



PIAZZI 200

New frontiers in astrometry,
small bodies and technologies

Palermo, 30 Sep - 2 Oct 2026

The NOCTIS Project

A powerful resource for the Astronomical community

Carmelo Falco

INAF – Astrophysical Observatory of Catania

On behalf of the NOCTIS team



**Università
di Genova**

**UNIVERSITÀ
DELLA CALABRIA**



Outline

➤ **Introduction**

- What is NOCTIS?
- The network
- The power of multitude
- The telescopes

➤ **Research activity**

- Exoplanets
- High-energy transients
- Variable stars
- NEOs monitoring and discovery
- Scientific production

➤ **The mission to spread scientific knowledge**

- Public outreach activity
- Teaching and training activity

➤ **The next future**



Introduction



What is NOCTIS?

- **NOCTIS** (Coordinated Observational Network of Telescopes for Teaching and Science):
 - PRIN-MUR 2022 research project (PI: Tosi S.) started on **February 2025**;
 - **Three institutes**: University of Genoa, University of Calabria and National Institute of Astrophysics (INAF);



Newton telescope 30 cm
(Osservatorio Galileo Galilei)

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 - **Network of small-diameter telescopes** (30 cm – 80 cm) located throughout the Italian territory;
- **Aims:**
 - To perform **coordinated** astronomical observations;
 - To organise **public outreach** events and **teaching/training** opportunities.



Newton telescope 30 cm
(Osservatorio Galileo Galilei)

The network

- 4 institutes + 8 observatories:
 - University of Genoa
 - University of Calabria
 - INAF – Astronomical Observatory of Palermo
 - INAF – Astronomical Observatory of Brera
 - Oss. Astronomico Claudio Fantino at Felizzano
 - Oss. Astronomico Regionale Parco Antola at Fascia
 - Osservatorio Polifunzionale del Chianti at Florence
 - Oss. Astronomico Salvatore di Giacomo at Agerola
 - Osservatorio Galileo Galilei at Cariatì
 - ABObservatory at Rosarno
 - GAL Hassin – Osservatorio Astronomico Isnello at Palermo
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- We are **open to international partnerships!**



The power of multitude

- Why is NOCTIS a **powerful tool** for the Astronomical community?



The power of multitude

- Why is NOCTIS a **powerful tool** for the Astronomical community?
- **Wide range** of latitudes (from 37.4° N to 44.9° N) and longitudes (from 8.4° E to 17.0° E);
- Many instruments available **at the same time** allow us to:
 - Observe the same astrophysical target **simultaneously** and **independently** (i.e., more data and more control over instrumental systematics);
 - Overcome **observing problems** (e.g., adverse weather conditions, technical issues);
 - Encourage and strengthen **collaborations** among different institutions.



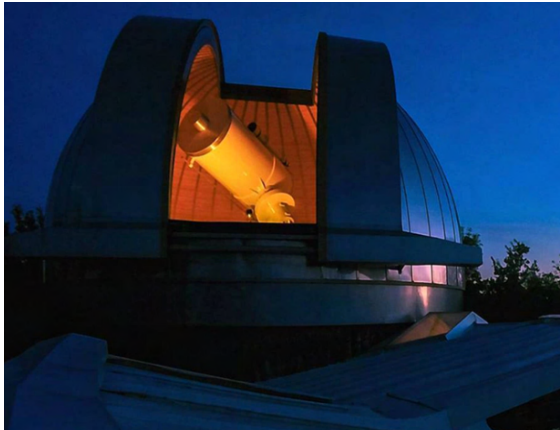
The telescopes



Oss. Astronomico Claudio Fantino (OCF) at Felizzano

Telescope: Newton GSO 30 cm
Camera: QHY163 M CMOS
Filters: LRGB, Ha, OIII

Telescope: Cassegrain-Nasmyth 80 cm
Camera: Sbig STX 16801 CCD
Filters: UBVRI Johnson, Ha



Oss. Polifunzionale del Chianti (OPC) at Florence

Telescope: Marcon 80 cm
Camera: Moravian G4 - KAF 09000 CCD
Filters: UBVRI Johnson

Telescope: Ritchey-Chretien 50 cm
Camera: FLI PL4240 CCD
Filters: BVRI Johnson-Cousins, RGB, Ha, OIII

