

CURRICULUM VITAE



PERSONAL INFORMATION

Name	BENIAMINO GIOLI
Address	
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Birth	

EDUCATION

Doctoral Degree	PhD in “ Economy, Ecology and Environmental Systems ”, University of Udine, Italy. Thesis title: “Measurements of gas exchange between the biosphere and the Atmosphere with aerial platform”. Supervisor Dott. A. Peressotti. Date: 03.07.2003
Master of Science	M. Sc in Environmental Engineering University of Florence, Italy. Thesis title: "Cynetic model of the Dephanox process for biological nutrient removal in wastewaters" (in collaboration with ENEA, Dip. Ambiente, Bologna). Date: 20/02/1998

POSITIONS

Research Director	Institute of BioEconomy of National Research Council (IBE CNR), Firenze, Italy. Period: 03/2020 – ongoing
Senior Scientist	Institute of Biometeorology of National Research Council (IBIMET CNR), Firenze, Italy. Period: 02/2004 – 03/2020
Scientist	Institute of Biometeorology of National Research Council (IBIMET CNR), Firenze, Italy. Period: 01/2003 – 01/2004
PhD student	University of Udine, Italy Period: 01/2000 – 12/2002
Fellowship	I.A.T.A. C.N.R. (Istituto di Agrometeorologia e Analisi Ambientale applicata all'Agricoltura), Italy Period: 08/1999 – 12/1999

MOBILITY

PhD Mobility	San Diego State University, USA. Global Change Research Group (Prof. W. Oechel) Period: 06/2001 – 07/2001
Short Term Mobility Program	University of Berkeley, USA Biometeorology Lab (Prof. D. Baldocchi) Period: 06/2010 – 07/2010
Short Term Mobility Program	San Diego State University, USA. Global Change Research Group (Prof. W. Oechel) Period: 08/2010

REVIEWING:

- **Journals:** *Nature Communications; Agric. and For. Meteorol.; Agric. Ecosystems and Environ.; Atmos. Chem. and Physics; Science of the Total Environment; Boundary Layer Meteorol.; Carbon Management; Challenges; Ecol. Modelling; Environ. Earth Sciences; Environ. Pollution; Int. J. of Environ. and Poll.; Journ. of Atmos. and Oc. Tech.; Journ. of Geophys. Res. – Atmos.; Meteorol. Applications; Tellus B; Urban Climate;*
- **Funding agencies:** *Ministry of University and Research (MUR), Italy; Research Foundation Flanders (FWO), Belgium; NWO Earth and Life Sciences, The Netherlands; Kuwait Foundation for the Advancement of Sciences (KFAS); National Science Centre (NCN), Poland.*

BIBLIOMETRIC INDICATORS

Google Scholar <https://scholar.google.it/citations?user=tmNooAYAAAAJ&hl=it>

Scopus <https://www.scopus.com/authid/detail.uri?authorId=6505811379>

SCIENTIFIC ACTIVITY AND PROJECTS

He worked in the development of tools and methodologies related to GHG exchange measurement between the biosphere and the atmosphere at multiple scales. He coordinated the development of the SkyArrow ERA (Environmental Research Aircraft) platform, used in numerous projects (EC-RECAB; EC-CarboEuropeIP; ESA-CEFLES2; CarboItaly; CARBIUS; EC-EUFAR; EC-Bridge; AriaSana). He contributes to the activities of NAERS (Network of Airborne Environmental Research Scientists) and to the network EUFAR (European Facility for Airborne Research). He worked in micrometeorology and eddy covariance flux measurements on different ecosystems and in urban environments (projects EC-Bridge; AriaSana) as well as eddy covariance of non CO₂ species (VOC, N₂O, O₃; CH₄; project ERC-PopFull). He worked in remote sensing and its application for biosphere and urban studies, including SIF (Solar Induced Fluorescence) and hyperspectral measurements, in the framework of the FLEX mission of European Space Agency (ESA) and the PRISMA mission of the Italian Space Agency (PRISCAV project). Currently he is the scientific coordinator of a large scale Digital Agriculture project (E-crops, Italian MUR-PON, 9.8 M€) and CNR coordinator in the PUJ project funded under the EU program UIA-Urban Innovative Action (3.7 M€).

He is currently the PI of the urban site of Osservatorio Ximeniano in Florence, affiliated as associated site in the ICOS ESFRI infrastructure in 2023, focused on carbon and energy exchange eddy covariance measurements. He is currently the PI of the *AeroLab* platform within the *AnaEE* ESFRI infrastructure, focused on multi-scale remote sensing measurements.

