# Computer programming and the Antikythera Mechanism: the analysis of the parapegma

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**ABSTRACT**

The term parapegma was used by the ancient Greeks to describe an astronomical and meteorological calendar of events that was used to assist agricultural or nautical activities through the year. The astronomical events described in parapegmata are events that take place annually and refer to the first or last appearances of stars or constellations at sunrise or sunset. On one of the fragments of the Antikythera Mechanism, the fragment that mainly preserves the front plate of the Mechanism, nine parapegma events have been read. As the sequence of these events is sensitively depended on geographic latitude, the parapegma of the Mechanism may indicate the place of use or even origin of the Antikythera Mechanism. In order to examine the sequence of these events at several latitudes, a new software program that calculates the dates of the risings and settings of the stars was written, from first principles, using the Mathematica software package. This new method of analysis – unlike all relevant existing methods until now - has no free parameters.



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