## **Optical observation of the Phoenicid meteor shower in 2014**

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The Phoenicids is one of the strange meteor shower. A sudden spectacular display was observed only once in December 1956, and after that, there has been no report on observation of significant activities of meteor shower. Comet Blanpain, a candidate for their parent body, was also observed only at its discovery in 1819, since then it has not been observed during perihelion recurrences, and was assumed to be lost. However, asteroid 2003WY25 discovered in 2003 was identified as comet Blanpain and its orbit was confirmed. The confirmation of the orbit enabled the verification and the prediction of appearance of the meteor shower from the dust trail by the model particles, and it revealed that the strong appearance of the Phoenicids in 1956 was due to the dust trail formed from the parent body from the middle of 18th century to the beginning of 19th century (Watanabe et al. 2005). Furthermore, a model calculation indicated that, if the parent body was active as a comet and dust trails formed at the beginning of 20th century when it was missing, there was a possibility for the meteor shower to appear in December 2014 (Sato & Watanabe 2010).

This means that it is possible to conduct studies by a new technique such that the activity of the parent body as a comet at the beginning of 20th century when the parent body was missing is estimated by observing the activity of meteor shower in December 2014. Since the model calculation predicted a maximum activity to be around 00:00 hours UT on December 2nd, we made an expedition to the state of North Carolina in the East Coast of USA, where optical observation was possible. The observation was carried out using two digital cameras and 7 video cameras for about 5 hours including the predicted maximum. The results showed that the activity of Phoenicid meteor shower itself was observed. However, there was no significant appearance with a clear strong peak of a short duration such as 30 min width. A radiant point of the meteor shower observed at a single observation site for a short period (about 30 minutes) was distributed in a small area ( $<2.5^{\circ}$ ). We present the time evolution of activities of the Phoenicid meteor shower and the position of its observed radiant point together with the activity of the parent body in 20th century estimated by the above results.

## References

 Watanabe, J., Sato, M., and Kasuga, T., PASJ, Vol. 57, pp. L45-L49, 2005.
Sato, M. and Watanabe, J., PASJ, Vol. 62, pp. 509-513, 2010.