He is author and co-author of >100 scientific papers in peer reviewed journals and >100 contributions to international conferences.

SELECTED PEER-REVIEWED PUBLICATIONS:

Gioli B, Miglietta F, Vaccari FP, Zaldei A, De Martino B (2006). The Sky Arrow ERA, an innovative airborne platform to monitor mass, momentum and energy exchange of ecosystems. *Annals of Geophysics*, 49, n. 1, pp 109-116.

Taylor G, Tallis MJ, Giardina CP, Percy KE, Miglietta F, Gupta PS, **Gioli B**, Calfapietra C, Gielen B, Kubiske ME, Scarascia-Mugnozza GE, Kets K, Long SP, Karnosky DF (2008). Future atmospheric CO₂ leads to delayed autumnal senescence. *Global Change Biology*, 14 (2), 264–275. doi: 10.1111/j.1365-2486.2007.01473.x

Rascher U, Agati G, Alonso L, Cecchi G, Champagne S, Colombo R, Damm A, Daumard F, de Miguel E, Fernandez G, Franch B, Franke J, Gerbig C, **Gioli B**, Gómez JA, Goulas Y, Guanter L, Gutiérrez-de-la-Cámara Ó, Hamdi K, Hostert P, Jiménez M, Kosvancova M, Lognoli D, Meroni M, Miglietta F, Moersch A, Moreno J, Moya I, Neininger B, Okujeni A, Ounis A, Palombi L, Raimondi V, Schickling A, Sobrino JA, Stellmes M, Toci G, Toscano P, Udelhoven T, van der Linden S, Zaldei A (2009). CEFLES2: the remote sensing component to quantify photosynthetic efficiency from the leaf to the region by measuring sun-induced fluorescence in the oxygen absorption bands. *Biogeosciences*, 6, 1181-1198. doi: 10.5194/bg-6-1181-2009

Damm A, Elbers J, Erler A, **Gioli B**, Hamdi K, Hutjes R, Kosvancova M, Meroni M, Miglietta F, Moersch A, Moreno J, Schickling A, Sonnenschein R, Udelhoven T, van der Linden S, Hostert P, Rascher U (2010). Remote sensing of sun induced fluorescence to improve modelling of diurnal courses of Gross Primary Production (GPP). *Global Change Biology*, 16, 171–186. doi: 10.1111/j.1365-2486.2009.01908.x

Maselli F, **Gioli B**, Chiesi M, Vaccari F, Zaldei A, Fibbi L, Bindi M, Miglietta F (2010). Validating an integrated strategy to model net land carbon exchange against aircraft flux measurements. *Remote Sensing of Environment*, 114, 1108–1116. doi: 10.1016/j.rse.2009.12.023

Ter Maat HW, Hutjes RWA, Miglietta F, **Gioli B**, Bosveld FC, Vermeulen AT, Fritsch H (2010). Simulating carbon exchange using a regional atmospheric model coupled to an advanced land-surface model. *Biogeosciences*, 8, 2397-2417. doi: 10.5194/bg-7-2397-2010

Lugato E, Zuliani M, Alberti G, Delle Vedove G, **Gioli B**, Miglietta F, Peressotti A (2010). Application of DNDC biogeochemistry model to estimate greenhouse gas emissions from Italian agricultural areas at high spatial resolution. *Agriculture, Ecosystems & Environment*, 139, 4, 546-556. doi: 10.1016/j.agee.2010.09.015

Chiesi M, Fibbi L, Genesio L, **Gioli B**, Magno R, Maselli F, Moriondo M, Vaccari FP (2011). Integration of ground and satellite data to model Mediterranean forest processes. *International Journal of Applied Earth Observation and Geoinformation*, 13, 504–515. doi: 10.1016/j.jag.2010.10.006

Groenendijk M, Dolman AJ, Ammann C, Arneth A, Cescatti A, Dragoni D, Gash JHC, Gianelle D, **Gioli B**, Kiely G, Knohl A, Law BE, Lund M, Marcolla B, van der Molen MK, Montagnani L, Moors E, Richardson AD, Rouspard O, Verbeeck H, Wohlfahrt G (2011). Seasonal variation of photosynthetic model parameters and leaf area index from global Fluxnet eddy covariance data. *Journal Of Geophysical Research-Biogeosciences*, 116, G04027. doi: 10.1029/2011JG001742

