$\eta(\boldsymbol{x},t)$ $h_{n-1}(x,t)$ $\mathbf{u}_{n-1}(\boldsymbol{x},t)$ $w_{n-1}(x,t)$ $\phi_{n-1}(\boldsymbol{x},t)$ $h_k(\boldsymbol{x},t)$ $\mathbf{u}_k(\boldsymbol{x},t)$ $\hat{z}_{n-3/2}(\boldsymbol{x},t)$ $w_k(\boldsymbol{x},t)$ $h_1(\boldsymbol{x},t)$ $\phi_k(\boldsymbol{x},t)$ $\mathbf{u}_1(\boldsymbol{x},t)$ $\hat{z}_{k-1/2}(\boldsymbol{x},t)$ $w_1(\boldsymbol{x},t)$ $\phi_1(\boldsymbol{x},t)$ $h_0(\boldsymbol{x},t)$ $\mathbf{u}_0(\boldsymbol{x},t)$ $\hat{z}_{1/2}(oldsymbol{x},t)$ $w_0(\boldsymbol{x},t)$ $\phi_0(\boldsymbol{x},t)$ $z_b(oldsymbol{x})$