Geography and Natural Resources 2014 vol.35 N3, pages 222-228

Automated construction of the boundaries of basin geosystems for the Volga Federal District

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Abstract

© 2014, Pleiades Publishing, Ltd. Using the Volga (Privolzhskii) Federal District as an example, we offer the solution of such a currently central scientific and methodological problem as automated identification of the boundaries of basin geosystems under different landscape and geomorphological conditions in terms of multiresolution digital elevation models. The main stages of work are described, namely the development of the digital elevation model, its hydrological adjustment, identification of the boundaries of basin geosystems, and validity assessment of results obtained. The technique has been developed for constructing a hydrologically valid digital elevation model with the purpose of identifying the boundaries of basin geosystems.

http://dx.doi.org/10.1134/S1875372814030044

Keywords

Aster GDEM, basin geosystems, digital elevation models, GIS, SRTM, Volga Federal District