

CURRICULUM VITAE ET STUDIORUM OF CLAUDIO TOMASI

(Updating of January 27, 2014)



*Longyearbyen (Svalbard Islands),
July 26, 2003: visit to the EISCAT
radar station, during the International
Conference on Climate Change
Research in the Arctic, Challenges
for Science and Research Policy.*

PRESENT POSITION AT CNR:

Associate Researcher at the Institute of Atmospheric Sciences and Climate (ISAC),
Consiglio Nazionale delle Ricerche (C.N.R),
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UNIVERSITY EDUCATION:

Degree in Physics at the University of Bologna, in 1970, disputing the thesis "Backscattering of ice particles at centimetric wavelengths". Advisor: Prof. Ottavio Vittori Antisari.

PROFESSIONAL EXPERIENCE:

1970-1972, under full-time CNR research contract for developing studies on the atmospheric infrared radiation, at the Institute of Atmospheric Physics (IFA), Microphysics Division, Bologna.

1973-1978, CNR Research Assistant at the Institute of Atmospheric Physics (IFA), Microphysics Division, Bologna.

1979-1987, CNR Researcher at the Institute FISBAT, Bologna.

1988-1991, Senior Researcher at the Institute FISBAT, Bologna.

1991-2005, Research Director at the Institutes FISBAT-CNR (from 1991 to 1998), ISAO-CNR (from 1999 to 2002), and ISAC-CNR (from 2003 to 2006).

1994-1998, Director of the Institute FISBAT-CNR, Bologna.

1999-2003, Member of the Scientific Advisory Council of CNR.

2003-2006, Head of the Division Climate Changes at the Institute ISAC-CNR (Bologna headquarter).

2003–present, Member of the Science Team of the programme Earth Sciences from the Astronomers Perspective, a Deep Space Climate Observatory (DSCOVER) (P. I., Prof. Francisco P. J. Valero of the Scripps Institution of Oceanography, University of California, San Diego), and P. I. of the Italian Integrated Project Aimed at Scientific Objectives of the DSCOVER Mission, as a tool for supporting the “Piano Spaziale Nazionale” in the field of Climate Changes.

2004-2010, in charge of the research activities developed at the ISAC Institute in the frame of the Agreement for Scientific Cooperation on SKYNET measurement and analysis, signed on August 10, 2004 by Prof. Tamio Takamura of the Chiba University (Japan), in charge of the SKYNET project, and by Prof. Franco Prodi, director of the ISAC Institute (Italy).

2005-2010, in charge of the research activities developed at the ISAC Institute within the Memorandum of Agreement between ISAC-CNR, University of Valencia and Plymouth Marine Laboratory in reference to the EuroSkyRad (ESR) programme signed by Prof. Franco Prodi, director of the ISAC Institute (Italy), on November 30, 2004, by Prof. D. Francisco Tomàs Vert, Rector of the University of València (Spain) on January 17, 2005, and by Prof. Nick Owens, Director of the Plymouth Marine Laboratory (U.K.) on February 3, 2005.

2006-2010, Coordinator and Lead Person of the AEROCLOUDS Project (Study of the direct and indirect effects of aerosols and clouds on climate), supported by the University and Research Ministry using FISR funds (Fondo Integrativo Speciale per la Ricerca) in the frame of the Strategic Programme “Sustainable Development and Climatic Changes”.

2007-2009, Principal Investigator of the Pilot Project “*QUITSAT*: A System to Monitor and Forecast the Air Quality Using Satellite Observations, In-situ Remote Sensing Measurements and Chemical Multi-phase and Transport Modelling” funded by the Italian Space Agency (ASI) in the framework of its institutional priorities for the Natural and Technological Disaster Management programme.

2007-2010, Lead Contact Person of the POLAR-AOD IPY proposal “POLAR-AOD: a network to characterize the means, variability, and trends of the climate-forcing properties of aerosols in polar regions”, with the participation of more than 40 research groups from 24 countries (Italy, Germany,

USA, Canada, Japan, Russia, Finland, Norway, Sweden, Spain, Pop. Rep. of China, Poland, France, Netherlands, United Kingdom, Greece, Switzerland, Australia, Peru, Argentina, India, Bulgaria, Belgium and Belarus).

2009-2013, P. I. of the ISAC-CNR (Italy) group that participates to the CLIMSLIP “*Climate impacts of short-lived pollutants in the polar regions*” project, approved by the European Polar Consortium and coordinated by A. Stohl (NILU, Norway). Besides NILU (Norway) and ISAC-CNR (Italy), the other partners of the project are research groups of the Bremen University (Germany), DLR (Germany), Stockholm University (Sweden), Helsinki University (Finland), Service d’Aeronomie at the Pierre et Marie Curie University (France) and Ecole Polytechnique de Lausanne (Switzerland).

2013-2014, Scientific advisor of the SINOPIAE Project (Multi-source prototypal system for integrating multispectral satellite-borne with airborne and ground-based measurements for monitoring the environmental quality indexes), supported by Regione Lombardia (Prime contractor: CGS Compagnia Generale per lo Spazio), for the direct effects induced by aerosols on the climate system.

SKILLS & COMPETENCIES:

- scattering and absorption of solar and atmospheric radiation from UV to the IR,
- radiative transfer models in the atmosphere,
- airborne aerosol radiative properties,
- cloud optics,
- selective and continuum absorption by atmospheric water vapour
- absorption by minor atmospheric gases (O₃, NO₂, CH₄,...),
- atmospheric corrections to satellite data,
- atmospheric pollution monitoring techniques,
- remote sensing methodologies,
- radiative forcing of atmospheric constituents,
- Earth energy budget,
- surface albedo and bidirectional reflectance distribution function models,
- climate changes,
- retrieval of aerosol optical depth from satellite observations,
- estimates of particulate matter ground-level concentration by means of satellite multispectral observations,
- integration of satellite data and chemical transport model simulations for air quality studies,
- optimization of atmospheric columnar aerosol parameters from hyperspectral satellite data,
- retrieval of aerosol vertical profiles from high-spectral resolution satellite data.

COMMUNITY SERVICE:

Activities at the National Council of Research (C.N.R.):

June 1979 - January 1982, Member of the Scientific Committee at the FISBAT-CNR Institute.

June 1980 - December 1988, In charge of internal co-ordination at the FISBAT-CNR Institute.

January 1984 - December 1992, Member of the Control Commission on the Research Grants between FISBAT-CNR and CRTN/ENEL.

December 1991 - December 1993, Member of the Scientific Committee at the FISBAT-CNR Institute.

June 1992 - December 1995, Member of the CNR Scientific Committee for the thematic area on devoted to the Antarctic Atmosphere, belonging to Section 2b Climate, Atmosphere, Oceans and their relationships.

June 1992 - December 1995, Member of the CNR Scientific Committee for the thematic area devoted to on the Use of Remote Sensing Data, belonging to the Section 3 Observatories and Geographical Information.

September 1993 - March 1997, Member of the Scientific Committee at the IFA - CNR Institute (Institute of Atmospheric Physics).

October 1993 - December 1998, Member and President of the Scientific Committee at the IMGA - CNR Institute (Institute for the Study of Environmental Geophysical Methodologies).

