

The special features of atmospheric circulation in the boundary layer of Val Belluna, a typical air stagnation compared to the general synoptic circulation.

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Observing global atmosphere, it is possible to consider it like an huge "Ocean" air whose air streams tends to move in relation to synoptical situations of the moment. In the specific case of Belluno basin, the ocean becomes a "very small bay" where air flow of free atmosphere can't penetrate in the low boundary layers, except cases of very dynamical flow like disturbance weather or deep convection. In other words, the Belluno basin boundary layer appears often like a dense and stagnant air "lake", where strong air stagnation are often disconnected with free atmosphere flow. The Belluno basin microscale winds study shows a very high frequency of persistent air stagnation, especially during the cold season, when absent aerological dispersion determines a critical concentration of fine dust in the atmosphere. Besides specific wind characteristics of Belluno basin due to dense and cold air (viscosity and subsidence instead of fluidity and buoyancy) which generate a very weak horizontal ventilation, the vertical dispersion is not possible, except first tens or one hundred meters, in consequence of strong temperature inversion profile. The height of no mixing air happens during very high pressures, especially when fogs or low stratus determine isothermical layers without winds. An other particular of aerological pattern of Belluno basin is very limited air exchanges with neighboring areas, insufficient to generate an effective change of air.