

Curriculum Vitae: **STEFANO TIBALDI** Updated March 23, 2020



PERSONAL DETAILS

Family Name	Tibaldi
First Name	Stefano
Telephone no.s	Portable +39 335 800 0891
	Office +39 051 030 1623
Nationality	Italian
Date of birth	30 October, 1949
Place of birth	Bologna, Italy
Family status	Married with Marisa Corazza, 2 sons, Enrico (32) and Giacomo (30)

CURRENT POSITION

Senior Scientist (part-time), CMCC, Centro Euro-Mediterraneo sui Cambiamenti Climatici, Bologna, Italy; External Professor, Ca'Foscari Univeristy, Venice. Retired from the positions of Associate Professor (Ten.) in Physics, University of Bologna and Director General, Arpa, Regional Environmental Agency of Emilia-Romagna, Italy.

EDUCATION

1968-1972	Dottore in Fisica, University of Bologna, 110/110 Magna cum Laude, specialisation in Geophysics
1973	CNR Summer School on "Mesoscale Meteorological Phenomena", Venice, Italy (supervised by Profs. J. S. A. Green, J. G. Charney and A. Eliassen).
1974-1976	Attended the complete PhD courses in Meteorology, Imperial College of Science and Technology, University of London while Academic Fellow, Royal Society and Accademia dei Lincei, under the supervision of Prof. J.S.A. Green.
1977	NERC Postdoctoral Summer School on "Rotating Fluids in Geophysics", Newcastle up. Tyne, UK (Supervised by Profs A. Ghil and P. Drazin).

PUBLICATIONS

More than 65 publications in the international peer-reviewed literature, more than 100 other scientific publications and technical reports and more than 50 articles on popular journals and magazines.

LANGUAGES

Italian:	mother tongue
English:	fluent
French:	good spoken, some written
German:	some spoken

PROFESSIONAL AND ACADEMIC CAREER

1972-74	Research Assistant, University of Bologna, Dept. of Mathematics.
1974-76	Research Fellow, Univ. of London, Imperial College OF science and Technology.
1976-77	Research Scientist, University of Bologna, Dept. of Physics.
1977-78	Junior Scientist, Res. Dept., European Centre for Medium-Range Weather Forecasts, Reading, UK.
1978-80	Scientist, Research Department, European Centre for Medium-Range Weather Forecasts, Reading, UK.
1980-83	Senior Scientist, Research Department, European Centre for Medium-Range Weather Forecasts, Reading, UK.
1983-85	Principal Scientist, Head of Numerical Experimentation Section, Research Department, European Centre for Medium-Range Weather Forecasts, Reading, UK;
1986-87	Principal Scientist, Head of Diagnostics and Predictability Research Section, Research Department, European Centre for Medium-Range Weather Forecasts, Reading, UK.
1987-92	Senior Research Scientist, University of Bologna, Department of Physics, Atmospheric Dynamics Group.
1990-92	Reader of Atmospheric Physics, University of Bologna, Faculty of Mathematical, Physical and Natural Sciences.
1992-93	Associate Professor, University of Camerino, Faculty of Mat., Phys. and Natural Sciences.
1993-2015	Associate Professor, University of Bologna, Faculty of Mat., Phys. and Natural Sciences, Degree courses in Physics, Meteorology and Atmospheric Physics and Environmental Sciences, Head of Atmospheric Dynamics Group (Retired).
1996-2008	Director, Hydro-Meteorological Service of the Regional Agency for Environmental Protection of Emilia-Romagna.
2002-2005	External Professor, Master in Meteorology and Atmospheric Physics, University of Bologna.
2008-2015	Director General, Regional Environmental Protection Agency, Emilia-Romagna Region, Italy (Retired).
2014-2016	Director, Master in Management of Environmental Controls, University of Bologna.
2016-today	External professor, Ca'Foscari University, Venice.

MAIN PROFESSIONAL AFFILIATIONS AND MEMBERSHIPS

- Fellow of the Royal Meteorological Society of London (1975- , on Executive Council from 1983 to 1987).
- Fellow of the American Meteorological Society (1985-).
- WMO-ALPEX Working Group (1980-1986).
- Secretary of the II Section (Atmosphere and Hydrosphere) of the European Geophysical Society (1990-1994).
- Scientific Advisory Committee, Institute for the Physics of the Atmosphere, IFA-CNR, Rome (1983-1987 and 1992-1996).
- Editorial Board of "Annales Geophysicae" (1990-1992).
- Scientific Advisory Committee, Regional Meteorological Service of Emilia-Romagna, 1990-1996.
- Italian member of the EEC Meteorology Committee, 1990-1994.
- Scientific Advisory Committee, European Centre for Medium-Range Weather Forecasts, Reading, UK (1990-1998).

