The history of geomagnetic observations at the Ural began in 1836. Now the observatory has been operating in the settlement Arti. Today the data on secular variations of magnetic field at this place for the whole period of 175 years of observations have been accumulated. An anomalous secular trend of the modulus of the magnetic induction $T$ was recorded within the Manchazh regional magnetic anomaly in the western Urals. The Arti observatory is located within the regional anomaly. In situ experiment designed for the study of magnetization of anomaly source rocks by natural geomagnetic field variations have been conducted in the Manchazh anomaly area. Using modern instrumentation and improved methods of MV observations, an induction signals were recorded. Comparison of experimental data with results of modeling on the magnetization effects caused by solar diurnal variations and a substorm showed that the Manchazh magnetic anomaly is produced by crustal rocks having a predominantly inductive magnetization. Three-D model of regional magnetic anomalies sources in the western Urals was constructed. The modeling results showed that the total effect of the crustal rock magnetization and spatial variation in secular trend of the main geomagnetic field completely accounts for the local secular variations in the magnetic discovered in the investigated area. The secular trend recorded at the Arti observatory mainly reflects magnetic field variations of planetary origin. An increase in the $T$ modulus at the observatory in 1968-2008 due to the magnetization of the crustal rocks by the secular variation did not exceed 0.3nT/yr.