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<b>Academic Degree:</b>	dr hab. inż. (DSc.)
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<b>UPWr Base of Knowledge - link:</b>	<a href="https://bazawiedzy.upwr.edu.pl/info/autor/UPWrcccd9641179ec4d43a94002927fd31f57/Profil%2Bosoby%2B%25E2%2580%2593%2BJan%2BKap%25C5%2582on%2B%25E2%2580%2593%2BUniwersytet%2BPrzyrodniczy%2Bwe%2BWroc%25C5%2582awiu?r=autor&amp;tab=&amp;lang=pl">https://bazawiedzy.upwr.edu.pl/info/autor/UPWrcccd9641179ec4d43a94002927fd31f57/Profil%2Bosoby%2B%25E2%2580%2593%2BJan%2BKap%25C5%2582on%2B%25E2%2580%2593%2BUniwersytet%2BPrzyrodniczy%2Bwe%2BWroc%25C5%2582awiu?r=autor&amp;tab=&amp;lang=pl</a>
<b>Personal website / Working group website:</b>	<a href="https://www.researchgate.net/profile/Jan-Kaplon">https://www.researchgate.net/profile/Jan-Kaplon</a>
<b>Participation in projects in last 5 years (chronological; with distinction into PI (kierownik) and RF (wykonawca)):</b>	1) EPOS - European Plate Observing System (EPOS-PL+), 2020-2023, PI at UPWr, 2) EPOS - European Plate Observing System (EPOS-PL), 2017-2022, RF and Task manager, 3) A TOMographic Ionospheric Corrections testbed for Poland GNSS networks based on Wide Area Real Time Kinematic (ATOMIC-WARTK), ESA Contract No. 4000119662/17/NL/Cbi, 2017-2019, RF.
<b>PhD topic:</b>	High-rate GNSS observations in the determination of acceleration
<b>Research discipline in Doctoral School:</b>	Civil Engineering, Geodesy and Transport
<b>Short description of the research problem to be solved in the PhD (minimum 1000 characters):</b>	<p>Nowadays, the high-rate GNSS (Global Navigation Satellite Systems) observations (frequency of acquisition higher than 1 Hz) can deliver reliable millimeter level displacements or centimeter per second velocities with relative, absolute (PPP - Precise Point Positioning) or variometric data processing approaches, supplemented by filtering techniques. However, the most interesting and the most destructive values to measure regarding the geophysical processes like earthquakes, mining tremors or landslides as well as structural monitoring of man made infrastructure is the acceleration and peak ground acceleration. With the development of modern multi-GNSS, high-rate receivers the opportunity to use them as accelerometers occurred, but requires the investigation on the definition and mitigation of the noise sources in GNSS data, which recently are significantly affecting the precise acceleration and peak ground acceleration determination. The investigation process during the PhD studies should first focus on the design of experiments with real earthquake or mining tremor GNSS data as well as with simulated vibration GNSS data to determine the noise sources affecting the results of the state-of-the-art methods of high-rate GNSS data processing then the development of GNSS data acquisition and processing methods as well as the filtration methods for GNSS position time-series leading to the precision improvement in acceleration and peak ground acceleration determination, measured against the accelerometer or seismometer data.</p> <p>This topic is related to the H2020 Integration of Geodetic and imAging TechNiques for monitoring and modelling the Earth's surface defoRmations and Seismic risk (GATHERS) project and its GNSS-seismology task.</p>
<b>Professional skills for PhD candidate (e.g. master program, specializations, softwares, language, analytical techniques, minimum 500 characters):</b>	<p>The candidate should have the following professional skills:</p> <ol style="list-style-type: none"> <li>1) Graduate from a master program in satellite geodesy, geodesy or IT with specialization in signal processing.</li> <li>2) Knowledge about the GNSS data structure, GNSS data acquisition and processing.</li> <li>3) Basic knowledge and an interest in seismology or structural monitoring.</li> <li>4) Proficiency in Matlab or Python or other programming languages to process, analyze and visualize scientific data.</li> <li>5) Can communicate (speaking and writing) fluently in English.</li> <li>6) Have an understanding of the research results publication.</li> </ol>
<b>a) Project title:</b>	none
<b>b) Agreement number:</b>	none
<b>c) Number of months in the project to support PhD (in months; starting from 1st of October 2022):</b>	0
<b>Project website:</b>	<a href="http://www.gathers.eu/">http://www.gathers.eu/</a>