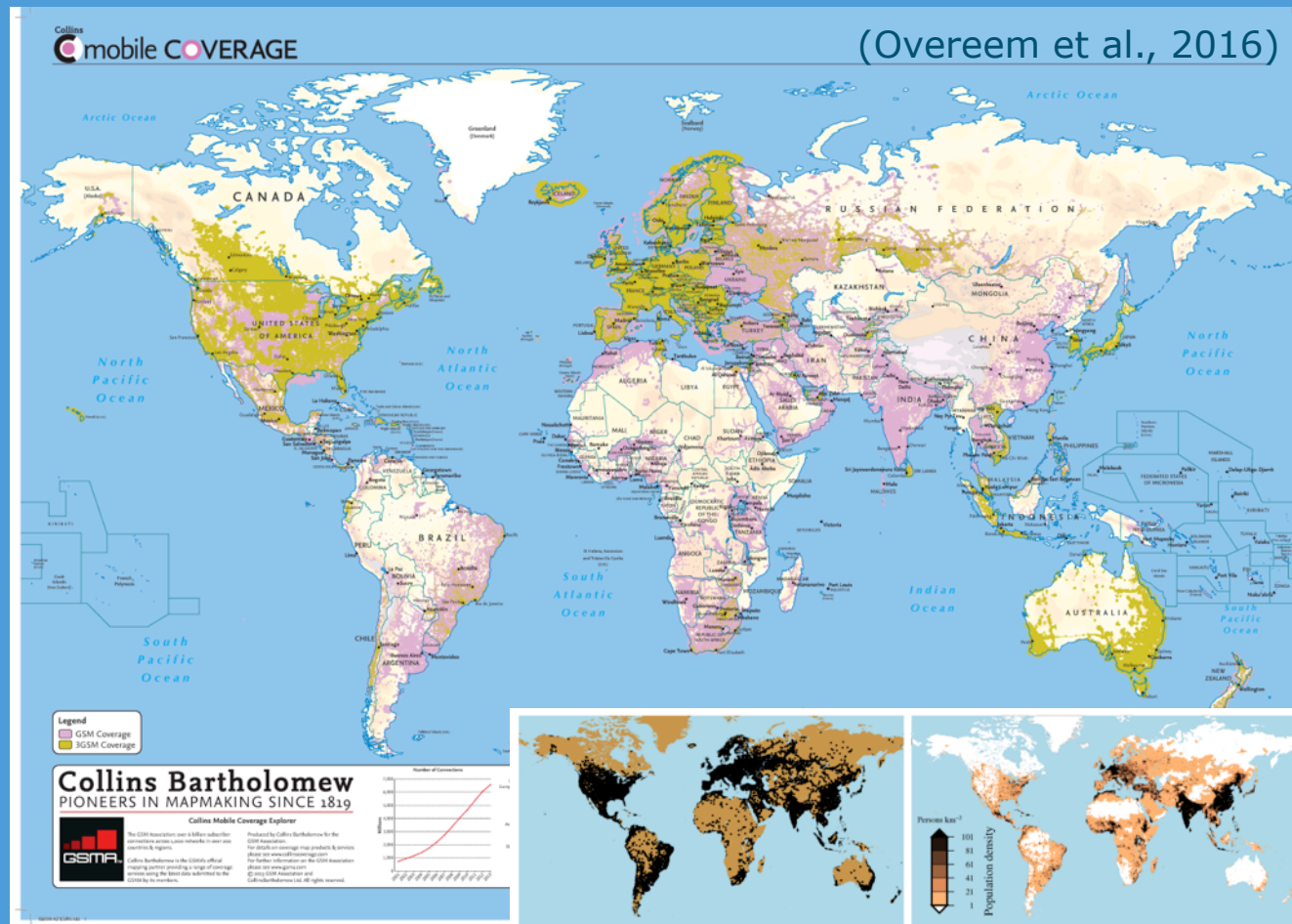
Ground validation in The Netherlands



Room for
opportunistic
sensors

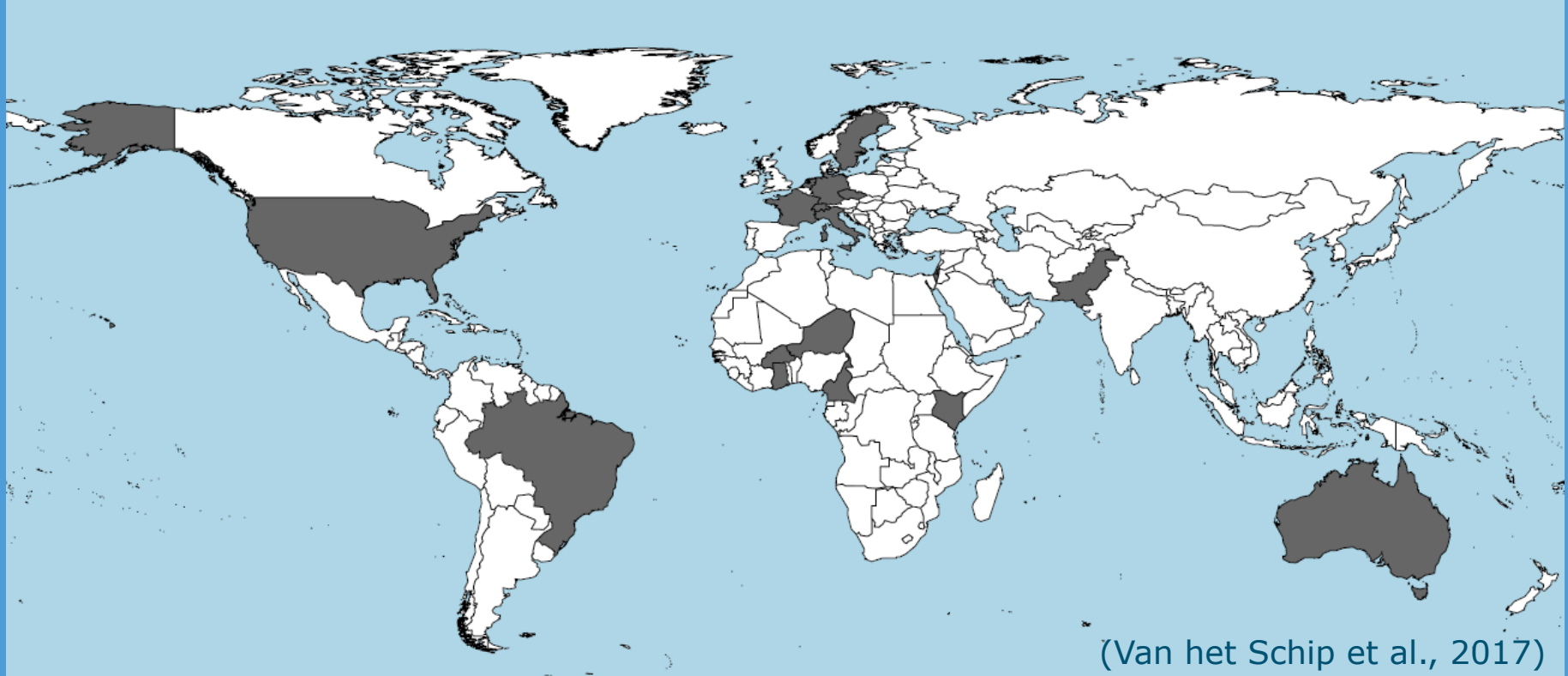


Potential complementary source of information over poorly gauged regions



India can likely be added to this map

Countries for which commercial microwave link data has been retrieved



Some relevant reports



Thank you very much for the great times!

