

S E M I N A R



From left:

Prof Hassan Bencherif
(University of Réunion)

& A/Prof Nelson Begue
(University of Réunion)

Date:

Thursday, 5 June 2025

Time:

12h15-13h15 SAST

Venues:

- **NITheCS Seminar Room**
University of KwaZulu-Natal
Westville Campus
3rd Floor, H-Block,
School of Chemistry and Physics
- **Online**

WHO SHOULD ATTEND?

The seminar should be accessible to advanced undergraduates and will highlight results that should interest advanced researchers.

ENQUIRIES:

Email Neli Mncube: neli.mncube@nithecs.ac.za

Aerosols in Earth's Atmosphere: Volcanic origins and biomass burning in southern Africa

ABSTRACT:

The Southern Hemisphere (SH) experiences markedly higher exposure to biomass-burning aerosols (BBA) compared to the Northern Hemisphere (NH) yet remains underrepresented in dedicated research and observational activities. This disparity has resulted in significant knowledge gaps regarding aerosol distribution, evolution, and impacts in the SH. Aerosols, particularly those from biomass burning, are critical components of the Earth system, influencing radiative forcing, cloud microphysics, and atmospheric chemistry, while also contributing to substantial uncertainties in climate modelling.

Southern Africa is the most prominent global hotspot for biomass-burning emissions, where seasonal biomass-burning events peak between August–November. These fires inject large quantities of aerosols and pollutants into the atmosphere, impacting regional and global climate through interactions with radiation and clouds.

Over the past two decades, a robust collaborative framework – encompassing French and South African research institutions, including the University of KwaZulu-Natal – has been established to address these challenges. Our presentations will highlight the recent advances resulting from this partnership, based in particular on the results recently published from the BiBAC campaign (Biomass Burning Aerosol Campaign, 2022).

***Hassan Bencherif** is a full professor of Atmospheric Science at the University of Réunion. His research focuses on observing the tropical atmosphere to investigate the dynamics and transport of air masses from/to the tropics.*

***Nelson Begue** has been an associate professor at the University of Réunion since 2013. His research centres on the long-range transport of aerosols and variability of trace species like ozone and carbon monoxide in the atmosphere.*

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