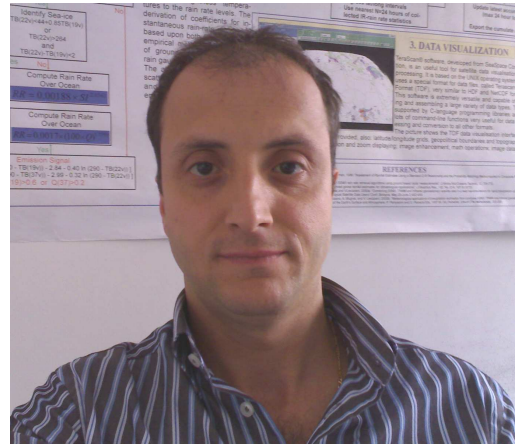# Curriculum Vitae

Eng. Andrea Antonini

PERSONAL INFORMATION

- **Name:** Andrea
- **Surname:** Antonini
- **Nationality:** Italian
- **Place and Date Of Birth:** Florence, 15/04/1974

CONTACTS

Consorzio LaMMA – Laboratory of Monitoring and Environmental Modelling for the sustainable development

- **Address:** Via Madonna del Piano n.10 - Edificio D 50019 Sesto Fiorentino (FI) Italy
- **Phone:** +39 0554483045
- **E-mail:** antonini@lamma.rete.toscana.it

STUDIES

- **July 1993:** Scientific Education school living certificate delivered from the Antonio Gramsci Institute of Florence (mark 45/60).

- **April 2002:** Degree in Electronic Engineering – Technology Of Telecommunications, from University of the Studies in Florence (Final mark 103/110).

  Experimental Thesis (Italian language) developed at the Technology for Cultural Heritage Laboratory of the Electronic and Telecommunication department of the university of Florence:

  TITLE
  "Sviluppo e sperimentazione di un sistema radar in banda X"
  (Development and Experimentation of an X Band radar system)

  SUPERVISORS
  Prof. Carlo Atzeni
  Dot. Massimiliano Pieraccini
  Dot. Guido Luzi

- **September 2002:** State examination for the qualification to practise the engineer profession

- **April 2005:** Participation to a study day about the European Directives on the protection of workers from risks related to exposure to the electromagnetic fields : *"La nuova Direttiva Europea 2004/40/CE sulla protezione dei lavoratori dalle esposizioni ai campi elettromagnetici", 1 Aprile 2005, Istituto Superiore di Sanità – Roma*

- **May 2007:** Participation to the professional course on JAVA PROGRAMMING LANGUAGE organised by the Tuscany Region government.

- **September 2007:** Participation to the "Workshop on Interpretation of Satellite Images/Products of Convective Storms", 2007, September, 5-7 – Trieste – Italy

- **September 2008:** Participation to the professional course on PROJECT MANAGEMENT organised by the Tuscany Region government.

- **May 2009:** Participation to the professional course on "Scientific and technical computation in C language" organized by CASPUR, 2009, May, 19-21 – Rome - Italy

- **Now:** Student of the 2st year of the GeoInformation PhD at the TorVergata University of Rome, by public competition excedance.

The PhD research activity is focused on the study and the implementation of satellite-based retrieval techniques for the estimation of atmospheric water vapour three-dimensional content.

LANGUAGE SKILLS

- FRENCH: Basic skills in reading, writing and verbal language.
- ENGLISH: Good skills in reading, writing and verbal language.

INFORMATIC KNOWLEDGES

- Excellent skills in UNIX/LINUS and WINDOWS operating systems.
- Excellent skills in C, Shell Scripts programming languages.
- Good skills in Fortran programming language.
- Excellent knowledge of TeraScan, a software for satellite data processing.
- Good knowledge of MATLAB 5.3, AUTOCAD 2000, P-SPICE software.
- Good knowledge of main applications (OFFICE, CORELDRAW).
- Basic level experience in the web site design, by using FrontPage software and the HTML language

RESEARCH ACTIVITIES

- Satellite based rainfall estimation techniques
- Weather radar
- GPS Meteorology

WORK EXPERIENCE

- Apr 2001 – Apr 2002 : Collaboration with the University Of Studies Of Florence during the work of thesis:
  - Study of ground-based RADAR for monitoring applications of landslips, static and dynamic deformations of architectural elements, seismic phenomenon by using radar interferometry techniques.
  - Project and development of a card-prototype for radar analogical signal (X band) acquisition for a ground-based SAR CW-SF modular architecture system.
  - Experimentation of the RADAR system, processing and analysis of 2-D and 3-D radar images of the observed scene.
  - Participation in measurement campaigns.

