Flow Zones in Unsaturated Soil Due to Barometric Pumping

The study of gas flow in unsaturated soil is important for better modeling of volatile organic compounds (VOCs) transport. A gas flow in unsaturated soil can be induced naturally by the atmospheric pressure fluctuation. Oscillations in barometric pressure are both diurnal, corresponding to daily heating and cooling of the atmosphere, and of longer time periods, resulting from the passage of weather fronts. Daily variations will average a bout 4 to 5 mbar while those due to weather front passage can be 25 mbar or more