



Introducing the Marzano Award “*Gutta Aurea*”: aims, rules, and outcome of the first edition

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1 Introduction

Frank Silvio Marzano (1963–2022) suddenly passed away on 8 May 2022, near Rome, Italy, the eternal city. Frank was among the founders of the Centre of Excellence on Telesensing of Environment and Model Prediction of Severe events (CETEMPS) of University of L’Aquila, which he directed for nine years. Owing to his leadership during that time, CETEMPS became a well-known nationally and internationally recognized scientific institution. As a professor of Antennas, Radio Propagation, and Radar Meteorology at Sapienza and L’Aquila Italian universities, Frank dedicated his life to the study of microwave electromagnetic propagation and atmospheric remote sensing and was greatly admired by his students. An examination rejection by Frank triggered in the students more an inspirational urge to do better than the more common sentiment of frustration. When facing scientific challenges, Frank always managed to make seemingly complex concepts appear simple and intuitive. Furthermore, the way Frank approached research problems and interacted with his many collaborators was unique. He was always attentive to the human aspects of the people he interacted with and had the enviable ability to always get the best out of them without ever creating a subservient relationship. On the scientific side, Frank was so active that many wondered how he maintained such a high pace of publications, project commitments, and conference participations. Endless passion and insatiable curiosity were Frank’s energy, possessing the enviable ability to prepare presentations and submission material on short notice. Conversations with Frank easily flowed across science, the outdoors, history, architecture, and the arts. In addition to family members, the task to honour Frank’s

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memory is left to all those who were fortunate enough to interact with his beautiful mind, joke with him like friends, and play on the beach like children.

Following his death, it became evident that his legacy should be honoured with philanthropic activities. His family founded the Association Prof. Frank Silvio Marzano *Per Aspera Ad Astra* ([fsm-adastra](#)), which in less than one year funded remarkable initiatives, such as an award for best master thesis pursued at the Dept. of Information Engineering, Electronics and Telecommunications (DIET) of the Sapienza University of Rome, and a scholarship for the Master program in Atmospheric Science and Technology for Meteorology and Climate (LMAST), a joint MSc program between Sapienza University of Rome and University of L'Aquila. At the peak of these initiatives, the Association fsm-adastra launched the Marzano Award, a recognition aiming to acknowledge outstanding contributions from individuals in remote sensing, atmospheric sciences, meteorology, and telecommunications. The Marzano Award is named as "*Gutta Aurea*", golden drop in Latin, to simultaneously acknowledge Frank's passion for classic culture and cloud/precipitation remote sensing, undoubtedly his most important scientific contribution.

2 Aims and rules

The Marzano Award is co-organized by fsm-adastra, CETEMPS, and HIMET enterprise, with the following mechanism. The Association fsm-adastra appointed an Award Committee, formed by one Chair plus fourteen members selected among the scientific community close to Frank. The Chair term is two years with the possibility to be reappointed for at most four consecutive years. The Chair and the members of the committee have the rights to nominate Award candidates, and then they are required to provide a ranking. The nomination is a double-blinded process (i.e. the nominee does not know about the nomination, the Award Committee does not know who submitted the nominations, except for the nominators themselves). The nominees are judged based on their significant contributions to theory and/or practice in remote sensing applied to atmospheric sciences, meteorology, and telecommunications, as demonstrated by evidence of publications, patents, public recognition, and impact on the field. Each member of the Award Committee evaluates each nominee by scoring five aspects: (1) prestige of the affiliation; (2) relevance of the proposed Award citation; (3) significance of the scientific achievements; (4) significance of the presented publications; and (5) overall assessment. The resulting values are averaged and ranked in descending order: the highest-scored nominee is identified as the final Award recipient. In case of draw, the Chair of Award Committee has the final decision based on her/his own judgment. The prize is awarded to only one allowable recipient annually. The prize is awarded only if a suitable awardee is identified. Tentatively, the Award is presented at the annual OltreMet event hosted by CETEMPS in L'Aquila, Italy (half-day in late September to early October). Presentation at alternative venues/events may be considered in case of need. The Award recipient is required to attend in person and present an overview of the main achievements related to the proposed Award citation. The Marzano Award consists of (i) a certificate, jointly signed by the President of fsm-adastra, the Director of CETEMPS, and the CEO of HIMET (Fig. 1), (ii) travel funds and a small honorarium for attending the ceremony and delivering the award presentation, and (iii) the *Gutta Aurea*, a unique pendant specifically designed by Antonella Barone, wife of Prof. Frank Marzano, and handcrafted by a professional goldsmith (Fig. 2). The award recipient and the archival record are then posted and maintained on the Association fsm-adastra website.