April 1999 - May 2003, Member of the CNR Working Group inside the CNR Scientific Advisory Scientific Council, for the Fundamental Sciences (Mathematics, Physics and Chemistry), and advisor for the rearrangement of the CNR Institutes acting in the fields of Astrophysics and Astronomy, Plasma Physics and Geophysics.

April 1999 - May 2003, Member of the CNR Working Group inside the CNR Scientific Advisory Scientific Council, for the Earth and Environment Sciences, Physics and Chemistry), playing the role of advisor for the rearrangement of the CNR Institutes acting in the fields of Atmospheric Physics, Meteorology, Climatology, Biometeorology and Marine Sciences.

March 2000 - June 2004, CNR Member of the ASTER (Agency for the Technological Development of Emilia-Romagna) board of directors board.

April 2000 - May 2003, Member of the CNR Committee for the ODP (Ocean Drilling Programme).

January 2001 - May 2003, Member of the CNR Committee for the Strategic Programme Sustainable Development and Climatic Changes proposed by the MIUR Ministry in the frame of the National Research Programme (PNR).

October 2001 - July 2004, CNR referee of the MURST/CNR Programme Seasonal interannual and decadal variability of the atmosphere, oceans and related marine ecosystems (SINAPSI).

July 2001 - May 2003, Substitute Deputy of CNR at the IGBP (International Geosphere and Biosphere Programme: A Study of Global Change).

Activities for the national scientific community:

1984 - 1992, Member of the National Commission for the World Climate Research Program.

1985, Convener of the Workshop for the Intercalibration of Multispectral Sun-Photometers, held at Pordoi Pass (Trento) from September 16 to 21, 1985, with the patronage of the National Group of Atmospheric Physics and Oceanography (GNFAO-CNR).

1985-1989, Member of the Working Group on the Atmospheric Physics with Spacecrafts, in the frame of the National Space Programme.

1987-1992, Consultant of the Italian Ministry for the Scientific Research for the activities developed by the Informal Group of the seven industrialized countries (Canada, France, Germany, Japan, Italy, United Kingdom and United States of America) for developing studies and evaluations of the climatic effects produced by the green-house gases over the global scale.

1988-1996, Member of the Scientific Committee on the Antarctic Atmosphere, in the frame of the PNRA (National Programme of research in Antarctica) Programme.

1990-1998, Member of the CNR Polar Commission for the PNRA (National Programme of Research in Antarctica) Programme.

1991-1998, Member of the CNR Polar Commission for the Everest K2-CNR Strategic Programme activities.

1992-1996, Member of the Group of Experts on the Use of remote sensing and GIS data in Antarctica,

coordinated by R. Casacchia.

1993-1999, Member of the Mixed Commission of the National Council of Research (CNR) and the Royal Nepal Academy of Science and Technology (RONAST) for the scientific planning of the activities supported by the CNR Strategic Programme Everest - K2 - CNR.

1993-2001, Member of the Scientific Committee for the Physics and Chemistry of the Atmosphere in the CNR Strategic Programme Everest - K2 - CNR.

1994-1996, Member of the Working Group Atmospheric Sciences and Climatology for the Italian Space Agency programmes.

1995-1998, Member of the CNR Scientific Committee for Polar Studies, playing covering the role of advisor for the Atmospheric Physics.

1998-2000, Chairman the Physics and Chemistry of the Atmosphere Section in the Strategic Programme Arctic.

1998-2005, Member of the PNRA Committee for the Physics and Chemistry of the Atmosphere.

1999-2005, Chairman of the Working Group Polar Atmosphere in the frame of the POLARNET (CNR) activities.

2000-2003, Member of the CNR Commission for the Ocean Drilling Programme.

2006-2010, Coordinator and Lead Person of the AEROCLOUDS Project (Study of the direct and indirect effects of aerosols and clouds on climate), funded by the University and Research Ministry with FISR funds (Fondo Integrativo Speciale per la Ricerca) in the frame of the Strategic Programme "Sustainable Development and Climatic Changes".

2007-2009, Principal investigator of the Pilot Project QUITSAT (Air Quality Through Integrated Ground-based and Satellite Measurements), funded by the Italian Space Agency during the period from September 2006 November 2009.

Activities for the international scientific community:

1984-1988, membership of the International Commission on Cloud Physics (ICCP) and of the International Association of Meteorology and Atmospheric Physics (IAMAP),

1984-1986, WMO- Environmental Division expert of multispectral solar photometry: in particular he participated to in the Third World Meteorological Organization Expert Meeting on Turbidity Measurements, held at Santa Cruz de Tenerife (Spain) from April 9 to 13, 1984,

1986-1987, ESA Expert for the Second Generation Meteosat mission: in particular, he participated to in the Workshop on the Scientific Package of the Second Generation Meteosat, held by ESA at Hohenschwangau (Germany) fro March 4 to 6, 1986,

1993-1994, member of the Earth Sciences Panel, Human Capital and Mobility Commission, European Community, Bruxelles Brussels,

1995-1996, member of Earth Sciences Panel, Training and Mobility of Researchers Commission, European Community, Bruxelles Brussels,

2002-present, Lead person of the Project entitled *POLAR-AOD: a network to characterize the means, variability, and trends of the climate-forcing properties of aerosols in polar regions*, based on the cooperative activities of ISAC-CNR (Italy), AWI (Germany), NOAA/CMDL (USA), NIPR (Japan), AARI (Russia), Finnish Meteorological Institute (Finland), CARTEL/Université de Sherbrooke (Canada), NILU (Norway) and Grupo de Ótica Atmosférica/Universidad de Valladolid (Spain) and many other Institutions from other countries, in view of the International Polar Year activities planned in 2008.

2002-present, Member of the Scientific Team of the programme Earth Sciences from the Astronomers

Perspective, a Deep Space Climate Observatory (DSCOVR), having Prof. Francisco P. J. Valero of the Scripps Institution of Oceanography, University of California, San Diego, as Principal Investigator.

2009-2013, Italian partner of the CLIMSLIP “*Climate impacts of short-lived pollutants in the polar regions*” project, approved by the European Polar Consortium and coordinated by A. Stohl (NILU, Norway). The ISAC-CNR (Italy) group participated to the project in cooperation with the leader group at NILU (Norway), and with the research groups from the Bremen University (Germany), DLR (Germany), Stockholm University (Sweden), Helsinki University (Finland), Service d’Aeronomie at the Pierre et Marie Curie University (France) and Ecole Polytechnique de Lausanne (Switzerland).

2010, Chairman of the T1-7 Session “Polar/global atmospheric linking processes: Polar aerosols – sources and impacts”, which was part of the Theme 1 “Linkages between polar regions and global systems” at the IPY Oslo Science Conference, held at Oslo from 8 to 12 June, 2010.

2012-present, Member of the Scientific Committee of the Everest - K2 - CNR project.

Reviewer of the following scientific journals:

- Annales Geophysicae,
- Applied Optics,
- Atmospheric Environment,
- Atmospheric Research,
- Beiträge zur Physik der Atmosphäre (Contributions to Atmospheric Physics),
- Geophysical Research Letters,
- Il Nuovo Cimento,
- Journal of Atmospheric and Oceanic Technology,
- Journal of Geophysical Research,
- Journal of Atmospheric and Solar-Terrestrial Physics,
- Meteorology and Atmospheric Physics,
- Pure and Applied Geophysics,
- Quarterly Journal of the Royal Meteorological Society,
- Tellus,
- Remote Sensing,
- Atmospheric Pollution,
- Atmospheric Chemistry and Physics (ACP).

