RÉPUBLIQUE
FRANÇAISE
Liberté
Égalité
Fraternité

cnes
CENTRE NATIONAL
D'ÉTUDES SPATIALES

PROGRAMMES & PERSPECTIVES

CONTENTS

OUR CORE PURPOSE

What is our mission? How are we working to serve society? What drives our teams from day to day? The answers to these questions are in CNES's core purpose statement, which aims to federate our people around a meaningful project, make clear how we work with our stakeholders and make us more attractive to young generations.

OUR CORE PURPOSE:

"Innovate, protect, explore: Driving French space excellence in pursuit of long-term sustainability."

OUR FOUR COMMITMENTS:

1 **Furthering France and Europe's strategic independence** through our actions supporting military space and independent access to space.

2 **Pushing the boundaries of science and technology,** and accompanying an innovative and competitive ecosystem, through our support, expertise and infrastructures, and within the limits of what our planet can sustain.

3 **Working to preserve our planet for future generations,** by aiding understanding of the Earth system and efforts to tackle climate change.

4 **Collaborating to make space a common good** for the benefit of all.

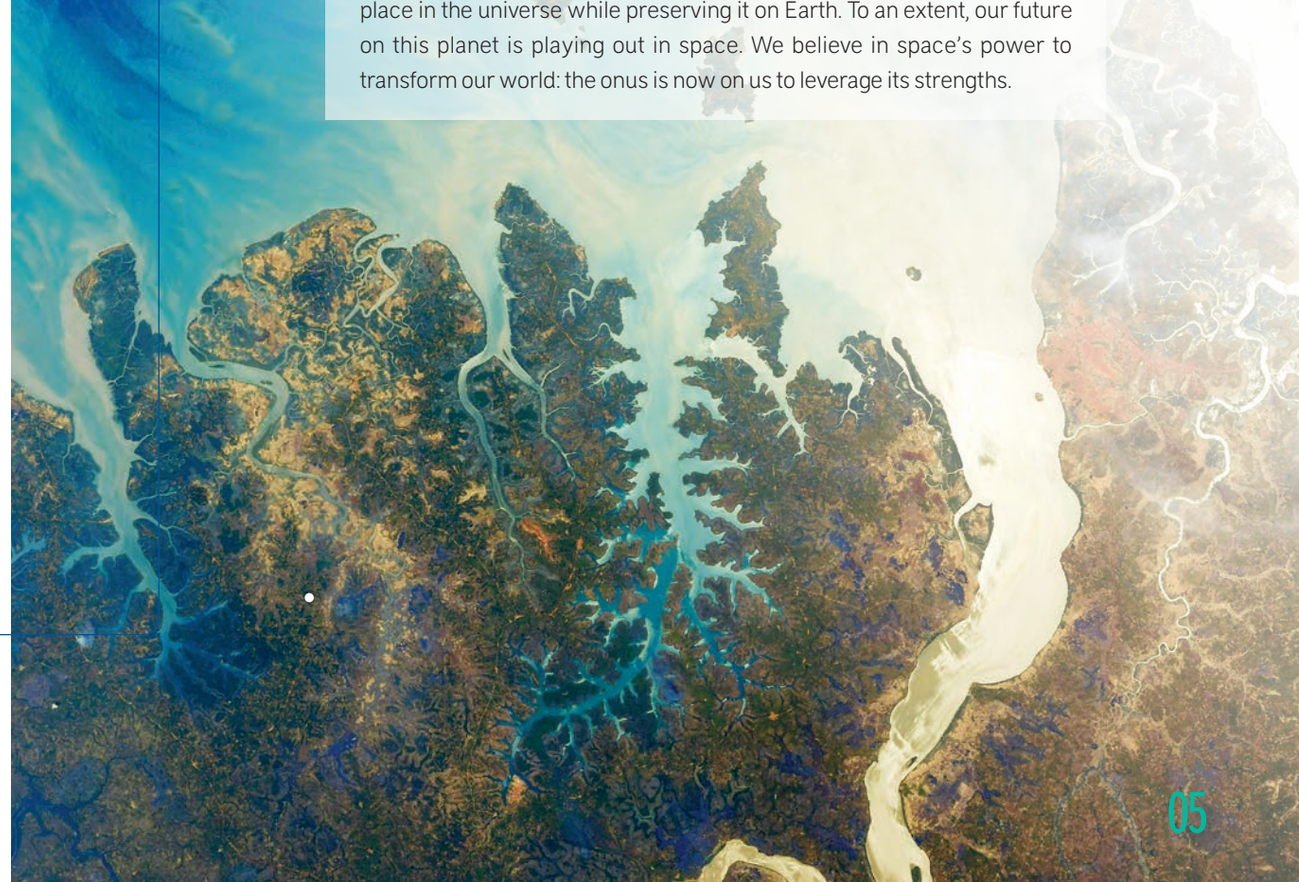
MISSION STATEMENT

Since being mandated at its inception in 1961 to make France a space power, CNES has worked constantly to nurture topflight science and technology expertise in support of our nation's sovereignty and strategic independence.

In light of the unprecedented geopolitical, environmental and economic challenges of today's world, our agency's mission is taking on a new dimension.

As we seek to further a French cultural heritage anchored in humanistic and universal values, we see outer space as a common good to be preserved for the benefit of all. To this end, we are playing a driving role in international partnerships.

It is around this singular vision that we are building the French space ecosystem and striving to sustain a strong European space programme, in which our ability to innovate is advancing knowledge, protecting populations and bringing them closer together, and delivering new insights into life's place in the universe while preserving it on Earth. To an extent, our future on this planet is playing out in space. We believe in space's power to transform our world: the onus is now on us to leverage its strengths.



