



# ANNUAL REPORT 2021

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European Meteorological Society

Photo on the cover was a contribution to the Europhotometeo 2022:  
Volcanic pyrocumulus at sunrise by Imanol Zuaznabar

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# 01 Message by the President



*Bert Holtslag, EMS President*

**2021** has been the second year marked by the COVID-19 pandemic, which again impacted on the activities of EMS. Consequently, the EMS Annual Meeting was held as a virtual meeting, which appeared to be quite successful experimenting with a new format for the meeting as well as exploring new technology for more personal interactions. The meeting again emphasised the important role of Meteorology and Climatology as science fields, as well as

their vital roles for many applications that benefit society.

The particular focus of the 2021 EMS Annual Meeting has been on the increasing role that the meteorological and climatological communities play in supporting the achievement of the United Nations Sustainable Development Goals. At the meeting, particular emphasis was given to the emerging opportunities of artificial intelligence (AI) in operational disaster management and more generally on the growing relevance of AI in our science field.

The mission of EMS is to promote the advancement of the science, profession and application of meteorology and related sciences for the benefit of the whole population within Europe. This role becomes even more crucial in the near-future in a warmer climate with severe weather. To better support this, in 2021 a new EMS Strategic Plan was developed. In addition, an agreement with the International Society of Biometeorology (ISB) was signed.

The EMS has benefited from the engagement of its Member Societies and Associate Members. In 2021 we could welcome two more organisations in the EMS, namely the 'Sindikata Meteorologjike Aeronautike e Kosovës<sup>1</sup> (SMAK)' as the newest Member Society and the Berlin-based service provider 'MeteoIQ' as Associate Member. As President of EMS, I very much welcome these two new Members. I hope that this also sets the stage for other meteorological organisations, university departments and companies in the private sector to join and work with EMS towards a forward-looking, responsive and cooperative European meteorological community that includes professionals from all sectors.

Over the last 22 years, EMS has developed in such a way that it has successful Annual Meetings that bring together the public, private and academic sectors. As such EMS recognises achievements in meteorology, technology, journalism, outreach and communication; supports the development of early career scientists; facilitates the exchange of experience and expertise between meteorologists working in the media; and enhances communication between EMS Members and the sharing of experiences. In this Annual Report you will find the latest information about these activities.

The success of the EMS depends upon the activities of its various committees and its Council. The EMS is also very fortunate in having a highly-effective secretariat. I thank all involved persons for all they have done to ensure that EMS is successful.

*Bert Holtslag, EMS President*

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## 02 Membership

By the end of 2021 the EMS had 39 Member Societies. In addition, there were 30 Associate Members: National Meteorological and Hydrological Services, Service Providers, Manufacturers, Education and Research Institutions, and International Organisations. Each of these groups can delegate one observer to Council Sessions to represent their specific views on any issue and advise the Council. Two international organisations have permanent observer status at the Council.

### New Members in 2021

In 2021 we could welcome two more organisations in the EMS: The Sindikata Meteorologjike Aeronautike e Kosovës<sup>1</sup> as the newest Member Society and the Berlin-based service provider MeteolQ as Associate Members.

The **meteoIQ** is a small company in Berlin which was established in 2019. The business has three main areas of activity:



- Providing risk management and weather-related technology to the insurance industry: This includes support during the claims management process as well as early information on severe weather events.
- Providing verification services: In order to create transparency on forecast accuracy of different providers, these services are offered to both users of weather forecasts who can select the best-fitting supplier as well as to weather service providers who can assess and improve their forecasting systems.
- Offering consultancy services: The founders of MeteolQ have been active in the meteorological industry for decades and provide their expertise to improve forecast systems, create new technology solutions and make best use of meteorological solutions for business and consumer applications.



**SMAK** - The Sindikata Meteorologjike Aeronautike e Kosovës<sup>1</sup> – SMAK was founded in 2019. It currently consists of 16 members: nine weather forecasters and seven weather observers who work at the Department of Meteorology of Kosovo Air Navigation Services Agency.

SMAK's objectives include to promote Aeronautical Meteorology of Kosovo on national as well as on an international level, to improve staff working conditions, to advance aeronautical meteorology and increase air traffic safety, follow contemporary developments of aeronautical meteorology, to create a statute care system and the position of aeronautical meteorology as a specific staff and to protect the interests of the profession of aeronautical meteorology of ANSA.

<sup>1</sup> All references to Kosovo in this document should be understood to be in the context of United Nations Security Council Resolution 1244 (1999)



## Members who left the EMS

One Associate Member left the organisation: SCYSIS, a manufacturer of hardware and software, cancelled its EMS membership.

