

## **Spatial and temporal variability of suspended sediment yield in the Kamchatka Krai, Russian Federation**

**LIUDMILA KUKSINA & NIKOLAY ALEXEEVSKY**

*Department of Hydrology, Faculty of Geography, Moscow State University, Leninskie Gory, GSP-1, Moscow, 119991, Russia*  
[ludmilakuksina@gmail.com](mailto:ludmilakuksina@gmail.com)

**Abstract** Research into the spatial and temporal variability of suspended sediment flux (SSF, t year<sup>-1</sup>) has been conducted for rivers in the Kamchatka Krai (in the far east of the Russian Federation). The study of long-term fluctuations in SSF was based on difference-integral curve analysis. Most of the rivers in the region are characterized by two relatively long-term trends in SSF; increases from the late 1970s to the early 1980s, followed by a subsequent decline. Kamchatka was divided into regions based on similar conditions of specific suspended sediment yield (SSSY, t km<sup>-2</sup> year<sup>-1</sup>) followed by a determination of the various factors controlling it. New maps of suspended sediment concentration (SSC, mg L<sup>-1</sup>) and SSSY for Kamchatka also were constructed and, based on this study, there currently appear to be 18 SSC and 13 SSSY regions, as opposed to 4 and 2 regions, respectively, as had been determined in the 1970s. The influence of volcanoes on SSF can be substantial, and can increase up to 5-fold after eruptions; SSC can reach 6·10<sup>5</sup> mg L<sup>-1</sup> in rivers draining the flanks of volcanoes.

**Key words** suspended sediment concentration; volcanic eruptions; rainfall erosive factor; specific sediment yield; suspended sediment concentration; multiple regressions; Kamchatka Krai, Russia