

# **Influence of the local troposphere on GPS measurements**

**Krystyna Kurzynska<sup>1</sup>, Alina Gabryszewska<sup>1</sup>**

<sup>1</sup>*Astronomical Observatory, A. Mickiewicz University,  
Słoneczna 36, 60-286 Poznań, Poland . E-mail: kurzastr@main.amu.edu.pl, dosia@main.amu.edu.pl*

It is demonstrated that no global model of the wet tropospheric zenith delay is able to reproduce with comparable accuracy the value obtained directly on the basis of aerological sounding. The spectacular artifact resulting from the global model application are apparent seasonal variations of the GPS station altitude with respect to the reference ellipsoid. The method for the construction of a local wet tropospheric zenith delay model is proposed, based on a sufficiently representative sample of local aerological data. Its systematic error does not exceed that of instantaneous local wet tropospheric zenith delay determination from aerological data (0.5 cm) and reduces the apparent seasonal variations of altitude. The model is very convenient in every day use: it is sufficient to multiply the value of actual refractivity at the ground level by a certain factor determined for a given month.