Guest editor of the Special Issue of Atmospheric Environment on the physical, chemical, optical and radiative properties of polar aerosols.

Referee of national research projects for:

- Italian Ministry for the University and Scientific Research (MiUR),
- Natural Environment Research Council (NERC),
- Netherlands Organisation for Scientific Research (NOW),
- World Meteorological Organization (W.M.O.),
- Research Council of Norway (NRC),
- Norwegian National Climate Change programme,
- Netherlands Space Office (NSO).

RESEARCH GRANTS throughout the 1978 – 2006 period:

He has been and is Head or P.I. of numerous national and international projects in the field of climate

and environmental sciences, Earth observation remote sensing and atmospheric physics.

In the field of climate and environmental studies:

Head of the Research Group “Optical Properties of the Atmosphere”, in the frame of the CNR National Project Environment Quality Promotion, Sub-project AIR, from 1978 to 1981.

Co-principal investigator (with Prof. Dr. Hartmuth Horvath), Bilateral Project “Optical Properties of the Aerosol Particles from Atmospheric Attenuation Measurements in the Visible and Near Infrared” between FISBAT-CNR and Institut für Experimental Physik, Vienna University, from 1984 to 1986.

Co-principal investigator (with Prof. Dr. Gottfried Hänel), Bilateral Cooperative Project “Effects of Atmospheric Pollutants on Climate in the Mediterranean Area”, between FISBAT CNR and Institut für Meteorologie und Geophysik, W. Goethe University, Frankfurt am Main (Germany), in the frame of the Strategic Project Climate and Environment of the Mediterranean Area, in the biennium 1984/1985.

Principal investigator of the research project “Measurements of solar radiation absorption by tropospheric aerosol particles suspended in the ground layer”, supported by Centro Ricerche Termiche e Nucleari (CRTN) ENEL, Milan, in the biennium 1985/1986.

Principal investigator of the research project “A calculation method of the average tropospheric warming due to the concentration increase of green-house gases”, supported by Centro Ricerche Termiche e Nucleari (CRTN) ENEL, Milan, in the biennium 1987/1988.

Principal investigator of the research project “Solar radiation balance in the Eastern Po Valley”, supported by the Regione Emilia-Romagna in 1987 and 1988.

Principal investigator of the research programme “Water vapour and other minor atmospheric constituents in the radiative transfer models applied to the atmosphere”, as a part of the programme devoted to “Control of Environment Quality through Remote Sensing Techniques” developed by the Physics Department of the Cagliari University (Prof. Alberto Pompei), in the frame of the C.N.R. Strategic Project Climate, Environment and Land in Southern Italy, in the biennium 1988/1989.

Principal investigator of the APAEX (Aerosol Particle Absorption Experiment) Project supported by Centro Ricerche Termiche e Nucleari (CRTN) ENEL, Milan, in the biennium 1989/1990.

Head of the FISBAT research group in the EC Project “Aerosol Climate Parameters over the Mediterranean Area from Joint Ground and Satellite Data”, carried out together with other research groups from Austria, Greece and Italy in the biennium 1994/95.

Head of the FISBAT research group in the UE Project “CLEARCOLUMN”, developed in the frame of the “ACE-2, Aerosol Characterization Experiment” during the biennium 1996/97, together with research groups from Germany, Italy, Portugal and USA.

In the field of remote sensing activities:

Head of the Research Group developing the programme “Scientific support to the industrial activities concerning the atmospheric corrections in the infrared”, as a part of the “Remote Sensing Pilot Project” supported by the Italian National Space Programme in the biennium 1983/1984.

Head of the FISBAT research group developing the programme “Models and experiments for defining atmospheric corrections in the infrared with meteorological methods” in the frame of the “Remote Sensing Pilot Project” of the Italian National Space Programme for the biennium 1985/1986.

Head of the FISBAT research group working in the “Remote Sensing Sub-project” of the CNR Strategic Project “Oceanography and Marine Technologies”, under the supervision of Prof. A. Bramati during the quadriennial period from 1986 to 1989.

Head of the Working Group preparing the algorithms suitable for the analysis of satellite data provided by the ISAS and IRIAS sensors in the “Remote Sensing Pilot Project” of the Italian National Space

Programme, in view of the NASA and ESA Announcement Opportunities, in the biennium 1987/1988.

Head of the FISBAT research group developing the programme “Study of the dependence of spectral atmospheric radiance on the meteorological and composition parameters at middle infrared wavelengths”, supported by the Working Group for the Fundamental Research of Atmospheric Physics with Spacecrafts (Italian National Space Programme) from 1987 to 1990.

Head of the Research Group (including FISBAT and ISTEA Institutes of CNR) devoted to the sub-project "Study of the atmospheric corrections for the NDVI vegetation indexes derived from Landsat MSS, Landsat TM and AVHRR-NOAA satellite data" which was part of the CE Research Programme "Agriculture Project, Vegetation Conditions and Yield Indicators", developed from 1987 to 1990 in cooperation with Telespazio s.p.a., Rome, Italy (leader of the project); Servizio Informativo e Statistica of the Emilia-Romagna Region, Italy; DVH Consulting Engineers (The Netherlands); Center for World Food Studies - SOW (The Netherlands); and Institute for Land and Water Management - ICW (The Netherlands).

Principal investigator of the “ISAS (Infrared Spectrometer for Atmospheric Sounding)” Project submitted by the Italian Space Agency in replying to the NASA Announcement Opportunity No. OSSA-I-88.

Principal investigator of the “ISAS (Infrared Spectrometer for Atmospheric Sounding)” Project submitted by the Italian Space Agency in replying to the ESA (European Space Agency) Announcement Opportunity No. I, January 88.

Team Member of the “IRIAS (Infra Red Interferometer for Atmospheric Sounding)” Project presented to reply to the Announcement Opportunity for scientific instrumentation to be mounted on the Second Generation Meteosat satellite, in cooperation with the French proposal for ESA polar platforms, in 1989.

Principal investigator of the Project “Measurements of spectral reflectivity and photometric and phenological parameters of vegetated surfaces for studying the atmospheric corrections to the NDVI index”, supported by the Italian Space Agency during the period 1996 - 2000.

Head of the FISBAT research group working on the programme “Ground-based measurements of direct and diffuse solar irradiance from 320 to 3700 nm wavelength and validation of GOME data”, developed in the frame of the Project “GASTRAN, Study and satellite measurements from satellites of trace gases, aerosols and clouds through GOME, SCIAMACHY, MIPAS, integrated with ground-based lidar and sun-photometer measurements. Application of field data to chemical models”, supported by the Italian Space Agency during the period 1996 2000.

Head of the ISAO Research Group that developed the programme “Characterization of the atmospheric aerosol load” in the Proposal of the VISIR Mission approved by the Italian Space Agency to participate to the “Feasibility Study for Small Satellites” programme, in the 2002 – 2003 biennium.

Principal Investigator and Contact Person of the Feasibility Study Air Quality through integrated measurements from ground-based and satellite sensors (QUITSAT), supported by the Italian Space Agency in 2004 for preparing the Pilot Project on Air Quality Products.

Principal Investigator of the Pilot Project “Air Quality Through Integrated Ground-based and Satellite Measurements, QUITSAT” (Prime Contractor: Carlo Gavazzi Space SpA, Milan), supported by the Italian Space Agency as Pilot Project on the Air Quality, during the period from late 2006 to late 2009.

