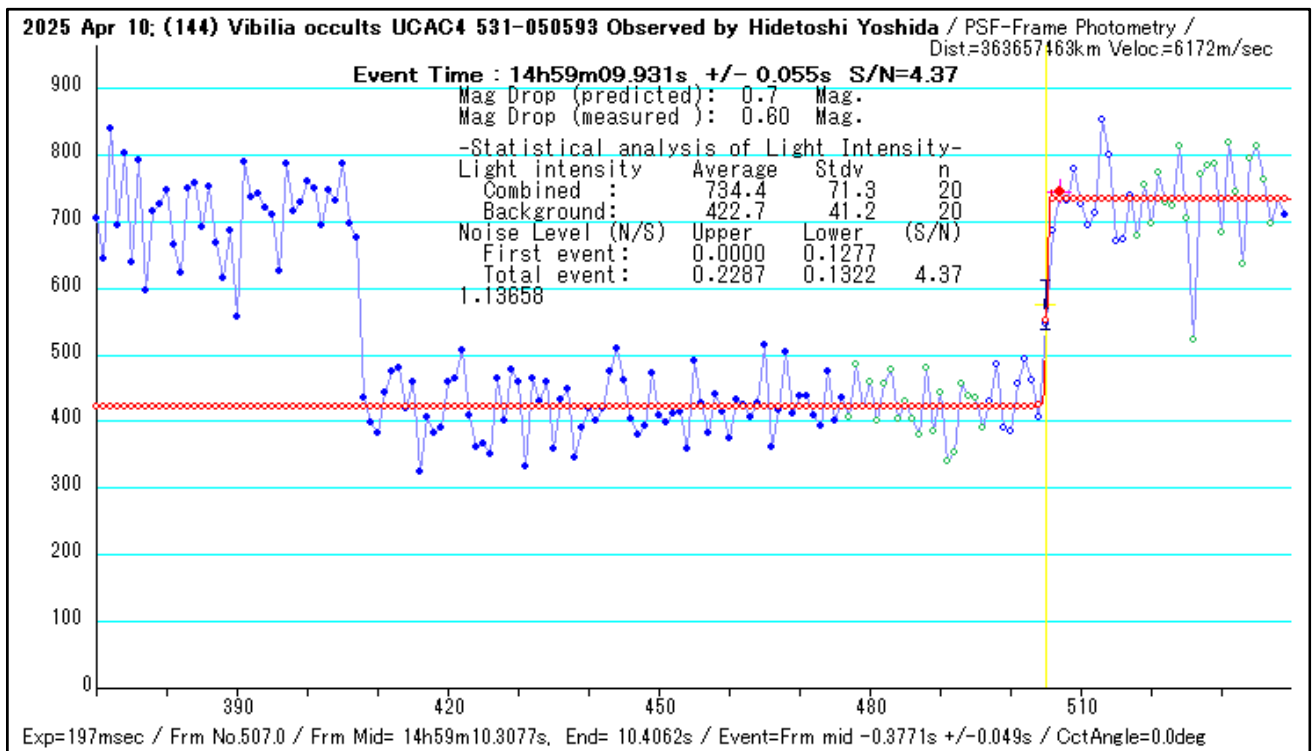
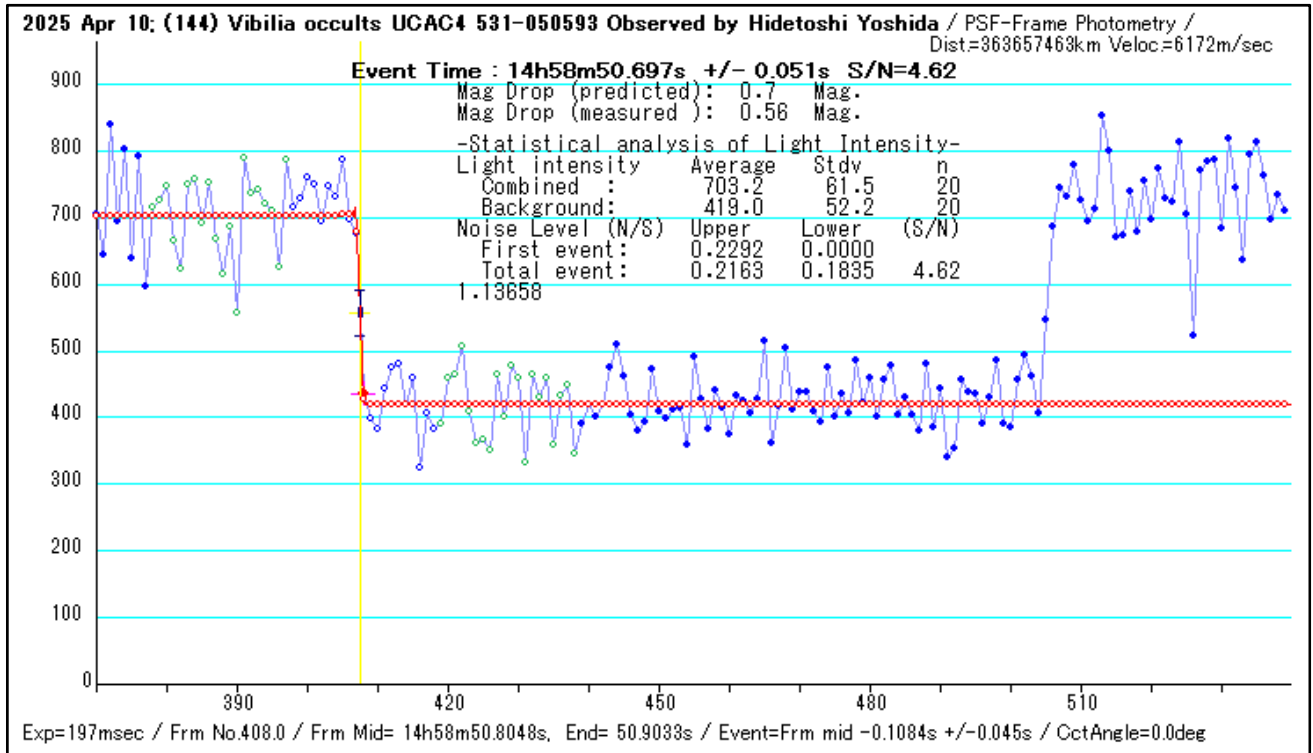


