

Roberto Buizza

PERSONAL INFORMATION

- Research identifiers: ORCID: 0000-0002-3754-2271 - Scopus: 35566896300 – WoS: AAA-4304-2022
- Nationality: Italian and British - Date of Birth: 14 May 1961
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CURRENT POSITION

Full professor (physics) at Sant'Anna Advanced School of Studies (Pisa, Italy); Honorary Research Fellow at Imperial College Grantham Institute of Climate Change (London, UK).

PUBLICATIONS

247 publications, of which 117 in international peer-reviewed journals (16% sole author; 36% first author), 2 books and 17 contributions to books. Google Scholar **h-index 65**, citations 18,529; ResearchGate **h-index 61**, citations 15,616; ISI Web of Science: **h-index 49**, citations 9,469; Scopus: **h-index 49**, citations 9,982.

RESEARCH INTERESTS

Climate, predictability, coupled Earth-system modelling, probabilistic prediction, numerical weather prediction.

RESEARCH ACHIEVEMENTS

- Developed and implemented the European Centre for Medium-Range Weather Forecasts (ECMWF) ensemble
- Developed and implemented stochastic methods to simulate model errors in Earth-system ensembles
- Completed the first European coupled (ocean, land, sea-ice, and atm.) reanalysis of the 20th century
- Contributed to develop ECMWF research and development strategies, and negotiated cooperation agreements with key organizations from the US, China, Australia, South Korea, Japan
- Developed and implemented methods to estimate the probability of extreme events, and to verify forecasts

EDUCATION

- 2002-2004 **Master in Business Administration** (overall distinction), London Business School
- 1993-1997 **PhD in Mathematics**, University College London
- 1981-1986 **Master in Physics** ('laurea', 110/110 cum laude), Università degli Studi di Milano

RESEARCH TRAINING and FELLOWSHIPS

Elected Fellow of the UK Royal Meteorological Society; Elected Fellow of the UK Institute of Physics; Appointed Honorary Member of the 'Società Italiana Scienze del Clima'.

PREVIOUS POSITIONS

- 2022-2023 **Scientific Attaché** at the Italian Embassy of Italy in the United Kingdom, responsible for the Science Office of the Italian Embassy.
- 2022-to date** **Honorary Research Fellow** at the Grantham Institute for Climate Change and the Environment, Imperial College London.
- 2018-to date** **Full Professor** in Physics at Sant'Anna Advanced School of Studies, appointed after a 'Chiamata Diretta per Chiara Fama'
Key impact: established a new research 'Centre on Climate Change studies and Sustainable Actions'; designed a new national PhD program on sustainability and climate change.
- 2016-2018 **Lead Scientist**, ECMWF, and member of the ECMWF Senior Management Team.
Key impact: implemented the Research Department re-organization; concluded a Cooperation Agreement with the US National Center for Atmospheric Research (NCAR, Boulder Colorado); concluded the first European coupled reanalysis of the 20th century
- 2011-2015 **Division Head**, ECMWF, and member of the ECMWF Senior Management Team.
Key impact: expanded the Predictability Division size (from 15 to 30 people) and capabilities, led work that maintained ECMWF leadership in medium-range probabilistic forecasting, and completed the first coupled ocean-atmosphere model; established Cooperation Agreements with the China Meteorological Administration and the US National Weather Service; contributed to the ECMWF strategic planning that secured ECMWF responsibilities for two of the European Union Copernicus Services (€291M investments in 7 years)

- 2009-2011 **Section Head, ECMWF**
Key impact: completed work that led to further improvements of the skill of ECMWF ensemble; contributed to the establishment of ECMWF as the Computational Centre of the European Flood Awareness System (about €650k investments each year)
- 1991-2008 **Scientist, Senior Scientists, Principal Scientist, ECMWF**
Key impact: developed and implemented the ECMWF medium-range ensemble; established and co-chaired the International Hydrological Ensemble Experiment (HEPEX) project; established the Thorpex International Grand Global Ensemble (TIGGE) project; developed applications of probabilistic forecasts in flood prediction, electricity forecasting, weather-risk;
- 1987-1991 **Scientist, Centro Ricerca Termica e Nucleare of the Electricity Board of Italy (CRTN/ENEL)**
Key impact: built knowledge and capabilities in weather prediction and climate

AWARDS AND/OR SCIENTIFIC RECOGNITIONS

- 2021: member of an 'External Review Panel' by Environment Canada, to review its research process
- 2021 & 2020: included in the 'Stanford University list of the top 2% scientist in the world'
- 2020: awarded the 2020 'Bert Bolin Climate Lecture' and 'Bert Bolin Science Seminar', University of Stockholm Bolin Centre for Climate Research (delivered every year by a distinguished climate lecturer)
- 2020: member of the National Committee who wrote the Italian National Research Plan 2021-2027
- 2019-2021: member of the Science Review Panel of a UK-India 5-year project
- 2018-2019: member of an Independent Review Panel of the Australian Bureau of Meteorology
- 2018: awarded Full Professorship ("Chiamata Diretta per Chiara Fama"), Italian Ministry of University
- 2017-2021: Appointed Member of the International Scientific Advisory Panel of the Centre for Climate Research Singapore (CCRS), by the Ministry of Environment and Water resources of Singapore
- 2002: Buchan prize, U.K. Royal Meteorological Society for outstanding scientific contributions

SUPERVISION OF GRADUATE STUDENTS and POSTDOCTORAL FELLOWS

Supervisor of 6 PhD students, 1 undergraduate student, and 20+ post-graduates/scientists.

TEACHING ACTIVITIES

Lecturer to undergraduate and graduate students; invited lecturer at universities; lecturer at the ECMWF Numerical Weather Prediction Training Courses; held courses/series of lectures (China, Japan, Italy).

ORGANISATION OF SCIENTIFIC MEETINGS and COURSES

Chair/Co-conv of 2020 sessions, 100th American Meteorological Society (AMS) Annual Meeting; Chair/Co-conv. of sessions, 97th AMS Annual Meeting; Chair, 2017 and 2016 ECMWF Annual Seminar; Chair, 5th International Conference on 'Reanalysis'; Chair, EU projects' General Assemblies; co-org/chair of 20+ ECMWF WS; Chair, 10+ sessions of the General Assembly of the EGU and AMS

INSTITUTIONAL RESPONSIBILITIES AND BOARDS OF SCIENTIFIC SOCIETIES

- 2020-2021 President, 'Comitato di Coordinamento Nazionale', Italian national doctoral (PhD) school
- 2018-2020 Coordinator, Centre for Climate Change studies and Sustainable Actions
- 2016-2018 ECMWF Lead Scientist, and Member of the ECMWF Senior Management Team
- 2011-2015 ECMWF Head of Division, and Member of the ECMWF Senior Management Team
- 2009-2011 ECMWF Head of Section

MEMBERSHIPS OF SCIENTIFIC SOCIETIES

UK Royal Meteorological Society and Institute of Physics; 'Societa' Italiana Scienze del Clima', American Meteorological Society, 'Associazione Italiana Scienze dell'Atmosfera e Meteorologia'

CURRENT AND PREVIOUS RESEARCH GRANTS

- 2020-2024 European Union Horizon 2020 project Focus-Africa (contributor)
- 2014-2017 European Union FP7 project ERA-CLIM2 (coordinator 2015-2017)
- 2016-2018 Project METIS, (NCAR, ECMWF, and George Mason University (US)
- 2011-2012 EU FP7 project KULTURisk and DEWFORA (ECMWF representative)
- 2004-2018 International projects HEPEX (co-founder/co-chair 2004-2007) and TIGGE (contributor)