- Jun 2002 – Gen 2003 : Collaboration with SeMaT s.r.l company of Florence for the writing of the following documentation:
  - Technical Manual of the Surface Movement Radar Control System of the Linate airport, commissioned by the FIAR s.p.a company of Milan.
  - Technical manuals of managing systems and radio mobile equipment of MARCONI TETRA network, commissioned by MARCONI s.p.a company of Florence.

- Feb 2003 – Dec 2004 : Collaboration contract with FMA (Applied Meteorology Foundation) for scientific advice at La.M.M.A (Laboratory for Meteorology and Environmental Modelling http://www.lamma.rete.toscana.it) about studies and implementation of satellite-based rainfall estimation techniques. The main activities of this collaboration have been:
  - Microwave polar satellite sensor data (in particular DMSP-SSMI) processing.
  - VIS, IR geostationary satellite data (in particular MFG,MSG) processing.
  - Project and implementation of an operational chain for real time rainfall estimates production over the Euro-Mediterranean area by processing and merging satellite data.
  - Validation of precipitation field by comparing with heterogeneous data (in particular with in situ measurements from rain gauges and meteorological radar).

- Gen 2005 – May 2005 Advice and research job assigned by Hydrological Service of Tuscany Region and carried on at La.M.M.A (Laboratory for Meteorology and Environmental Modelling http://www.lamma.rete.toscana.it) about the improvement of the accuracy the real time precipitation measurements instruments. The main activities of this job have been:

- Study and implementation of cross-calibration techniques and homogeneous graphical displaying between meteorological radar of Tuscany Region.
- Study and implementation of automatic procedures for MW-MSG based rainfall estimation.
- Comparison and study of data-fusion techniques between radar, satellites and rain gauges rainfall measurements.
- Operational products validation by analysing meteorological conditions of observed precipitation events as provided by RAMS model simulations also.

- Oct 2005 – Nov 2005   Collaboration contract with FMA (Applied Meteorology Foundation) for scientific advice at La.M.M.A (Laboratory for Meteorology and Environmental Modelling http://www.lamma.rete.toscana.it) about meteorological and climatological research.

- Nov 2005 – Today   Engagement by public competition (Announcement number S.P. SP 71/05 published in the "Tuscany Region Official Gazette" Number 37 of 14/09/2005) "Territory Officer" professional profile with "environment" tasks, in the framework of "Regional Functional Centre Start up" (Decree number 4247 of 27/7/2005).
Research activity in the field of radar and satellite meteorology c/o LaMMA(Laboratory for Meteorology and Environmental Modelling http://www.lamma.rete.toscana.it) Consortium.

PUBLICATIONS

- **CONFERENCES and PROCEEDINGS:**

Antonini A., Melani S., Ortolani A.,2003: Implementation of the Turk's Rapid Update Algorithm of Rainfall Using the SSMI and Meteosat Satellites to Obtain Rainfall Estimates. 1*3th International TeraScan® Conference,* Bologna October 21-23, 2003, **ORAL PRESENTATION.**
http://www.seaspace.com/news/tscan13/Antonini.LAMMA.SSMI.pps

Dietrich, S., V. Levizzani, F. Meneguzzo, A. Mugnai, F. Porcù, C. Adamo, **A. Antonini**, S. Di Michele, C. Medaglia, G. Messeri, A. Orlandi, A. Papa, M. Pasqui, S. Pinori, F. Torricella, 2003: Satellite-based precipitation measurements in the Applied Research in Meteo-hydrology (RAM) project: considerations and preliminary results. *ACTIF Workshop on Combination of Data from Remote Sensing Technologies for Flood Forecasting,* Bologna, 24-25 Nov, 2003, **ORAL PRESENTATION.**
http://www.actif-ec.net/Workshop/1st_Workshop/Presentations/ACTIF_P_S1_09.pdf

A. Orlandi, A. Ortolani, G. Messeri, **A. Antonini**, F. Torricella , V. Levizzani, 2003: Rainfall assimilation in RAMS of combined IR/MW satellite retrievals, by inverting the convective parameterisation scheme: the impact in the forecasting activity. *ACTIF 1st Workshop Proceedings*, Bologna, 24-25-Nov, 2003, **POSTER SESSION. With proceding**
ABSTRACT:
PAPER: http://www.actif-ec.net/Workshop/1st_Workshop/papers/ACTIF_P1_09.pdf

