



PERSONAL INFORMATION

Edoardo Bucchignani



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POSITION

Head of Meteorology Lab, CIRA

WORK EXPERIENCE

01/08/1999–Present

Head of Meteorology Lab at CIRA – Research scientist at CMCC
CIRA - Italian Aerospace Research Center, Capua (Italy)

- **From 2020 - present:** Head of Meteorological Lab at CIRA (System Applications Earth Observations Unit)
- **From 2015 - present:** Team leader of the REM (REgional Models), research unit, Regional Models and geo-hydrogeological Impact Division, CMCC.
- **From 2011 - 2020:** Senior research scientist at the Meteo System & Instrumentation Lab, CIRA.
- **From 2011 to 2014:** Team leader of "Regional Climate Simulations", research unit, Impact on Soil and Coasts Division, CMCC.
- **From 2008 to 2011:** Senior research scientist at the "Supercomputing and Applied Meteorology Lab" - CIRA.
- **From 2008 - present:** Member of the European Consortium CLM-Community, for the development of the regional climate model COSMO-CLM.
- 2011, 2012 and 2019: Member of the organizing committee of CLM Assembly (annual meeting of CLM Community).
- **From 2009-present:** Member of COSMO Consortium for Small-scale Modeling since 2009, for the development of a limited area atmospheric model.
- **From 2016- present:** Research scientists in the frame of the following projects: SESAR-PJ02 EARTH, Clean Sky COAST, CIRA-TECVOL II
- **2015-2016:** Director of a course and Senior trainer in the frame of the CLIMASOUTH project
- **2010-2015:** Researcher in the projects FP7 SAFELAND, FP7-CLUVA, FP7 INTACT
- **2009-2011:** Project manager CIRA of INTERREG - ADAPTALP project and FP7 IS-ENES
- **2010-2013:** Participation in the following projects: World Bank Nigeria, FP7 PERSEUS, LIFE-TRUST (Best of the best LIFE project 2011). LIFE-SALT. FP7 FUME
- **2011:** Tutor of the Master thesis: "M. Montesarchio, Simulazione numerica di scenari climatologici su scala regionale: il sistema COSMO-CLM e applicazioni, Seconda Univ. di Napoli, A.A. 2009-10" (in italian).
- Referee for the international journals: "Atmospheric Research", "Int. Journal of Climatology", "Journal of Climate", "Climate Dynamics", "Ocean Dynamics", "Theor. and Applied Climatology", "Int. Journal of Heat and Mass Transfer", "Applied Numerical Mathematics", "Atmosphere", "Applied Mathematical Modelling", "Climate", "Int. Journal of Chemical Reactor Engin.", "Physics of Fluids", "Sustainability", "Int. Journal of the Physical Sciences", "Int. Journal of Numerical Methods for Heat and Fluid Flow", "Hydrological Science Journal".
- **From 2004 to 2007:** Senior researcher in the "Aerothermodynamics and space propulsion Lab" CIRA.
- 2005-2007: Project manager CIRA of project FLECS (ASI - Alenia Spazio):
- 2004-2007: Study and simulation of high enthalpy hypersonic flows under chemical and vibrational non-equilibrium conditions.

- **From 2000 to 2003:** Senior researcher at the Computational Mechanics Lab CIRA
2001-2003: Project manager of the CIRA of SLOSH project (ASI): tanks for aerospace applications and fluid structure interaction

01/02/1994–31/07/1999 **Junior research scientist at the Scientific computing and Computer science Unit CIRA, Capua, Italy**

- Development of software for the resolution of engineering problems on parallel and vector supercomputers
- Analysis of methodologies for the resolution of linear systems
- Analysis and implementation of fully implicit numerical schemes for the computational fluid dynamics
- Unsteady natural convection phenomena
- Processes of crystal growth under thermocapillary conditions
- Theory of dissipative non-linear systems and chaos
- Tutor - supervisor of several Master Thesis

EDUCATION AND TRAINING

01/10/1993–01/07/1997 **Ph.D. in Applied and Theoretical mechanics**

Sapienza University of Rome, Italy

PhD Thesis Title: “Convezione di Rayleigh-Benard non stazionaria in domini limitati. Transizione al caos” (in Italian)

01/10/1985–28/05/1992 **M.Sc. in Mechanical Engineering**

Sapienza University of Rome, Italy

Master Thesis Title: “Simulazione di campi fluidodinamici mediante calcolo parallelo” (in Italian).

