

PERSONAL INFORMATION

Giampietro Casasanta



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 Personal profiles on LinkedIn and Google Scholar

Date of birth 30/04/1980 | Nationality Italian

POSITION

Researcher

WORK EXPERIENCE

2018-present

Researcher – permanent staff

Institute of Atmospheric Science and Climate (CNR- ISAC), Rome (Italy)

Current research topics and activities

- Planetary boundary layer meteorology and micrometeorology, mesoscale circulation and air quality
- Urban heat island and heat waves
- Optical (LIDAR) and acoustic (SODAR) remote sensing of the atmosphere, including instrument design and development from requirement definition to field deployment
- Development of algorithm to retrieve aerosol, cloud and planetary boundary layer characteristics from Lidar and Sodar profiles
- Calibration and validation of meteorological and micrometeorological instruments.
- Fractional calculus applied to radiative transfer and decay problems

2018

EarthCARE L2 processors and algorithms engineer

Serco Italia S.p.A, c/o European Space Agency (ESA), Frascati (Italy)

Support ESA's activities related to processors and algorithms, monitoring and calibration and validation of the EarthCARE satellite scientific products. EarthCARE mission aims to measure the 3D structure of cloud and aerosols, together with collocated observations of solar (shortwave) and terrestrial (thermal) radiation.

2012–2018

Research fellow and Researcher – temporary staff

Institute of Atmospheric Science and Climate (CNR-ISAC), Rome (Italy)

Main research activities

- Planetary boundary layer meteorology and micrometeorology, mesoscale circulation and air quality.
- Optical (Lidar) and acoustic (Sodar) remote sensing of the atmosphere, including instrument design and development from requirement definition to field deployment.
- Development of algorithm to retrieve aerosol, cloud and planetary boundary layer characteristics from Lidar and Sodar profiles.
- Calibration and validation of meteorological and micrometeorological instruments.
- Fractional calculus applied to radiative transfer and decay problems.

2015

Winterover in Antarctica

Italian Antarctic Research Programme (PNRA), Dome C (Antarctica)

Temporary assignment to PNRA for a continuous year in Antarctica to be in charge of glaciology measurements and atmospheric remote sensing instruments for the Italian projects, including longwave/shortwave radiometers and custom-made depolarization Lidars specifically designed to retrieve polar stratospheric and tropospheric cloud characteristics.

2008–2009 **Employer-coordinated freelance work**
 University of Salento - Physics Department, Lecce (Italy)
 Influence of aerosol on the radiation balance of the Mediterranean Sea, focusing on the aerosol effect on ozone photolysis determined using a diode array spectroradiometer.

2006–present **Board member**
 Società Cooperativa In Itinere a.r.l. - Cooperativa Sociale, Anguillara S., Italy.
 Scientific area manager.

EDUCATION AND TRAINING

2012 **Ph.D. in Remote Sensing**
 Sapienza - University of Rome (Italy)
Thesis title
 Planetary Boundary Layer characterization with remote sensing instruments.
Main research activities

- Design and development (from requirement definition to field deployment) of a highly automated elastic Lidar equipped with a depolarization channel.
- Development of algorithms to retrieve planetary boundary layer height from Lidar (aerosol backscattering profile) and Sodar (echoed signal).
- Development of algorithms to retrieve aerosol and cloud layer characteristics.

2008 **Master's degree in Physics with full marks**
 Sapienza - University of Rome (Italy)
Thesis title
 Measure of the ozone photolysis rate and its dependency on atmospheric parameters.
Relevant activities

- Aerosol and columnar ozone effect on tropospheric ozone photolysis determined using a diode array spectroradiometer.
- Development of the spectroradiometer calibration procedure.

PERSONAL SKILLS

Mother tongue(s) Italian

Other language(s)	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	B2	B2	B2	B2	C1
French	-	A1	-	-	-

Levels: A1/A2: Basic user - B1/B2: Independent user - C1/C2 Proficient user
[Common European Framework of Reference for Languages](#)

Communication skills Excellent communication skills gained through writing scientific papers and reports, teaching and performing outreach activities from both Italy and Antarctica, such as the first TEDxCNR conference in Rome (complete list in ANNEX 2).

Organisational / managerial skills Good organisational skills gained planning, participating and being in charge of several measurement campaigns and projects as listed below.

Digital competence

SELF-ASSESSMENT				
Information processing	Communication	Content creation	Safety	Problem solving
Proficient user	Proficient user	Independent user	Proficient user	Proficient user

Levels: Basic user - Independent user - Proficient user
[Digital competences - Self-assessment grid](#)

Operating systems: Windows, Unix-like operating systems.

