

IOTA/EA Observation Campaign for Phaethon's Stellar Occultation

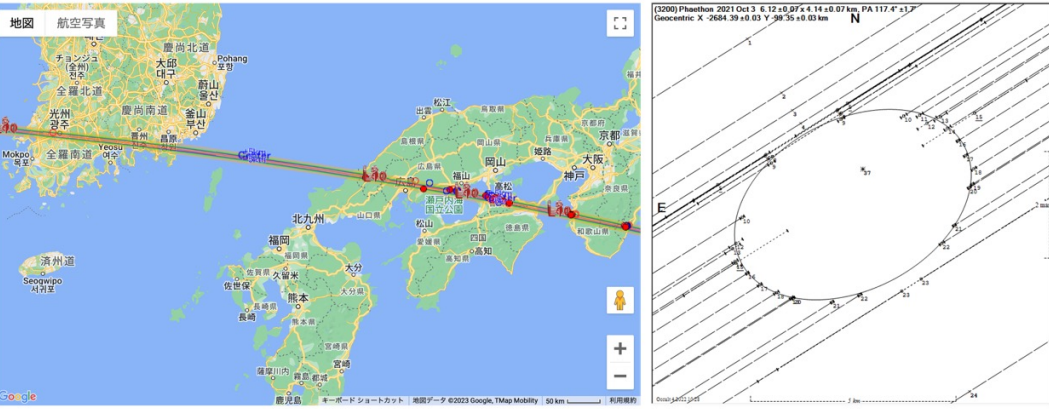
Phaethonの恒星食に関する IOTA/EA観測キャンペーン

Fumi Yoshida

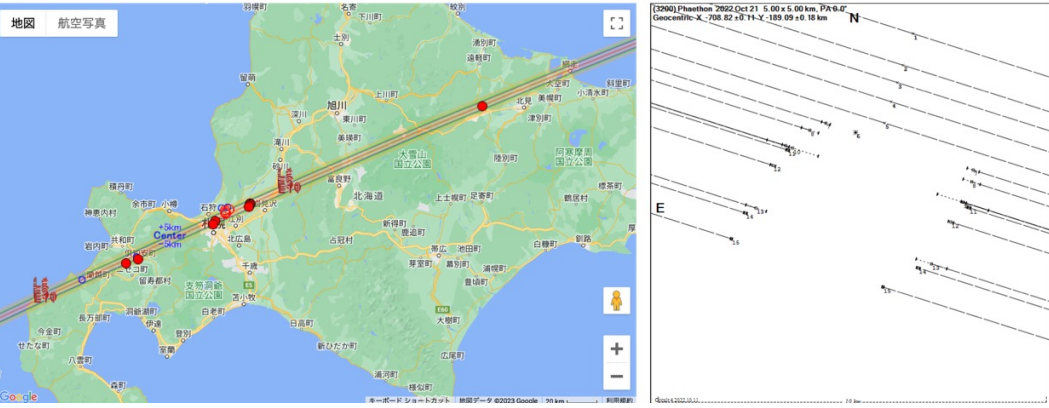
吉田二美

Previous observations これまでの主な観測結果

(a) 2021年10月3日



(b) 2022年10月21日

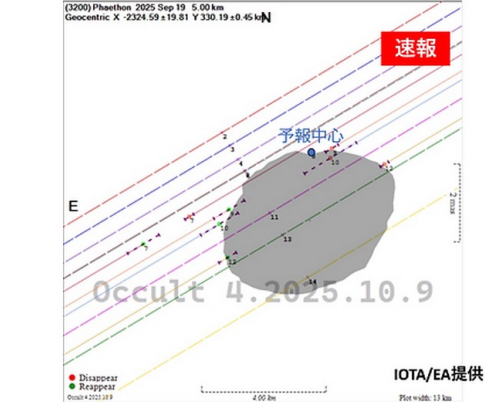


2021年以降、Phaethonの恒星食観測の大規模な観測遠征を行った。2021年の観測では、予測中心と影の経路が比較的良好に一致していたため、Phaethonの断面全体を捉えることができたが、2022年と2025年の観測では、Phaethonの影の経路が予測中心の南側にずれ、Phaethonの断面全体を捉えることはできなかった。ヤルコフスキー効果などの要因を考慮してこの不一致の原因を調査したが、正確な原因は不明。今年は、再びPhaethonの断面全体を捉えたいと思っています。

(a) 観測地点 2025年9月19日



(b) 整約図 (速報)



P : Positive、N : Miss (Negative)、F : Cancelled due to weather conditions, equipment malfunction, or other reasons.

P : 減光検出、N : 通過（減光なし）、F : 天候または装置不具合等による不成立。

Date (UT)	Star (V mag)	Observer/ Site	Result	Key Achievements
2021/10/3	UCAC4 646-021974 (12.0)	72/36	P18, N7, F11	High-precision determination of an elliptical cross-section measuring 6.12×4.14 km
2022/10/21	TYC 2844-0735-1 (10.8)	39/19	P9, N5, F5	Acquired a different cross-section. The shadow has shifted 2–3 km south of the forecast.
2025/9/19	UCAC4 660-021020 (13.1)	34/13	P4, N1, F8	Four chords in Southern Hokkaido. The actual shadow passed south of the center of the forecast.

We have been conducting several large-scale observational expeditions for the stellar occultations of Phaethon since 2021. In 2021, the prediction centre and path of the shadow were relatively well aligned, enabling us to capture Phaethon’s entire cross-section area. However, in the 2022 and 2025 observations, the path of Phaethon’s shadow shifted south of the predicted centre, preventing us from capturing the full cross-section of Phaethon. We have investigated the cause of this discrepancy, taking factors such as the Yarkovsky effect into account, but the exact cause remains unknown. In this year's observation campaign, I hope we can capture the entire cross-section of Phaethon again.

This year's Observation Campaign

今年の観測キャンペーン

<http://hal-astro-lab.com/asteroid/20261105Phaethon.html> 詳細情報のページ

You can get a detail information of this occultation event from the above web site.

