

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 technically 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.

Studies

Scientific analysis of a change in the total amount of atmospheric ozone in Turkmenistan is conducted by the Scientific and Technical Centre "Climate" of Turkmengidromet. The conducted investigation is directed toward the study of a regional special features of a change in the total ozone amount and their time variations, and also determination of the possible sources responsible for the destruction of ozone layer. The study of changes in the monthly averaged values of the total ozone amount above the territory of Turkmenistan showed that these changes are satisfactorily coordinated with changes of the spectrum of rigid ultraviolet radiation in the phase of high solar activity.

In the last decade an increase of the quantity of industrial objects in Turkmenistan can lead to the growth of the role of anthropogenic factor. Turkmenistan ratifying Viennese convention and Montreal protocol, and also London corrections to the Montreal Protocol had been undertaken the corresponding obligations on the problem solution of the Ozone depleting substances (ODS). Plan of actions is developed on the decrease of pollutants ejection in the atmosphere and on ODS phase-out.

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.

For obtaining more reliable information about the total ozone amount it is necessary to enlarge a network of regular daily observations, also 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 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. It is also necessary to master the new mathematical models, utilized for the evaluation of local variations in the content of ozone and forecast of the ozone layer behaviour, to continue scientific studies for clarification of reasons, which lead to a change of total ozone amount.
