Dear occultation observer,

IOTA/EA starts collection Asteroids and Lunar occultation report

We IOTA/EA ready to begin report collection business on Dec.15 2023.
The reports from East Asia region will be sent to the central office of IOTA.
These data, from all over the world, are archived at the VizieR Astronomical Data Center. And the data will be used for various purposes, such as understanding the shape of asteroids and improving their orbits. Lunar data will be used to verify the topography of the lunar limb and the positions of stars, and data on double stars will be reflected on the Washington Double star Catalog.

Send your report directly to
    Asteroid occultation :   asteroid-report@iota-ea.org
    Lunar occultation (include grazing occultation) : lunar-report@iota-ea.org
In addition to above, we recommend introducing your observation to regional community with SNS, Mail list and others.

Please feel free to ask me if you have any questions.
   mail to   [Asteroids: asteroid-report@iota-ea.org]
             [Lunar   : lunar-report@iota-ea.org]

Dec. 12, 2023
Asteroids / Lunar department
International Occultation Timing Association / East Asia

The detail of how to report submission is below.

HowToReport
[Asteroids]
   ExampleOfAsteroidReport
   TextFormatForAsteroid
   XMLReportFormat
   TextBasedLightcurve
   ImageGraphOfLightcurve

[Lunar]
   LunarTextReport
   ImageGraphOfLunarLightcurve

How to report your observations of Asteroids and Moon occultation

1. Reporting addresses
   a. Asteroid occultation :   asteroid-report@iota-ea.org
   b. Lunar occultation (include grazing occultation) : lunar-report@iota-ea.org
      Submit report only via e-mail to above address.
      In addition to above, we recommend introducing your observation to regional community with SNS,
       Mail list and others.

2. report contents
(1) Report in text format [Required]
      Asteroids: IOTA/EA standard text report format (Body of email messages)
      Lunar: IOTA Lunar occultation report format (Body of email messages)
(2) Report in OCCULT4 format [Optional]
      Asteroids: XML (for report) format (Body of email messages   (or attachment))
      Lunar: [Not required]
(3) Camera setting information [Required]
      Asteroids: for CMOS camera :   Camera setting file
                   for other camera :   Write to detailed description.
      Lunar: Only length of frame exposure should be written to comment line of text report.
(4) Detailed description of the observation (Body of email messages) [Optional]
      About weather conditions or setting of telescope and others.
(5) Light curve
      * Since IOTA Central Office has requested the submission of the data, we ask you to submit the data
      as much as possible.
   Asteroids: [Required in the case of
                   (1) Light drop is observed
                   (2) Near miss with asteroid's shadow is expected although there is no drop
                   (3) Case of very small object (several km or smaller) although there is no drop]
      a. Text-type light curve data => Paste it in the body of the email (or as an attached file)
      b. Graph image files =>   As an attached file
   Moon: [Required only for characteristic cases such as double stars or slow light change]
      a. Text-type light curve data => As an attached file.
      b. Graph image file   =>   As an attached file.
(6) Other data or materials as deemed necessary.   [Optional]
(7) Some records for confirm correct time   [When requested by the report collection staff.]
      * Some models of GPS sensor show the time a few seconds ahead of UTC, until they read the leap
      second information (which takes about 12.5 minutes after startup).
      Due to turning on the GPS sensor is too late or poor wave receptance, it happens that GPS output
      incorrect time. For obtaining correct time from these cases, we strongly recommend taking
      photograph (or record video) of PC monitor which displays both of GPS (or NTP) software and video
      capture software. Also, record every second time log from GPS during the video observation period.

a. Time log

b. Picture (or screen shot) of PC LCD monitor

3. reporting process

1st Step:　Please report via e-mail to the reception address within ~2 weeks from your observation.

2nd STEP:　You will receive an e-mail from the receptionist within a couple of days.

　　　　　The person in charge may ask you some questions or some confirmation items. In such cases, please respond as soon as possible.

Final Step:　You will receive a confirmation email from the person in charge stating that your report has been fully accepted. Receipt of this email confirms that your observation report is complete.

Example of Asteroid observation report

1. Text format

Dear director of asteroid department.

I'd observed the (599) Luisa's occultation of UCAC4 642-041533 and confirmed positive.