2026.11.05 10h22m UT
(**19h22m JST**)

Star : UCAC4 620-124075

mag12.9

=GSC 2725-01467

RA 21h 39m 37.3972s

Dec +33° 59' 30.357" (J2000)

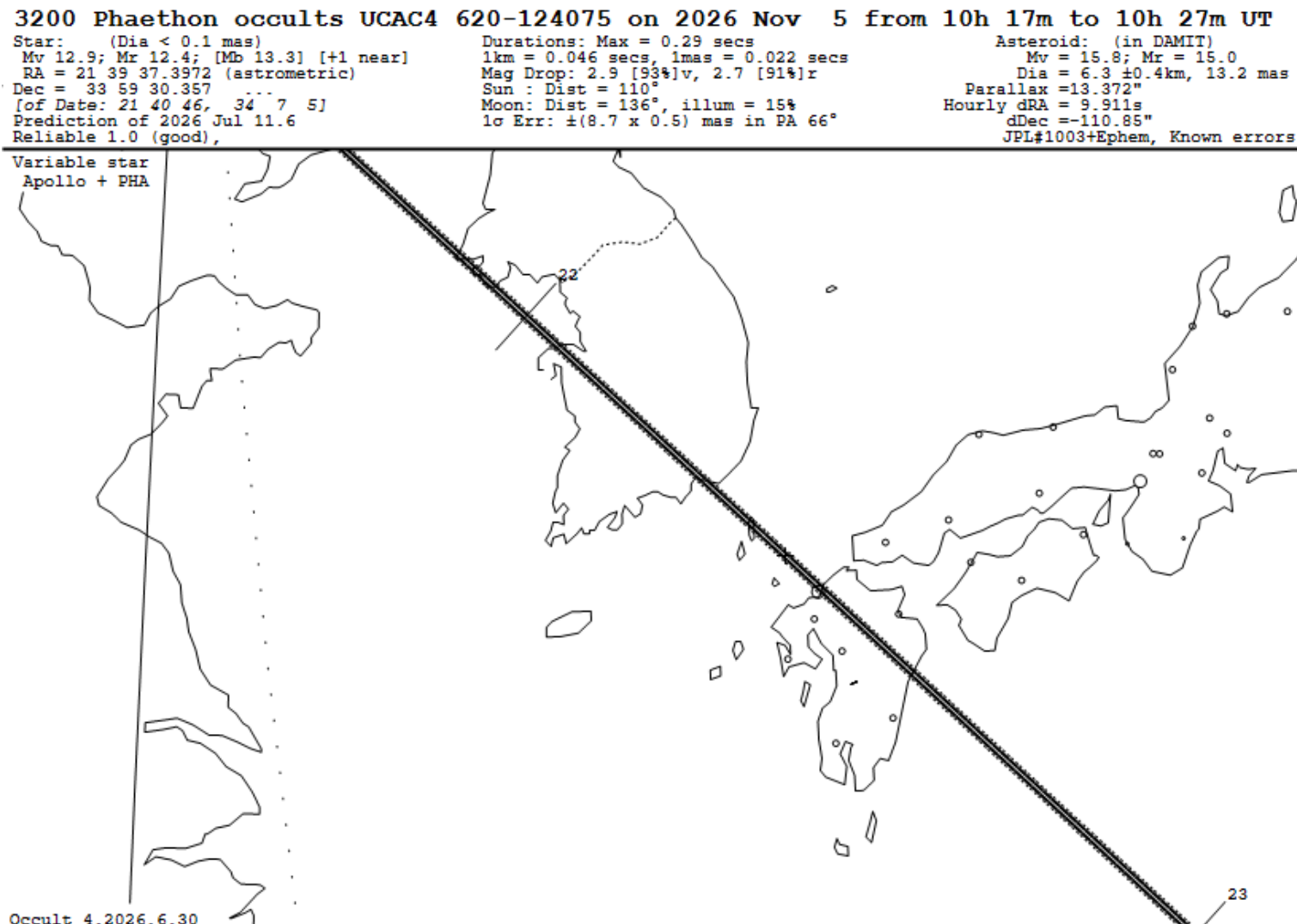
Asteroid: (3200) Phaethon

mag15.8 dia 6.3km

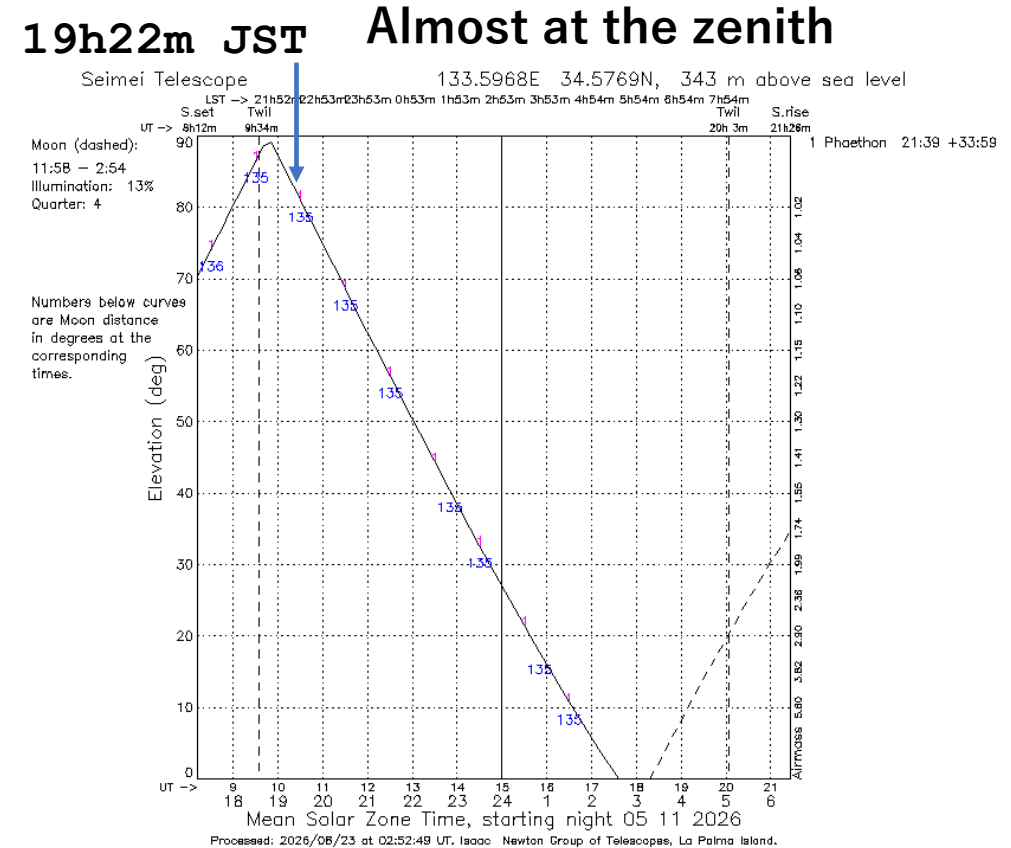
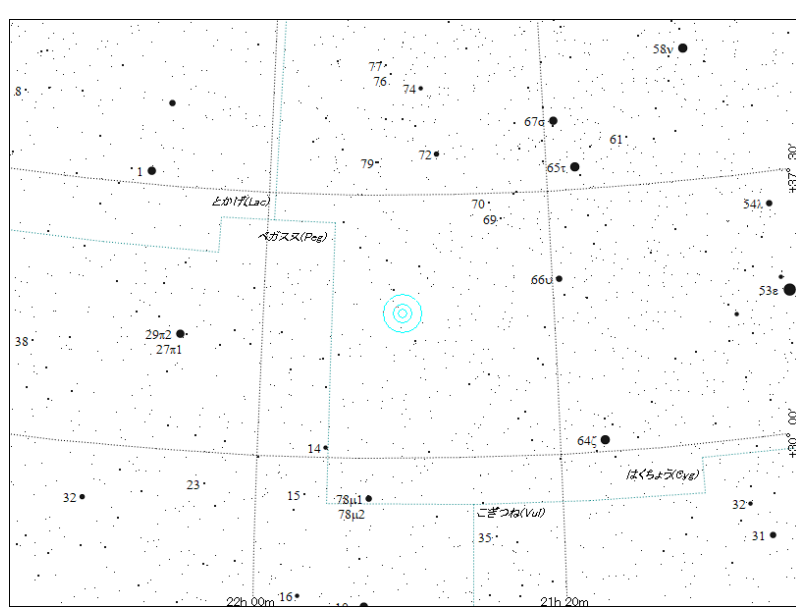
Drop mag: aprox 2.9mag

