Giovanni Souza

CONTACT INFORMATION

PhD Candidate – Nuclear Technology
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Profile

Physicist (Licentiate and Bachelor degrees) from the Institute of Physics of the University of São Paulo (IFUSP). Master in Nuclear Technology from the Instituto de Pesquisas Energéticas e Nucleares (IPEN), and currently a PhD candidate in Nuclear Technology, also at IPEN. Research focused on atmospheric remote sensing, optical and physical properties of clouds and aerosols from satellite and lidar data, and the development of data-analysis algorithms for the atmosphere.

Education

Instituto de Pesquisas Energéticas e Nucleares – IPEN, São Paulo, Brasil

PhD Candidate, Nuclear Technology, 2023 – present

- Advisor: Dr. Eduardo Landulfo
- Co-advisor: Dr. Jean-Paul Vernier

Instituto de Pesquisas Energéticas e Nucleares – IPEN, São Paulo, Brasil

Master, Nuclear Technology, 2020 – 2023

- Thesis: *Study of cirrus clouds physical properties over the state of São Paulo, Brazil, from CALIPSO/CALIOP level 2 data*
- Advisor: Dr. Eduardo Landulfo
- Scholarship: CAPES
- Field: Geosciences / Meteorology / Atmospheric Remote Sensing

Universidade de São Paulo – USP, Instituto de Física, São Paulo, Brasil

Bachelor, Physics, 2018 – 2019

- Thesis: *Characterization of the background noise and pointing direction of a sky imager*
- Advisor: Dr. Henrique de Melo Jorge Barbosa
- Scholarship: FAPESP

Universidade de São Paulo – USP, Instituto de Física, São Paulo, Brasil

Licentiate, Physics, 2014 – 2018

- Thesis: *Diurnal cycle of cloud cover in São Paulo from a low-cost sky imager*
- Advisor: Dr. Henrique de Melo Jorge Barbosa
- Scholarship: FAPESP

Complementary education

2025

- **Prof. Frank Silvio Marzano Internship** (48h). Istituto Nazionale di Geofisica e Vulcanologia – INGV, Italy.
- **10th International Training School on Convective and Volcanic Clouds (CVC)** (40h). Istituto Nazionale di Geofisica e Vulcanologia – INGV, Italy.

2024

- **Maïdo Observatory Summer School (MOSS)** (34h). Université de la Réunion, Réunion, France.

2019

- **SPSAS on Atmospheric Aerosols** (100h). Universidade de São Paulo – USP, Brazil.

2018

- **SPSAS on Frontiers in Lasers and their Applications** (100h). Universidade de São Paulo – USP, Brazil.

Professional Experience

National Institute of Aerospace – NIA, Virginia, United States

Visiting PhD Student (Scholarship holder) **2024**

- Workload: 40h. Atmospheric remote sensing research.

Universidad de Magallanes – UMAG, Punta Arenas, Chile

Collaborator – Visiting Researcher **2022**

- Workload: 40h, exclusive dedication. Atmospheric remote sensing research.

Research Interests

- Atmospheric Physics
- Atmospheric Remote Sensing (Meteorology / Geosciences)
- Development of algorithms for atmospheric data analysis
- Remote sensing of volcanic plumes
- Analysis of optical and physical properties of clouds from satellite data

Languages

- Portuguese: Native
- English: Fluent (reads, writes, speaks and understands well)
- Spanish: Intermediate (reads well; basic speaking and writing)

Publications

Silva, G. M. da; Rodrigues, M. F.; Pelicer, L. S.; Moreira, G. A.; Cacheffo, A.; Lopes, F. J. S.; Mello, L. D. de; **Souza, G.**; Landulfo, E. Correction: Silva et al. Long-Range Plume Transport from Brazilian Burnings to Urban São Paulo: A Remote Sensing Analysis. *Atmosphere* 2025, 16, 1022. *Atmosphere*, v. 17, p. 206, 2026.

