CAHA

Centro Astronómico Hispano en Andalucía

Annual Report
2025



CSIC · Junta de Andalucía · IAA Instituto de Astrofísica de Andalucía · ICTS Infraestructuras Científicas y Técnicas Singulares

www.caha.es

CAHA Annual report 2025
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Credit: CAHA

Presentación Institucional

2025 fue un año de intensa actividad científica, tecnológica e institucional para Calar Alto. A lo largo del año, el observatorio siguió prestando un servicio fiable y competitivo a la comunidad astronómica, registrando un tiempo de inactividad técnica inferior al 2 % en sus dos telescopios de mayor tamaño y sumando 135 publicaciones revisadas por pares basadas en datos obtenidos en sus instalaciones.

Asimismo, se alcanzaron varios hitos tecnológicos importantes. El instrumento PANIC volvió a estar operativo con su nuevo detector infrarrojo 4K, el demostrador tecnológico MARCOT Pathfinder confirmó el potencial de las matrices de telescopios modulares y la creación del Laboratorio conjunto de Astrofotónica CAHA-IAA-CSIC abrió una nueva línea de desarrollo tecnológico para el observatorio. Paralelamente, las mejoras realizadas en CARMENES y en el telescopio Schmidt reforzaron las capacidades científicas de unas instalaciones que siguen ofreciendo resultados excelentes.

Más allá de la producción científica, Calar Alto mantuvo un firme compromiso con la formación y la sociedad. El observatorio albergó la Escuela de Observación NEON, recibió a estudiantes de universidades de toda Europa, apoyó numerosas actividades educativas y de divulgación, y acogió a más de 4400 visitantes.

Ninguno de estos logros habría sido posible sin la dedicación del personal de CAHA y el apoyo continuo de nuestros socios, colaboradores y comunidad de usuarios. Su esfuerzo conjunto permite a Calar Alto preservar las fortalezas consolidadas a lo largo de más de cinco décadas, al tiempo que continúa desarrollando los instrumentos, las tecnologías y las oportunidades científicas que definirán su futuro.

Jesús Aceituno
Director of CAHA

Institutional Presentation

2025 was a year of intense scientific, technological and institutional activity for Calar Alto. Throughout the year, the observatory continued to provide a reliable and competitive service to the astronomical community, with technical downtime below 2% at our two largest telescopes and 135 peer-reviewed publications based on data obtained at our facilities.

Several important technological milestones were also achieved. PANIC returned to operation with its new 4K infrared detector, the MARCOT Pathfinder further demonstrated the potential of modular telescope arrays, and the establishment of the joint CAHA–IAA-CSIC Astrophotonics Laboratory opened a new line of technological development for the observatory. At the same time, upgrades to CARMENES and the Schmidt telescope strengthened the scientific capabilities of facilities that continue to deliver excellent results.

Beyond scientific production, Calar Alto maintained a strong commitment to training and society. The observatory hosted the NEON Observing School, welcomed students from universities across Europe, supported numerous educational and outreach activities, and received more than 4,400 visitors.

None of these achievements would have been possible without the dedication of the CAHA staff and the continued support of our partners, collaborators and user community. Their combined effort allows Calar Alto to preserve the strengths built over more than five decades while continuing to develop the instruments, technologies and scientific opportunities that will shape its future.

Jesús Aceituno
Director of CAHA



Credit: Samuel Góngora García / CAHA

Preface

The Centro Astronómico Hispano en Andalucía (CAHA) is an Economic Interest Group (AIE) whose main goal is the management of the Calar Alto Astronomical Observatory, a key institution for the international astronomical community, hosting highly competitive facilities.

Being heir to the original Centro Astronómico Hispano Alemán (also called CAHA) that started its trajectory in 1973 after the signature of an international agreement between the German and Spanish governments, CAHA has gone through different legal statuses until nowadays.

Since 2019, CAHA is co-partnered by the Spanish National Research Council (CSIC), and the Junta de Andalucía (JdA).

The Instituto de Astrofísica de Andalucía (IAA-CSIC), accredited as a Severo Ochoa centre of excellence by the Spanish Ministry of Science and Innovation, plays the role of the reference institute of CAHA, advising on the scientific and technological strategy.

Calar Alto is located in the Sierra de los Filabres, in the province of Almería, at an altitude of 2168 m, and divides its land between the municipalities of Gérgal, Bacares and Serón.

CAHA is governed by an Executive Committee (EC) composed or representatives of CSIC and JdA, in accordance with the statutes of the AIE. A Scientific Advisory Committee (SAC) composed of six international renowned astronomers provides advice on scientific and technological issues like the selection of new long-term legacy projects and new instrumentation. Finally, a Time Allocation Comittee (TAC) composed of six senior international astronomers meets twice per year to evaluate the Open Time observing proposals.

The CAHA staff is organized in six departments that carry out all the tasks required for a regular and efficient operation of the observatory, and a Project Office, established in 2024, running through all CAHA departments.

CAHA
Organizational chart *

1 male

Direction
J. Aceituno

1female/ 1 male

Administration
Head of Department: M.I. López
Administrative staff: P. Barthe

3 female/ 9 male

Astronomy
Head of Department: J. Iglesias
Support Astronomers: M. Azzaro, G. Bergond, A. Guijarro, I. Rodríguez,
Technical Astronomers: J.F. Agüí, M. Blazek, A. Fernández, J. Flores, S. Góngora, M. Sánchez, J.I. Vico

1 female/ 4 male

Computer
Head of Department: E. de Guindos
Technical staff: E. de Juan, J. Gallego, R. Hernández, J.M. Hernández

7 male

Electronics
Head of Department: L. Hernández
Technical staff: D. Benítez, J. Helmling, F. Hernández, J.F. López, H. Magán, J. Marín

6 male

General Maintenance
Head of Department: R. Fernández
Technical staff: M. González, F. Márquez, M.A. Peñalver, J. Vega-Leal, J.A. Yélamos

6 male

Mechanics
Head of Department: S. Reinhart
Technical staff: E. Castillo, J. Espinar, J. García, J.A. García, M. Pineda

1 male

Project Office
S.Cikota

4 female/ 2 male

Executive Committee
A.M. Posadas
(Chair, General Secretary of Research and Innovation, JdA)
C. Closa
(Vicepresident of Organization of Institutional Relations, CSIC)
M. Paneque
(Institutional Delegate of CSIC in Andalusia)
O. Muñoz
(Director of IAA-CSIC)
L. del Valle
(General Director of Research Planification, JdA)
C. Muñoz-Tuñón
(Professor at IAC, JdA)

4 female/ 2 male

Scientific Advisory Committee
F. Comerón
(Chair, European Southern Observatory, Germany)
C. Adami
(Laboratoire d'Astrophysique de Marseille, France)
D. Coffey
(University College Dublin, Ireland)
G. Hussain
(European Space Agency, Spain)
C. Moutou
(Observatoire Midi-Pyrénées, France)
A. Pasquali
(University of Heidelberg, Germany)

3 female/ 3 male

Time Allocation Committee
J.C. Suárez
(Chair, University of Granada, Spain)
M. Mezcua
(Instituto de Ciencias del Espacio, ICE-CSIC, Spain)
P. Gutiérrez
(Instituto de Astrofísica de Andalucía, IAA-CSIC, Spain)
L. Izzo
(Niels Böhr Institute Copenhaghen, Denmark)
C. Danielski
(Universidad de Valencia, Spain)
Y. Jiménez
(Instituto de Astrofísica de Andalucía, IAA-CSIC, Spain)

* Composition of the CAHA active staff and committees as of December 31st 2025

Internal organization

Main tasks of the CAHA departments:



Astronomy department

Manage the schedule of the telescopes. Contact the astronomers to prepare the details of the observations. Setup the instruments and perform day-time calibrations. Perform the night-time observations in service mode or assist the visitor astronomers. Survey the small telescopes and monitors of the sky quality.



Computer department

Manage and maintain the computer systems and networks of the observatory. This involves ensuring the proper functioning of servers, workstations, and other equipment, as well as ensuring reliable and secure connectivity for data transfer. Implementation of security measures, such as firewalls, data encryption and access policies, to safeguard information and prevent cyberthreats.



General Maintenance department

Taking care of the heating and cooling rooms, the electrical transformation station, the diesel generator, the fire-prevention equipment, the snowplow and the photovoltaic panel park.



Mechanics department

Maintenance, repair and update of the mechanical, hydraulic, pneumatic, electromechanical, cryogenic and vacuum parts of the CAHA facilities and instrumentation. Disassembly, cleaning, aluminization, and assembly processes of the optical elements of the telescopes and diverse equipment at CAHA.



Administration department

Management of the purchases, invoicing, payments, coordination of agreements and contracts, supervision of external catering, cleaning and human resources services, compliance of the hygiene plan; all this in close collaboration with the rest of the departments, to ensure a competent and efficient operation of the observatory.

Electronics department

Maintenance and repair of all electronic and electromechanical facilities of telescopes, domes and instruments, including uninterrupted power supplies, hydraulic systems, production of liquid nitrogen, telephone system and weather station.

Project office

Coordination and management of the CAHA instrumental projects, including planning and proposal submission, execution and final reporting. It also coordinates activities with external partners, and is the main point of contact for handling administrative tasks associated to the projects.


Credit: CAHA

Main facilities

CAHA owns four telescopes with primary mirror diameter larger than 1 m: the **1.23 m telescope** (1975), the **Schmidt telescope** (1980), the **2.2 m telescope** (1979), and the **3.5 m telescope** (1984). Also present in the vicinities is a **1.52 m telescope**, owned by the Instituto Geográfico Nacional, and operated by the Observatorio Astronómico Nacional.

In addition to these large telescopes, CAHA hosts other **small telescopes** and a **weather station** devoted to monitor the sky and atmospheric quality at the observatory.

Instrumentation

CAHA offers a large variety of instruments for its telescopes, combining capacities for imaging and spectroscopy, in the visible and in the Near Infra-Red ranges. Below follows a list of the instruments offered during:

semester 25A (January 1st to June 30th)
semester 25B (July 1st to December 31st).

1.23 m telescope

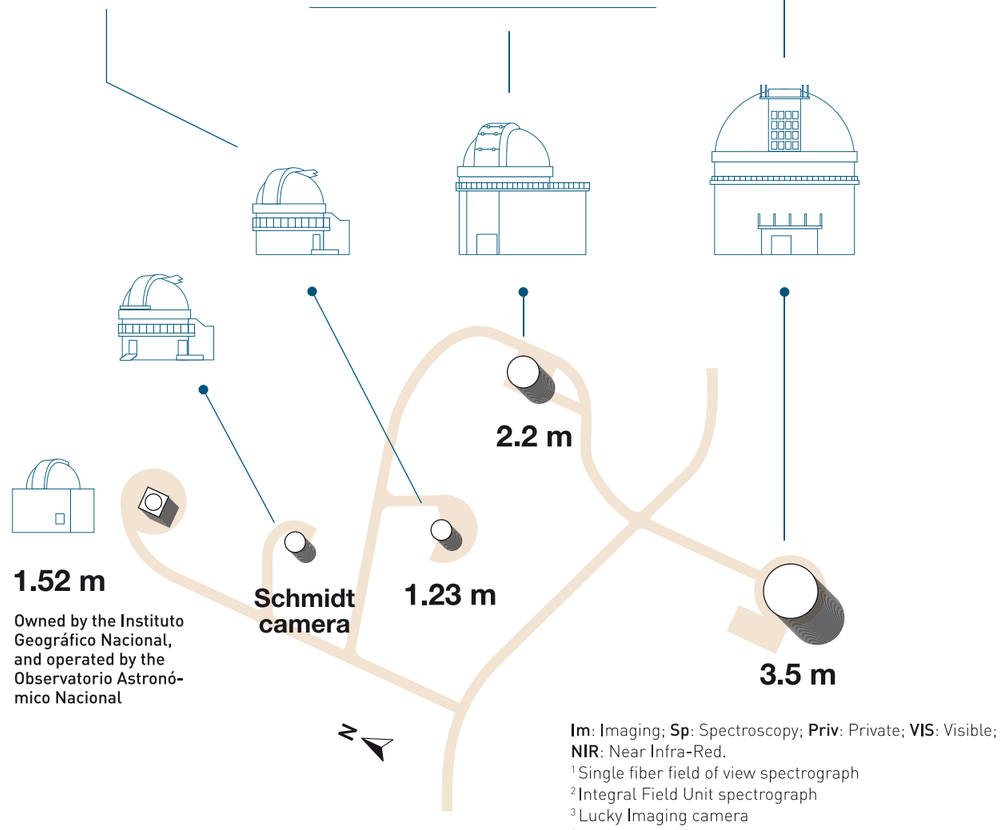
Semester	25A	25B
DLR (Im, VIS)	•	•
ASI461[4] (Im, VIS)	•	•
ASI6200[4] (Im, VIS)	•	•
Eyepiece (Eye, VIS)	•	•

2.2 m telescope

Semester	25A	25B
CAFOS (Sp+Im, VIS)	•	•
CAFÉ[1] (Sp, VIS)	•	•
Astralux[3] (Im, VIS)	•	•
Planetcam[3] (Im, VIS+NIR, Priv)	•	•
PANIC (Im, NIR)		•

3.5 m telescope

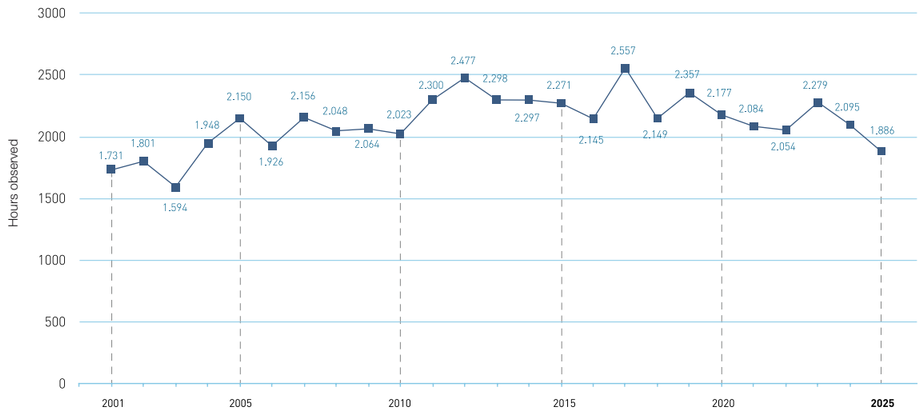
Semester	25A	25B
CARMENES[1] (Sp, VIS+NIR)	•	•
PMAS[2] (Sp, VIS)	•	•
02000 (Im, NIR)	•	•



Im: Imaging; **Sp**: Spectroscopy; **Priv**: Private; **VIS**: Visible; **NIR**: Near Infra-Red.
[1] Single fiber field of view spectrograph
[2] Integral Field Unit spectrograph
[3] Lucky Imaging camera
[4] CMOS detector

Observing time

During 2025, a total of **1886 night hours** were observable in Calar Alto. The figure below shows the evolution of the number of useful hours since 2001.



