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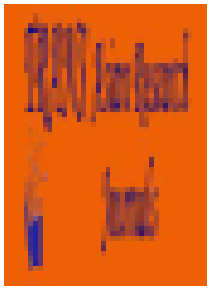

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"RESEARCH INVESTIGATIONS OF GLOBAL WORLD ON PANDEMIC TIME"

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IN POLYGONOMETRY OF RIVERS INCIDENTAL EFFICIENT RESEARCH INSTITUTION

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ABSTRACT

In the article, the question of the effect of refraction on the results of horizontal angles is specifically excluded. In the hot and dry climate of Uzbekistan, in the polygonometry of river banks, it is possible to increase the accuracy of horizontal angle and line measurements using geographic information systems based on the results of field experiments.

KEYWORDS: *Electronic Technologies, High-Resolution Geodetic Measurements, Refraction Effects, Atmospheric Vibrations, Horizontal Refraction, Uneven Light Emission, Modern Geodetic Instruments And Their Capabilities.*

INTRODUCTION

One of the most important reasons for limiting the accuracy of measuring horizontal angles using high-precision angular measurements is not the error of the so-called horizontal air refraction, which is caused by the external environment.

To investigate this phenomenon and eliminate its detrimental effects, triangulation and polygonometry, as far as possible, are the first task in science and production to improve the accuracy of the network.

In this direction, special attention is paid to the use of geodetic measurements in developed countries, including Russia, Ukraine, Germany, the USA and other countries, to take into account the environmental impact and improve the accuracy of measurements taking into account the properties of horizontal refraction, which have a significant impact on the measurement results.

Large-scale large-scale mapping with all the requirements for geodetic fundamentals and especially angular measurements requires a review of recently created and emerging systems for constructing geodetic bases and requires the development of new, innovative methods.

In this regard, the external environment is not always static, its laws are periodically subject to changes, and one of the main tasks is to improve measurement methods.

The new system of basic geodetic studies reduces the sides of triangles and polygonometry, since it requires a higher density of points. As a result, we observe a slight deterioration in the illumination of light along an uneven line, while at the same time demanding an increase in the accuracy of angular measurements. In this context, it is necessary to know about the influence of horizontal refraction on the accuracy of measuring horizontal angles in river polygonometry.

To accomplish these tasks, it is important to determine and improve a modern solution for measuring the impact of the external environment on horizontal angle measurements.

In the Strategy for the Further Development of the Republic of Uzbekistan for 2017-2021, the Republic of Uzbekistan "On Geodesy and Cartography", Decree of the President of the Republic of Uzbekistan dated May 31, 2017 N UP-5065 "On Further Improving the Activities of the State Committee for Land Resources, Geodesy, Cartography and cadastre of the Republic of Uzbekistan "other regulatory documents. [1,2]

These problems are especially relevant in the climate of the city of Karshi in the Republic of Uzbekistan. In both dry and hot climates, atmospheric variability is very large, which leads to large errors in the results of measurements of the horizontal angle; Therefore, methods for calculating the influence of the atmosphere on the results of horizontal angular measurements on the banks of the rivers were tested in moderately temperate latitudes and in other lower regions of the Republic, but were not studied at all in arid climate.

When studying the influence of horizontal refraction on geodetic measurements and taking it into account, the scientists of our republic A.S. Suyunov and T.M. Abdullaev conducted research in his research and achieved some positive results. [3]

Much attention is paid to the construction of a complex of newly constructed buildings and structures in the republic on the basis of integrated geodetic control with high accuracy, accuracy and relevance. The development of a method for increasing the accuracy of determining the degree of influence of the surface layer of the atmosphere on the results of geodetic measurements has not been studied at high temperatures in the southern regions of Uzbekistan. For this reason, this article is somewhat consistent with the above.

Sokoba's work on reforestation and riverbank research is based on a very short (six-hour) experience with a number of drawbacks. [4]

Therefore, the effect of refraction on geodetic measurements has not yet been studied in urban polygonometry.