Altitude of star was high and there was little effect from atmospheric turbulence, so I used rather short frame exposure time as 41.8 msec. The duration of light drop is longer than predicted.

```
**************  Asteroid occultation Report  **************
[Date      ] 2023.11.15 [Approx hour] 17.6
[Star      ] UCAC4 642-041533
[Asteroid  ] (599)Luisa
[Observer  ] 1: Kazuhisa Miyashita  2:
[Location  ] Azumino, Nagano, JPN
[Longitude ] 137o53'47.8" E
[Latitude  ]  36o21'59.9" N
[Altitude  ] 541m
[Datum     ] WGS84
[Event time] D: 17h36m16.125s +/- 0.030s (UTC)  S/N=2.60
             R: 17h36m23.939s +/- 0.021s (UTC)  S/N=3.00
[Recorded  ] From  17h35m18s
             To    17h38m33s
[Mag. drop ] D: Measured: 0.43 ; Predicted: 0.5
             R: Measured: 0.48 ; Predicted: 0.5
[Telescope ] Aperture: 28cm  Type: SCT  F=1.95
[Camera    ] Analog or Digital video , Model= ASI462MM
[Exposure  ] Set: 41.8msec, Measure: 41.8msec
[Setting   ] Area: 1024x512 ; Binning=2
             Gain: 496 ; Brightness: 168 ; High Speed Mode: Off
[Time keep ] GPS ; Model: GT902PMGG
[Evidence  ] GPS Time Log : Recorded ; Screen shot: Recorded
[Condition ] Stability: Steady  Transparency: Clear
[Remarks   ] Since atmosphere stability is good though this event has small
magnitude drop, I'd selected slight short frame exposure.
[Additional comment]
```

2. XML report format

```
<Observations>
  <Event>
    <Date>2023|11|15|17.6</Date>
    <Details>
      <Star>UCAC4|642-041533|0||0.0000000000|0.000000000|0.00|0.00|0.00|0|0.00000000|0.0000000|25.00|25.00|25.00|0</Star>

      <Asteroid>599|Luisa|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|Kazuhisa  Miyashita||0|Azumino,  Nagano|JPN|+137  53  47.8|+36  21  59.9|541||28|3|a|a</ID>
        <Conditions>1|1|2.80||</Conditions>
        <D>17 36 16.125|D|0.030||| </D>
        <R>17 36 23.939|R|0.021||| </R>
      </Observer>
    </Observations>
    <LastEdited>2023|7|17</LastEdited>
  </Event>
</Observations>
```