Telescopes 1.23 m and Schmidt

The **1.23 m telescope** has allocated its observing time to several scientific programs, and to educational and outreach activities. This telescope is the largest in Europe offering the possibility to observe through an eyepiece.

The **Schmidt telescope** is subject to an agreement with the European Space Agency (ESA) that uses this telescope to survey Solar System objects.

Telescopes 2.2 m and 3.5 m

The time lost due to technical problems in the two largest telescopes of Calar Alto was less than 2% in 2025. This shows that these two telescopes and their associated instrumentation are efficiently maintained by the CAHA technical staff. In addition to this, the availability of the CAHA astronomical staff to perform service observations in these telescopes results in a privileged exploitation of the weather conditions, allowing an optimal return of the astronomical observations.

The 2.2 m and 3.5 m telescopes have allocated part of their time to long-term projects, previously approved by the CAHA EC and SAC. The table below shows the details of the observations devoted to those projects.

Project	Nights (25A/25B)	Telescope	Instrument
BHOLE	110/110	2.2 m	CAFOS
CARMENES Legacy+	48/50	3.5 m	CARMENES
KOBE	35/35	3.5 m	CARMENES
CAVITY	32/0	3.5 m	PMAS

More nights were also allocated to proposals received from:

- the **general Call for Proposals** (Open Time), accesible to astronomers from Spanish institutions.
- the **Director's Discretionary Time** (DDT) program.
- the **Director's Guaranteed Time** (DGT) program.

On the right follows the distribution of proposals performed during 2025 separated by the different ways of access.

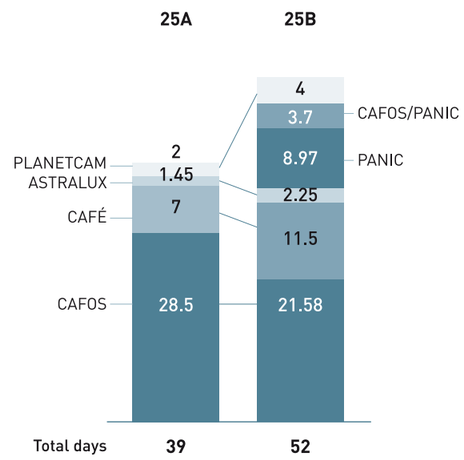
The remaining nights were devoted to aluminization of mirrors, academies of different universities and commissioning of the PANIC NIR camera (at the 2.2 m, in 25 A).

The table on the right shows the number of nights offered to **Open Time proposals** and the oversubscriptions for the 2.2 m and 3.5 m telescopes in semesters 25A and 25B.

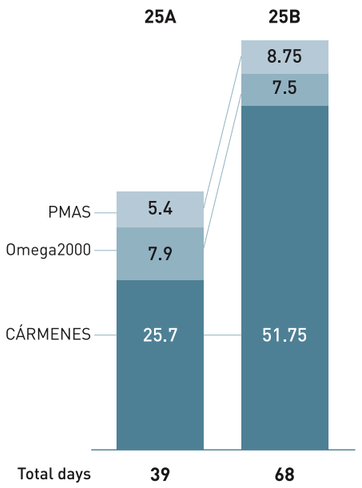
Below follows the distribution of nights allocated to Open Time proposals at both telescopes, **split by instrument**.

	25A		25B	
	2.2 m	3.5 m	2.2 m	3.5 m
Open Time	22	15	30	24
DDT	2	1	3	0
DGT	0	1	1	1

	25A		25B	
	2.2 m	3.5 m	2.2 m	3.5 m
Nights offered	39	39	52	68
Over-subscription	2.15	3.79	1.77	2.23

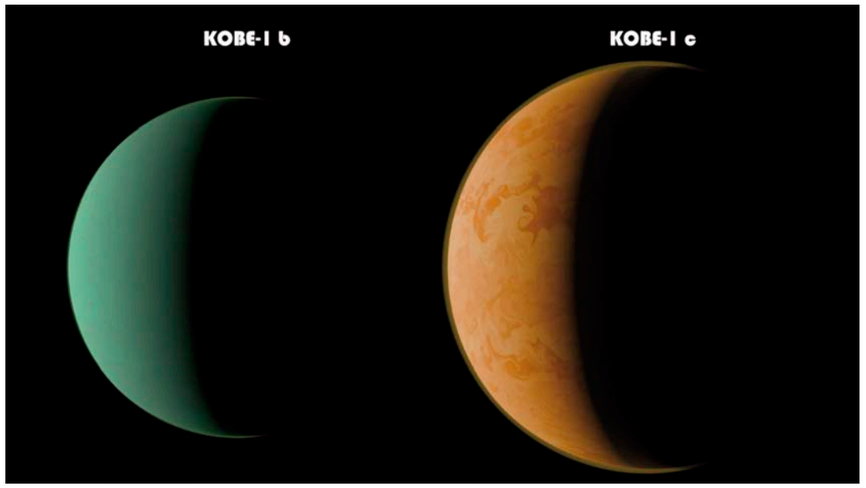


Number of nights allocated to Open Time proposals at the **2.2 m telescope**



Number of nights allocated to Open Time proposals at the **3.5 m telescope**

Press releases



Credit: J. Lillo-Box

KOBE discovers its first exoplanets

Thanks to multiple observations performed at Calar Alto, a European research team, led from Centro de Astrobiología (INTA-CSIC) in Madrid, makes public the first planetary system discovered in the framework of the KOBE project.

KOBE uses data from the CARMENES instrument, mounted on the CAHA 3.5 m telescope, to monitor since 2021 about 50 orange dwarf stars, which are somewhat smaller and less hot than our Sun. Due to their characteristics, orange dwarf stars are El Dorado (sweet spot) of the search for life beyond the Solar System, and this first KOBE discovery paths the way to new ones.

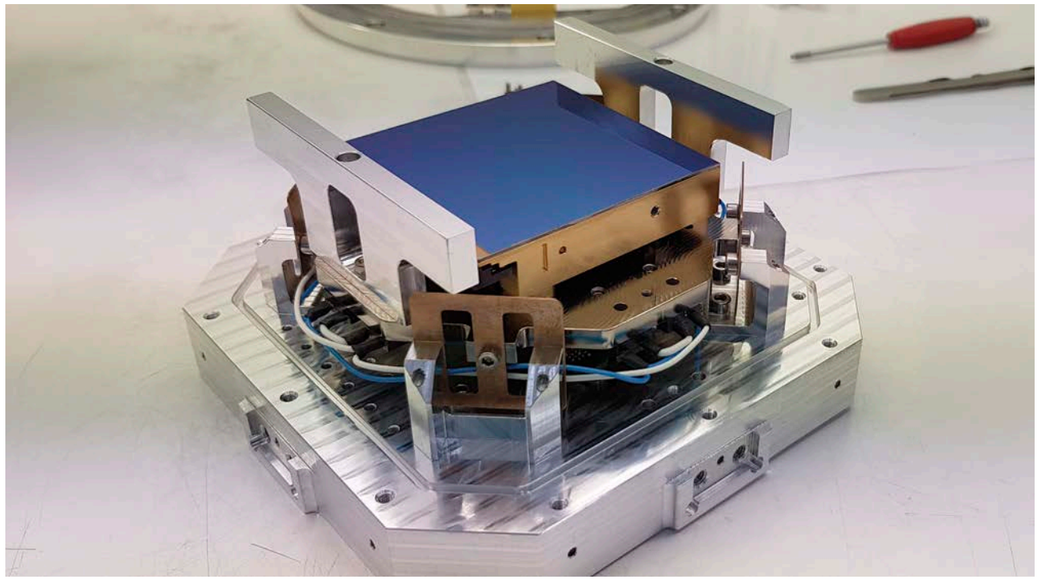
The only known planet having biological activity is our own Earth: a world mostly covered with liquid water and orbiting the Sun, a G-type dwarf star. Until recently, habitable exoplanets were searched essentially around other G dwarfs and also the cooler M-type ones. However, both G- and M-type dwarf stars present difficulties that can be overcome by a type of star with intermediate properties, the so-called K-type dwarf stars. These seem to provide the ideal environment for the development of life on the surface of planets around them.

K-type stars, on the other hand, have the best properties of both types. The periods in which the habitable zone is found are accessible to current instrumentation. In addition, they are very quiet stars, without major activity events. Therefore, they are considered the sweet spot (El Dorado) of stellar habitability. The search for planets around K-type dwarf stars is thus a fundamental objective in modern exoplanetary exploration, focused on astrobiological objectives.

The KOBE experiment is an observational program led by Centro de Astrobiología (CAB, INTA-CSIC) in collaboration with the Instituto de Astrofísica de Portugal, the Laboratoire d'Astrophysique de Marseille and the Observatoire de Genève. The KOBE observations are made with the CARMENES instrument at Calar Alto Observatory. The objective of this project is to search for planets in the habitable zone of 50 K-type stars. To this end, since 2021, the KOBE team has been monitoring, with the CARMENES spectrograph, the velocity of these 50 stars, carefully selected at the beginning of the project to maximize the probability of success.

(https://www.caha.es/news/releases-mainmenu-163/kobe-discovers-its-first-exoplanets)

Credit: Samuel Góngora García / CAHA



Credit: MPIA

PANIC, the first 4K infrared camera for the European sky

The Spanish astronomical community now has access to PANIC, the first wide-field infrared camera for European telescopes. Numerous scientific cases and new projects will benefit from its large field of view and the filters it includes, from extragalactic astronomy to the study of the Solar System. It is an ideal instrument for the development of large surveys, the study of star formation, gamma-ray bursts or the search for very distant quasars.

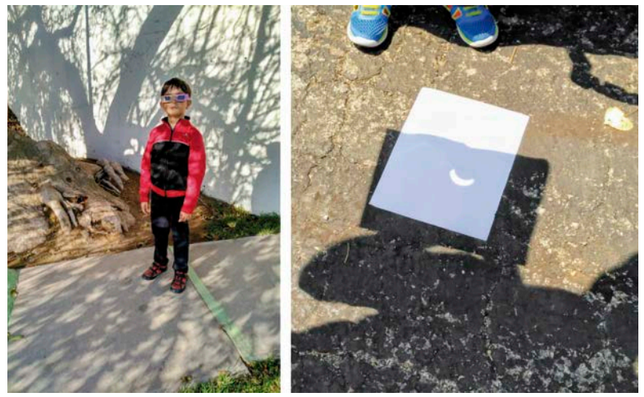
With a detector that captures light in the near-infrared range, from 0.8 to 2.5 micron (the human eye is sensitive to light between 0.4 and 0.7 micron), one is able to reach the regions of the Universe that are obscured by cosmic dust grains. It is as if this dust were “transparent” in the near-infrared range, allowing us to observe and to study optically invisible regions like the center of our Galaxy (and other galaxies) or the dense clouds where stars and planets are born. In addition to facilitating the study of celestial objects that are considered “cold”, because most of the energy radiated by those objects falls in the infrared range, for example: interstellar clouds, giant planets, the icy surfaces of planetary satellites or asteroids.

After its first light in November 2014, PANIC remained operational for Spanish and German users from April 2015 until July 2018, providing good performance and results. Considering that two of its four 2K detectors were suffering from degradation, which was impoverishing the cosmetics and scientific quality of the instrument, it was decided to upgrade its detectors with a larger, better-quality sensor. In August 2018, PANIC traveled back to the MPIA (Germany) to be refurbished, changing its old detectors with a new technology device: a state-of-the-art monolithic 4K sensor (HAWAII-4RG™).

The new work team, the so-called PANIC-4K team, based on a nucleus of the former PANIC team and new components as well, committed to see the project through to its end, offering it to the scientific community by 2025. The main objectives in this last phase were, on one hand to optimize the detector behavior to obtain the best on-sky performance that can be offered and, on the other hand, to offer the user the option of a non-linear correction that extends the dynamic range of the detector nearly up to its saturation limit.

