



Application of historical, topographic maps and remote sensing data for reconstruction of gully network development as source of information for gully erosion modeling

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Central parts of European Russia are characterized by relatively shorter history of intensive agriculture in comparison to the Western Europe. As a result of that, significant part of the time period of large-scale cultivation is covered by different types of historical documents. For the last about 150 years reasonably good-quality maps are available. Gully erosion history for the European Russia is more or less well-established, with known peaks of activity associated with initial cultivation (400-200 years ago for the territory of Central Russian Upland) and change of land ownership in 1861 that caused splitting large landlords-owned fields into numerous small parcels owned by individual peasant families. The latter was the most important trigger for dramatic growth of gully erosion intensity as most of such parcels were oriented downslope. It is believed that by detailed reconstructions of gully network development using all the available information sources it can be possible to obtain information suitable for gully erosion models testing. Such models can later be applied for predicting further development of the existing gully networks for several different land use and climate change scenarios. Reconstructions for the two case study areas located in different geographic and historical settings will be presented.