Programming languages: Matlab, IDL, Labview, Python (beginner).

Support programs: Microsoft Office, Open Office, Origin, Grapher, Latex, Lyx, GIMP, Wordpress.

Driving licence B

ADDITIONAL INFORMATION

PROJECTS AND MEASUREMENT CAMPAIGNS

- 2019 - present **Climate Action project LIFE ASTI - Implementation of a forecasting System for urban heat Island effect for the development of urban adaptation strategies**
Activity: - creation of a synergistic weather station network in Rome and its suburbs;
 - evaluation and validation of an Urban Heat Island forecasting system;
 - scientific networking with other climate-related projects.
Measurement campaign: June 2019 – September 2021
Position: researcher, action leader and steering committee substitute representative.
- 2018 **EarthCARE- European Space Agency's cloud, aerosol and radiation mission.**
Activity: support activities related to processors and algorithms, monitoring and calibration and validation of the EarthCARE mission scientific products.
Measurement campaign: continuous monitoring.
Position: processors and algorithms engineer.
- 2017 - present **ISAC Calibration Laboratory - Calibration and validation of meteorological and micrometeorological instruments.**
Activity: - calibration and validation of meteorological and micrometeorological instruments, including broadband shortwave and longwave radiometers;
 - development and adaptation of calibration procedures.
Measurement campaign: laboratory activity.
Position: technical manager.
- 2016 - present **BAQUININ Supersite - Boundary layer Air Quality-analysis Using Network of Instruments.**
Activity: - ground based active and passive remote sensing measurements to offer quantitative and qualitative information on a wide range of atmospheric parameters;
 - calibration and validation of satellite data.
Measurement campaign: continuous monitoring.
Position: researcher, in charge of the acoustic remote sensing measurements.
- 2016 - 2018 **OPLAM - Open Lab for Ocean and Atmosphere.**
Activity: support the creation of an open database of environmental data.
Measurement campaign: none.
Position: researcher.
- 2015 - present **SMART - Measurement of the wind speed and direction at the Torrealvaldiga Nord power plant by a triaxial Doppler mini-sodar.**
Activity: development of an algorithm chain to retrieve atmospheric boundary layer parameters.
Measurement campaign: continuous monitoring.
Position: researcher.

- 2015 - 2017 **LACOST** - *Tarquini*a Saltworks Coastal Atmospheric Laboratory.
Activity: development of an algorithm chain to retrieve air quality related parameters.
Measurement campaign: continuous monitoring.
Position: researcher.
- 2014 **VALLE DEL SACCO Project** - *Finalization of the ARPA Lazio air quality regional centre atmospheric model to perform on complex orography areas.*
Activity: retrieving boundary layer and aerosol parameters from net broadband radiometers as well as optical (Lidar) and acoustic (sodar) remote sensing instruments for air quality purpose.
Measurement campaign: Autumn 2014.
Position: researcher, in charge of the measurement campaign.
- 2014 - 2016 **MaLox** - *Mass Lost in wind flux* (Italian Antarctic Research Programme)
Activity: instrument customization for hostile environments.
Position: researcher
- 2013 - 2015 **CoMPASs** - *Concordia Multi-Process Atmospheric Studies* (Italian Antarctic Research Programme)
Activity: retrieving boundary-layer parameters from a sonic anemometer, a net broadband radiometer and an acoustic remote sensing instrument (Sodar).
Measurement campaign: Antarctic summer campaign 2014-2015 and 2015-2016.
Position: researcher, in charge of the acoustic remote sensing, turbulence and radiometric measurements during the Antarctic Summer campaigns.
- 2011 **Urbs ROMA** - *URBan Sustainability Related to Observed and Monitored Aerosol.*
Activity: retrieving boundary layer and aerosol parameters from optical (Lidar) and acoustic (Sodar) remote sensing instruments.
Measurement campaign: Autumn 2014.
Position: Ph.D. student, in charge of the optical and acoustic remote sensing measurements.
- 2010 **MORE** - *Marine Ozone and Radiation Experiment*
Activity: airborne measurement campaign supported by EUFAR (EUropean FACility For Airborne Research) to investigate the vertical distribution of ozone and aerosol in a rural and coastal area.
Measurement campaign: 9 – 30 June 2010.
Position: Ph.D. student (data analysis and support to the 12 flights).
- 2010 **MINNI** - *National Integrated Model to support the international negotiation on atmospheric pollution*
Activity: aerosol, cloud and boundary layer characterization by a custom-made Lidar and a triaxial Doppler Sodar. The Lidar was a highly automated instrument specially designed to investigate the lower atmosphere.
Measurement campaign: 1 May – 30 June 2010.
Position: Ph.D. student (Lidar design and development, data analysis).
- 2009 **Biferno Valley Project** - *Applied research in an integrated information system for the global management of air quality in the industrial settlement of Termoli and surrounding areas*
Activity: aerosol and boundary layer characterization by a custom-made Lidar (equipped with a depolarization channel) and a multifilter rotating shadowband radiometer.
Measurement campaign: 27 March – 5 April, 30 June – 11 July 2009.
Position: Ph.D. student (Lidar design and development, data analysis).