INTERNATIONAL COOPERATION, A STRATEGIC LEVER FOR CNES

International cooperation is central to what CNES is doing to consolidate France's place as a leading global space power. Today, 90% of French space missions are being pursued with partners in Europe and around the world. These alliances give us access to cutting-edge capabilities and expertise, strengthen France's influence in space governance and support the nation's industry in world markets.

Europe remains the natural framework for our agency's actions. Alongside ESA, to which France is one of the leading contributors, CNES is playing a driving role in strategic programmes like Ariane 6, Copernicus, Galileo and IRIS², while accompanying space's growing importance within the European Union.

At the same time, we are pursuing foundational bilateral relations with the world's leading space powers —the United States, Japan and India—and developing partnerships with nations like the United Arab Emirates, South Korea and Singapore, who see space as a key enabler of economic and technological transformation.

Such collaborations also enable CNES to support France's space industry in export markets and aid France's diplomatic efforts.

In a fast-expanding sector, cooperation keeps France at the forefront of innovation and preserves its ability to shape the space landscape.

CNES HAS BILATERAL AND MULTILATERAL PARTNERSHIPS WITH

44

COUNTRIES AND INTERNATIONAL ORGANIZATIONS.

WITH

€3.25

BILLION
IN FUNDING COMMITMENTS FOR 2022-2025, FRANCE IS THE SECOND LARGEST CONTRIBUTOR TO ESA, BEHIND GERMANY.

L. Suchet (CNES) and A. Viveiros Camargo (AEB) sign the letter of intent between CNES and the Brazilian space agency to operate a balloon launch base in Brazil.

FOUR CENTRES OF EXCELLENCE SERVING FRANCE'S SPACE POLICY

In pursuing the nation's space ambitions, CNES relies on strong values like excellence, enthusiasm and the desire to take up the challenges that lie ahead. Every day, our 2,369 men and women are combining their talents to guarantee the nation's scientific and operational performance, boost the space sector's competitiveness and shape the future.

CNES

PARIS LES HALLES

Space policy

Our experts at CNES Head Office fulfil two key missions, mapping out French space policy and coordinating the agency's national, European and international programmes.