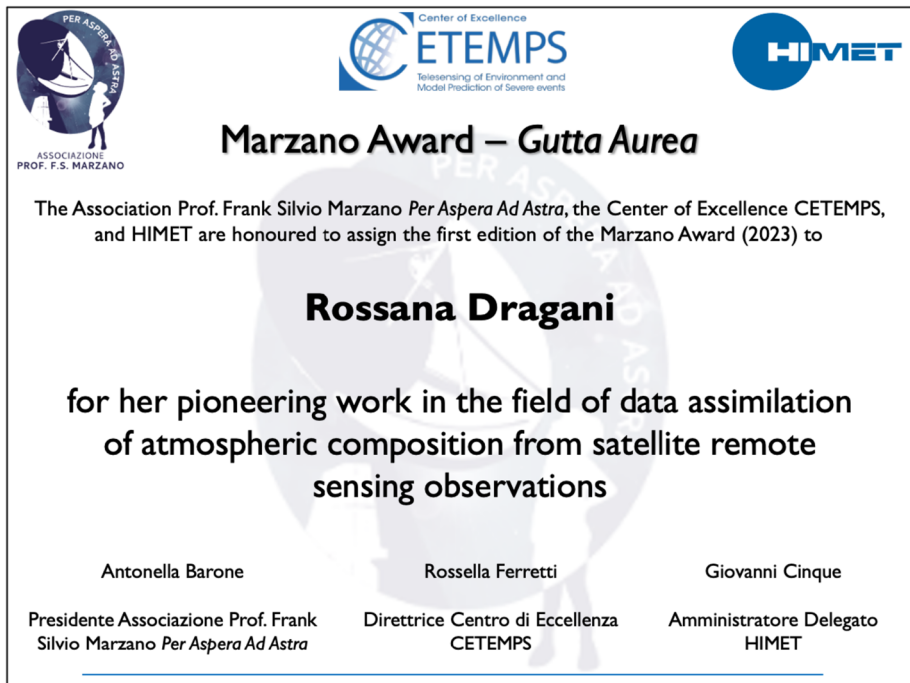


Fig. 1 The Marzano Award Certificate 2023, later signed by Antonella Baroni, President of the Association Prof. Frank Silvio Marzano *Per Aspera Ad Astra*, Rossella Ferretti, Director of CETEMPS, and Giovanni Cinque, CEO of HIMET

3 Outcome of the 1st edition

The ceremony for the first edition of the Marzano Award was held on Sep 30, 2023, during the annual OltreMet event hosted by CETEMPS in the framework of Street Science, the European Researcher Night. The Marzano Award “*Gutta Aurea*” 2023 was awarded to Dr. Rossana Dragani, who is an expert in ozone data assimilation and has led the Atmospheric Composition team in the European Center for Medium-Range Weather Forecast (ECMWF) Research Department, with the following citation: “for her pioneering work in the field of data assimilation of atmospheric composition from satellite remote sensing observations”. In the Aula Magna of University of L’Aquila, Italy, Dr. Rossana Dragani delivered a presentation titled “Assimilation of satellite ozone data in a Numerical Weather Prediction (NWP) system” (Fig. 3). While retracing the scientific steps that led her to the above achievements (Dragani and McNally 2013; Dragani et al. 2015, 2018), she discussed some of the challenges that ozone data assimilation presents in an operational NWP context today (Hersbach et al. 2020) and the opportunities that a fully interactive ozone analysis could bring to improve the forecasts of meteorological variables.

In the intentions of the organizers, the Marzano Award “*Gutta Aurea*” will be assigned annually, representing the event in which Frank will once again invite us to reflect on the current state and future prospects of research.



Fig. 2 The *Gutta Aurea*, a unique pendant designed by Antonella Barone and handcrafted by a professional artisan goldsmith (photo credits: Antonella Barone, Associazione fsm-adastra)

Donations to the Association Prof. Frank Silvio Marzano *Per Aspera Ad Astra* are welcome ([donate now](#)). 100% of the donations are transferred through their philanthropic and scientific projects.