Max duration 0.29sec

Area : Kyushu, Japan Korea



Target Star GSC 2725-01467 12.9 mag



Wide Map
by Stella Navigator12

15min square
by DSS

The target star is a bit dim at 12.9 mag. But when the occultation occurs, the star will be near the zenith. So it's unlikely to be significantly affected by atmospheric extinction. I recommend observing it from a dark location away from city lights.

The stellar occultation will occur around 19:22, which is a time when some people are still on their way home from work. It's also a time when lights are still on in homes. Please keep these factors in mind when selecting your observation site. Although there are reportedly no wild bears in Kyushu, there are raccoon dogs and wild boars, so please exercise extreme caution if you enter the forest.

対象となる星は12.9等とやや暗い。しかし、掩蔽はほぼ天頂付近で起こる。そのため、大気減光の影響を大きく受ける可能性は低い。街明かりから離れた、暗い場所での観測をお勧めします。掩蔽は19時22分頃に発生。この時間帯は、仕事から帰宅途中の人もあるし、家の明かりがまだついている時間帯。観測場所を選ぶ際は、これらの点を念頭に置いてください。九州には野生のクマは生息していませんが、タヌキやイノシシはいるので、森に入る場合はどうぞ注意してください。

Occultation by (3200)Phaethon on Nov.05.2026 (update 2026.7.12)

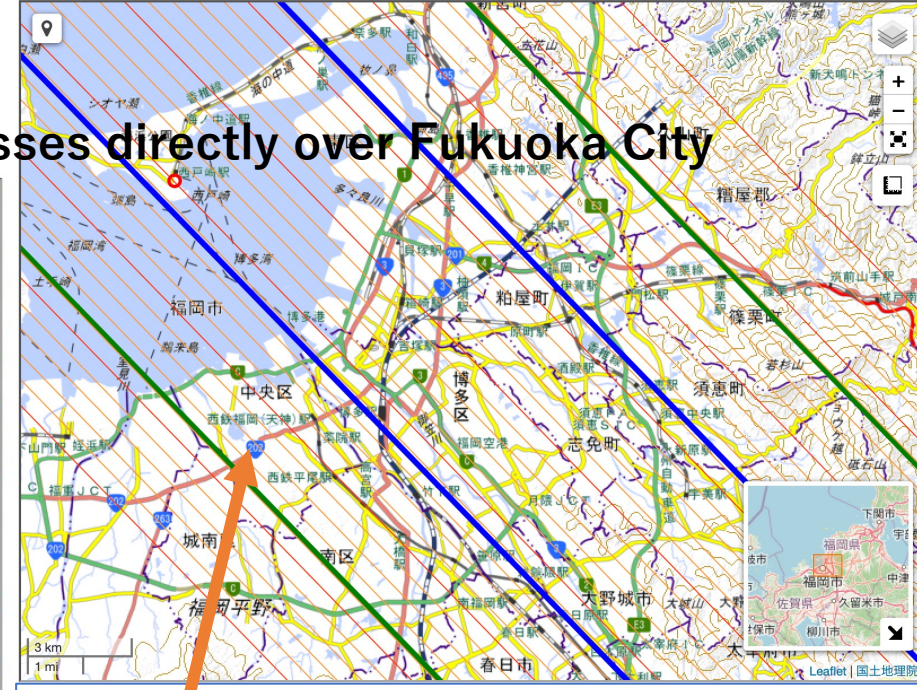
Red line = Predict Center / Blue line = Path limit / Green = Error limit (1σ) / Orange = Offset from Center line

Orbit based on JPL#1003. The path elevation corrected.

