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ABBREVIATIONS AND SYMBOLS USED

List of Abbreviations	Description
α_s	Attenuation coefficients of suspended sediment (m^{-1})
αs	Suspended sediment (mg)
α_w	Attenuation coefficients of viscosity of water
ΔS	Changes in soil storage (mm)
λ	Acoustic wavelength (m)
ν	Viscosity of fluids ($kg \cdot m^{-1} \cdot s^{-1}$)
ψ	Field correction coefficient
ϵ	Dissipation rate (J/ kg.s)
$\overline{S}$	Mean of observed data
$\hat{S}$	Predicted data
P_k	Production for turbulence
α_2	Volume fraction of the secondary phase
ρ_2	Density of the secondary phase (kg/m^3)
ADCP	Acoustic Doppler Current Profiler
A_{hru}	Area of HRU (m^2)
ANN	Artificial Neural Network
a_t	Transducer radius (mm)
CFD	Computational Fluid Dynamics
CFRG	Coarse fragment factor
DEM	Digital Elevation Model
DGPS	Differential Global Positioning System
E	Evapotranspiration (mm)
EI	Echo strength (dB)
FEA	Finite Element Analysis
f_T	Relaxation Frequency (Hz)
GIS	Geographic Information Systems
HEC-RAS	Hydrologic Engineering Center's River Analysis System

HRU	Hydrological Response Unit
Kc	Scale factor
K_s	Backscattering coefficient
K_t	Acoustic system transmit power (W)
LS	Topographic factor
LULC	Land Use Land Cover
LUP	Land Utilization Planning
LXm	The transmit length
MBES	Multibeam echo sounder
MLP	Multilayer perceptron
M_s	M_s is the backscattering strength
NDVI	Normalized Difference Vegetation Index
NF	Neuro-fuzzy
NSE	Nash–Sutcliffe efficiency
P_0	Reference pressure (Pa)
PPU	Percent prediction uncertainty
q_p	Peak runoff rate (m^3/s)
Q_s	Surface runoff volume (m^3)
R^2	Coefficient of determination
RB	Relative acoustic backscatter
RL	Reverberation level
RUSLE	Revised Soil Erosion Equation
SCS-CN	Soil Conservation Service Curve Number
SSC	Suspended sediment concentration
SUFI-2	Using Sequential Uncertainty Fitting 2
SWAT	Soil & Water Assessment Tool
SWC	Soil and water conservation
S_y	Sediment yield ($t/km^2/y$)
TIN	Triangular irregular network
TSS	Total suspended solid
USGS	United States Geological Survey

USLE	Universal Soil Loss Equation
VOF	Volume of fluid
VOF	Volume of Fluid
WEPP	Water Erosion Prediction Project
WNF	Wavelet analysis and neuro-fuzzy

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