PUBLICATIONS

Selected peer-reviewed articles

- E. Vignon, B. J. H. van de Wiel, I. G. S. van Hooijdonk, ... , and Giampietro Casasanta. Stable boundary-layer regimes at Dome C, Antarctica: observation and analysis. *Quarterly Journal of the Royal Meteorological Society*, doi:10.1002/qj.2998, 2017.
- I. Petenko, S. Argentini, G. Casasanta, M. Kallistratova, R. Sozzi, and A. Viola. Wavelike structures in

the turbulent layer during the morning development of convection at Dome C, Antarctica. *Boundary-Layer Meteorology*, 161(2): 289–307, 2016.

- H. Gallée, S. Preunkert, S. Argentini, M. M. Frey, C. Genthon, B. Jourdain, I. Pietroni, G. Casasanta, et al. Characterization of the boundary layer at Dome C (East Antarctica) during the OPALE summer campaign. *Atmospheric Chemistry and Physics*, 15(11):6225–6236, 2015.
- G. Casasanta, I. Pietroni, I. Petenko, and S. Argentini. Observed and modelled convective mixing-layer height at Dome C, Antarctica. *Boundary-Layer Meteorology*, 151(3):597–608, 2014.
- G. Casasanta, A. di Sarra, D. Meloni, et al. Large aerosol effects on ozone photolysis in the Mediterranean. *Atmospheric Environment*, 24:3937–3943, 2011.

OTHER

- Memberships** Italian Association of Atmospheric Sciences and Meteorology (AISAM).
- Courses** 2016 - Public speaking course +*Acumen Presents: Chris Anderson on Public Speaking*.
2016 - Introduction to LabVIEW, RIO and data acquisition systems.
- Editorial activities** Reviewer for the following journals:
- Atmospheric Measurement Techniques;
 - Boundary-Layer Meteorology;
 - IEEE Geoscience and Remote Sensing Letters;
 - Journal of Atmospheric and Oceanic Technology;
 - Quarterly Journal of the Royal Meteorological Society.

ANNEXES

- ANNEX 1 – Publications (peer-reviewed papers, chapter in books and contributions to conferences).
ANNEX 2 – Scientific dissemination activity.