S. Melani, **A. Antonini**, A. Ortolani, A. Orlandi: Implementazione di una catena operativa per stime di pioggia da dati satellitari sull'area Mediterranea. *Workshop Conservazione e difesa del suolo,* GNDCI, Torino, 7-8 Giugno, 2004, **ORAL PRESENTATION.**

M. Pasqui, R. L. Walko, S. Migliorini, **A. Antonini**, S. Melani, and G. Messeri: Data assimilation scheme of satellite derived heating rates for soil state initialization in a regional atmospheric mesoscale model: methodology. *Ninth Symposium on Integrated Observing and Assimilation Systems for the Atmosphere, Oceans, and Land Surface (IOAS-AOLS), The 85th AMS Annual Meeting,* San Diego, CA 9-13 January, 2005, **POSTER SESSION.**
ABSTRACT: http://ams.confex.com/ams/Annual2005/techprogram/paper_85831.htm
EXTENDED ABSTRACT: http://ams.confex.com/ams/pdfpapers/85831.pdf

A. Antonini, A. Ortolani, A. Orlandi, S. Melani, C. Bestini, 2005: MSG – based precipitation estimation. *COST 718 Expert meeting – New Technologies for agrometeorological model applications*, Firenze, 14-16 February, 2005, **ORAL PRESENTATION.**

Levizzani, V., C. Adamo, P. P. Alberoni, **A. Antonini**, A. Battaglia, P. Bauer, A. Buzzi, D. Capacci, C. Caracciolo, E. Cattani, M. Celano, D. Cimini, M. J. Costa, S. Davolio, S. Dietrich, M. Fantini, D. E.

Hinsman, S. di Michele, G. Giuliani, M. Kästner, A. Khain, C. Kidd, J. Kidd, D. Kniveton, R. Lahav, R. Layberry, I. Lensky, P. Malguzzi, S. Mantovani, F. S. Marzano, A. Maurizi, C. M. Medaglia, S. Melani, F. Meneguzzo, G. Messeri, A. Mugnai, S. Natali, A. Orlandi, A. Ortolani, G. Panegrossi, M. Pasqui, S. Pinori, V. Poli, F. Porcù, F. Prodi, J. F. W. Purdom, D. Rosenfeld, V. Sanderson, J. Schmetz, E. A. Smith, R. Solomon, J. Steinwagner, F. Tampieri, F. J. Tapiador, A. Tassa, F. Torricella, G. J. Tripoli, F. J. Turk, G. A. Vicente, and M. G. Villani, 2004: Precipitation estimation: from the RAO to EURAINSAT and beyond. *Proc. 2nd MSG-RAO Meeting,* Salzburg, 9-10 Sept., ESA-SP-582, 113-118.
PAPER: http://www.isao.bo.cnr.it/~meteosat/papers/MSG-RAO-Salzburg-152.pdf

A. Orlandi, **A. Antonini**, C. Bertini, A. Crisci, S. Melani, A. Ortolani: Validation of a rapid update IR/MW satellite rainfall estimation procedure. *General Assembly of the European Geosciences Union - Session NH1.02: Radar and Satellite for monitoring and forecasting floods and droughts*, Vienna, Austria, 24 - 29 April 2005, **POSTER SESSION.**

Melani S., **Antonini A.**, Giuliani G., Levizzani V., Orlandi A., Ortolani A., Turk J.F.: Rainfall estimation based on MSG observations: operational issues and applications. *General Assembly of the European Geosciences Union - Session NH1.02: Radar and Satellite for monitoring and forecasting floods and droughts*, Vienna, Austria, 24 - 29 April 2005, **ORAL PRESENTATION.**

Antonini A., Ortolani A., Melani S., Giuliani G., Orlandi A.: LaMMA operational chain for MSG-based rainfall estimations for the Mediterranean area: implementation and present applications. *General Assembly of the European Geosciences Union - Session NH1.02: Radar and Satellite for monitoring and forecasting floods and droughts*, Vienna, Austria, 24 - 29 April 2005, **POSTER SESSION.**

De Filippis T., Ortolani A., Melani S., **Antonini A.**, Orlandi A.: GIS applications for rainfall estimation. *General Assembly of the European Geosciences Union - Session AS1.06: GIS in meteorology and climatology (co-listed in CL)*, Vienna, Austria, 24 - 29 April 2005, **POSTER SESSION.**