Head Office,
2, place Maurice Quentin,
75039 Paris Cedex 01
Tel.: +33(0)144767500

PARIS DAUMESNIL

Future launch systems

At our Paris Daumesnil field centre, our teams are working to develop Europe's launch systems and paving the way for future space transportation through reusable systems, advanced propulsion, in-orbit services and crewed space missions.

Paris Daumesnil Centre,
52, rue Jacques Hillairet,
75612 Paris Cedex
Tel.: +33(0)180977111

GUIANA SPACE CENTRE

Launch operations

The Guiana Space Centre (CSG) offers optimal conditions for launching all types of satellites into all orbits. At the heart of Europe's spaceport, 1,600 people from 40 European firms are working to ensure mission success.

Guiana Space Centre,
BP 726, 97387 Kourou Cedex
Tel.: +594(0)594335111

TOULOUSE SPACE CENTRE

Orbital systems

Our engineers in Toulouse are involved in every stage of orbital systems from design through to operations, and are exploiting space data and operating scientific balloons. With close on 3,000 people working on site, the Toulouse Space Centre (CST) is the largest space field centre in Europe.

Toulouse Space Centre,
18, avenue Edouard Belin,
31401 Toulouse Cedex 9
Tel.: +33(0)561273131

CNES BY THE NUMBERS

160 science projects and missions
currently pursued by CNES in five key domains:

- **Universe sciences and exploration**
- **Space transportation**
- **Earth studies and observation**
- **Telecommunications and navigation**
- **Security and defence**

2,369 people in Paris, Toulouse and Kourou.

100+ doctoral and post-doctoral research grants awarded every year to French and foreign students.

115 cooperation agreements
with 44 countries.

€2,237.4m
Budget in 2024,
including France's contribution to ESA of **€864m.**

40+ firms
receive support every year from CNES to develop and diversify the French and European space ecosystem, including new entrants and start-ups in the space sector.

€45
Mean yearly per-capita amount that France devotes to space, the world's second largest space budget.

935,000 youngsters
got involved in CNES's education actions in 2024.

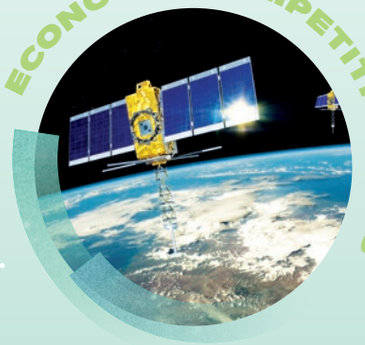
NEW SPACES
OUR 4 STRATEGIC PRIORITIES

In 2022, the government set the course for the nation's space strategy with the signing by CNES's Chairman & CEO and the agency's three overseeing ministers of our Objectives and Performance Contract (OPC). Under the banner New Spaces, this latest OPC revolves around four strategic ambitions:

SOVEREIGNTY

CNES will continue working to support our nation's SOVEREIGNTY by maintaining independent access to space for France and Europe, while bolstering our military space power.

ECONOMIC COMPETITIVENESS



We are also striving to boost the French space industry's ECONOMIC COMPETITIVENESS, helping the ecosystem's stakeholders to diversify through development of disruptive technologies and by establishing new partnership, service procurement and co-funding models with industry.

SCIENCE

We are pursuing our remit to serve SCIENCE through ambitious missions, extending French scientific excellence worldwide and playing our full part in future space adventures and exploration missions.

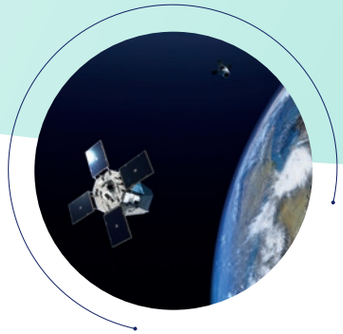
CLIMATE

And we are making CLIMATE SCIENCE a top priority, putting France at the forefront of space in this field and consolidating our commitments, notably through our Earth-observation programmes.

