PROGRAM AND RESULTS OF PROCESSING DATA ON TOTAL OZONE AMOUNT

The Earth's atmosphere is the native habitat of mankind and all biosphere of Earth. For this reason stability of its structure represents a necessary condition of survival and quality of life of mankind. In recent years, extremely great value is attached to problems of climate change of Earth and destruction of an ozone layer of our planet. Therefore, researches of characteristics of gas and aerosol composition of the atmosphere are one of the central problems of the modern physics and chemistry of the atmosphere. These researches are caused by need of detailed studying of natural state of the atmosphere for climatology and meteorology, and need of monitoring of anthropogenic impacts on climate of Earth and an ozone layer of our planet.

Now around us there is a huge number of databases that are issued in the form of large numerical tables. These tables are completed by results of the automated pilot studies; information which was collected as a result of overseeing by any object or the phenomenon; data of sociological polls and many other. Therefore great value is made by tools for representation of a data set and results of their processing in a visual form.

The global purpose of present work is to create the program for detection of ozone anomalies for numerical data of the OMI (Orbital Measurement Instrument) device and representing of this information in a graphic form.

Primal problem: creation of the program processing satellite data and outputting the map of concentration for the desired period in a dynamic look.

Daily uploaded files with massifs of numbers from the OMI device on the FTP server of NASA are a source of input data for our program of visualization of small components of the atmosphere.

The OMI device is intended for measurement of the common contents and a profile of ozone, and for measurement of content of such gases as NO₂, SO₂, HCHO, BrO and OCIO.

The algorithm of reading and processing of satellite data includes the following steps.
2. Detecting starting values of longitude and latitude.
3. Filling of headings of longitudes.
4. Filling rectangular matrix with total ozone values for globe.
5. Comparing actual values with “normal” ones.
6. Drawing corresponding graphs (including color mapping on earth projection).
As a result, the program under consideration allows revealing the abnormal areas in an ozone layer, tracing the extreme concentration of aerosols, extracting and investigating statistical information on the given parameters. Moreover, the developed program can form a basis for further researches of this subject domain.

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ENVIRONMENTAL RISK ASSESSMENT OF THE IMPACT OF NATURAL FACTORS ON AGROECOSYSTEM

In modern conditions, agriculture remains the most vulnerable sector of the national economy in regard to the impact of climatic factors because of the agroecosystem among the human communities have the most interaction with environmental factors. In this connection there is an economic interest in the modeling of the impact of environmental factors (especially climate) on agricultural systems. This process is particularly relevant in relation to climate change and the spread of more productive varieties and introduction of intensive technologies of cultivation of agricultural crops, because the impact of extreme meteorological factors in such circumstances is a cause of serious economic losses from death or yield reduction, or damage to the plantations themselves (in the case of long-term plantings).

Assessment of damage to agriculture, adverse weather factors acquires great importance for the establishment of compensation and justification for the relevance of the preventive protective measures. One of the most important influences is the impact of drought and frost.

Temperature oscillation during the year is typical for our climate. Such oscillations adapted as the annual cycle of agriculture in our country and agricultural crops grown in our climate.

Analysis of the practice of assessment of damages from emergency situations can also be taken into account for assessing harm from exposure to adverse factors.

There is a regulatory unit of analysis of the economic damage from the negative influence of economic activity to assess the damage from emergency situations (ES).

Conducting socio-economic studies of ES allows you to comprehensively assess the economic damage on the basis of actual costs.

Emergency situation of natural character connected with geological, meteorological and hydrological hazards, forest and grassland fires, fires grain arrays, underground fires fossil fuels.

In the case of measuring economic losses from adverse and dangerous weather events (AWE and DWE) in agriculture, it is necessary to consider features of the evaluated object and its critical periods of maximum sensitivity to the effects. The