This very fruitful and close collaboration between CAHA, IAA, and MPIA made possible for the Calar Alto Observatory to offer the astronomical community not only a wide-field infrared camera for the Northern Hemisphere, but also very efficient and well tested software tools for the observers. It is the first camera able to take in one-piece 4K images of the sky in the infrared!

(https://www.caha.es/news/releases-mainmenu-163/panic-the-first-4k-infrared-camera-for-the-european-sky)



Credit: Gilles Bergond / CAHA

Four solar eclipses in three years in Spain: how to observe them easily and safely?

Four solar eclipses will take place in Spain over less than three years: one partial eclipse (March 2025), two total eclipses (August 2026 and 2027), and one annular eclipse (January 2028). The last two will be ideally visible in a good part of Andalusia. This exceptional series of spectacular phenomena will attract millions of national and international visitors. It is a great opportunity to raise public awareness of astronomy.

However, observing a solar eclipse without protection represents a serious danger to the human eye: you should NEVER look directly at the Sun without proper equipment! Casual sunglasses do not provide the necessary protection.

In this press release, Calar Alto Observatory issues simple recommendations so that everyone can safely enjoy the great spectacle of Nature that a solar eclipse represents, starting with the partial eclipse of March 29th of this year.

The solar eclipse of March 29th, 2025, can be taken as the “appetizer” (a tapas) of the series of solar eclipses visible in Spain until 2028. It will be visible in the late morning, for less than two hours, all over the country. But it will be a very partial eclipse: only a small fraction of the solar disk, in its upper (Northern) part, will be hidden by the Moon, like a small bite given on the edge of Spanish tortilla, and it will be a very partial eclipse.

(https://www.caha.es/news/releases-mainmenu-163/four-solar-eclipses-how-to-observe-them)

UNIR connects its academic training with Calar Alto

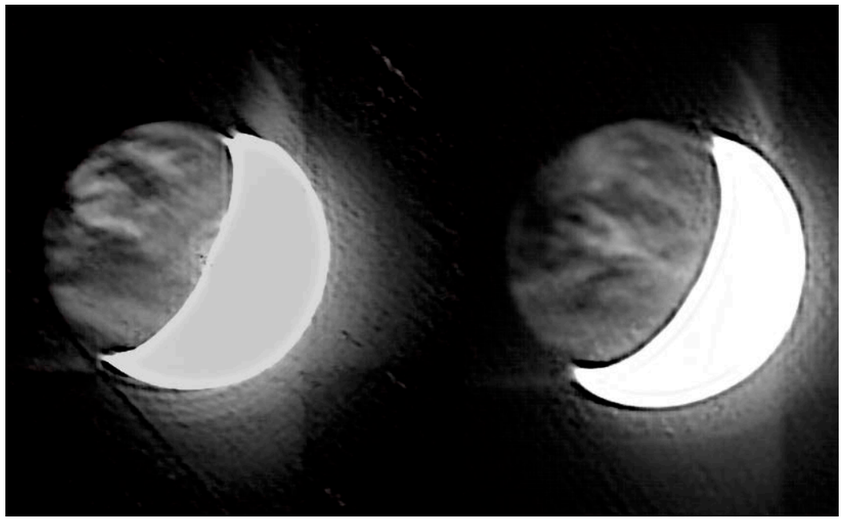
The International University of La Rioja (UNIR) and Calar Alto Observatory have signed a collaboration agreement that will allow students of the UNIR Master's Degree in Astrophysics to observe remotely with the 1.23-meter telescope so as to complement their training.

The International University of La Rioja (UNIR) and the Spanish Astronomical Center in Andalusia (Spanish acronym: CAHA, aka Calar Alto Observatory) have signed a collaboration agreement which opens a new window to the cosmos for students of the Master's Degree in Astrophysics and Observation Techniques in Astronomy. This agreement represents a unique opportunity for students to participate in real observations with the iconic 1.23-meter telescope at Calar Alto, located in the Sierra de los Filabres (Almería).

This kind of experience is essential for students, as it allows them to apply the theoretical knowledge acquired in class to a professional and highly specialized environment. For UNIR students, collaborating with an institution of this importance means having a direct immersion in the heart of astronomical science.

This agreement not only reinforces the links between the university and the scientific world, but also strengthens the role of UNIR as an institution committed to academic excellence and educational innovation. With this alliance, UNIR and CAHA are part of a common mission: training the astronomers of tomorrow with the tools of today and the inspiration of the stars.

(https://www.caha.es/news/releases-mainmenu-163/unir-connects-its-academic-training-with-calar-alto)



Credit: J. Peralta / Universidad de Sevilla / CAHA

A new camera from Sevilla in Calar Alto to study Venus' clouds

The planet Venus has always fascinated human beings. Right after the Sun and the Moon, it is the third brightest object in the sky. Such a "lighthouse" of an immaculate white color had already focused the attention of our ancestors. It was venerated as a divinity by the peoples of antiquity, like the well-known goddess of love of the Romans. The calendar of the Mayan culture (people who lived in what is now the Yucatán Península, México) was partly based on the visibility of Venus.

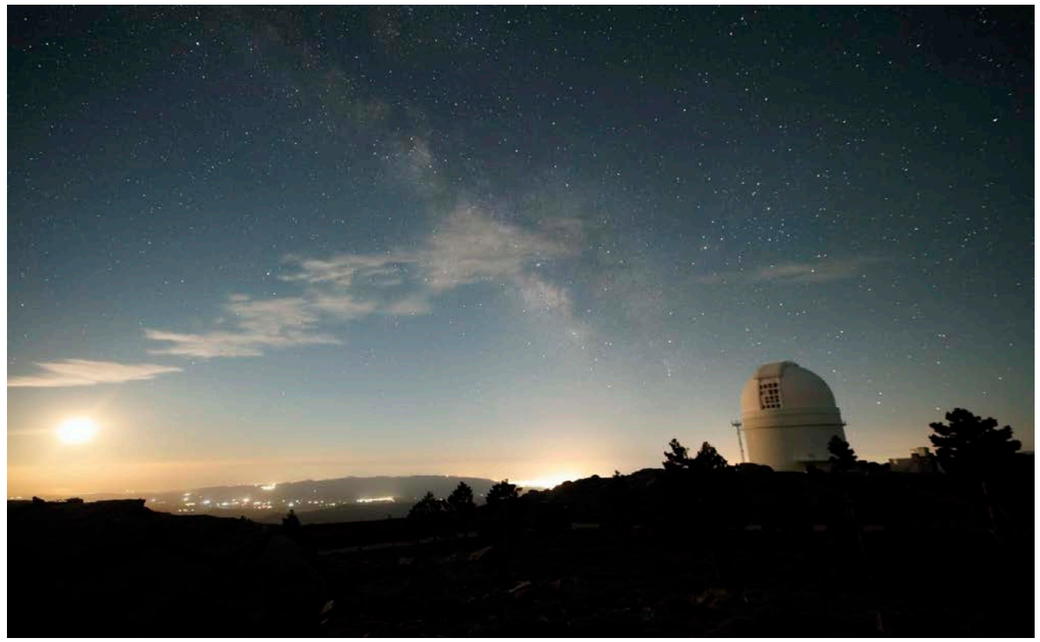
Nowadays, we know that the planet Venus is both very similar in size and mass to our own, but also very different because of its thick atmosphere with a tremendous greenhouse effect, which makes it toxic and very hot at the surface, where the temperature would melt lead. Studying Venus and its atmosphere is crucial to understand what happens to a terrestrial-type planet when it experiences an extreme greenhouse effect, and this can give us clues as to when we might reach a point of no return in our climate emergency.

However, studying its atmosphere is no simple task, and while we have spent nearly a century studying in detail the clouds on its day side that can be seen in ultraviolet and visible images, its night side remained a mystery until the 1980s and 1990s when astronomers discovered between 1 and 2 microns (our eyes only see between 0. 4 to 0.7 microns) several spectral windows in which its dense atmosphere lets infrared radiation escape, therefore allowing us to see the deepest clouds and even its unknown surface (this is the main objective of EnVision, the new space mission to Venus of the European Space Agency).

In this context, the researcher at the University of Seville Javier Peralta leads a project funded by the program EMERGIA of the Regional Government of Andalusia and entitled DUVAC (Discovering the Unknown in Venus' Atmospheric Circulation), which has allowed firm progress in the study of Venus' clouds and surface thanks to the installation at the Calar Alto Observatory 1.23 m telescope of a First-Light C-RED 2 ER, a new generation SWIR infrared camera. The use of this "SWIR" camera at Calar Alto is the result of a Collaboration Agreement between CAHA and the Universidad de Sevilla signed in February 2025, in the framework of a previous larger agreement.

Among the scientific goals of DUVAC we can highlight the study of the temporal evolution of the deep clouds, winds and aerosols of Venus in search for evidence of an ongoing climate change on this planet, and to obtain high-precision measurements of the Venusian winds, exploring regions where the atmospheric circulation is not entirely clear.

(https://www.caha.es/news/releases-mainmenu-163/a-new-camera-from-sevilla-in-calar-alto-to-study-venus-clouds)



Credit: Harun Mehmedinovic (www.skyglowproject.com)

"Telling light pollution from coast to coast": a national outreach event for the World Environment Day

Until recently, artificial light was perceived exclusively as a symbol of progress and well-being. Still, in recent years, its flip side has begun to be recognized: light pollution, a silent but increasingly worrying type of environmental pollution. Unlike other widely known pollutants, such as greenhouse gases or toxic waste, artificial light at night had escaped public scrutiny because of its apparent benefits. Now we know that its excessive and misdirected use not only seriously affects astronomical observations, but also has a direct impact on human health, alters biorhythms, and destabilizes ecosystems. Light pollution is thus emerging as one of the growing environmental challenges of the 21st century.

Taking the opportunity of the World Environment Day, held every 5th of June since 1973, the Spanish National Research Council (Consejo Superior de Investigaciones Científicas, CSIC), through the Institute of Astrophysics of Andalusia (Instituto de Astrofísica de Andalucía, IAA-CSIC), is coordinating a scientific outreach event focused on light pollution and its environmental and social impact. Under the title 'Counting light pollution from coast to coast' the initiative will offer 21 informative talks given by professionals in 19 Spanish cities, simultaneously, with the aim of raising public awareness of this problem.

Calar Alto Observatory joins this national initiative with the informative talk "Almería, land and sky of contrasts, from the Calar Alto darkness to the Patio de Luces", to be held next Thursday June 5th, 2025 at the old Santa Mª Magdalena Chapel of the Museum of Contemporary Spanish Realism (MuReC), at 6 pm (CEST).

This activity is focused on raising awareness and educating about light pollution and its effects on areas as diverse as biodiversity, the balance of ecosystems, the quality of the night sky and human health. Through this session, which is free and open to the general public, Calar Alto consolidates both its informative work and its commitment and involvement in the search for sustainable solutions, joining the collective effort of World Environment Day.

(https://www.caha.es/news/releases-mainmenu-163/telling-light-pollution-from-coast-to-coast-a-nat-l-outreach-event-for-the-world-environment-day)

The Institute of Astrophysics of Andalucía hosts a national meeting to promote collaboration between large Spanish observatories, including Calar Alto

Since Tuesday, June 10th, 2025, around a hundred astronomers, engineers, technologists, technicians, and administrative staff have been meeting in Granada for the second edition of the national meeting “Promoting synergies between large Spanish observatories”. Organized by the Spanish Network of Infrastructures in Astronomy (Red de Infraestructuras de Astronomía, RIA), in collaboration with the Institute of Astrophysics of Andalusia (IAA-CSIC), the Spanish Astronomical Centre in Andalusia (CAHA), and the Institute of Millimetric Radioastronomy (IRAM). The event is being held in person until Friday 13th at the headquarters of the IAA-CSIC.

This meeting aims at consolidating the synergies initiated in the first edition, held on La Palma Island in 2023, and to continue strengthening cooperation between the technical teams of the Singular Scientific and Technical Infrastructures (ICTS) in Spanish astronomy, in order to improve their performance and efficiency.

The Singular Scientific and Technical Infrastructures (ICTS) are unique facilities, strategic in nature, which are dedicated to cutting-edge scientific and technical researc

h and to the transmission, exchange and preservation of knowledge, technology transfer and innovation. In the field of astronomy, these infrastructures form a network of leading observatories that represent the backbone of astronomical research in Spain.

The ICTS that make up the Spanish Astronomy Infrastructure Network (RIA) are the Centro Astronómico Hispano en Andalucía (CAHA), the Gran Telescopio de Canarias (GRANTECAN), the IRAM-30m telescope of the Institut de Radioastronomie Millimétrique (IRAM), the Observatorio Astrofísico de Javalambre (OAJ-CEFCA), the Observatorio de Yebes (OY-OAN), and the Observatorios de Canarias (OCAN), including the Observatorio del Teide (OT) and the Observatorio del Roque de los Muchachos (ORM).

(https://www.caha.es/news/releases-mainmenu-163/the-institute-of-astrophysics-of-andalusia-hosts-a-nat-l-meeting-to-promote-collaboration-between-large-spanish-observatories-incl-calar-alto)



Credit: IAA-CSIC

Calar Alto turns into climate sensors

The light captured by our telescopes is not exactly the same as the light that originated from the stars. On its journey to reach us, light can pass through regions of gas and dust that modify its spectrum. This effect is especially noticeable when light crosses our atmosphere because, far from being completely transparent, the atmosphere introduces lines (like its own “bar code”) into the observed stellar spectra.

