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# Observations on the Citations of Astronomical Research Papers Articles

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## Abstract

**The study of the boundaries of observability of objects in the sky, with applications to deducing the truth about historical events or deriving current astronomical information, is known as celestial visibility. This research is based on what ordinary people see in their everyday lives or during historical occurrences. Non-scientists are more interested in the results of such research than in any other aspect of astronomy. In the sense that the number of fascinating applications with simple solutions outnumbers the solved problems, celestial visibility is a young science; it is a large interdisciplinary field that includes work with astronomy, meteorology, optics, physics, physiology, history, and archaeology. Each of these fields contributes specialized mathematical formulas that quantify the various processes that influence light as it leaves a source, travels through the atmosphere, and is detected by the human eye. The results of this model can be used to solve a wide range of problems in the history of, astronomy, archaeology, meteorological optics, and archeoastronomy. This review also includes a dozen project observation options, many of which can be used for individual research, classroom projects, or professional research.**

**Keywords:** ***Astronomical; Aurorae; Eclipses***

## Introduction

The science of celestial visibility is both ancient and new. The ancient Greeks built models for heliacal rise dates, atmospheric refraction, and eclipse forecasts, while medieval Islamic astronomers focused on predicting the first crescent of each month and twilight hours. While these efforts yielded empirical rules of thumb that usually provided respectable predictions, the quality of the old approaches falls well short of modern standards. Because the necessary mathematical tools and physical models were not available until recently, no meaningful advances on the old empirical laws could be made.

Celestial visibility is an interdisciplinary research issue that examines what can and cannot be seen in the sky by visual observations, and it is relevant to a number of historical and astronomical mysteries and occurrences. All astronomy was done with the naked eye prior to the introduction of the telescope. Historical events have been influenced by visual views of sky phenomena in both ancient and modern times. There are many celestial sights for which valid explanations have only recently become accessible. Studies of lunar and planetary visibility are essential for studies of ancient chronology as well as calendar-making even today.

Many historical problems that pique the public's interest are closely related to the study of celestial visibility. The results presented below, for example, are critical in determining whether Admiral Peary reached the North Pole, where Columbus landed, whether Stonehenge was an ancient observatory," how Paul Revere slipped past a British warship in Boston Harbor, what was the Star of

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Bethlehem, and when Jesus was crucified. The appearance of a large sunspot provoking a general amnesty in ancient China, an aurora saving Byzantium from Philip of Macedon, a lunar eclipse breaking the spirit of the defenders of Constantinople in 1453, and a solar eclipse stopping the war between the Median and Lydian empires have all been influenced by celestial phenomena.

This review will look at the entire field of celestial visibility. The following part contains precise equations for the majority of the phenomena that influence what can be seen in the sky. The middle section contains models for specific visibility concerns that are applicable to a wide range of applications. In the fourth segment, these models are applied to specific historical or astronomical concerns. The final section includes twelve proposals for ongoing research initiatives. Many effects must be accurately modelled in order to calculate celestial visibility theoretically. Models of source position, refraction, air mass, extinction, source brightness, sky brightness, glare, shadows, resolution, optics, human vision thresholds, vision, and meteorological data are among them.

## Conclusion

Celestial vision is both an old and a new science. The ancient Greeks developed models for heliacal rise dates, atmospheric refraction, and eclipse predictions, while mediaeval Islamic astronomers focused on predicting the first crescent of each month and the hours of darkness.