

*THE USE OF A WIND PROFILER FOR METEOROLOGICAL STUDIES OF  
TRANSBOUNDARY TRANSPORT OF PARTICULATE MATTER ON THE  
EXAMPLE OF THE UPPER ODER VALLEY (PL-CZ BORDER)*

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# THE USE OF A WIND PROFILER FOR METEOROLOGICAL STUDIES OF TRANSBOUNDARY TRANSPORT OF PARTICULATE MATTER ON THE EXAMPLE OF The Upper Oder Valley (PL-CZ border)



IMGW-PIB is a member of the international aerosol research network ACTRIS. As part of this activity, it operates a measurement platform at the meteorological station in Racibórz. Among its many instruments for measuring fine particles, it also uses specialized meteorological equipment to study the physical properties of the atmosphere in the lower troposphere.

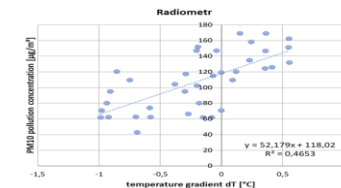
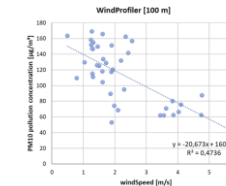
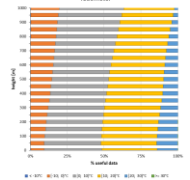
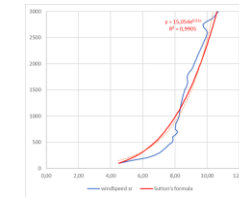


Among such instruments, IMGW-PIB has, among others, n. the only elevator profiler in Poland (WP LAP 3000), radiometer (MPT-4), Aurora 3000 nephelometer and CL61 ceilometer

The aim of the study was to indicate the possibility of using WP primarily for research related to meteorological cover of aerosol transport in the river valley.

The paper shows, among others:

- the effectiveness of the WP and its maximum vertical range,
- the possibility of analyzing the vertical wind profile up to 3000 m above sea level,
- analysis of wind torsion with height due to differences in frictional force,
- the possibility of testing the daily wind speed regime at different levels, noting that this can be used to identify the mixing height.



## Applications

The use of remote sensing techniques to identify thermodynamic conditions and the lower troposphere can be an excellent complement to information about the course of episodes of high concentrations of atmospheric aerosols and, in addition to the modelling room, can facilitate the process of identification, understanding of the genesis and forecast of such situations. This is particularly important in the conditions of the flow of air masses forced by orography.

Thank you

Ewa Krajny, Leszek Ośródka 16-18/ 09/2025, Hamburg



# Thank you for your attention

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