ANNEX 1 - PUBLICATIONS

Peer reviewed papers

- R Sozzi, G Casasanta, V Ciardini, S Finardi, I Petenko, A Cecilia, S. Argentini. Surface and Aerodynamic Parameters Estimation for Urban and Rural Areas. *Atmosphere*, 11(2):147, 2020.
- I. Petenko, G. Casasanta, S. Bucci, M. Kallistratova, R. Sozzi, S. Argentini. Turbulence, Low-Level Jets, and Waves in the Tyrrhenian Coastal Zone as Shown by Sodar. *Atmosphere*, 11(1):28, 2020.
- I. Petenko, S. Argentini, G. Casasanta, C. Genthon, M. Kallistratova. Stable Surface-Based Turbulent Layer During the Polar Winter at Dome C, Antarctica: Sodar and In Situ Observations. *Boundary-Layer Meteorology*, 171(1):101–128, 2019
- G. Casasanta, I. Petenko, G. Mastrantonio, et al. Consumer Drones Targeting by Sodar (Acoustic Radar), *IEEE Geoscience and Remote Sensing Letters*, 99:1-3, 2018
- G. Casasanta and R. Garra. Towards a Generalized Beer-Lambert Law. *Fractal and Fractional*, 2(1):8, 2018.
- F. Costabile, H. Alas, M. Aufderheide, ..., G. Casasanta, et al. First Results of the “Carbonaceous Aerosol in Rome and Environs (CARE)” Experiment: Beyond Current Standards for PM10. *Atmosphere* 2017, 8(12):249
- E. Vignon, B. J. H. van de Wiel, I. G. S. van Hooijdonk, ..., and Giampietro Casasanta. Stable boundary-layer regimes at Dome C, Antarctica: observation and analysis. *Quarterly Journal of the Royal Meteorological Society*, doi:10.1002/qj.2998, 2017.
- E. Vignon, C. Genthon, H. Barral, C. Amory, G. Picard, H. Gallée, G. Casasanta, and S. Argentini. Momentum and Heat-Flux Parametrization at Dome C, Antarctica: A Sensitivity Study. *Boundary-Layer Meteorology*, 162(2):341–367, 2017.
- I. Petenko, S. Argentini, G. Casasanta, M. Kallistratova, R. Sozzi, and A. Viola. Wavelike structures in the turbulent layer during the morning development of convection at Dome C, Antarctica. *Boundary-Layer Meteorology*, 161(2): 289–307, 2016.
- R. Salzano, A. Pasini, G. Casasanta, M. Cacciani, and C. Perrino. Quantitative interpretation of air radon progeny fluctuations in terms of stability conditions in the atmospheric boundary layer. *Boundary-Layer Meteorology*, doi 10.1007/s10546016-0149-6:1–22, 2016.
- H. Gallée, S. Preunkert, S. Argentini, M. M. Frey, C. Genthon, B. Jourdain, I. Pietroni, G. Casasanta, et al. Characterization of the boundary layer at Dome C (East Antarctica) during the OPAL summer campaign. *Atmospheric Chemistry and Physics*, 15(11):6225–6236, 2015.
- S. Poluianov, I. Usoskin, A. Mishev, H. Moraal, K. Krüger, G. Casasanta, R. Traversi, and R. Udisti. Mini neutron monitors at Concordia research station, central antarctica. *Journal of Astronomy and Space Sciences*, 32(4):281–287, 2015.
- D. Mateos, A. di Sarra, Bilbao J., D. Meloni, G. Pace, A. de Miguel, and G. Casasanta. Spectral attenuation of global and diffuse UV irradiance and actinic flux by clouds. *Quarterly Journal of the Royal Meteorological Society*, 141:109–113, 2015
- I. Petenko, S. Argentini, I. Pietroni, A. Viola, G. Mastrantonio, G. Casasanta, et al. Observations of optically active turbulence in the planetary boundary layer by Sodar at the Concordia astronomical observatory, Dome C, Antarctica. *Astronomy & Astrophysics*, 568: A44, 2014.
- D. Mateos, G. Pace, D. Meloni, Bilbao J., A. di Sarra, A. de Miguel, G. Casasanta, and Q. Min. Observed influence of liquid cloud microphysical properties on ultraviolet surface radiation. *Journal of Geophysical Research Atmosphere*, 119: doi:10.1002/2013JD020309, 2014.
- G. Casasanta, I. Pietroni, I. Petenko, and S. Argentini. Observed and modelled convective mixing-layer height at Dome C, Antarctica. *Boundary-Layer Meteorology*, 151(3):597–608, 2014.
- S. Argentini, I. Petenko, A. Viola, G. Mastrantonio, I. Pietroni, G. Casasanta, et al. The surface layer observed by a high-resolution sodar at DOME C, Antarctica. *Annals of Geophysics*, 56(5):1–10, 2013

V. Tramontana, G. Casasanta, R. Garra, and A.M. Iannarelli. An application of Wright functions to the photon propagation. *Journal of Quantitative Spectroscopy and Radiative Transfer*, 124:45–48, 2013.

G. Casasanta and R. Garra. Fractional calculus approach to the acoustic wave propagation with space-dependent sound speed. *Signal, Image and Video Processing*, 6(3):389–392, 2012.

V. Ciardini, T. Di Iorio, L. Di Liberto, C. Tirelli, G. Casasanta, et al. Seasonal variability of tropospheric aerosols in Rome. *Atmospheric Research*, 118:205–214, 2012.

G. Casasanta, D. Ciani, and R. Garra. Non-exponential extinction of radiation by fractional calculus modelling. *Journal of Quantitative Spectroscopy and Radiative Transfer*, 113(2):194–197, 2011.

M. Campanelli, V. Estelles, T. Smyth, ..., G. Casasanta, and T. Nakajima. Monitoring of Eyjafjallajökull volcanic aerosol by the new European SkyRad users (ESR) sun-sky radiometer network. *Atmospheric Environment*, 48:33–45, 2011.

Chapters in books

M. Mammarella, G. Grandoni, P. Fedele, H. J. Fernando, S. Di Sabatino, L. Leo, M. Cacciani, G. Casasanta, et al. *National Security and Human Health Implications of Climate Change*, chapter 16, pages 191–197. NATO Science for Peace and Security Series C: Environmental Security. Springer, 2012. ISBN 978-94-007-24303.

