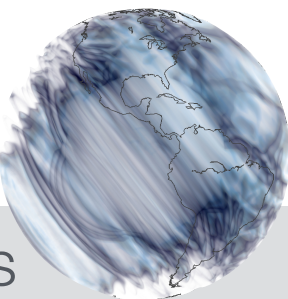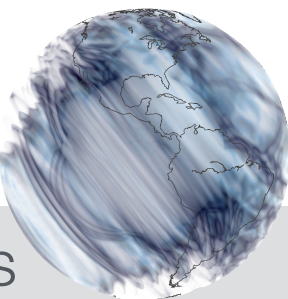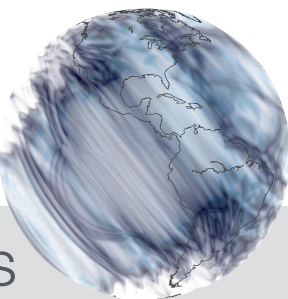# Shallow-water equation

Tsunami
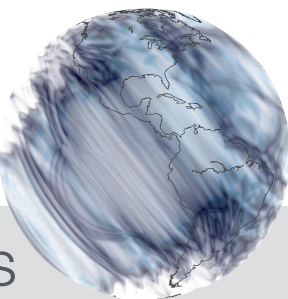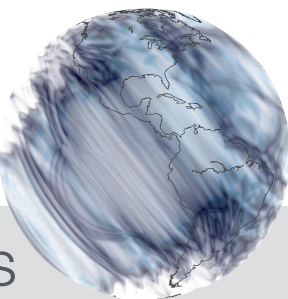
Storm Surge

Dam break
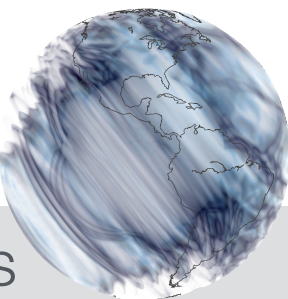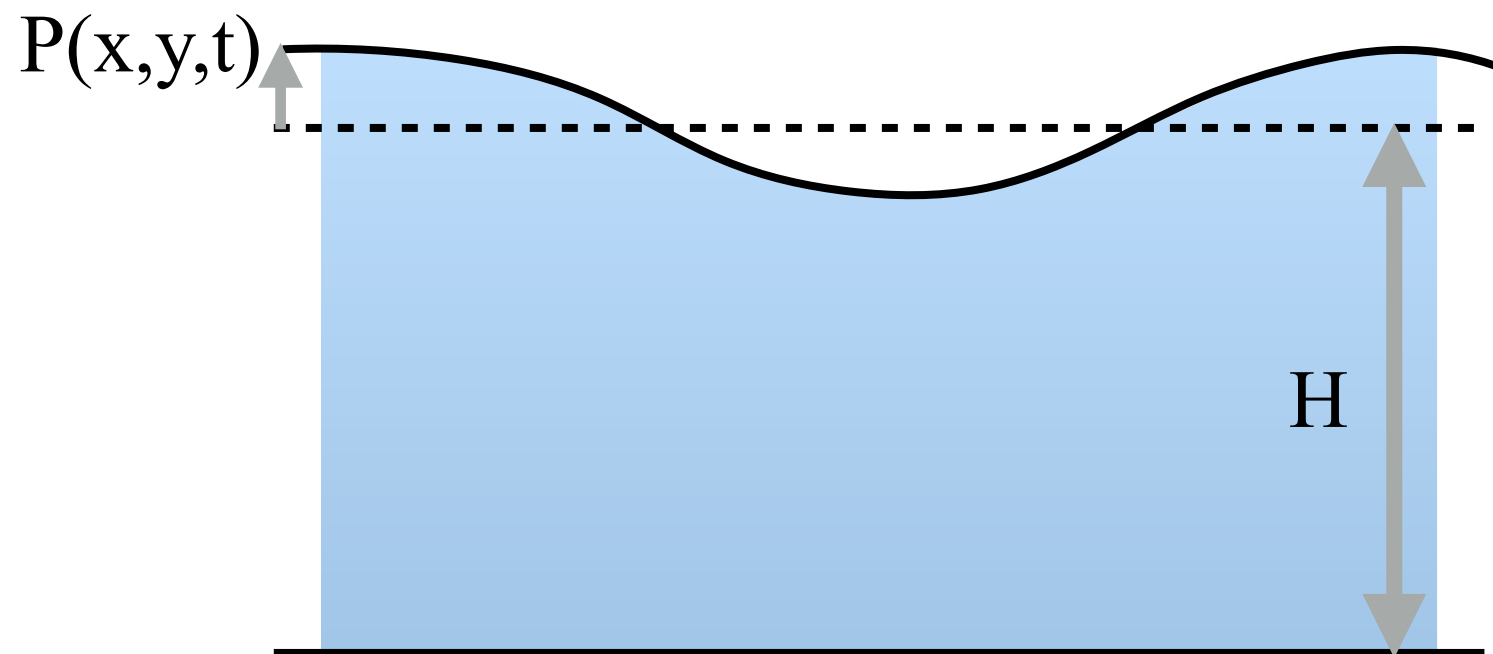
Atmospheric flow

Planetary flows

Shallow-water equation

$$\partial_t^2 P \;=\; \nabla \cdot (v^2 \nabla P)$$

$P(x,y,t)$

tsunami wave height $\quad P = P(x,y,t)$

H

wave speed $\quad v = \sqrt{gH(x,y)}$

ocean depth