These lines, known as telluric lines because they originate from our planet, are considered a nuisance by astronomers, as they are forced to “decontaminate” the spectra measured by their instruments in order to reconstruct their original form.

To complicate matters further, the exact shape of telluric lines varies when the temperature, pressure, humidity, or chemical composition of the atmosphere changes. In some way, we can imagine that telluric lines imprint information about the current state of the atmosphere on the spectrum of the stars. In particular, the main greenhouse gases (hereinafter GHGs) such as carbon dioxide (CO2), methane (CH4), and water vapor (H2O).

Thanks to this, what is “waste” for astronomers is very useful for studying the concentration and evolution of GHGs on our planet, which are responsible for global warming (that is, an increase in the average temperature of planet Earth). But to do this, we must first learn how to best use telluric lines, and this is precisely what has been done at Calar Alto for ten days and ten nights in July 2025.



Credit: Gilles Bergond / CAHA

The atmospheric measurement campaign “Combining CO2 and CH4 column retrievals from Astroclimes with collocated COCCON measurements” was carried out in Almería from July 7 to 16, 2025, in collaboration with the Calar Alto Astronomical Observatory, the University of Almería (UAL), the University of Warwick (United Kingdom), and the Spanish State Meteorological Agency (AEMET).

The main objective is to demonstrate the unique potential of combining solar measurements (during the day) and measurements of other stars (at night) using remote sensing techniques to study the carbon cycle, the role of GHGs in the current context of global warming, and the reinforcement of observation systems for these gases.

Specifically, this campaign took advantage of the unique opportunity to measure the complete daily cycle (night and day) of GHGs at the Calar Alto Observatory, through observations of stars with the CARMENES spectrograph on the 3.5 m telescope and solar observations with a low-resolution Fourier Transform Infrared (FTIR) spectrometer (portable model EM27/SUN) belonging to the COCCON (COllaborative Carbon Column Observing Network)-Spain network.

(https://www.caha.es/news/releases-mainmenu-163/calar-alto-turns-stars-into-climate-sensors)



¡Esta Navidad, ni una estrella menos!

The second phase of the “No hay Almería sin cielo” campaign is underway; led by Calar Alto and the IAA-CSIC, it aims to remind everyone of the importance of preserving dark skies, even during the Christmas season. Light pollution rises when towns and cities light up with millions of decorative lights: a number as excessive as the consumption typical of this time of year. Let us not forget that the starry sky is also part of the Christmas magic: this Christmas, let’s not lose a single star!

City lights - both public and private - scatter into the atmosphere, creating a luminous halo that extends for kilometers and diminishes the natural darkness of the night. This phenomenon of light pollution affects human health as well as (peri-)urban flora and fauna, populations that are already under pressure. In large urban centers, drowned out by artificial daylight, the number of stars visible to the naked eye drops from the 3,000 seen in an unpolluted sky, to just a few dozen.

Nowadays, light pollution reaches most professional astronomical observatories, such as Calar Alto. Despite its privileged location high in the Sierra de los Filabres - beneath some of the best skies in Europe - the largest observatory in continental Europe is threatened by light pollution, particularly that generated by the most densely populated coastal areas of Almería province, located about 50 km away.

To raise public awareness, the observatory and its reference center - the Instituto de Astrofísica de Andalucía (IAA-CSIC, Granada) - launched the “No hay Almería sin cielo” campaign in January 2025; in addition to a dedicated website, the campaign was promoted through media outlets in Almería. It also serves to highlight the importance of preserving the



Credit: CAHA

darkness of the night for the sake of the environment and human health.

We do not merely wish to preserve the exquisite quality of the Calar Alto sky in order to continue conducting cutting-edge science. Through this campaign, we also aim to protect the sky as a cultural heritage belonging to all the people of Almería, whose earliest inhabitants, in the settlement of Los Millares five millennia ago, were already keen observers of the firmament.

In this second phase of the campaign, we want to emphasize that light pollution is a variable phenomenon: in addition to the general upward trend (an increase of about 2% each year...), levels can rise during certain periods due to natural causes (high humidity, airborne dust, volcanic eruptions, etc.) or artificial ones, such as “mega-events.”

At the Calar Alto Observatory and the IAA-CSIC, we believe it is possible to enjoy the Christmas season and the magnificent winter starry sky by using smart lighting—low-brightness and energy-efficient, that is directed primarily toward the ground rather than the sky and is turned off at a reasonable hour (e.g., midnight) for a period of one month, and no longer.

This Christmas, not a single star less!

(https://www.caha.es/news/releases-mainmenu-163/en-navidades-tampoco-hay-almeria-sin-cielo)

The President of the CSIC visits Calar Alto

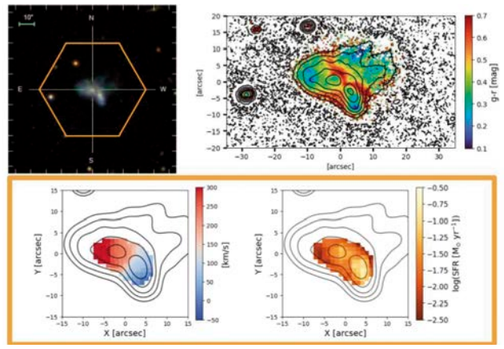
Eloísa del Pino, President of the CSIC, visited the Calar Alto Observatory ahead of the 50th-anniversary celebration of the Institute of Astrophysics of Andalusia (IAA-CSIC) in Granada. The CSIC has been a co-partner of the observatory since 2005, joined by the Regional Government of Andalusia in 2019. Thus, in 2025, we are celebrating both the twenty years of official CSIC participation in Calar Alto and the half-century of the Granada-based institute’s existence.

On October 21 and 22, 2025, a delegation from the Spanish National Research Council (CSIC)—Spain’s largest public research organization—visited the Hispanic Astronomical Center in Andalusia (CAHA) at Calar Alto. CAHA is one of the prestigious Unique Scientific and Technical Infrastructures (ICTS) under the Ministry of Science and Innovation; it has been co-managed by the CSIC since 2005, alongside the regional government of Andalusia, which in 2019 took over from the historic German partner—the Max Planck Institute for Astronomy in Heidelberg—that had founded the facility (originally named the Spanish-German Astronomical Center).

María Eloísa del Pino Matute (President of the CSIC), Isabel Martínez Sierra (Director of the Office of the President), Carlos Closa Montero (Vice President for Organization and Institutional Relations), and Ignacio Gutiérrez Llano (Secretary General) have toured the observatory’s facilities - the largest optical astronomy complex in continental Europe - firsthand.

They were able to appreciate the sheer scale of the CAHA domes (up to 42 meters high) and the excellent state of maintenance of the buildings, telescopes, and instruments, some of which, such as the exoplanet hunter CARMENES, remain unique. They also discussed ongoing and future scientific and instrumental developments with the observatory’s director, Jesús Aceituno.

(https://www.caha.es/news/releases-mainmenu-163/la-presidenta-del-csic-visita-calar-alto)



Credit: B. Bidaran / UGR / CAHA / INT

Two to tango: rare dwarf-dwarf merger observed in a cosmic void environment

Using data from PMAS, the multi-fiber spectrograph on the 3.5-meter telescope at Calar Alto Observatory, researchers from the Calar Alto Void Integral-field Treasury surveY (CAVITY) project, led by the University of Granada, have discovered a rare and ongoing merger between two dwarf galaxies located deep inside a cosmic void, one of the least populated regions of the Universe.

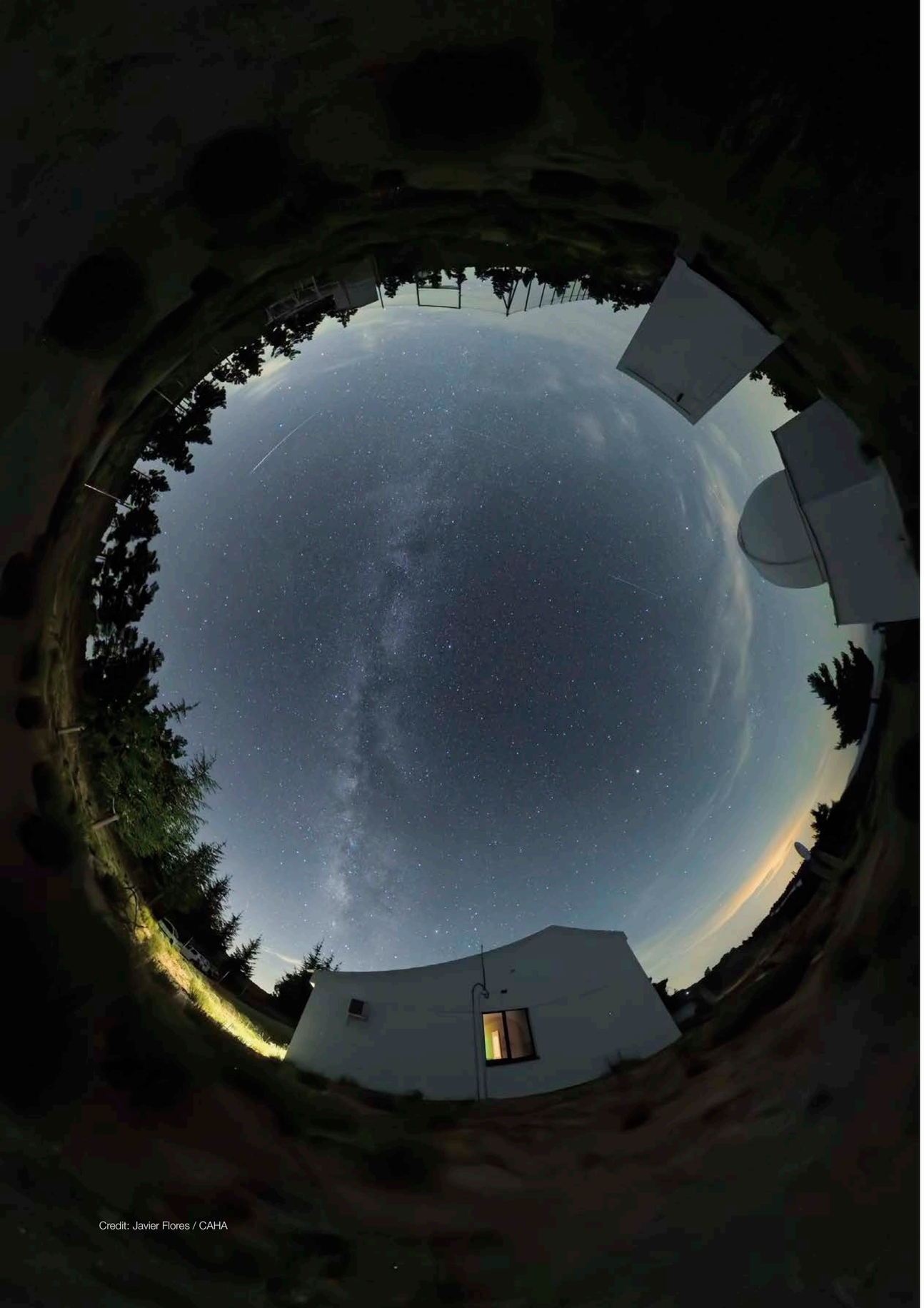
Galaxy mergers are powerful events that are key in shaping how galaxies grow, change, and form new stars. When galaxies collide, gravitational forces cause them to exchange gas and stars, trigger bursts of star formation, and alter their structures. While mergers between massive galaxies have been widely studied, catching such an event between low-mass dwarf galaxies is extraordinarily rare, especially in such a void environment.

For the first time, this study presents a detailed analysis of an ongoing merger event near the centre of a cosmic void, involving two dwarf galaxies of nearly equal stellar mass. In terms of ordinary matter (stars, gas, and dust), each of these dwarves is less than a twentieth of the mass of the Milky Way (once more, dark matter apart), our own spiral galaxy hosting the Sun and over a hundred billion of other stars.

The two dwarves were observed for the CAVITY team with PMAS, the Potsdam Multi-Aperture Spectrograph installed on the 3.5 m telescope at Calar Alto, the largest in mainland Europe. Thanks to the large field of view of PMAS in its PPAK fibre bundle mode (see figure), both small galaxies were observed in a single pointing encompassing the central area of the merger until their very outskirts, sampled by over 300 PPAK sensitive fibres. Each of these fibres provides a spectrum covering the full visible wavelength range, allowing us to study the chemical species, age, and velocities of the matter in every one of the 300 points of the area sampled by PPAK. That is, PMAS offers a complete view of the physics at play in this one-on-one, strong interaction between small galaxies located well inside a void, thus not influenced by a third party.

The merging system has a combined stellar mass of just under 10 billion solar masses. The team detected rotating gaseous disks and strong ionised gas emission, signatures of a starburst likely sparked by the merger. Thanks to the favorable alignment of the system along the line of sight, the researchers were able to measure the dynamic mass of each of the merging progenitor galaxies. In addition, deep optical imaging from the Isaac Newton Telescope revealed a striking dust distribution: two connected arc-like structures that may have formed from shock fronts produced during the merger. Based on the data, the two progenitor galaxies were likely disk-like and star-forming, typical of those found in voids.

(https://www.caha.es/news/releases-mainmenu-163/two-to-tango-rare-dwarf-dwarf-merger-observed-in-a-cosmic-void-environment)



Credit: Javier Flores / CAHA

NEON Observing School



Credit: CAHA

The 2025 NEON Observing School was held at the Calar Alto Observatory (CAHA) in Spain from 2–14 February 2025.

