

Cirrus Cloud Characteristics at the Southern-Hemispheric Midlatitude Site of Punta Arenas (53°S, 71°W).

Boris Barja⁽¹⁾, Patric Seifert⁽²⁾, Felix Zamorano⁽¹⁾, Jorge Rosas⁽³⁾

⁽¹⁾ *Atmospheric Research Laboratory, Universidad de Magallanes, Punta Arenas, Chile, bbarja@gmail.com*

⁽²⁾ *Leibniz Institute for Tropospheric Research, Leipzig, Germany*

⁽³⁾ *Institute of Astronomy, Geophysics and Atmospheric Sciences, University of Sao Paulo, (IAG-USP), Brazil.*

Cirrus Clouds are important clouds in the climatic system. They are composed almost totally by ice crystals and affect the radiation budget of the atmosphere. This type of cloud has been extensively studied with different instruments including the lidar technique in several regions of the world. In the midlatitude of the Southern Hemisphere these clouds have been not studied yet. This is a key region of Earth's climate and a source for uncertainties in climate modelling, where we can find pristine conditions in the atmosphere.

Four years of lidar measurements from the lidar system installed in Punta Arenas, Chile (53°S, 71°W) in September 2016, were used to study cirrus clouds in the region. This system is a multiwavelength Raman polarization lidar installed in the frame of the collaboration project SAVERNET (Chile, Japan and Argentina) to monitor the atmosphere. The present work report characteristics of cirrus clouds: vertical profile of the backscattering coefficient, base and top altitude, depolarization ratio.

Since November 2018, the project Dynamics, Aerosol, Cloud And Precipitation Observations in the Pristine Environment of the Southern Ocean (DACAPO-PESO, was conducted at Punta Arenas until end of 2021. This project includes a Raman polarization lidar of type Polly-XT which is capable to provide information to detect cirrus clouds, as well. We reported one cirrus cloud case study using both instruments.