- Scientific Committee, National Climate Conference (Florence, 1993).
- Editorial Board of EcoScienza scientific magazine (2010-today)
- Chairman of CEMEC Centre, University of L'Aquila (2002-2009)
- Consultant of WMO on the reconstruction of the Bosnian National Meteorological Service (Geneva and Sarajevo, 12005).
- Scientific Committee, National Conference on Climate Change (Rome, APAT National Agency, 2007).
- Italian National Advisory Committee for Risk Prevention, Meteorological, hydrogeological and landslides risk section (DPCM rep 6696, 2012-today).
- Italian Member of WMO-CAS (Commission on Atmospheric Sciences, Geneva 2013).
- Member of the Transdisciplinary Advisory Board (TAB) of the Joint Programming Initiative on Climate (JPI-Climate) of the European Union (2013-today).
- President, AssoArpa (National Italian Association of all Regional Environmental Agencies, 2014-2015).
- Past President, AssoArpa (2015-today).

TEACHING EXPERIENCE

- Imperial College, London, Teaching Assistant in the Rotating Fluid Didactic Laboratory for two Academic Years.
- Universities of Bologna and Camerino, several years, Courses of General Physics (Mechanics and Electromagnetism) for Geology, Environmental Sciences and Physics degree courses. Meteorology and Atmospheric Physics for Physics degree course.
- University of Bologna, Modules of Climate and Climate Change in several Science Undergraduate courses and in the Postgraduate Master Course in Environmental Controls Management.
- Ca'Foscari University, VICCS – Venice Centre for Climate Studies, Venice, Currently External Professor of Climate Dynamics in the PhD Course in Science and Management of Climate Change.

In addition, over 100 invited lectures and seminars in diverse occasions on Meteorology, Climatology and Climate Change.

SCIENTIFIC, ACADEMIC AND PROFESSIONAL PROFILE

I graduated in Physics in 1972 (Italian Doctor Degree) 110/110, Magna Cum Laude, with a thesis on the co-oscillation tides of the Adriatic Sea and the problem of Venice high tides.

After two years of research training in Geophysical Fluid Dynamics at Bologna University (1972-74) during which I entered into contact with Prof Green of Imperial College, London, I obtained a three-year Research Fellowship from the Royal Society which I spent at Imperial College, London, (1974-76) working on flow past isolated obstacles and synoptic and dynamics of lee cyclogenesis.

In 1977, at the invitation of the Federal Hydrometeorological Service of Yugoslavia, I spent two months visiting the Faculty of Mathematics and the Federal Weather Service in Belgrade, working on limited area meteorological modeling and exported the model HiBu to Bologna University, where it was extensively used and further developed for research and operations for two and a half decades.

In 1977, at the invitation of Prof Aksel Wiin-Nielsen, I joined the newly formed European Centre for Medium-Range Weather Forecasts as a Junior Scientist in the Analysis Section of the Research Department, where, together with Andrew Lorenc, I developed the algorithms and wrote the operational codes for the humidity analysis and for the use of TEMP special levels.

After promotion to Scientist (1978) and to Senior Scientist (1980), I moved to the Numerical Aspects Section of the Research Department, where I started working on model representation of orographic forcing and its relation to the maintenance of long-term anomalies and to systematic model errors, developing with Adrian Simmons and Mike Wallace the concept of Envelope Orography.

In 1983 I became Head of the new Numerical Experimentation Section of the Model Division, where I contributed to develop the early techniques of Model Experimentation into a consolidated technology and a scientific tool to investigate model errors as well as atmospheric processes and phenomena and used them to assess the ability/inability of GCMs to represent such processes/phenomena. Main objects of such investigations were, at this stage, the monsoon transitions and atmospheric blocking, together with the related model errors and deficiencies.

My interests in the mechanisms of maintenance of persistent atmospheric anomalies led me to concentrate some efforts into extended (monthly, seasonal) model predictions and in the associated problem of the existence of atmospheric weather regimes. Such pioneer efforts contributed to the merging of the two Diagnostic and Numerical Experimentation Sections of the Research Department into a new Diagnostic and Predictability Section, which I led from 1986. This line of development contributed greatly to develop operational seasonal forecasting at ECMWF.

During this period, together with Franco Molteni and Tim Palmer (FRS), I also started to investigate at ECMWF problems of predictability of forecast skill and of ensemble forecasting techniques, which after some years and thanks to the contributions of many more ECMWF scientists, led to the current ECMWF EPS system.

