



## **Results of the preliminary geomagnetic field strength measurements in the northern part of middle Croatia**

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Geomagnetic measurements in Croatia are scarce and with a long time gap. The last measurements (magnetic declination) were conducted in 1949. on Adriatic coast and islands by Goldberg et al. In autumn 2003. we made a survey of the total magnetic field strength in the northern part of middle Croatia. Thirty positions were surveyed in the net with spacing of 15-20 km using two proton precession magnetometers of GEM Systems, Canada. For data reduction, daily curve was recorded at the base station in Pokupsko, acting as provisional geomagnetic observatory. Geomagnetic map was constructed and discussed. Gradient of the field generally points to the north-east, having a minimum of 18 nT/10 km and maximum 38 nT/10 km. Accounting for all inaccuracies, we found the positional error of isodynames 0.8 to 1.8 km, depending on the field gradient found in the area. Using scarce data published for the epoch 1927.5, we found change of 2920 nT and obtained an estimate of the secular variation equal to +39 nT/year. By exploiting the data of geomagnetic survey in Hungary for the epoch 1995.0, we have improved a part of the geomagnetic map close to Hungarian border. Also, we compared hourly means for the observational periods: September 22-29, 2003 and October 14-20, 2003 with the data obtained at the Niemeck observatory (Germany), Hurbanovo observatory (Slovakia) and l'Aquila observatory (Italy). As a numerical parameter describing the differences we introduced average standard deviation of differences between signals at our position which simulated the observatory and above mentioned European observatories. In some days the geomagnetic field of our planet was highly perturbed by coronal mass injection from the Sun, so additional analysis was done by investigating the K and Kp indices.

It should be highlighted that the measurements of the magnetic field in the year 2003. represent the new beginning of the geomagnetism in Croatia and the effort will be done toward the establishing the observatory in our country.