SOVEREIGNTY

STRENGTHENING OUR STRATEGIC INDEPENDENCE

Access to space dictates a nation's strategic independence. In a context of heightening geopolitical tensions and fierce technological competition, space capabilities are more than ever vital to sovereignty. As a pivotal player of the European space ecosystem, CNES has a key role in this respect, helping to develop, operate and evolve Europe's launchers while also modernizing the Guiana Space Centre, a strategic infrastructure for France and Europe. We are also closely supporting the nation's military space strategy decided in 2019, through the development and operation of military space assets, and working to ramp up Space Command at our Toulouse field centre.



State-of-the-art space capabilities

With the orbiting of three CSO optical and infrared observation satellites, two Syracuse-4 space telecommunications satellites and the CERES signals intelligence (SIGINT) constellation, the renewal of the nation's military space assets —to which CNES has made a key contribution— was completed at the start of 2025. We are already working with the Ministry of Armed Forces on the next generation. We are also closely involved in developing in partnership with industry the CO3D constellation to give the armed forces a very precise sovereign digital surface model. Validating technologies with demonstrators is also part of CNES's efforts supporting the Ministry of Armed Forces' future plans. NESS, a nanosatellite dedicated to detecting and locating interfering ground-based emitters, has been developed towards this end and is now in operation.

Ariane 6 and Vega-C ramping up

Following the successful first commercial launch of Ariane 6 and the return to flight of Vega-C, CNES is supporting the ramp-up of Europe's launchers with our ground and space systems expertise. In addition to these operational missions, we are working to adapt them to market needs. The agency is also laying the groundwork for the future through the joint development with Japan and Germany of Callisto, a reusable mini-launcher demonstrator designed to keep pace with global competitors, and by nurturing new players in the launch services market.

Defending our interests in space

The ambition of the military space strategy decided in 2019 is to defend our interests in space, including through active measures. With this in mind, CNES is leading the Yoda programme for the Ministry of Armed Forces, designed to demonstrate a surveillance and manoeuvrability capability in geostationary orbit.

CSG-NG - Modernizing Europe's spaceport

Since 2019, CNES and ESA have set in train a wide-ranging programme to modernize the Guiana Space Centre (CSG) and strengthen its position as Europe's spaceport. Dubbed CSG-NG (New Generation), this programme aims to make the launch base more attractive while reducing costs and decarbonizing operations. It plans notably to build a new operations centre, revamp its digital platform and put in place a new energy architecture, including an all-new hydrogen propellant production line in French Guiana.

ECONOMIC COMPETITIVENESS

SUSTAINING A COMPETITIVE SPACE ECOSYSTEM

The space sector is a driver of innovation sustaining highly qualified jobs, generating significant economic activity and irrigating many other strategic sectors. But it is also being forced to contend with deep transformations fuelled by technology disruptions and fierce global competition, notably through the rise of New Space. To keep France's space ecosystem competitive and consolidate its leadership position in Europe, CNES is pursuing a number of efforts. First, we are supporting the nation's satellite industry and applications sector by nurturing innovation and the development of breakthrough technologies. We are also fostering new applications and services, by building a data-driven economy, forging partnerships with players from the digital sphere and catalyzing user communities. And we are aiding private players seeking to develop their space business.

IRIS² - A new asset for secure European communications

CNES is actively supporting IRIS² (Infrastructure for Resilience, Interconnectivity and Security by Satellite), the European Union's future secure satellite constellation. The third pillar of Europe's space effort alongside Galileo and Copernicus, this programme aims to strengthen Europe's strategic independence in communications. IRIS² will also bring secure broadband connectivity to citizens, businesses and government agencies.