2025 Apr 10

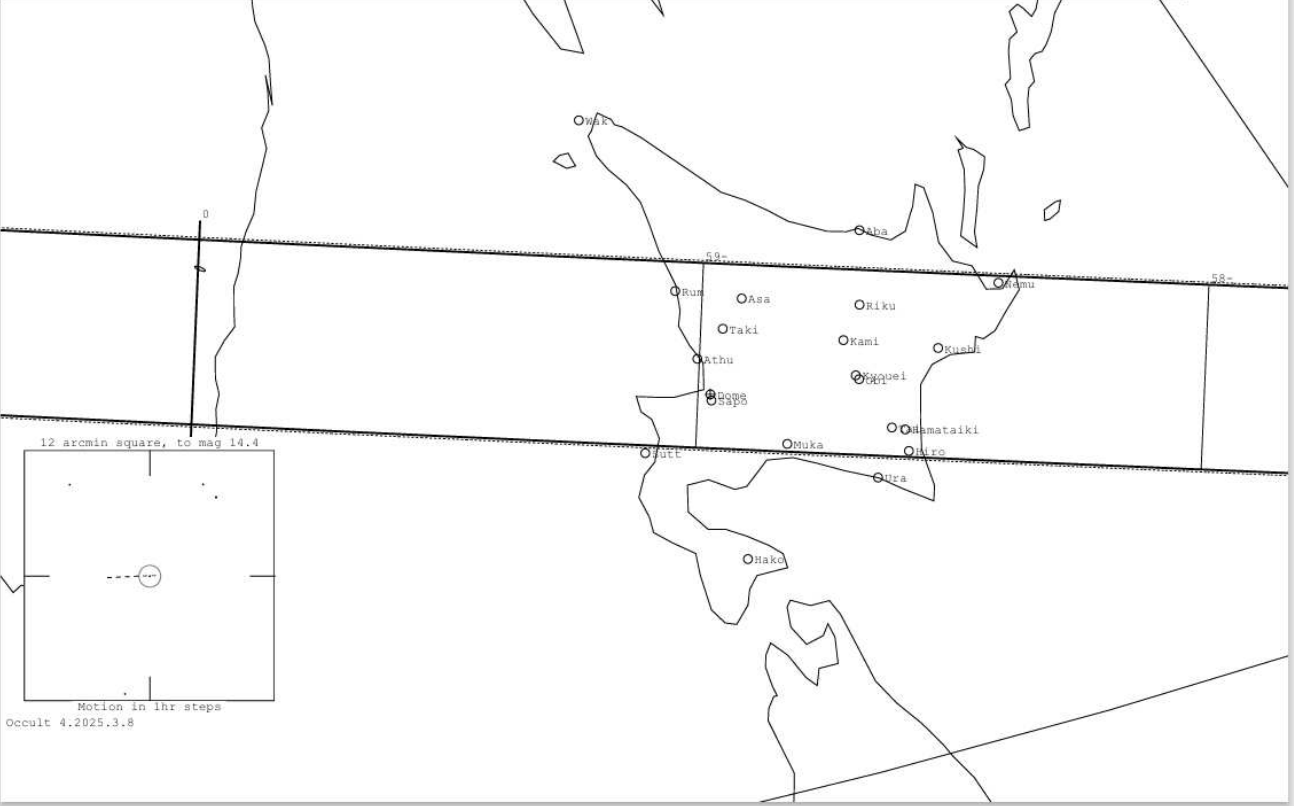
Main-belt Asteroid (144) Vibia Occults UCAC4 531-050593