○ Planned sites



Phaethon passes directly over Fukuoka City



Occultation Observation Workshop
2026.11.06 10:00~17:00

@福岡市科学館

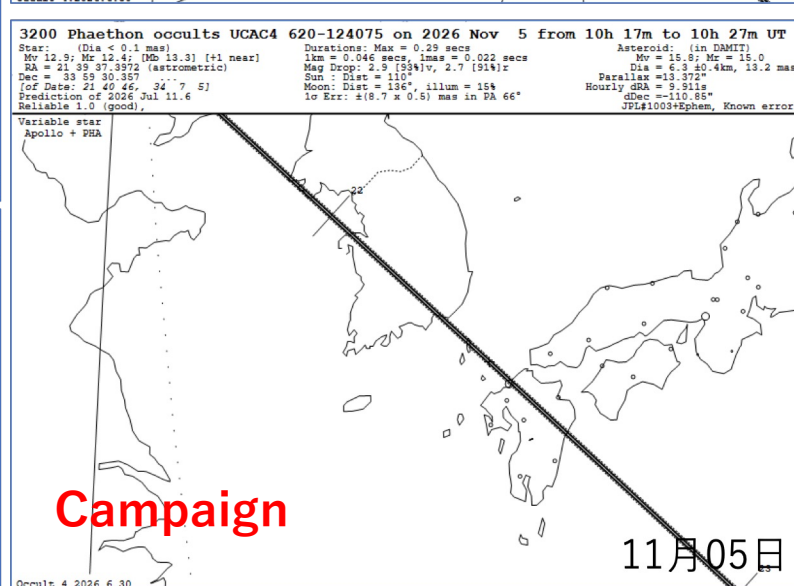
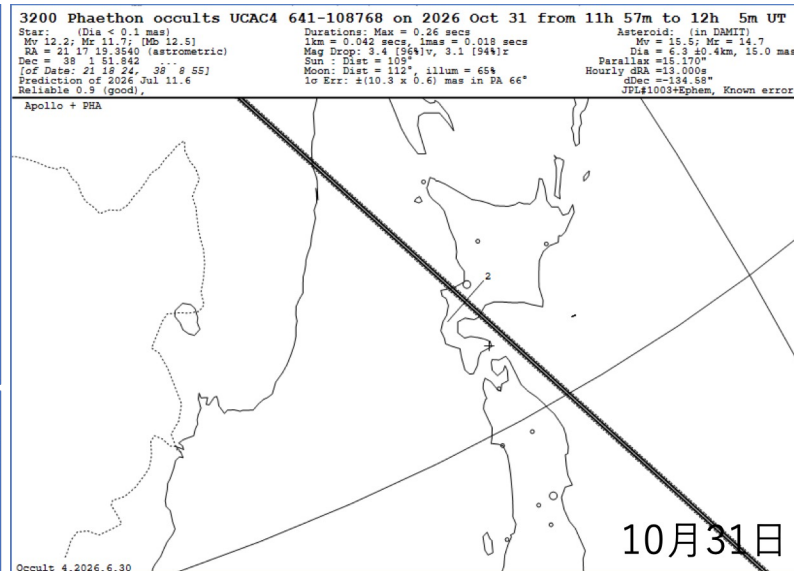
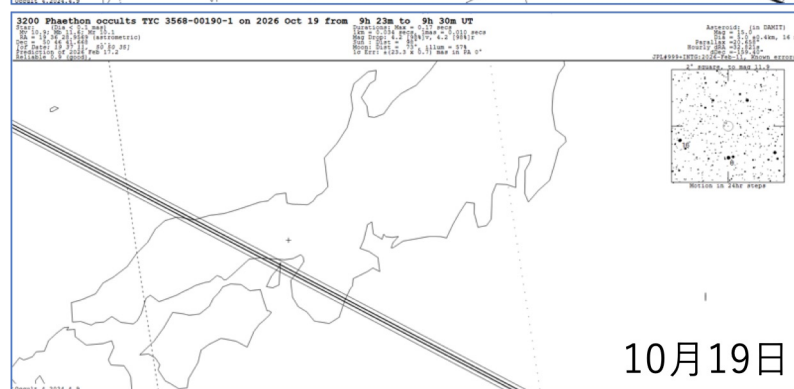
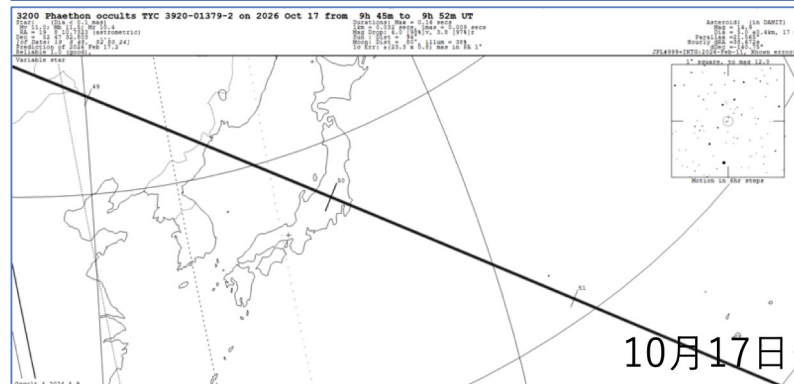
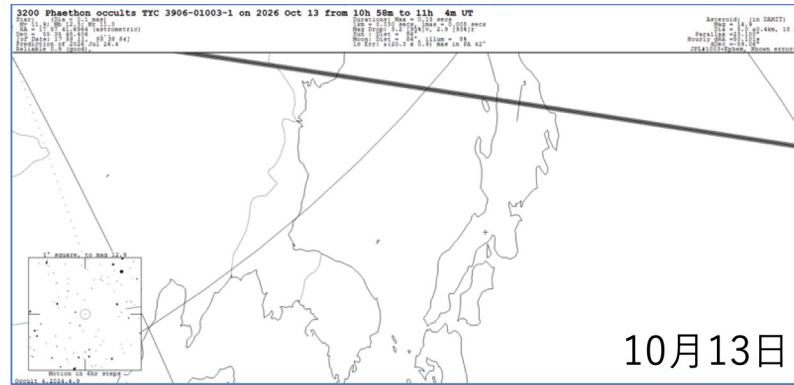
If we are able to collect data from the Phaethon occultation observation on November 5, let's analyze it together at the workshop.

掩蔽観測ワークショップ
2026年11月6日 10:00~17:00

@福岡市科学館

11月5日のフェートン掩蔽観測でデータを収集できた場合は、ワークショップで一緒に分析しましょう。

Observation Opportunities in 2026 2026年の観測機会



There are several other observation opportunities besides the campaign.

キャンペーン以外にも、観測の機会あり

There will be several observation opportunities before the IOTA/EA observation campaign, so hopefully we'll be able to capture Phaethon properly during this period.

These observations will improve the accuracy of Phaethon's orbit and allow us to set up our observation array to capture its full shape on 5 November.