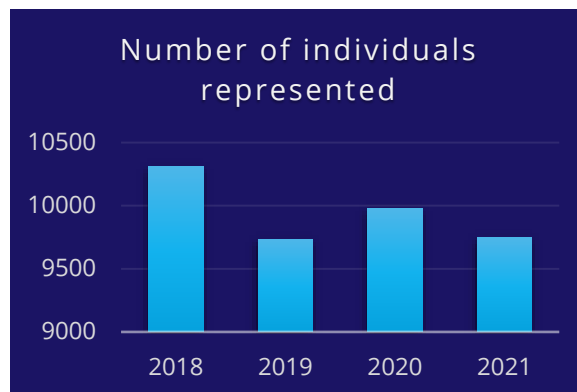
## Membership 2021 in numbers

### **Member Societies:** 39

- Number of individuals represented: 9,746  
(2020: 9,975 | 2019: 9,733 | 2018: 10,301)

### **Associate Members:** 30

- National and regional Meteorological and Hydrological Services: 18
- Private Service Providers: 4
- Manufacturers: 5
- Education and Research Institutions: 1
- International Organisations: 2



**Gigante entre molinos by José Antonio Quirantes Calvo //**  
**Europhotometeo2022 winner**

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## 03 Council & General Assembly 2021

The Sessions of the EMS Council and the General Assembly all took place virtually as video conference. In 2021 the Council met three times: for an extra-ordinary Session in February to take a decision whether to attempt to hold the EMS Annual Meeting 2021 as an onsite/hybrid event, and for two regular sessions in spring and autumn. The 23rd General Assembly convened on 31 August 2021.

### Council

The Council consists of representatives of the Member Societies from France, Germany and the UK ("permanent Members") along with six representatives from Member Societies who are elected by the General Assembly for a term of three years. The responsibilities of Council are to plan, direct, monitor and manage the affairs of the Society. This includes monitoring income and expenditure, the activities of the committees and the implementation of the strategic plan. The following are some of the key decisions taken at the Council meetings held in 2021.

- *EMS Annual Meeting 2021*: Decided that the EMS Annual Meeting 2021 would be held in an online format in September 2021.
- *Strategic Plan*: Adopted the Strategic Plan 2021 – 2024.
- *Silver Medal*: Selected Erik Lundtang Petersen to receive the EMS Silver Medal, and the Climate Explorer, developed by the late Geert Jan van Oldenborgh, to receive the Technology Achievement Award; selected Frank Beyrich, DWD, as the recipient of the EMS Outstanding Contribution Award 2021.
- *Conference Awards*: Agreed revised terms of reference for Young Scientist Travel awards to include funding options for virtual events.
- *Memorandum of Understanding between ISB and EMS*: Approved the Memorandum of Understanding between the International Society of Biometeorology (ISB) and the European Meteorological Society (EMS).
- *EPM Terms & conditions*: Decided to run another photo competition Europhotometeo 2022, approved EPM2022 Terms and Conditions and the EPM coordinator and organising team.
- *New Members of Committees*: Approved the membership of the Technology Achievement Award Selection Committee for the term 2021 – 2024: Robert Mureau (The Netherlands; Chair), Sorin Burcea (Romania), Paul Halton (Ireland), Dominique Marbouty (France), Mats Olofsson (Sweden), Tarja Riihisaari (Finland); approved membership of Jaakko Nuottokari on the Committee on Meetings for the term 2021 – 2024; approved the selection committees for three Media Awards announced for 2021, and the renewal and three new members of the Awards Committee for the term 2021 – 2024: Patricia de Rosnay (ECMWF; Chair), Mojca Dolinar (SMD, Slovenia), Vincent Guidard (Météo France), Anișoara Irimescu (RMS, Romania), Gunilla Svensson (SMS, Sweden), Carlos Yagüe (AME, Spain). The Council also approved the membership of the Programme and Science Committee for the EMS Annual Meeting 2022 and selection committees for EMS Media Awards and the Europhotometeo competition.

- *Budget 2022*: Approved the 2022 EMS Budget.
- *EMS statements*: Agreed the following two-step procedure for statements in the name of the EMS: a) The Bureau will assess any statement as to its potential relevance and importance, as well as to issues being critical; b) The Council will be consulted for a discussion and decision on the support on behalf of the EMS.
- *Terms for Silver Medal nominations*: Approved the following addition to the terms: "Each organisation or body nominating needs to nominate a female and a male nominee at the same proposal."

