

CV of BIANCA MARIA DINELLI –
CNR-Istituto di Scienze dell'Atmosfera e del Clima
BOLOGNA
ITALY

Education and training:

1982 Laurea in Physics, University of Pisa, 1982

Career History:

2020 to date Research Director at ISAC-CNR

2002-2019 Senior Scientist at ISAC-CNR

1991-1995 Research assistant at the Chemistry and Astronomy Dept. of University College – London- UK

1985-1989 Research associate at the Chemistry Dept. of the University of Chicago – IL, USA

1984 – 2002 Researcher at ISM-CNR

1982 – 1984 Scientific consultant for CNR/GIFCO- Florence - Italy

Main Responsibilities, Committees, and extra:

- Member of the Mission Advisory Group of FORUM, selected as the Earth Explorer 9 of ESA
- Head of the Remote Sensing of the Stratosphere group in ISAC-CNR
- Coordinator of the research area CAFCA 'Atmospheric Composition, climate forcing and aerosols' of the ISAC-CNR institute
- Faculty member for the University of Bologna PhD program 'Future Earth Climate Change and Societal challenges'
- Faculty member for the University of Bologna Master 'Space Missions Science, Design and Applications'
- Research associate to INFN – Torino up to 2020
- Research associate to IAPS/INAF - Roma
- Member of the MIPAS/ENVISAT Quality Working Group from 2002 to 2020
- Member of the MIPAS/ENVISAT Expert Science Laboratory in 2001/2002
- Supervisor of several PhD Thesis and Master Thesis in atmospheric sciences
- Reviewer for the Italian Minister of University and Scientific Research, for the French ANR (Agence Nationale de la Recherche), for the Council for the Earth and Life sciences (Holand), for the Science and Technology Facilities Council (UK), for BelSpo (Belgium).
- Member of the editorial board of the white book of CNR 'attività' del CNR nel settore spazio' (<http://www.space.cnr.it/libro-bianco>)

Professional Interests and Experience:

Dr. Dinelli spent most of her research life on high-resolution infrared spectroscopy and on the development and application of algorithms for the analysis of infrared and far-infrared atmospheric spectra measured by limb scanning and nadir looking instruments.

She has been research associate in Prof. ██████████ group at the University of Chicago, U.S.A. working on infrared spectroscopy of molecular ions and post doctoral research assistant at UCL, London U.K working on the spectroscopic determination of potential energy surfaces of the H_3^+ ion and on the analysis of the infrared spectra of the impact of comet Shoemaker-Levy 9 with Jupiter.

She has spent the early years of her career working on the infrared spectroscopy of molecules in laboratory, spanning different aspects of the research; from building infrared sources (CO_2 lasers) to analyzing the measured spectra. She has worked on the determination of the molecular constants for several molecular ions (i.e. H_2O^+ , N_2O^+ , C_2) and on infrared-radiofrequency double resonance spectroscopy.

She has been part of the team of the instrument IBEX (a Far-Infrared Interferometer on board stratospheric balloons) and responsible for the data analysis of the SAFIRE-A instrument (a Far-Infrared Interferometer on board the stratospheric aircraft Geophysica) participating to the APE-GAIA measurement campaign in Ushuaia – Argentina. Since 1995 she has been and is involved in several ESA project on atmospheric research, such as PIRAMHYD (on the measurement of OH in stratosphere), the development and application of the level 2 processors for MIPAS/ENVISAT, MIPAS special observation modes and MARSCHALS, on the study of the effects of sprites on the NO_2 stratospheric distribution, and on

the development of novel techniques for the analysis of the measurements of the (A)ATSR instrument series. She is part of the Quality Working Group of MIPAS/ENVISAT.

She is involved in the exploitation of CASSINI/VIMS data on Titan's atmosphere, responsible for the Jupiter auroral data for the instrument JIRAM on board the NASA satellite Juno. She has been involved in the studies for the development of the new CTA (Cherenkov Telescopes Array) in La Palma (computation of atmospheric transmission in the visible).

She has been part of the proposing team for the FORUM mission, that was approved for the phase A studies and then has been selected to be the ESA Earth Explorer 9 mission.

Recently she is managing an EUMETSAT project for the development of the Total Column of Water Vapor product for the Sentinel 3 SLSTR instrument, and she is involved in several studies for the FORUM mission, in particular the ASI funded studies SCIEF, FORUM-SCIENZA and the ESA funded study FORUM-Req.