In the field of atmospheric physics in remote polar regions:

Principal investigator of the Programme “Multispectral sun-photometer measurements for determining o the monochromatic optical depths of aerosol particles, ozone and water vapour”, in the frame of the PNRA Project (Research Line 1.1; Disciplinary codex 1.1.2; Sector: Atmospheric Physics and Climatology; Scientific manager: M. Colacino), during the period from 1986 to 1991.

Principal investigator of the Programme “Investigation on the turbidity characteristics of high troposphere and stratosphere, in the frame of the Strategic Project Everest-K2-CNR” from 1990 to 1992.

Principal investigator of the Programme “Measurements and models of scattering, absorption and surface reflection of solar radiation in the Antarctic atmosphere” in the frame of the PNRA Project (Research Line 1; Discipline codex 2b; Sector: Climate, Atmosphere, Oceans and their Relationships; Scientific manager: M. Colacino), during the period from 1992 to 1996.

Head of the Programme “Measurements of solar irradiance at high altitude stations”, in the frame of the PNRA Project (Research Line 1; Discipline codex 3a; Sector: Observatories, Geographical information; Scientific manager: R. Baudo), during the period from 1992 to 1996.

Head of the Programme “Design and manufacturing of an UV solar radiometer”, in the frame of the PNRA Project (Research Line 1; Discipline codex 3a; Sector: Climatological Observatories; Scientific manager: A. Morelli), during the period from 1992 to 1996.

Principal investigator of the Programme “Solar irradiance measurements at the Pyramid Laboratory station”, funded by PNRA in the frame of the Strategic Project "Everest-K2-CNR" during the period from 1992 to 1996.

Principal investigator of the Programme “Design and manufacturing of a new radiometer measuring the UV global solar irradiance from 280 to 380 nm wavelength”, in the frame of the PNRA Project (Sub-theme: 5b - Development of new sensors; Thematic area: Technology; Scientific manager: R. Barbini), during the period from 1996 to 1998.

Principal investigator of the Programme “Design and manufacturing of a new radiometer for measuring the UV global solar irradiance at the Dome C station”, in the frame of the PNRA Project (Sub-theme: 2b.1 Physics and Chemistry of the Atmosphere; Thematic area: Global Change; Scientific manager: M. Colacino), during the period from 1996 to 1998.

Principal investigator of the Programme “Radiative transfer processes in the Antarctic troposphere”, in the frame of the PNRA Project (Sub-theme: 2b.1 Physics and Chemistry of the Atmosphere; Thematic area: Global Change; Scientific manager: M. Colacino), during the period from 1996 to 1998.

Principal investigator of the Programme “Solar irradiance measurements at high altitude (Ev-K2-CNR Laboratory). Cloud chemistry in remote areas (Himalaya), related to the global changes in the atmosphere, atmospheric ozone and ultraviolet radiation at high altitudes and in remote environment, funded by the Strategic Project Everest-K2-CNR” during the period from 1997 to 1999.

Principal investigator of the Programme “Aerosol and cloud effects on the radiative budget of the Antarctic atmosphere”, in the frame of the PNRA Project (Sector: Physics and Chemistry of the Atmosphere; Thematic area: Global Change; Scientific manager: M. Colacino), during the period from 1999 to 2001.

Principal investigator of the Programme “Ground-based measurements and modelling of global solar irradiance in the Ultraviolet and Visible, at high-mountain stations, funded by the Strategic Project Everest-K2-CNR” during the period from 1999 to 2001.

Principal investigator of the Project N. 2003/6.7 “Characterization of aerosol-induced climatic effects in polar regions: an assimilation and analysis of multi-spectral sun-photometer data from the POLAR-AOD network”, in the frame of the PNRA Project (Sector 6: Physics and Chemistry of the Antarctic Atmosphere; Scientific manager: M. Colacino) in the biennium 2003/2004.

RESEARCH GRANTS over the past 10 years:

Head of the FISR Project Study of the direct and indirect effects of aerosols and clouds on climate (AEROCLOUDS), in the frame of the Strategic Programme Sustainable Development and Global Changes, approved by the MIUR Ministry at early January 2005.

Principal investigator of the Expression of Intent for Activities in IPY 2007-2008, submitted in January 2005 to the International Polar Year Committee, under the title POLAR-AOD: a network to characterize the means, variability, and trends of the climate-forcing properties of aerosols in polar regions with the participation of ISAC-CNR (Italy), AWI Bremerhaven and Potsdam (Germany), NOAA/CMDL, Boulder (USA), NIPR Tokyo (Japan), AARI, St. Petersburg (Russia), Finnish Meteorological Institute, Helsinki (Finland) and CARTEL, Université de Sherbrooke (Canada). The proposal was chosen by the IPY Joint Commission as one of the seven leader projects belonging to the scientific activity devoted to Clouds, Aerosols and Atmospheric Chemistry. Presently Currently, other proposals in the field are joining to the POLAR-AOD network with the participation of other partners from UK, Switzerland, Greece and USA.

Principal investigator of the Project N. 2005/6.2 POLAR-AOD: a network to characterize the means, variability, and trends of the climate-forcing properties of aerosols in polar regions, in the frame of the PNRA Project (Sector 6: Physics and Chemistry of the Antarctic Atmosphere; Scientific manager: M. Colacino) in the biennium 2005/2006.

Principal investigator and scientific manager of the Pilot Project Air Quality Through Integrated Ground-based and Satellite Measurements, QUITSAT, submitted to the Italian Space Agency as Pilot Project on the Air Quality, to be funded and supported by the Italian Space Agency during the period from September 2006 November 2009.

Lead Person of the International Polar Year project "POLAR-AOD: a network to characterize the means, variability, and trends of the climate-forcing properties of aerosols in polar regions" with the participation of

- ISAC-CNR, Bologna and Rome; ISTI-CNR, Pisa; IFAC-CNR, Florence; IIA-CNR, Monterotondo Scalo - Rome; Dept. of Public Health and Analytical Chemistry of the University of Florence in Italy;
- AWI Bremerhaven and Postdam; Institute for Environmental Physics (IUP), Remote Sensing Group, University of Bremen; Institute of Atmospheric Physics, University of Mainz in Germany;
- NOAA/Global Monitoring Division, Boulder; Geophysical Institute, University of Alaska, Fairbanks (Alaska); Delta Group, Dept. of Chemical Engineering, University of California, Davis; DAAG, Johns Hopkins University, Laurel in the USA;
- National Institute of Polar Research (NIPR), Tokyo in Japan;
- AARI, St. Petersburg, Voeikov Main Geophysical Observatory at St. Petersburg and Sci. & Prod. Ass. "Typhoon", Obninsk, in Russia;
- Finnish Met. Inst. (FMI), Helsinki, and University of Helsinki, Helsinki in Finland;
- CARTEL, Sherbrooke University, Quebec, and Environment Canada in Canada;
- NILU, Tromsø, Polar Environmental Center; and Andoya Rocket Range, Andenes in Norway;
- GOA-UVA Universidad de Valladolid, and Instituto Nacional de Meteorologia (INM) in Spain;
- IAER, Stockholm University in Sweden;
- LGGE/CNRS Grenoble and LOA, University of Lille in France;
- KNMI, De Bilt in the Netherlands;
- Dept. of Biological Sciences, University of Essex, Colchester in the United Kingdom;
- PMOD/WRC, Davos in Switzerland;
- N.C.S.R. "Demokritos", Inst. of Nuclear Tech. -Radiation Prot., Athens in Greece;
- State Oceanic Administration, Chinese Arctic & Antarctic Administration (CAA), Beijing in the Pop. Rep. of China;
- Institute of Oceanology, PAS, Sopot in Poland;
- National University of the Center of Peru in Peru;
- Bureau of Meteorology and Space and Atmospheric Sciences (SAS), Australian Antarctic Division in Australia;
- UCA/CONICET and CITEFA in Argentina;
- Nat. Phys. Lab., RASD, New Delhi, and PEL, NCAOR, Vasco da Gama, Goa in India;