This was the fourth time the school has been hosted at CAHA. The program provided a unique opportunity for early-stage astronomy Ph.D. students and late-stage master students to gain practical observational experience at a professional observatory.

In 2025, CAHA welcomed 16 students from 14 countries (Denmark, Egypt, Ethiopia, Finland, France, Germany, Hungary, Italy, Poland, Portugal, Slovenia, Spain, Ukraine, and the United Kingdom). The school was highly competitive, with 121 applicants. The selected students reflected an approximately balanced gender distribution, while admission was based on merit. By bringing together participants from diverse backgrounds, the school created opportunities for future international collaborations.

Over the course of 11 intensive days, participants combined theory with practice through lectures and collaborative group work. The lectures provided theoretical basis of how modern optical telescopes and their instruments work, including the fundamentals of optics and detectors, methods for photometric and spectroscopic observations, and advanced concepts such as adaptive optics and interferometry. They also offered practical guidance on observation planning, proposal preparation, and career development.

The collaborative projects gave students hands-on experience with the full process of an observational astronomy project. Working in four groups under the supervision of experienced observers, they planned observations, carried them out, reduced and analyzed the data, and presented their results. In some cases, the work was continued after school with the aim of developing a scientific publication.

Observations were carried out with both the 2.2-meter telescope using CAFOS and the 1.23-meter telescope using ASI461MM Pro. Students shared four nights on the 2.2m telescope and six nights on the 1.23m, gaining experience in both spectroscopic and imaging techniques.

The impact of the school extends beyond the training period. Since its start in 2000, statistics show that more than 60% of participants remain in astronomy years after attending, often continuing collaborations formed during the school into their later careers.

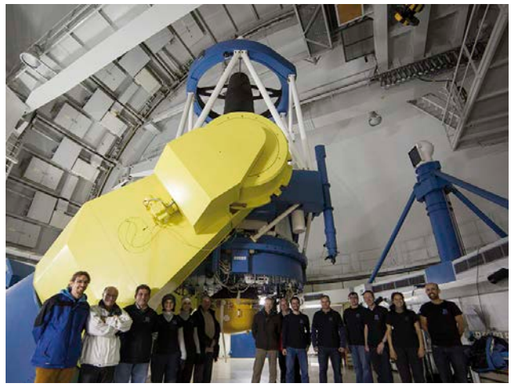
Technological activities



Credit: CAHA

CARMENES+

During 2025, CAHA advanced the upgrade of the CARMENES Calibration Unit, with particular responsibility for the required modifications to the Instrument Control System (ICS). CAHA coordinated the work among an external software developer, the CARMENES Collaboration, and the observatory's technical teams. The upgrade will improve the stability and reproducibility of the instrument calibration, supporting more precise radial-velocity measurements and strengthening CARMENES' capability to detect and characterise low-mass exoplanets.



Credit: CAHA

PANIC

PANIC4K is the PAnoramic Near-Infrared Camera with a monolithic HAWAII4-RG detector for the 2.2m telescope at the Calar Alto Observatory in Spain. It is a wide-field camera for the Z, J, Y, H, and K bands covering a field of view of 26.3' x 26.3' with a pixel scale of 0.37 arcsec/pix. Initial operation and preliminary characterization of the HAWAII-4RG detector took place in 2020, where some issues related with reset level drift and full well capacity were already identified as items to mitigate and optimize. After extensive laboratory tests and several commissioning campaigns during the following years, the PANIC4K team (MPIA, IAA-CSIC, and CAHA) has successfully completed the optimization of the reading process and the final characterization of the detector. The instrument's performance was also enhanced with the corresponding non-linearity correction, refinement of observing procedures, and a dedicated software upgrade, leading to successful first on-sky observations.



Credit: CAHA

Schmidt Telescope

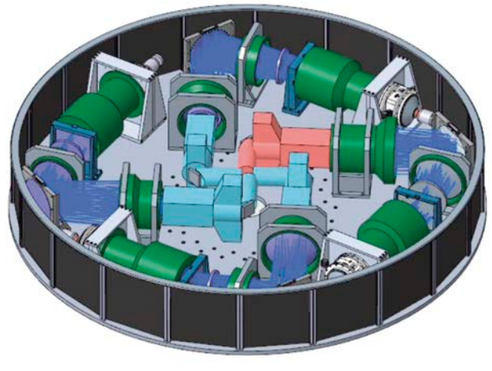
As part of a collaboration with ESA, the Observatory's Schmidt telescope (80 cm aperture) has been equipped with a new C5S-150 + GPS wide-field camera (76.75' x 57.56') with a resolution of 0.324arcsec/pix, enabling it to cover large areas of the sky in a single exposure and increasing the efficiency of detecting near-Earth objects (NEOs). The IMX411 CMOS sensor offers high quantum efficiency (>85% in the visible spectrum) and high-speed readout (>20 fps at full resolution), along with highly linear behavior. Its low readout noise (<2 e^- RMS) facilitates the detection of faint objects with low surface brightness. This upgrade places the Schmidt among the few historic telescopes equipped with modern CMOS technology, extending its operational life and enhancing its discovery capabilities within ESA's space surveillance strategy. The first observations led to the discovery of comet P/2025 W3 (Kresken).

TARSIS

During 2025, CAHA continued the Phase A activities of TARSIS (Tetra-ARm Super-IFU Spectrograph), a concept for a new wide-field integral-field spectrograph covering the ultraviolet and visible wavelength ranges for the 3.5 m telescope.

The work was carried out within the framework of the Spanish Recovery, Transformation and Resilience Plan and focused mainly on the preliminary engineering and design of the instrument. Eight specialised engineering contracts addressed its principal subsystems and advanced their definition towards a Preliminary Design Review. The activities covered the optical, mechanical, electronic and control architectures, as well as the interfaces with the telescope and the overall instrument integration.

The project also included the procurement of fused-silica and calcium-fluoride optical blanks and the manufacture of two prototype lenses. These developments provided CAHA and its collaborators with valuable engineering results and experience in the design of complex astronomical instrumentation, particularly in the ultraviolet domain.



Credit: TARSIS consortium

MARCOT

During 2025, CAHA continued the development of MARCOT, an innovative concept based on combining several relatively small optical telescope assemblies to operate as a single modular astronomical facility. This approach aims to provide a scalable and cost-effective alternative for increasing collecting area while allowing individual modules to be independently manufactured, maintained and upgraded.

The MARCOT Pathfinder at Calar Alto consists of seven optical telescope assemblies installed on a common equatorial mount, providing a combined effective aperture of 1.08 m. During 2025, the Pathfinder consolidated its imaging capabilities through further development of the observing software, calibration procedures and data-reduction pipeline.

The system was used for scientific and technical validation in several demanding applications, including high-precision photometry of exoplanet transits, observations of small Solar System bodies and stellar occultations. These observations demonstrated the capability of the modular architecture to perform coordinated astronomical measurements and provided operational experience for its future development.

Photonic E-MARCOT

In parallel, work began on the evolution of the Pathfinder towards spectroscopic operation and the Photonic E-MARCOT concept. The objective is to collect the light from the individual telescope units through multimode optical fibres and combine it using photonic devices, producing a stable output suitable for feeding an astronomical spectrograph.

During 2025, the strategic roadmap, organisational framework and initial work-package structure for this development were established. Preparatory work also addressed the future fibre system, the interfaces with the telescope units and the integration of the photonic components with the Pathfinder.



Credit: CAHA

CAHA-IAA-CSIC Astrophotonics Laboratory

A major milestone was the establishment of the joint CAHA–IAA-CSIC Astrophotonics Laboratory at the IAA-CSIC facilities in Granada. The laboratory provides the infrastructure required for the in-house manufacture, characterisation and validation of multimode–multimode photonic lanterns.

The specialised manufacturing equipment was installed in December 2025, creating a new technological capability shared by CAHA and the IAA-CSIC. The laboratory will support the development of the photonic components required by MARCOT and strengthen the participation of both institutions in advanced astronomical instrumentation based on optical fibres and astrophotonic technologies.

The progress achieved in 2025 established the technical and organisational basis for the next stages of MARCOT and reinforced CAHA's role in the development of modular telescope architectures and astrophotonic instrumentation.

The project is jointly led by CAHA and the IAA-CSIC, with the participation of the Leibniz Institute for Astrophysics Potsdam (AIP), and has recently been joined by Sidney Astrophontonic Instrumentation Laboratory in Australia.



Credit: CAHA

DomeSafety

During 2025, CAHA continued the development and consolidation of DomeSafety, the environmental and safety monitoring platform serving the observatory's telescope stations. The system collects real-time environmental data—wind, temperature, humidity, pressure, precipitation, and air quality—through industrial communication protocols over a private and secure network of programmable logic controllers, integrating SCADALTS, Telegraf/InfluxDB/Grafana, and Node-RED as parallel clients. Significant work focused on migrating the production infrastructure from a Windows-based server to a new Linux (openSUSE) Docker environment, improving system robustness and maintainability. These improvements strengthen the reliability of the automated safety alerts that protect CAHA's telescope domes and instrumentation under adverse environmental conditions.



Credit: CAHA

Dark Fiber

On October 8, 2025, after years of work and thanks to funding from the European Next Generation EU–MRR funds and the rollout carried out by Telefónica, more than 80 km of optical fiber connecting the Calar Alto Observatory to the outside world went into service, linking it directly to the high-capacity optical network of RedIRIS-NOVA, the communications infrastructure that connects Spanish research institutions with national and international academic networks.

This milestone represents a major step forward for the Calar Alto Observatory, which now has its first physical connection via optical fiber, leaving behind the radio link that, until now, provided a connection of up to 800 Mbps. That radio link will be kept as a backup, giving the center a stable and robust connection system.
In this first phase, the new infrastructure triples the available bandwidth and also offers scalability of up to 200 Gbps.

This project addresses one of the main connectivity needs of the Calar Alto Observatory and reinforces its communications infrastructure as an element of great strategic importance. The new connection not only removes the existing limitations but also prepares the observatory to face future challenges and host new research projects, helping to keep the center at the forefront of astronomy.

Education and outreach

Calar Alto Academy

CAHA continues with its Academy program, playing an important role in the education of the future astronomers. In 2025, students from 9 European universities (UAMadrid, UCMadrid, UBarcelona, UGranada, UCDublin, RUGroningen, UJaén, VIU, UNIR) had the possibility to observe with the 2.2 m and 1.23 m telescopes in the same conditions as the professional astronomers.



Credit: Ana Guijarro / CAHA

Calar Alto in the society

During 2025 the observatory has been present in several activities in collaboration with the Universidad de Almería: Summer courses program, European researcher's night, Science Week, Adult education center, and Jornadas Astronómicas de Almería, among others.

A collaboration remains open with the Aula Científica Permanente of the Universidad de Granada, that organizes workshops for secondary school students.

Amateur astronomers from the Asturian Astronomical Society Omega carried out an observing stay after receiving the III Javier Gorosábel ProAm Collaboration Award.

Also Calar Alto continued to host observing campaigns at the 1.23 m telescope for the SEA ProAm collaboration, with the Sabadell Amateur Association.

Calar Alto - together with Parque de las Ciencias (Granada), Universidad de Granada, Universidad de Almería, IAA-CSIC and CEMyRI (Almería) - is involved in the "Madres de la Ciencia", a project focused on research and outreach with a twofold social and inclusive focus.

In addition to this, several members of the Calar Alto staff have participated in outreach activities and talks in educational, social, and amateur astronomy centers.

Some of these activities were part of the gender actions related to the International day of women and girls in science (February 11th) and to the International women's day (March 8th).

Finally, Calar Alto has been present in several local and national media, with interviews in TVs, radios and newspapers.

Calar Alto in the astronomical community

Members of the Calar Alto staff participated in the organization and a guided visit to the observatory for the AstroRob25, and RIA "Promoviendo sinergias entre grandes observatorios españoles II" meetings.

Also, a special session on PANIC was organized to motivate the scientific use of the instrument, in the framework of the RIA (Red de Infraestructuras de Astronomía) activities.

Visits to Calar Alto

The flagship that best represents the commitment of Calar Alto with the spread of the Astronomy is the program of visits open to the general public. During 2025, a large number of people had the opportunity to enjoy visiting the main facilities of Calar Alto, guided by the staff of "Azimuth Spain – Turismo astronómico y científico", a company intimately linked to the outreach plan of the observatory.

4433 visitors to Calar Alto

178 outreach activities | **45** educational **133** tourist



Credit: CAHA



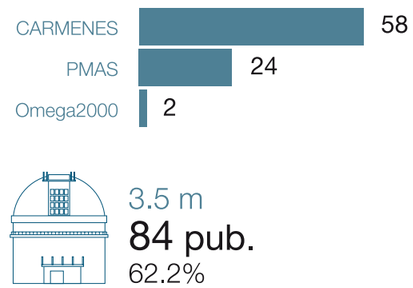
Credit: Azimuth

Social Networks.
X, facebook and Instagram profiles managing.

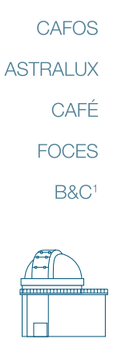
https://www.facebook.com/ObsCalarAlto
https://www.instagram.com/obscalaralto
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Publications

A total of **135 peer reviewed publications** have been published in different high impact scientific journals based on data obtained using the Calar Alto facilities. Below follow the details of those publications, split by telescopes and instruments.