IOTA/EA観測キャンペーンの前に、何度か観測の機会が設けられる予定ですので、この期間中にフェートンをしっかりと捉えられることを期待しています。これらの観測により、フェートンの軌道の精度が向上し、11月5日にその全体像を捉えるための観測体制を整えることができと思います。

10/13 フェンスー 8 ～ 8 と天体位置

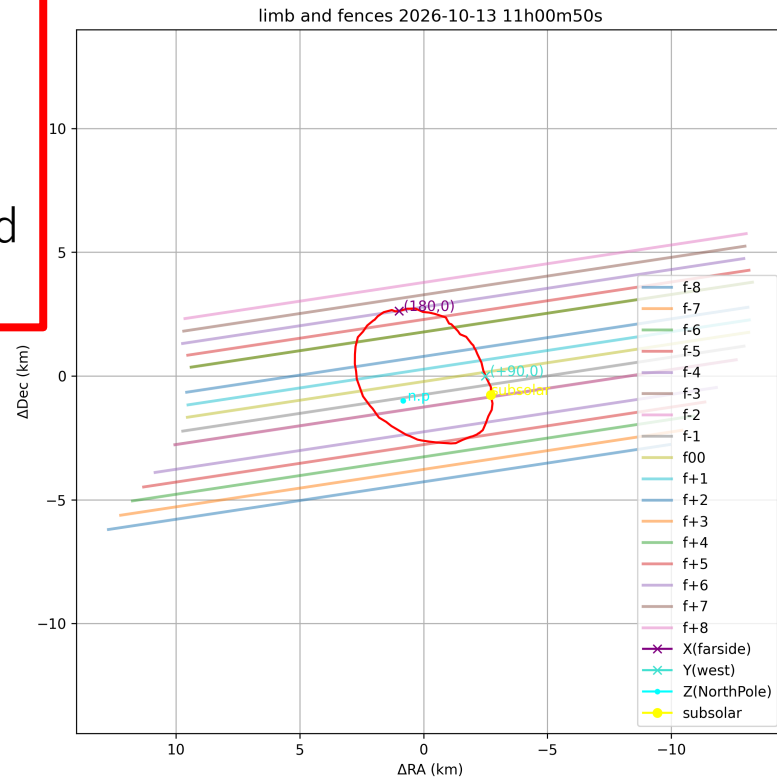
@ Sky Plane, 自転はMarshall準拠

10/13: Fences 8-8 and the Positions of Celestial Bodies

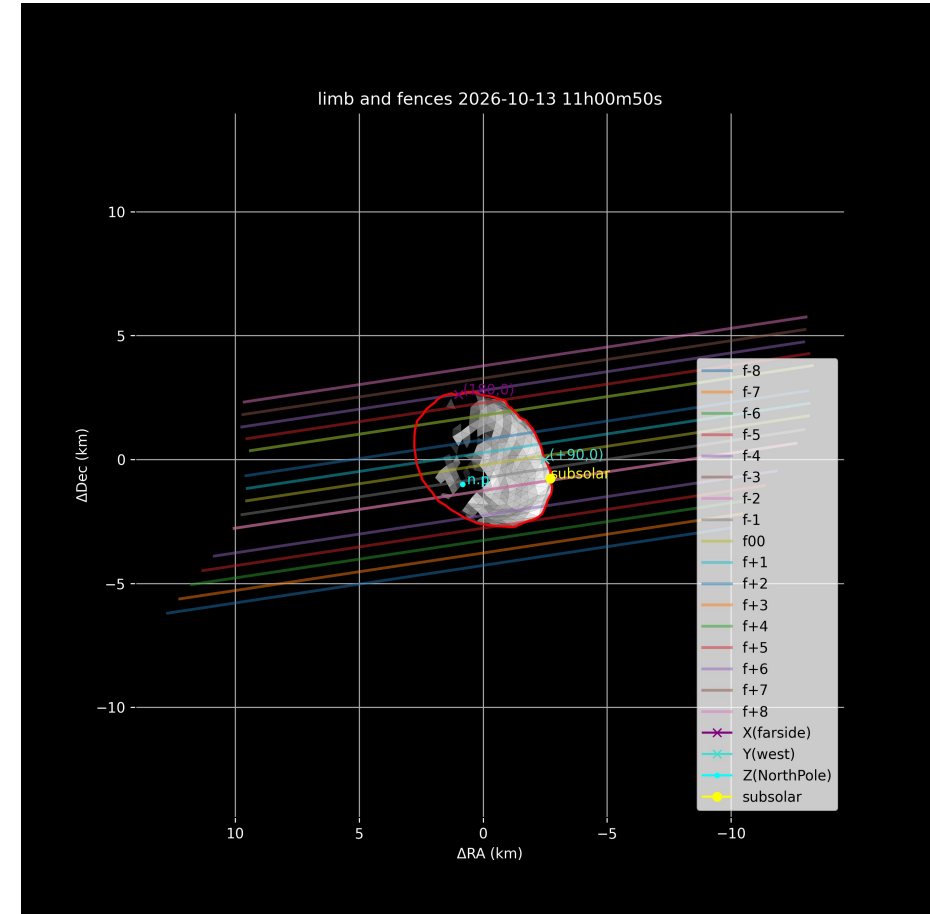
@ Sky Plane; rotation follows Marshall's standard

検出可能範囲： f-5からf+6

Hiroto
Noda-san
did the
calculations
and provided
them.