PERSONAL SKILLS

Mother tongue(s) Italian

Other language(s)

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	B2	C1	C1	C1	C1

Levels: A1 and A2: Basic user - B1 and B2: Independent user - C1 and C2: Proficient user
Common European Framework of Reference for Languages

Communication skills

- Excellent communication skills, acquired through many international workshop and conference participations and presentations
- High performance collaborative skills

Organisational / managerial skills

- Excellent organizational competencies
- Very good execution capability in research projects management

- Job-related skills
 - Good capability of production of scientific publications

- Digital competence
 - Good knowledge of several operating systems: Windows (98, 2000, XP, Vista), Unix and Linux
 - Good knowledge of several programming languages: Fortran90, C, MatLab
 - Good knowledge of several software packages: GrADS, Office, LaTeX, CDO, R, ArcGis, ICEM-CFD, Fluent, Tecplot

- Other skills
 - Qualified Engineer
 - Required military service fulfilled

- Driving licence
 - Category B

ADDITIONAL INFORMATION

Publications

- E. Bucchignani, P. Mercogliano, Performance evaluation of high-resolution simulations with COSMO over South-Italy, *Atmosphere*, 2021, 12(1), 45; DOI: 10.3390/atmos12010045
- C. Steger, E. Bucchignani, Regional Climate Modelling with COSMO-CLM: History and perspectives, *Atmosphere*, 2020, 11, 1250; DOI:10.3390/atmos11111250
- A. Hochman, ... E. Bucchignani, F. Giorgi, Inter-disciplinary Regional Collaboration for Public Health Adaptation to Climate Change in the Eastern Mediterranean, *Bulletin of the American Meteorological Society*, 2020, E1685-1689, DOI: 10.1175/BAMS-D-20-0065.1
- P. Kumar... E. Bucchignani...T. Zieher, Towards an operationalisation of nature-based solutions for natural hazards, *Science of the Total Environment*, 2020, 731, 138855, DOI:10.1016/j.scitotenv.2020.138855
- E. Bucchignani, A. Voudouri, P. Mercogliano, A Sensitivity Analysis with COSMO-LM at 1 km Resolution over South Italy, *Atmosphere*, 2020, 11(4), 430; DOI:10.3390/atmos11040430
- E. Bucchignani, P. Mercogliano, High-resolution simulations with COSMO model including TERRA_URB parameterization for the representation of Urban Heat Islands over South Italy, *Adv. Sci. Res.*, 17, 19–22, 2020. DOI:10.5194/asr-17-19-2020, 202
- J. Spinoni, P. Barbosa, E. Bucchignani... et al, Future global meteorological drought hotspots. A study based on CORDEX data, *Journal of Climate*, 2020. DOI 10.1175/JCLI-D-19-0084.1.
- D. Bonaldo, E. Bucchignani, A. Pomaro, A. Ricchi, M. Sclavo, S. Carniel, Wind waves in the Adriatic Sea under a severe climate change scenario and implications for the coasts, *International Journal of Climatology*, 40(12): 5389-5406, 2020 DOI: 10.1002/joc.6524
- A. Hochman, P. Mercogliano, P. Alpert, H. Saaroni, E. Bucchignani. High-resolution projection of climate change and extremity over Israel using COSMO-CLM, *International Journal of Climatology*, 2018, DOI: 10.1002/joc.5714
- P. Mercogliano, E. Bucchignani, A. Reder, G. Rianna, Climate Change, in: P. Bobrowsky, B. Marker (eds.) *Encyclopedia of Engineering Geology. Encyclopedia of Earth Sciences Series*. Springer, DOI:10.1007/978-3-319-12127-7 Online ISBN: 978-3-319-12127-7
- P. Croce, P. Formichi, F. Landi, P. Mercogliano, E. Bucchignani, A. Dosio, S. Dimova, The snow load in Europe and the climate change, *Climate Risk Management*, 2018, DOI: 10.1016/j.crm.2018.03.001
- A. Bonfante, E. Monaco, G. Langella, P. Mercogliano, E. Bucchignani, P. Manna, F. Terribile, A dynamic viticultural zoning (DVZ) to explore the resilience of terroir concept under climate change, *Science of the Total Environment*, 624, 294-308, 2018
- E. Bucchignani, P. Mercogliano, H.J. Panitz, M. Montesarchio, Climate change projections for the Middle East - North Africa domain with COSMO-CLM at different spatial resolutions. *Advances in Climate Change Research*, 2018 9(1):66-80, 2018. DOI: 10.1016/j.accre.2018.01.004.
- D. Bonaldo, E. Bucchignani, A. Ricchi, S. Carniel, Wind storminess in the Adriatic Sea in a climate change scenario. *Acta Adriatica* 58(2), 2017.
- E. Bucchignani, P. Mercogliano, M. Montesarchio, A.L. Zollo, Numerical simulation of the period

