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An explanation of observable trend of mean atmosphere pressure and its annual oscillation

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The graph of change of mean atmospheric pressure on the all Earth shows rather clear trend in its decrease, its annual variation, and also interannual and decade variations (Salstein, 2005). For the period with 1979 on 2005 the mean pressure decreased with velocity **0.021 hPa/yr**, and the amplitude of its annual variation in the specified period makes about **0.68 hPa-0.25 hPa**. And rather monotonous decrease of amplitude of annual fluctuation with velocity about **0.017 hPa/yr** is observed. According to our geodynamic model in northern and southern hemispheres the phenomenon of inversion of the mean pressure of atmosphere should be observed. Namely, the mean pressure in northern hemisphere should accrue, and in a southern hemisphere on the contrary - to decrease. Besides the mean pressure of atmosphere in **N-S** hemispheres vary in an antiphase with annual, semi-annual and others periods which were predicted by the theory (Barkin, 2002). Thus the certain asymmetry in masses of atmosphere (and in their canhges) in the corresponding hemispheres should be observed. The basic dynamic reason of the mentioned redistributions of atmospheric masses is the action of mechanism of the forced relative swing of system of the core-the mantle of the Earth. The gravitational attraction of external celestial bodies causes secular and small cyclic motions of the core relatively to elastic mantle. The gravitational attraction of superfluous mass of the core causes the planetary inversion tides in atmosphere and causes the observable redistribution of air masses between N-S hemispheres. On preliminary estimations the velocity of slow changes of mean pressure of atmosphere in N and S hemispheres can make **0.17-0.22 mb/yr** and - **0.18 mb/yr**, accordingly (Burluzkii, 2007; observation data over the period April 2002 - April 2005). Amplitudes of an an-

nual variation of the mean atmospheric pressure in hemispheres make about **2 -2.2 mb** and change in antiphase. The specified variations and inversion redistributed masses have been predicted on the base of geodynamic model (Barkin, 2002). Also similar variations of atmospheric masses, for example, with the periods have been predicted (in days): **2403; 592; 515; 365; 172; 122; 100; 113; 90.7; 69.8; 60.1; 50.4; 40.4; 38.1; 30.5; 27.4; 19.4.** According to the developed model in variations of mean atmospheric pressure of hemispheres and all the Earth will be revealed also short-periodic variations with the hour periods (in hours): **24.00; 12.00; 8.00; 6.00; 4.80; 4.00; 3.43; 3.00; 2.67; 2.41** (Barkin, 2002; 2005). It is worth to remark that variations of the atmospheric pressure with mentioned hour periods will be observed on every from meteorological stations. Burluzkii (2007) has shown, that the lump of a dry atmosphere in both hemispheres remains practically constant, but masses of atmosphere in these hemispheres vary in inversion and asymmetric style. The data of observations testify to slow decrease of full mass of water pair in atmosphere with velocity about **0.021 mb/yr** (Burluzkii, 2007; on the data for 1979-2005). Approximately with the same velocity **0.015-0.025 mb/yr** the mean atmospheric pressure for the specified period was varied (Salstein, 2005). For an annual component the consent of experimental data about variations of mass of water pair in atmosphere and the mean atmospheric pressure again is observed. Thus, we come to a conclusion: observable variations of mean atmospheric pressure of the Earth (trend and various cyclic variations) are caused by processes of condensation and evaporation of water pair.

References

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