北海道札幌市 吉田秀敏

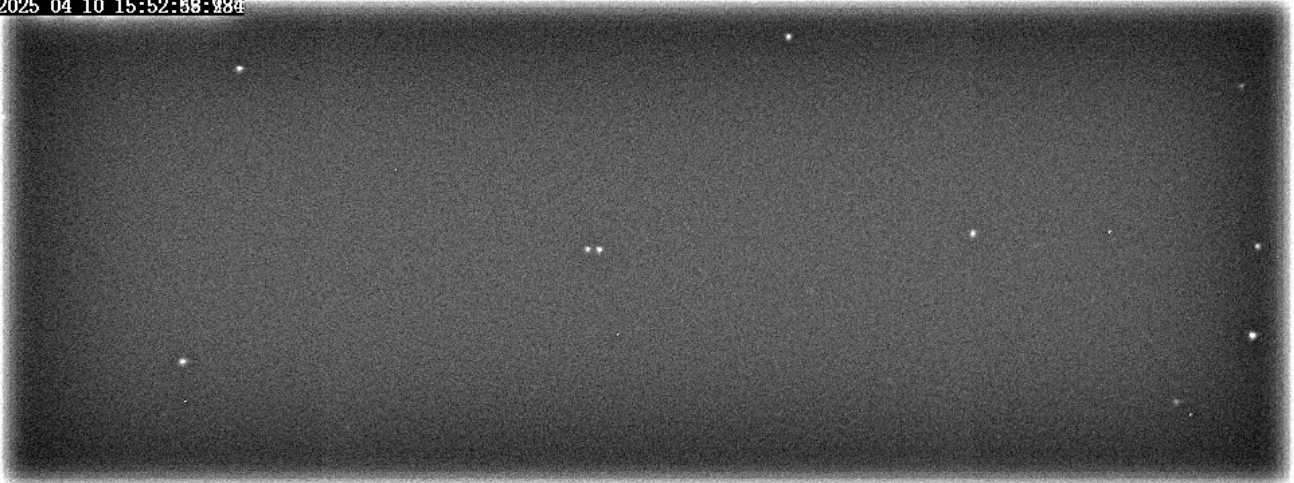


**144 Vibia occults UCAC4 531-050593 on 2025 Apr 10 from 14h 53m to 15h 22m UT**

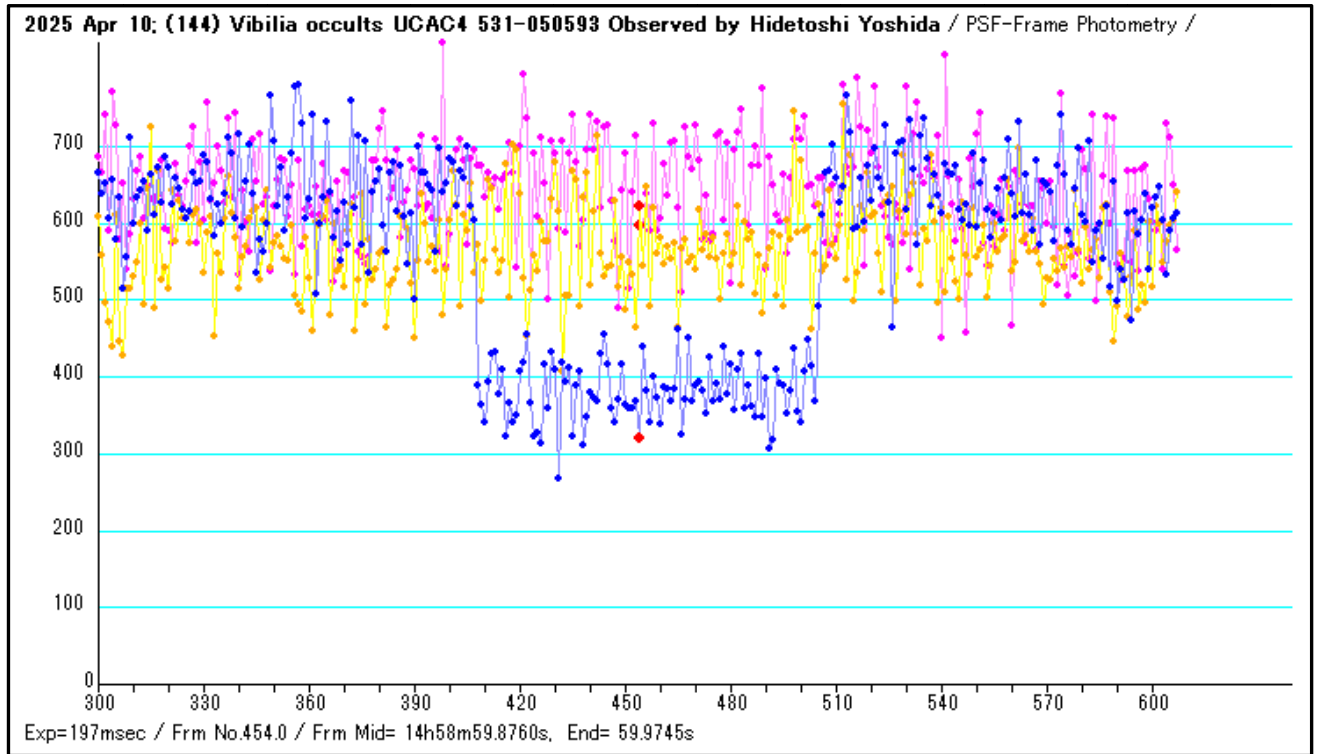
Star: (Dia < 0.1 mas)	Durations: Max = 23.7 secs	Asteroid: (in DAMIT)
MV 13.4; Mr 12.9; [Mb 13.8]	lkm = 0.16 secs, lmas = 0.29 secs	Mv = 13.2; Mr = 12.4
RA = 10 31 27.0425 (astrometric)	Mag Drop: 0.7 [46%]v, 0.6 [40%]r	Dia = 146 ± 8 km, 83 mas
Dec = 16 5 40.428	Sun: Dist = 133°	Parallax = 3.618"
[of Date: 10 22 50, 15 57 50]	Moon: Dist = 22°, illum = 95%	Hourly dRA = -0.873s
Prediction of 2025 Feb 28.2	to Err: ±(2.6 x 0.7) mas in PA 112°	dDec = 0.53"
Reliable 1.0 (good),		JPL#132+INTG:2025-Feb-11, Known errors



