

Detection of Phoenicids meteor shower in 2014

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Introduction

Phoenicids is one of the established meteor shower of IAU, the number is #254. A strong outburst of the Phoenicids was recorded in 1956. Its hourly rate of the maximum peak leached to 300 [1]. No other strong outburst has been reported so far.

The parent body was thought to be 289P/1819 W1 (Blanpain) which have been lost until 2003. However, a newly discovered asteroid, 2003 WY25, was identified to be a candidate parent comet 289P/1819 W1 (Blanpain) [2]. We reported that the strong Phoenicids display in 1956 was caused by a bundle of dust trails formed by dust ejected from comet 289P between the 18th and the early 19th centuries [3]. Furthermore, we reported the forecast of activity of the Phoenicids in 2008, 2014 and 2019 [4]. Among them, a situation of the detection of Phoenicids was best in 2014 because several trails formed in the early 20th century will approach Earth in 2014. Therefore, we tried to observe Phoenicids in 2014.

Forecast

The peak time was expected to be at about 0:00 (UT) on December 2 in 2014. The radiant points of predictions are in between Cetus and Sculptor, near by the Deneb Kaitos, where was slightly far from Phoenix (Fig. 1). Because a meteor velocity was very slow, the radiant dispersion is expected to become wider.

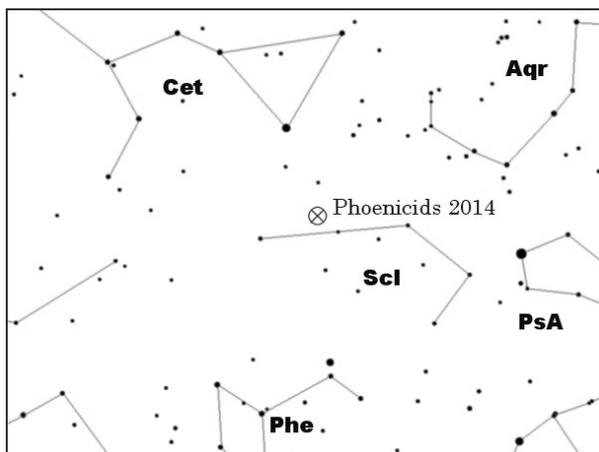


Figure 1 Radiant points of forecast in 2014

Observations

It is thought that the appropriate site for observation is around of the Atlantic based on the forecasted peak time. The part of the authors lead by M. Sato and Japanese members decided to observe at the Observatorio del

Roque de los Muchachos (ORM) of Instituto de Astrofísica de Canarias (IAC) in La Palma at Canary Islands in Spain. However, unfortunately, we could not carry out effective observations except naked-eye observation at around the peak time mainly due to bad rainy weather. On the other hand, 5 meteors of Phoenicids were observed by All Sky Fireball Network of NASA and SOMN (Southern Ontario Meteor Network) and their orbit of meteors was obtained. Moreover, we found 14 candidates of the Phoenicids among the CMOR data.

Results

While the number of meteors of Phoenicids was not so large, unique slow meteors were certainly observed. The ZHR of visual observation at the Canary Island was recorded about 30 between 1:00 and 2:00 (UT) on Dec. 2. Although some images of meteors were taken by still cameras, it was difficult to be recognized as Phoenicids because of uncertain velocity and larger dispersion of a radiant due to the low velocity. The distribution of the radiant points from the CMOR, NASA and SOMN was derived as shown in Fig.2. The location of the observed radiant point is consistent with the prediction.

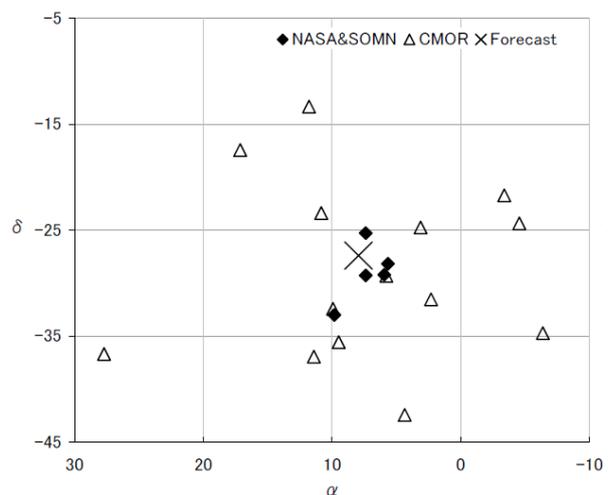


Figure 2 The distribution of radiant points

References

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