Melani S., Pasqui M., **Antonini A.**, Ortolani A.: Observational and modelling studies of convective precipitation patterns in the sahelian area. *14th conference on satellite meteorology and oceanography*, Atlanta, GE, 29 January- 2 February 2006, **ORAL PRESENTATION.**
LINK: http://ams.confex.com/ams/Annual2006/techprogram/paper_103714.htm
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Melani, S. , M. Pasqui, **A. Antonini**, B. Gozzini, F. Guarnieri and A. Ortolani: Convective precipitation patterns analysis in the Sahelian area: satellite rainfall estimates and regional numerical modelling. *EGU General Assembly*, *Session AS1.14: African Monsoon Multidisciplinary Analysis (AMMA) (co-listed in OS, BG, CL & SSS),* Vienna, 15-20 April 2007, **POSTER SESSION**.

Levizzani, V., M. Masotti, R. Ginnetti, S. Melani, **A. Antonini**, M. Pasqui, A. Ortolani, A. G. Laing, and R. E. Carbone: Variability of warm season convective clouds over Europe and the Mediterranean. *9th EGU Conf. on Mediterranean Storms*, Varenna, 10-13 September, 2007, **ORAL PRESENTATION.**

Melani, S., M. Pasqui, V. Levizzani, A Ortolani, and **A. Antonini**: Analysis of a stationary deep convective storm: detecting a V - Shape feature through GEO-LEO satellites. *Proc. 4th European Conf. on Severe Storms*, Trieste, 10-14 September 2007, **POSTER SESSION.**

Melani, S., M. Pasqui, B. Gozzini, F. Guarnieri, A. Ortolani, **A. Antonini**, V. Levizzani, R. Ginnetti, 2007: Observed and model-simulated intraseasonal wam variability for the 2005 rainy season. *Proc. 2007 EUMETSAT Meteorological Satellite Conf. & 15th AMS Conf. on Satellite Meteorology and Oceanography*, Amsterdam, 24-28 September, 2007,
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A.Antonini, S.Melani, A.Ortolani, A. Orlandi, 2007: Stime di precipitazione mediante dati da piattaforme satellitari. *Contribution to the volume: Clima e cambiamenti climatici: le attività di ricerca del CNR. Editor Bruno Carli, Giuseppe Cavarretta, Michele Colacino, Sandro Fuzzi*
LINK: http://www.dta.cnr.it/content/view/734/116/lang,it/
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http://www.dta.cnr.it/dmdocuments/pubblicazioni/volume_clima_07/CNR_Volume_Clima.pdf

Melani, S., **A. Antonini**, V. Levizzani, R. Ginnetti, M. Pasqui, A. Ortolani, A. G. Laing, and R.E. Carbone, 2007: A four-years (2004-2007) climatology of West African precipitation episodes as derived from a combined IR/MW rainfall estimate technique. *2nd Int. AMMA Conf.*, Karlsruhe, 26-30 November 2007, **POSTER SESSION.**

Melani S., **A. Antonini**, V. Levizzani, R. Ginnetti, M. Pasqui, A. Ortolani, A.G. Laing, R.E. Carbone, 2008: A climatology of African warm-season rainfall episodes based on a combined IR/MW precipitation estimate approach. *20th Conference on Climate Variability and Change, 88th AMS Annual Meeting*, 20-24 january 2008, New Orleans, LA, **IN PRESS.**

Antonini A., Dal Farra P.G., Farruggio F., Melani S., Pieri M., 2008. Improvements on the Aries-C weather radar Tuscany network, *2008 IEEE Radar Conference* - May 26-30, 2008, Roma – Italy, **POSTER SECTION, and PROCEDING.**
LINK:
http://ieeexplore.ieee.org/Xplore/login.jsp?url=/stamp/stamp.jsp?arnumber=4721094&isnumber=4720717

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LINK: http://www.isac.cnr.it/~meteosat/papers/Melani-et-al-ICCP-2008.pdf

Levizzani, V., F. Pinelli, R. Ginnetti, S. Melani, **A. Antonini**, M. Pasqui, A. Ortolani, A. G. Laing, and R. E. Carbone, 2008: Variability of warm season convective clouds over Europe and the Mediterranean. *2008 EUMETSAT Meteorological Satellite Conf.*, 8-12 Sept 2008, Darmstadt. **POSTER SECTION**

- **MEETINGS:**
  Antonini, A. Ortolani, S. Melani: Implementation of an operational chain for satellite based rainfall estimation, *EURAINSAT Final Meeting*, Bologna, 26-28 Nov, 2003, **ORAL PRESENTATION.**

  Orlandi A., A. Ortolani, **A. Antonini**, 2003. Validation of satellite rainfall estimation, *EURAINSAT Final Meeting*, Bologna, 26-28 Nov, 2003, **ORAL PRESENTATION**.