Kineis delivering global satellite IoT connectivity

Kineis is a French constellation of 25 nanosatellites dedicated to the Internet of Things (IoT), leveraging the experience acquired with the Argos system to offer low-energy satellite IoT connectivity anywhere in the world. It will connect millions of objects for agriculture, logistics, transport, energy and many more areas besides. As a partner from the early stages of this project, CNES is contributing its expertise to technology development and assisting with the constellation's deployment.

Galileo - High-precision satellite navigation for Europe

Galileo is Europe's satellite navigation system, designed as an independent and more accurate alternative to GPS. In operation since 2016, it offers positioning and timing services to civil and government users. CNES, after playing a key role in its development, is continuing to contribute actively to the programme through assessment of the system's performance and through the Galileo SAR (Search and Rescue) service.

New players

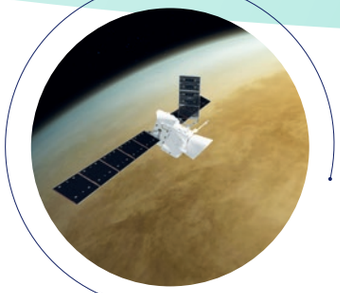
CNES is exploiting several levers to assist new entrants in the space sector:

- Under the France 2030 investment programme, the agency is supporting 94 projects with more than one billion euros in funding.
- Through the European SpaceFounders accelerator programme, we are offering high-level mentoring to promising start-ups. 50 French firms have so far engaged funding rounds through this programme.
- With Connect by CNES, we offer a comprehensive support package covering ideation through to funding for future space users and players. More than 500 firms have already been aided by this programme.

SCIENCE

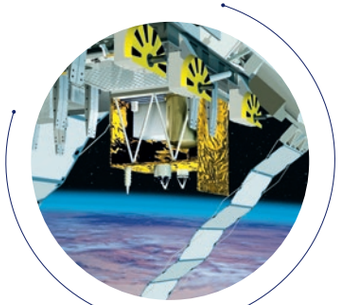
EXTENDING OUR SCIENTIFIC EXCELLENCE

Seeking to understand the history of the universe, explore new worlds, observe the Earth more closely and anticipate how it is likely to evolve in the future, space science opens up new perspectives and spurs innovation. For decades now, CNES has accompanied the French scientific community at every step of space missions, from design through to data exploitation. The agency's expertise covers fields as varied as planetology, life and material sciences, Earth sciences, space exploration and universe sciences. As the spearhead of French space research and the government's programmatic agency in this domain, CNES is structuring national and international partnerships and overseeing France's contribution to ESA's scientific programmes like ExoMars and BepiColombo. We are also playing a pivotal role in large-scale missions like SVOM with China. Thanks to our engineering and project management expertise, we are supporting development of cutting-edge instruments working with research laboratories and manufacturers. And we are laying the groundwork for crewed space exploration through our support to physiology and technology research that will pave the way for missions to the Moon and beyond.



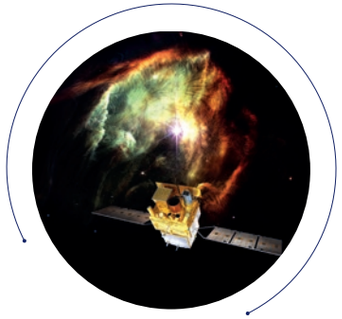
BepiColombo and ExoMars set course for Mercury and Mars

Led by ESA, BepiColombo and ExoMars are two major space exploration missions. BepiColombo, developed jointly with the Japanese space agency JAXA, will study Mercury to probe its geological past and magnetic field, while ExoMars will search for signs of ancient life on Mars with a rover capable of coring its surface. CNES is a key partner on both missions, contributing its science and engineering expertise to the development of their instruments and tracking of operations.



PHARAO keeping time in microgravity

PHARAO is a highly accurate atomic clock developed by CNES set to fly on the International Space Station (ISS) for ESA's ACES (Atomic Clock Ensemble in Space) project. It will take advantage of the station's microgravity environment to test theories of relativity and achieve new levels of accuracy in time measurement, paving the way for new applications in fundamental physics and geodesy. CNES is also involved in exploiting the mission's science data alongside its European partners.



