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## CNES's PILOT telescope completes first successful balloon flight over Canada

**Monday 21 September, CNES's PILOT project accomplished its mission in the skies above Timmins in Canada. Its payload was able to measure submillimetre polarized emission from the dust that fills our galaxy, the Milky Way, in order to map its magnetic field and study its role in the cycle of matter.**

CNES's 800,000 cu.m stratospheric balloon and its science payload weighing over a tonne—unheard of in 25 years of CNES scientific ballooning—were sent aloft from Timmins at 9 p.m. local time on Sunday 20 September, reaching the targeted altitude of around 39,500 metres after a 3-hour climb, after which planned measurements started immediately. Using controlled pointing of the gondola around its suspension hook combined with different telescope elevations, 24 hours were spent mapping a large section of the galactic disk—the white streak visible to the naked eye on a clear, moonless night.

On Monday at around midnight, as predicted and in line with the flight plan, CNES engineers commanded the balloon to begin its descent and triggered the separation of the gondola, which completed its descent by parachute and was retrieved on the ground with the help of the Canadian services.

From the very start of the flight, scientists present on site started using the data received. Instrumental effects had already been meticulously calibrated in the laboratory beforehand, and once these have been removed from the flight data the result will be the most precise map of galactic polarized emission ever made. The ultimate aim is to map the magnetic field of our galaxy and to study its role in the cycle of matter, from dust clouds to the formation of stars and planets. These measurements will also be valuable for subtracting galactic contributions in future studies of the polarization of the cosmic microwave background (CMB).

PILOT is a project developed by CNES in partnership with the IRAP astrophysics and planetology research institute and the IAS space astrophysics institute at CNRS, the French national scientific research centre, the University Toulouse 3 Paul Sabatier, the University Paris Sud 11 and CEA, the French atomic energy and alternative energies commission, with contributions from the Universities of Cardiff and La Sapienza in Rome, with IRAP's Jean-Philippe Bernard as science lead.

More info :

[PHOTOS on the CNES website](#)

[PILOT on the CNES website](#)

[CNES balloons](#)

[PILOT on the IRAP website](#)

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