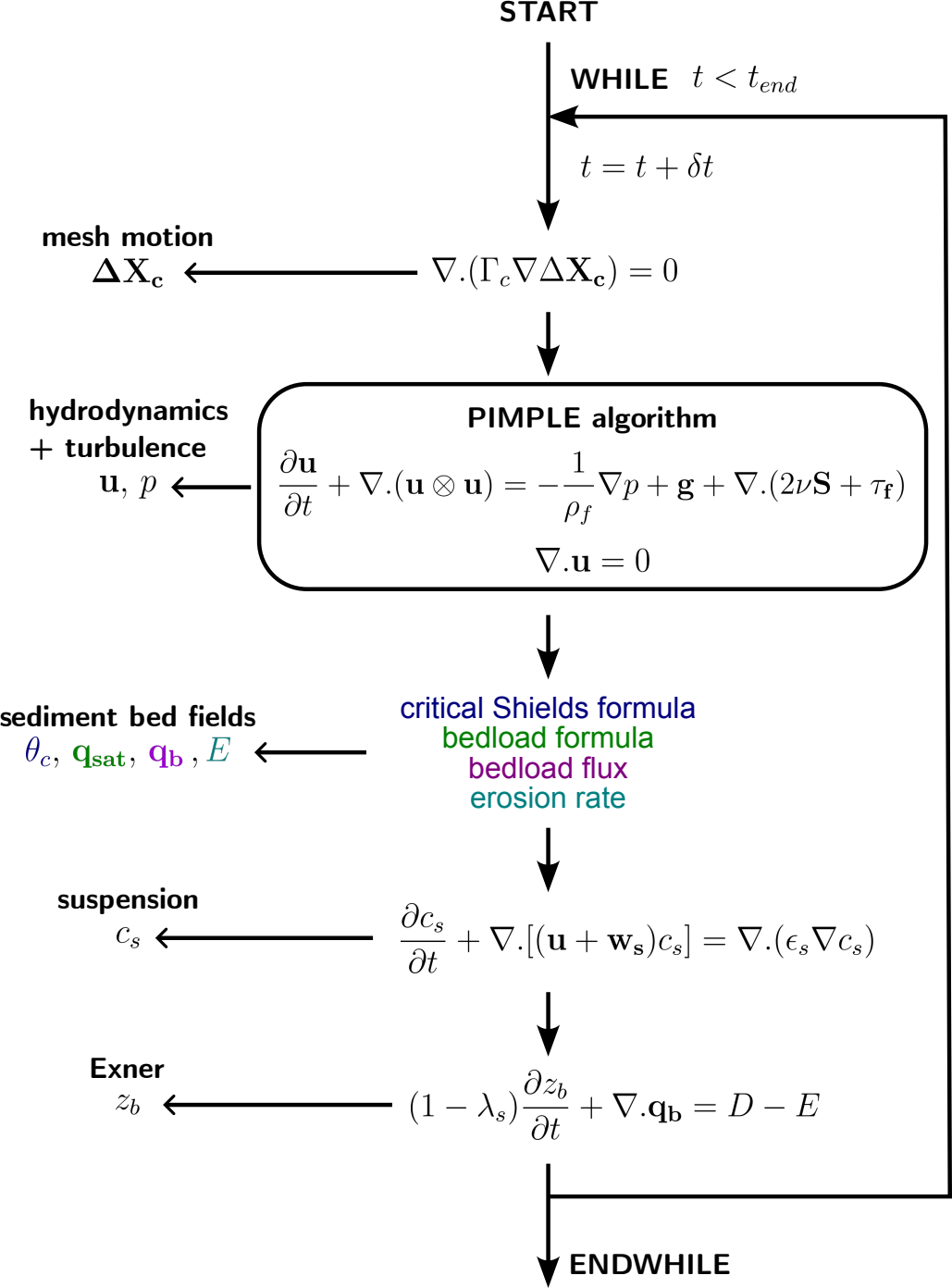
START
WHILE $t < t_{end}$
$t = t + \delta t$
mesh motion
$\mathbf{\Delta X_c}$
$\nabla.(\Gamma_c \nabla \Delta \mathbf{X_c}) = 0$
hydrodynamics
+ turbulence
$\mathbf{u}$, $p$
PIMPLE algorithm
$\frac{\partial \mathbf{u}}{\partial t} + \nabla.(\mathbf{u} \otimes \mathbf{u}) = -\frac{1}{\rho_f}\nabla p + \mathbf{g} + \nabla.(2\nu\mathbf{S} + \tau_\mathbf{f})$
$\nabla.\mathbf{u} = 0$
sediment bed fields
$\theta_c$, $\mathbf{q_{sat}}$, $\mathbf{q_b}$, $E$
critical Shields formula
bedload formula
bedload flux
erosion rate
suspension
$c_s$
$\frac{\partial c_s}{\partial t} + \nabla.[(\mathbf{u} + \mathbf{w_s})c_s] = \nabla.(\epsilon_s \nabla c_s)$
Exner
$z_b$
$(1 - \lambda_s)\frac{\partial z_b}{\partial t} + \nabla.\mathbf{q_b} = D - E$
ENDWHILE