

Natalija Janc^a, Milivoj B. Gavrilov^b, Slobodan B. Marković^b, Vojislava Protić Benišek^c, Luka Č. Popović^c, Vladimir Benišek^c

^aBaltimore, Maryland 21212, USA

^bUniversity of Novi Sad, Faculty of Sciences, Trg Dositeja Obradovića 3, 21000 Novi Sad, Serbia

^cAstronomical Observatory, Volgina 7, P.O.Box 74, 11060 Belgrade, Serbia

MILUTIN MILANKOVIĆ AND ASSOCIATES IN THE CREATION OF THE “KANON”

Milutin Milanković (1879–1958) took a different approach to climatology, when compared to meteorologists of his time, and can be considered a key figure in laying down the foundations of modern climatology, where celestial mechanics was the foundation upon which Milanković based his theory of climate change.

A great deal of work has been done at the Astronomical Observatory in Belgrade, on the scientific research of Milutin Milanković. Regarding the work of the French astronomer Le Verrier (1811–1877), the calculations of secular changes in the astronomical elements of the Earth's trajectory were revised, taking into account the mass of each of the planets known until 1928. Under the guidance of Vojislav Mišković (1892–1976), director of the Astronomical Observatory, mathematicians Stanimir Fempl (1903–1985), then an assistant, and Dragoslav Mitrinović (1908–1995), then a student, performed the lengthy and very comprehensive calculations using mechanical calculators. At the University of Belgrade in 1932, their scientific endeavor was completed. It consisted of forming an approximate picture of the insolation of the Earth's surface, as well as the relationship that exists between the insolation and the temperature of both the Earth's surface and the atmosphere. The work involved mathematicians and astronomers who taught mathematical physics, celestial mechanics and astronomy.

Mathematician Mihailo Petrović Alas (1868–1943) published a paper on this important project. The problem of the shape of the Earth and the position of the Earth's poles was addressed by Milanković in 1932 and 1933, prompted by the earlier suggestions of Alfred Wegener (1880–1930).

Milutin Milanković published papers on the subject of *Mathematical Climatology* in significant scientific publications, such as the *Handbook of Climatology* and Gutenberg's *Handbook of Geophysics*. However, as he noted, his works were rarely accessible to scientists interested because few of the libraries had all the volumes of these Handbooks and other journals. The idea of creating his *Kanon* was presented on March 27, 1938 at a meeting of the Academy of Natural Sciences in Belgrade, when a decision was made to publish it in the edition of the Serbian Royal Academy in German language, thereby making it accessible to foreign scientists as well. It was completed in 1941.

Mathematician Tatomir Andjelić (1903–1993) did a tremendous amount of work in checking the formulas, numeric tables, and language during the preparation of Milanković's *Kanon*.

After WWII, under the heading *Open Problems*, Milanković presented 26 topics, related to his work, for further investigation to members of the Mathematical Institute, the Astronomical

Institute, as well as graduate and doctoral students. He presented several topics that are related to his overall Kanon as well, such as “Calculating the coefficients b_0 , b_1 , b_2 , b_3 of Table VI (*Kanon*, p. 312) using the method reported on pp. 313–315 of the *Kanon*.”

Key words: Milutin Milanković, Vojislav Mišković, Alfred Wegener, Mihailo Petrović Alas, Stanimir Fempl, Dragoslav Mitrinović, Tatomir Andjelić, Kanon.