

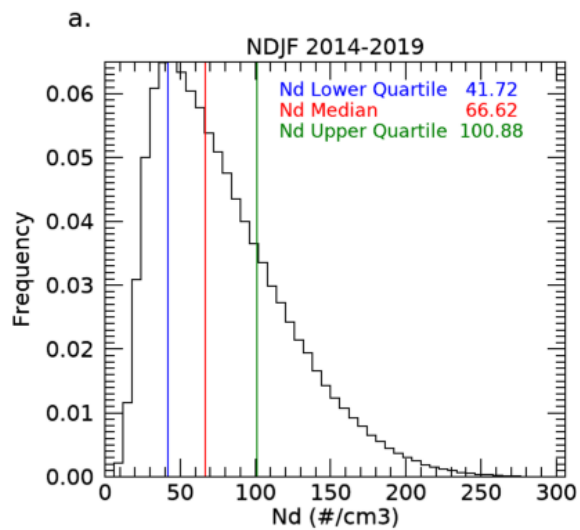
# Natural Marine Cloud Brightening in the Southern Ocean

Gerald G. Mace<sup>1</sup>, Sally Benson<sup>1</sup>, Ruhi Humphries<sup>2,3</sup>, Mathew Peter Gombert<sup>1</sup>, Elizabeth Sterner<sup>1</sup>

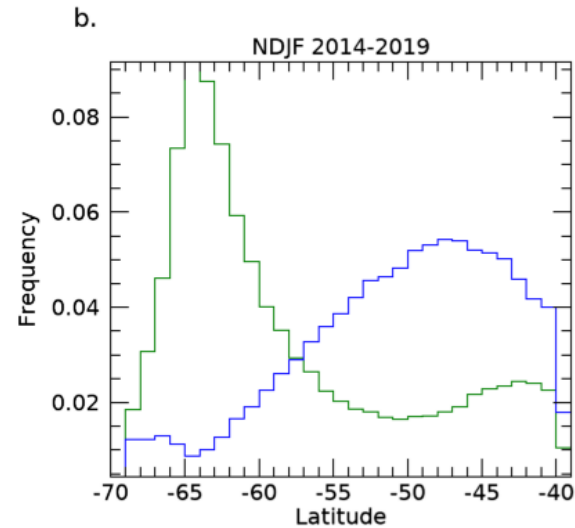
In Review ACP Letters

How does the gradient in natural aerosol (Humphries et al., 2022 – using MARCUS and MICRE) in the summertime Southern Ocean affect clouds?

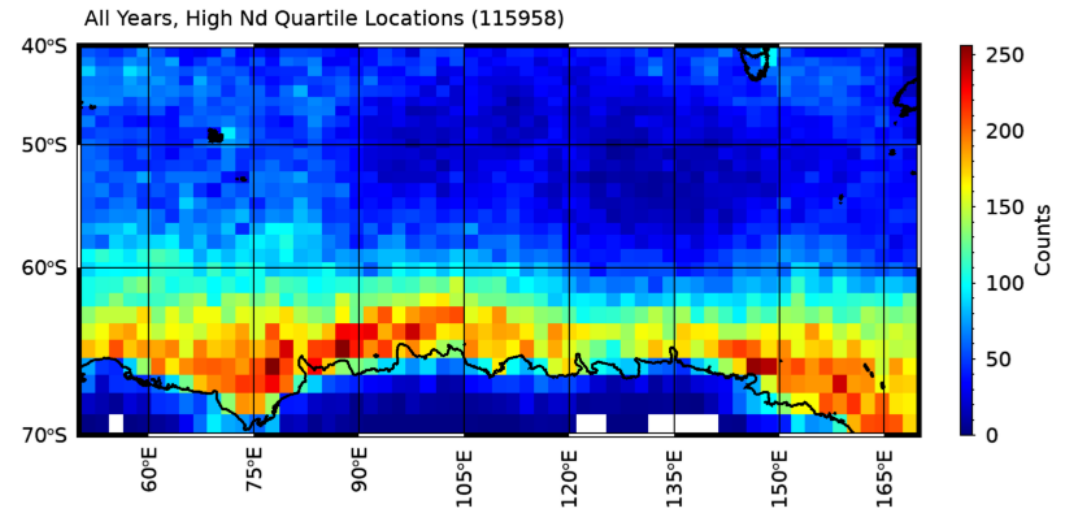
Use 5 years of NDJF MODIS L2 data. derive Nd from Grosvenor et al., 2018 method....



