Geophysical Research Abstracts,
Vol. 10, EGU2008-A-01568, 2008
SRef-ID: 1607-7962/gra/EGU2008-A-01568
EGU General Assembly 2008

Making a map mosaic using the 1:75,000 scale sheets of the Third Survey of the Habsburg Empire

G. Molnár

Christian Doppler Laboratory of the Institute of Remote Sensing and Photogrammetry, Technical University of Vienna, Austria and Dept. of Geophysics and Space Science, Eötvös University of Budapest, Hungary (molnar@sas.elte.hu)

The third military survey's first sheets on a scale of 1:75,000, published in the 1880s, were designed in a fairly simplified way from the point of view of projection. In theory, the boundaries of each map sheet are given by the parallels and meridians of the latitude-longitude grid, however in practice, these are represented by straight lines thus the segments have the shapes of a trapezoid. Naturally, each segment differs in size, except for those that have the same latitude. Consequently, a mosaic cannot be made from the segments mechanically, by placing one segment next to the other. On the editions published later (in the 1910s), the parallels forming the segments' boundaries are curved.

To create the mosaic after all, the scans of the original sheets were distorted in a way that they are placed into a uniform map projection. An explicit way of doing this would have been if an approximate projection for each segment had been defined in GIS environment and each single segment in this particular projection had been rectified then the resulting file had been transformed into the common projection. Considering the large number of sheets throughout the Empire, this solution was scrapped. Instead, for each column of sheets a substitute projection was defined, which provides a distortion form quite similar to the shape of a trapezoid. The sinusoidal projection is selected; with each column the projection center was the intersection of the column's central meridian and the Equator. Each map sheet was rectified in a projection selected for a particular column. Six control points were defined per sheet: a the corners and the mid points of the northern and southern sheet boundaries. As a result, the sheets' original

trapezoid shape could be followed with some 20 meters accuracy.

The map series were designed with the prime meridian of Ferro and throughout the rectifying process the Ferro-Greenwich shift was set consistently as 17˚ 40’. During the unification process the sheets were transformed to a Lambert Conformal Conic projection with the Greenwich prime meridian.