2025 04 10 15:52:58.984



【掩蔽終了 52 分後】 中央左側が恒星 UCAC4 531-050593、右側が小惑星(144) Vibia



526 フレームに光量低下がみられる。測光範囲 (ポイント) のずれはなく星像には確実に光量低下が確認できる。  
 550 フレーム以降には比較星も含めて光量低下の傾向がみられ、潜入前にも数か所の光量低下の様があるので、シンチレーション及び春季特有の「モヤ・かすみ」の影響と判断することが順当か。

Time correction using 1PPS LED

Recorded time delays: -0.01496 Seconds from 1PPS signal on every 5 frames. 197.00x5=985.0

1. Verification of the time PC recorded.

2. See and check above graph.

3. Change graph to LED Brightness  
 Variation of Recorded Time on Frame  
 LED Brightness

4. Polynomial fit for BKG. (if necessary)  
 Range for BKG: 2.5 Degree of fit curve: 8

5. Click above graph at a Magenta dot near front the end point of decrease.  
 selected frame: No. 703 Frame of PPS rising: No. 708

6. Spread area of Blue dots for fitting to line

7. Fit to line, and obtain the calibrate Time from the brightness of LED's PPS

8. Check result  
 Time correction: UTC = -0.0083767 sec + mean recorded (stamped) time  
 result of regression analysis of 1PPS LED. Estimated Error is 0.003650701 seconds

9. Apply to photometric analysis

Case A: Single point calibration  
 (1) Click "Apply to Analysis" button.  
 (2) Close this windows. Check analyzed time.

Case B: Multiple point calibration  
 If you've analyzed accurate time head of video now.  
 (1) Click "Add" button => memory analyzed time.  
 (2) Do Photometry for 1PPS LED pulse on the end of video stream.  
 (3) Open this window and analyze time.  
 (4) Click "Add" button => memory analyzed time.  
 (5) Click "Apply to Analysis" button.  
 (6) Close this windows. Check analyzed time.