- STIL-BAS, Stara Zagora in Bulgaria;
- Institut d'Aeronomie Spatiale de Belgique (IASB/BIRA), Brussels, in Belgium;
- Institute of Physics, National Academy of Belarus, Minsk, and National Ozone Monitoring Research and Educational center, Belarus State University, Minsk in Belarus.

Annual fundings were provided to the ISAC-CNR Unit by the National Programme of Italian Research in Antarctica (PNRA).

Principal Investigator of the research activities developed by ISAC-CNR (Italy) in the CLIMSLIP "*Climate impacts of short-lived pollutants in the polar regions*" project of the European Polar Consortium, with financial support provided by the PNRA Consortium (ENEA, Italy) over the three years from 2010 to 2012.

EDUCATIONAL TEACHING ACTIVITIES

1970-1986: Co-advisor with Professor Ottavio Vittori Antisari of nine degree theses in Physics at the Physics Department of the University of Bologna.

1975-1985: seminars and lectures at:

- Universities of Bologna, Milano, Padova, Modena, Pisa and Firenze,
- Joint Research Center of Ispra (Ispra Courses),
- International School of Climatology (Workshop on Programme Climate Research), "Ettore Majorana" Centre for Scientific Culture (Erice, Trapani),
- Agrometeorology Qualification Courses organized by ERSA (Regional Meteorological Service of Emilia-Romagna, Bologna).

1986-1987: temporary professor at the Physics Department "Galileo Galilei" of the University of Padua for a cycle of 20 lessons in Atmospheric Physics, associated with the Thermodynamic course devoted for third-year to p Physics students of the 3rd year.

1987-1988: temporary professor at the Physics Department "Galileo Galilei" of the University of Padua for a cycle of 20 lessons in Aerosol Physics, associated with the Thermodynamic course for third-year devoted to p Physics students of the 3rd year.

1979-2006: He was advisor supervisor and co-advisor supervisor of the following degree theses at various Italian Universities:

1. Claudio Tegazzini: "Processi di attenuazione atmosferica della radiazione nella regione spettrale 8-13 μm , (Atmospheric attenuation processes of radiation in the 8 – 13 μm spectral region). Advisors: Prof. Ottavio Vittori, Dr. Claudio Tomasi and Prof. Lorian Bonora. Academic Year: 1979/1980, Degree in Physics, Faculty of Mathematics, Physics and Natural Sciences, University of Padua.
2. Monica Sentimenti: "Studio del trasporto in atmosfera di particelle di origine Sahariana con misure di fotometria solare" (Study of the atmospheric transport of Sahara dust particles with sun-photometry measurements). Advisors: Prof. Franco Prodi and Dr. Claudio Tomasi. Academic Year: 1980/1981, Degree in Physics, Faculty of Mathematics, Physics and Natural Sciences, University of Modena.
3. Vito Vitale: "Il contenuto atmosferico di massa delle particelle secondo modelli di estinzione di Mie basati su distribuzioni dimensionali bimodali" (The atmospheric particulate mass content in Mie extinction models based on bimodal size-distributions). Advisors: Prof. Ottavio Vittori and Dr. Claudio Tomasi. Academic Year: 1981/1982, Degree in Physics, Faculty of Mathematics, Physics and Natural Sciences, University of Bologna.
4. Stefano Marani: "Determinazione dei profili verticali del coefficiente di estinzione delle particelle atmosferiche mediante misure di fotometria solare" (Determination of vertical profiles of atmospheric particle volume extinction coefficients through sun-photometry measurements). Advisors: Prof. Ottavio Vittori and Dr. Claudio Tomasi. Academic Year: 1982/1983, Degree in

- Physics, Faculty of Mathematics, Physics and Natural Sciences, University of Bologna.
5. Raffaella Turati: "Misure di particolato atmosferico e dei parametri di torbidità atmosferica mediante misure ottiche in sito urbano" (measurements of atmospheric particulate matter and turbidity parameters through optical measurements in an urban area). Advisors: Dr. Pietro Bacci, Dr. Claudio Tomasi and Prof. Ugo Facchini. Academic Year: 1983/1984, Degree in Physics, Faculty of Mathematics, Physics and Natural Sciences, University of Milan (Statale).
 6. Marco Deserti: "Modelli di assorbimento del vapor d'acqua atmosferico nell'intervallo spettrale da 3.5 a 4.0 μm : verifica e confronto con misure di attenuazione atmosferica e applicazioni a calcoli di trasmittanza atmosferica" (Atmospheric water vapour absorption models in the 3.5 - 4.0 μm spectral range: check and comparison with atmospheric attenuation measurements and applications to atmospheric transmittance calculations). Advisors: Prof. Ottavio Vittori and Dr. Claudio Tomasi. Academic Year: 1984/1985, Degree in Physics, Faculty of Mathematics, Physics and Natural Sciences, University of Bologna.
 7. Loris Della Michelina: "Processi fisico-chimici dell'ozono in troposfera e in stratosfera" (Physico-chemical processes of the tropospheric and stratospheric ozone). Advisors: Prof. Adriana Ranzi Minguzzi and Dr. Claudio Tomasi. Academic Year: 1986/1987, Degree in Physics, Faculty of Mathematics, Physics and Natural Sciences, University of Bologna.
 8. Luca Gori: "Misure di assorbimento della radiazione solare diretta da parte dell'ozono atmosferico" (Absorption measurements of direct solar irradiance by atmospheric ozone). Advisors: Prof. Vittorio Prodi and Dr. Claudio Tomasi. Academic Year: 1987/1988, Degree in Physics, Faculty of Mathematics, Physics and Natural Sciences, University of Bologna.
 9. Fabio Vantaggiato: "C.A.S.M.: Un modello per lo studio degli effetti sul clima conseguenti alla adozione di scenari energetici globali. Messa a punto del modello sul ciclo dell'anidride carbonica" (C.A.S.M.: A model for studying the climate effects related to the adoption of global energetic scenarios: development of carbon dioxide cycle model). Advisors: Prof. Ing. Marino Mazzini, Prof. Ing. Bruno Guerrini, Dr. Ing. Enzo Iansiti and Dr. Claudio Tomasi. Academic Year: 1989/1990, Degree in Nuclear Engineering, Faculty of Engineering (Department of Mechanical and Nuclear Manufactures), University of Pisa.
 10. Paolo Cecchella: "C.A.S.M.: Un modello per lo studio degli effetti sul clima conseguenti alla adozione di scenari energetici globali. Messa a punto del modello radiativo" (C.A.S.M.: A model for studying the climate effects related to the adoption of global energetic scenarios: development of the radiative model). Advisors: Prof. Ing. Marino Mazzini, Prof. Ing. Bruno Guerrini and Dr. Claudio Tomasi. Academic Year: 1990/1991, Degree in Nuclear Engineering, Faculty of Engineering (Department of Mechanical and Nuclear Manufactures), University of Pisa.
 11. Francesco Apadula: "Valutazioni delle forzature radiative conseguenti all'aumento delle concentrazioni atmosferiche di gas che producono effetto serra" (Evaluations of the radiative forcing due to the increase in atmospheric concentration of the green-house gases). Advisors: Prof. Ugo Facchini, Dr. Claudio Tomasi and Dr. Pietro Bacci. Academic Year: 1990/1991, Degree in Physics, Faculty of Mathematics, Physics and Natural Sciences, University of Milan (Statale).
 12. Silvia Bencivenni: "Studio delle correzioni atmosferiche per le misure di radianza infrarossa dai satelliti NOAA e METEOSAT" (Study of the atmospheric corrections for infrared radiance measurements from NOAA and METEOSAT satellites). Advisors: Prof. Ettore Verondini and Dr. Claudio Tomasi. Academic Year: 1990/1991, Degree in Physics, Faculty of Mathematics, Physics and Natural Sciences, University of Bologna.
 13. Lucia Cappelli: "Il modello atmosferico UV-SIC per il calcolo dell'irradianza solare globale al suolo nell'intervallo spettrale da 2000 a 4000 \AA " (The atmospheric model UV-SIC for calculations of global solar irradiance at ground-level within the 2000 - 4000 \AA spectral interval). Advisors: Prof. Vittorio Prodi, Dr. Claudio Tomasi and Dr. Vito Vitale. Academic Year: 1993/1994, Degree in Physics, Faculty of Mathematics, Physics and Natural Sciences, University of Bologna.
 14. Clorinda Buttazzo: "Dipendenza dell'irradianza solare al suolo dal vapore acqueo atmosferico