Oss. Astronomico Regionale Parco Antola (OARPAF) at Fascia



Oss. Astronomico S. di Giacomo (OASDG) at Agerola

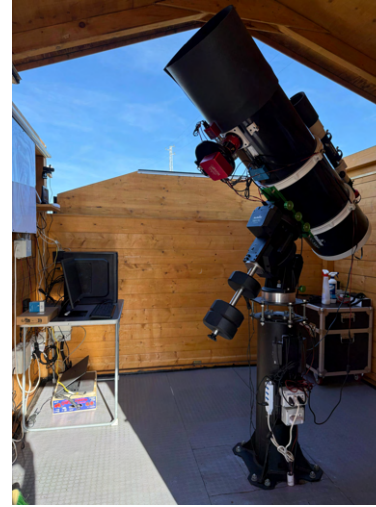


The telescopes



Osservatorio Galileo Galilei (OGG) at Cariati

Telescope: Newton 30 cm
Camera: QHY268 CMOS
Filters: r' Sloan, LRGB, Ha, OIII



ABObservatory (ABO) at Rosarno

Telescope: Newton 30 cm
Camera: Atik 383 L+ CCD
Filters: r' Sloan, LRGB, Ha, OIII



GAL-Hassin Oss. Astronomico Isnello (GRT) at Palermo

Telescope: Ritchey-Chretien 40 cm
Camera: Moravian sCMOS C4-16000
Filters: Sloan u'g'r'i'z-s', Ha, OIII, LRG



Oss. Astronomico della Sicilia Meridionale M. di Martino (OASM) at Comitini

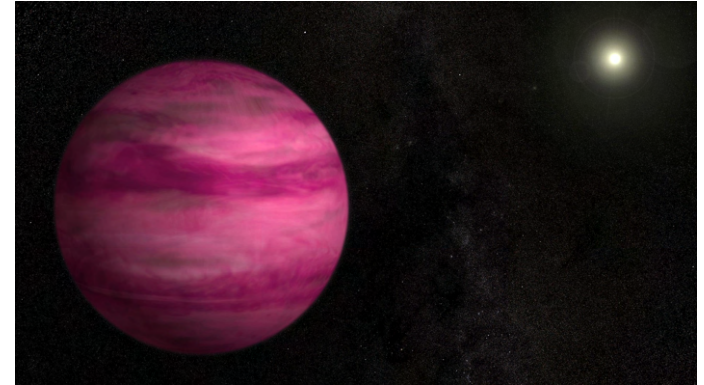
Telescope: 60 cm
Camera: FLI Proline 230-42 CCD
Filters: LRGB, Ha-OIII-SII

Research activity



Research activity

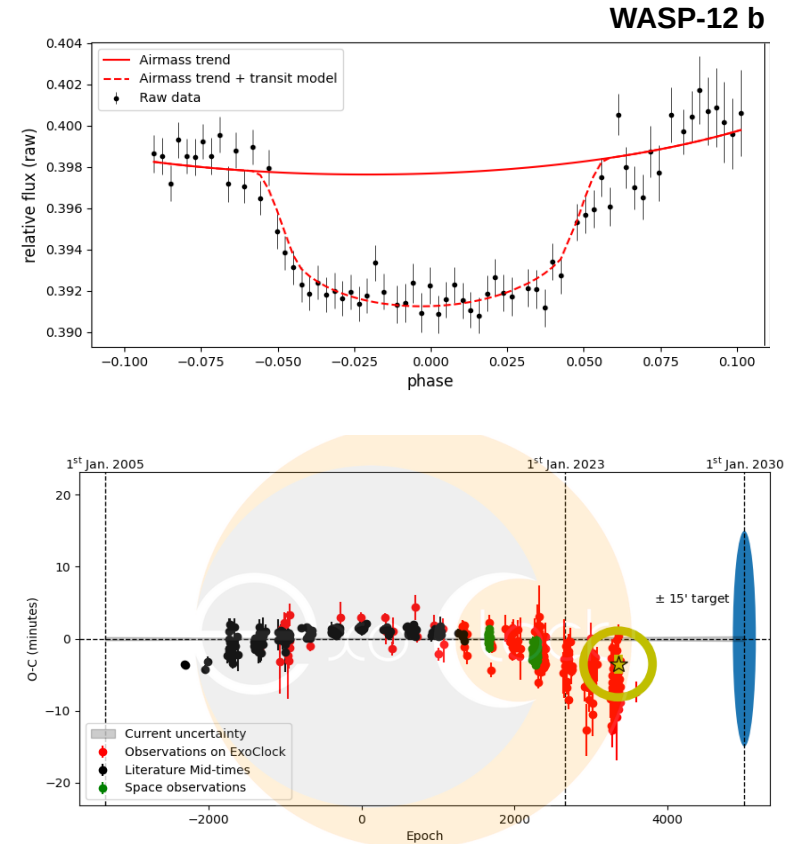
- NOCTIS is actively involved in **different** research areas.
- Main scientific targets:
 - Exoplanets;
 - High-energy transients (e.g., gamma-ray bursts, supernovae, fast radio bursts, and gravitational wave sources);
 - Stellar variability and activity cycles;
 - Near-Earth Objects (NEOs) and other minor bodies of the Solar System.



