

PALAS IN ANTARCTICA: RESEARCHING CLOUD FORMATION



In August 2022, our Cloud Droplet Analyzer (CDA) began its long journey. It first traveled by plane to Finland, then by ship to Argentina, and finally arrived in Antarctica at the Argentine research station Marambio. But why did it undertake such a long journey?

CLOSE TO ZERO AIR POLLUTION

The Finnish Meteorological Institute (FMI) used the Cloud Droplet Analyzer as part of a research campaign to investigate meteorological questions. The air pollution in Antarctica is extremely low, making it an ideal location for studying topics such as climate change, the creation of climate models, and understanding the interactions between atmospheric warming and cooling.

MASTERING THE CHALLENGE

The challenges involved in this project were multifaceted. First, the remote and harsh conditions of Antarctica posed logistical difficulties, including the transportation of equipment and personnel to the site. This also meant that any equipment failure would be difficult to address due to the inability to quickly replace parts. Preparing for the expedition required extensive logistical planning, such as arranging customs paperwork and adapting the devices to the unique environmental conditions. Additionally, personal preparations, including

medical check-ups and adjusting to the basic living conditions at a military base in Antarctica, were necessary.

ROBUST AND PRECISE INSTRUMENTS

The **CLOUD DROPLET ANALYZER** measures larger particles in low concentrations and is ideal for the extreme conditions of Antarctica. The device operates with an optical particle size spectrometer, capable of measuring particle size distributions ranging from 0.6 to 100 micrometers. The CDA uses Palas' proven light-scattering principle, ensuring high precision and reliability in extreme environments. A key feature of the CDA is its temperature-controlled inlet, which prevents icing and ensures reliable measurements even in extremely cold conditions. Additionally, a **CONDENSATION PARTICLE COUNTER (CPC)** was onsite to count small particles. Both devices were specifically designed for the anticipated conditions in Antarctica, characterized by their robust construction and ability to deliver precise data even under extreme temperatures.



<https://www.palas.de/en/product/cda>