Brilli L, Chiesi M, Maselli F, Moriondo M, **Gioli B**, Toscano P, Zaldei A, Bindi M (2013). Simulation of olive grove gross primary production by the combination of ground and multi-sensor satellite data. *International Journal of Applied Earth Observation and Geoinformation*, 23, 29–36. doi: 10.1016/j.jag.2012.11.006

Zona D, Janssens IA, Aubinet M, **Gioli B**, Vicca S, Fichot R, Ceulemans R (2013). Fluxes of the greenhouse gases (CO₂, CH₄ and N₂O) above a short-rotation poplar plantation after conversion from agricultural land. *Agricultural and Forest Meteorology*, 169, 100– 110. doi: 10.1016/j.agrformet.2012.10.008

Zona D, **Gioli B**, Fares S, De Groote T, Pilegaard K, Ibrom A, Ceulemans R (2014). Environmental controls on ozone fluxes in a poplar plantation in Western Europe. *Environmental Pollution*, 184, 201-210. doi: 10.1016/j.envpol.2013.08.032

Brilli F, **Gioli B**, Zona D, Pallozzi E, Zenone T, Fratini G, Calfapietra C, Loreto F, Janssens IA, Ceulemans R (2014). Simultaneous leaf- and ecosystem-level fluxes of volatile organic compounds from a poplar-based SRC plantation. *Agricultural and Forest Meteorology*, 187, 22-35. doi: 10.1016/j.agrformet.2013.11.006

Oechel WC, Laskowski CA, Burba G, **Gioli B**, Kalhori AM (2014). Annual patterns and budget of CO₂ flux in an arctic tussock tundra ecosystem. *Journal of Geophysical Research: Biogeosciences*, 119. doi: 10.1002/2013JG002431

Toscano P., B. Gioli, L. Genesio, F.P. Vaccari, F. Miglietta, e, A. Zaldei, A. Crisci, E. Ferrari, F. Bertuzzi, P. La Cava, C. Ronchi, M. Silvestri, A. Peressotti, J.R. Porter (2014). Durum wheat quality prediction in Mediterranean environments: From local to regional scale. *European Journal of Agronomy*, 61, 1–9. doi: 10.1016/j.eja.2014.08.003

Toscano P, Genesio L, Crisci A, Vaccari FP, Ferrari E, Cava PL, Porter JR, **Gioli B** (2015). Empirical modelling of regional and national durum wheat quality. *Agricultural and Forest Meteorology*, 204, 67-78. doi: 10.1016/j.agrformet.2015.02.003

Zona D*, **Gioli B***, Commane R, Lindaas J, Wofsy SC, Miller CE, Dinardo SJ, Dengel S, Sweeney C, Karion A, Chang