- e dai parametri di torbidità; (Dependence of solar irradiance reaching the ground on the atmospheric water vapour and atmospheric turbidity parameters). Advisors: Prof. Ettore Verondini, Dr. Claudio Tomasi and Dr. Vito Vitale. Academic Year: 1994/1995, Degree in Physics, Faculty of Mathematics, Physics and Natural Sciences, University of Bologna.
15. Raffaella Ricci: "Dipendenza della radiazione atmosferica infrarossa alla superficie terrestre dal contenuto di vapore acqueo e dalle nubi" (Dependence of atmospheric infrared radiation reaching the terrestrial surface on water vapour content and clouds). Advisors: Prof. Sandra Morelli, Dr. Claudio Tomasi and Dr. Vito Vitale. Academic Year: 1995/1996, Degree in Physics, Faculty of Mathematics, Physics and Natural Sciences, University of Modena.
 16. Elisa Carboni: "Misure di fotometria solare multispettrale per la determinazione delle proprietà ottiche delle particelle di aerosol di origine marina e continentale" (Multispectral sun-photometry measurements for determining the optical properties of marine and continental aerosols). Advisors: Prof. Ettore Verondini and Dr. Claudio Tomasi. Academic Year: 1996/1997, Degree in Physics, Faculty of Mathematics, Physics and Natural Sciences, University of Bologna.
 17. Angelo Lupi: "Variazioni dell'albedo atmosferica dovute alle particelle di aerosol di origine antropica. Misure e modelli nell'esperimento APAEX" (Atmospheric albedo variations due to anthropogenic aerosol particles. Measurements and modelling in the APAEX Experiment). Advisors: Prof. Stefano Tibaldi, Dr. Claudio Tomasi and Dr. Vito Vitale. Academic Year: 1996/1997, Degree in Physics, Faculty of Mathematics, Physics and Natural Sciences, University of Bologna.
 18. Alessandra Cacciari: "Spessore ottico delle particelle di aerosol nel visibile e vicino infrarosso: rilevazioni effettuate a Baia Terra Nova (Antartide) dal 1988 al 1994" (Aerosol optical depth in the visible and near infrared: measurements taken at Terra Nova Bay (Antarctica) from 1988 to 1994). Advisors: Prof. Giuseppina Maltoni Giacomelli, Dr. Claudio Tomasi e Dr. Vito Vitale. Academic Year: 1996/1997, Degree in Physics, Faculty of Mathematics, Physics and Natural Sciences, University of Bologna.
 19. Pietro Ruggeri: "Studio delle proprietà radiative delle particelle di aerosol nell'esperimento CLEARCOLUMN (ACE-2)" (Study of the aerosol radiative properties during the CLEARCOLUMN (ACE-2) experiment). Advisors: Prof. Rolando Rizzi, Dr. Claudio Tomasi e Dr. Vito Vitale. Academic Year: 1997/1998, Degree in Physics, Faculty of Mathematics, Physics and Natural Sciences, University of Bologna.
 20. Antonio Orsini: "Parametrizzazione dei flussi di radiazione solare ed infrarossa alla superficie in un sito antartico" (Parameterization of the solar and infrared radiation fluxes measured at the surface in an Antarctic site). Advisors: Prof. Rolando Rizzi, Dr. Teodoro Georgiadis, Dr. Claudio Tomasi e Dr. Vincenzo Levizzani. Academic Year: 1997/1998, Degree in Physics, Faculty of Mathematics, Physics and Natural Sciences, University of Bologna.
 21. Christian Lanconelli: "Misure e modelli di radiazione solare riflessa da superfici coperte da vegetazione (Measurements and models of solar radiation reflected from vegetated surfaces). Advisors : Prof. Rolando Rizzi, Dr. Claudio Tomasi e Dr. Vito Vitale. Academic Year: 2001/2002, Degree in Physics, Faculty of Mathematics, Physics and Natural Sciences, University of Bologna.

He was advisor, supervisor or co-supervisor/advisor of specialization diplomas and doctoral (PhD) theses:

1. Francesca Di Giuseppe, Diploma at the Specialization School of Medical Physics, University of Bologna, Academic Year 1995-1996. Thesis: Global UV solar irradiance and erythema dose rates: simulations using the UV-WIC computer code". Advisors: Prof. Giuseppina Maltoni Giacomelli e Dr. Claudio Tomasi.
2. Angelo Lupi, PhD student in Polar Sciences, Cycle XVIII, Department of Earth Sciences, University of Siena, PhD Thesis: Characterization of the climate effects produced on regional scale by Antarctic aerosols. Advisors: Dr. Claudio Tomasi and Dr. Vito Vitale.
3. Mauro Mazzola, PhD student in Physics, Cycle XVIII, Department of Physics, University of

Ferrara, Provisional title of the PhD Thesis: Analysis of satellite data for studying the aerosol and their radiative effects distribution on the regional scale. Advisors: Prof. Franco Prodi and Dr. Claudio Tomasi.