H.J. Fernando, M.C. Mammarella, G. Grandoni, P. Fedele, D. Fuà, M. Cacciani, G. Casasanta, et al. *Research on environmental management in a coastal industrial area: new indicators and tools for air quality and river investigations*, chapter A.1, B.1, pages 28–41, 65–85. Armando Editore, 2011. ISBN 9788860818997

Conferences, meetings and workshop contributions

G. Casasanta, A. Cecilia, V. Ciardini et al. The LIFE ASTI project to forecast Urban Heat Island effect. In *EMS Annual Meeting: European Conference for Applied Meteorology and Climatology 2019*, 9-13 September 2019, Copenhagen, Denmark. Poster presentation.

I. Petenko, G. Casasanta, C. Genthon et al. Characteristics of the Surface-based Turbulent Layer over Three Polar Winters at Dome C, Antarctica as observed by Sodar. In *EMS Annual Meeting: European Conference for Applied Meteorology and Climatology 2019*, 9-13 September 2019, Copenhagen, Denmark. Oral presentation.

I. Petenko, G. Casasanta, A. Grachev, M. Kallistratova, A. Conidi, and S. Argentini. Problems of measurements of weak turbulence with ultrasonic anemometer-thermometers. In *EMS Annual Meeting: European Conference for Applied Meteorology and Climatology 2019*, 9-13 September 2019, Copenhagen, Denmark. Poster presentation.

G. Dreossi, M. Casado, B. Stenni, ..., and G. Casasanta. Nine year of oxygen and hydrogen isotopic composition of precipitation at Concordia station, East Antarctica. In *27th International Union of Geodesy and Geophysics Annual Meeting*, 8-18 July 2019, Montreal, Canada. Oral presentation.

C. Caspar, C. Stella, J.-M. Rosaz, P. D'Aulerio, G. Casasanta, G. Costa, M. Eisinger, D. Maeusli, P. Deghaye. The EarthCARE Payload Data Ground Segment. In *ESA Living Planet Symposium 2019*, 13-17 May 2019, Milan, Italy.

T. Wehr, D. Lajas, C. Caspar, C. Stella, G. Casasanta. EarthCARE Ground Processor Development Status. In *ESA Living Planet Symposium 2019*, 13-17 May 2019, Milan, Italy.

G. Dreossi, B. Stenni, B. Delmonte, C. Scarchilli, P. Grigioni, G. Casasanta et al. Multi-year monitoring of water stable isotopes in daily precipitation at Dome C, East Antarctica. In *SISC Sixth Annual Conference*, 17-19 October 2018, Venice, Italy. Oral presentation.

I. Petenko, S. Bucci, G. Casasanta et al. Low-level Jets, Turbulence and Waves in the Tyrrhenian Coastal Zone as Shown by Sodar. In *EMS Annual Meeting: European Conference for Applied Meteorology and Climatology 2018*, 3-7 September 2018, Budapest, Hungary. Poster presentation.

I. Petenko, S. Argentini, G. Casasanta et al. Diurnal behaviour of turbulence in the summer PBL at Dome C: Sodar and In-situ Observations. In *EMS Annual Meeting: European Conference for Applied Meteorology and Climatology 2018*, 3-7 September 2018, Budapest, Hungary. Poster presentation

G. Curci, S. Falasca, I. Gandolfi, R. Ferretti, S. Argentini, F. Barnaba, G. Casasanta, et al. Three-Dimensional Wind Analysis for Air Quality Modelling Applications at the Civitavecchia Port Site (Central Italy). In *11th International Conference on Air Quality - Science and Application, Barcelona, Spain*,

12-16 March 2018. Poster presentation.

F. Costabile, H. Alas, M. Aufderheide, ..., G. Casasanta, et al. The “Carbonaceous Aerosol in Rome and Environs (CARE)” Experiment. In *11th International Conference on Air Quality - Science and Application*, Barcelona, Spain, 12-16 March 2018. Oral presentation.

A. Iannarelli, M. Cacciani, A. Scoccione, ..., G. Casasanta, et al. The Boundarylayer Air Quality-analysis Using Network of Instruments (BAQUNIN) Super-Site for Satellite Atmospheric Chemistry Products Validation. In *IDEAS+ Cal/Val Workshop #5*, ESA-ESRIN, Frascati, Italy, December 12–13, 2017. Oral presentation.

D. Dionisi, A. Iannarelli, A. Scoccione, ..., G. Casasanta, et al. Water vapor and aerosol Lidar measurements within an atmospheric instrumental super site to study the aerosols and the tropospheric trace gases in Rome. In *28th International LaserRadar Conference*, Bucharest, Romania, June 25-30, 2017. Poster presentation.