1971-2100 over the Mediterranean area with a regional model, scenario SRES-A1B, Sustainability, 9(12), 2192, 2017

- A. Hochman, E. Bucchignani, G. Gershtein, S. O. Krichak, P. Alpert, Y. Levi, Y. Yosef, Y. Carmona, J. Breitgand, P. Mercogliano, A. L. Zollo, Evaluation of regional COSMO-CLM climate simulations over the Eastern Mediterranean for the period 1979 – 2011, International Journal of Climatology, 2018, 38(3):1161-1176, DOI: 10.1002/joc.5232

- E. Bucchignani, A.L. Zollo, L. Cattaneo, M. Montesarchio, P. Mercogliano, Extreme weather events over China: assessment of COSMO-CLM simulations and future scenarios, International Journal of Climatology, 37(3): 1578-1594 2016. DOI: 10.1002/joc.4798

- A. Hochman, E. Bucchignani, G. Gershtein, S. O. Krichak, P. Alpert, Y. Levi, Y. Yosef, Y. Carmona, J. Breitgand, P. Mercogliano, A. L. Zollo, Evaluation of regional COSMO-CLM climate simulations over the Eastern Mediterranean for the period 1979 – 2011, International Journal of Climatology, 38(3):1161-1176, 2018. DOI: 10.1002/joc.5232

- E. Bucchignani, P. Mercogliano, G. Rianna, H.- J. Panitz, Analysis of ERA -Interim driven COSMO CLM simulations over Middle East - North Africa domain at different spatial resolutions, International Journal of Climatology, 36(9): 3346-3369 2016, DOI: 10.1002/joc.4559

- E. Bucchignani, L. Cattaneo, H.- J. Panitz, P. Mercogliano, Sensitivity analysis with the regional climate model COSMO-CLM over the CORDEX-MENA domain, Meteorology and Atmospheric Physics, 128(1), 73-95, 2016, DOI: 10.1007/s00703-015-0403-3

- E. Bucchignani, M. Montesarchio, AL. Zollo, P. Mercogliano, High resolution climate simulations with COSMO-CLM over Italy: performance evaluation and climate projections for the 21st century, International Journal of Climatology, 2016, 36(2), 735-756. DOI: 10.1002/joc.4379

- M. Giugni, I. Simonis, E. Bucchignani, P. Capuano, F. De Paola, F. Engelbracht, P. Mercogliano, M.E. Topa, The Impacts of Climate Change on African Cities, in: Urban Vulnerability and Climate Change in Africa, A Multidisciplinary Approach, S. Pauleit et al. (Eds), Springer Cham, Heidelberg, New York, Dordrecht, London, 2015, DOI 10.1007/978-3-319-03982-4_2

- A. L. Zollo, V. Rillo, E. Bucchignani, M. Montesarchio, P. Mercogliano, Extreme temperature and precipitation events over Italy: assessment of high resolution simulations with COSMO-CLM and future scenarios, International Journal of Climatology, 2016, 36(2), 987-1005. DOI: 10.1002/joc.4401

- E. Bucchignani, M. Montesarchio, L. Cattaneo, M.P. Manzi, P. Mercogliano, Regional Climate modeling over China with COSMO-CLM: performance assessment and climate projections, Journal of Geophysical Research – Atmospheres, 119(21), 12151-12170, 2014. DOI: 10.1002/2014JD022219

- A. Garcia, E. Bucchignani, M. Manzi, Patterns in climate-related parameters as proxy for rainfall deficiency and aridity: application to Burkina Faso, Journal of Risk and Uncertainty in Engineering Systems, Part A: Civil Engineering, 2015, DOI: 10.1061/AJRUA6.0000860

