$\begin{cases} \frac{\boldsymbol{u}^{n+1} - \boldsymbol{u}^n}{\Delta t} = -\frac{\nabla p^{n+1}}{\rho} + \boldsymbol{R} \boldsymbol{H} \boldsymbol{S}^n \\ \nabla \cdot \boldsymbol{u}^{n+1} = 0 \end{cases}$