I. Petenko, S. Argentini, G. Casasanta, C. Genthon, and M. Kallistratova. Fine-scale wavelike structure of the surface-based turbulent layer at Dome C, Antarctica. In *Workshop on Atmospheric Stable Boundary Layers*, Delft, the Netherlands, March 27–31, 2017. Poster Presentation.

S. Argentini, G. Casasanta, F. Barnaba, et al. ISAQ - Integrated System for Air Quality Forecast. In *Digisilk Taiwan*, Taipei, Taiwan, February 23, 2017. Oral presentation.

I. Usoskin, S. Poluianov, H. Moraal, H. Kruger, G. Casasanta, R. Traversi, and R. Udisti. A Mini Neutron Monitor in Central Antarctica (Dome Concordia). In *European Space Weather Week*, Ostend, Belgium, November 14–18, 2016. Oral presentation.

G. Casasanta, A.M. Di Lellis, G. Mastrantonio, I. Petenko, and S. Argentini. Drone neutralization by sound. In *2nd International Symposium on Precision Opto-Mechatronics Technology*, Beijing, China, October 27–28, 2016. Invited talk

A. Iannarelli, M. Cacciani, A. Scoccione, ..., G. Casasanta, et al. The Boundarylayer Air Quality-analysis Using Network of Instruments (BAQUNIN) Super-Site for Satellite Atmospheric Chemistry Products Validation. In *ACVE - Atmospheric Composition Validation Evolution*, ESA-ESRIN, Frascati, October 18–20, 2016. Oral presentation.

S. Argentini, I. Petenko, S. Bucci, R. Sozzi, G. Mastrantonio, A. Conidi, G. Casasanta, and S. Federico. Atmospheric laboratories on the tyrrhenian coastline. In *16th EMS Annual Meeting & 11th European Conference on Applied Climatology*, Trieste, Italy, September 12–16, 2016. Oral presentation.

I. Petenko, S. Argentini, M. Kallistratova, A. Conidi, and G. Casasanta. Estimation of the turbulence intensity from fluctuations in sound propagation in the surface layer at Dome C, Antarctica. In *18th International Symposium for the Advancement of Boundary-Layer Remote Sensing*, Varna, Bulgaria, June 6–9, 2016. Oral presentation

S. Argentini, I. Petenko, S. Bucci, G. Mastrantonio, A. Conidi, S. Federico, G. Casasanta, et al. LACOST, an atmospheric laboratory on the Tyrrhenian coastline. In *18th International Symposium for the Advancement of BoundaryLayer Remote Sensing*, Varna, Bulgaria, June 6–9, 2016. Oral presentation.

I. Petenko, S. Argentini, M. Kallistratova, G. Mastrantonio, G. Casasanta, R. Sozzi, and A. Conidi. Fine-scale wavelike structures in the surface-based turbulent layer at Dome C, Antarctica. In *European Geosciences Union - General Assembly 2016*, Vienna, Austria, April 17–22, 2016. Poster presentation.

I. Usoskin, S. Poluianov, H. Moraal, H. Krueger, G. Casasanta, R. Traversi, and R. Udisti. A mini neutron monitor in Central Antarctica (Dome Concordia). In *12th European Space Weather Week*, Ostend, Belgium, November 23–27, 2015. Oral presentation.

I. Petenko, S. Argentini, M. Kallistratova, G. Mastrantonio, A. Viola, G. Casasanta, and R. Sozzi. Spatio-temporal pattern of the surface-based turbulent layer during polar winter at Dome C, Antarctica as observed by Sodar. In *15th EMS Annual Meeting and 12th European Conference on Applications of Meteorology*, Sofia, Bulgaria, September 07–11, 2015. Oral presentation.

