



## Georeference of the 1:200,000 'degree maps' of Central Europe (about 1910)

G. Timár (1), G. Molnár (2,1), and V. Crăciunescu (3)

(1) Dept. of Geophysics and Space Science, Eötvös University, Budapest, Hungary (timar@ludens.elte.hu, +36 1 3722927),

(2) CDL, Institute of Photogrammetry and Remote Sensing, Technical University of Vienna, Austria, (3) National Meteorological Administration, Remote Sensing and GIS, Bucureşti, Romania

The Institute of Military Geography in Vienna has completed the mapping of central Europe in the scale of 1:200,000 in the first decade of the 20th century. The map sheets cover a one degree (latitude) by one degree (longitude) extent piece of the terrain, that's why these sheets are referred to as 'degree maps'. The longitude is shown with respect to the Ferro prime meridian. The integer degree lines are the horizontal and vertical central lines of the sheets.

The map sheets has no uniform projections, not even inside one sheet. The basic units of these maps were the 1:75,000 scale sheets of the cartography of the Habsburg Monarchy, each covering a half degree (longitude) by quarter degree (latitude) piece of terrain. Each 1:75,000 sheets have their own oblique Stereographic projection, with the projection centre at the geometric centre of the sheet. The set of these Stereographic systems is called Lichtenstern-type polyedric projection system. Each degree maps contains eight of the 1:75,000 sheets, without reprojection but simply drawn them in an approximate mosaic.

Thus, the exact method of the georeference would be to cut these degree maps into eight pieces along the borders of the 1:75,000 sheets and rectify them separately in their own Stereographic systems. As it raises a huge work, we suggest to define substituting projections. Namely, a sinusoidal projection for each degree column should be defined with a projection center at the crossing of the central meridian and the Equator. The degree maps can be rectified using their corners as control points in the respective sinusoidal projection. After the rectification, we can crop the map content of the sheets and reproject them to any selected projection to make a real map mosaic. Using the georeference, we can provide combinations of these sheets and the modern databases or elevation models.