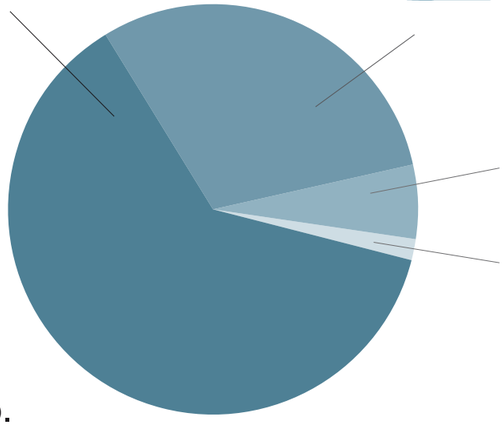
3.5 m
84 pub.
62.2%



2.2 m
41 pub.
30.4%



1.23 m
8 pub.
5.9%



Schmidt
2 pub. (1,5%)

TOTAL
135 pub.

[1]Boller & Chivens

List of Publications

1. *Title:* **CARMENES input catalogue of M dwarfs: IX. Multiplicity from close spectroscopic binaries to ultra-wide systems**
Authors: Cifuentes, C., Caballero, J. A., González-Payo, J., et al.
DOI: 10.1051/0004-6361/202452527
TIspe: 3.5m CARMENES

2. *Title:* **The Lyman-alpha reference sample: XV. Relating ionised gas kinematics with Lyman-alpha observables**
Authors: Herenz, E. C., Schaible, A., Laursen, P., et al.
DOI: 10.1051/0004-6361/202451012
TIspe: 3.5m PMAS

3. *Title:* **Connection between planetary HeIλ10830Å absorption and extreme-ultraviolet emission of planet-host stars**
Authors: Sanz-Forcada, J., López-Puertas, M., Lampón, M., et al.
DOI: 10.1051/0004-6361/202451680
TIspe: 3.5m CARMENES

4. *Title:* **The puzzle of isolated and quenched dwarf galaxies in cosmic voids**
Authors: Bidaran, B., Pérez, I., Sánchez-Menguiano, L., et al.
DOI: 10.1051/0004-6361/202452688
TIspe: 3.5m PMAS

5. *Title:* **HD 119130 b Is Not an "Ultradense" Sub-Neptune**
Authors: Akana Murphy, J. M., Luque, R., Batalha, N. M., et al.
DOI: 10.3847/1538-3881/ad89c0
TIspe: 3.5m CARMENES

6. *Title:* **Retrievals on NIRCam Transmission and Emission Spectra of HD 189733b with PLATON 6, a GPU Code for the JWST Era**
Authors: Zhang, M., Paragas, K., Bean, J. L., et al.
DOI: 10.3847/1538-3881/ad8cd2
TIspe: 3.5m CARMENES

7. *Title:* **Central versus Global Quenching Traced by the APEX-CALIFA Survey**
Authors: Barrera-Ballesteros, J. K., Cruz-González, I., Colombo, D., et al.
DOI: 10.3847/1538-4357/ad85d1
TIspe: 3.5m PMAS

8. *Title:* **B2 1308+326: A Changing-look Blazar or Not?**
Authors: Pandey, A., Hu, C., Wang, J.-M., et al.
DOI: 10.3847/1538-4357/ad9b7c
TIspe: 2.2m CAFOS

9. *Title:* **Chemical Fingerprints of M Dwarfs: High-resolution Spectroscopy on 31 M Dwarfs with SPIRou**
Authors: Jahandar, F., Doyon, R., Artigau, É., et al.
DOI: 10.3847/1538-4357/ad91a0
TIspe: 3.5m CARMENES

10. *Title:* **Multiband Optical Variability of the Blazar 3C 454.3 on Diverse Timescales**
Authors: Dogra, K., Gupta, A. C., Raiteri, C. M., et al.
DOI: 10.3847/1538-4365/ad8e3d
TIspe: 2.2m CAFOS

11. *Title:* **Comparing metallicity correlations in nearby non-AGN and AGN-host galaxies**
Authors: Li, S.-L., Li, Z., Wisnioski, E., et al.
DOI: 10.1093/mnras/stae2603
TIspe: 3.5m PMAS

12. *Title:* **Astroclimes measuring the abundance of CO2 and CH4 in the Earth's atmosphere using astronomical observations**
Authors: Fetzner Keniger, M. A., Armstrong, D., Brogi, M., et al.
DOI: 10.1093/rasti/rzaf041
Tlspe: 3.5m CARMENES

13. *Title:* **KOBE-1: The first planetary system from the KOBE survey: Two planets likely residing in the sub-Neptune mass regime around a late K-dwarf**
Authors: Balsalobre-Ruza, O., Lillo-Box, J., Silva, A. M., et al.
DOI: 10.1051/0004-6361/202452631
Tlspe: 3.5m CARMENES

14. *Title:* **Characterization of Markarian 421 during its most violent year: Multiwavelength variability and correlations**
Authors: Abe, K., Abe, S., Abhir, J., et al.
DOI: 10.1051/0004-6361/202451624
Tlspe: 2.2m CAFOS

15. *Title:* **Demographics of M Dwarf Binary Exoplanet Hosts Discovered by TESS**
Authors: Matson, R. A., Gore, R., Howell, S. B., et al.
DOI: 10.3847/1538-3881/ad9923
Tlspe: 2.2m AstraLux

16. *Title:* **Asymmetries and Circumstellar Interaction in the Type II SN 2024bch**
Authors: Andrews, J. E., Shrestha, M., Bostroem, K. A., et al.
DOI: 10.3847/1538-4357/ada555
Tlspe: 2.2-m CAFOS

17. *Title:* **Analysis of the Internal Radial Gradient of Chemical Abundances in Spiral Galaxies from CALIFA**
Authors: Cardoso, A. F. S., Cavichia, O., Mollá, M., Sánchez-Menguiano, L.
DOI: 10.3847/1538-4357/ad9eab
Tlspe: 3.5m PMAS

18. *Title:* **Tracing the Winds: A Uniform Interpretation of Helium Escape in Exoplanets from Archival Spectroscopic Observations**
Authors: McCreery, P., Dos Santos, L. A., Espinoza, N., Allart, R., Kirk, J.
DOI: 10.3847/1538-4357/ada6b9
Tlspe: 3.5m CARMENES

19. *Title:* **Stellar Occultation Observations of (38628) Huya and Its Satellite: A Detailed Look into the System**
Authors: Rommel, F. L., Fernández-Valenzuela, E., Proudfoot, B. C. N., et al.
DOI: 10.3847/PSJ/adabc1
Tlspe: 1.23m ASI461

20. *Title:* **Galaxy mass-size segregation in the cosmic web from the CAVITY parent sample**
Authors: Pérez, I., Gil, L., Ferré-Mateu, A., et al.
DOI: 10.1051/0004-6361/202452514
Tlspe: 3.5m PMAS

21. *Title:* **IXPE observation of the low-synchrotron peaked blazar S4 0954+65 during an optical-X-ray flare**
Authors: Kouch, P. M., Liodakis, I., Fenu, F., et al.
DOI: 10.1051/0004-6361/202453127
Tlspe: 2.2m CAFOS

22. *Title:* **Hot Rocks Survey I: A possible shallow eclipse for LHS 1478 b**
Authors: August, P. C., Buchhave, L. A., Diamond-Lowe, H., et al.
DOI: 10.1051/0004-6361/202452611
Tlspe: 3.5m CARMENES

23. *Title:* **Astrometry, orbit determination, and thermal inertia of the Tianwen-2 target asteroid (469219) Kamo'oalewa**
Authors: Fenucci, M., Novakovi, B., Zhang, P., et al.
DOI: 10.1051/0004-6361/202453222
Tlspe: Schmidt

24. *Title:* **J-PLUS: Spectroscopic validation of Hα emission line maps in spatially resolved galaxies**
Authors: Rahna, P. T., Akhlaghi, M., López-Sanjuan, C., et al.
DOI: 10.1051/0004-6361/202453633
Tlspe: 3.5m PMAS

25. *Title:* **Insights from the first flaring activity of a high synchrotron peaked blazar with X-ray polarization and VHE gamma rays**
Authors: MAGIC Collaboration, Abe, K., Abe, S., Abhir, J., et al.
DOI: 10.1051/0004-6361/202452785
Tlspe: 2.2m CAFOS

26. *Title:* **Gaia-ESO survey: Massive stars in the Carina Nebula: II. The spectroscopic analysis of the O-star population**
Authors: Berlanas, S. R., Mahy, L., Herrero, A., et al.
DOI: 10.1051/0004-6361/202453269
Tlspe: 2.2m CAFE

27. *Title:* **TOI-2015 b: A sub-Neptune in strong gravitational interaction with an outer non-transiting planet**
Authors: Barkaoui, K., Korth, J., Gaidos, E., et al.
DOI: 10.1051/0004-6361/202452916
Tlspe: 1.23m iKonXL230

28. *Title:* **Mind the Gap. II. The Near-UV Fluxes of M Dwarfs**
Authors: Jao, W.-C., Youngblood, A.
DOI: 10.3847/1538-3881/ada771
Tlspe: 3.5m CARMENES

29. *Title:* **Supernova Siblings and Spectroscopic Host Galaxy Properties**
Authors: Salo, L., Zhou, R., Johnson, S., Kelly, P., Jones, G. L.
DOI: 10.3847/1538-4357/adad60
Tlspe: 3.5m PMAS

30. *Title:* **Multiplicity of Luminous Blue Variable Stars**
Authors: Lobel, A., Gorlova, N.
DOI: 10.3390/galaxies13020029
Tlspe: 3.5m CARMENES

31. *Title:* **The CARMENES search for exoplanets around M dwarfs: Understanding the wavelength dependence of radial velocity measurements**
Authors: Jeffers, S. V., Barnes, J. R., Schfer, P., et al.
DOI: 10.1051/0004-6361/202347510
Tlspe: 3.5m CARMENES

32. *Title:* **Searching for hot water world candidates with CHEOPS: Refining the radii and analysing the internal structures and atmospheric lifetimes of TOI-238 b and TOI-1685 b**
Authors: Egger, J. A., Kubyshkina, D., Alibert, Y., et al.
DOI: 10.1051/0004-6361/202453325
Tlspe: 3.5m CARMENES

33. *Title:* **Performance of the Stellar Abundances and atmospheric Parameters Pipeline adapted for M dwarfs: I. Atmospheric parameters from the spectroscopic module**
Authors: Olander, T., Gent, M. R., Heiter, U., et al.
DOI: 10.1051/0004-6361/202452048
Tlspe: 3.5m CARMENES

34. *Title:* **TESS and HARPS-N unveil two planets transiting TOI-1453: A super-Earth and one of the lowest mass sub-Neptunes**
Authors: Stalport, M., Mortier, A., Cretignier, et al.
DOI: 10.1051/0004-6361/202452969
Tlspe: 2.2m AstraLux

35. *Title:* **The CARMENES search for exoplanets around M dwarfs: Occurrence rates of Earth-like planets around very low-mass stars**
Authors: Kaminski, A., Sabotta, S., Kemmer, J., et al.
DOI: 10.1051/0004-6361/202453381
Tlspe: 3.5m CARMENES

36. *Title:* **The SPIRou Legacy Survey: Near-infrared and optical radial velocity analysis of Gl 480 and Gl 382 using SPIRou, HARPS and CARMENES spectrographs**
Authors: Ould-Elhkim, M., Moutou, C., Donati, J.-F., et al.
DOI: 10.1051/0004-6361/202347814
Tlspe: 3.5m CARMENES

37. *Title:* **The Orbital Period of the Long-period and Colliding-wind Binary WR 146 from Radio Interferometry of the Shock Cone**
Authors: Wen, S., Zhang, B., Xu, S., et al.
DOI: 10.3847/1538-3881/adba57
Tlspe: 2.2m Boller&Chivens

38. *Title:* **When is a Bulge Not a Bulge? Revealing the Satellite Nature of NGC 5474's Bulge**
Authors: Garner, R., Mihos, J. C., Rosales-Ortega, F. F.
DOI: 10.3847/1538-4357/adbbd0
Tlspe: 3.5m PMAS

39. *Title:* **X-Ray Polarization of the High-synchrotron-peak BL Lacertae Object 1ES 1959+650 during Intermediate and High X-Ray Flux States**
Authors: Pacciani, L., Kim, D. E., Middei, R., Marshall, H. L., et al.
DOI: 10.3847/1538-4357/adbbe2
Tlspe: 2.2m CAFOS

40. *Title:* **SWIPE: Stars With Pulsations and Eclipses**
Authors: Southworth, J.
DOI: 10.31577/caosp.2025.55.3.165
Tlspe: 2.2m CAFOS

41. *Title:* **Fourier disentangling of spectra in observational surveys**
Authors: Hadrava, P.
DOI: 10.31577/caosp.2025.55.3.325
Tlspe: 2.2m FOCES

42. *Title:* **Two complementary approaches of the periodicity detection in astronomical time series**
Authors: Pop, A., Craciun, M.
DOI: 10.1007/s10686-025-09995-7
Tlspe: 3.5m CARMENES

43. *Title:* **Activity of comet 7P/Pons-Winnecke during the 2021 apparition**
Authors: Mariblanca-Escalona, I., Lara, L. M., Moreno, F., Gutiérrez, P. J., Evangelista-Santana, M.
DOI: 10.1093/mnras/staf370
Tlspe: 2.2m CAFOS