3. Text-based Light curve

Date: 2023-11-15 17:36:5.61: 28.39: 680
Star: 0: 0: 0: 0: 0-0-0: 642-041533
Observer: +137:53:47.8: +36:21:59.9: 541: Kazuhisa Miyashita
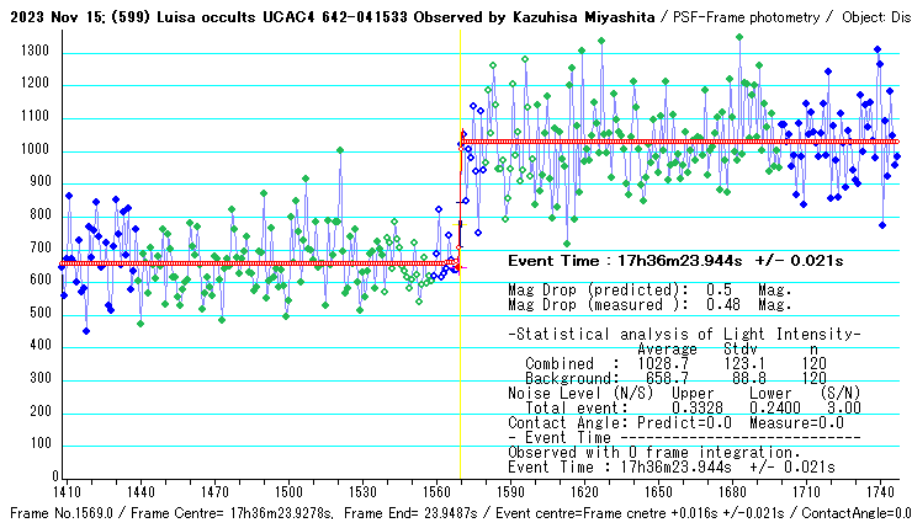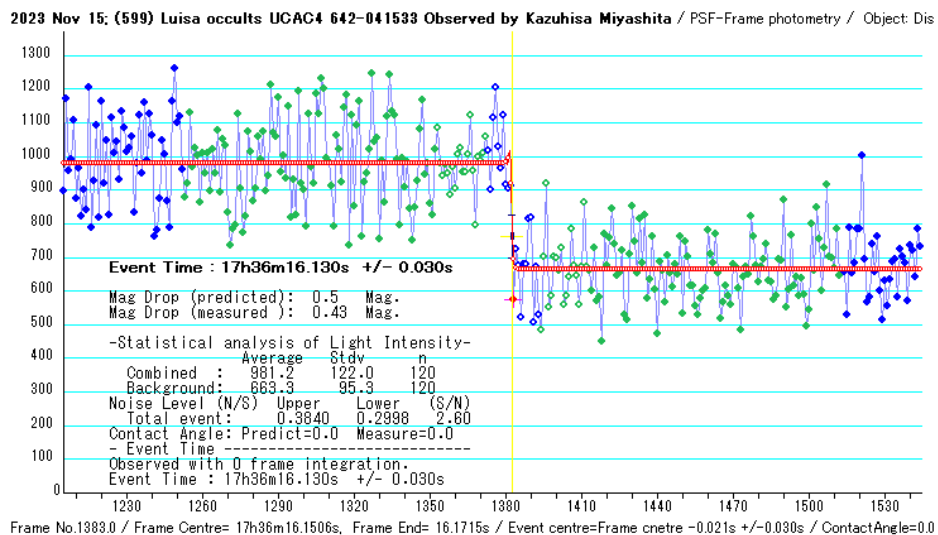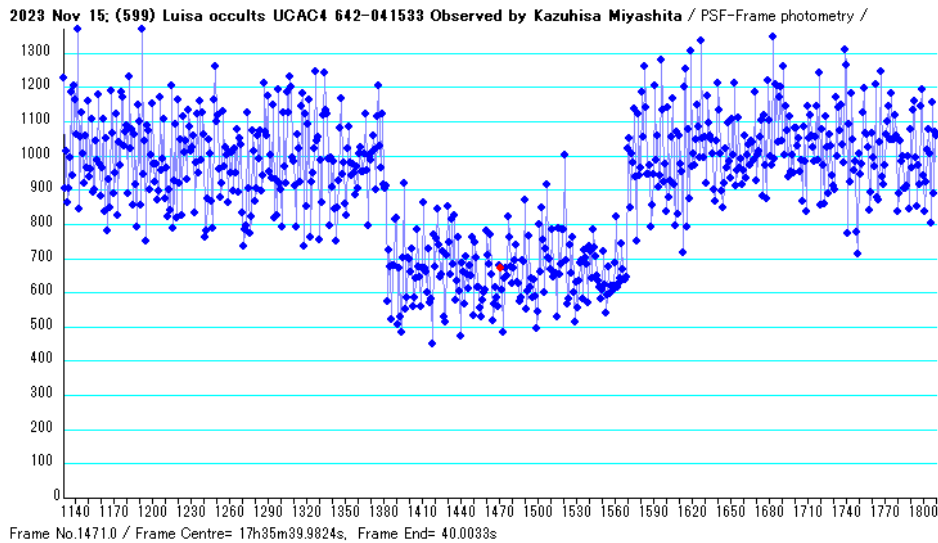Object: Asteroid: 599: Luisa

