

Report on discovery of unconfirmed comet

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Abstract

I spotted an 11th magnitude comet-like object moving with high speed at predawn during visual comet hunting session. However, I missed the object in few minutes due to twilight. On the same day, I reported on the object to the Central Bureau of Astronomical Telegrams (CBAT) and Syuichi Nakano. After that I disclosed the details internationally using mailing lists.

Materials and methods

Telescope: 46 cm Reflector 37x, FOV 1.1°

Night Vision PVS-14 ⁽¹⁾ (Figs. 1 and 2)

Method of detection

: Visual, moving telescope vertically

Atlas : SkySafari 7 Pro via Wi-Fi emitted from Nexus

DSC Pro (digital setting circles) (Figs. 1 and 3)

Discovery of comet-like object

Time : 2024 April 18.8146 UT

2024 April 19 4:33AM JST

Some 20 min after the start of the twilight

Position : R.A. 21h54m, R.D. -01°30' Near M2

The error of position \sim a few degrees (2)

Magnitude & appearance

: 11th, diameter 3', tail length 3', P.A. $\sim 310^\circ$

Motion : North northeast (parallel to the horizon)

1° per 10~15 seconds

Site : $32^\circ 49' 18.8''$ N $131^\circ 09' 18.5''$ E 850 m a.s.l.

How it was determined to be a comet

I knew no deep sky objects around the position

- Regarded as a meteor train due to elongated shape but the motion was confirmed in a second
- No changes in shape with time
- Close obs. revealed a coma and a tail (Fig. 4)
- determined as a comet