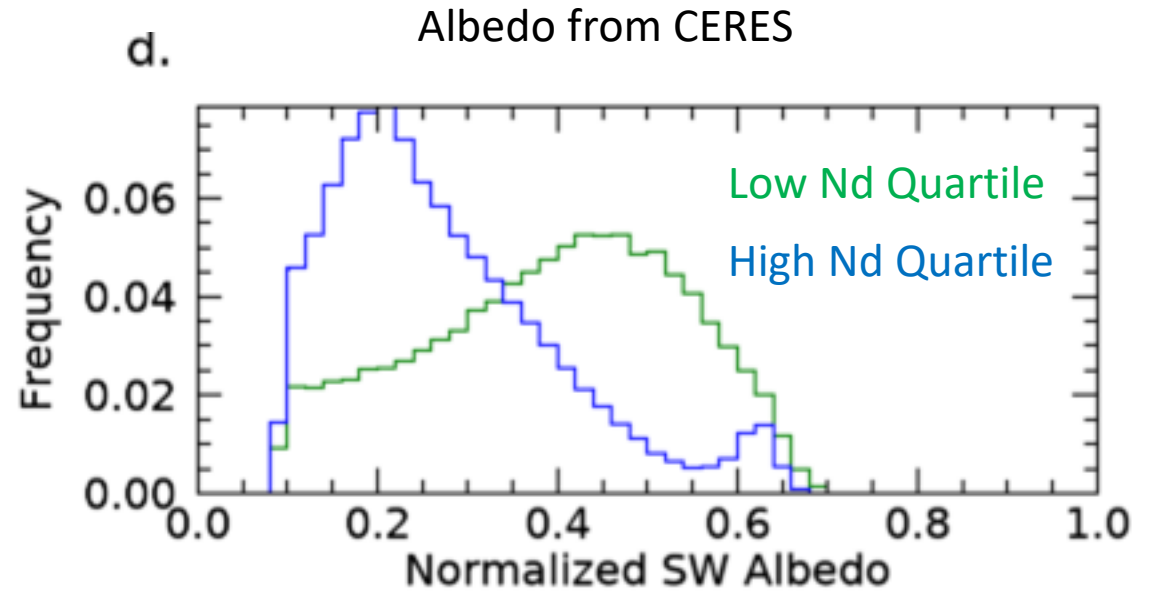
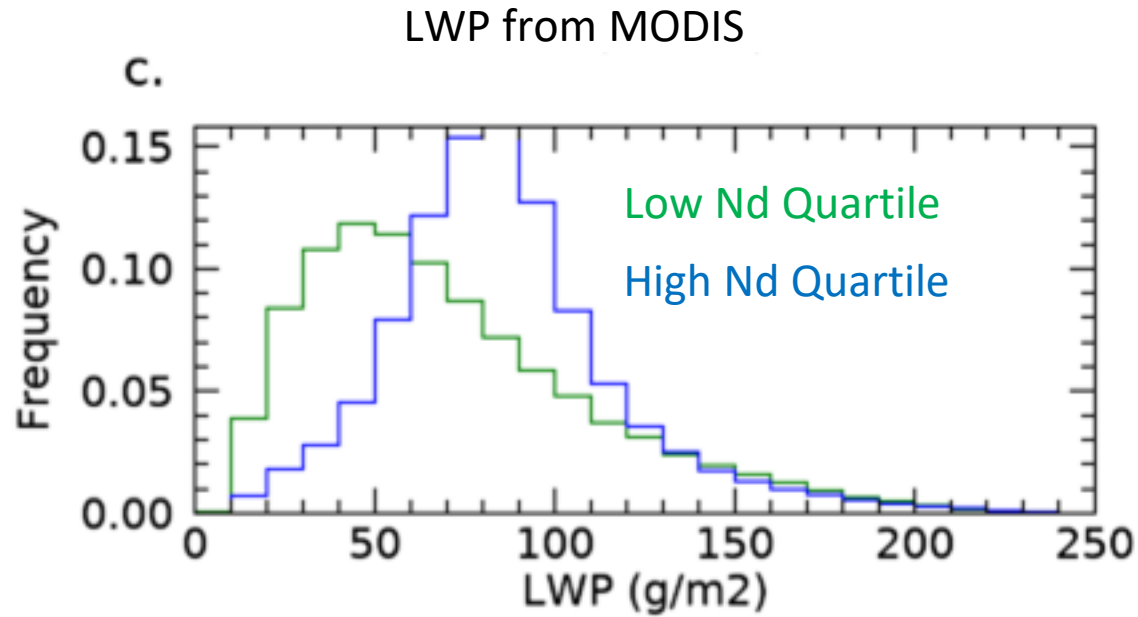
Nd PDF for all latitudes