4 Brief curriculum vitae of Prof. Frank S. Marzano

Frank Silvio Marzano was born on May 3, 1963, in Jersey City (NJ, USA). He received the Laurea degree (cum laude) in Electrical Engineering (1988) and the Ph.D. degree (1993) in Applied Electromagnetics both from the Sapienza University of Rome, Italy. In 1992, he was a visiting scientist at Florida State University, Tallahassee, FL, and then at the Institute of Atmospheric Physics, National Research Council of Italy. From 1994 till 1996, he was with the Italian Space Agency, as a post-doc. After being a lecturer at the University of Perugia, in 1997, he joined the Department of Electrical Engineering, University of L'Aquila. In 1999, he was visiting scientist at Naval Research Laboratory in Monterey (CA, USA). In 2005, he finally joined DIET, Sapienza University of Rome. In 2009, he was nominated President of the CETEMPS spin-off company HIMET, located in L'Aquila and Rome, Italy. Since 2003, he has been a Senior Member of the Institute of Electrical and Electronic Engineers (IEEE) within the IEEE Geoscience and Remote Sensing Society, and since 2010 a member of the European Association on Antennas and Propagation (EurAAP). Since 2005, he has been the Secretary and then vice-Chair of the IEEE GRS29 Chapter (North-Central Italy), becoming its Chair



Fig. 3 Dr. Rossana Dragani acknowledging the Award Committee for the nomination, before retracing the scientific steps that led her to the achievement indicated by the Marzano Award citation (photo credits: Barbara Tomassetti & Annalina Lombardi, CETEMPS)

in 2017. Frank S. Marzano was a member of the steering committee of the Associazione Italiana di Scienze dell'Atmosfera e Meteorologia (AISAM) and also a member of the editorial board of this Bulletin.

Frank S. Marzano has published more than 150 papers on peer-reviewed international journals and 15 contributions to international book chapters. He is the Editor of two international books (Marzano and Visconti 2002; Cimini et al. 2010) and one university textbook in Italian (Marzano and Pierdicca 2011). He has been Section Editor of the Springer's *Encyclopedia of Remote Sensing*, (Njoku et al. 2014). His research focused on passive and active remote sensing of the atmosphere from ground-based, airborne, and space-borne platforms, particularly on clouds and precipitation (Marzano et al. 1994, 2004). He contributed to the development of inversion methods and radiative transfer models of absorbing and scattering media (Marzano and d'Auria 1998; Marzano et al. 1999, 2004), radar meteorology for rain (Marzano et al. 2000; Marzano and Ferrauto 2003), remote sensing data assimilation (Faccani et al. 2007; Maiello et al. 2017), wind and ash retrieval and synthetic aperture radar data processing for atmospheric and land-use applications (Marzano et al. 2010, 2013, 2018, 2020), and new concepts for satellite missions (Marzano et al. 2009). He was also involved in electromagnetic propagation studies, including electromagnetic field scintillation and rain fading modelling (Marzano and d'Auria 1998; Marzano and Riva 1999; Marzano et al. 2016) and data analysis along satellite microwave and millimetre-wave links and free space optical links (Marzano 2006, 2007; Mori and Marzano 2016).

He received the Young Scientist Award of XXIV General Assembly of the International Union of Radio Science (URSI) in 1993. In 1998, he was the recipient of the Alan Ber- man Publication Award from the Naval Research Laboratory (Washington, DC, USA). In 2012, he has been nominated Fellow of the Royal Meteorological Society (RMetS). In 2015, he received the Global Precipitation Measurement (GPM) Group Achievement Award from NASA (Washington, DC, USA). In 2015, he has been nominated Fellow of IEEE for “contributions to microwave remote sensing in meteorology and volcanology”. In 2015, he received the NASA Group Achievement Award—GPM Post-Launch Team from NASA Goddard Space Flight Center (USA). In 2020, Frank S. Marzano was inserted in the World’s Top 2% Scientists database of Stanford University (USA).

Frank S. Marzano was also passionately involved in the cultural and philanthropic communities of Rome, where he was member of *Amnesty International*, *World Wildlife Fund*, *Medici Senza Frontiere*, and *Save The Children* associations.

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Declarations

Competing Interests The authors declare no known competing interests.

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