- **REPORTS:**
  Torricella, F., V. Levizzani, A. Ortolani, S. Melani, and **A. Antonini**, 2004: The Rapid Update satellite rainfall estimation method: operational setup documentation*, European Commission Project MUSIC Report (EVK1-CT-2000-00058)*, 49 pp, **TECHNICAL REPORT.**
  LINK: http://www.geomin.unibo.it/hydro/music/reports/D6.3_Satellite%20Rainfall%20algorithm.pdf

  Melani S., **Antonini A**., Ortolani A.,2004: Assimilation of a rapid update cycle of rainfall estimation into a forecasting chain, *EURAINSAT (EVG1-2000-00030) Technical Report No. 5*, 13pp. EURAINSAT (EVG1-2000-00030) **FINAL REPORT.**

  Antonini A., Orlandi A., Ortolani A., Melani S.,2004: Operational test of rainfall algorithms. *EURAINSAT (EVG1-2000-00030) Technical Report No. 6*, 23pp, **TECHNICAL REPORT.**

  A. Antonini, Definizione ed implementazione prototipale di un sistema modulare per la produzione quasi real time dei campi di precipitazione da dati satellitari multisensore (METEOSAT+SSM/I) sul territorio nazionale, *PROGETTO GNDCI-RAM Tecnical Report ATTIVITA' 4 TASK 5.0*, 2003, **TECHNICAL REPORT.**

- **OTHERS:**
  Ortolani, A., **A. Antonini**, G. Giuliani, S. Melani, F. Meneguzzo, G. Messeri, A. Orlandi, and M. Pasqui, 2004: Implementing an operational chain: the Florence LaMMA laboratory, *In: Measuring precipitation from space - EURAINSAT and the future. V. Levizzani, P. Bauer, and F. J. Turk,* Eds., Kluwer Acad. Publ., **BOOK**.
  LINK: http://springerlink.com/content/r41626/?p=fd35d45c7d4e42ef8ab84f3af75dec2e&pi=12

  A. Antonini Practical Exercises : Satellite images for rainfall estimations, *TRAINING COURSE on Meteosat Second Generation Satellites: Applications, Products and Methodologies for Applied Meteorology and Climatology, organized by WMO / CNR- IBIMET Regional Meteorological Training Centre,* 15 – 26 November 2004 Firenze, Italy.
  LINK: http://www.ibimet.cnr.it/Case/rmtc_04/

  Torricella, F., V. Levizzani, A. Ortolani, S. Melani, **A. Antonini**, and F. J. Turk, 2005: Rapid update satellite rainfall estimations for the Mediterranean, *Hydrology & Earth System Sci.* **IN PREPARATION for *J. hydrology***

A.Ortolani, **A.Antonini**: Une chaîne opérationnelle pour l'évaluation par satellite en temps réel de précipitations : approche méthodologique, *PREMIERE SEMINAIRE Project MTP (Mediterranean Training Programme): Changements climatique et calamites naturelles: Catastrophes à caractère agro-météorologiques: prévention, suivi, impact et gestion de l'urgence*, 2-12 Mai 2006 Polo Scientifico di Sesto Fiorentino Area di Ricerca di Firenze Florence-Italy.
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- **http://www.ibimet.cnr.it/Case/MTPprogramme/data/doc/17.pdf**
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A.Ortolani, S. Melani, **A. Antonini**: MSG (Meteosat Second Generation) operational chains for real-time satellite rainfall estimation: methodological approach and products for drought detection, *Second Training Seminar Project MTP (Mediterranean Training Program): Climate Change and Extreme Events: Early Warning Systems for extreme events impact. Managing drought for a sustainable development,* 3-14 July 2006 Florence – Italy
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- **http://www.ibimet.cnr.it/Case/MTPprogramme/data/doc/MeteorologicalParametersAndModels/MSGRainfallEstimation_Introduction.pdf**
- **http://www.ibimet.cnr.it/Case/MTPprogramme/data/doc/MeteorologicalParametersAndModels/MSGRainfallEstimation_Algorithm.pdf**
- **http://www.ibimet.cnr.it/Case/MTPprogramme/data/doc/MeteorologicalParametersAndModels/MSGRainfallEstimation_Operational.pdf**
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Florence, 23 June 2009