- I. Usoskin, S. Poluianov, H. Moraal, H. Krueger, G. Casasanta, R. Traversi, and R. Udisti. A new neutron monitor DOMC in Central Antarctica at Dome C (Concordia Station). In *34th International Cosmic Ray Conference*, The Hague, The Netherlands, July 30 – August 6, 2015. Oral presentation.
- E. Vignon, H. Barral, C. Genthon, and G. Casasanta. Roughness length and surface turbulent fluxes at Dome C, Antarctica. In *DICE and GABL S4 Workshop*, Toulouse, France, May 20–22, 2015. Oral presentation.
- I. Petenko, S. Argentini, G. Mastrantonio, M. Kallistratova, A. Viola, R. Sozzi, G. Casasanta, and A. Conidi. Waves in the turbulent layer during the morning transition to the convective boundary layer at Dome C, Antarctica. In *European Geosciences Union - General Assembly 2015*, Vienna, Austria, April 12–17, 2015. Poster presentation.
- C. Gariazzo, S. Argentini, I. Petenko, I. Pietroni, A. Pelliccioni, G. Casasanta, and A. Conidi. Urban boundary layer ground – based remote sensing during the EU LIFE+ EXPAH project. In *EXPAH workshop 2014*, Rome, Italy, June 11, 2014. Poster presentation.
- G. Casasanta, I. Pietroni, I. Petenko, and S. Argentini. A diagnostic relation to estimate the mixing layer height under convective conditions. In *European Geosciences Union - General Assembly 2014*, Vienna, Austria, April 27 – May 2, 2014. Poster presentation.
- G. Bianchini, S. Argentini, M. Baldi, F. Cairo, F. Calzolari, et al. Concordia Multi-Process Atmospheric Studies (CoMPASSs): study of the vertical structure of the Antarctic atmosphere with a synergy of different remote sensing techniques. In *European Geosciences Union - General Assembly 2014*, Vienna, Austria, April 27 – May 2, 2014. Poster presentation.
- V. Ciardini, T. Di Iorio, L. Di Liberto, C. Tirelli, G. Casasanta, et al. Desert dust observations in the urban environment during 2006–2009. In *7th International Workshop on Sand/Duststorms and Associated Dustfall*, Frascati, Rome, December 02–04, 2013. Poster presentation.
- G. Casasanta, I. Pietroni, I. Petenko, and S. Argentini. Convective mixing layer height during the summer at Dome C, Antarctica. In *European Geosciences Union - General Assembly 2013*, Vienna, Austria, April 07–12, 2013. Poster presentation.
- S. Argentini, I. Petenko, A. Viola, G. Mastrantonio, I. Pietroni, G. Casasanta, and A. Conidi. Atmospheric boundary layer over the snow: results from the 2011–2012 experimental field at Dome C, Antarctica. In *European Geosciences Union General Assembly 2013*, Vienna, Austria, April 07–12, 2013. Oral presentation.
- I. Petenko, I. Pietroni, G. Casasanta, S. Argentini, A. Viola, and G. Mastrantonio. Thermal turbulence in the very stable boundary layer: sodar observations at Dome C, Antarctica. In *European Geosciences Union - General Assembly 2013*, Vienna, Austria, April 07–12, 2013. Poster presentation.
- I. Petenko, E. Aristidi, K. Agabi, G. Bouchez, E. Bondoux, I. Pietroni, S. Argentini, A. Viola, G. Casasanta, and G. Mastrantonio. Influence of the optically–active turbulence on astronomical seeing at Concordia station – Dome C, Antarctica. In *European Geosciences Union - General Assembly 2013*, Vienna, Austria, April 07–12, 2013. Poster presentation.
- S. Argentini, I. Petenko, A. Viola, G. Mastrantonio, I. Pietroni, G. Casasanta, et al. Thermal Structure of the Boundary Layer Over the Snow: Results from an Under Way Experimental Field at Concordia Station, Dome C, Antarctica. In *16th International Symposium for the Advancement of Boundary-Layer Remote Sensing*, Boulder, Colorado, 5–8 June 2012, 2012. Oral presentation.
- M. Campanelli, C. Bassani, M. Cacciani, ..., G. Casasanta, C. Tirelli, and V. Estelles. Direct effect of aerosol on incident solar radiation at the surface as a function of aerosol mixtures measured in the center of rome. In *European Geosciences Union - General Assembly 2012*, Vienna, Austria, April 22–27, 2012. Poster presentation.
- D. Mateos, A. di Sarra, J. Bilbao, M. Cacciani, G. Casasanta, D. Meloni, G. Pace, and A. de Miguel. Experimental and modelled characterization of diffuse spectral irradiance under cloudy conditions: impact of aerosol properties. In *E.A.C.*, 2012. Poster presentation.

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G. L. Liberti, F. Centoni, G. Casasanta, et al. Ground-based and satellite observations of column water vapour in the Central Mediterranean: spatio-temporal variability, Earth Observation and Water Cycle Science Towards a Water Cycle Multi-mission Observation Strategy. In *ESRIN*, Frascati, Italy, November 18–20, 2009. Poster presentation.

G. Casasanta, M. Cacciani, V. Ciardini, et al. An analysis of the Atmospheric Boundary Layer mixing height measured by lidar in two sites with different characteristics. In *Atmospheric Composition Changes: Climate-Chemistry Interactions*, Lecce, Italy, November 2–4, 2009. Poster presentation.