Minutes of Sessions are available at <https://www.emetsoc.org/about-ems/council/council-meetings/>.

## General Assembly

The General Assembly is composed of representatives of the Member Societies, all Associate Members can participate with observers. It convenes at least once a year; apart from formal decisions such as the approval of Bureau and financial reports, the election of representative Members on the EMS Council, and dealing with constitutional matters, the meeting provides an opportunity to exchange experience and highlight successful activities of Members. The General Assembly had a vivid exchange on the implementation of the adopted Strategic Plan 2021 – 2024. The following are some of the key decisions taken at the General Assembly:

- *Membership*: Welcomed *MeteoIQ GmbH* as new EMS Associate Member and *Sindikata Meteorologjike Aeronautike e Kosovës - SMAK, Kosovo*, as new EMS Member Society.
- *Council Elections*: Elected the following Societies as Representative Members on the EMS Council for the term until 2024: Guðrún Nína Petersen will represent the *Veðurfræðifélagið (VeF)* and Tanja Cegnar will represent the *Slovensko Meteorolosko Drustvo (SMD)* on the EMS Council for the term autumn 2021–2024.
- *Auditor*: The General Assembly appointed *Sozietät Dr. Broll Schmitt Kaufmann & Partner, Berlin/ Dipl.-Finw. Matthias Keil, Germany*, as the auditor for the accounts of the year 2022.
- *Amendment of the Constitution of the EMS and Rules of Procedure*: Approved revised Rules of Procedure for the Council and the General Assembly of the EMS, and amended the Constitution of the EMS in the paragraph §5.1 dealing with formalities for the General Assembly.



Guðrún Nína Petersen, representing VeF, Iceland  
Tanja Cegnar, representing SMD, Slovenia

Minutes of the General Assembly: <https://www.emetsoc.org/about-ems/general-assembly/>.

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## 04 Strategic Plan 2021 - 2024

The process of developing a new strategic plan (2021 to 2024) was brought to an end with the adoption by Council, and kick-started the implementation with an implementation plan. The EMS Vice President Dominique Marbouty (météo et climat, France) will oversee this process for the next three years. Following the structure of the Strategic Plan with its main four objectives, the implementation highlights initial actions for each of them.

- Strengthening, developing and promoting the discipline and its community.
- Providing added-value to and with the EMS membership.
- Optimising the use of meteorological intelligence in society.
- Being an effective, influential and well-run organisation.

*Download the EMS Strategic Plan at:*

[https://www.emetsoc.org/wp-content/uploads/2021/06/EMS-Strategic-Plan\\_2021-2024.pdf](https://www.emetsoc.org/wp-content/uploads/2021/06/EMS-Strategic-Plan_2021-2024.pdf)

Among the highest priority items are the following objectives:

- Develop and introduce a new sustainable concept (hybrid on-site/on-line) for the Annual Meeting that ensures safe physical presence as well as remote participation.
- Ensure that EMS's activities are supported by appropriate IT infrastructure, well-documented processes that are robust and comply with legal requirements for finance and data protection, and the required level of funding.
- Strengthen the attractiveness of the Annual Meeting by (a) having more state-of-the-art reviews, cross-disciplinary sessions, high-quality papers and discussions on a variety of topics and (b) identifying emerging scientific developments and societal needs in order to organise related forums for foresight debates.
- Support the organisation of frequent webinars and online talks by Member Societies under the umbrella of EMS (e.g., by the author of a recent and relevant scientific publication, seminars by Members Societies and meteorological institutes).
- Develop a communication strategy that makes good use of online technologies and includes the communication within the EMS Membership as well as new ways to promote the activities of the Membership and allow new cooperative activities.
- Ensure that EMS's activities, including the Annual Meeting, and the composition of the EMS Council and its Committees, conform to the principles of diversity and inclusion.

A first review in early 2022 concluded that after this rather short time, quite a number of actions have started. In order to develop more actions to implement and achieve the objectives, contributions of many members would make the process stronger, faster and more would benefit from the ideas of the diverse membership.



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## 05 EMS virtual Annual Meeting 2021

In view of all uncertainties concerning the spread of COVID-19, travel limitations, social distancing, etc., the EMS Council took the decision in early spring to organise the EMS Annual Meeting 2021, originally planned to take place in Barcelona, as a virtual event online: vEMS2021: <https://www.ems2021.eu/home.html>. However, the conference topic proposed by the Spanish hosts was kept and lectures organised around many aspects of Sustainable Development Goals. The Historical University of Barcelona is now foreseen as the venue for the EMS2024.