Where the upper and lower Nd quartiles occur



Where the upper Nd quartile occurs



With lower LWP, MBL clouds adjacent to Antarctica are significantly BRIGHTER

This is a direct response to summertime biogenic aerosol

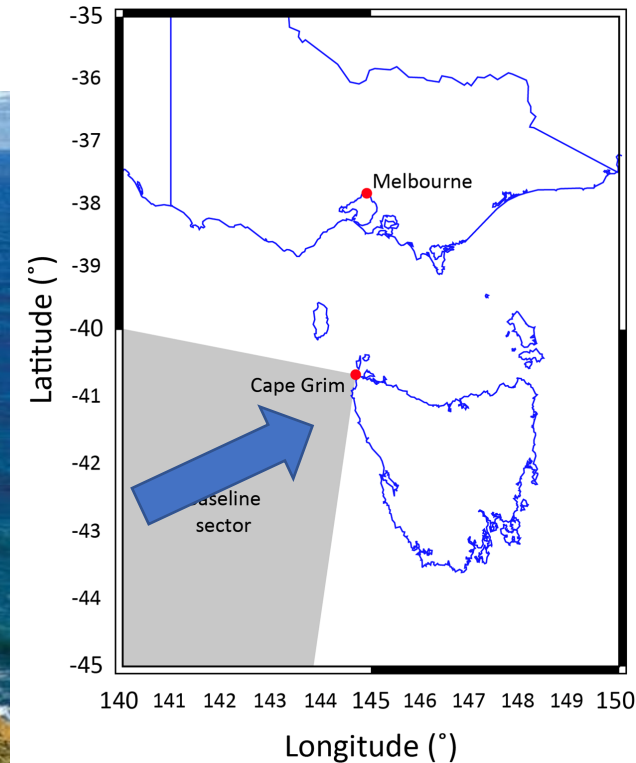
# Cloud And Precipitation Experiment at Kennaook (Cape-K)

