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NOMENCLATURE

B	width of the undisturbed channel, m
b	width of the contracted channel, m
D^*	dimensionless grain size
d_{xx}	particle size for which xx% of sampled particles are smaller than, m
F	Froude number
F_d	densimetric Froude number
F_{di}	densimetric Froude number at the incipient movement of the bed sediment grains
g	gravitational acceleration, $m \cdot s^{-2}$
g'	modified gravitational acceleration, $m \cdot s^{-2}$
h	flow depth, m
L^*	dimensionless scour hole length
l	length of the contracted channel, m
l^*	scour hole length at a given time, m
Q	discharge, $m^3 \cdot s^{-1}$
Re	Reynolds number
T	dimensionless time
t	time, s
t'	time for unsteady flow computations, s
x	longitudinal distance, m
X	dimensionless longitudinal distance
Z	dimensionless scour depth
Z^*	dimensionless maximum scour depth
z	scour depth at a given time, m
z^*	maximum scour depth at a given time, m

Greek symbols

β	dimensionless contraction ratio
β'	dimensionless parameter function of the contraction ratio β as $(1-\beta)/\beta$
Δt	time step, s
ν	kinematic viscosity, $m^2 \cdot s^{-1}$
ρ	mass density, $kg \cdot m^{-3}$
σ	dimensionless sediment gradation

Subscripts

max	maximum
o	approach
s	sediment