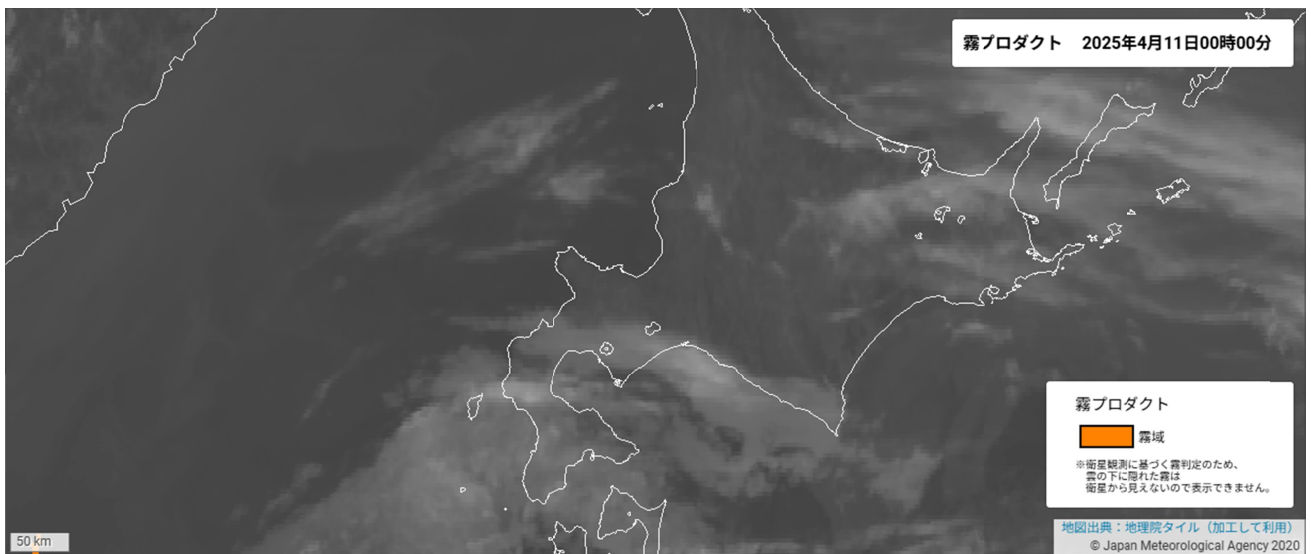
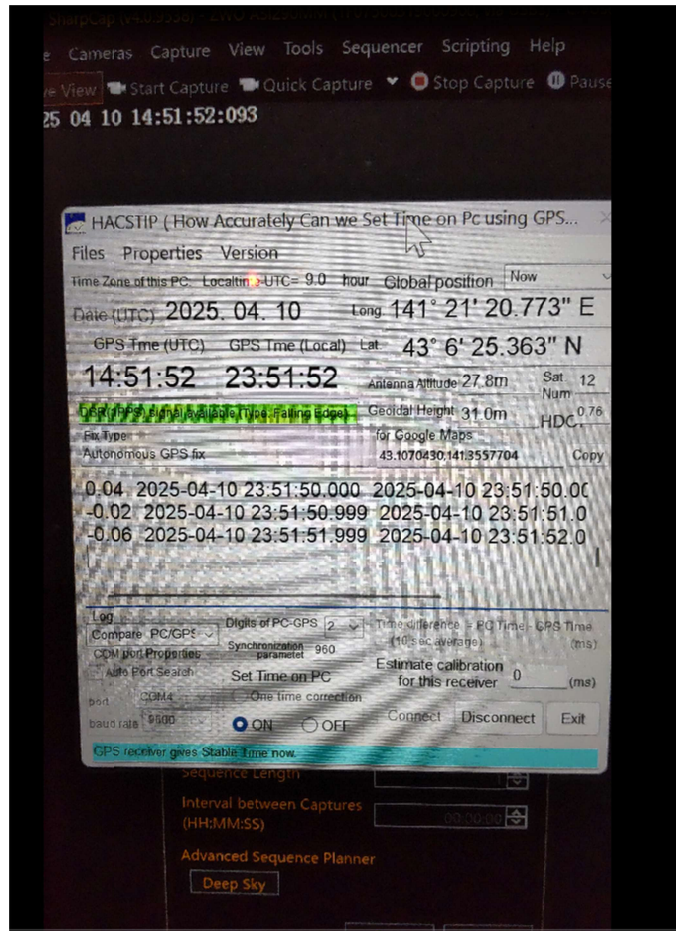
Memory

1	00175	14:58:05	0.026762
2	00241	14:58:18	0.043185
3	00708	14:59:50	0.024924
4	00774	15:00:03	0.049841

Recorded PC Time... Obtained UTC from LED Si  
 Frm. Frame End ... Frame Center ... Frame End.  
 No. HH\_MM\_SS.SSSSSSS.HH\_MM\_SS.SSS.HH  
 1,14.57.30.5355513,14.57.30.4287,14.57.30.527  
 1,14.57.30.7325503,14.57.30.6257,14.57.30.724  
 2,14.57.30.9295494,14.57.30.8227,14.57.30.921  
 3,14.57.31.1265484,14.57.31.0197,14.57.31.114  
 4,14.57.31.3235474,14.57.31.2167,14.57.31.314  
 5,14.57.31.5205465,14.57.31.4137,14.57.31.514  
 6,14.57.31.7175455,14.57.31.6107,14.57.31.704  
 7,14.57.31.9145445,14.57.31.8077,14.57.31.904  
 8,14.57.32.1115436,14.57.32.0047,14.57.32.104  
 9,14.57.32.3085426,14.57.32.2017,14.57.32.304  
 10,14.57.32.5055417,14.57.32.3987,14.57.32.494  
 11,14.57.32.7025407,14.57.32.5957,14.57.32.694

-0.0083767msec Ofc=-2.492352E Edit30

Add List without LED Correction



2025 Apr 12

\*\*\*\*\* Asteroid occultation Report \*\*\*\*\*

[Date ] 2025.4.10 [Approx hour] 15.1  
 [Star ] UCAC4 531-050593 VMag=13.41 RMag=12.87  
 [Asteroid ] (144)Vibilia 13.30 mag.