Credits:
Nasa/Goddard Space Flight Center/S. Wiessinger
NASA/Swift/Cruz deWilde

Exoplanets

- NOCTIS supports **cutting-edge science** in the field by:
 - Performing multi-band photometric observations of exoplanet **transits**;
 - Supporting the ExoClock project (to refine transit ephemerides and orbital parameters for the Ariel mission) and the TFOP project (to confirm TESS candidates);
 - Searching for **transit-timing variations** (TTVs) to discover new planets or study their orbital evolution;
 - Supporting observations at the Telescopio Nazionale Galileo for the GAPS project (e.g., atmospheric studies);
 - Monitoring **stellar activity** over long time periods.



Data from the ABObservatory
(A. Brosio, for the NOCTIS collaboration)

High-energy transients

- **Follow-up observations** of high-energy transients notified by satellites (e.g., Fermi, Swift):
 - Photometric observations of **gamma-ray burst** afterglows;
 - Monitoring the light curve of **supernova** explosions;
 - Observations of the optical counterpart (source) of **gravitational wave** events.
- Our observations have been published in several **NASA GCN circulars**.

**General Coordinates Network**

Missions Notices **Circulars** Documentation Sign in / Sign up

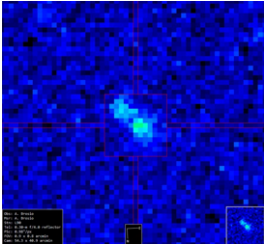
New! BOOM Notices and Schema v7.0.0. See [news and announcements](#)

[← Back](#) [Text](#) [JSON](#) [Cite](#) [Edit](#)

GCN Circular 44067

Subject GRB 260310A / AT2026fgk: ABObservatory and NOCTIS new optical observations
Event [GRB 260310A](#)
Date 2026-03-21T11:45:32Z (3 months ago)
From A. Brosio at ABObservatory Rosarno <antonino.brosio@gmail.com>
Via Web form

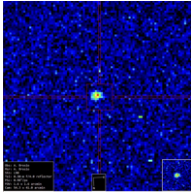
A. Brosio (ABObservatory Rosarno), M. A. Tripodi (ABObservatory Rosarno), S. Savaglio (Università della Calabria), S. Benatti (INAF - Osservatorio Astronomico di Palermo), M. Basilicata, M. Rainer (INAF - Osservatorio Astronomico di Brera), S. Tosi (Università di Genova), A. Di Dato (INAF - Osservatorio Astronomico di Capodimonte), D. Liguori (Osservatorio "G. Galilei", Liceo Scientifico Cariatì), A. Nastasi (GAL Hassin, Isnello), E. Pace, R. Stanga, L. Betti (Università di Firenze - Osservatorio Polifunzionale del Chianti), D. Ricci (INAF - Osservatorio Astronomico di Padova) and the NOCTIS Collaboration report:



GCN Circular 42251

Subject GRB 251013C: ABObservatory optical observations
Event [GRB 251013C](#)
Date 2025-10-14T10:53:56Z (8 months ago)
Edited On 2026-05-01T17:55:12Z (a month ago)
From A. Brosio at ABObservatory Rosarno <antonino.brosio@gmail.com>
Edited By Vidushi Sharma at NASA GSFC/UMBC <vidushi.sharma@nasa.gov> on behalf of A. Brosio at ABObservatory Rosarno <antonino.brosio@gmail.com>
Via Web form

