Andrés Yarce Botero

Ph.D. in Applied Mathematics TUDelft / Ph.D Mathematical Engineering EAFIT. Physical Engineer - EAFIT, MSc Applied Physics - EAFIT. Assimilation of satellite data in large-scale models such as transport chemistry.

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ResearchGate

Recent Experience

- Postdoc at TuDelft-KNMI-VU PIPP project "High Resolution to Exploit Nitrogen Chemical Compound Observations from Space in the Netherlands."   2021 - feb2024

Education

- Postgraduate: PhD Applied Mathematics - TuDelft   2017 - 2024
- Postgraduate: PhD Ingenieria Matematica - Universidad EAFIT   2017 - 2024
- Postgraduate: Ms. Applied Physics - Universidad EAFIT   2015 - 2016
- Undergraduate: Physics Engineering - Universidad EAFIT   2010 - 2014
- Undergraduate Studies - Physics-Universidad de Antioquia   2006 - 2009

Publications & Academic Events

- **ANDRES YARCE BOTERO,** van Weele, M., Segers, A., Siebesma, P., & Eskes, H**.** Investigating the impact of HARMONIE-WINS50 (cy43) and LOTOS-EUROS (v2. 2.002) coupling on NO 2 concentrations in The Netherlands. EGUsphere, 2023, 1-21. (2024).
- **ANDRES YARCE BOTERO** et al., Design and Implementation of a Low-Cost Air Quality Network for the Aburra Valley Surrounding Mountains., Pollutants 3.1 17, 549 (2023).

- Hinestroza-Ramirez, J. E., Lopez-Restrepo, S., **ANDRES YARCE BOTERO**, Segers, A., Rendon-Perez, A. M., Isaza-Cadavid, S., et.al, Quintero, O. L. , Improving Air Pollution Modelling in Complex Terrain with a Coupled WRF–LOTOS–EUROS Approach: A Case Study in Aburrá Valley, Colombia, Atmosphere, 14(4), 738. (2023)
- **ANDRES YARCE BOTERO**, Lopez-Restrepo, S., Pinel Peláez, N., Quintero, O. L., Segers, A., & Heemink, A. W. Estimating NOx LOTOS-EUROS CTM Emission Parameters over the Northwest of South America through 4DEnVar TROPOMI NO2 Assimilation. Atmosphere, 12(12), 1633. (2021).
- **ANDRES YARCE BOTERO**, Marco Alunno, Signal modeling of the conditioning stage of a parametric array loudspeaker by statistical design of experiments - ScienceDirect, Applied Acoustics, Volume 174, 107713, ISSN 0003-682X,. (2021)
- Santiago Lopez Restrepo, **ANDRES YARCE BOTERO**, Nicolas Pinel Pelaez, Olga Lucia Quintero Montoya, Urban Air Quality Modeling Using Low-Cost Sensor Network and Data Assimilation in the Aburrá Valley, Colombia. In: Atmosphere ISSN: 2073-4433 ed: Multidisciplinary Digital Publishing Institute (MDPI) v.12 fasc.91 p.1 - 18, (2021)
- Santiago Lopez-Restrepo, **ANDRES YARCE BOTERO**, Nicolas Pinel, O.L. Quintero, Arjo Segers, A.W. Heemink, Forecasting PM10 and PM2.5 in the Aburrá Valley (Medellín, Colombia) via EnKF based data assimilation - ScienceDirect, Atmospheric Environment, Volume 232,117507, ISSN 1352-2310. (2020)
- **ANDRES YARCE BOTERO et a**l., HIPAE Helicopter-borne In-situ Pollution Assessment Experiment: plataforma alternativa para la medición de contaminantes en capas verticales [Not available in English], Congreso Colombiano y Conferencia Internacional de Calidad de Aire y Salud Pública (CASP), Barranquilla, Colombia, 2019, pp. 1-5, 10.1109/CASAP.2019.8916711   (2019)
- **ANDRES YARCE BOTERO**, Design of a smart solar panel prototype focused on the CubeSat mission. In: the United States of America. Universidad Cal Poly San Luis Obispo, CA 2013. Evento: X Cubesat Developers Workshop Ponencia: Design of a Solar panel Prototype focused on CubeSat Mission. (2013)

Research Experience

- **Experimental leader** in Project KRATOS (2019) Universidad EAFIT Kratos EAFIT Postobón - High altitude balloon team
- "The SoundHouse" Art Sound Installation 2015. Universidad EAFIT Marco Alunno, Andrés YarceThe Soundhouse
- **Organizer conferences** cycle Aerospace Integration and Development 2014-02. Invitados Jeroslav Laifr, Republica Checa reference.
- Bruno Sousa Brasil: reference (Bruno Sousa-Primer Ciclo de conferencias tecnología aeroespacial Septiembre 2014 y Luz Maria Martinez NASA JPL
- **Project grant** Colciencias 617 2013-02 fortalecimiento de semilleros SEMA "Earth Observation EO".
- Member of the Initial research group of theoretical and computational physics. 2011-2014.
- Member of the Initial research group in applied Electromagnetism Group (SEMA). 2012 -2014.
- **Research advisor project** TEES Energy Transmission between satellites 2014, Dedication: 10 hours per week.

- Rockets summer course Universidad EAFIT 2015. Course: History of small satellites, access to space.
- **Research advisor search Information.** Projecto Ingeniería a la N, Universidad de los niños, Universidad EAFIT, Dedication: 10 hours week. October 2014-November 2013.
- **Project leader EAFITHAB 1**. Mission High Altitude Balloon Universidad EAFIT. Best stories [EAFIT HAB 1 - SEMA](#)
- **Research and Development** - Title: Technological surveillance project CubeSat Universidad EAFIT June 2013-December 2013, Professional Internship. Dedication: 48 hours per week

Awards and distinctions obtained

- Categoria: Best stories in the Global Space Balloon Challenge GSBC event, Stratospheric balloon launch EAFITHAB 1. 2014 and proyecto Kratos two categories in GSBC 2019
- Recognition of an undergraduate degree dedicated to Research 2014. MEDELLIN Higher Education Agency

Further training

- Short duration courses: Universidad EAFIT: Diploma Technological Surveillance and Competitive Intelligence August 2013 – November de 2013
- Short duration courses: Universidad EAFIT: Diploma Write for publishing August 2013 – December 2013
- Other: Universidad EAFIT Advance Optic Design. September 2013
- Other: Learning Basic Entrepreneurship SENA - Regional Medellín June 2009 – August 2009
- Short duration courses: Art Museum Medellín, Audiovisual creation course March - 2006 – July – 2006

Additional experience

- **Spinoff Co-founder** SimpleSpace EAFIT (2020-2023)
- **Lecturer** Environmental Modelling for Biology program Universidad EAFIT (2020-01/2020-02/2021-01).
- **Science Project Advisor** Universidad de los niños. Universidad EAFIT (2014). References: (+57-4) 2619500 Ext. 9695

References

- Arnold W. Heemink. TUDelft - Nederland A.W.Heemink@tudelft.nl
- Michiel van Weele KNMI - Nederland michiel.van.weele@knmi.nl
- Olga Lucía Quintero. Universidad EAFIT - Colombia oquinte1@eafit.edu.co
- Piers Siebesma TuDelft -Nederland A.P.Siebesma@tudelft.nl

Programming Skills

- Matlab
- Python
- Fortran
- Git

Languages

- *English* - Professional
- *Italian* -Basic
- *Dutch* - Basic
- *Spanish* - Native