In 1987 I returned to Italy, taking up an Associate Professorship first at Camerino University and then at Bologna University, where I also assumed the leadership of the Atmospheric Dynamics Group of Bologna (ADGB). Here, within the Physics Department, I continued my research on atmospheric blocking and its predictability, but mostly I concentrated on teaching and developing in an organised way academic training in meteorology, climatology and atmospheric sciences, within the Degree Courses in Physics and Environmental Sciences. I was later co-founder of the first Degree Course in Meteorology and Atmospheric Physics in Italy and of the first Master in Applied Meteorology, held at Bologna University.

1996 represented a turning point in my professional career: I was asked to lead the transition of the Regional Meteorological Service (SMR) of the Emilia-Romagna Region from the Agricultural Department of the regional Government into the Regional Agency for Environmental Protection (ARPA). I obtained leave of absence from Bologna University to accept this post.

When I took up the position of Director of ARPA-SMR, the Service was a small regional agrometeorological facility (although already well respected and of high scientific standard), counting 40 permanent staff. It had a network of approximately 30 automatic weather stations, one weather radar, and a budget of approximately 2 million €, entirely funded by the regional government, and it had a very limited (if any) national and international, scientific and operational, role and visibility.

From 1996 to 2008, ARPA-SMR grew, under my guidance, into the largest regional Hydro-Meteorological service of Italy. Today it can count on 75 permanent staff and approximately 20-

25 fixed-term staff (mostly on EU-funded R&D contracts) and has a budget of approximately 8 million €, more than 35% of which comes from the commercial sale of data and services and from externally funded activities. ARPA-SMR has a network of approximately 400 met/hydromet automatic weather/hydro stations, one completely automatic radiosounding station and two C-band, Doppler, dual-polarisation, weather radars. It runs an Oracle-based meteorological archiving system which contains observed and model data since 1985 and historical data since early 1900 and which can be accessed freely from all regional users on the regional intranet, via a browser interface.

In July 2008 I was called by the President of Emilia-Romagna Region to become Director General of the regional Environmental protection Agency (ARPA-ER) for a five-year term, at the end of which the nomination is renewed until my compulsory age retirement (2015).

In January 2012 I was nominated Member of the National Commission for the prevention of Natural Risks. In 2014 I became President of AssoArpa, the Italian National Association of Regional Environmental Agencies.

After my retirement from ARPA and from University, my collaboration with CMCC (the Euro-Mediterranean Centre for Climate Change) started, Centre with which I still collaborate today as part-time Senior Scientist, dealing with problems of Climate Projections, Seasonal Predictions and their utilization by final users.

Google Scholar Profile:

https://scholar.google.it/citations?user=eyQf_xEAAAAJ&hl=it&oi=ao/

Research Gate Profile:

https://www.researchgate.net/profile/Stefano_Tibaldi?ev=hdr_xprf/

LIST OF SOME OF THE MORE SIGNIFICANT CONTRIBUTIONS IN THE SCIENTIFIC LITERATURE

1. Buzzi, A. e **S. Tibaldi**, 1978: Cyclogenesis in the lee of the Alps: A case study. *Q. J. R. Meteor. Soc.*, 104, 271-287.
2. Lorenc, A. e **S. Tibaldi**, 1980: The treatment of humidity in ECMWF's data assimilation scheme. *Atmospheric Water Vapour*, Academic Press, 497-511.
3. **Tibaldi, S.** e L.R. Ji, 1982: On the effect of model resolution on numerical simulation of blocking. *Tellus*, 35A, 28-38.
4. Wallace, J.M., **S. Tibaldi** e A. Simmons, 1983: Reduction of systematic forecast errors in the ECMWF model through the introduction of an envelope orography. *Q. J. R. Meteorol. Soc.*, 109, 683-717.
5. **Tibaldi, S.**, 1986: Envelope orography and maintenance of the quasi-stationary circulation in the ECMWF global models. *Advances in Geophysics*, 29, 339-374.
6. Palmer, T.N. e **S. Tibaldi**, 1988: On the prediction of forecast skill. *Mon. Wea. Rev.*, 116, 2453-2480.
7. Molteni, F., U. Cubasch e **S. Tibaldi**, 1988: 30- and 60- day Forecast Experiments with the ECMWF Spectral Models. In "Persistent Meteo-Oceanographic Anomalies and Teleconnections", *Pontificiae Academiae Scientiarum Scripta Varia*, 69, Citta' del Vaticano, 505-555.
8. **Tibaldi, S.** e F. Molteni, 1990: On the operational predictability of blocking. *Tellus*, 42A, 343-365.
9. **Tibaldi, S.**, A. Buzzi e A. Speranza, 1990: Orographic cyclogenesis. In "Palmen Memorial