- RYW, Henderson JM, Murphy PC, Goodrich JP, Moreaux V, Liljedahl A, Watts JD, Kimball JS, Lipson DA, Oechel WC (2016). Cold season emissions dominate the Arctic tundra methane budget. *Proceedings of the National Academy of Sciences of the United States of America*, 113, 40-45. doi: 10.1073/pnas.1516017113
- Brilli L, **Gioli B**, Toscano P, Moriondo M, Zaldei A, Cantini C, Ferrise R, Bindi M (2016). Rainfall regimes control C-exchange of Mediterranean olive orchard. *Agriculture, Ecosystems and Environment*, 233, 147-157. doi: 10.1016/j.agee.2016.09.006
- Carotenuto F, Georgiadis T, **Gioli B**, Leyronas C, Morris CE, Nardino M, Wohlfahrt G, Miglietta F (2017). Measurements and modeling of surface-atmosphere exchange of microorganisms in Mediterranean grassland. *Atmospheric Chemistry and Physics*, 17, 14919-14936. doi: 10.5194/acp-17-14919-2017
- Zhang Y, Xiao X, Wolf S, Wu J, Wu X, **Gioli B**, Wohlfahrt G, Cescatti A, van der Tol C, Zhou S, Gough CM, Gentine P, Zhang Y, Steinbrecher R, Ardö J (2018). Spatio-Temporal Convergence of Maximum Daily Light-Use Efficiency Based on Radiation Absorption by Canopy Chlorophyll. *Geophysical Research Letters*, 45, 3508-3519. doi: 10.1029/2017GL076354
- Sakowska K, MacArthur A, Gianelle D, Dalponte M, Alberti G, **Gioli B**, Miglietta F, Pitacco A, Meggio F, Fava F, Julitta T, Rossini M, Rocchini D, Vescovo L (2019). Assessing across-scale optical diversity and productivity relationships in grasslands of the Italian alps. *Remote Sensing*, 11, Article number 614. doi: 10.3390/rs11060614
- Xiao M, Yu Z, Kong D, Gu X, Mammarella I, Montagnani L, Arain MA, Merbold L, Magliulo V, Lohila A, Buchmann N, Wolf S, Gharun M, Hörtnagl L, Beringer J, **Gioli B** (2020). Stomatal response to decreased relative humidity constrains the acceleration of terrestrial evapotranspiration. *Environmental Research Letters*, 15(9), Article number 94066. doi: 10.1088/1748-9326/ab9967
- Johnston ASA, Meade A, Ardö J, Arriga N, Black A, Blanken PD, Bonal D, Brümmer C, Cescatti A, Dušek J, Graf A, **Gioli B**, Goded I, Gough CM, Ikawa H, Jassal R, Kobayashi H, Magliulo V, Manca G, Montagnani L, Moyano FE, Olesen JE, Sachs T, Shao C, Tagesson T, Wohlfahrt G, Wolf S, Woodgate W, Varlagin A, Venditti C (2021). Temperature thresholds of ecosystem respiration at a global scale. *Nature Ecology and Evolution*, 5(4), 487-494. doi: 10.1038/s41559-021-01398-z
- Manco A, Brilli F, Famulari D, Gasbarra D, **Gioli B**, Vitale L, Tommasi PD, Loubet B, Arena C, Magliulo V (2021). Cross-correlations of Biogenic Volatile Organic Compounds (BVOC) emissions typify different phenological stages and stressful events in a Mediterranean Sorghum plantation. *Agricultural and Forest Meteorology*, 303, Article number 108380. doi: 10.1016/j.agrformet.2021.108380
- Lin S, Li J, Liu Q, **Gioli B**, Paul-Limoges E, Buchmann N, Gharun M, Hörtnagl L, Foltýnová L, Dušek J, Li L, Yuan W (2021). Improved global estimations of gross primary productivity of natural vegetation types by incorporating plant functional type. *International Journal of Applied Earth Observation and Geoinformation*, 100, Article number 102328. doi: 10.1016/j.jag.2021.102328
- Zona D, Lafleur PM, Hufkens K, Bailey B, **Gioli B**, Burba G, Goodrich JP, Liljedahl AK, Euskirchen ES, Watts JD, Farina M, Kimball JS, Heimann M, Göckede M, Pallandt M, Christensen TR, Mastepanov M, López-Blanco E, Jackowicz-Korczynski M, Dolman AJ, Marchesini LB, Commane R, Wofsy SC, Miller CE, Lipson DA, Hashemi J, Arndt KA, Kutzbach L, Holl D, Boike J, Wille C, Sachs T, Kalhori A, Song X, Xu X, Humphreys ER, Koven CD, Sonnentag O, Meyer G, Gosselin GH, Marsh P, Oechel WC (2022). Earlier snowmelt may lead to late season declines in plant productivity and carbon sequestration in Arctic tundra ecosystems. *Scientific Reports*, 12(1), Article number 3986. doi: 10.1038/s41598-022-07561-1
- Zona D, Lafleur PM, Hufkens K, **Gioli B**, Bailey B, Burba G, Euskirchen ES, Watts JD, Arndt KA, Farina M, Kimball JS, Heimann M, Göckede M, Pallandt M, Christensen TR, Mastepanov M, López-Blanco E, Dolman AJ, Commane R, Miller CE, Hashemi J, Kutzbach L, Holl D, Boike J, Wille C, Sachs T, Kalhori A, Humphreys ER, Sonnentag O, Meyer G, Gosselin GH, Marsh P, Oechel WC (2023). Pan-Arctic soil moisture control on tundra carbon sequestration and plant productivity. *Global Change Biology*, 29(5), 1267-1281. doi: 10.1111/gcb.16487
- Heidarian Dehkordi R, Candiani G, Nutini F, Carotenuto F, **Gioli B**, Cesaraccio C, Boschetti M (2024). Towards an Improved High-Throughput Phenotyping Approach: Utilizing MLRA and Dimensionality Reduction Techniques for Transferring Hyperspectral Proximal-Based Model to Airborne Images. *Remote Sensing*, 16, 492. doi:10.3390/rs16030492

Firenze, September 03, 2024