



GNSS for aviation analysis based on EUPOS and GNSS/EGNOS collocated stations in PWSZ CHELM

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Under the umbrella of PWSZ Chelm, taking account of future implementation of navigation using EUPOS and GNSS based on EGNOS several planned actions were carried out in the 2005-2006. The actions in particular contribute to: - ICAO and EGNOS requirements and coverage area (Chelm Town located near Polish-Ukrainian border is also at the east border of planned EGNOS coverage for ECAC states). - Preparatory activities to establishing the EUPOS station in PWSZ Chelm. - Cooperation of PWSZ Chelm and ULC (Polish Aviation Regulator) in the frame of conventional NAV aids use and GNSS implementation in aviation. - Analysis of ICAO requirements and methods of testing SIS (Signal In Space) needed to certify GNSS in Poland for use in aviation. - Preparatory activities to establishing the EGNOS SIS monitoring station based on EUROCONTROL Pegasus software and GNSS/EGNOS receiver Septentrio PolaRx2e. - Analysis of methods for exchange of information between EUPOS and EGNOS SIS station to initiate the application of satellite positioning systems to air navigation in Poland. The project EUPOS is a European initiative aiming at establishment of a uniform DGNS (Differential Global Navigation Satellite System) basis infrastructures in Central and Eastern European countries including Chelm Town where PWSZ is localized playing vital role in GIS/GNSS implementation in the region and Polish aviation. The station in Chelm is design for navigation and real time position determination with accuracy of 3 m up to 0.5 m, dependent on the used rover station equipment, providing compressed and encoded DGNS correction data via: Internet/GPRS/GSM, VHF radio/radio broadcast. For precise real time position determination with an accuracy < 2 cm the station will provide compressed and encoded DGNS – RTK correction data. Decompressing, decoding and the deduct of

charge will be carry out by the mobile user station in the range of about 100 km up to 200 km Mentioned activities crated also the input for the Strategy of Transport development in Poland – particularly in the aviation domain. The activities are complementary to Operational Programme „Infrastructure and Environment” and “Program rozwoju sieci lotnisk i lotniczych urz”dze”n naziemnych” where GNSS implementation is foreseen to have critical role in the new small and medium size airports development