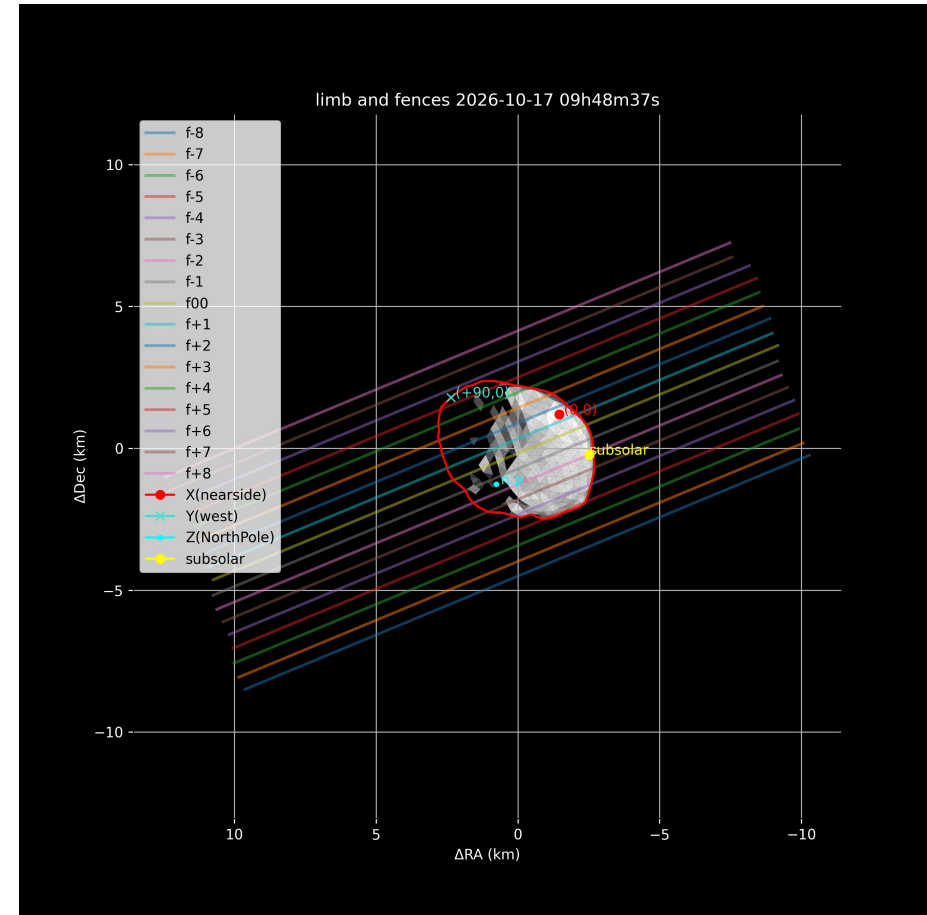
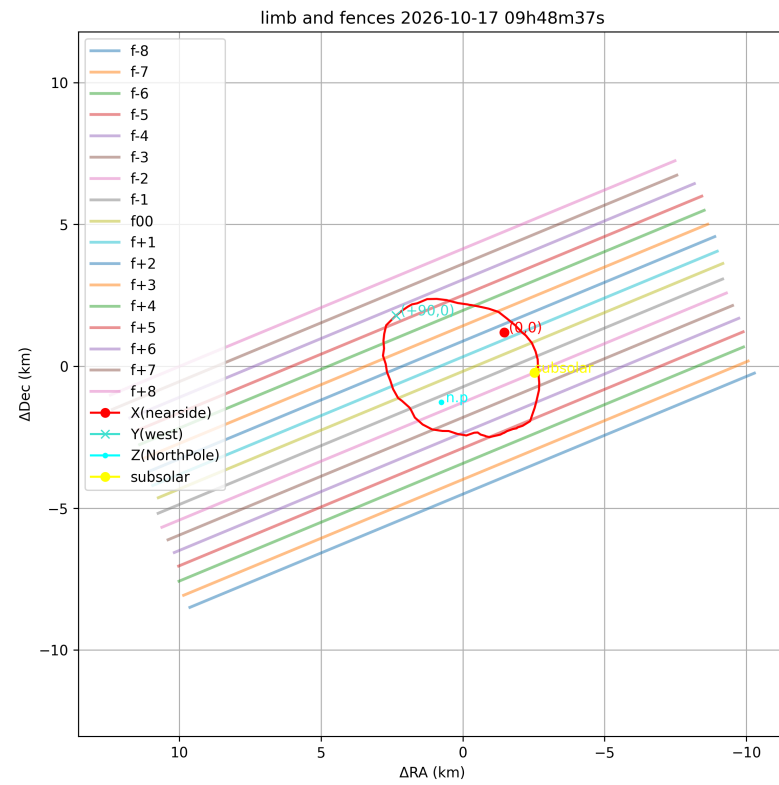
リム位置のみ



レンダリングあり

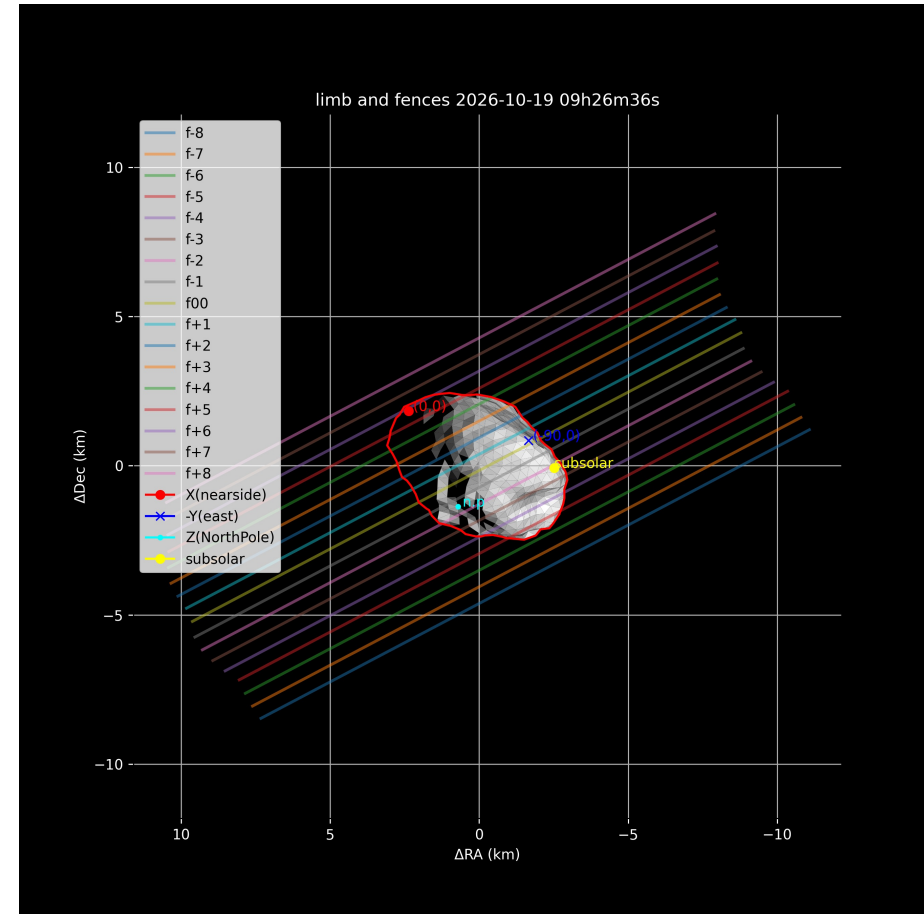
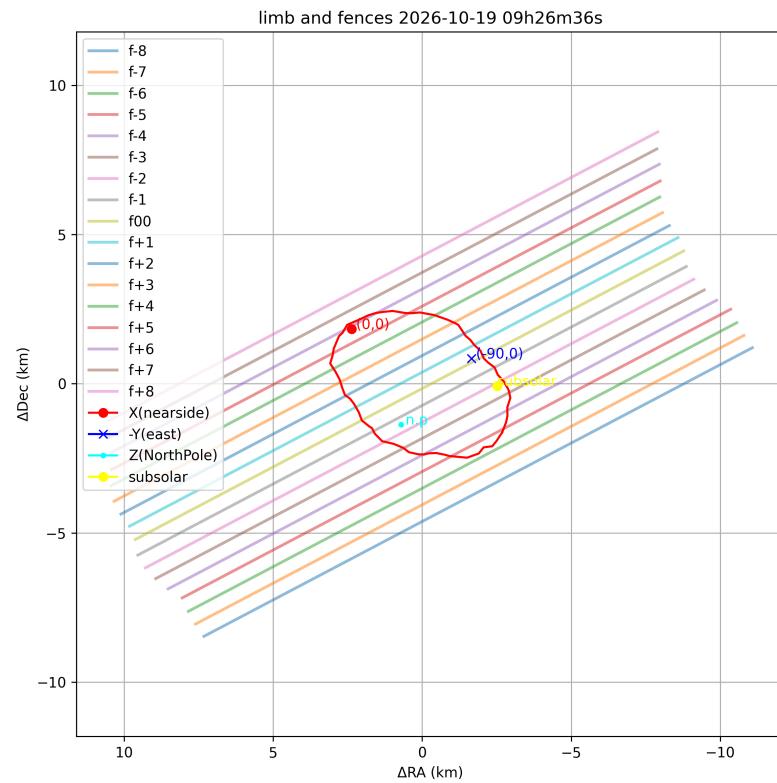
10/17