A. Brosio (ABObservatory Rosarno), M. A. Tripodi (ABObservatory Rosarno), S. Savaglio (University of Calabria), G. Bracco, P. Cianfarra, L. Sangaletti, S. Tosi & S. Zappatore (University of Genoa), S. Benatti & M. G. Guarcello (INAF Palermo), L. Cabona, M. Rainer, F. M. Zerbi, M. Basilicata (INAF Brera), D. Ricci (INAF Padova), A. Di Dato (INAF Capodimonte), S. Masiero & A. Nastasi (GAL Hassin), D. Liguori (Osservatorio "G. Galilei" Cariatì), L. Betti (Osservatorio Polifunzionale del Chianti), R. Nesci (Associazione Astronomica Antares APS di Foligno), for the NOCTIS team report

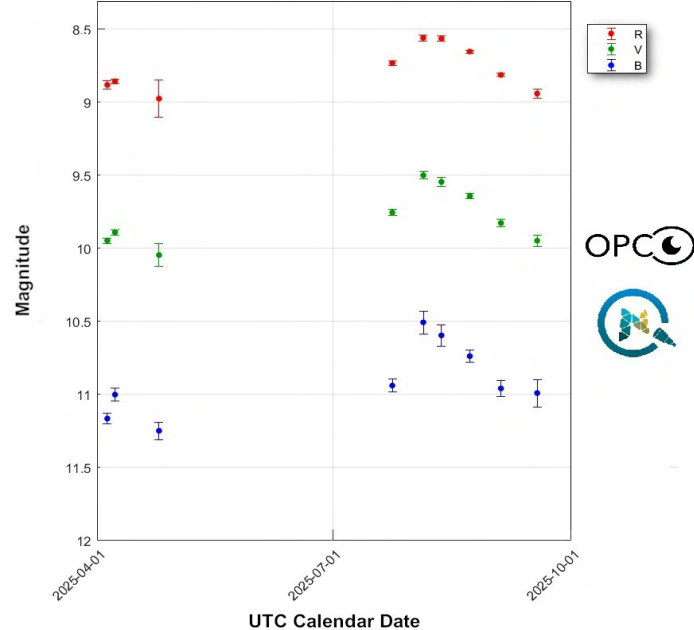


Data from the ABObservatory
(A. Brosio, for the NOCTIS collaboration)

