

## Press release

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# “Inventing the future of space” CNES’s signature theme for the 52<sup>nd</sup> International Paris Air Show

**Ahead of the 52<sup>nd</sup> International Paris Air Show that will be opening its doors Monday 19 June at Le Bourget, CNES President Jean-Yves Le Gall gave a conference for the national and international press today. He took the opportunity to address French space policy issues and present the new features that CNES will be showcasing at Le Bourget, revolving around the agency’s signature theme of “Inventing the Future of Space”, in a futuristic pavilion where digital technologies will be centre stage.**

Jean-Yves Le Gall began his press conference by highlighting the goals that CNES has set itself to invent the future and constantly drive initiatives and innovation. Space’s potential is now being turbo-charged by the digital transformation and the arrival of new players from the Internet sphere. In response, CNES is embracing this transformation to infuse disruptive innovations and disseminate its technological advances faster than ever before, ready to take advantage of burgeoning applications for train and freight container positioning, fisheries, risk management, construction and public works, and land planning to name a few. CNES subsidiary CLS (Collecte Localisation Satellites) is today the world leader in value-added satellite-based services, for example for managing marine resources, maritime safety and security or tracking single-handed yacht races. And CNES is working with ESA through the Business Incubation Centre (BIC) that has nurtured 33 start-ups since its inception. In France, CNES is supporting entrepreneurs through the ESA BIC Sud France incubator. All of these themes will be on view on the touchscreens in the agency’s pavilion at Le Bourget.

These efforts reflect CNES’s strategy that is resolutely focused on fuelling a burgeoning sector of the economy that is driving growth and jobs and developing space applications serving society. In this fast-changing environment, CNES remains a climate-driven space agency, riding on the success of the COP21 conference. Its satellites are tracking down the causes of climate change, precisely measuring underlying factors like greenhouse gas concentrations—with the future MicroCarb and MERLIN satellites—and observing its impacts on Earth’s temperature and the levels of its oceans.

From the success of Rosetta and Philae to the accomplishments of Thomas Pesquet and the forthcoming Taranis satellite—built using additive manufacturing processes—which will take pictures of transient luminous events (TLEs), variously called ‘elves’, ‘sprites’ and ‘blue jets’, the public is increasingly aware of the tantalizing mysteries of our Universe that we are trying to resolve. How much energy is released by a sprite, for example, and what role do TLEs play in our planet’s electrical balance? Taranis is going to attempt to find out. Likewise, how can we transpose here on Earth the experiments performed by Thomas Pesquet in space? CNES is addressing such fundamental questions while also setting its sights on Mars with ExoMars, for which Europe will be setting down a rover with unique scientific instruments. Also for Mars, InSight, a NASA mission carrying instruments developed by CNES, will be on display at Le Bourget, while the Mars 2020 rover and a virtual-reality device for exploring the red planet will be presented. Meanwhile, in the technological and commercial sphere, the current trend is towards miniaturization as illustrated by the Angels nanosatellite project.

2016 will go down in the records as a historic year for European space policy and for CNES, whose role in this respect was pivotal. The key decision was taken at the ESA Ministerial Conference in Lucerne to bring on stream a new Ariane 6 launcher by 2020 and to deploy Galileo, with the declaration of initial services on 15 December, and Copernicus, through the PEPS programme offering free access to data from the Sentinel satellites. Europe's continued participation in the International Space Station through to 2024 constitutes another major commitment. With a budget of €2.3 billion, confirming the very high priority the French government is giving to space, CNES today has some 2,500 employees dedicated to their missions and renowned worldwide for their expertise.

Promoting science is one of CNES's vocations and the agency files more than 40 patents every year. Far from the buzzing hive of activity here on Earth, space is an ideal research laboratory. CNES is testing Einstein's theory of relativity there with its Microscope satellite. At the leading edge of science, working upstream of industry, it is conceiving technologies for ever more new services like broadband Internet, high-definition television and mobility. Bringing Internet connectivity to remote regions to ensure 100% broadband coverage is one of the missions of satellites that are enabling global solutions. In the field of search and rescue, for example, 40,000 lives have been saved over the last 30 years thanks to satellite-based location, while in defence satellites are playing a key role through very-high-resolution optical imaging, signals intelligence, highly secure telecommunications and space surveillance and tracking, which are all contributing to peace and security.

To continue leading the way, CNES is multiplying cooperation initiatives and investing massively in electric propulsion, already used on commercial satellites for orbit control and stationkeeping but now also envisioned for raising the orbit of geostationary satellites, for which a market with huge potential beckons. CNES is also developing Prometheus, a precursor low-cost engine based on a radical design that will be reusable and run on liquid oxygen and methane, and working on the Callisto research project to develop a reusable stage paving the way for tomorrow's launchers. Models of all of these demonstrators will be on display at the Paris Air Show. Lastly, pursuing its contribution to the development of the national economy, CNES is extending its international diplomacy effort through no fewer than 32 cooperation agreements signed last year.

On the occasion of this press conference, Jean-Yves Le Gall commented: "With space now serving so many important social and economic needs, I am pleased to see that CNES, with France's 'team space', is more than ever playing a pivotal role to sharpen our competitive edge. It's important that we adapt to the new satellite paradigm and to environmental challenges. CNES is continuing to connect, observe and explore, employing the most innovative technologies. And to fire the imagination of younger generations, we will be paying tribute at the Paris Air Show to the world of Valerian, the latest film from Luc Besson based on the comic books by Christin and Mézières. Our futuristic pavilion is in the shape of a spaceship, reflecting our technological lead combined with our strong creative talents working to invent the future of space."

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