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G. Casasanta, A. di Sarra, D. Meloni, et al. Estimation of ozone photolysis rate from spectral actinic flux measurements: a study of its dependence on total ozone and aerosol optical depth in the central mediterranean. In *Environment Including Global Change*, Palermo, Italy, October 5-9, 2009. Poster presentation.

C. Tirelli, M. Cacciani, G. Casasanta, et al. Study for the calibration of a MFRSR radiometer in urban sites and aerosol optical depth estimation. In *Environment Including Global Change*, Palermo, Italy, October 5–9, 2009. Poster presentation

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G. Casasanta, A. di Sarra, D. Meloni, et al. Influence of total ozone and aerosol optical depth on the $J(O^1D)$ measured at Lampedusa island. In *International Global Atmospheric Chemistry 10th International Conference*, Annecy, France, September 7–12, 2008. Poster presentation.

G. Casasanta, A. di Sarra, D. Meloni, et al. Measurements of $J(O^1D)$ in the Mediterranean: relationship with total ozone and aerosol optical depth. In *Quadrennial Ozone Symposium 2008*, Tromsø, Norway, June 29 – July 05, 2008. Poster presentation.

Scientific dissemination

G. Casasanta. Tra i ghiacci di Marte Bianco. In *Antropocene. L'umanità come forza geologica*, Italian Institute for the Future, 2018. ISBN 978-8899790127

A. Iannarelli and G. Casasanta. Una vita spesa per la ricerca. Accastampato Rivista di divulgazione scientifica realizzata dagli studenti di Fisica della Sapienza, 12:5, 2014.

G. Casasanta and R. Garra. Luce sull'atmosfera: il LiDAR. Accastampato Rivista di divulgazione scientifica realizzata dagli studenti di Fisica della Sapienza, 4:19–21, 2011.

ANNEX 2 – SCIENTIFIC DISSEMINATION AND TEACHING ACTIVITY

- 2018 **Deepcon 19**, *Fiuggi*, Italy, 19-22 April 2018.
Speech on life, technology and isolation in the Antarctic Winter, that included a Skype conference with Concordia Station, Antarctica.
- 2016 - 2018 **Seminars**, *Institute of Atmospheric Sciences and Climate*, Rome.
Organization of ISAC-Rome seminar series.
- Educational activity**, Italy.
School outreaching activities within the framework of the Italian Antarctic Research Programme project AUSDA (Adopt a School from Antarctica).
- 2017 **Deepcon 18**, *Fiuggi*, Italy, 6-9 April 2017.
Speech on analogies between Antarctic Winter and long-term space missions.
- #Openlake**, *Anguillara Sabazia*, Italy, 13 March 2017.
Speech on Lake Bracciano climatic series of temperature and precipitation.
- 2016 **Festivalmeteorologia 2016**, *Rovereto*, Italy, 12 November 2016.
Speech on life and scientific activities at Concordia Station, Antarctica.
- TEDxCNR**, *Rome*, Italy, 8 October 2016.
Speech at the first TEDx conference (*Technology Entertainment Design*) organized by Italian National Research Council.
- Interview about the Antarctic Winter-Over**, *on-line newspaper la repubblica.it*.
- 2015 **Educational and outreaching activities from Antarctica**, *Concordia Station*, Dome C, Antarctica.
Speeches and interviews given during the Antarctic Winter 2015
- Active participation to and organization of over 50 Skype conferences with Italian, French, English and American primary and secondary schools, the majority within the framework of the Italian Antarctic Research Programme project AUSDA (Adopt a School from Antarctica).
 - Participation to Skype conferences with:
 - Samantha Cristoforetti on the International Space Station;
 - EXPO 2015 Milano, opening ceremony;
 - National Museum of Antarctica (MNA of Siena), opening ceremony;
 - Lagolandia (ENEA research centre of Brasimone);
 - European Researchers Night (MNA of Genoa and CNR of Rome);
 - *UK Space Conference*;
 - *Extreme Medicine Expo*;
 - First Rovereto Festival of Meteorology, introducing the general public to the activities performed at Concordia;
 - *Conference du Climat* (Paris, *Dome du Climat* opening ceremony at the presence of the President F. Hollande).
 - Interviews for Italian national TV and radio channels: Radio3Scienza, Rai3-Agorà estate and TV2000.
 - Participation to a Reddit Science *Ask Me Anything* promoted by ESA.
- 2009 - 2011 **Graduate Teaching Assistant**, *Sapienza – University of Rome*, Italy.
Responsible for the laboratory section of the four-year course *Geophysics Laboratory*.
Professor: dr. M. Cacciani, Physics Department.