She is part of the current Mission Advisory Group of the Earth Explorer 9 mission of ESA - FORUM.

She teaches the class 'Observations of the ocean atmosphere system: satellite and in situ data' at the University of Bologna PhD program 'Future Earth, Climate Change and Societal Challenges, and at the Master program 'Space Missions Science, Design and Application'

Author of more than 100 papers in the field of Spectroscopy, Earth Atmosphere and Planetary Atmospheres

Research Projects

- 2019 coordinator of the ISAC team for the project ASI 'FORUM-SCIENZA'
- 2019 – now Project Manager of the EUMETSAT funded study 'AIRWAVE-SLSTR: an algorithm to retrieve TCWV from SLSTR measurements over water surfaces', Contract No.: EUM/CO/19/4600002222/BBo Order n°4500017708
- 2018 - now Responsible for the ISAC team in the ESA funded study 'FORUM – Consolidation of requirements and reference scenarios – FORUMreq' Contract ESA ESTEC 4000124083/18/NL/
- 2017- 2018 coordinator of the ISAC team for the project ASI 'SCIEF Sviluppo delle Competenze Italiane per l'Esperimento FORUM (Far-infrared Outgoing Radiation Understanding and Monitoring)'
- 2016 - 2018 coordinator of the project 'SENSOR PERFORMANCE, PRODUCT AND ALGORITHMS MAINTENANCE AND OPERATIONS OF THE EARTH OBSERVATION PAYLOAD DATA SYSTEM' with Serco SpA - Contract No. IDEAS+/SER/SUB/21
- 2016 - 2018 coordinator of the ISAC team for the project 'Characterisation of particulates in the upper troposphere /lower stratosphere' ESA-ESTEC 4000116779/16/NL/LvH
- 2014 – 2016 coordinator of the project 'LONG TERM STABILITY OF ATSR INSTRUMENT SERIES: SWIR CALIBRATION, CLOUD MASKING AND SAA' Contract number VEGA/AG/14/01734 Vega Space/telespazio
- 2014 – now coordinator of the ISAC team for the project ASI 'JUNO-JIRAM, supporto scientifico alla realizzazione' (accordo attuativo ASI/INAF 2014/050/RO)
- 2013 - 2015 coordinator of the ISAC team for the project SERCO 'MIPAS and ATSR support services' contratto n. MIP-ATSR-SUB-SRCO-13-xx.
- 2014 – 2019 coordinator of the ISAC team for the project 'Support to MIPAS level 2 product Validation' ESA/ESRIN – DTA.AD004.050.002
- 2012 coordinator of the ISAC team for the project ESA 'ESSENCE Analysis of Campaign Data' ESA-ESTEC Contract 4000101374/NL/10/CT
- 2011 – 2012 coordinator of the ISAC team for the project ESA 'PREMIER analysis of Campaign Data,' ESA/ESTEC Contract 4000101374/NL/10/CT
- 2010 – 2016 Principal investigator of the CNR activity TA.P02.010.007 : Atmospheric Composition: advanced techniques for the measurements of trace gases and aerosols in the atmosphere of the Earth and of the other planets of the solar system" within the CNR "Earth Observation" from 2010 to 2016.
- 2010 – 2014 responsabile dell'unita' operativa ISAC del progetto di ricerca ASI 'JUNO-JIRAM, supporto scientifico alla realizzazione' (accordo attuativo ASI/INAF I/010/10/0)
- 2010 – 2014 Consultant for KIT-Karlsruhe for the ESA project 'Ozone Climate Change Initiative'
- 2004 member of the working group 2 of the project COST-723 'Data Exploitation and Modelling for the Upper Troposphere and Lower Stratosphere' (<http://www.cost723.org/wg/members.php?group=2>)
- 2003 – 2006 coordinator of the ISAC team for the project 'The scientific analysis of limb-sounding observations of the upper troposphere' (ESA-ESTEC 16530)
- 2008 – 2013 coordinator of the ISAC team for the project ESA 'Support to MIPAS level 2 product Validation'