Values:1230:906:1014:862:906:996:1188:943:1206:1164:1062:1370:846:1056:1125:1008:921:1058:964:1162:940:963:1108:896:900:1045:986:1181:978:883:966:1108:839:1053:783:930:849:1190:1068:892:952:1124:828:1039:974:1186:1172:1030:1068:1091:889:1233:1022:1078:857:1064:916:794:1150:1100:857:1371:948:1046:752:1089:1072:903:1001:1152:975:924:976:872:896:1171:959:992:1107:874:967:822:900:841:1205:790:926:1092:819:1164:922:1049:827:1116:1010:1043:930:1135:1086:1014:1026:1058:833:981:1124:948:1161:986:1127:1063:762:780:876:1050:1007:868:790:1166:1263:1102:1118:960:880:920:1131:967:1027:1004:862:1010:948:1009:899:1020:952:1077:896:1051:1032:832:736:786:796:1128:904:774:823:1073:1013:867:904:1058:990:1076:899:941:1214:1069:1058:1174:953:1004:937:1150:818:933:824:1193:920:902:793:1127:970:921:1186:1128:1231:1203:996:983:914:792:1062:1020:924:1144:1184:736:1121:852:1092:1163:762:924:952:1022:1245:1043:1054:756:988:862:1119:1242:1136:1124:992:795:996:908:985:846:752:850:929:1080:1169:946:980:862:828:1023:1087:981:944:975:951:887:968:907:1005:1026:955:955:1007:1122:958:798:1000:989:1011:1058:1019:900:1114:1206:1028:967:1122:917:904:912:576:724:676:524:680:679:814:819:507:671:531:485:701:921:552:584:704:697:660:727:560:587:642:784:675:647:559:670:864:672:662:602:729:572:583:450:769:678:758:844:739:648:655:720:528:516:708:852:748:652:815:684:825:579:635:764:605:472:689:662:567:706:655:614:682:652:762:535:746:701:615:615:558:529:579:602:609:782:712:683:769:654:520:569:616:586:559:679:671:610:485:642:673:648:824:762:676:628:673:696:741:631:629:576:585:694:690:871:551:603:768:616:642:587:640:591:495:545:798:662:848:754:601:730:915:702:700:668:786:644:658:656:529:790:652:683:786:784:1003:694:567:584:738:656:762:600:515:629:555:634:689:696:582:723:701:683:570:737:723:643:784:732:706:649:636:617:582:610:722:624:540:592:675:598:621:604:618:688:821:617:628:643:743:669:640:640:645:1020:1050:849:1007:982:1140:939:751:1122:944:965:1187:1057:1261:1141:948:948:974:793:858:946:1205:986:1060:909:944:1280:1133:923:976:836:1141:880:927:1054:1166:918:795:1069:831:1060:978:955:718:1202:1255:793:1076:874:1308:968:1008:972:1050:1151:1084:993:1336:1051:994:1054:920:1174:1095:1061:1050:1007:900:868:1045:1214:1134:1006:899:849:922:1022:964:1096:984:934:1107:1004:1213:914:959:1113:964:993:917:957:1058:934:1004:1032:972:1043:1040:990:1188:929:1001:1012:1056:1104:882:1118:974:876:1219:1104:999:974:1350:990:1211:1205:1039:1171:1203:1044:1262:1004:1145:1074:938:1116:953:1002:950:1082:1080:1030:1053:954:988:866:1084:984:838:1144:1052:1119:1058:1025:982:1054:1145:988:1244:856:1076:973:860:1116:1025:891:1063:1029:942:912:903:1173:998:1143:1076:1148:1033:979:1309:1264:773:1092:923:1184:1046:959:986:779:714:1005:948:978:1125:1198:1066:1064:1025:843:894:1068:994:968:1211:877:873:1040:1248:940:916:972:1064:1101:1144:1048:1181:1046:1049:1121:1059:839:889:1045:982:998:906:906:912:998:845:1079:964:1135:1162:995:852:974:916:1146:1194:942:837:925:1016:1078:1007:803:1157:888:1069:1061

4. Graph image of light curve   (Recommend to Make PDF file and attach it to Email or post it to your web site.)

2023.11.15 17.6hr (UT)   (599)Luisa occults UCAC4 642-041533(14.1Mag)

Location: Akashina-Nanaki, Azumino, Nagano, Japan
Telescope: 28cm aperture shmidt cassagrain;   Camera: ZWO ASI462MM;   GPS: GT902PMGG

2023 Nov 15; (599) Luisa occults UCAC4 642-041533 Observed by Kazuhisa Miyashita / PSF-Frame photometry /

Frame No.1471.0 / Frame Centre= 17h35m39.9824s, Frame End= 40.0033s

2023 Nov 15; (599) Luisa occults UCAC4 642-041533 Observed by Kazuhisa Miyashita / PSF-Frame photometry / Object: Dis

Event Time : 17h36m16.130s +/- 0.030s

Mag Drop (predicted): 0.5   Mag.
Mag Drop (measured): 0.43 Mag.

-Statistical analysis of Light Intensity-
                  Average   Stdv   n
Combined :   981.2   122.0   120
Background: 663.3   95.3   120
Noise Level (N/S) Upper   Lower   (S/N)
   Total event: 0.3840   0.2998   2.60
Contact Angle: Predict=0.0 Measure=0.0
- Event Time --------------------------
Observed with 0 frame integration.
Event Time : 17h36m16.130s +/- 0.030s

Frame No.1383.0 / Frame Centre= 17h36m16.1506s, Frame End= 16.1715s / Event centre=Frame cnetre -0.021s +/-0.030s / ContactAngle=0.0

2023 Nov 15; (599) Luisa occults UCAC4 642-041533 Observed by Kazuhisa Miyashita / PSF-Frame photometry / Object: Dis

Event Time : 17h36m23.944s +/- 0.021s

Mag Drop (predicted): 0.5   Mag.
Mag Drop (measured): 0.48 Mag.