- C. Déandreis, P. Braconnot, C. Page, L. Bärring, E. Bucchignani, W. Som de Cerff, R. Hutjes, S. Joussaume, C. Mares, S. Planton, M. Plieger, Towards a dedicated impact portal to bridge the gap between the impact and climate communities: lessons from use cases, Climatic Change, 125, 333-347, 2014. DOI 10.1007/s10584-014-1139-7

- A. Garcia-Aristizabal, E. Bucchignani, E. Palazzi, D. D'Onofrio, P. Gasparini, W. Marzocchi, Analysis of non-stationary climate-related extreme events considering climate-change scenarios: an application for multi-hazard assessment in the Dar Es Salaam region, Tanzania, Natural Hazards, 75(1), 289-320, 2015. DOI: 10.1007/s11069-014-1324-z

- F. De Paola, M. Giugni, M.E. Topa, E. Bucchignani, Intensity-Duration-Frequency (IDF) rainfall curves, for data series and climate projection in African cities, Springerplus, 3, 133, 2014.

- M. Montesarchio A. Zollo, E. Bucchignani, P. Mercogliano, S. Castellari, Performance evaluation of high-resolution regional climate simulations in the Alpine space and analysis of extreme events, Journal of Geophysical Research, 119, 3222–3237, 2014.

- E. Bucchignani, A. Sanna, S. Gualdi, S. Castellari, P. Schiano, "Simulation of the climate of the XX century in the Alpine space", Natural Hazards, 67, 981-990. 2013.

- L. Comegna, L. Picarelli, E. Bucchignani, P. Mercogliano, Potential effects of incoming climate changes on the behaviour of slow active landslides in clay, Landslides, 10, 373-391, 2013.

- F. Baruffi, A. Cisotto, A. Cimolino, M. Ferri, M. Monego, D. Norbiato, M. Cappelletto, M. Bisaglia, A. Pretner, A. Galli, A. Scarinci, V. Marsala, C. Panelli, S. Gualdi, E. Bucchignani, S. Torresan, S. Pasini, A. Critto, A. Marcomini, 2012. Climate change impact assessment in Veneto and Friuli plain groundwater. Part I: an integrate modeling approach for hazard scenario construction. Sci. Total Environ., 440, 154-166, 2012.

