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[Plenary Invited Lecture]

Slow changes in solar-terrestrial interaction and ice-ages. The work of Milutin Milanković

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Abstract: Slow periodical changes of eccentricity of the Earth's orbit around the Sun as well as of the precession and inclination of its axis influence the insulation of the Earh's surface, changing climate and even may induce an ice-age. The cause of a periodic massive cooling in Europe, when, in the greatest cold periods, in many places on the old continent it was like today in Antarctica, was a great scientific puzzle in the nineteenth and at the beginning of the twentieth century. Karl Friedrich Schimper (1803-1867) introduced in 1837 the term "Ice Age", supposing that in Europe there were periods of cold climate with formation of glaciers. The Swiss geologist Louis Agassiz (1801-1873) and Schimper developed a theory on a series of such periods of glaciation. Between two ice ages, there was a period when the ice retreated towards the Arctic, and the last glaciation period ended a little over ten thousand years ago. This theory imposed new important questions. Why did the ice masses spread and then retreat and will the ice will come in Europe again? Many theories have been formulated, attempting to solve the puzzle of ice-ages. Serbian scientist Milutin Milankovic (1879 - 1958) devoted his life to the solution of this mystery (Dimitrijević 1997, 2002, 2020). In this lecture we will review the basic facts of the Milanković's theory of variation of Solar irradiation of Earth's (and other planets) surface with time, due to astronomical reasons, and his work on the solution of ice-ages problem.

Keywords: Ice Ages, Solar-terrestrial Interaction, Milutin Milanković

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