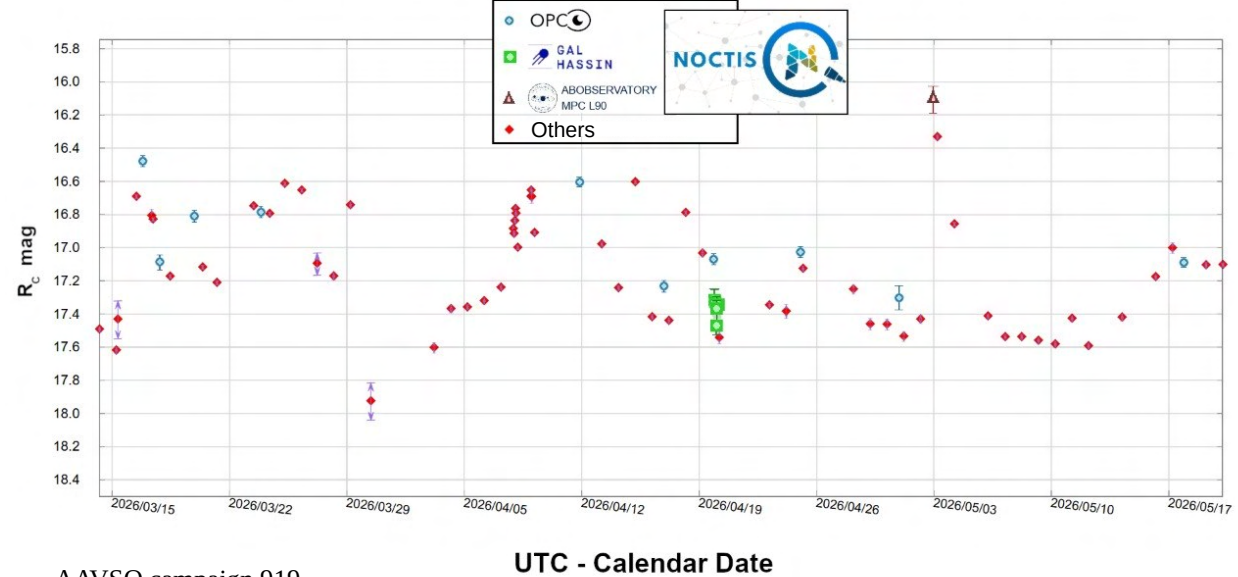
Variable stars

- Photometric monitoring of the light of variable stars (e.g., novae, luminous blue variables, cataclysmic variables, stellar activity);
- Participate in several **AAVSO observing campaigns**.

TCrB Photometry (2025)



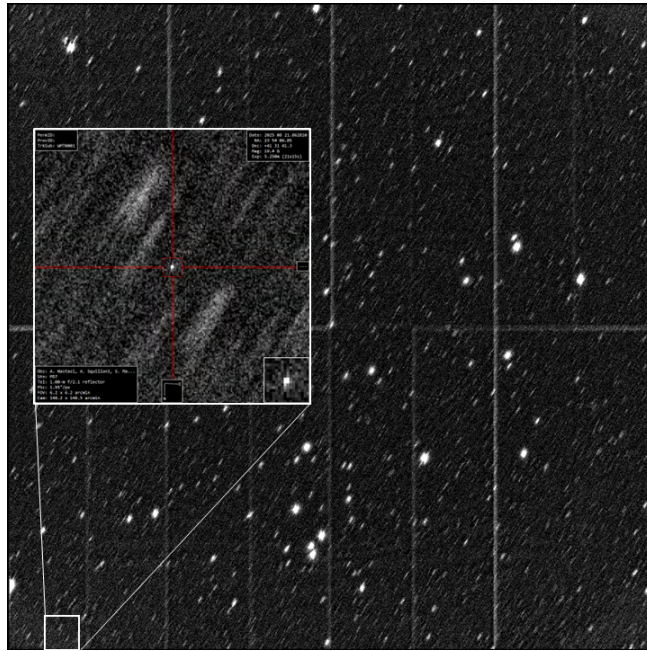
PSN J12355230+2755559 (AT2016blu) Photometry



Data from the Osservatorio Polifunzionale del Chianti, GAL-Hassin, ABObservatory (L. Betti, A. Nastasi, A. Brosio, et al., for the NOCTIS collaboration)

NEOs monitoring and discovery

- NEOs monitoring (in particular with the **GAL-Hassin**/Wide-Field Mufara Telescope, $d = 1$ m, IAU code: M57);
- The 1st NEO discovered from Italy after **19 years** (the 1st discovered from Sicily **ever**): **2025 QK3**;
- **A second** NEO discovered in 2025: **2025 VA3**.



	2025 QK3	2025 VA3
Asteroid class	Near Earth Asteroid	Near Earth Asteroid
Size	50 m	25 m
Distance from Earth at discovery date	7 millions of km	5 millions of km
Orbital period	0.6 years	0.9 years
Discovery date	21 August 2025	12 November, 2025

Data from the GAL-Hassin Observatory (A. Nastasi et al., for the NOCTIS collaboration)

Scientific production

- Published results:
 - WASP-12 b exoplanet transit light curve published on ExoClock;
 - GRB 250129A afterglow, NASA GCN 39213;
 - GRB 250625A afterglow, NASA GCN 40839;
 - SN 2025rbs photometric observation, published on AAVSO;
 - GRB 251013C afterglow, NASA GCN 42251;
 - K2-115 b exoplanet transit light curve published on ExoClock;
 - GRB 260310A afterglow, NASA GCN 44021;
 - GRB 260310A afterglow, NASA GCN 44067;
 - T CrB nova photometric monitoring (April-October 2025), published on AAVSO, Campaign 875;
 - AT 2016blu photometric monitoring (March-May 2026), published on AAVSO, Campaign 919;
- Requested observing time:
 - Photometric observation of 3 exoplanet transit light curves (D'Arpa et al., in prep.);
 - Photometric monitoring of stellar activity for a sample of Ariel targets (PI: Benatti S.);
- Tosi, S. et al., *“The NOCTIS Project: a powerful resource for the Astronomical community”* (in prep.);
- **If you need NOCTIS observing time, please feel free to contact me!**
mario.basilicata@inaf.it

