The Program `panetsearch`

Johannes Thomann, University of Zurich*

Purpose

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The main purpose of the program `panetsearch` is to find planetary positions in history, particularly in Islamic history.

System requirements

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The program `panetsearch` is a Java application. It requires an installed Java Virtual Machine (v. 1.8, or higher) in the system to run the application. The JAR file `panetsearch_1.1.jar` can be started with a double click.

Usage

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The positions of sun, moon, planets and the ascending lunar node are entered as intervals of the zodiacal circle (0° – 360°). The time span to be searched is entered in Julian years. Depending on the precision of the source a tolerance can be entered by which the position intervals are dilated in both direction. The week days are entered as numbers (1 = Sunday, 2 = Monday, etc.). An interval of days in the Hijra month can be entered, and the Hijra months are entered as numbers (1 = Muḥarram, 2 = Ṣafar, etc.).

A search is executed with a click on the button "Search".

For convenience an ephemeris of one or more years is generated by the button "Table". In the default format, positions are indicated by degree and zodiacal sign. If "Dec." is checked, positions are indicated by degrees with decimal fractions. If "Vel." is checked, the daily velocities are added to the positions. If "Elo." is checked, the distances of the planets from the sun in the zodiacal circles are added.

Occasionally the zodiacal sign is missing in the source, and only the degree is known. In such cases it is useful to select the checkbox below the fields with the limits of the relevant planet. Then the position is searched in all twelve zodiacal signs.

*Institute of Asian and Oriental Studies: `johannes.thomann@aoi.uzh.ch`

Technical details

The positions are calculated with low precision (ca. $\pm\,0.1°$) since high precision is rarely necessary for the intended purpose. It is recommended to control the found positions with an ephemeris of high precision. For calculation a reduced set of cyclical terms in [1] is used.

The Julian calendar is used for all Christian dates. For dates after the Georgian calendar reform a correction ten to thirteen days has to be made, depending on the century, in order to get Gregorian dates. The Islamic calendar is calculated based on a standard formula such as the one in [1]. One has to bear in mind that dates in historical sources may differ by one or two days from a calculated date.

Version history

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In version 1.1 checkboxes have been added for search with the indicated limits in all twelve zodiacal signs at once.

Licence

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References

[1] Meeus, Jean. *Astronomical Algorithms*, second edition ed. Willmann-Bell, 1999.