

Accepted Manuscript

Daylight observation of 1P/Halley in 1222

G.-E. Choi, K.-W. Lee, B.-H. Mihn, Y.S. Ahn

PII: S0032-0633(17)30432-4

DOI: [10.1016/j.pss.2018.06.003](https://doi.org/10.1016/j.pss.2018.06.003)

Reference: PSS 4554

To appear in: *Planetary and Space Science*

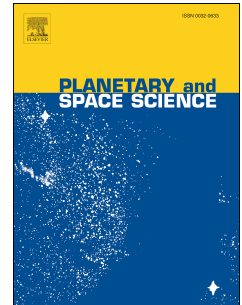
Received Date: 13 November 2017

Revised Date: 1 June 2018

Accepted Date: 4 June 2018

Please cite this article as: Choi, G.-E., Lee, K.-W., Mihn, B.-H., Ahn, Y.S., Daylight observation of 1P/Halley in 1222, *Planetary and Space Science* (2018), doi: 10.1016/j.pss.2018.06.003.

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



Daylight Observation of 1P/Halley in 1222

G.-E. Choi^{a,b}, K.-W. Lee^{c,*}, B.-H. Mihn^{a,b}, Y. S. Ahn^b

^a*Korea University of Science and Technology, 217 Gajeong-ro, Yuseong-gu, Daejeon 34113, S. Korea*

^b*Korea Astronomy and Space Science Institute, 776 Daedeukdae-ro, Yuseong-gu, Daejeon 34055, S. Korea*

^c*Daegu Catholic University, 13-13 Hayang-ro, Hayang-eup, Gyeongsan 38430, S. Korea*

Abstract

It has been questioned whether comet 1P/Halley that appeared on 1222 September 9 was bright enough to be observed in daylight, as recorded in the Korean account. We investigate the light curve of 1P/Halley in the 1222 apparition considering brightness enhancement of the comet by forward-scattering, in order to verify the Korean account. We first analyze the Korean accounts of 1P/Halley observed in 1222, and of Venus and Jupiter appearing in daylight generally. We then determine the absolute magnitude (m_0) and heliocentric power-law exponent (n) using observations made around the perihelion in 1986 and a formula considering brightness enhancement by forward-scattering. We apply the results to estimate the light curve of 1P/Halley in the 1222 event. According to the accounts, 1P/Halley underwent a sudden change in brightness and the conditions were good on the day the daylight observation was recorded. We also find that Jupiter could have been visible in daylight at about -2.1 mag. Regarding the light curve, we find that if the m_0 and n values are similar to those in a previous study, 1P/Halley could have been reached a maximum near mag -2 in 1222. In conclusion, there is a strong possibility that 1P/Halley was actually observed in daylight, inferring from observations and the predicted total visual magnitude at that time.

Keywords: history and philosophy of astronomy, 1P/Halley,

*Corresponding author
Email address: leekw@cu.ac.kr (K.-W. Lee)

Download English Version:

<https://daneshyari.com/en/article/8141965>

Download Persian Version:

<https://daneshyari.com/article/8141965>

[Daneshyari.com](https://daneshyari.com)