In fact, the solution of this question is not enough for S.N. Marchenko [5] investigated in his polygonometric system of wall mounting, specifying the refraction effect in this case, without saying a word about the effect of light refraction. At the same time, polygon paths along city streets and river banks are approaching additional established signs, which leads to the fact that horizontal angles are distorted and significantly increase.

In particular, conclusions regarding the accuracy of measuring horizontal angles suggest that the effect of lateral refraction is significant in the lower classes of polygonometry [6]. The reason is as follows:

(a) Polygonometry usually develops in a flat enclosed space, where the temperature (density) of the air, as well as the destruction of the light beam, is exposed to high temperatures at low and altitudes of 1.5 m and in the zones of the barrier. In particular, in the field of polygonometry of classes 3 and 4 and urban polygonometry, the influence of light on "not behind the barriers" should be noted separately.

b) Polygonometry is estimated to be approximately 1.3 times greater than the error of triangulation [2].

The microclimatic regime in the near-surface atmosphere is primarily characterized by super-adiabatic vertical temperature gradients at day and night inversion temperatures with significant differences in the horizontal plane and large gradients on the nearest surface.

The general picture of the influence of microclimate on the local climate and coastal zones of watersheds and rivers is known.

Thus, it reduces the diurnal and annual amplitudes of air temperature near the ponds; in summer, along the coast and above the surface of the water, the temperature drops during the day and is higher than in places remote from the ponds at night; bodies of water are warmer in winter and the adjacent dry lands; The range of impacts of tens, and sometimes hundreds of kilometers, largely depends on the size of the water bodies.

Along the water and the coast, the most obvious temperature differences are observed in the rocks, in the upper layers of sand-concrete slabs;

This is also explained by the properties of thermal and radiation equilibrium. A.S. Suyunov and T.M. Abdullaev Based on the results of weather stations on the water surface near 5 geodetic points (5-10 m) near the Karatep reservoir, temperature gradients were determined and the influence of lateral refraction was studied. field experiments did not take into account environmental impact.

In the experimental zone, the atmospheric refractive index n has a dominant effect on the horizontal temperature gradient. In riverbanks, a horizontal moisture gradient can have a significant effect on coastal areas. Therefore, from a geodetic point of view, we are interested in the following questions:

a) the values of the surface atmospheric surface above the ground and water within the first ten meters of horizontal gradients of temperature and humidity;

b) the way in which a horizontal gradient of temperature and humidity changes the day and hour in each direction under different weather conditions;

c) the density of the spatial distribution of light rays over the surface layer of the atmosphere, etc.

The answer to these questions is to a certain extent the research conducted by the dissertation group from June 2018 to July 2019 on the banks of the Beshkent canal near the geodetic dump in the Khudoyzod massif, Kashkadarya region, Republic of Uzbekistan.

Meteorological observations were carried out in open areas of the left bank of the Beshkent River. Water points were located 12 meters away. This river water flows along the Chapirgorg canal, not far from the Khudoabad massif (0.8-1.0 km). This place has an unusual width, landscape and natural features. Observation posts are several tens of meters wide, and the low (2-4 m) topography on the hillsides is difficult. The width of the direct massif with the observation point is 3.5 meters in the lower reaches of the river. Here, the Beshkent river is asymmetric on the left bank and extends up to 1-1.5 km in length, and its relief becomes a flat, flat hill. In 2018, temperature and humidity were measured at the main observation site with temperatures above the ground at 0.75 and 1.5 m. At the same time, atmospheric pressure, wind speed and direction were also determined. The state of the sky has been listed. Temperature and humidity were observed above the surface of the water, and its parameters were recorded. A special boat was built for this. The machines are equipped with modern electronic psychrometers. All measurements were carried out together with the authors of the expedition.

Thus, meteorological data were measured on the aforementioned meadows and at the same height of land and water at a distance of 3.5 m. Meteorological elements were used for

ISSN: 2278-4853 Vol 9, Issue 5, May, Spl Issue, 2020 Impact Factor: SJIF 2020 = 6.882

measurement: aneroid, hand-held anemometer, psychometry. Before all measurements, measuring instruments were examined.

All thermometers were monitored and compared every hour. Their pointers were set to a psychrometer sensor installed at 1.5 meters in the main zone. This method greatly improves gradient detection using psychometry and emphasizes their accuracy.

