A fluid is said to be in hydrostatic equilibrium when it is at rest. If the fluid is at rest, then the forces acting on it must balance it. A natural question therefore arises: What happens if our initial data is close to an hydrostatic equilibrium solution? The field of hydrodinamic stability has a long history starting in the 19th century. For us, the basic problem is to consider a perturbation of the hydrostatic equilibrium, in which case the fluid must start to move, and to study the long-time behavior of the solution. In particular, we focus on laminar equilibria, even for these simple configurations surprisingly little is understood about the near equilibrium dynamics. In this talk, we study the stability of the hidrostatic equilibrium in two different problems inside the field of fluid mechanics. 1st: The inviscid incompressible porous media equation. 2nd: The inviscid and non-diffusive Boussinesq system with a velocity damping term.