The mission to spread scientific knowledge



Public outreach activity

- NOCTIS organises and is involved in several public outreach activities:

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- A **monthly event** in live streaming on our official YouTube channel *@progetto.noctis* (talks by **experts** in different fields of Astronomy, Astrophysics, and space science + **online astronomical observations**);



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 - Thematic seminars and activities for **special events** and **recurrences** (e.g., 30 years of exoplanets);

Logo NOCTIS, INAF, and PRIN

Venerdì 3 ottobre 2025 dalle 18:30

30 anni di esopianeti

Il progetto NOCTIS celebra i 30 anni dalla scoperta del primo esopianeta, 51 Pegasi b, con due brevi seminari e una serata osservativa al telescopio

h. 18:30
30 anni di esopianeti
Monica Rainer (INAF-Osservatorio Astronomico di Brera)

h. 19:15
ArduExoPlanet:
modelli didattici per lo studio degli esopianeti
Antonino Brosio (ABObservatory Rosarno)
Domenico Liguori (Osservatorio G. Galilei - Liceo Scientifico Cariatì)

A seguire, osservazioni del cielo notturno con i telescopi del progetto NOCTIS

Oltre che in presenza, i seminari e le osservazioni con i telescopi di ABObservatory di Rosarno (RC) e Osservatorio G. Galilei del Liceo Scientifico Cariatì (CS) con il commento di Sandra Savaglio dell'Università della Calabria possono essere seguiti in diretta sul canale YouTube **@progetto.noctis**

Per maggiori dettagli, e per l'elenco delle sedi, seguite le nostre pagine social e il sito <https://noctis.inaf.it>

YouTube: @progetto.noctis, Facebook: Noctis, Instagram: @noctis.telescopi

Logos: Università di Genova, Università della Calabria, INAF

Credit: C. Carreau/ESA

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 - Attendance at astronomical **public events** and at Astronomy lectures and **courses** for the general public (e.g., “White night” at Morozzo, “Training and updating course in Astronomy and Astrophysics” – Turin);



NOCTIS contribution at the
“White night” at Morozzo
14 June 2026

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- We are active on **social media** (i.e., YouTube, Instagram, Facebook) to engage with people outside the academic environment.



YouTube:
@progetto.noctis



Instagram:
@noctis.telescopi



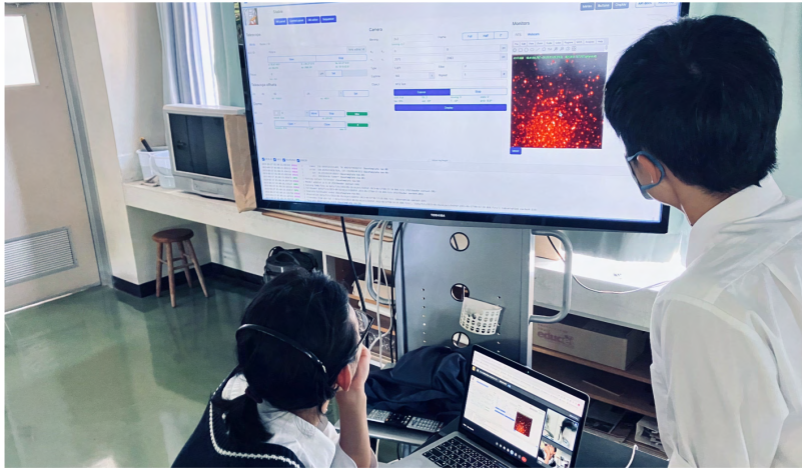
Facebook:
Noctis



Website:
<https://noctis.inaf.it>

Teaching and training activity

- NOCTIS organises teaching and training activities for students at different stages of education:
 - **International activities** with schools and local associations;



High school students from Japan operating the OARPAF telescope from their class, in their daytime.



Kids from favelas in Brasil operating the OARPAF telescope, hosted by a local Association.

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 - Three masterclasses (March-May 2026) aimed at **high-school** students (**first masterclass to be held simultaneously in different cities across Italy**);
 - **Ph.D. school** open to the **international** scientific community (end of 2026, *work in progress*).