In each measurement, counting with thermometers was performed three times, and the second and third readings were measured at intervals of 2-4 minutes. As a result, the arithmetic mean of these numbers was obtained.

Our field experiments, compared to the 2019 meteorological measurements, show that the observations in 2018 were simultaneously closely related to angular measurements. The main observation point for these measurements was 7 m from the border with water.

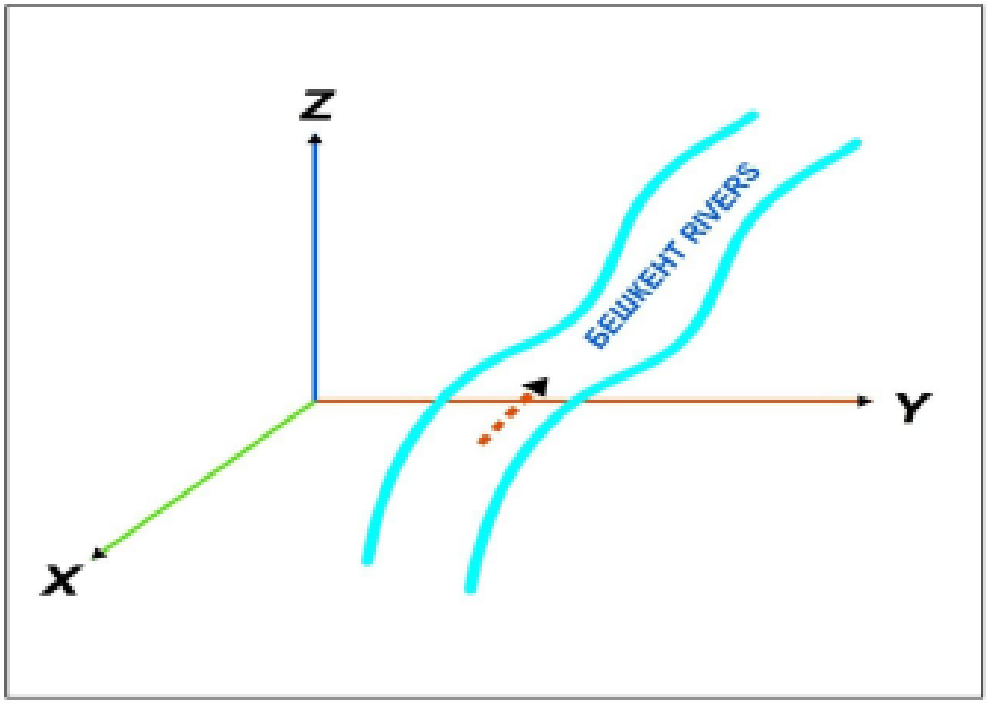
In addition, in 2018, the horizontal humidity gradient was not determined. In 2019, temperature, humidity and wind speed are estimated.

Accordingly, all measurements were carried out on an additional two psychrometers. Psychrometers are located on the right bank, like the station, 15 meters from the water and 50 meters from the station on the left. In turn, additional air temperatures were measured in 2018 at a distance of 400 m from the station. Observations of the state of the sky were recorded on a five-point scale, and these results are presented in table 3.

TABLE 1 GIVEN THE STATE OF THE SKY FOR CHARACTERS

The degree of cloud cover	In the afternoon		At night
	At the checkpoint		
	overcast	sunny	
The sky is cloudless	-	S	0
1/4	O1/4	S1/4	1/4
1/2	O*1/2*	S*1/2*	*1/2*
3/4	O3/4	S3/4	3/4
The sky is completely covered with clouds	O	-	1,0
The time when the sun shines through the clouds	S -O		-
Fog	F		F

All observations were usually carried out from morning to night, sometimes 24 hours. Further, to facilitate processing and thinking, meteorological observations, the main point of origin of the coordinate system of space. (Fig 1).



1- image The spatial coordinate system of the metrological observation station

The plane of this XOu system corresponds to the horizon plane. The axis is perpendicular to the river. As a result, the axis of the axis moves along the bank of the river, which is actually a parallel line equal to temperature and humidity.

