



Damya SOUAMI  
(on behalf of the  
ACROSS team)

# ACROSS

## Asteroid Collaborative Research via Occultation Systematic Survey

The sudden disappearance of a star brings a wealth of information on small Solar System objects. ACROSS targets challenging stellar occultations. By exploiting the the immense accuracy of Gaia stellar data we can now predict and observe events by Near Earth Asteroids. Our projects support the DART and Hera missions, by targeting in particular occultations by the asteroid Didymos. The support of the amateur community and the organisation of specific campaign are at the core of our project.



Stellar occultations provide extremely accurate asteroid positions to study their dynamics. Check the [GOALS](#) of the ACROSS project.



How to obtain useful measurements? Which equipment do you need? We provide [TUTORIALS](#) for the observers.



Main events and tools to know where and when to observe. We compute optimized [PREDICTIONS](#) for our critical targets.



A summary of preliminary [RESULTS](#) obtained in the observation of occultations by Near Earth Asteroids.



News about the ACROSS project and quick updates on our campaign are provided by the [BLOG](#) pages.



Looking for contacts and the people behind the ACROSS project? Have a look here to the [TEAM](#).

<https://www.oca.eu/fr/home-across>

"Classical" high accuracy astrometry (10 - 20 mas)

To predict  
→  
occultations

leading to higher accuracy astrometry (mas level), sizes, shapes ...

### Targets:

- Didymos (before and after the DART impact)
- HERA's potentially flyby targets
- 35 NEAs of interest ( $\sigma_a < 1e-9$  AU and  $D > 0.5$  km).

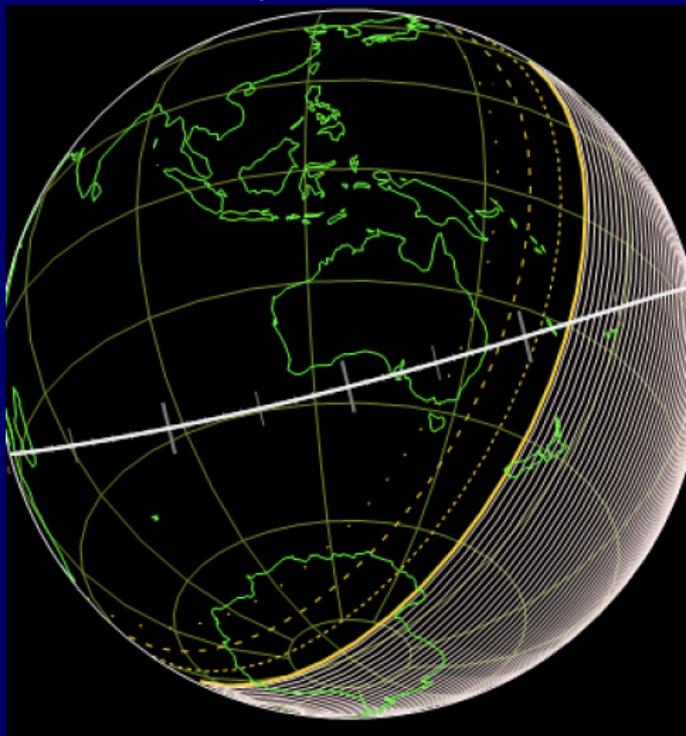
### Didymos' Astrometry –

- exploiting the DART Investigation Team data
- using the *Gaia*-GBOT (Ground Based Optical Tracking) astrometric pipeline

SBAG-27  
June 2022

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## Last "good" event before impact



Sept. 26<sup>th</sup> @~18h14 UT  
8.3 mag. star  
max duration: 0.15 s  
max drop: 6.3 mag.

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# THE ACROSS TEAM

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## Collaborators for the campaigns