4. Alessandra Cacciari, PhD student in Physics, Cycle XVIII, Department of Physics, University of Ferrara, Provisional title of the PhD Thesis: Aerosol properties retrieval from nadir-viewing sensors and air quality: Aerosol Optical Depth estimates and PM related content at the surface. Advisors: Prof. Franco Prodi and Dr. Claudio Tomasi
5. Christian Lanconelli, PhD student in Physics, Cycle XIX, Department of Physics, University of Ferrara, Provisional title of the PhD Thesis: Surface reflectivity and direct radiative effects by aerosols and clouds. Advisors: Prof. Franco Prodi and Dr. Claudio Tomasi.
6. Cheick Diarra, PhD student in Physics at the University of Bamako (Mali), under the title "Characterization of atmospheric aerosols in Mali by sun-photometric measurements at Agoufou". Advisors: Prof. Franco Prodi and Dr. Claudio Tomasi. Academical Year 2009-2010.

PUBLICATIONS

Section 1: REVIEWED PUBLICATIONS

1. R. Guzzi, C. Tomasi, and O. Vittori, 1972: Evidence of Particulate Extinction in the Near Infrared Spectrum of the Sun. *Journal of the Atmospheric Sciences*, Vol. 29, No. 3, 517-523, doi:10.1175/1520-0469(1972)029<0517:EOPEIT>2.0.CO;2.
2. R. Guzzi, O. Vittori, and C. Tomasi, 1974: Sun Spectra through Optically Thin Clouds. *Journal of the Atmospheric Sciences*, Vol. 31, No. 1, 251-254, doi:10.1175/1520-0469(1974)031<0251:SSTOTC>2.0.CO;2.
3. C. Tomasi, R. Guzzi, and O. Vittori, 1974: A Search for the e-Effect in the Atmospheric Water Vapor Continuum. *Journal of the Atmospheric Sciences*, Vol. 31, No. 1, 255-260, doi:10.1175/1520-0469(1974)031<0255:ASFTEI>2.0.CO;2.
4. O. Vittori, C. Tomasi, and R. Guzzi, 1974: Dessens' Droplets in the Near and Middle Infrared Spectrum of the Sun. *Journal of the Atmospheric Sciences*, Vol. 31, No. 1, 261-270, doi: 10.1175/1520-0469(1974)031<0261:DDITNA>2.0.CO;2.
5. C. Tomasi, and R. Guzzi: 1974: High Precision Atmospheric Hygrometry Using the Solar Infrared Spectrum. *Journal of Physics E: Scientific Instruments*, Vol. 7, No. 8, 647-649, doi:10.1088/0022-3735/7/8/018.
6. C. Tomasi, R. Guzzi, and O. Vittori, 1975: The SO₂ - NH₃ - Solution Droplets System in an Urban Atmosphere. *Journal of the Atmospheric Sciences*, Vol. 32, No. 8, 1580-1586, doi:10.1175/1520-0469(1975)032<1580:TDSIAU>2.0.CO;2.
7. F. Tampieri, and C. Tomasi, 1976: Size Distribution Models of Fog and Cloud Droplets in Terms of the Modified Gamma Function. *Tellus*, Vol. 28, No. 4, 333-347.
8. F. Tampieri, and C. Tomasi, 1976: Size Distribution Models of Stratospheric Particles in Terms of the Modified Gamma Function. *Archiv für Meteorologie, Geophysik und Bioklimatologie, Ser. A*, Vol. 25, No. 1, 47-54.
9. C. Tomasi, and F. Tampieri, 1976: Features of the Proportionality Coefficient in the Relationship between Visibility and Liquid Water Content in Haze and Fog. *Atmosphere*, Vol. 14, No. 2, 61-76.
10. C. Tomasi, and F. Tampieri, 1976: Size Distribution Models of Small Water Droplets in Mist and their Volume Extinction Coefficients at Visible and Infrared Wavelengths. *Atmospheric Environment*, Vol. 10, No. 11, 1005-1013.
11. F. Tampieri, and C. Tomasi, 1976: Size Distribution Models of Fog and Cloud Droplets and their Volume Extinction Coefficients at Visible and Infrared Wavelengths. *Pure and Applied Geophysics (Pageoph)*, Vol. 114, No. 4, 571-586.
12. C. Tomasi, and F. Tampieri, 1976: Infrared Radiation Extinction Sensitivity to the Modified Gamma Distribution Parameters for Haze and Fog Droplet Polydispersions. *Applied Optics*,

Vol. 15, No. 11, 2906-2912.

13. C. Tomasi, and F. Tampieri, 1977: Size Distribution of Tropospheric Particles in Terms of the Modified Gamma Function and Relationships between Skewness and Mode Radius. *Tellus*, Vol. 29, No. 1, 66-74.
14. C. Tomasi, and R. Guzzi, 1977: Experimental Comparison between Visible and Near Infrared Attenuation of Solar Radiation in Hazes and Fogs. *Quarterly Journal of the Royal Meteorological Society*, Vol. 103, No. 435, 191-197, doi:10.1002/qj.49710343513.
15. C. Tomasi, 1977: Precipitable Water Vapor in Atmospheres Characterized by Temperature Inversions. *Journal of Applied Meteorology*, Vol. 16, No. 3, 237-243, doi:10.1175/1520-0450(1977)016<0237:PWVIAC>2.0.CO;2.
16. C. Tomasi, 1978: On the Water Vapour Absorption in the 8-13 m Spectral Region for Different Atmospheric Conditions. *Pure and Applied Geophysics (Pageoph)*, Vol. 116, 1063-1076.
17. C. Tomasi, 1978: Interpolation Methods for Estimating Atmospheric Precipitable Water Vapour during the Night from Surface Meteorological Data and Using Infrared Hygrometer Measurements. *Memories of the Italian Astronomical Society*, Vol. 49, No. 1, 119-125.
18. C. Tomasi, and O. Vittori, 1978: Attenuation of Infrared Radiation through the Atmosphere. *Memories of the Italian Astronomical Society*, Vol. 49, No. 1, 127-140.
19. C. Tomasi, F. Prodi, and F. Tampieri, 1979: Atmospheric Turbidity Variations Caused by Layers of Sahara Dust Particles. *Beiträge zur Physik der Atmosphäre (Contributions to Atmospheric Physics)*, Vol. 52, No. 3, 215-228.
20. C. Tomasi, 1979: Non-selective Absorption by Atmospheric Water Vapour at Visible and Near Infrared Wavelengths. *Quarterly Journal of the Royal Meteorological Society*, Vol. 105, No. 446, 1027-1040, doi:10.1002/qj.49710544619.
21. C. Tomasi, 1979: Weak Absorption by Atmospheric Water Vapour in the Visible and Near-Infrared Spectral Region. *Il Nuovo Cimento*, Serie 1, Vol. 2 C, No. 5, pp. 511-526.
22. C. Tomasi, 1981: Determination of the Total Precipitable Water by Varying the Intercept in Reitan's Relationship. *Journal of Applied Meteorology*, Vol. 20, No. 9, 1058-1069, doi:10.1175/1520-0450(1981)020<1058:DOTTPW>2.0.CO;2.
23. C. Tomasi, and F. Prodi, 1982: Measurements of Atmospheric Turbidity and Vertical Mass Loadings of Particulate Matter in Marine Environments (Red Sea, Indian Ocean, and Somalian Coast). *Journal of Geophysical Research*, Vol. 87, No. C2, 1279-1286, doi:10.1029/JC087iC02p01279.
24. C. Tomasi, 1982: Features of the Scale Height for Particulate Extinction in Hazy Atmospheres. *Journal of Applied Meteorology*, Vol. 21, No. 7, 931-944, doi:10.1175/1520-0450(1982)021<0931:FOTSHF>2.0.CO;2.
25. C. Tomasi, 1982: Evaluation of the Atmospheric Content of Particulate Mass from Visibility Observations. *Il Nuovo Cimento*, Serie 1, Vol. 5 C, No. 2, 223-246.
26. C. Tomasi, F. Prodi, M. Sentimenti, and G. Cesari, 1983: Multiwavelength Sun-photometers for Accurate Measurements of Atmospheric Extinction in the Visible and Near-IR Spectral Range. *Applied Optics*, Vol. 22, No. 4, 622-630, doi:10.1364/AO.22.000622.
27. C. Tomasi, and V. Vitale, 1983: Particulate Extinction Models for Sun Photometer Measurements Taken at High Mountain Stations. *Il Nuovo Cimento*, Serie 1, Vol. 6 C, No. 1, pp. 19-39.
28. C. Tomasi, 1983: The Nocturnal Surface Inversion Height in the Po Valley. *Atmospheric Environment*, Vol. 17, No. 6, 1123-1129.
29. F. Prodi, and C. Tomasi, 1983: Sahara Dust Program - I. The Italian Network of Sun-photometers. Extinction Models Based on Multimodal Size Distributions. *Journal of Aerosol Science*, Vol. 14, No. 4, 517-527, doi:10.1016/0021-8502(83)90008-3.
30. C. Tomasi, V. Vitale, and E. Caroli, 1983: Sahara Dust Program - II. Determination of the Vertical Particulate Mass Loading by Using Extinction Models Based on Junge-Type Size Distributions. *Journal of Aerosol Science*, Vol. 14, No. 4, 529-539, doi:10.1016/0021-8502(83)90009-5.
31. C. Tomasi, E. Caroli, and V. Vitale, 1983: Study of the Relationship between Ångström's