Thus,

$$\frac{dT}{dY}, \frac{dT}{dZ}, \frac{de}{dY} and \frac{de}{dZ} \qquad (1)$$

(1) Differences in temperature and humidity are proportional to horizontal and vertical gradients.

We can arbitrarily call gradients positive or negative if the temperature and humidity of this coordinate axis fall or fall in their direction. As you can see, the average values of the horizontal t of temperature and air humidity of interest to us are calculated using the results of measurements in the middle of the river and river coordinates (x = 0, u = 50 m, z = 0).

Figure 2 shows the results of field observations in the field in 2018 as an example that illustrates the diurnal variations in the difference in air temperature in the middle of the river, 5 m above sea level and 1.5 m above the river banks. ,

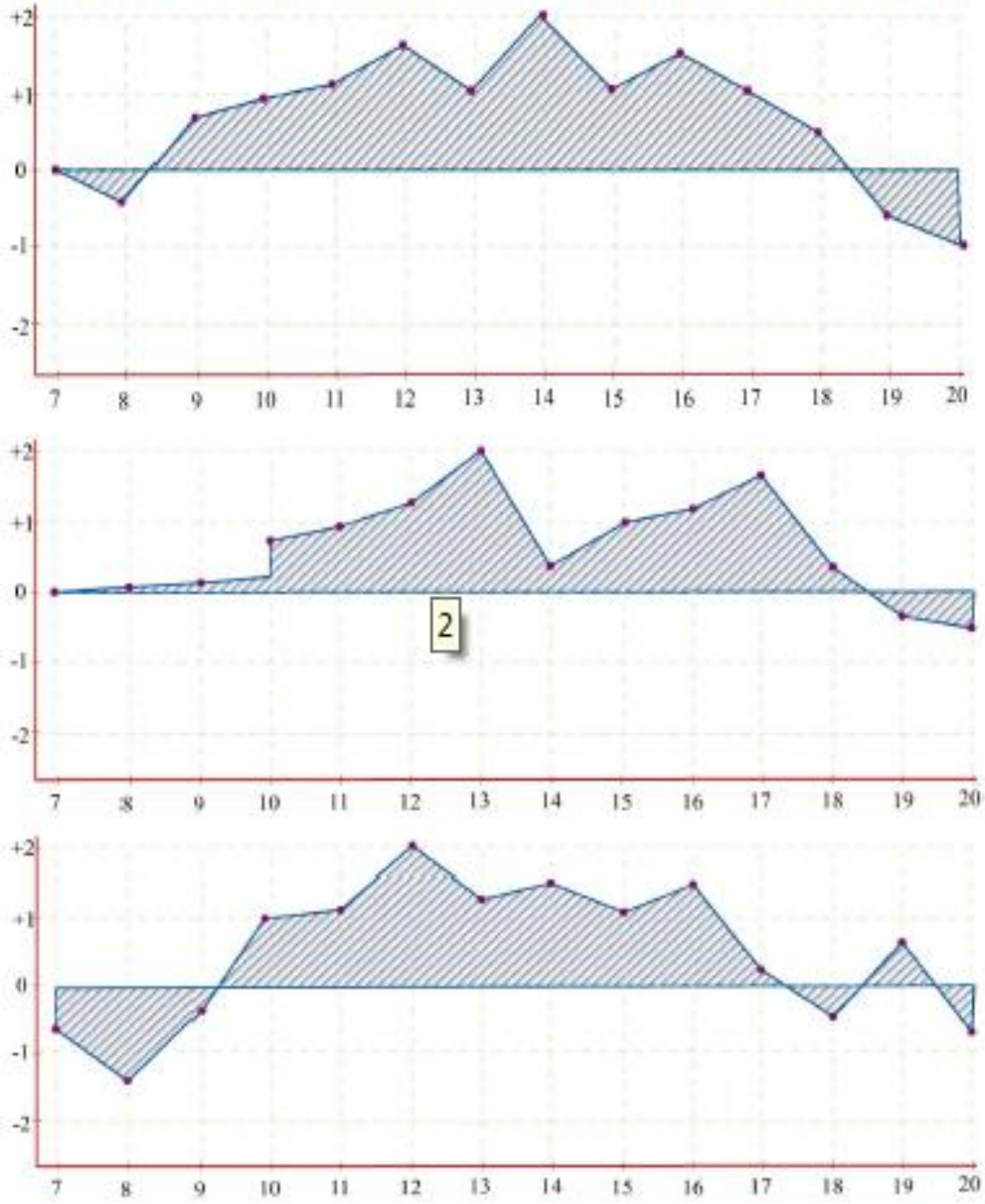
All of the above observations were carried out in the cloud, olabulute (variable) and in the open sky (sunny weather) at a wind speed of 0.5 m / s in the direction of river flow. During the day, wind power increased in this direction and reached 4-5 m / s. [7]