Vieira dos Santos, A.; Cristina Araújo, E.; da Silva Andrade, I.; Corrêa, T.; Talita Amorim Marques, M.; Eduardo Souto-Oliveira, C.; Franchi Leonardo, N.; de Mendonça Macedo, F.; **Souza, G.**; Pereira de Queiroz Lopes, P.; de Arruda Moreira, G.; de Fátima Andrade, M.; Landulfo, E. Comparison of PBL Heights from Ceilometer Measurements and Greenhouse Gases Concentrations in São Paulo. *Atmosphere*, v. 14, p. 1830, 2023.

Abstracts

Vernier, H.; Quintao, D.; Biazon, B.; Landulfo, E.; **Souza, G.**; Lopes, F. J. S.; Rastogi, N.; Meena, R.; Liu, H.; Fadnavis, S.; Mau, J.; Pandit, A. K.; Berthet, G.; Vernier, J. Understanding the impact of Hunga-Tonga undersea eruption on the stratospheric aerosol population using balloon measurements, satellite data, and model simulations. In: EGU23 General Assembly, 2023, Vienna. v. 1.

Vernier, H.; Quintao, D.; Biazon, B.; Landulfo, E.; Liu, H.; Fadnavis, S.; **Souza, G.**; Santos, A. V.; Lopes, F. J. S.; Mendes, A. C. P.; Matta, J. A. S.; Andrade, M. F.; Rastogi, N.; Meena, R.; Grosslin, B.; Jorge, M. P. M. P.; Pinheiro, D. K.; Kovilakam, M.; Mau, J.; Pandit, A. K.; et al. From the undersea to the stratosphere – balloon measurements investigate the discrepancies in the SAOD paradigm associated with the submarine Hunga Tonga–Hunga

Ha'apai eruption. In: SPARC Hunga-Tonga Hunga-Ha'apai impacts open science workshop, 2023, Leeds. v. 1.

Souza, G.; Landulfo, E.; Lopes, F. J. S.; Barja, B. Investigating the physical and optical properties of cirrus clouds in São Paulo state, using level 2 data from CALIPSO/CALIOP. In: Stratéole-2 Workshop on Tropical UTLS process, 2023, Boulder. v. 1.

Landulfo, E.; Lopes, F. J. S.; Yoshida, A.; **Souza, G.**; Santos, A.; Vernier, J.; Vernier, H.; Antuña-Marrero, J. C.; Jorge, M. P. M. P.; Andreoli, V. F.; Pimenta, A.; Batista, P.; Arredondo, R. E. Early Observations of the Hunga-Tonga Plume from Brazil. In: SPARC Hunga-Tonga Hunga-Ha'apai impacts open science workshop, 2023, Leeds. v. 1.

Souza, G.; Lopes, F. J. S.; Landulfo, E. Study of optical properties and spatial distribution of cirrus clouds over São Paulo, Brazil, using CALIPSO level 2 data. In: XI Workshop on Lidar Measurements in Latin America, 2021, Punta Arenas. v. 1.

Souza, G.; Barbosa, H. M. J.; Pauliquevis, T. Using a low-cost skyimager to investigate the diurnal cycle of cloud cover in São Paulo, Brazil during the summer and winter of 2017. In: AGU Fall Meeting 2018, 2018, Washington. v. 1.

Conference Presentations

Souza, G.; Vernier, J.; Quintao, D.; Biazon, B.; Lopes, F. J. S.; dos Santos, J. R.; Pandit, A. K.; Das, R. C.; Liu, H.; Knepp, T.; Vernier, H.; Landulfo, E. Investigating Long-Term Aerosol Plume Dynamics from the Hunga Eruption with In-Situ and Satellite Observations over Brazil. 2025. (Oral presentation).

Software (Computer Programs)

Lopes, F. J. S.; **Souza, G.** Multi-Indexed Lalinet GeneRAlized and Unified Algorithm – MILGRAU. 2022.