International Conference on Developments in Education
Hosted from Toronto, Canada
https: econferencezone.org   **May 21st 2022**

APPROXIMATE DETERMINATION OF THE GEOGRAPHICAL LANGUAGE BY THE HEIGHT OF A STAR POOL. DETERMINATION OF WAYS

Z. A. Avezmurotova
PhD student of the department
"Interfaculty general technical sciences" of UrSU

Abstract. This article describes a method for organizing practical lessons in astronomy based on the Stelliryum program, making observations, in particular, an in-depth study of planetary motion. This method can be used by teachers, students and schoolchildren interested in teaching. astronomy.

Keywords: almagest, deferent, epicycle, moon, mercury, venus, mars, jupiter, saturn, algorithm, ecliptic, geocentric, heliocentric.
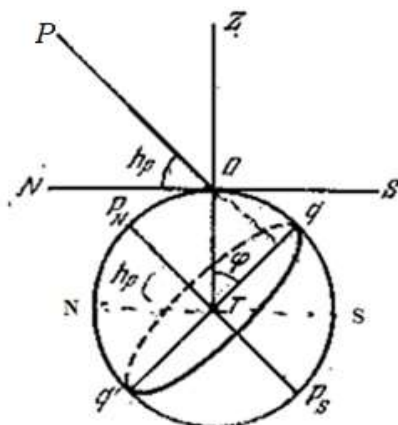
According to modern heliocentric theory, the Earth revolves around the Sun in its orbit for a year. At the same time, the Earth revolves around its own axis. According to the laws of physics, the moment of motion of the Earth relative to the axis of rotation $I\bar{o}^{\rightarrow}$ -const does not change. The direction of the Earth's axis and the angular velocity of its rotation ($\bar{o}$) do not change. moment of inertia. This means that for a year, the Earth's axis orbits in the direction of the North Star (Figure 1A) [1].

Figure 1A. The Earth's orbit around the Sun for a year

The distance of the North Star from the Earth is 447 light-years. Because of its distance, the star's motion in orbit is almost imperceptible.

In theoretical calculations in astronomy, the height (hp) of a polar star in the horizontal plane of an observer depends on the latitude of the Earth (φ)is accepted as a theorem, ie: $h_p = \varphi$.

International Conference on Developments in Education
Hosted from Toronto, Canada
https: econferencezone.org   **May 21st 2022**

Figure 1. The globe and the O point on which the observer stands

This expression can be seen in the following comments. Figure 1 shows the globe. Its center is the T point. We think of the earth as spherical. There is an observer at point 0, whose horizontal plane is NOSY. The axis of the universe (PO) passes through point 0. The axis of the universe is always the same or parallel to the Earth's axis of rotation (PNPS). The rotation of the sky with the lights around the axis of the universe (PO) is actually due to the rotation of the Earth around its own axis. As the earth rotates from west to east (counterclockwise), it rotates counterclockwise (from east to west). Abu Rayhan Beruni was one of the first to mention this thought 1000 years ago. According to Abu Rayhan Beruni, the geocentric theory that prevailed at the time accepted astronomical events as they appeared. According to him, "in the center of the universe, the fixed celestial bodies revolve around the Earth." In his works on astronomy in the early 1000s, our ancestor Beruni said, "If we consider that the Earth revolves around its own axis, there will be no contradictions in explaining the movements of the sky"[3].

As we see in Figure 1, α is the angle or latitude of the Earth for the observer's point (0), and hp is the height of the North Star relative to the horizon. These sizes are taken at an angle. The Earth's axis (OP) is toward the North Star. 1 was shown in Figure A. More precisely, the axis of the universe (OP) passes by the polar star. It would not be a big mistake to take the North Pole as the North Pole.φAs we see in Figure 1,

Figure 1<PON=h_p<OTq=φ marked as. PO$\underline{I}$ qT va NO$\underline{I}$ OZ the angles between the two perpendicular sides are equal (Geometry theorem) < PON= < OT q hence $h_p=\varphi$ arises[2].
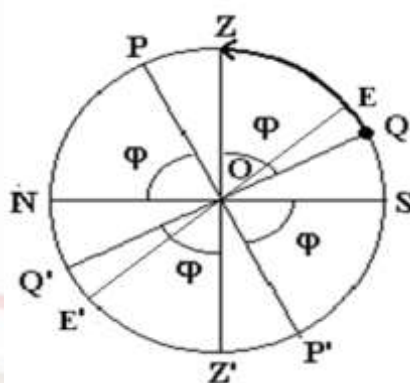
Figure 2. The main points and axes of the celestial sphere

From Figure 1-2, we draw the following conclusions:
1. Z- Deviation of the zenith point $\delta_z =\varphi$.
2. h_p pole height $h_p=\varphi$.
3. Z_Q- the high point of the equator or the zenith distance at the culmination of the equator. $Z_{Q=}\varphi$.
Using these findings, it is possible to find the height of the North Star and the latitude of the place with the help of an angle meter, standing anywhere in the northern hemisphere. Such angular measuring instruments

International Conference on Developments in Education
Hosted from Toronto, Canada
https: econferencezone.org   **May 21ˢᵗ 2022**

were called Usturlob in ancient times. In the Middle Ages, the Teadalit was a perfect instrument. These tools measure the horizontal coordinates of an object in azimuth and height. . It is based on the telescope. This sight tube rotates freely in the horizontal plane around the vertical axis (ZZI) and is divided into 3600 angles. Indicates the angle of the object to the south. The sight tube can rotate around a horizontal axis from 00 to 1800 and help to measure the height of the object (lights), zenith distance, angle in degrees, minutes, seconds. These Theadalites are used in astronomical, geodetic, and topographic measurements.

REFERENCES
1. M.Mamadazimov, T.Rizayev. "Uzluksizta`limtizimida Astronomiyani o`qitishning muammolari" .- T.: Yangiasr avlodi, 2016 yil.
2. Sattorov U. Astrofizika I-qism –T.: Ta`lim nashriyoti,2009 yil.
3. Абу Райхон Беруний. Тафхимтанланганасарлар. Тошкент-Урганч-Хива-
4. 2006 й.
5. S.Q.Qahhorov, O.Avezmuroto, Z.A.Avezmurotova. "Astranomiya fanidan Innovatsion texnologiyalar asosida amaliy kuzatishlarni tashkil qilish"O'quv uslubiy qollanma.Xiva-2021 yil.
6. http://www.astronet.ru
7. Stellarium dastur.
8. Атоева М.Ф. Периодичность обучения физике. Аспирант и соискатель. –
9. Москва, 2010. – №6. – С. 41–43.
10. M.F. Atoyeva. Interdisciplinary relations in physics course at specialized
11. secondary education. The Way of Science. – Volgograd, 2016. – №9 (31). – P. 22–24.
12. M.F. Atoyeva. The significance of periodicity at teaching physics. The Way of
13. Science. – Volgograd, 2016. – № 10 (32). – P. 62–64.