**Principal Investigator:** Jay Mace and Roger Marchand

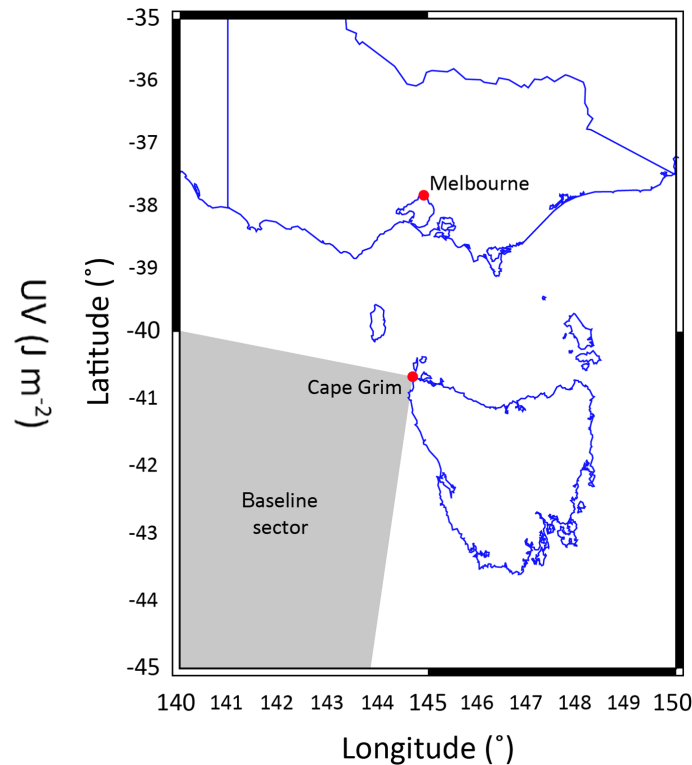
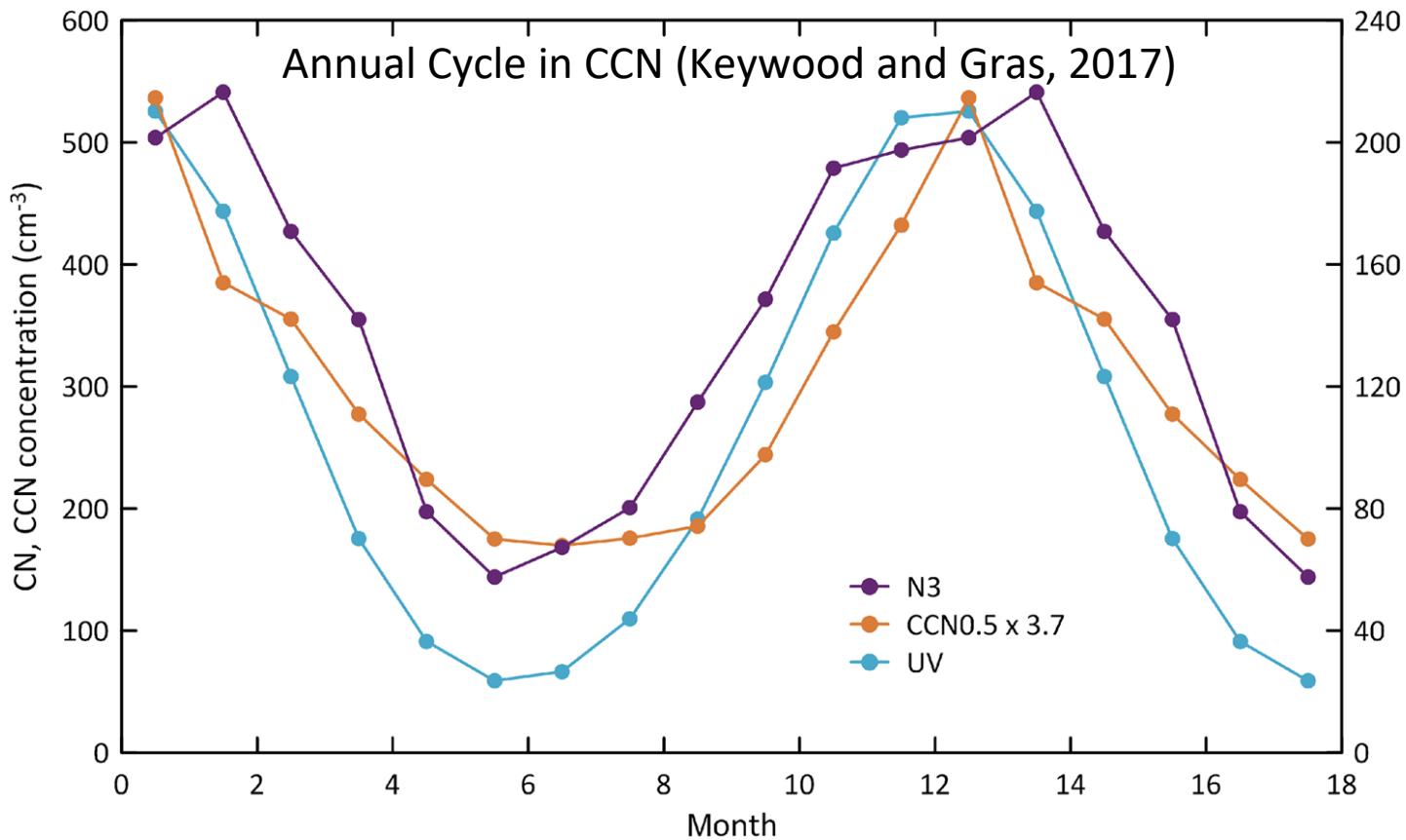
**Co-Investigators:** Melita Keywood<sup>3</sup>, Sam Cleland<sup>4</sup>, Alain Protat<sup>4</sup>, Ruhi Humphries<sup>3</sup>

**Modeling and Analysis Team:** Sonya Fiddes<sup>5,6</sup>, Christina McCluskey<sup>7</sup>, Steve Siems<sup>8</sup>, Yi Huang<sup>9</sup>, Peter May<sup>8</sup>

**Kennaook????**



**Kennaook/Cape Grim has been collecting aerosol and gas chemistry since the 1980's....**



18 month deployment: 15 April, 2024-15 September 2025

2-3 IOP periods (enhanced radiosondes)

July-August 2025 – RV Investigator Voyage to sit off of Kennaook and to steam into SW trajectory



Seeking interested volunteers to help plan, organize,  
analyze, interpret CAPE-K!!!

