



Scales of Turbulent Eddies in a Compound Channel

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A b s t r a c t

Experimental research was undertaken to investigate the changes in scales of turbulent eddies (macro- and microeddies) in a compound channel and the influence of rigid, emergent floodplain vegetation on scales of turbulent eddies. The results of eight tests for different roughness conditions (smooth bed, rough bed) and with a tree system on the floodplains from two earlier studies are presented. The increase of the channel roughness resulted in a decrease of longitudinal sizes of macroeddies in the whole channel. Trees on the floodplains resulted in disintegration of the sizes of macroeddies, making values of sizes more uniform. A more significant decreasing influence on sizes of macroeddies in the whole channel was exerted by an increase of the main channel sloping bank roughness, having a higher effect than a twofold decrease in the floodplain trees density. The microeddies' sizes are larger in the main channel centreline than on the floodplains and the smallest ones were present in the main channel/floodplain interface.

Key words: compound channel, eddies, emergent vegetation, floodplains.