The temperature difference shown in the graphs is determined by the following formula. [8]

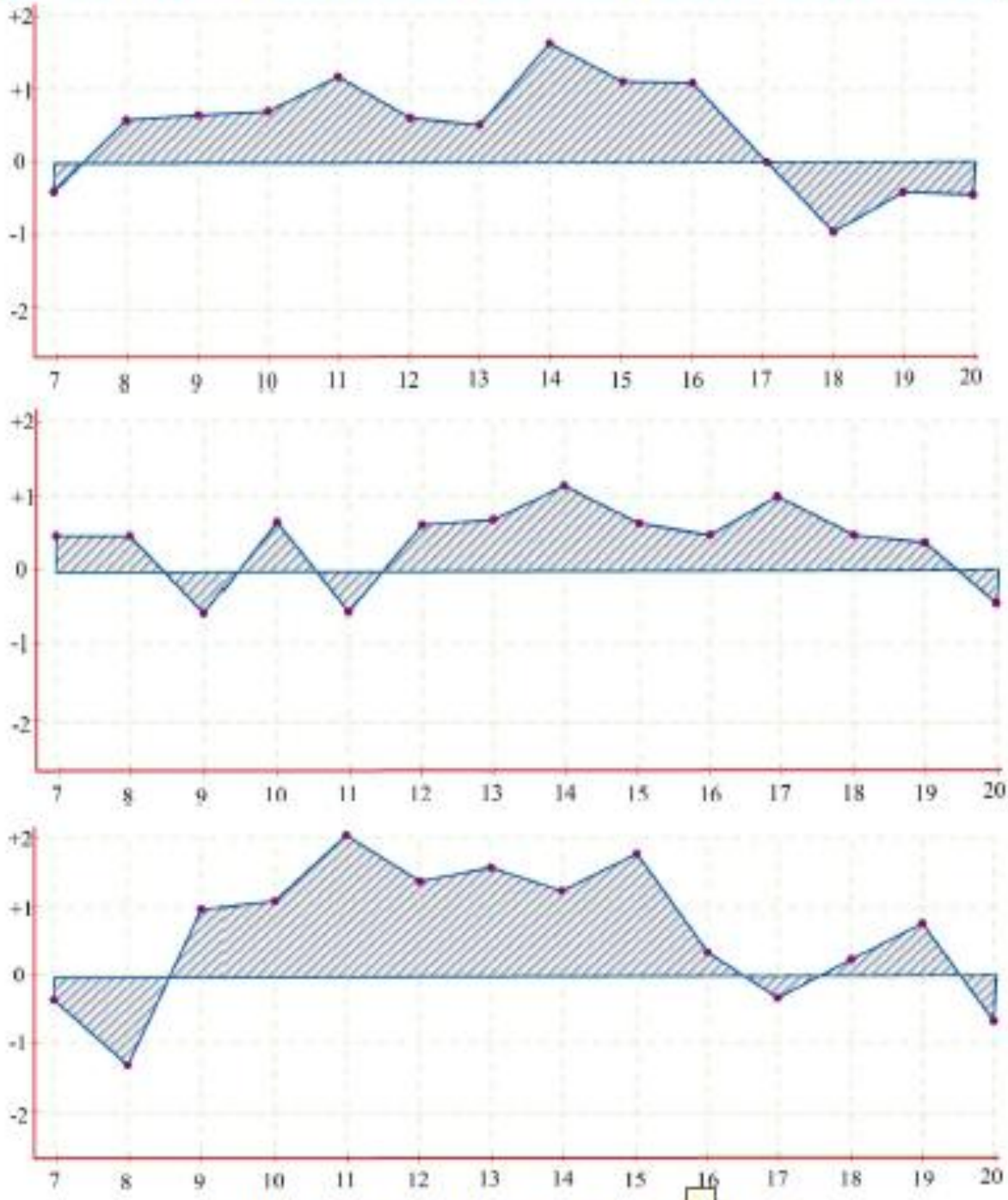
$$\Delta T = T_s - T_c \qquad (2)$$

ISSN: 2278-4853 Vol 9, Issue 5, May, Spl Issue, 2020 Impact Factor: SJIF 2020 = 6.882

Formula T_k - temperature on the river bank; T_c – water surface temperature. These values are significantly reduced in the south of the Republic of Uzbekistan on sunny days when very large (up to 2 °5 C) cloudy cool cloudy days (0 °, 3-0 °, 5 ° C). The differences in ΔT are positive for morning, evening, and nightly values, between 7^{30} and 8^{30} after sunrise and between 19^{00} and 20^{00}before sunset. (During field experiments, the sun rose to 6^{30}, and the sunset to 20^{40}.



ISSN: 2278-4853 Vol 9, Issue 5, May, Spl Issue, 2020 Impact Factor: SJIF 2020 = 6.882



2- Fig. According to the results of daytime observation

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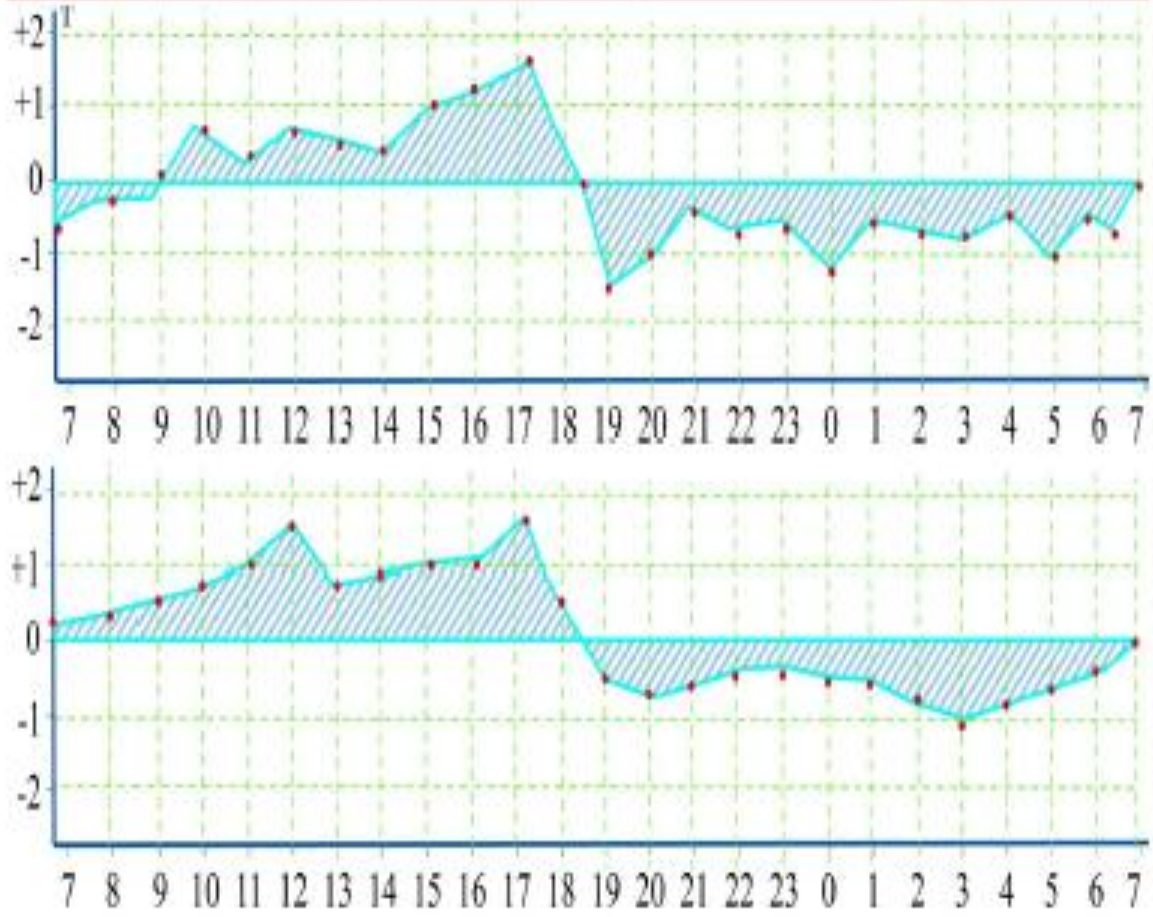