The next future



The next future

- The NOCTIS project is growing up quickly and a lot of work is already underway:
 - The **website** is ready (<https://noctis.inaf.it>);
 - We developed a Python module (“*NOCHE*”) to add **common keywords** in FITS headers of all the data produced by NOCTIS (written and tested by D. Ricci, INAF – Astronomical Observatory of Padua);
 - We started a **partnership** with the **EASST** (European Astronomical Society of Small Telescopes);
 - We are setting up a **data archive** on the IA2 server at the INAF - Italian Center for Astronomical Archives (ready by the end of summer);
 - We are **expanding** the network (2 new observatories joined us in the last 3 months);
 - We are organising an **international Ph.D. school** and new masterclasses.

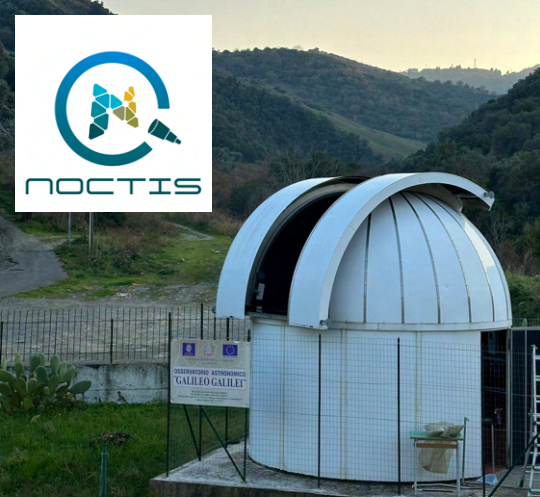
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- **Open to new collaborations!**
- Please, feel free to contact me at mario.basilicata@inaf.it or at noctis.info@inaf.it

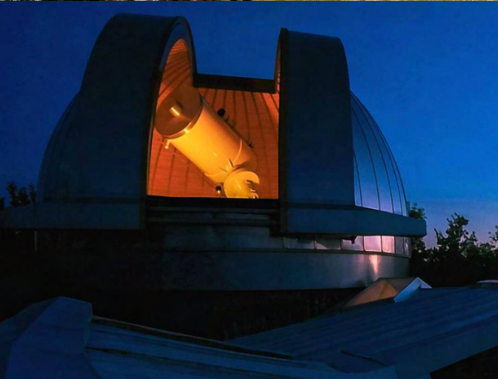
Who is NOCTIS?

➤ The Team:

- **Bracco, G.; Cianfarra, P.; Sangaletti, L.; Tosi, S.; Zappatore, S.** - Università di Genova;
- **Savaglio, S.** - Università della Calabria;
- **Benatti, S.; Guarcello, M. G.** - INAF - Osservatorio Astronomico di Palermo;
- **Basilicata, M., Cabona, L.; Rainer, M.; Zerbi, F. M.** - INAF - Osservatorio Astronomico di Brera, sede di Merate;
- **Ricci, D.** - INAF - Osservatorio Astronomico di Padova;
- **Fantino, C.** - Osservatorio Astronomico Claudio Fantino, Felizzano;
- **Zerbi, D.** - Osservatorio Astronomico Regionale Parco Antola, Fascia;
- **Betti, L.; Calamai, C.; Fossi, L.; Michelagnoli, M.; Pace, E.; Parenti, I.; Stanga, R.** - Osservatorio Polifunzionale del Chianti, Firenze;
- **Di Dato, A.** - INAF - Osservatorio Astronomico di Capodimonte; Osservatorio Astronomico Salvatore di Giacomo, Agerola;
- **Liguori, D.** - Osservatorio "G. Galilei" Liceo Scientifico, Cariati;
- **Brosio, A.** - ABObservatory, Rosarno;
- **Masiero, S.; Nastasi, A.** - GAL Hassin - Centro Internazionale per le Scienze Astronomiche, Isnello;
- **Falco, C.** - Osservatorio Astronomico della Sicilia Meridionale "Mario di Martino", Comitini;



THANK YOU
FOR THE
ATTENTION



VERY SPECIAL EVENT!

Save the date:

19 September 2026

Carolyn Porco

(University of Colorado Boulder, USA)

at the Civic Planetarium of Milan



You will find more details and updates on our social media channels and website soon!