検出可能範囲：f-5からf+6



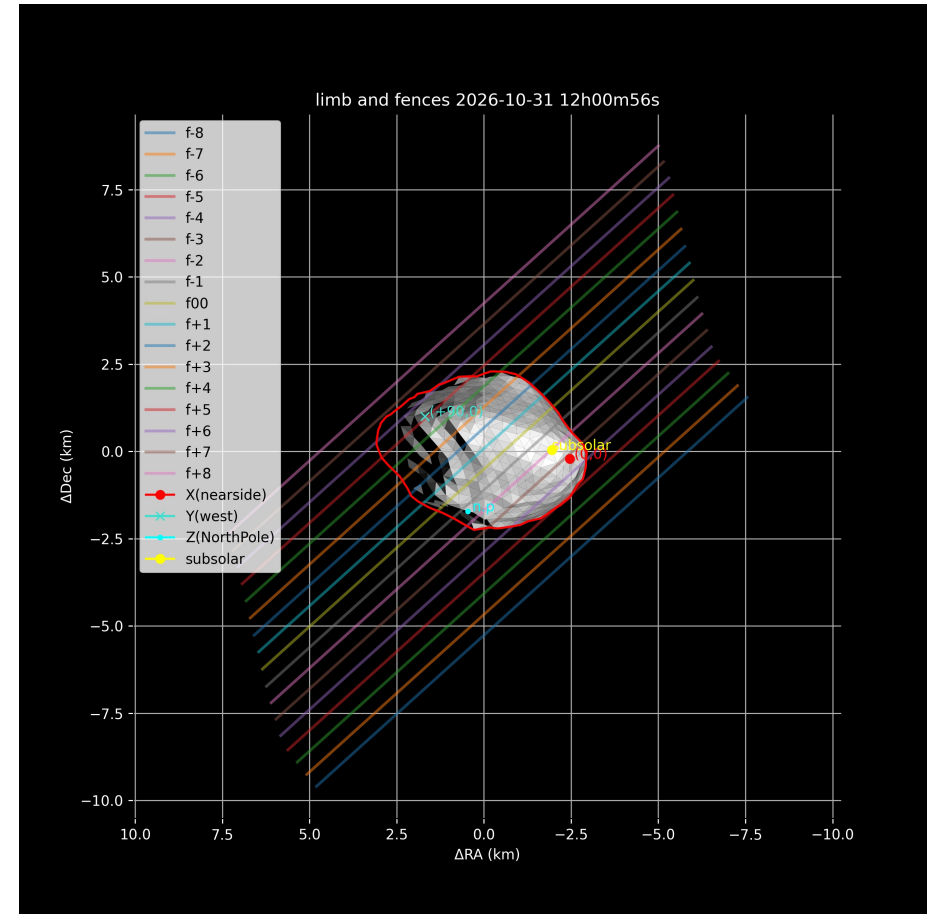
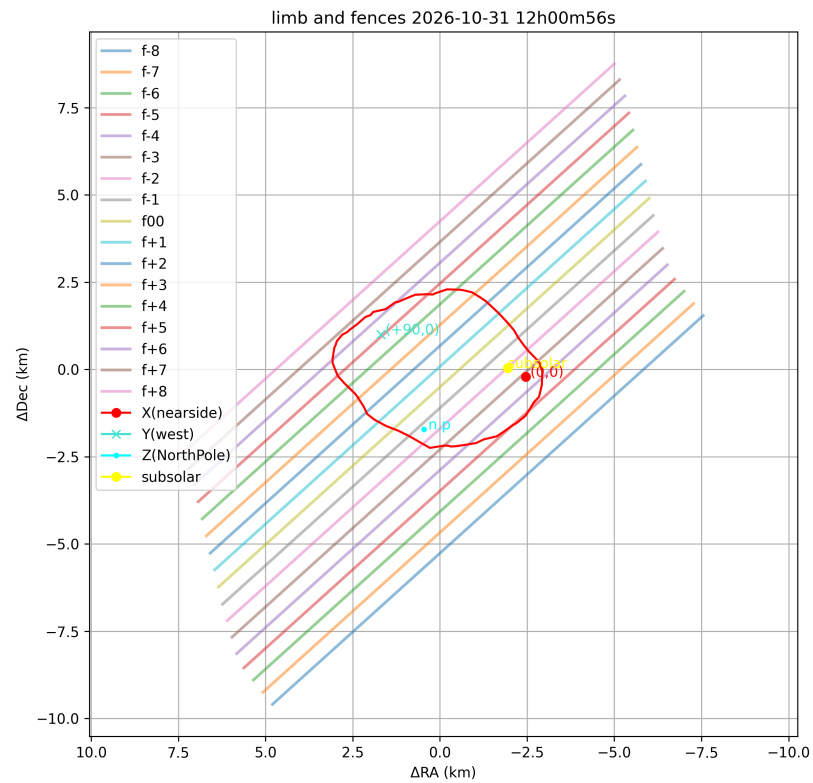
10/19

