

## Climate Changes And Cultures Of Danube - Experiences From The Exhibition *Canon Of Milutin Milankovic*

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The year 2009 was celebrated by UNESCO as the International Year of Astronomy, and also the year of 130<sup>th</sup> Anniversary of Milutin Milankovic (1879 – 1958), the well-known Serbian scientist who founded mathematical research of climate. To commemorate these events the Gallery of the Serbian Academy of Science and Arts housed the exhibition *Canon of Milutin Milankovic*, from January 28, 2009 to the end of April, 2009.<sup>1</sup> It was dedicated to the secret of Ice Ages, solar climate dynamics and works of famous Serbian mathematician and climatologist who is considered by the NASA to be among fifteen the most important Earth scientists of all times.

The exhibition explained that the idea of astronomically related climate changes emerged in the European scientific community almost two centuries ago. First it was considered by astronomers (John Hershel) and than postulated by geologists (Louis Agassis). After that, it took a few decades for the Earth sciences to assure itself, by geological data, in the existence of several “ice ages” which froze vast areas of Eurasia and Northern America significantly lowering the level of the oceans and seas.

With a number of three-dimensional models, computer simulations, educational software, many other objects and posters the exhibition displayed the cosmic mechanism of the Ice Ages and Earth climate motion, history of astronomical theory of climate change, and especially life and works of Milutin Milankovic. Milankovic's theory is a revolutionary achievement: it lays on his understanding of climate change as a cosmic problem. Unlike to the French mathematician Joseph Adhemar and the Scottish naturalist James Croll, who in 19<sup>th</sup> century originally postulated astronomical theory of the Earth's climate, he was not concentrated solely on the Ice Age problem. His basic intention was an attempt to encompass climatic change as a general Sun – planet relationship. In this frame he revived, refined and completed the idea that three secular orbital cycles, eccentricity, obliquity and precession, force planet's insolation, initiate climatic change and prepare conditions for the Ice Ages to happen. He had the major vision of climate modeling of all solar system planets with hard crust where the Earth is a special case only. On this way he was the very first who calculated climatic conditions on Mercury, Venus, Mars and Moon.

Life and work of Milutin Milankovic have not only recognizable scientific shape but remarkable cultural silhouette as well. All his life could be seen as genuine exist-

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<sup>1</sup> The authors of the exhibition are Professor Aleksandar Petrovic, academician Djordje Zlokovic and designer Ljiljana Radosavljevic. It was opened by the President of the Serbian Academy of Science and Arts, Nikola Hajdin, Vice-Dean of the faculty of Civil Engineering from Vienna, Prof Helmut Rechberger, and Dr. Fabrizio Antonioli, Institute ENEA, Roma.

tential and intellectual response to peculiar spiritual impact that the river Danube had on him. Milankovic was born i Dalj, the village at the bank of Danube, where he started to think about the cosmos; he graduated, got his PhD and started his scientific work in Vienna; in Budapest he made his first big scientific achievement, wrote his first monograph who enabled him to start collaboration with Vladimr Koppen and Alfred Wegener; and finally in Belgrade, where Danube has its confluent with the river Sava, he flew up towards his highest end – the Canon of Insolation who changed the Earth sciences and open new horizons of the cosmic climatology.

The exhibition gives us an essential opportunity to see Danube as a specific link which binds Milankovic's work in one continuous development. In this frame Danube gains certain symbolic significance as the metaphor of universal coherence between geo and cultural heritage. Milankovic's life path helps us to understand this river as an integral geo-cultural space which was artificially divided by different worldviews and political elites' quest for power and supremacy. Contrary to turbulent historical circumstances, successful Milankovic work enabled cultures of Austria, Hungary and Serbia to get the best possible synergy that they ever have reached.

The exhibition revealed that Milankovic's work has extraordinary power of harmonization. At first level it is harmonization among the cultures of Danube, and at the second, much more important, among celestial mechanics and terrestrial dynamics. In the present time of political atonality and cultural cacophony this basic message is really stupendous. It is maybe the main reason why the exhibition attracted more than 60 thousand visitors what is in recent times absolutely the hugest number for one scientific exhibition in Serbia. This number testifies that through Milankovic's work complex problems of relations of the different cultures as well as relations of celestial mechanics and geological records are displayed at veracious and receptive way. Contrary to the neocolonial prejudices, which are also present in science, exhibition shows that acme of certain scientific work could be attained in the frame of non-mainstream cultures. The exhibition situated Milankovic's work as the essential source of geo-cultural cohabitation and scientific dialogue which provokes profound insight into the cross-meanings of man-made space and natural habitat.

Therefore it is not hard to imagine one chimerical Danube's route of insolation that could retrace flow of Milankovic's life and simultaneously reveal the secret of insolation which is bottom of the human overall existence.

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