### **vEMS2021 theme: “Weather and climate research and services for the achievement of Sustainable Development Goals: a decade left for action”**

In 2015, the United Nations (UN) launched the 2030 Agenda for Sustainable Development, the main goal being to end poverty and set the world on a path to achieve a better and more sustainable future for all. To achieve these objectives, 17 [Sustainable Development Goals \(SDGs\)](#) were identified. However, the Sustainable Development Goals Report published in 2020 alerted us that progress remains uneven and that the planet is not on track to meet the Goals by 2030. At the abstract submission, authors were asked to indicate to which of the SDGs their work is relevant; The figures below illustrate that the community is well aware of its role and the importance of linking their work to the advancement of these goals.

- For the 470 contributions analysed, 339 researchers (**72.5%**) reported that their work is closely linked to at least one SDG.
- 84% of these authors have reported links to **SDG 13 “Climate Action”**, followed by **SDG 11 “Sustainable cities and communities”** (36%) and **SDG 8 “Good health and well-being”** (27%). (multiple SDG selection was possible).
- **“Education & training” (ES3)** stands out as the sub-Programme Stream with 100% of contributions related to any SDG, especially to **SDG 4 “Quality education”**.
- Almost all contributions to **“Bringing benefits to society”** (sub-Programme Stream ES1) are closely related to some SDGs (45 out of 47 abstracts).
- **SDG 7 “Affordable and clean energy”** receives special attention in the **OSA2** sub-Programme Stream, devoted to “Applications of meteorology”.
- **SDG17 “Partnership for goals”** is mostly reflected in works presented in session ES1.1 “Developing the weather services value chain to serve society better”.
- Only 11 researchers reported that their work can be linked to SDG 5 “Gender equality”.  
Something to keep in mind for future conferences.

We will continue for future EMS Annual Meetings to ask authors to indicate how their work is linked to the SDGs and analyse any developments.

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## Strategic talks

Three speakers delivered insightful presentations and strategic thoughts on many different aspects on Sustainable Development Goals and how to contribute as a community to their achievement: David Griggs, RMetS President and past vice-chair of the World Climate Research Programme illustrated where the meteorology community should be much more strategically involved in decisions in his presentation on "Why the use of weather and climate information is essential for SDG implementation". Monique Kuglitsch, Fraunhofer Institute for Telecommunication, illustrated emerging opportunities of artificial intelligence in operational disaster management: "Nature can be disruptive, so can technology: ITU/WMO/UNEP Focus Group on AI for Natural Disaster Management". And finally, Lena M Tallaksen, Department of Geosciences, University of Oslo, illustrated the complexity of drought events which can only be understood as compound events. A better understanding of the links between physical drought indicators and key drivers of drought being vital for *drought prediction*, whereas a better understanding of the links between physical indicators and drought impacts is critical to improve *drought preparedness* and support drought mitigation. Key achievements in drought research with a special emphasis on the identification of drought events, detection of recent changes, and our ability to model drought, were highlighted in her presentation "Drought in a changing climate – a pan-European view".

## ECS Networking Icebreaker: MeteoXchange

Due to the Corona pandemic, opportunities for early career scientists (ECS) to meet new people at live conferences had diminished over the previous year. To counteract for this deficit at least a bit, an ECS icebreaker at the start of the conference was organised, in collaboration with the MeteoXchange project that was launched to strengthen atmospheric exchange processes and establish an international network for meteorologists.

The event was organised in *gather.town* to allow meeting and chatting in small spontaneous groups, even if only virtual. At the beginning of the event, the German University Partnership for Atmospheric Sciences (UPAS) and the Royal Meteorological Society briefly presented their goals and research opportunities in their countries in the field of meteorology to provide young scientists an insight into the many different projects and possibilities. Following this there were opportunities to meet and exchange ideas in an informal atmosphere in spontaneous groups. Around 30 people from different countries, (e.g. UK, Italy, Germany and Spain) attended the event and appreciated this opportunity, a good alternative as long as in-person meetings cannot take place.

At the EMS2022 an onsite ECS lunch will be organised by UPAS to continue the networking and bring it back into the physical space.

## The format of the session programme

The session programme was organised with four parallel sessions each day, with three session blocks of 1.5 hours. All abstracts were treated equally and short but concise lightning presentations assigned. However, for each session, conveners had the option to schedule one solicited extended lightning presentation per session block. Authors could upload extended

material about their work in advance to enable attendees to study the material beforehand, with the option to already start discussions on the platform before the conference and session. To account for shorter attention spans online, the focus of the actual sessions during the event week was rather on discussions, mostly in smaller video meetings.