- Wavelength Exponent and Junge Particle Size Distribution Exponent. *Journal of Climate and Applied Meteorology*, Vol. 22, No. 10, 1707-1716, doi:10.1175/1520-0450(1983)022<1707:SOTRBW>2.0.CO;2.
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 33. C. Tomasi, and V. Vitale, 1984: Evaluations of Particulate Mass Loading from Visibility Observations and Atmospheric Turbidity Measurements. I.- Extinction Models for Continental and Rural Aerosol Particles. *Il Nuovo Cimento*, Serie 1, Vol. 7 C, No. 1, 35-68.
 34. C. Tomasi, and V. Vitale, 1984: Vertical Variations of Aerosol Particle Extinction in an Alpine Valley. *Journal of Aerosol Science*, Vol. 15, No. 3, 413-416, doi:10.1016/0021-8502(84)90131-9.
 35. C. Tomasi, and F. Trombetti, 1985: Absorption and Emission by Minor Atmospheric Gases in the Radiation Balance of the Earth. *La Rivista del Nuovo Cimento*, Vol. 8, Ser. 3, No. 2, 1985, pp. 89 (Monograph).
 36. C. Tomasi, and V. Vitale, 1985: Evaluations of Particulate Mass Loading from Visibility Observations and Atmospheric Turbidity Measurements. II.- Extinction Models for Urban Aerosol Particles. *Il Nuovo Cimento*, Serie 1, Vol. 8 C, No. 2, 125-174.
 37. C. Tomasi, and V. Vitale, 1985: Approximate Determination of Particulate Mass Loading by Using Junge-type Extinction Models for Continental and Rural Aerosol Particles. *Atmospheric Environment*, Vol. 19, No. 8, 1361-1375.
 38. C. Tomasi, S. Marani, and V. Vitale, 1985: Multiwavelength Sun-photometer Calibration Corrected on the Basis of the Spectral Features Characterizing Particulate Extinction and Nitrogen Dioxide Absorption. *Applied Optics*, Vol. 24, No. 18, 2962-2970, doi:10.1364/AO.24.002962.
 39. T. Paccagnella, C. Tomasi, and V. Vitale, 1985: Satellite Remote-Sensing Measurements in the (10.5-12.5) m Spectral Region: the Atmospheric Error Made in Estimating the Surface Temperature. *Il Nuovo Cimento*, Serie 1, Vol. 8 C, No. 6, 782-792.
 40. C. Tomasi, and T. Paccagnella, 1988: Vertical Distribution Features of Atmospheric Water Vapour in the Po Valley Area. *Pure and Applied Geophysics (Pageoph)*, Vol. 127, No. 1, 93-115, doi: 10.1007/BF00878693.
 41. G. Tonna, and C. Tomasi, 1992: Phase Function Mean Properties at Visible and Infrared Wavelengths within a Sample of 239 Fog Spectra. *Journal of the Meteorological Society of Japan*, Vol. 70, No. 1, 105-114.
 42. A. Brancatelli, P. Cecchella, M. Mazzini, and C. Tomasi, 1993: Parameterization Model of the Radiative Distribution in an Atmospheric Column, Taking into Account the Cloud Cover: Application to Kuwait's Fires. *Environmental Software*, Vol. 8, No. 2, 115-123.
 43. L. V. De Santis, C. Tomasi, and V. Vitale, 1994: Characterization of Ångström's Turbidity Parameters in the Po Valley Area for Summer Conditions of the Atmosphere. *Il Nuovo Cimento*, Vol. 17C, No. 4, 407-430, doi:10.1007/BF02506728.
 44. C. Tomasi, F. Di Giuseppe, L. Cappelli and V. Vitale, 1996: Average Spectral Curves of Extraterrestrial Solar Irradiance in the (180÷400) nm Wave-length Range. *Il Nuovo Cimento*, Vol. 19 C, No. 4, 591-618.
 45. C. Tomasi, V. Vitale and L. Tarozzi, 1997: Sun-photometric Measurements of Atmospheric Turbidity Variations Caused by the Pinatubo Aerosol Cloud in the Himalayan Region During the Summer Periods of 1991 and 1992. *Il Nuovo Cimento*, Vol. 20 C, No. 1, 61-88.
 46. C. Tomasi, V. Vitale and L. V. De Santis, 1998: Relative Optical Mass Functions for Air, Water Vapour, Ozone and Nitrogen Dioxide in Atmospheric Models Presenting Different Latitudinal and Seasonal Conditions. *Meteorology and Atmospheric Physics*, Vol. 65, No. 1-2, 11-30, doi:10.1007/BF01030266.
 47. P. A. Durkee, K. E. Nielsen, P. J. Smith, P. B. Russell, B. Schmid, J. M. Livingston, B. N. Holben, C. Tomasi, V. Vitale, D. Collins, R. C. Flagan, J. H. Seinfeld, K. J. Noone, E. Öström, S. Gass, D. Hegg, L. M. Russell, T. S. Bates and P. K. Quinn, 2000: Regional Aerosol Optical

- Depth Characteristics from Satellite Observations: ACE-1, TARFOX and ACE-2 Results. *Tellus*, Vol. 52 B, No. 2, 484-497, doi:10.1034/j.1600-0889.2000.00040.x.
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 53. A. Lupi, C. Tomasi, A. Orsini, A. Cacciari, V. Vitale, T. Georgiadis, R. Casacchia, R. Salvatori and S. Salvi, 2001: Spectral Curves of Surface Reflectance in Some Antarctic Regions. // *Nuovo Cimento*, Vol. 24 C, No. 2, 313-327.
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