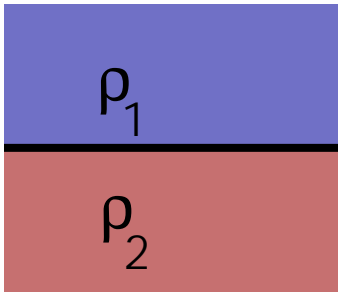


Rayleigh Taylor Instability

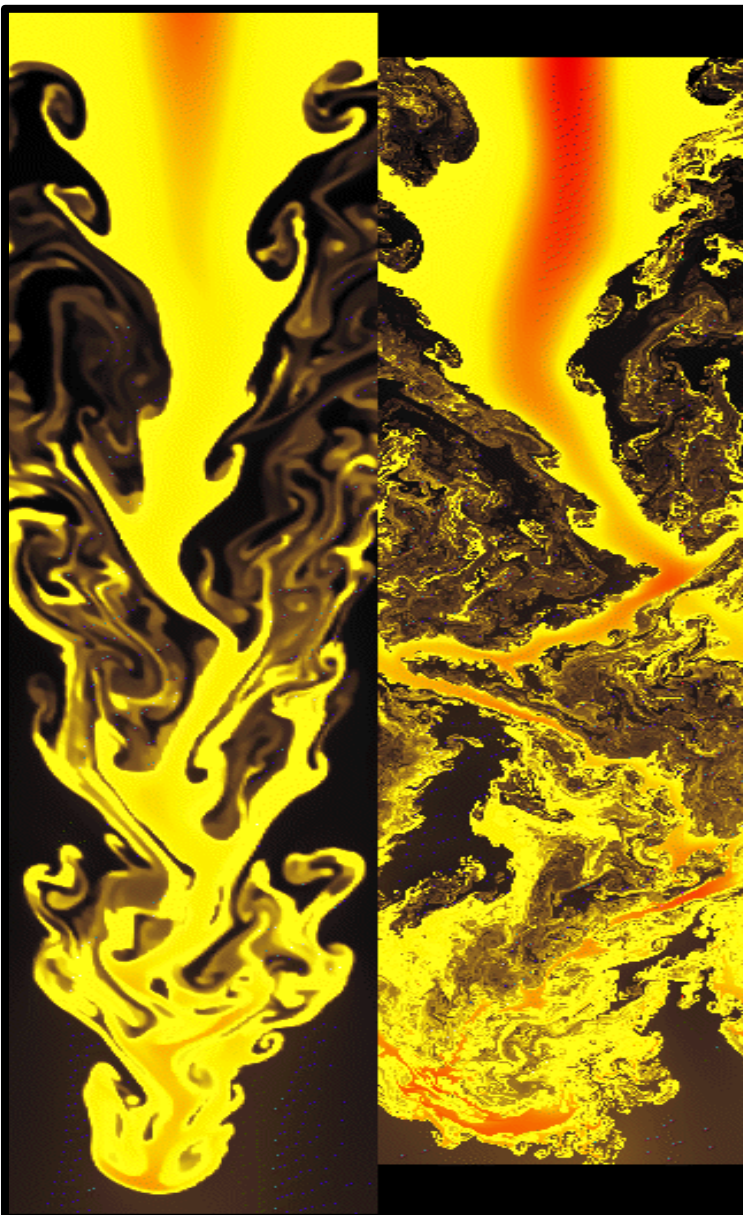


A heavy (cold) fluid overlying a light (warm) fluid is unstable.

Following the same mathematical procedure as for a two-layer fluid, the growth rate of instability is found from the imaginary part of the 'frequency' in the dispersion relation:

120x720 grid

960x3840 grid



$$\sigma = \sqrt{g k \frac{\rho_1 - \rho_2}{\rho_1 + \rho_2}}$$

Note the fastest growing mode has infinitesimally small wavelength – dynamics that cannot be simulated numerically,

Higher resolution simulations of weakly viscous flows give better results at higher resolution.