- D. Bellafore, E. Bucchignani, S. Gualdi, S. Carniel, V. Djurdjević, and G. Umgiesser, Assessment of meteorological climate models as inputs for coastal studies, *Ocean Dynamics*, 62 (4) 555-568, 2012.
- A. Benetazzo, F. Fedele, S. Carniel, A. Ricchi, E. Bucchignani, M. Sclavo, Wave climate of the adriatic sea: a future scenario simulation, *Natural Hazards and Earth System Sciences*, 12, 2065-2076, 2012.
- D. Bellafore, E. Bucchignani, S. Gualdi, S. Carniel, V. Djurdjević, and G. Umgiesser, "Evaluating meteorological climate model inputs to improve coastal hydrodynamic studies", *Advances in Science & Research*, 6, 227-231, 2011.
- M. Bisaglia, M. Cappelletto, S. Pasini, A. Cimolino, F. Baruffi, A. Galli, V. Marsala, A. Scarinci, S. Gualdi, E. Bucchignani, A. Zandonella, Implementazione di un modello per la stima del deficit irriguo estivo in alta pianura veneto friulana e prima applicazione in adattamento ai cambiamenti climatici (Progetto Europeo Life+ Trust), *Italian Journal of Agrometeorology*, 2, agosto 2011. pp.5-14.
- G. Pezzella, E. Bucchignani, Numerical assessment of the flowfield features at the exit of Scirocco plasma wind tunnel nozzle, *Mathematics and Computers in Simulation*, 82 (1), 118-131, 2011.
- D. Mansutti, E. Bucchignani, On the importance of solid deformations in convection-dominated liquid/solid phase change of pure materials, *Applications of Mathematics*, 56 (1), 117-136, 2011.
- E. Bucchignani, G. Pezzella, Computational flowfield analyses of hypersonic problems with reacting boundary layer, *Mathematics and Computers in Simulation*, 81 (3), 656-669, 2010.
- E. Bucchignani, An implicit unsteady finite volume formulation for natural convection in a square cavity, *Fluid Dynamics & Material Processing*, 5 (1), 37-59, 2009.
- E. Bucchignani, F. Stella, F. Paglia, A partition method for the solution of a coupled liquid-structure interaction problem, *Applied Numerical Mathematics*, 51 (4), 463-475, 2004.
- E. Bucchignani, D. Mansutti, Rayleigh-Marangoni horizontal convection of low Prandtl number fluids, *Physics of Fluids*, 16 (9), 3269-3280, 2004.
- E. Bucchignani, Numerical characterization of hydrothermal waves in a laterally heated shallow layer, *Physics of Fluids*, 16 (11), 3839-3849, 2004. (pubblicato anche in *Virtual Journal of Biological Physics Research*, 8 (6), 2004).
- E. Bucchignani, A numerical study of non-linear dynamics in a tank for aerospace applications, *Applied Numerical Mathematics*, 49 (3-4), 307-318, 2004.
- E. Bucchignani, D. Mansutti, Horizontal thermocapillary convection of SCN: steady state, instabilities and transition to the chaos, *Physical Review E*, 69, 056319, 2004.
- E. Bucchignani, D. Mansutti, A numerical modeling of Rayleigh - Marangoni steady convection in a non-uniform differentially heated 3D cavity, *Journal of Scientific Computing*, 20 (1), 115-136, 2004.
- E. Bucchignani, A. Georgescu, D. Mansutti, A Lorenz-like model for the horizontal convection flow, *Int. Journal of Non-Linear mechanics*, 38 (5), 629-644, 2003.
- E. Bucchignani, D. Mansutti, Horizontal thermal convection in a shallow cavity: oscillatory regime and transition to chaos, *Int. Journal of Num. Meth. for Heat & Fluid Flow*, 10 (2), 179-185, 2000.
- F. Gugliermetti, F. Stella, E. Bucchignani, Flow pattern influence on Nusselt number in a 3D rectangular cavity, *Int. Journal of Heat & Technology*, 18, n.1. 47-51, 2000.
- E. Bucchignani, F. Stella, Rayleigh - Bénard convection in limited domains: Part 2 - Transition to chaos, *Num. Heat Transfer Part A*, 36, 17-34, 1999.
- F. Stella, E. Bucchignani, Rayleigh - Bénard convection in limited domains: Part 1 - Oscillatory flow, *Num. Heat Transfer Part A*, 36, 1-16, 1999.
- F. Stella, E. Bucchignani, True transient vorticity-velocity method using preconditioned Bi-CGSTAB, *Num. Heat Transfer Part B*, 30, 315-339, 1996.

Conferences

- E. Avgoustoglou, E. Bucchignani, A. Voudouri, G. Varlas, P. Mercogliano, P. Katsafados, P. Skrimizeas, Installation and Testing of the Regional Climatic Model COSMO-CLM (CCLM) at the Hellenic National Meteorological Service, Proceedings of the 14th COMECAP Conference, Alexandroupolis (Greece) 15-17 October 2018
- A.L. Zollo, M. Montesarchio, E. Bucchignani, P. Mercogliano, J. Beran, An Advanced Weather Awareness System For Small Aircraft. Proceedings of 7th EASN 2017 International Conference on Innovation in European Aeronautics Research, Warsaw (Poland), 26 - 29 September 2017. ISSN