44. *Title:* **Detectability of oxygen fugacity regimes in the magma ocean world 55 Cancri e at high spectral resolution**
Authors: Dash, S., Brogi, M., Seidler, et al.
DOI: 10.1093/mnras/staf466
Tlspe: 3.5m CARMENES

45. *Title:* **Euclid: Early Release Observations Dwarf galaxies in the Perseus galaxy cluster**
Authors: Marleau, F. R., Cuillandre, J.-C., Cantiello, M., et al.
DOI: 10.1051/0004-6361/202450799
Tlspe: 2.2m CAFOS

46. *Title:* **Precise radial velocities of giant stars: XVII. Distinguishing planets from intrinsically induced radial velocity signals in evolved stars**
Authors: Spaeth, D., Reffert, S., Trifonov, T., et al.
DOI: 10.1051/0004-6361/202453500
Tlspe: 3.5m CARMENES

47. *Title:* **The trans-Neptunian object (119951) 2002 KX14 revealed via multiple stellar occultations**
Authors: Rizos, J. L., Ortiz, J. L., Rommel, F. L., et al.
DOI: 10.1051/0004-6361/202554154
Tlspe: 1.23m DLR-MKIIICCD

48. *Title:* **The EDGE-CALIFA survey:The effect of active galactic nucleus feedback on the integrated properties of galaxies at different stages of their evolution**
Authors: Bazzi, Z., Colombo, D., Bigiel, F., et al.
DOI: 10.1051/0004-6361/202453437
Tlspe: 3.5m PMAS

49. *Title:* **Size and shape of the trans-Neptunian object (470316) 2007 OC10: Comparison with thermal data**
Authors: Gómez-Limón, J. M., Leiva, R., Ortiz, J. L., et al.
DOI: 10.1051/0004-6361/202453540
Tlspe: 1.23m DLR-MKIIICCD

50. *Title:* **Characterisation of the hyperactive star HD 251108: Spectroscopic monitoring and discovery of optical superflares**
Authors: Fuhrmeister, B., Mittag, M., Czesla, S., et al.
DOI: 10.1051/0004-6361/202553825
Tlspe: 3.5m CARMENES

51. *Title:* **The CARMENES search for exoplanets around M dwarfs: Cluster analysis of signals from spectral activity indicators to search for shared periods**
Authors: Kemmer, J., Lafarga, M., Fuhrmeister, B., et al.
DOI: 10.1051/0004-6361/202347056
Tlspe: 3.5m CARMENES

52. *Title:* **JWST/MIRI Study of the Enigmatic Mid-infrared Rings in the Planetary Nebula NGC 1514**
Authors: Ressler, M. E., Aller, A., Jones, D., et al.
DOI: 10.3847/1538-3881/adbbcf
Tlspe: 2.2m CAFOS

53. *Title:* **Calibrating the Instrumental Drift in MAROON-X Using an Ensemble Analysis**
Authors: Basant, R., Das, T., Bean, J. L., et al.
DOI: 10.3847/1538-3881/adba48
Tlspe: 3.5m CARMENES

54. *Title:* **High Optical-to-X-Ray Polarization Ratio Reveals Compton Scattering in BL Lacertae's Jet**
Authors: Agudo, I., Liodakis, I., Otero-Santos, J., et al.
DOI: 10.3847/2041-8213/adc572
Tlspe: 2.2m CAFOS

55. *Title:* **Quantified Estimation of Molecular Detections across Different Classes of Neptunian Atmospheres Using Cross-correlation Spectroscopy: Prospects for Future Extremely Large Tlspes with High-resolution Spectrographs**
Authors: Dubey, D., Majumdar, L., Beichman, et al.
DOI: 10.3847/1538-4365/adbf05
Tlspe: 3.5m CARMENES

56. *Title:* **Characterizing M dwarf host stars of two candidate Hycean worlds**
Authors: Sairam, L., Madhusudhan, N.
DOI: 10.1093/mnras/staf528
Tlspe: 3.5m CARMENES

57. *Title:* **Helium escape signatures are generally strongest during younger ages but this age dependence is lost in the diversity of observed exoplanets**
Authors: Allan, A. P., Vidotto, A. A.
DOI: 10.1093/mnras/staf566
Tlspe: 3.5m CARMENES

58. *Title:* **Retrieving day- and nightside atmospheric properties of the ultra-hot Jupiter TOI-2109b: Detection of Fe and CO emission lines and evidence for inefficient heat transport**
Authors: Cont, D., Nortmann, L., Lesjak, F., et al.
DOI: 10.1051/0004-6361/202554572
Tlspe: 3.5m CARMENES

59. *Title:* **Hot Rocks Survey: II. The thermal emission of TOI-1468 b reveals a bare hot rock**
Authors: Meier Valds, E. A., Demory, B.-O., Diamond-Lowe, H., et al.
DOI: 10.1051/0004-6361/202453449
Tlspe: 3.5m CARMENES

60. *Title:* **Optical constraints on the coldest metal-poor population**
Authors: Zhang, J.-Y., Lodieu, N., Martín, E. L., et al.
DOI: 10.1051/0004-6361/202453246
Tlspe: 3.5m O2000

61. *Title:* **From precursor to afterglow: The complex evolution of GRB 210312B**
Authors: Jelnek, M., Grebenev, S. A., Minaev, P. Y., et al.
DOI: 10.1051/0004-6361/202453636
Tlspe: 2.2m CAFOS

62. *Title:* **The present-day cosmic phosphorus abundance**
Authors: Aschenbrenner, P., Butler, K., Przybilla, N.
DOI: 10.1051/0004-6361/202554356
Tlspe: 2.2m CAFE

63. *Title:* **Distinguishing the formation paths of massive compact early-type galaxies through their internal dynamical structures**
Authors: Zhu, L., Chies-Santos, A. L., Moura, M. T., Shi, H.
DOI: 10.1051/0004-6361/202453083
Tlspe: 3.5m PMAS

64. *Title:* **Rendezvous in CAVITY: Kinematics and gas properties of an isolated dwarf-dwarf merging pair in a cosmic void region**
Authors: Bidaran, B., de Daniloff, S., Pérez, I., et al.
DOI: 10.1051/0004-6361/202453556
Tlspe: 3.5m PMAS

65. *Title:* **Determining the origin of the X-ray emission in blazars through multiwavelength polarization**
Authors: Liodakis, I., Zhang, H., Boula, S., et al.
DOI: 10.1051/0004-6361/202554747
Tlspe: 2.2m CAFOS

66. *Title:* **Search for Kink Events in Variable Fermi-LAT Blazars**
Authors: Penil, P., Zhang, H., Otero-Santos, J., et al.
DOI: 10.3847/1538-4357/adcbab
Tlspe: 2.2m CAFOS

67. *Title:* **Spatially Resolved Star Formation Rate and Dust Attenuation of Nearby Galaxies from CALIFA, GALEX, and WISE Data**
Authors: Lee, J. C., Lee, J. H., Jeong, H., Pak, M., Oh, S.
DOI: 10.3847/1538-4357/add1d6
Tlspe: 3.5m PMAS

68. *Title:* **Planet Masses, Radii, and Orbits from NASA's K2 Mission**
Authors: Howard, A. W., Sinukoff, E., Blunt, S., et al.
DOI: 10.3847/1538-4365/adc5e4
Tlspe: 3.5m CARMENES

69. *Title:* **Supermassive Black Holes with High Accretion Rates in Active Galactic Nuclei. XIV. Long-duration High-cadence Reverberation Mapping Results for 11 PG Quasars**
Authors: Hu, C., Yao, Z.-H., Chen, Y.-J., et al.
DOI: 10.3847/1538-4365/add40b
Tlspe: 2.2m CAFOS

70. *Title:* **Ground-breaking exoplanet science with the ANDES spectrograph at the ELT**
Authors: Palle, E., Biazzo, K., Bolmont, E., et al.
DOI: 10.1007/s10686-025-10000-4
Tlspe: 3.5m CARMENES

71. *Title:* **On Error Estimates for Hapke Photometric Model Parameters from Disk-integrated Phase Curves of Airless Planetary Bodies**
Authors: Helfenstein, P., Verbiscer, A. J.
DOI: 10.3847/PSJ/adcd5d
Tlspe: 2.2m CAFOS

72. *Title:* **Spatially resolved stellar populations and emission line properties in nearby galaxies with J-PLUS: I. Method and first results for the M101 group**
Authors: Thain-Batista, J., Cid Fernandes, R., González Delgado, R. M., et al.
DOI: 10.1051/0004-6361/202554704
Tlspe: 3.5m PMAS

73. *Title:* **Chemical composition of asymptotic giant branch stars in Galactic open clusters: Implications for the initial-final mass relation**
Authors: Abia, C., Marigo, P., Domínguez, I., et al.
DOI: 10.1051/0004-6361/202555143
TIspe: 3.5m CARMENES

74. *Title:* **The vertical structure of the stellar disk in NGC 551**
Authors: Raut, H., Patra, N. N., Biswas, P., Roy, N., et al.
DOI: 10.1051/0004-6361/202450431
TIspe: 3.5m PMAS

75. *Title:* **The EDGE-CALIFA Survey: An integral field unit-based integrated molecular gas database for galaxy evolution studies in the Local Universe**
Authors: Colombo, D., Kalinova, V., Bazzi, Z., et al.
DOI: 10.1051/0004-6361/202453179
TIspe: 3.5m PMAS

76. *Title:* **The EDGE-CALIFA survey:Star formation relationships for galaxies at different stages of their evolution**
Authors: Colombo, D., Kalinova, V., Bazzi, Z., et al.
DOI: 10.1051/0004-6361/202453217
TIspe: 3.5m PMAS

77. *Title:* **MOND and Isolated Elliptical Galaxies - NGC 6411**
Authors: Richtler, T., Caso, J.-P., Bassino, L. P., Hilker, M., Nagar, N.
DOI: 10.1002/asna.70011
TIspe: 3.5m PMAS

78. *Title:* **Spectroastrometry and Reverberation Mapping of Active Galactic Nuclei. II. Measuring Geometric Distances and Black Hole Masses of Four Nearby Quasars**
Authors: Li, Y.-R., Shangguan, J., Wang, J.-M., et al.
DOI: 10.3847/1538-4357/addf40
TIspe: 2.2m CAFOS

79. *Title:* **On Convective Turnover Times and Dynamos in Low-mass Stars**
Authors: Gossage, S., Kiman, R., Monsch, K., et al.
DOI: 10.3847/1538-4357/adde4d
TIspe: 3.5m CARMENES

80. *Title:* **Long-term reverberation mapping of iron coronal lines in MKN 110**
Authors: Yin, C., Lawrence, A., Ward, M., Homan, D., Kollatschny, W.
DOI: 10.1093/mnras/staf875
TIspe: 2.2m CAFOS

81. *Title:* **NIRPS detection of delayed atmospheric escape from the warm and misaligned Saturn-mass exoplanet WASP-69 b**
Authors: Allart, R., Carteret, Y., Bourrier, V., et al.
DOI: 10.1051/0004-6361/202452525
TIspe: 3.5m CARMENES

82. *Title:* **Flare frequency in M dwarfs belonging to young moving groups**
Authors: Mamonova, E., Shan, Y., Kowalski, A. F., Wedemeyer, S., Werner, S. C.
DOI: 10.1051/0004-6361/202554614
TIspe: 3.5m CARMENES

83. *Title:* **Radial velocity homogeneous analysis of M dwarfs observed with HARPS: II. Detection limits and planetary occurrence statistics**
Authors: Mignon, L., Delfosse, X., Meunier, N., et al.
DOI: 10.1051/0004-6361/202451142
TIspe: 3.5m CARMENES

84. *Title:* **Discovery of a transiting hot water-world candidate orbiting Ross 176 with TESS and CARMENES**
Authors: Geraldía-González, S., Orell-Miquel, J., Pall, E., et al.
DOI: 10.1051/0004-6361/202553719
TIspe: 3.5m CARMENES

85. *Title:* **The CARMENES search for exoplanets around M dwarfs: Revisiting the GJ 317, GJ463, and GJ 3512 systems and two newly discovered planets orbiting GJ9773 and GJ 508.2**
Authors: Morales, J. C., Ribas, I., Reffert, S., et al.
DOI: 10.1051/0004-6361/202554992
TIspe: 3.5m CARMENES

86. *Title:* **The Snake filament: A study of polarization and kinematics**
Authors: Tabatabaei, F. S., Redaelli, E., Franco, G. A. P., Caselli, P., Obolentseva, M.
DOI: 10.1051/0004-6361/202554135
TIspe: 3.5m O2000

87. *Title:* **X-SHOOTER spectrum of comet 3I/ATLAS: Insights into a distant interstellar visitor**
Authors: Álvarez-Candal, A., Rizos, J. L., Lara, L. M., et al.
DOI: 10.1051/0004-6361/202556338
TIspe: 2.2m CAFOS

88. *Title:* **Eleven New Transiting Brown Dwarfs and Very-low-mass Stars from TESS**
Authors: Vowell, N., Rodríguez, J. E., Latham, D. W., et al.
DOI: 10.3847/1538-3881/addd17
TIspe: 1.23m iKon-XL230

89. *Title:* **Contemporaneous X-Ray and Optical Polarization of Extremely High-synchrotron-peaked Blazar H 1426+428**
Authors: Banerjee, A., Garg, A., Rawat, D., et al.
DOI: 10.3847/2041-8213/adeca8
TIspe: 2.2m CAFOS

