Geophysical Research Abstracts
Vol. 17, EGU2015-2213, 2015
EGU General Assembly 2015

Comparative analysis of the accuracy of daytime and nighttime image in the calculation of flood flow using the Surface Image Velocimetry(SIV)

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This study analyzed the velocimetry of runoff and measured the flood discharge by applying the SIV (Surface Image Velocimeter) to the daytime and nighttime flow image data with special reference to Seong-eup Bridge at Cheonmi stream of Jeju during the flow by the severe rainstorm on May 27, 2013.
A 1000w lighting apparatus with more than 150 lux was installed in order to collect proper nighttime flow image applied to the SIV. Its value was compared and analyzed with the velocity value of the fixed electromagnetic wave surface velocimetry (Kalesto) at the same point to check the accuracy and applicability of the measured velocity of flow.
As a result, R2 values were 0.891 and 0.848 respectively in line with the velocity distribution of the daytime and nighttime image and the flow volume measured with Kalesto was approximately 18.2% larger than the value measured with the SIV.