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- E. Bucchignani et al. High-resolution COSMO-CLM climate projections over Israel, abstract V SISC Annual Conference, Bologna (Italy), 2017.
- P. Mercogliano, E. Bucchignani et al. A climate analysis using CORDEX simulations in a cooperation framework: the case of Paraguay, EGU 2017 General Assembly, Vienna, 25 April 2017.
- E. Bucchignani, P. Mercogliano, Climate projections over Italy with the Regional Model COSMO-CLM and examples of application to hydrological impact studies, MAC2I Workshop, Roma 15 March 2017.
- E. Bucchignani et al. Estimation of sensitivity and added value of climate simulations for the Israeli region using COSMO-CLM with three nested domains, International Conference on Regional Climate CORDEX 2016, Stockholm (Sweden), 17-20 May 2016.
- E. Bucchignani, M. Montesarchio, A. Zollo, P. Mercogliano, Regional climate simulations with COSMO-CLM over the Mediterranean area, in: *Climate change: Scenarios, impacts and policy* (Proceedings of II SISC Conference), Venezia, 29-30 settembre 2014, pp: 338-351, ISBN 978 – 88 – 97666 – 04 – 2
- M. Montesarchio, P. Mercogliano E. Bucchignani, High resolution hindcast simulations over Italy with COSMO-CLM model, in: *Climate change: Scenarios, impacts and policy* (Proceedings of II SISC Conference), Venezia, 29-30 settembre 2014, pp: 487-508, ISBN 978 – 88 – 97666 – 04 – 2
- E. Bucchignani, A. Garcia-Aristizabal, M. Montesarchio, Climate-related extreme events with high resolution regional simulations: assessing the effects of climate change scenarios in Ouagadougou, Burkina Faso, in: *Vulnerability, Uncertainty, and Risk* (Proceedings ICVRAM2014 Conference, Liverpool, 13-16 July 2014) ASCE, 1351-1362. DOI: 10.1061/9780784413609.136
- F. De Paola, M. Giugni, A. Garcia-Aristizabal, E. Bucchignani, Stationary Vs. Non-stationary of Extreme Rainfall in Dar Es Salaam (Tanzania), Proceedings of 35th IAHR World Congress, Chengdu (China), 8-13 settembre 2013, Tsinghua University Press, Beijing.
- E. Bucchignani, P. Mercogliano, M. Montesarchio, M. Manzi, A. Zollo, Performance evaluation of COSMO-CLM over Italy and climate projections for the XXI century, in: *Climate change and its implications on ecosystem and society* (Proceedings of I SISC Conference), Lecce, 23-24 settembre 2013 pp: 78-89 ISBN: 978-88 -97666 -08-0
- M. Breil, K. Johnson, E. Bucchignani, An indicator-based assessment of vulnerability to climate change in Italian coastal cities, in: *Climate change and its implications on ecosystem and society* (Proceedings of I SISC Annual Conference), Lecce, 23-24 settembre 2013 pp: 1042 - 1056 ISBN: 978-88- 97666-08-0
- D. Bellafiore, G. Umgiesser, E. Bucchignani, Evaluating meteo marine climatic model inputs for the investigation of coastal hydrodynamics, *Proc. 15th Physics of estuaries and coastal seas (PECS) Conference*, Colombo (Sri Lanka), 13-16 September 2010.
- E. Bucchignani, P. Mercogliano, High resolution climate scenarios on Italian mountains, in *Mountain Risks: Bringing Science to Society. Proceedings of the Int. Conf., 24-26th November 2010, Florence, Italy*, 543-547, J.Malet, T. Glade, N. Casagli (Ed.), CERG Editions, Strasbourg, France.
- M. Ferri, D. Norbiato, M. Monego, A. Galli, S. Gualdi, E. Bucchignani, F. Baruffi, Impact of climate change on hydrological regimes and water resources in Trust (Life + 2007) project, *Proc. Hydropredict 2010 Conference*, Prague, Czech Republic, September 2010.
- G. Pezzella, E. Bucchignani, M. Marini, G. Ferrari, C. Chiarelli, Computational Aeroheating Analyses of a Capsule in Martian Atmosphere, *Proc. 6th European Workshop on Thermal Protection Systems and Hot Structures*, Stuttgart (Germany), 1-3 April 2009.
- E. Bucchignani, G. Pezzella, M. Marini, A spline based algorithm for the analysis of the flow of Scirocco plasma wind tunnel nozzle, in *Proc. IMACS-ISGG MASCOT-08 Workshop*, Roma (Italy), 2008.
- E. Bucchignani, G. Pezzella, A. Matrone, Numerical simulation of liquid-structure interaction problem in a tank of a space re-entry vehicle, in: *Numerical Simulations, Applications, Examples and Theory*, ISBN 978-953-307-153-4, 155-172, L. Angermann (Ed.), INTECH (Vienna), 2010. (pubblicato anche in: *Proc. Sixth European Symposium on Aerothermodynamics for Space Vehicles*, Versailles (France), 2008.)
- E. Bucchignani, G. Pezzella, Numerical investigations of classical hypersonic problems; comparison with experimental data, in *Proc IMACS-ISGG MASCOT-07 Workshop*, Roma (Italy), 31-40, F. Pistella et al. (Ed.), IMACS, 2008.
- E. Bucchignani, A numerical study of dynamics and fluid structure interaction in a tank for aerospace

application, in *Proc IMACS-ISGG MASCOT-01 Workshop*, Roma (Italy), 25-32, R. Spitaleri et al. (Ed.), IMACS, 2002.

