

TURKMENISTAN

Monitoring of atmospheric ozone

In Turkmenistan monitoring of atmospheric ozone is accomplished by a National Committee on Hydrometeorology at the Cabinet of Ministers of Turkmenistan (Turkmengidromet).

At present continue systematic daily observations of the total amount of the atmospheric ozone at three stations:

Ashgabat (37. 57° N, 58.21° E, 311.6 m, since 1926)

Repetek (38.34° N, 63.11° E, 185 m, since 1983)

Turkmenbashi (40.03°N, 53.0° E, 82.5 m, since 2002)

The measurements of total ozone amount are done by means of the ozonometer M-124, manufactured in Russia. The ozonometers physically became obsolete, already many years they were not calibrated. Spare and reserve ozonometers for replacement and control are absent. Nevertheless the carried out comparative analysis between the temporary changes in the total ozone amount, obtained using the ozonometers M-124 and by data of Central Aerological Observatory scientific report, gives satisfactory agreement.

Information

The daily averaged data of total ozone amount, obtained at three stations are sent by telegram to Moscow 736 OZONE. Monthly schedules O-3 not later than 3 days of the following month are sent to the Main Geophysical Observatory named Voeikov. Further all data are transferred to the coordinated international network by data exchange of the World Meteorological Organization (WMO).

All primary data are stored in the archive of Turkmengidromet on the paper carrier. As it is known, the paper becomes yellow at long storage, records grow dull and there is a danger of important information loss received for a long time. Therefore in the near future it is necessary to transfer all information on ozone in the electronic format.

Studies

It is known that the ozone actively absorbs UV - radiation of the Sun and hereby influences on temperature distribution in the stratosphere, consequently on climate. By-turn climate changes, leading changes of temperature and composition of the atmosphere can influence on condition of ozonosphere. Depletion of the ozone layer will increase hard spectrum of UV - radiation which promote initiation of sun burnings, eye diseases, allergic reactions and skin diseases including cancer. Therefore studying of change of the total content of atmospheric ozone appears as actual task of the present.

Studying of the total amount of atmospheric ozone is conducted by the Scientific and Technical Centre "Climate" of Turkmengidromet. The conducted investigation is directed toward the study of regional special features of the total ozone amount change and their time variations, and also determination of possible sources responsible for the ozone layer destruction.

Though obtained results of scientific analysis regarding influence of hard spectrum of UV - rays on condition of the ozonosphere in a phase of high solar activity, presently an opinion about role of anthropogenic factor becomes prevalent.

In the last years an increase of the quantity of industrial objects in Turkmenistan can lead to the growth of the role of anthropogenic factor.

Turkmenistan having ratified the Vienna Convention and the Montreal Protocol, and also London Amendment to the Montreal Protocol undertook the corresponding obligations on the problem solution of the Ozone depleting substances (ODS). Plan of actions is developed on decrease of pollutants emission in the atmosphere and on ODS phase-out.

22nd of January 2008 the Medzhlis (Parliament) of Turkmenistan has accepted a Decree about acceding to the Beijing, Montreal and Copenhagen Amendments of the Montreal Protocol on Substances that Deplete the Ozone Layer.

Problems and needs

The contemporary level of investigations requires the presence of new technical equipment, which will permit to carry out the regular control of the content of ozone both in the atmospheric surface layer and at the stratosphere heights.

This is dictated by the fact that decrease of the total ozone amount in the stratosphere leads to an increase of the intensity of UV - rays dangerous for the life, and its increase in the atmospheric surface layer adversely affects on human health and it leads to a drop in the productivity of agricultural crops (wheat, rice, potato and etc.).

For obtaining more reliable information about the total ozone amount it is necessary to enlarge a network of regular daily observations. Also necessary to more widely use the data, obtained from the satellites. This can be carried out with the aid of the acting stations equipping by the contemporary instruments and opening of new stations with the technical support of international organizations.

In Turkmengidromet also there is necessity in training of young specialists with purpose of effective usage of contemporary instruments for measuring the total amount of atmospheric ozone and ultraviolet radiation.
