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THE RELATIONSHIP BETWEEN THE NORMALIZED DIFFERENCE VEGETATION INDEX AND THE LAND'S SURFACE TEMPERATURE

Climate change has become large-scale today. This change has a negative impact not only on the environment, but also on the world's population. Methods for determining climate change, as well as its forecasting, are becoming important. One of these methods is the relationship between the NDVI index and the determination of the land's surface temperature, as well as the role of NDVI in climate change.

It is known from information sources that Normalized difference vegetation index (NDVI) is used to quantify vegetation greenness and is useful in understanding vegetation density and assessing changes in plant health. [1]

Land Surface Temperature (LST) monitoring - determines how hot the "surface" of the Earth will be to the touch in a certain location. According to satellite data, the surface is what the satellite sees when it looks through the atmosphere at the ground, it can be grass on a lawn, snow, roofs of buildings, ice or leaves in the crown of trees in a forest. We can say that the temperature of the land surface does not coincide with the air temperature, which is included in the daily weather report. [2]

A large amount of vegetation affects the temperature conditions of the earth's surface through the process of evapotranspiration. Under these conditions, the study of the relationship between NDVI and LST becomes informative and meaningful. A large amount of vegetation reduces the temperature of the land's surface through the transfer of latent heat from the surface to the atmosphere through evaporation. The NDVI index can be used to investigate this relationship. According to this, it can be understood that this natural cooling mechanism of vegetation can be used to improve the urban thermal environment. Areas with high NDVI tend to have lower land surface temperatures, but this correlation may be influenced by surface evaporation or soil moisture conditions. [3]

The variability of the NDVI index is directly related to climate change, especially to changes in precipitation. Remote sensing data contribute to the analysis of this relationship. Also, the accuracy of the change in the NDVI index depends on technological progress in remote sensing data. The response of NDVI to precipitation depends on the type of vegetation. Generally, from shrublands to prairies, grasslands are highly responsive to changes in precipitation. Forest vegetation reacts poorly to changes in precipitation. The NDVI index usually reacts more strongly at higher temperatures. The researchers used Ordinary Least Squares (OLS) and Geographic Weighting (GW) regression to analyze the relationship between NDVI and climate change at global and local scales. [4]

In the future works, it is planned to carry out Remote Geoecological Monitoring for the Kirovohrad oblast (Ukraine), as well as the calculation of the NDVI index for the Smoline mine in the Kirovohrad oblast. The content of these theses is the preamble for

the future Master's thesis. Because Remote geoecological monitoring is an important component for ensuring the ecological safety of the territory, as well as monitoring the state of the environment around the enterprise of the Smoline mine of the Kirovohrad oblast is one of the key factors in ensuring the ecological safety of the enterprise. Remote geoecological monitoring is closely related to climate change, which is the key to changes to reduce negative processes in the future.

Conclusions: Climate change today has become large-scale. A large amount of vegetation affects the temperature conditions of the earth's surface through the process of evapotranspiration. Under these conditions, the study of the relationship between NDVI and LST becomes informative and meaningful. The variability of the NDVI index is directly related to climate change, especially to changes in precipitation. Remote sensing data contribute to the analysis of this relationship. Remote geoecological monitoring is closely related to climate change, which is the key to changes to reduce negative processes in the future.

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