3-Fig. Daily Monitoring Results

It is also important to note that at night the temperature is much lower due to a decrease in solar radiation, which significantly changes the horizontal temperature gradients.

The irregular distribution of true moisture in the atmosphere is very interesting. In the daytime, at an altitude of 1.5 m above the river, 15 m from the bank of the river, humidity is higher than 5 m above the surface of the river when the wind blows in any direction. In the morning, evening and night, on the contrary, on the surface of the water surface the moisture content is stable and very high.

All scientific activity is used by GIS.

GIS is a multidisciplinary environmental database created on the basis of electronic computing technologies [2]. GIS is designed to provide easy-to-use data from various levels of human activity. The main stage of GIS development is the last 7-8 years. This is due to the technological and ideological organization of the automated design of all processes based on geographical data.

The main goal of GISdevelopment is to create systems that meet modern requirements. GIS technologies for surveying are an excellent guide. This increases work efficiency several times. GIS is a product of new ideas that can give a clearer picture in the mind, reflecting current events

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ISSN: 2278-4853 Vol 9, Issue 5, May, Spl Issue, 2020 Impact Factor: SJIF 2020 = 6.882

8.	**DEVELOPMENT OF DIDACTIC SUPPORT FOR THE PREPARITION OF FUTURE PHYSICAL EDUCATION TEACHERS FOR INNOVATIVE ACTIVITIES IN THE FIELD OF WOMEN'S SPORT EDUCATION** Raimov Xamid Soatovich	39-42
9.	**CURRENT ISSUES OF FORMATION OF HISTORICAL CONSCIOUSNESS IN YOUTH** Normatova Feruza Amonovna	43-45
10.	**ANALYSIS OF BIOECOLOGICAL RESOURCES OF THE REGION AND THEIR CURRENT STATE** Turaboev Akmal Normuminovich, Kiryigitov Khurshid Botirovich	46-53
11.	**ACHIEVEMENTS AND PROSPECTS IN ACTION STRATEGY** Mukhiddinov Shavkat Mukhammedzhanovich, Mamurova Gulnora Normuradovna, Aliev Dilmurod Davronovich	54-56
12.	**PROCESSES TO INCREASE THE EFFECTIVENESS OF PREPARING GIRLS FOR FUTURE PEDAGOGICAL ACTIVITIES IN THE FIELD OF WOMEN'S SPORT EDUCATION** Raimov Xamid Soatovich, Sharipova Qizlarkhon Abduholiq Qizi	57-60
13.	**LANGUAGE POLICY IN MODERN UZBEKISTAN** Fayziyeva Dilovar Utkurovna	61-63
14.	**IN POLYGONOMETRY OF RIVERS INCIDENTAL EFFICIENT RESEARCH INSTITUTION** Suyunov A.S, Fayziyev Sh.Sh, Qilichov Z	64-73
15.	**METHODS FOR CONSTRUCTING THREE-DIMENSIONAL MODELING OF GEODETIC VALUES IN ARCGIS AND DETERMINING THE AREAS OF SOIL EROSION** K. N. Khuzhakeldiev, SH. Faiziev	74-81
16.	**CRITERIA FOR EVALUATION OF EARLY DIAGNOSIS OF TOOTH-JAW SYSTEM ANAMALIES** G.T. Eshonqulov	82-84