THE USE OF GIS AND AEROSPACE IMAGES IN THE CREATION OF A SOUTH ARAL SEA DESERTIFICATION MAP

Kuziev Farhod Normamatovich
Academy of Sciences of the Republic of Uzbekistan
Junior Researcher at the Institute of Seismology
Email: farhod_gis@mail.ru
Tel.: 90 978 17 15
Nosirov Bakhtiyorjon Ikhtiyorjonovich,
National University of Uzbekistan
Basic doctoral student of the Department of Geoinformatics
Mail: baxtiyornosirov10leo@gmail.com
Tel.: 91 147 33 91
Ganiev Ziedulla Akramovich
Samarkand State University
Basic doctoral student of the Department of Geography and Natural Resources
Email: gziyodullo@mail.ru
Tel.: 90 502 99 94
Sobitov Otabekkhuja Yuldashevich
1 Stage Student of Tashkent State Pedagogical University named after Nizami
Email: sobitov572@gmail.com
Tel.: 90 959 56 07

Annotation: Basically for the South Aral Sea desertification card, it will be necessary to create a database of landscape types, anthropogenic effects and levels on landscapes, natural and anthropogen types of processes such as plant world, animal world, categories of industrial wastes that pollute atmospheric air, levels of groundwater and surface water pollution. he use of aerospace data in the study of the state of desertification in the South Aral Sea, the development of measures to prevent them, the development and compilation of maps of environmental, ecological, geoecological and other purposes, improvement of the socio-economic infrastructure of the region.

In connection with the intensification of the development of desertification processes in the Aral Sea region, it is important to draw up a number of thematic geographic maps. In that is reflected in the current state of desertification, factors of occurrence, the risk of development, as well as measures to combat desertification, etc. The use of aerospace photography − as a rational and effective way of obtaining qualitative and a large number of information about the emergence of this or that process in the territory is of great importance.

Keywords: Aerospace photo geoinformation systems, GIS, ArcGIS, PANORAMA, environmental problem,

Issues of mapping based on aerospace images

Currently, cartographic methods are widely used in the process of desertification and soil salinization, as well as in the range of research methods in solving environmental problems

geographically and environmentally. Enrichment of cartographic methods – with aerospace data, has led to the emergence of cosmophotocarta, which can clearly indicate the location of events and phenomena, natural and anthropogenic processes in certain times and space. The advantage and convenience of these maps is in the presence of the present-day requirement level of content and meaning reflected in them, their general and uniformity for large geographic regions, their quickness and the possibility of regular updating[1].

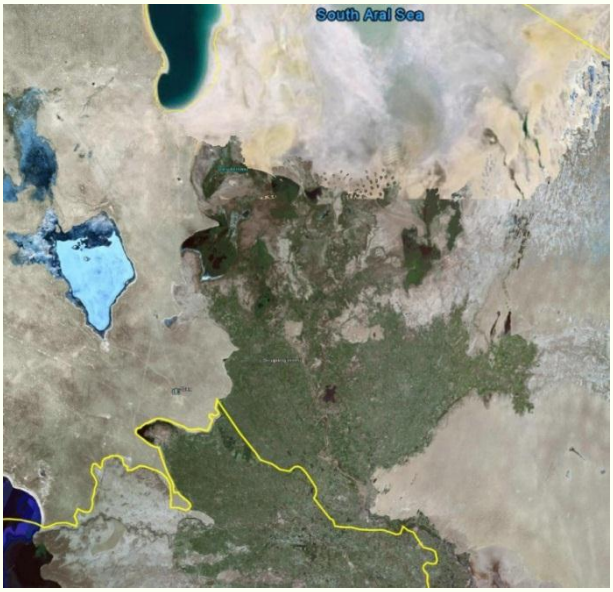
In this case, the collection, analysis and generalization of data by the cartographic method in the study of existing natural phenomena in one system serves as an important core of research.

Lately, the aerospace method is also widely used in the creation of desertification cards. The possibility of aerospace photography in the research of desertification processes is known. Space images indicate the degree and boundary of desertification, allowing to study the dynamics of desertification processes in space. The use of the traditional method of research to create a desertification map of areas with its own characteristics of the South Aral Sea is especially invaluable, since such a method is low-cost. In the current period, cartography is carried out on the basis of aerospace data.

The process of creating desert maps using aerospace images is carried out in three stages:

- field work;
- cameral works;
- field and final cameral work phase [2].

At the first stage, the characteristic space images are collected, the territory is divided into natural territorial complexes . Field studies include research in the field of reconnaissance, aero visual and "key". At this stage, the mining conducted through the pictures is selected, they are analyzed. The differences of desertification factors, types, indicators and others are checked, the distribution area and boundaries are clarified. In the latter case, the content of the map, which was originally drawn up, is determined using materials obtained in field and cameral conditions.



Aerospace images greatly simplify the task of mapping, in addition, today it greatly speeds up the process of mapping through the decoding of space images obtained using GIS-technologies [2].

Figure 1. Aerospace image of the South Aral Sea

It is advisable to take aerospace images using one of the modern GIS programs, ArcGIS, and on this basis, the work is carried out sequentially. ArcGIS provides graphical editing and other capabilities in the program to create a buffer boundary, form production objects, create and modify objects. The basis of deciphering the symptoms of desertification in the Aral Sea is the Earth's layers, relief forms, vegetation cover. On the color of the photo image, the degree of water supply in the detachment ecosystem is the easiest sign. Based on the photo-physiological analysis of the landscape complexes, its various clarity can be determined through spector the dynamics of natural processes and phenomena. Deciphering the ecological situation on the basis of space

information shows that through the composition of the picture, the morphological adaptation of landscape fragments in certain areas is determined.

The user has the opportunity to create, colorize and, depending on the parameters, to formalize the thematic maps, to create and store the geographic objects for the thematic maps.

When creating South Island desertification maps, it is very convenient to collect and store a database in the ArcGIS program. To create electronic maps in the ArcGIS program, we need to do the following:

- The ArcView version of ArgGIS software is installed in a computer base;
- The place is photographed using a digital camera in the air;
- From the transformed photos, a photoplane or a photo scheme of the place is made;
- The photoplane will be deciphered by going to the place where it was taken;
- Upload the images to the ArgGIS program at scale.

Depending on the deciphered photoplane or photo scheme, an electronic map is drawn into ArcGIS program, along with which the data is also inserted into the computer.

It is a technique from creating a database based on the collected aerospace, statistical, cartographic, geodetic and other data. Using the created database, the card is inserted, depending on for what purpose it is used.

Basically for the South Aral Sea desertification map, it will be necessary to create a database of landscape types, anthropogenic effects and levels on landscapes, natural and anthropogen types of processes such as plant world, animal world, categories of industrial wastes that pollute atmospheric air, levels of groundwater and surface water pollution.

On the basis of the created database, the map program and legend are developed. Then the map in the GIS software system is drawn from its authorship originals projected. At the end of the work, a special device is ordered to print a ready-made map[3].

In the future, the use of aerospace information in the study of the state of desertification of the South Aral Sea, the development of measures to prevent them, the design and construction of cards for nature protection, environmental, geoecological and other purposes, the improvement of the socio-economic infrastructure of the territory is unprofitable.

References

1. Rafikov V.A. Depression processes in the Southern Aral Sea region. Tashkent. "Mintypography of the Department of the Academy of Sciences of the Republic of Uzbekistan", 2013
2. Gulomova L.H. Aerospace methods in geography. T., «University», 1993.
3. Mirzaliev T., Safarov E.Yu., Egamberdiev A., Karabaev J.S. Cartography. - Tashkent .: “Cholpon”, 2012.