- (contract ESA-ESRIN 21719/08/I-IL)
- 2003 –2008 coordinator of the ISAC team for the project ESA ‘Support to MIPAS level 2 product Validation’
- (contract 17580/03/I-OL)
- 2001 –2004 coordinator of the ISAC team for the project ‘Development of Algorithms for the Exploitation of MIPAS Special Modes Measurement’ (contract ESA-ESRIN 16700/02/I-LG)
- 2002 – 2004 coordinator of the ISM team for the project ASI ‘Development of new algorithms for the analysis of satellite remote-sensing measurements finalized to the determination of pressure, temperature and concentration of trace gases in the stratosphere and upper troposphere’ (Contract ASI I/R/159/02)
- 2000 – 2001 coordinator of the ISM team for the CNR study ‘Sviluppo di un sistema computerizzato per determinare la misurabilità di specie stratosferiche minori e fare l’analisi di routine degli spettri di MIPAS/ENVISAT’ part of the project CNR Agenzia 2000 ‘Sviluppo di tecniche computazionali per il monitoraggio della variabilità geografica e temporale di parametri caratterizzanti lo stato geofisico della stratosfera sfruttando le misure di MIPAS/ENVISAT’
- 2000 –2004 Coordinator of the project ASI ‘GASTRAN-2 Studio e misure da satellite dei gas atmosferici in traccia mediante MIPAS/ENVISAT - Applicazione dei dati a modelli chimici’. (contract ASI/I/R/207/02 and ASI/I/R/73/01 and ASI/I/R/27/00)
- 1999 – 2004 Coordinator of data analysis for the interferometer SAFIRE
- 1999 member of the Artic Campaign APE-GAIA (Ushuaia- Argentina)
- 1998 – 1999 coordinator of the ISM team for the project ASI ‘GASTRAN Studio e misure da satellite dei GAS in Traccia, degli Aerosol e delle Nubi mediante GOME, SCIAMACHY, MIPAS e da terra mediante lidar e fotometri solari. Applicazione dei dati ai modelli chimici.’ (contract ARS/98/59)
- 1998 – 2002 Coordinator of the project ‘Study of the Stratosphere through Infrared Spectroscopy’ at ISM-CNR Bologna
- 1997 – now Member of the team that develops the scientific version of the level 2 processor of MIPAS/ENVISAT (ESA project ‘Development of an Optimized Algorithm for Routine p, T and VMR Retrieval from MIPAS Limb Emission Spectra’ Contract 11717/95/NL/CN)
- 1997 – 1998 – Coordinator of the ‘Theoretical retrieval Study’ of the Project ESA Piramhyd Retrieval Study’ (contract 11719/95/NL/CN)
- 1997 –1998 –Work Package responsible ‘Assessment of Vertical Resolution of MIPAS Measurements’ of the project ESA ‘Study of the Retrieval of Atmospheric Trace Gas Profiles from Infrared Spectra’ (Contract 12055/96/NL/CN)
- 1997 – Coordinator of the project ‘Study of planetary atmospheres (JEarth and Jupiter) through Infrared Spectroscopy’ at ISM-CNR Bologna
- 1996 –British Council fellowship – work at Dept. of Physics and Astronomy, UCL, London U.K
- 1996 – Coordinator of the project ‘Calcolo delle superfici di potenziale di molecole triatomiche usando dati spettroscopici’ all’ISM-CNR Bologna
- 1996 – Coordinator of the project CINECA ‘Determinazione di superfici di potenziale di molecole triatomiche usando dati spettroscopici’
- 1995 – 1996 Coordinator of the project ‘Studio della magnetosfera e della ionosfera di Giove attraverso la spettroscopia infrarossa’ at ISM-CNR Bologna
- August 1994 – October 1995. Post Doctoral Research Assistant at Dept. of Physics and Astronomy, UCL, London U.K
- October 1991 – July 1994 Honorary Research Fellow al Dept. of Physics and Astronomy, University College London, London U.K.
- October 1990: Partecipazione alla campagna di misura dello strumento IBEX Fort Sumner, New Mexico, U.S.A. (certificata dal P.I. [REDACTED] (IFAC/CNR) con lettera del 5/7/2004 non protocollata)
- 1987 membro dell’unita’ operativa IROE-CNR del progetto strategico sottoprogetto Processi fisici del clima, progetto Clima e Ambiente dell’area mediterranea, area Ambiente e Territorio
- 1985 - 1989: Research Associate to Prof. [REDACTED] team at Dept. of Chemistry and Astrophysics of the University of Chicago, Chicago, U.S.A.