SVOM on the tracks of gamma-ray bursts

SVOM is a Chinese-French mission to study gamma-ray bursts (GRBs), among the most explosive events in the cosmos. Designed jointly by CNES and the China National Space Administration (CNSA), the mission comprises four instruments to detect these phenomena in real time, locate them and analyse their spectrum. SVOM marks a big step forward in our understanding of the history of the universe.

Crewed exploration

CNES is a pivotal player in crewed space exploration, for which it is readying current and future missions alongside ESA and its international partners:

- Through the CADMOS centre for the development of microgravity applications and space operations, we are supporting the development and monitoring of microgravity science experiments on the ISS, notably in human physiology, biology and fluid physics.
- Through devices like the Lumina dosimeter, we are helping to protect crews from space radiation.
- Via our MEDES space clinic subsidiary, which is studying the impact of long-duration spaceflight on the human body, we are sustaining space medicine research.

CLIMATE

WORKING FOR A SUSTAINABLE WORLD

With more than half of the essential climate variables (ECVs) tracked by the IPCC measured thanks to satellites, the space sector's key role in monitoring Earth's climate needs no confirmation. Land and sea temperatures, changing polar ice caps, greenhouse gas concentrations and water resources are all crucial indicators for understanding and anticipating the transformations affecting our planet. CNES is spearheading climate efforts in Europe and worldwide, mobilizing its expertise to get reference data to scientists, policymakers and economic stakeholders. But our contribution goes further than simply observing the impacts of climate disruptions: we are also paying close attention to the life cycle of space projects to limit their environmental footprint. And we are working to achieve more rigorous management of orbital debris to safeguard access to space and combat space pollution.

MicroCarb measuring CO_2 from space

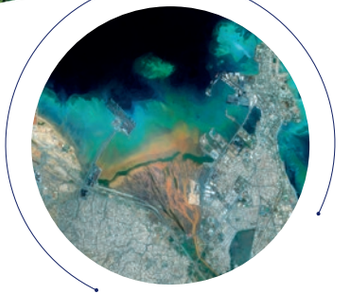
Funded by the French government's PIA future investment programme, MicroCarb is a joint mission of CNES and the United Kingdom Space Agency (UKSA) dedicated to observing carbon dioxide in Earth's atmosphere. This microsatellite, built around a Myriade spacecraft bus developed by CNES, is set to map sources and sinks of CO_2 on a global scale with unprecedented accuracy. MicroCarb is part of a broader effort to measure greenhouse gases and monitor climate alongside IASI-NG, the future atmospheric sounding instrument developed by CNES that will yield vital data on the atmosphere's composition.

Strato-Science exploring the stratosphere

Operated by CNES in partnership with the Canadian Space Agency (CSA), Strato-Science is a stratospheric balloon flight campaign to study the ozone layer and greenhouse gases, test new technologies and lay the groundwork for future space missions. Such balloons are used in astrophysics, climatology and Earth observation, providing a platform for experiments to complement satellites and achieve important advances in science.

Biomass to unveil forests' secrets

Initiated by the CESBIO space biosphere centre in partnership with CNES and funded by ESA, Biomass is an Earth-observation mission to study forests and their place in the carbon cycle. With its radar instrument capable of penetrating forest canopies, the satellite will measure forest biomass with unparalleled precision and track changes in carbon stocks, thus delivering deeper insights into ecosystems and helping to monitor climate change and assess sustainable forestry management policies.



Exploiting satellite data

CNES is involved in a number of initiatives employing satellite data to serve the environment and society. In particular, the agency is the initiator of the Space for Climate Observatory (SCO) federating public and private players to develop decision-support tools to help regions cope with the challenges posed by climate change. We are also developing the GEODES platform that is part of the Data Terra national research infrastructure and fostering uptake of Earth-observation data across a range of sectors of activity, as well as the Space4Ocean Alliance geared towards monitoring the world's oceans.

