

The EcoChemistry of Ozone

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The concentration of ozone and dynamics is one of the actual items of ecology. Ozone in the troposphere is an indicator of anthropogenic pollution. Ozone in the stratosphere is the shield and defender of life, because it intensively absorbs the life-threatening, ultraviolet radiation. The concentration of ozone is depicted by the share of volume, μkg in M^3 air or the unit of Dobson (the unit of Dobson is the conditional unit which corresponds to 0.001 cm layer of ozone in atmosphere).

The main layer of ozone is in the stratosphere. The maximum deficit of ozone is observed in spring, at the height 14-20 km, where the concentration of ozone is decreased even to 40%. This phenomenon is known as "The ozone hole".

The main reason of the origin of the hole is considered the anthropogenic pollution of atmosphere, in particular, the synthetic freons. From the ecological point of view the problem is global and it is very serious for its expected results, because the small decrease of ozone layer causes degradation of flora and fauna. Therefore, at the Montreal conference (1987) a decision was made to decrease the synthesis of freons and by the year 2030 to interrupt it. But it is still not properly explained, why the holes of ozone are founded in the south hemisphere while the north hemisphere is rich in freons. Also it is possible, that the change of the concentration of ozone is a normal natural cycle, because during thousand years much more natural freons dissipate, than synthesized freons in atmosphere.

Thus, to answer the question, why the "hole" was appeared, what is the real reason, is one of the difficult items due to multitude of possible factors.