- Volume", Ed. C. Newton, American Meteorological Society Monograph, 107-127.
10. Molteni, F., **S. Tibaldi** e T. N. Palmer, 1990: Regimes in the wintertime circulation over northern extratropics. I: Observational evidence. *Q. J. R. Meteorol. Soc.*, 116, 31-67.
 11. Molteni, F. and **S. Tibaldi**, 1990: Regimes in the wintertime circulation over northern extratropics. II: Consequences on dynamical predictability. *Q. J. R. Meteorol. Soc.*, 116, 1263-1288.
 12. **Tibaldi, S.**, T. N. Palmer, C. Brankovic and U. Cubasch, 1990: Extended range predictions with ECMWF models: Influence of horizontal resolution on systematic error and forecast skill. *Q. J. R. Meteorol. Soc.*, 116, 835-866.
 13. Brankovic, C., T. N. Palmer, F. Molteni, **S. Tibaldi** and U. Cubasch, 1990: Extended range predictions with ECMWF models: Time-lagged ensemble forecasting. *Q. J. R. Meteorol. Soc.*, 116, 867-912.
 14. Palmer, T.N., C. Brankovic, F. Molteni, **S. Tibaldi**, L. Ferranti, A. Hollingsworth, U. Cubasch and E. Klinker, 1990: The ECMWF programme on extended-range prediction. *Bull. Amer. Meteor. Soc.*, 71,1317-1330.
 15. D'Andrea, F., **S. Tibaldi**, M.Blackburn, G.Boer, M. Dèquè, M.R. Dix, D. Dugas, L. Ferranti, T. Iwasaki, A. Kitoh, V. Pope, D. Randall, E. Roeckner, D. Straus, W. Stern, H. van den Dool and D. Williamson, 1998: Northern hemisphere atmospheric blocking as simulated by 15 atmospheric general circulation models in the period 1979-1988, *Climate Dynamics*, 14, 385-407.
 16. Pavan, V., **S. Tibaldi** and C. Brankovic, 2000: Seasonal prediction of blocking frequency: Results from winter ensemble experiments., *Q.J.Roy.Meteorol.Soc.*, 126, 2125-2142.
 17. Quadrelli, R, M. Lazzeri, C. Cacciamani and **S. Tibaldi**, 2001: Observed winter Alpine precipitation variability and links with large scale circulation patterns., *Clim. Res.*, 17, 275-284.
 18. Marsigli, C., A. Montani, F. Nerozzi, T. Paccagnella, **S. Tibaldi**, F. Molteni and R. Buizza, 2001: A strategy for high-resolution ensemble prediction. Part II: Limited-area experiments in four Alpine flood events., *Q.J.Roy.Meteorol.Soc.*, 127, 2095-2115.
 19. Montani, A., C. Marsigli, F. Nerozzi, T. Paccagnella, **S. Tibaldi** and R. Buizza, 2003: The Soverato flood in Southern Italy: performance of global and limited-area ensemble forecasts. *Nonlin. Proc. Geophys.*, 10 , 261-274.
 20. Tibaldi, S., T. Paccagnella, C. Marsigli, A. Montani and F. Nerozzi, 2006: Limited-Area Ensemble Forecasting: the COSMO-LEPS system, In *Predictability of weather and climate*, 489-513, Cambridge Univ Press.
 21. Zauli Sajani, S., **S. Tibaldi**, F. Scotto e P. Lauriola, 2008: Bioclimatic characterisation of an urban area: a case study in Bologna (Italy), *Int. J. Biometeorol.*, 52 (8), 779-785.
 22. Barkmeijer, J., R. Buizza, E. Kallen, F. Molteni, R. Mureau, T. Palmer, **S. Tibaldi** and J. Tribbia, 2013: Twenty years of ensemble prediction at ECMWF. *ECMWF Newsletter No. 134*, 16-32.
 23. **Tibaldi, S.**, 2013, Catena di responsabilità e catena decisionale: problemi irrisolti. In "Cosa non funziona nella difesa dal rischio idro-geologico nel nostro paese? Analisi e rimedi." Roma 23 marzo 2012, *Atti dei convegni Lincei*, n. 270, pp 77-95.

Bologna, Mrch 22, 2020

Stefano Tibaldi