検出可能範囲：f-6?からf+6



10/31

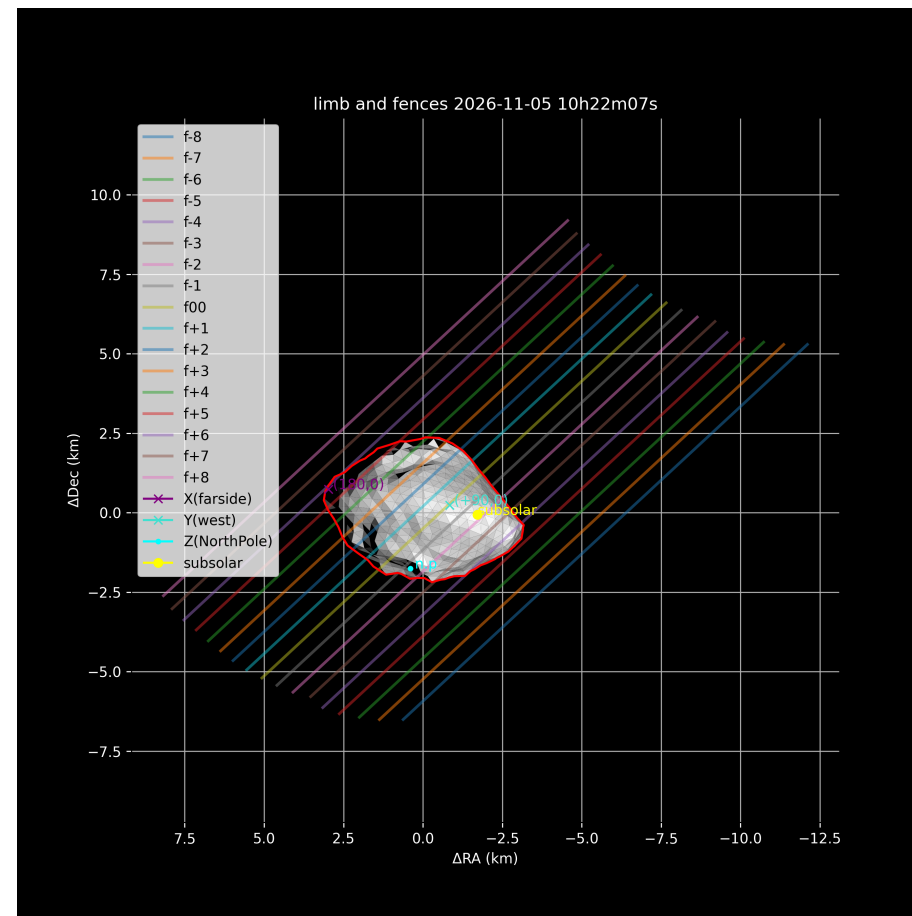
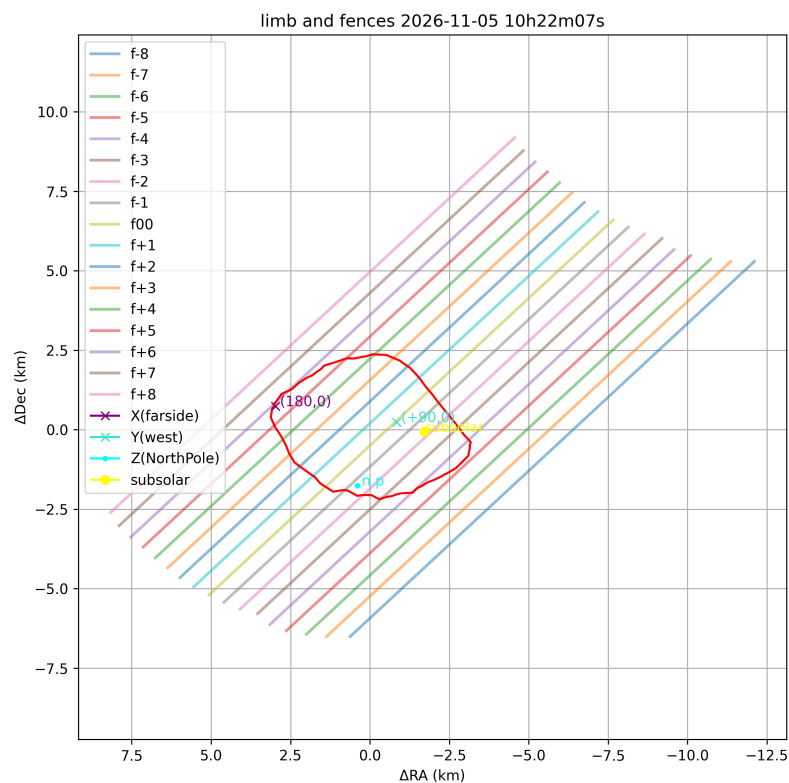
検出可能範囲：f-5からf+7?



11/5 IOTA/EAキャンペーン設定Event

11/5 IOTA/EA Observation Campaign Event

検出可能範囲：f-5?からf+6?



Call for Participants in the Observation Campaign and Workshop

観察キャンペーンおよびワークショップへの参加者募集

- Please register here ここから登録して下さい。

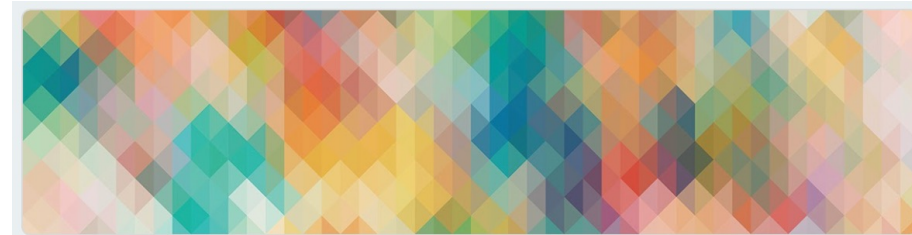
<https://forms.gle/6oGdCUEx6kuAgNzG6>

Workshop Content (TBD)

- Opportunities for observing the occultations of Phaethon and Apophis starting in 2027
- Points to consider when collecting high-precision occultation data
- High-precision analysis of occultation data
- List of observations to be undertaken by other IOTA/EA members

ワークショップの内容（未定）

- 2027年から始まるPhaethonとアポフィスの掩蔽を観測する機会
- 高精度な掩蔽データを収集する際の留意点
- 掩蔽観測データの高精度解析
- 他のIOTA/EAメンバーが実施予定の掩蔽観測リスト



Phaethon掩蔽観測キャンペーンと第8回掩蔽観測ワークショップの参加申し込みRegistration for the Phaethon Occultation Observation Campaign and the 8th Occultation Observation Workshop

開催日: 2026 年 11 月 5-6 日
開催地: 福岡市科学館 (福岡)
お問い合わせ: iota-ea_core@googlegroups.com
Dates: November 5-6, 2026
Venue: Fukuoka City Science Museum (Fukuoka)
Inquiries: iota-ea_core@googlegroups.com

名 First Name *

短文回答

姓 Family Name *

短文回答