- E. Bucchignani, F. Stella, Development of an implicit method for the solution of a liquid-structure interaction problem, in *Proc IMACS-ISGG MASCOT-02 Workshop*, Roma (Italy), 55-64, R. Spitaleri et al. (Ed.), IMACS, 2003.

- F. Stella, M. Giangi, E. Bucchignani, D. Simone, Fully coupled numerical simulation of fluid-structure interaction in a deformable tank, in *CD Rom Proc. XVII Congresso Nazionale AIDAA*, Roma (Italy), September 2003.

- E. Bucchignani, A. Russo, A Finite Element Formulation for Shape Memory Alloys: implementation and numerical simulations, in *Proc. IMACS-ISGG MASCOT-03 Workshop*, Forte Village Resort (Italy), 21-30, R. Spitaleri et al. (Ed.), IMACS, 2004.

- E. Bucchignani, Comparison of implicit time integration methods for an upwind Euler flow solver, in *Proc. IMACS-ISGG MASCOT-04 Workshop*, Firenze (Italy), 11-20, C. Conti et al. (Ed.), IMACS, 2005.

- D. Mansutti, E. Bucchignani, M.M. Cerimele, "Rayleigh - Benard convection flow with liquid/solid phase transition in a low gravity field", in *Advances in Fluid Mechanics VII*, 247-255, M. Rahman, C.A. Brebbia (Ed.), Wit Press, 2008.

- F. Stella, M. Giangi, E. Leonardi, E. Bucchignani, G. de Vahl Davis, Free-surface effects on solidification under micro-gravity conditions, in *Proc. Eurotherm 2000*, Stuttgart (Germany), 2000.

- E. Bucchignani, F. Stella, A. Matrone, Parallel polynomial preconditioners for the analysis of chaotic flows in Rayleigh - Bénard convection, in *Parallel Computational Fluid Dynamics: Towards Teraflops Optimization and Novel Formulations*, 139-146 D. Keyes et al. (Ed.), Elsevier Science, 2000.

- V. Puoti, E. Bucchignani, A. Matrone, Different Domain Decomposition techniques to solve Computational Fluid Dynamics Problems, in *Parallel Computational Fluid Dynamics: Development and Applications of Parallel technology*, 49-56, C.A. Lin et al (Ed.), Elsevier Science, 1999.

- E. Bucchignani, D. Mansutti, Oscillatory regimes for the horizontal thermal convection in solidification problems, in *ECCOMAS Computational Fluid Dynamics '98*, Vol. 2, 720-725, K. Papailiou et al. (Ed.), John Wiley & Sons (England), 1998.

- E. Bucchignani, W.G. Diurno, Parallel computation of inviscid 3D flows with unstructured domain partitioning: performances on SGI-Power Challenge Supercomputer, in *Parallel Computing: Fundamentals, Applications and New Directions*, 129-136, E.H. D'Hollander et al. (Ed.), Elsevier Science, 1998.

- E. Bucchignani, R. Mella, P. Schiano, G. Richelli, Comparisons of the MPI and PVM performances by using structured and unstructured CFD codes, in: *Parallel Computational Fluid Dynamics: Recent Developments and Advances Using Parallel Computers*, 125-132, D.R. Emerson et al. (Ed.), Elsevier Science, 1998.

- E. Bucchignani, F. Stella, G. Guj, Parallel solver for unsteady Rayleigh - Benard problem in limited domains, in *Parallel Computational Fluid Dynamics: Algorithms and Results Using Advanced Computers*, 266-273, P. Schiano et al. (Ed.), Elsevier Science, 1997.

- E. Bucchignani, G. Iaccarino, A comparison between Domain Decomposition and Fully Implicit approaches for a parallel 3D upwind flow solver, in *Advances in High Performance Computing*, pp. 133-148, L. Grandinetti et al. (Ed.), Kluwer Academic Pub. 1997.

- E. Bucchignani, F. Stella, A fully implicit parallel solver for viscous flows: numerical tests on high performance machines, in *Parallel Computational Fluid Dynamics: Implementations and Results Using Parallel Computers*, 569-576, A. Ecer et al. (Ed.), Elsevier Science, 1995.

- E. Bucchignani, M. Behnia, F. Stella, Thermocapillary effects in oscillatory natural convection of liquid metals, in *Proc. 7th International symposium on "Transport Phenomena in Manufacturing Processing"*, Acapulco (Mexico), August 28-31 1994.

