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On the Effect of Measuring Section in Circulating Water Channel to Free Surface Elevation

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Summary: The hydrodynamic effect due to side form of measuring section of circulating water channel is examined theoretically and experimentally. The importance of both side and bottom form through proposing an open channel theory is pointed out to realize high hydrodynamic performance. The evidence on effect of side form is shown that (1) the results of formation agree with Kreitner's model, (2) the strength of effect is defined by local inclination of side form and (3) the formation of function on Froude number is as same as one in the case of bottom. Physical reason for the swelling of surface flow in the circulating water channel of the National Research Institute of Fisheries Engineering can be proved by role of superimposed effects due to both side and bottom form. The availability of present open channel theory is discussed in evaluating the distribution of free surface elevation.