

NOMENCLATURE

VARIABLES

a	constant value
a	fit parameter
a	dimension (m, ft, in)
$atan$	arc tangent operator
A	surface area, area (m ² , ft ²)
A'	constant value
b	constant value
b	dimension (m, ft, in)
b	fit parameter
B'	constant value
c	constant value
c	fit parameter
d	constant value
d	fit parameter
d	dimension (m, ft, in)
C'	constant value
Csc	cosecant operator
Cos	cosine operator
$Cotan$	cotangent operator
dx	finite difference along the x -coordinate (m, ft, in)
dy	finite difference along the y -coordinate (m, ft, in)

dz	finite difference along the z -coordinate (m, ft, in)
e	error
e	constant value
f	function
f	constant value
F'	angle ($^{\circ}$, rad)
g	gravity acceleration (m/s^2)
h	constant value
h	fit parameter
h	dimension (m, ft, in)
i	unit vector
j	unit vector
k	unit vector
$\ln$	natural logarithm operator
$\log$	logarithm operator
r_i	internal radius (m, ft, in)
r_o	external radius (m, ft, in)
$Scale$	scale
Sec	secant operator
Sin	sine operator
u	dependent variable
u	response function
u	axis along the x -coordinate
u_i	dependent variable component along the x -coordinate
u_x	change of dependent variable along the x -coordinate
u_{xx}	derivative of change of dependent variable along the x -coordinate
u_{ψ}	angular change of dependent variable about the x -coordinate
v	dependent variable
v	response function
v	axis along the y -coordinate
v_i	dependent variable component along the y -coordinate
v_x	change of dependent variable along the y -coordinate
v_{xx}	derivative of change of dependent variable along the y -coordinate
v_{φ}	angular change of dependent variable about the y -coordinate

w	dependent variable
w	axis along the z -coordinate
w_i	dependent variable component along the z -coordinate
w_x	change of dependent variable along the z -coordinate
w_{xx}	derivative of change of dependent variable along the z -coordinate
w_θ	angular change of dependent variable about the z -coordinate
w_i	weight fraction for content i (kg of content/kg of the total, grains per grains)
x	coordinate along the x -axis
x	distance along the x -coordinate (m, ft, in)
x_i	dependent variable component along the x -coordinate
x_i	length along the x -coordinate (m, ft, in)
x_0	reference length (m, ft, in)
y	fit parameter
y	coordinate along the y -axis
y	distance along the y -coordinate (m, ft, in)
y_i	dependent variable component along the y -coordinate
y_i	depth along the y -coordinate (m, ft, in)
y_0	reference depth (m, ft, in)
z	coordinate along the z -axis
z	distance along the z -coordinate (m, ft, in)
z_i	dependent variable component along the z -coordinate
z_i	height along the z -coordinate (m, ft, in)
z_0	reference height (m, ft, in)

GREEK SYMBOLS

Δ	difference operator
Δt	time step (s)
Δt	time difference (s, min, hr)
Δx	step size along the x -coordinate (m, ft, in)
Δy	step size along the y -coordinate (m, ft, in)
Δz	step size along the z -coordinate (m, ft, in)
ϕ	rotation angle about the lateral axis, y -coordinate ($^\circ$, rad)
$\dot{\phi}$	angular velocity about the lateral axis, y -coordinate (rad/s ²)

$\ddot{\phi}$	angular acceleration about the lateral axis, y -coordinate (rad/s ²)
θ	rotation angle about the vertical axis, z -coordinate (°, rad)
$\dot{\theta}$	angular velocity about the vertical axis, z -coordinate (rad/s ²)
$\ddot{\theta}$	angular acceleration about the vertical axis, z -coordinate (rad/s ²)
ψ	rotation angle about the lateral axis, y -coordinate (°, rad)
$\dot{\psi}$	angular velocity about the lateral axis, y -coordinate (rad/s ²)
$\ddot{\psi}$	angular acceleration about the lateral axis, y -coordinate (rad/s ²)

SUBSCRIPTS

∞	infinite
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