- F. Stella, M. Marrone, E. Bucchignani, A Parallel Preconditioned CG Type method for Incompressible Navier-Stokes Equations, in *Parallel Computational Fluid Dynamics: New Trends and Advances*, 325-332, A. Ecer et al. (Ed.), Elsevier Science, 1994.

Honours and awards

- Biography inserted in the "2004 Who's who in the world" and in the "2006-2007 Who's who in the Science and Engineering"
- International Award "Young Scientist's Travel Award" of EGU2013 General Assembly
- "Great Contribution Award 2020", of Advances in Climate Change Research.

Seminars

Seminars - Lectures:

- Regional climate change science from model development to applications: the experience from CMCC and CIRA, (The Cyprus Institute (online) 22 May 2020).
- "Introduzione alla Meteorologia: teoria e applicazioni" (Liceo Scientifico E. Amaldi, S. Maria C.V. 22-24 May 2018).
- "Regional climate simulations with COSMO-CLM over the Mediterranean area: climate projections for the XXI century according to IPCC scenarios", (University of Crete, Greece, 18 July 2017).
- "Regional Workshop on downscaling climate modeling" in the frame of Climasouth project (Lecce, Italy, 9-20 March 2015).
- "Climate modeling on regional and local scale (downscaling)" in the frame of the training project I-AMICA at CNR Institute (Lamezia Terme, Italy, 18-22 March 2013).
- "From Global to Regional climate models: focusing on downscaling", in the frame of "Fall School on Modeling Climate Change Impacts on Water and Crops at different scales", (Alghero, Italy, 5-9 November 2012).
- "Climate change and variability", the inception meeting of "Consultancy Service for the Development of an Inundation, Flood Landslide National Risk Profile, (Mauritius, 27 March 2012).
- "Climate regional models", in the frame of "Training on the job course on Hazards, Risks, and (Bayesian) multi-risk assessment (Napoli, Italy, 24 October– 11 November 2011).
- "Training on Climate Change Modelling and Dynamical Downscaling procedures", TRUST Project–Capacity building 8.2 session (Venezia, 7 July 2010).
- "Dynamic downscaling and regional models" in the frame of "Summer School on Climate Change and Agriculture" (Alghero, Italy, 14-18 September 2009).

Courses attended

- Summer School "Advances in severe weather analysis: models and observations", ISAC-CNR institute, Castro (Italy) (2016).
- Corso di formazione per l'uso del sistema EUMETFAST. Gaiag, (2015)
- Disdrometro OTT mod. Parsivel, Corr-Tek Idrometria srl (2015)
- MATLAB Programming Techniques, Mathworks, Roma (Italy) (2015).
- MATLAB for Data Processing and Visualization, Mathworks, Roma (Italy) (2015).
- Summer School "From Renewable Energy Production to End Users" at the Training Center of MeteoFrance, Montegut (France) (2013).
- "Numerical methods,adiabatic formulation of models and ocean wave forecasting" at ECMWF, Reading (England) (2011).
- "OASIS Training course", at CERFACS, Tolosa (France) (2011).
- "Introduzione ad ArcGIS 10 Desktop ed Estensioni", at CIRA, Capua (2010).
- "Parametrization of subgrid physical processes", at 'ECMWF, Reading (England) (2010).
- "COSMO-CLM Training Course", at DWD, Langen (Germany) (2009).
- "Corso avanzato ANSYS ICEM CFD", at CIRA, Capua (2008).
- "Corso introduttivo ANSYS", at ITALCAE s.p.a., Firenze (2001).
- "Modelli per la competitività (Sistemi organizzativi – Dimensione economica e finanziaria dell'impresa)", at Finmeccanica, Roma (1996).
- "Parallel Computing in Computational Fluid Dynamics", at Von Karman Institute, Bruxelles (1995).
- "Parallel Computational Fluid Dynamics", at the University of Stuttgart (1994).
- "Computational Fluid Dynamics '94", at Von Karman Institute, Bruxelles (1994).
- "Introduzione al PVM", at CASPUR. Roma (1993).
- "Programmazione di nuove architetture parallele: gli ipercubi e i loro ambienti di sviluppo software", at CNUCE/CNR Institute, Pisa (1991).



Curriculum vitae