Fig. 1 46 cm Reflector

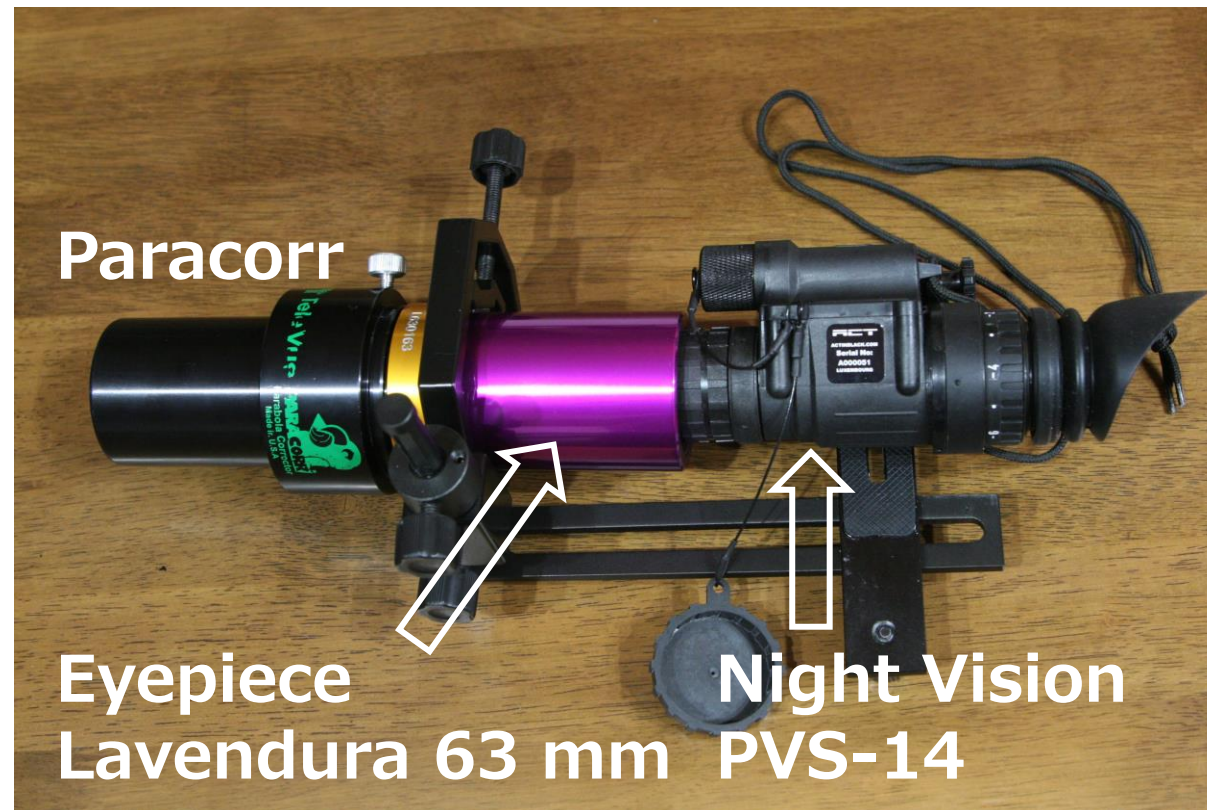


Fig. 2 Night Vision with eyepiece and Paracorr

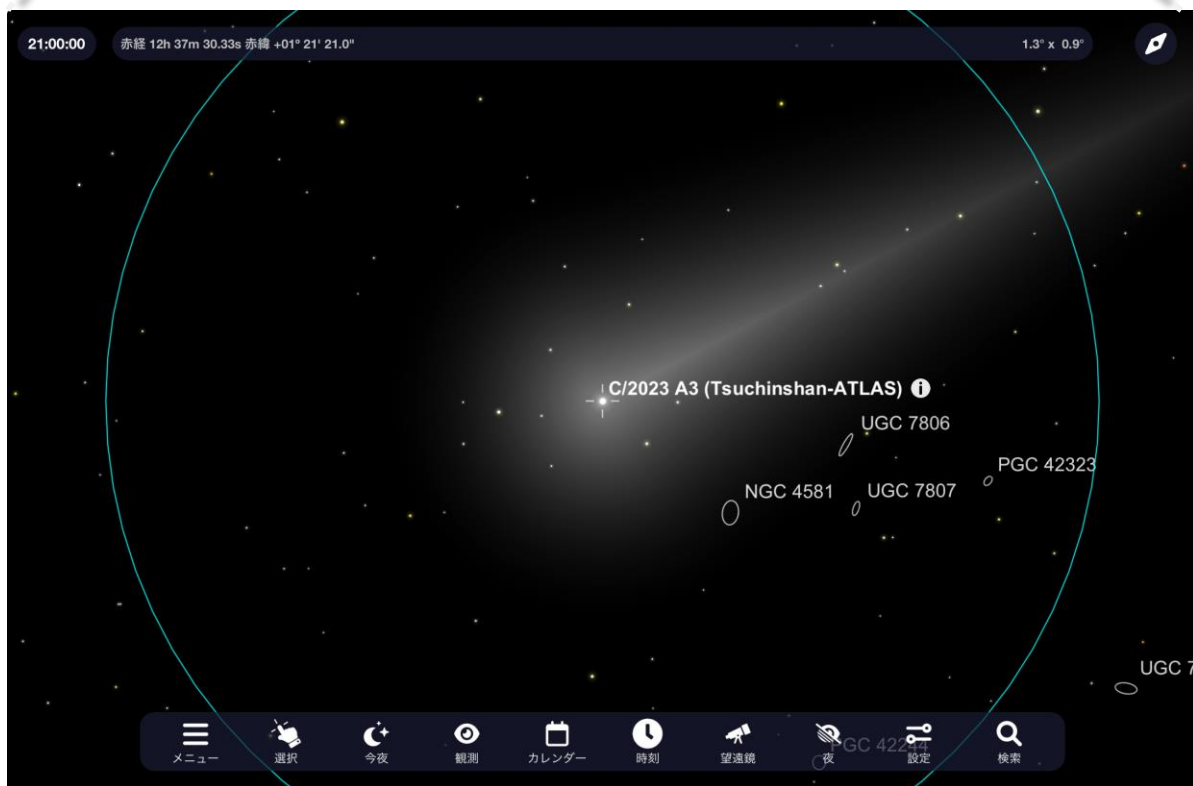


Fig. 3 Sample image of SkySafari 7 Pro



Fig. 4 Sketch drawn at home based on memory at the time of discovery.

Discovery report and disclosure

Discovery report

2024 April 19 16:48 JST, Emailed to CBAT and

Syuichi Nakano ⁽²⁾

2024 April 27 JST, Disclosed details ⁽²⁾

Reasons for disclosure

The object can be detected from photos taken by amateur comet/nova hunters

Methods of disclosure

Web page ⁽²⁾ , emails, mailing lists (comet-obs,

[OAA-comet](#), comets-ml ⁽³⁾)

Confirmation of images

SWAN images

- No applicable objects (Hirohisa Sato, Japan; Vladimir Bezugly, Ukraine ⁽⁴⁾)

Comet/Nova hunters using photos in Japan

- One of them reported undetected, probably due to short lens focus.
- The others replied to be out of search areas

High-speed moving objects in the past

- Such an object observed by Pons in France in the 19th century was 26P/Grigg-Skjellerup^{(5), (6)}

- Minoru Honda spotted a high-speed moving object of 8th mag with dia. 20'. He regarded it non-celestial object ⁽⁵⁾, ⁽⁷⁾.
- There are several reports on high-speed moving object that could be unconfirmed comets ⁽⁸⁾.














Possibility of not a comet

- Remaining fuel spewed from wreckage of liquid fuel rocket that looked like a comet ⁽⁴⁾.

Acknowledgements

I am grateful to Syuichi Nakano who offered the discovery info to observers and seekers of new heavenly body. I also thanks to Hirohisa Sato, Vladimir Bezugly and searchers for confirmation of SWAN/photo images.

References

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<http://www.npo-oaa.jp/Tenkai/tenkai.htm#2017> 
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- (8) Kronk, G. W., Meyer, M. 2024 Catalog of Unconfirmed Comets - Volume 2: 1900 to the Present, 414, Springer Nature.  

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