

WROCŁAW UNIVERSITY OF ENVIRONMENTAL AND LIFE SCIENCES





REAL-TIME ZTD FROM A LOCAL NETWORK OF LOW-COST DUAL-FREQUENCY GNSS RECEIVERS

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IGOR - IOT GNSS LOW-COST RECEIVER:

accuracy against Final ZTD @ IGS station WROC



LOCAL NETWORK OF LOW-COST GNSS RECEIVERS:

ZTD & Δ ZWD (Δ IWV) time series; high-res WRF as reference



- 17 low-cost stations @ c.a. 300 km²
- ≥13 for 15 days (since DoY 72, 2021)
- dynamic weather conditions

$$IWV = \frac{ZWD}{Q}$$
$$Q = 10^{-6} \rho_w R_w \left(\frac{k_3}{T_m} + \left(k_2 - k_1 \frac{M_w}{M_d}\right)\right)$$

GPS+Galileo processing strategy: *T. Hadaś, T. Hobiger (2021) Benefits of Using Galileo for Real-Time GNSS Meteorology* <u>DOI:10.1109/LGRS.2020.3007138</u>



% of Δ ZWD (Δ IWV) exceeding 1 σ / 2 σ / 3 σ = 31% / 11% / 4%

LOCAL NETWORK OF LOW-COST GNSS RECEIVERS:

ZWD & ΔIWV distribution and dynamics

0 2 4 6 8 10 12



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ZWD & IWV videos: https://www.youtube.com/playlist?list=PL1gisBn7WurAVhtcW0BZK2AR f2OMCfMP

Thank you!



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