90. *Title:* **Exploring the habitability and interior composition of exoplanets lying within the extended habitable zone**
Authors: Deb, S., Sharma, K., Biswas, S., Medhi, B. J.
DOI: 10.1093/mnras/staf1057
TIspe: 3.5m CARMENES

91. *Title:* **Temperature-compensating package for OH line filters for astronomy: II. manufacture, assembly, and performance study**
Authors: Luo, X., Rodríguez Álvarez, C. E., et al.
DOI: 10.1364/OE.560633
TIspe: 3.5m CARMENES

92. *Title:* **The star HIP 41378 potentially misaligned with its cohort of long-period planets**
Authors: Grouffal, S., Santerne, A., Bourrier, V., et al.
DOI: 10.1051/0004-6361/202555487
TIspe: 3.5m CARMENES

93. *Title:* **Chromaticity of stellar activity in radial velocities: Anti-correlated families of lines on the M dwarf EV Lac with SPIRou and SOPHIE**
Authors: Larue, P., Delfosse, X., Carmona, A., et al.
DOI: 10.1051/0004-6361/202554963
TIspe: 3.5m CARMENES

94. *Title:* **MONOS: Multiplicity Of Northern O-type Spectroscopic systems: III. New orbits and GaiaTESS analysis for ten SB2E systems**
Authors: Holgado, G., Maz Apellniz, J., Gamen, R. C.
DOI: 10.1051/0004-6361/202556068
TIspe: 2.2m CAFE

95. *Title:* **Down But Not Out: The Case of Long-period Comet C/2021 O3 (Panstarrs)**
Authors: Jewitt, D., Li, J., Jaeger, M., Kim, Y.
DOI: 10.3847/1538-3881/adea4d
TIspe: Schmidt

96. *Title:* **Rotation Periods of Candidate Single Late-M Dwarfs in TESS**
Authors: Lambier, S., Metchev, S., Miles-Páez, P., et al.
DOI: 10.3847/1538-3881/adf195
TIspe: 3.5m CARMENES

97. *Title:* **Improving radial velocity precision with CARMENES-PLUS: An upgrade of the near-infrared spectrograph cooling system**
Authors: Varas, R., Calvo-Ortega, R., Amado, P. J., et al.
DOI: 10.1007/s10686-025-10020-0
TIspe: 3.5m CARMENES

98. *Title:* **Galaxy groups in various evolutionary stages**
Authors: Parra Ramos, K., Adami, C., Clerc, N., et al.
DOI: 10.1051/0004-6361/202554570
TIspe: 2.2m CAFOS

99. *Title:* **An updated catalog of HIRES/ Keck radial velocity measurements: Including Ca II H&K measurements**
Authors: Teklu, J. T., Perdelwitz, V., Butler, R. P., et al.
DOI: 10.1051/0004-6361/202555034
TIspe: 3.5m CARMENES

100. *Title:* **A second low-mass planet orbiting the nearby M-dwarf GJ 536**
Authors: Surez Mascareno, A., del Burgo, C., Delisle, J.-B., et al.
DOI: 10.1051/0004-6361/202555731
TIspe: 3.5m CARMENES

101. *Title:* **Probing the extent of WASP-52 b's atmosphere: High-resolution observations and 3D modeling insights**
Authors: Nail, F., Oklopri, A., MacLeod, M., et al.
DOI: 10.1051/0004-6361/202555613
TIspe: 3.5m CARMENES

102. *Title:* **Discovery of Giant Bubbles in the Hot Gaseous Halo of the Massive Disk Galaxy NGC 6286**
Authors: He, L., Li, Z., Li, Z., Garca-Benito, R., Liu, Y., Hou, M.
DOI: 10.3847/1538-4357/ae0722
TIspe: 3.5m PMAS

103. *Title:* **Exploring Warm Jupiter Migration Pathways with Eccentricities. I. Catalog of Uniform Keplerian Fits to Radial Velocities of 200 Warm Jupiters**

Authors: Morgan, M., Bowler, B. P., Tran, Q. H., et al.
DOI: 10.3847/1538-4365/adf55d
TIspe: 3.5m CARMENES

104. *Title:* **A bar stability criterion distinguishing between modified gravity and dark matter in galaxies**

Authors: Kashfi, T., Roshan, M., Cuomo, V., Famaey, B., Habibi, A., Nagesh, S. T.
DOI: 10.1093/mnras/staf1527
TIspe: 3.5m PMAS

105. *Title:* **Probing the axial symmetry of gamma-ray burst jets using afterglow polarimetry**

Authors: Baxter, T., Kobayashi, S.
DOI: 10.1093/mnras/staf1547
TIspe: 2.2m CAFOS

106. *Title:* **Fundamental effective temperature measurements for eclipsing binary stars - VI. Improved methodology and application to the circumbinary planet host star BEBOP-3**

Authors: Maxted, P. F. L., Miller, N. J., Baycroft, T. A., et al.
DOI: 10.1093/mnras/staf1856
TIspe: 3.5m CARMENES

107. *Title:* **Unveiling blazar synchrotron emission: A multiwavelength polarimetric study of high-synchrotron and low-synchrotron peaked populations**

Authors: Capecchiacci, S., Liodakis, I., Middei, R., et al.
DOI: 10.1051/0004-6361/202555392
TIspe: 2.2m CAFOS

108. *Title:* **Polarimetric diversity in tidal disruption events: Comparative study of low-polarised sources with AT2020mot**

Authors: Floris, A., Liodakis, I., Koljonen, K. I. I., et al.
DOI: 10.1051/0004-6361/202555626
TIspe: 2.2m CAFOS

109. *Title:* **The soft X-ray transient EP241021A: A cosmic explosion with a complex off-axis jet and cocoon from a massive progenitor**

Authors: Gianfagna, G., Piro, L., Bruni, G., et al.
DOI: 10.1051/0004-6361/202555450
TIspe: 2.2m CAFOS

110. *Title:* **A planetary system with a sub-Neptune planet in the habitable zone of TOI-2093**

Authors: Sanz-Forcada, J., González-Álvarez, E., Zapatero Osorio, M. R., et al.
DOI: 10.1051/0004-6361/202556361
TIspe: 3.5m CARMENES

111. *Title:* **Low-metallicity massive single stars with rotation: III. Source of ionization and C IV emission in I Zw 18**

Authors: Szécsi, D., Tramper, F., Kubtov, B., et al.
DOI: 10.1051/0004-6361/202452483
TIspe: 3.5m PMAS

112. *Title:* **A high geometric albedo and small size for the Haumea cluster member (24835) 1995 SM55 determined from a stellar occultation and photometric observations**

Authors: Ortiz, J. L., Morales, N., Sicardy, B., et al.
DOI: 10.1051/0004-6361/202556498
TIspe: 1.23m DLR

113. *Title:* **A family of binaries with an extreme mass ratio**

Authors: Nazé, Y., Rauw, G., Koaczek-Szymaski, P. A., Britavskiy, N., Labadie-Bartz, J.
DOI: 10.1051/0004-6361/202556441
TIspe: 3.5m CARMENES

114. *Title:* **Stellar-activity analysis of the nearby M dwarf GJ 526: Multi-dimensional Gaussian-process modelling of RV, FWHM, and S-index**

Authors: Stefanov, A. K., González Hernández, J. I., Suárez Mascareno, A., et al.
DOI: 10.1051/0004-6361/202556346
TIspe: 3.5m CARMENES

115. *Title:* **Evaluating the chromospheric structure model of AD Leo using RH 1.5D and magnetic field data**

Authors: Liu, S., Shi, J., Wei, H., Li, W., Liu, J., Yang, S., Han, H.
DOI: 10.1051/0004-6361/202555513
TIspe: 3.5m CARMENES

116. *Title:* **Discovery of a Nearby Habitable Zone Super-Earth Candidate Amenable to Direct Imaging**

Authors: Beard, C., Robertson, P., Lubin, J., et al.
DOI: 10.3847/1538-3881/ae0e20
TIspe: 3.5m CARMENES

117. *Title:* **The Radio Flare and Multiwavelength Afterglow of the Short GRB 231117A: Energy Injection from a Violent Shell Collision**

Authors: Anderson, G. E., Lamb, G. P., Gompertz, B. P., et al.
DOI: 10.3847/1538-4357/adfed7
TIspe: 2.2m CAFOS

118. *Title:* **Detection of Compton Scattering in the Jet of 3C 84**

Authors: Liodakis, I., Chakraborty, S., Marin, F., et al.
DOI: 10.3847/2041-8213/ae157d
TIspe: 2.2m CAFOS

119. *Title:* **Early Evidence for Polar Orbits of Sub-Saturns around Hot Stars**

Authors: Dugan, E., Wang, X.-Y., Heron, A., et al.
DOI: 10.3847/2041-8213/ae18c7
TIspe: 3.5m CARMENES

120. *Title:* **Metallicity differences between Type IIP and stripped-envelope supernova environments**

Authors: Ganss, R., Pledger, J. L., Sansom, A. E., James, P. A., Puls, J., Habergham-Mawson, S. M.
DOI: 10.1093/mnras/staf1496
TIspe: 3.5m PMAS

121. *Title:* **Pressure-regulated formation of molecular clouds and stars: the case of the Milky Way**

Authors: Franco, J., Rodríguez-Puebla, A., Ballesteros-Paredes, J., Zamora-Avilez, M.
DOI: 10.1093/mnras/staf1572
TIspe: 3.5m PMAS

122. *Title:* **Serendipitous occultations by sub-kilometre-sized trans-Neptunian objects with MIOSOTYS - I**

Authors: Doressoundiram, A., Roques, F., Chang, H.-K., Kral, Q., Maquet, L., Sicardy, B.
DOI: 10.1093/mnras/staf1608
TIspe: 1.23m MIOSOTYS

123. *Title:* **SN 2024bfu, SN 2025qe, and the early light curves of type Iax supernovae**

Authors: Magee, M. R., Killestein, T. L., Pursiainen, M., et al.
DOI: 10.1093/mnras/staf1675
TIspe: 2.2m CAFOS

124. *Title:* **The EDGE-CALIFA Survey: influence of mergers on radial profiles of star-formation properties**

Authors: Garay-Solis, Y., Barrera-Ballesteros, J. K., Carigi, L., et al.
DOI: 10.1093/mnras/staf1653
TIspe: 3.5m PMAS

125. *Title:* **Searching for Exoplanets Born Outside the Milky Way: VOYAGERS Survey Design**

Authors: Aloisi, R., Vanderburg, A., Soares-Furtado, M., et al.
DOI: 10.1088/1538-3873/ae1cf0
TIspe: 3.5m CARMENES

126. *Title:* **Synchronous Rotation in the (120347) SalaciaActaea System**

Authors: Collyer, C., Fernández-Valenzuela, E., Ortiz, J. L., et al.
DOI: 10.3847/PSJ/ae0b6a
TIspe: 2.2m CAFOS

127. *Title:* **Multiband optical variability on diverse timescales of the blazar Ton 599 from 2011 to 2023**

Authors: Vince, O., Raiteri, C. M., Villata, M., et al.
DOI: 10.1051/0004-6361/202555986
TIspe: 2.2m CAFOS

128. *Title:* **Upper limits on atmospheric abundances of KELT-11b and WASP-69b from a retrieval approach**

Authors: Lesjak, F., Nortmann, L., Cont, D., et al.
DOI: 10.1051/0004-6361/202555790
TIspe: 3.5m CARMENES

129. *Title:* **Intra-night optical polarization monitoring of blazars**

Authors: Polychronakis, A., Liodakis, I., Glykopoulou, A., et al.
DOI: 10.1051/0004-6361/202557558
TIspe: 2.2m CAFOS

130. *Title:* **SPORES-HWO. II. Companion Mass Limits and Updated Planet Properties for 120 Future Exoplanet Imaging Targets from 35 yr of Precise Doppler Monitoring**

Authors: Harada, C. K., Dressing, C. D., Turtelboom, E. V., et al.
DOI: 10.3847/1538-3881/ae0b62
TIspe: 3.5m CARMENES

131. *Title:* **The JWST Rocky Worlds DDT Program Reveals GJ 3929b to Likely Be a Bare Rock**

Authors: Xue, Q., Zhang, M., Coy, B. P., et al.

DOI: 10.3847/2041-8213/ae2098

Tlspe: 3.5m CARMENES

132. *Title:* **Refined M-type Star Catalog from LAMOST DR10: Measurements of Radial Velocities, Teff, log g, [M/H], and [α/M]**

Authors: Li, S., Li, Y.-B., Luo, A.-L., et al.

DOI: 10.3847/1538-4365/ae1586

Tlspe: 3.5m CARMENES

133. *Title:* **Continuous helium absorption from both the leading and trailing tails of WASP-107 b**

Authors: Krishnamurthy, V., Carteret, Y., Piaulet-Ghorayeb, C., et al.

DOI: 10.1038/s41550-025-02710-8

Tlspe: 3.5m CARMENES

134. *Title:* **Accurate geometric albedo, shape, and size of Hi'iaka from a stellar occultation**

Authors: Fernández-Valenzuela, E., Ortiz, J. L., Holler, B. J., et al.

DOI: 10.1038/s41467-025-65749-1

Tlspe: 1.23m DLR-MKIII

135. *Title:* **Doomed Worlds. II. Reassessing Suggestions of Orbital Decay for TrES-5 b**

Authors: Rothmeier, M., Adams, E. R., Schindler, K., et al.

DOI: 10.3847/PSJ/ae1b9c

Tlspe: 3.5m CARMENES