-Statistical analysis of Light Intensity-
                  Average   Stdv   n
Combined :   1028.7   123.1   120
Background: 658.7   88.8   120
Noise Level (N/S) Upper   Lower   (S/N)
   Total event: 0.3328   0.2400   3.00
Contact Angle: Predict=0.0 Measure=0.0
- Event Time --------------------------
Observed with 0 frame integration.
Event Time : 17h36m23.944s +/- 0.021s

Frame No.1569.0 / Frame Centre= 17h36m23.9278s, Frame End= 23.9487s / Event centre=Frame cnetre +0.016s +/-0.021s / ContactAngle=0.0

Example of Lunar observation report

1. Text format （body of messages）

Dear correction officer

Here is Lunar occultation report in Mar. 2023.

I've began to use CMOS camera for Lunar occultations.

```
-----------------------------------------------------------------------
Place name      Azumino, Nagano, Japan
Email address  k_miyash@nifty.com
Representative Kazuhisa Miyashita

TA  NED  30  120  +1375347.8  +362159.9  84  541.7M

OA  K. Miyashita              k_miyash@nifty.com

20230329111702.453S 78848 DD    EG G0.00315.8      T236   AA
20230329113840.390X 95083 DD    EG G0.10810.9      T236   AA
20230329114902.234X 95192 DD    EG G0.00314.8      T235   AA
    Thin cloud which was brighten by moon light.
20230329122046.138R  1056 DD    EG G0.00216.5      T232   AA
    Thin cloud which was brighten by moon light.
20230329145411.502R  1067 DD    EG G0.00821.3F     T232   AA
    26% light drop
20230329145411.592R  1067 DD    EG G0.00314.0B     T232   AA
    Fainter: 8.67 +/- 0.33 mag., Brighter: 7.39 +/- 0.08mag.
20230330104618.244S 79685 DD    EG G0.00216.5      T222   AA
20230330124519.500S 79727 DD    EG G0.00219.3 0.042T221   AA
    Its non instantaneous light drop is considered that caused
    by large 76.3 deg. contact angle
20230330131915.830X105335 DD    EG G0.00219.4      T222   AA
20230330133704.714X105397 DD    EG G0.01212.9      T224   AA
20230331115008.818S 80341 DD    EG G0.00315.6      T222   AA
20230331115331.738X110985 DD    EG G0.05711.2      T224   AA
20230331125459.354X111116 DD    EG G0.00713.2      T222   AA
20230331135023.245S 80370 DD    EG G0.00216.0      T222   AA

    *** Observation details ***

    Telescope : D=300mm, F4.0 Newtonian
    Camera : ASI290MM
      Binning = 2
      High Speed Mode = On

    Star       Mag(R)  Exposure  Gain  Brightness  Capture Area

    Mar. 29
    SAO78848   8.9     15.4msec   214       0       1488x 822
    XZ 95083   9.6     15.4       195       0       1488x 822
    XZ 95192   8.6     15.4       195       0       1488x 822
    ZC  1056   7.3     15.4        85       0       1488x 822
    ZC  1067   6.4     15.4        85       0       1488x 822

    Mar. 30
    SAO79685   8.2     15.4       148       3       1448x1096
    SAO79727   9.3     20.8       164       0        968x 548
    XZ105335   8.7     20.8       120       0        968x 548
    XZ105397  10.7     20.8       137       0        968x 548
```

```
Mar. 31
SAO80341   8.4      15.4      154      0      1024x 768
XZ110985  10.4      15.4      154      0      1024x 768
XZ111116   9.4      15.4      170      0      1024x 768
SAO80370   9.2      15.4      160      0      1024x 768

Time keeping:  Garmin18LVC with HACSZTIP-GPS
The time stamp on capture software was confirmed by telephone JJY.
```

In R 1067, 90 msec step appeared in the light curve at the beginning of the disappearance. Although this could be considered noise due to atmospheric fluctuations, the fact that the duration of the dimming is longer than the amplitude before the event suggests that the drop is most likely due to a companion star, so it is listed as a double star.

2. Image of light curve graph