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From U.-J.-J. Le Verrier to the present : Stability of the Solar System and paleoclimates



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Jacques Laskar is an astronomical scientist at the Institut de Mécanique Céleste et de Calcul des Ephémérides (IMCCE) in Paris. He became renowned through his works on the chaos in the solar system and the moon's role in earth's climate. He is a member of the Académie des Sciences since 2003. His research has earned him several prizes, among them the G. de Pontécoulant Prize of the Académie des Sciences in 1993, the IBM Excellence Prize in intensive calculations, the CNRS Silver Medal, as well as a participation in prestigious conferences : plenary speaker at the International Conference in Mathematical Physics in 1994, and the Shrödinger, Mutch, Bernoulli and Gödel conferences. Jacques Laskar regularly publishes popularization of science articles, notably in Science et vie, Pour la Science, La Recherche, etc. He has given many conferences suitable for a general audience and has been invited as a guest in videos, radio and TV shows, among them two shows at Radio-Canada in 1993 and 2003.

Abstract

The year 2011 witnesses a double celebration. It is both the bicentenary of the birth of Urbain Jean-Joseph Le Verrier, and the first anniversary - in Neptunian year - of the discovery of Neptune in 1846. Prior to this admirable work which will remain a highlight of scientific determinism, Le Verrier had already obtained fundamental results on the study of the stability of the Solar System. Complementing the work of Lagrange, who had not considered the terms of degree three in the perturbation expansions, he faced the existence of small divisors, difficulties that will be solved only 50 years later by Henri Poincaré. Beyond these issues, the solution obtained by Le Verrier for the long-term movement of the Earth's orbit will play a major role in the development of astronomical theory of paleoclimates. Beyond the evocation of these important historical events, I will review the most recent developments on these subjects.



All are welcome! Tea, coffee, biscuits will be served at 2:45 p.M.