[Observer ] 1: Hidetoshi Yoshida 2:

[Location ] Sapporo, Hokkaido, JP

[Longitude] 141o21'21.0" E

[Latitude ] 43o06'25.5" N

[Altitude ] 15m

[Datum ] WGS84

[Event time] D: 14h58m50.697s +/- 0.051s (UTC) S/N=4.62

R: 14h59m09.931s +/- 0.055s (UTC) S/N=4.37

[Predicted Time error] 0.657 sec [RUWE] 1.00

[Recorded ] From 14h57m31s

To 15h0m31s

[Mag. drop ] D: Measured: Mag Drop (measured): 0.56 Mag. ; Predicted: Mag Drop (predicted): 0.7 Mag.

R: Measured: Mag Drop (measured): 0.60 Mag. ; Predicted: Mag Drop (predicted): 0.7 Mag.

[Telescope] Aperture: 30cm Type: SCT F=2.9

[Camera ] Analog or Digital video , Model=ASI290MM

[Exposure ] Set: 197.0msec, Measure: 197msec

[Setting ] Area: 1936x740 ; Binning=2

Gain: 305 ; Brightness: 0 ; High Speed Mode: On

[Time keep] GPS ; Model: GT902MGG

[Evidence ] GPS Time Log : Recorded ; Screen shot: Recorded

[Condition] Stability: Steady Transparency: Clear

[Remarks ]

[Additional comment]

\*\*\*\*\*

<Observations>

<Event>

<Date>2025|4|10|15.1</Date>

<Details>

<Star>UCAC4|531-050593|0||0.000000000|0.000000000|0.00|0.00|0.00|0|0.00000000|0.0000000|25.00|25.00|25.00|0</Star>

<Asteroid>144|Vibilia|0.00000000|0.00000000|0.0000000|0.0000000|0.0000000|0.0000000|1.00000|0.00000|0.0|1.0|20.00</Asteroid>

</Details>

<Observations>

<Observer>

<ID>1|Hidetoshi Yoshida||0|Sapporo, Hokkaido|JP|+141 21 21.0|+43 06 25.5|15| |30|3|a|a</ID>

<Conditions>1|1|4.50||</Conditions>

<D>14 58 50.697|D|0.051|||</D>

<R>14 59 9.931|R|0.055|||</R>

</Observer>  
</Observations>  
<LastEdited>2023|7|17</LastEdited>  
</Event>  
</Observations>

\*\*\*\*\*

Text-based Light curve  
(144)\_20250410\_145843\_Hidetoshi\_Yoshida.dat

Date: 2025-4-10 14:58:43.32: 33.29: 170

Star: 0: 0: 0: 0-0-0: 531-050593

Observer: +141:21:21.0: +43:06:25.5: 15: Hidetoshi Yoshida

Object: Asteroid: 144: Vibia

Values:704:643:839:695:802:640:792:596:714:725:746:666:623:748:758:691:753:669:615:686:556:788:737:740:722:711:626:787:716  
:730:760:751:695:746:732:785:696:676:435:398:382:443:476:480:419:458:324:405:383:  
391:460:463:508:409:362:367:351:464:400:478:458:332:464:431:459:360:432:448:345:390:420:402:419:476:510:462:404:380:394:47  
2:410:398:413:413:360:491:428:382:441:415:374:434:425:407:427:514:363:416:504:  
412:438:439:410:394:476:401:436:407:486:423:460:400:457:478:404:431:403:381:480:386:444:339:354:456:438:436:390:430:485:39  
1:385:456:494:462:406:547:686:746:730:778:725:695:712:853:798:671:672:738:678:  
756:696:773:729:724:813:704:522:771:784:787:685:818:744:637:794:814:764:698:734:709