



CNES Annual Report – 2018

Published on Wednesday July 3, 2019

View online : <https://www.france-science.org/CNES-Annual-Report-2018.html>

2018 was a particularly prolific year for CNES, marked by major successes such as the launch of the CFOSat, MetOp-C and CSO-1 satellites and the BepiColombo interplanetary probe, the birth of the Space Climate Observatory (SCO) and the creation of ArianeWorks...

In the [2018 annual report](#), Jean Yves Le Gall, President of CNES, reflects news events.

What stands out for you from this stellar year?

It so transpired that in 2018 our agency achieved remarkable successes in each of its five domains of activity. We saw the 100th launch of Ariane 5, continued work on developing Ariane 6 and Vega-C, and began gearing up to prepare the launch vehicles of the future with the creation of ArianeWorks, which Frédérique Vidal officially inaugurated at the start of 2019. In the field of science, the highlight of the year was of course the landing of the U.S. InSight mission on Mars on 26 November with the French SEIS seismometer. We also set out to explore Mercury with the BepiColombo probe launched on 26 October, and on 3 October the MASCOT lander touched down on the surface of asteroid Ryugu. In Earth observation, we ended the year in style with the launch of MetOp-C, and earlier in the year we launched CFOSat with China to study ocean surface winds and waves. It was also a busy year in telecommunications, with the global success of the Galileo constellation and the decision to develop the Konnect satellite that will bring Internet services to everyone in France by 2022. Lastly, for the defence community we launched CSO-1, a satellite that is set to revolutionize strategic military space observation and for which CNES's four field centres had responsibility for development, launch and operations. So, all in all, we really can say that 2018 was an outstanding year for CNES!

The creation of the SCO marks a big step forward in efforts to tackle climate change. What's next for this international endeavour?

The SCO is the result of President Emmanuel Macron's political will and vision. When he came to CNES's Head Office on 2 June 2017 to watch Thomas Pesquet's return to Earth relayed live from the steppes of Kazakhstan, the idea for the project had already formed in his mind. We therefore immediately shared this idea with our partners around the world and the SCO was launched by Frédérique Vidal on 11 December 2017 at the first One Planet Summit, and then presented to numerous heads of state in New York on 26 September 2018. The signing of the SCO's founding document will be one of the high points of 2019 and will remind us of the key role that satellites play in tackling climate change. Let's not forget that out of the 50 essential climate variables or ECVs used to gauge our climate, 26—more than half—can only be measured from space.

End 2019, Europe is set to celebrate the 40th anniversary of the first flight of Ariane 1 that gave it independent access to space. With the maiden flight of Ariane 6 now on the horizon, how do you see launchers developing in the future?

Since CNES's inception, launchers have always been our calling card. We have been instrumental in Ariane's extraordinary success since its first launch on 24 December 1979 and that of its subsequent variants. European launchers have built their reputation for reliability on Ariane 4, followed by Ariane 5 with its career spanning nearly 30 years. In 2014, CNES convinced its European partners to give the go-ahead for development of Ariane 6, which will soon be making its maiden flight. And with ArianeWorks we're already

laying the groundwork for the next step to develop the technology building blocks for the launchers of the future, the Prometheus low-cost reusable engine and the Callisto and Themis reusable first stage demonstrators. More than ever, France is a prime player in the launchers sector and CNES is at the leading edge driving innovation in this field.

Healthcare, transport, agriculture and tourism are just some of the sectors where CNES is making its contribution through space applications. Why is it so important for the agency to be active on all fronts?

The total revenues generated by space-related industries around the world are estimated at \$350 billion: \$200 billion from terrestrial networks and infrastructures and the actual space component, \$5 billion from launchers, \$15 billion from satellites and, above all, \$130 billion from data! That's why CNES, through its Directorate of Innovation, Applications and Science, is fostering ever-closer ties with firms outside the space sector to open it up to the widest possible number of users. That's the challenge we're addressing right now.

Galileo is aiming at one billion users and in a little over two years has become the benchmark system for satellite navigation. Are its very good results set to pave the way for applications requiring more and more precision?

Galileo is a huge success that's transforming the world of satellite geolocation. I always like to recall that the signal for this system was invented by a CNES engineer, Laurent Lestarquit, who won the 2017 European Inventor Award for his work. Galileo is the world's most precise geolocation system. Today, smartphones anywhere in the world are Galileo-ready and the number of users is therefore growing by 30 to 40 million a month, so we're well on the way to one billion.

You recently signed in the presence of Presidents Emmanuel Macron and Xi Jinping an agreement under which France will be going to the Moon with China. Where is this ambitious project likely to lead? Is Mars still the ultimate goal?

France will go to the Moon with China because with its collaborative projects on all continents, CNES is a go-to partner. We have world-class scientists and many space powers are naturally eager to tap into their unique expertise. That's why we've signed this agreement to fly French instruments on China's next lunar rover. That said, Mars remains the priority for our scientific community and we're involved in three outstanding missions: Mars 2020 with the United States to study the red planet's geology; ExoMars with ESA to look for traces of ancient life on its surface; and MMX with Japan to return samples from one of its moons. With such a broad spectrum of partnership projects, our scientists are on all fronts. It makes great economic sense and is based on a win-win proposition: we get to fly instruments at lower cost and become a key partner in all areas.

What are the big challenges facing CNES in 2019?

I see three big challenges. The first is obviously the Science Survey Seminar in Le Havre, in October, which will chart the roadmap for our future programmes and will be organized by our recently renewed Science Programmes Committee (CPS). As I proposed, the new CPS is made up of six women and six men. The second challenge is related to Europe's space policy, with the Commission's new Multiannual Financial Framework (MFF) and the ESA Ministerial Conference in November in Seville, where the future of Europe's space programme

will be on the table. The third challenge will be to translate the directives outlined by President Macron into a new military space policy in which CNES will once again be playing a pivotal role. But all our successes in 2018, like our ambitions in 2019, are only possible thanks to the excellence and dedication of all of the agency's employees, whom I would once more like to commend and thank here.

To read further, [click here](#).