

# Numerical Analyses of Flood Control Basin Capability in the Middle Part of the Amur River

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The Amur River is the international river whose length is 4,350km and basin area is 2,051,500km<sup>2</sup>. There are large wetlands in the mid Amur River area near Khabarovsk in Russia. Floods occur during the summer monsoon season in almost every year. It is important to analyze floods and assess floods control basin capability of wetlands for the safe land use management in the basin. The feature of floods in the mid Amur Basin will be discussed by the numerical analyses in our presentation. So as to be important for flood buffer zone, the wetlands should be remaining and their landforms should be evaluated for flood control basin capability. Analyzing the large river basin such as the Amur, remote sensing data are useful to clarify the distribution of the wetland without the data of flood and wetland area. The distribution of the monthly maximum precipitation fitted an exponential distribution (chi-squared test  $p > 0.05$ ). The precipitation of 832 mm/month would occur once in 100 years. 717, 565, 447, and 324 would occur in 50, 20, 10, and 5 years. Monthly average precipitations were below 50mm/month from November to March, over 70 from June to September and more than 100 from July to August. When the monthly precipitation in Khabarovsk were put on x-axis and the average monthly flow were put on y-axis, a logistic curve was fitted (ANOVA, significance level was below 0.001). That is, when the precipitation is over 84.0 mm/month which is 95% of maximum flow, floods occur. A significant correlation between the precipitation and the wetland area on the floodplain was indicated. As a result, the wetlands on the floodplain served a most important role as flood control basin. This result of our research is assist for regional planning toward minimizing flood damage.



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