$$oldsymbol{S}_i^n = H_i \left(rac{oldsymbol{u}_i^{n+1}ig|_{solid} - oldsymbol{u}_i^n}{\Delta t} - rac{oldsymbol{u}_i^{n+1}ig|_{fluid} - oldsymbol{u}_i^n}{\Delta t}
ight) = H_i rac{oldsymbol{u}_i^{n+1}ig|_{solid} - oldsymbol{u}_i^{n+1}}{\Delta t}$$