EDUCATION POLICY FOCUSED ON THE FUTURE

Because the future of space and other strategic sectors of the economy depends on developing tomorrow's talents, since its inception CNES has pursued an ambitious education and outreach policy today focused on inclusion, sustainable development and the attractiveness of space careers. Through site visits, conferences, workshops during school holidays, classroom resources, projects lasting several months, internships, work-study placements and doctoral and post-doctoral research grants, every year CNES reaches out to tens of thousands of young children, teenagers and young adults to spread science and engineering culture and nurture their passion for space.

1

OUTREACH

Through the *L'Espace, c'est classe* (Space is class) operation, every year 21,000 primary and secondary school children are visited in the classroom by an expert from CNES to give them a taste of space.

2

EDUCATIONAL PROJECTS

Every year, some 40,000 youngsters take part in educational projects in the classroom or outside school hours. CNES also takes in 100 to 150 secondary school pupils for ninth-grade internships.

3

STUDENT PROJECTS

Through its Nanolab and Perseus programmes, CNES is getting students interested in space and helping them make the first step on their career ladder.

4

STUDENT GRANTS

Every year, several tens of students in French Guiana receive a study grant from CNES.

5

DOCTORAL AND POST-DOCTORAL GRANTS

Since 1986, 3,000 young researchers have received doctoral and post-doctoral grants from CNES.

6

SUMMER SCHOOL

For 10 days each summer, CNES and its partners put on Universpace, a summer school for students from all horizons with a passion for space.

WORKING WITH CONFIDENCE FOR SPACE

CNES is committed to making space sustainable and socially responsible, creating shared value and offering our people opportunities to conduct meaningful missions, in a work environment where each and every employee can do their job with confidence and ambition.

As a socially responsible employer, the agency seeks to get the most out of its talents and invests in developing them. Each new hire is seen as a rich addition to the workforce, each talent as an asset to be cultivated. Gender equality is a priority reaffirmed through concrete actions to encourage women's vocations, boost engineering careers and guarantee that skills are fairly recognized.

Diversity, inclusion and skills transmission are central to these commitments. An open recruitment policy, career support, work-study placements, internships and flexible work conditions all enable employees to build their future. These commitments are backed by active labour relations and transparent governance, ensuring a stimulating environment that serves talents and society.

More than **300 mobility opportunities** are offered each year, giving people the chance to advance their careers at CNES.

Roughly **1 new hire in 3** is for an entry-level position (less than three years' experience).

CNES hosts some **180 interns and 60 work-study** placements per year.

Women make up **40% of CNES's** headcount and occupy **30%** of its engineering posts.

Every year, CNES recruits **120 to 150 new hires.**

WORKING FOR THE LONG HAUL IN SPACE

CNES's corporate social responsibility (CSR) policy is a strategic pillar underpinning everything the agency does at each of its field centres. This policy is focused on three key areas, implementing concrete, measurable actions.

LABOUR RELATIONS

CNES strives to be a responsible government agency, in house with respect to our people—through diversity, training, gender equality and strong labour relations—and outside our walls by raising awareness and providing training for our ecosystem. Ethical behaviour permeates throughout our value chain, fostering responsible procurement, good working conditions and balanced relationships with partners and suppliers.

ENVIRONMENT

CNES is committed to limiting the agency's environmental impacts by applying responsible practices at our facilities—in waste management and energy efficiency, and through ISO 14001 certification—and conceiving space projects in line with eco-design and life-cycle optimization principles.

SOCIETY

Through our space projects, notably Earth-observation climate-monitoring missions, we are helping to protect populations and regions exposed to environmental risks. We are also working to manage resources sustainably, preserve space as a common good and develop a lasting space ecosystem that creates jobs and drives innovation.

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May 2025

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