The principle of hydrostatic equilibrium is that the pressure at any point in a fluid at rest (whence, “hydrostatic”) is just due to the weight of the overlying fluid.

What does this really mean?
Equilibrium
What will happen?
Hydrostatic adjustment
What will happen?
Hydrostatic adjustment
The principle of hydrostatic equilibrium is that the pressure at any point in a fluid at rest is just due to the weight of the overlying fluid.
What will happen?
Hydrostatic adjustment
What will happen?

Vacuum
Let's shift our diagram a bit

Vacuum
Why?

Vacuum
Do the forces balance?

The principle of hydrostatic equilibrium is that the pressure at any point in a fluid at rest is just due to the weight of the overlying fluid.
A barometer measures atmospheric pressure by balance the weight of mercury in a glass tube against the weight of air in the atmosphere.

Figure 10.1: (Top) Variation of pressure with height in Earth’s atmosphere. (Bottom) Variation of pressure with depth in the ocean.