Westward Phase Propagation

$u_{\text{north}} = -\frac{g}{f(y+\delta y)}\frac{\partial \eta}{\partial y} < u_{\text{south}}$

Convergence of fluid
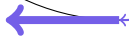$\therefore \frac{\partial h}{\partial t} > 0$

High η

Divergence of fluid
$\therefore \frac{\partial h}{\partial t} < 0$

Medium η

$u_{\text{south}} = -\frac{g}{f(y)}\frac{\partial \eta}{\partial y} > u_{\text{north}}$

Low η