



PRESS RELEASE

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STRATEOLE-2 BALLOON FLIGHT CAMPAIGN GETS UNDERWAY IN THE SEYCHELLES

Strateole-2 is an Earth-observation programme using stratospheric superpressure balloons led by CNES and CNRS, the French national scientific research centre, to study atmospheric dynamics in the intertropical zone. Three campaigns are planned from the autumn of 2019 to the spring of 2025 to acquire in-situ measurements and remote-sensing data from the balloons. After a first validation campaign in 2019/2020, 20 to 25 flights are to be conducted for this latest science campaign from mid-October to mid-December and will be monitored through to April 2022. The third and last campaign is scheduled for 2024/2025.

The balloons will be carrying a suite of instruments capable of measuring a large number of variables: wind strength and direction, air pressure and temperature, water vapour, ozone and carbon dioxide concentration, suspended ice and dust particles, and very-high-altitude clouds. The stratospheric superpressure balloons span 11 to 13 metres and carry light payloads weighing around 22 kilograms. The helium-filled closed balloons operate at an altitude of 18 to 20 kilometres, drifting with the winds for distances up to 80,000 kilometres.

The balloon launch site was chosen to provide the best possible coverage of the intertropical zone and to optimize flight duration. Mahé airport in The Seychelles, in the Indian Ocean, was identified as the site affording the best conditions. Over the course of three to four months, the balloons will circumnavigate the planet twice and potentially overfly 96 countries as they collect their data. For the 2019-2020 validation campaign, the eight balloons released clocked up 680 flight days in total—an average of 85 days per flight—and six out of eight completed more than a full circle of the globe.

Strateole-2 comes under the umbrella of the World Meteorological Organization's SPARC programme (Stratosphere-troposphere Processes And their Role in Climate). Certain observations will be sent in near-real time to weather centres around the world to help improve forecasting. All data collected will be freely available to the global scientific community.

CNES has been a leading international operator of stratospheric balloons for many years now. It has conducted several successful missions since the Strateole-Vorcore campaign in the Antarctic in 2005 and developed the flight control systems for Strateole-2 to the highest safety and reliability standards. Teams at CNRS have gained unique expertise in developing payload instruments and in exploiting the science value of their exceptional measurements to delve deeper into the dynamics, physics and chemistry of our planet's upper atmosphere.

This project initiated by France has attracted a broad panel of international partners, in particular the United States. In France, CNES is working with CNRS and its partners: the LMD dynamic meteorology research laboratory (CNRS/ENS Paris/Ecole Polytechnique/SU), the LATMOS atmospheres, environments and space

observations laboratory (CNRS/UVSQ/SU), the LPC2E environmental and space physics and chemistry laboratory (CNES/CNRS/University of Orléans), the GSMA molecular and atmospheric spectrometry laboratory (CNRS/University of Reims Champagne-Ardenne) and CNRM, the national meteorological research centre (Meteo-France/CNRS). In Italy, it is teamed with the Istituto di Scienze dell'Atmosfera e del Clima (CNR-ISAC), and in the United States with the Laboratory for Atmospheric and Space Physics (LASP, University of Colorado), Northwest Research Associates and Scripps Institution of Oceanography. In the Seychelles, the Seychelles Meteorological Authority (SMA) is in charge of hosting teams on site, coordinating with local authorities and operational logistics.

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