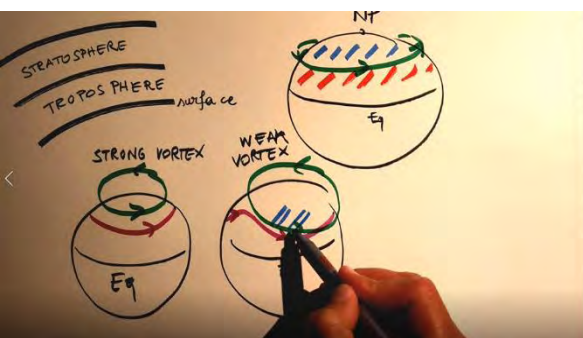
The networking platform *gather.town* was connected to provide further options for meeting and discussing, but we found that many people did rather specifically attend their sessions of interest – and then leave for the work in their office, rather than stay around like people would do at a physical conference.

### **Innovative Presentation Award (IPA)**

With conferences moving into the virtual space we have seen many new formats of presentations, new approaches taken and technological possibilities explored. By establishing a new award, our aim was to highlight outstanding examples that exploit the potentials of the digital formats. This also encouraged the authors to provide their upload material as pre-recorded oral presentation videos. The first winner of the IPA is Alice Portal from the University of Milano-Bicocca and Laboratoire de Météorologie Dynamique/IPSL. Her pre-recorded video presentation on *Predictions of the boreal winter stratosphere with the C3S multi-model seasonal forecast system* ([see the abstract](#)) combines recorded drawings, easy-to-understand figures and verbal communication by Alice herself on screen to tell the story.



Alice Portal, IPA Awardee 2021



**Citation:** *The video is a dynamic and grasping presentation. With clear verbal communication, Alice explains the background theory of her work as well as its results while nicely, drawing graphs and equations on the board. With this innovative use of technology, Alice's presentation stands out, since it goes far beyond the usual way of explaining a collection of slides. In addition, the figures she draws during the presentation are elegant and easy to understand and her way of speaking is calm and clear throughout the whole*

video.

*In this five-minute video, Alice explains a piece of high-quality scientific research but, at the same time, the introduction to the topic and the innovative way of conducting her presentation may even attract the interest of non-experts. Undoubtedly, Alice has done a great presentation that may inspire other researchers to explore new ways how to present their research.*

Watch the video on YouTube: <https://www.youtube.com/watch?v=SWC3nWPbXQY>

### **Future Science Café:**

The 2021 EMS Annual Meeting started off with the collaborative *Future Science Café*, inspired by the rapid developments in remote collaboration forced upon us all by the COVID-19 pandemic. The virtual workshop was open to anyone and different groups reflected on the sustainability of everyday academic practices and imagined what a future world might look like.

Some of the advantages and drawbacks were quite obvious. Advantages are for example saving on travel, and lower barriers for remote collaboration. The biggest disadvantages were experienced in the social spheres, with disturbed life-work balance and isolation. Importantly, new colleagues suffered from a lack of proper on-boarding.

Several new ideas and insights came up as well during the discussions. For example, online lectures sometimes led to increased participation by students. And instead of hybrid conferences, perhaps it is more productive to consider hybrid audiences since the interest of a remote audience is often not served by the traditional conference format and vice versa.

The event was held in *gather.town*, where five whiteboards were set up in a virtual room. Each whiteboard was tied to a topic. In two rounds, participants gathered around the whiteboards and discussed the corresponding topics. Discussions were summarized afterwards on each of the topics by the respective moderators. To read on click here

<https://blog.esciencecenter.nl/pandemic-proof-shaping-the-future-of-scientific-exchange-8eec8444d021>

### **Further Special Events**

- **Awards ceremonies:** Virtual awards ceremonies were held at three different occasions during the week and all awardees were given the opportunity to provide a video on their work and what they were going to present during the conference.

Recordings are available at

<https://meetingorganizer.copernicus.org/EMS2021/sessionprogramme/PSE>

Find more details on the awards in the **06 International Collaboration section** and **08 Awards** section.

- **Workshops**
  - [Standardized, FAIR and CF-compliant publication of urban climate model data](#)
  - EUMETSAT Satellite breakfast with data - part I: [Gridded Data Records for Drought and Vegetation Monitoring from Satellites](#) and part II: [Monitor recent wildfires from space](#)



Welcome video by all hosts and partners: <http://www.youtube.com/watch?v=VSj78Jac-aA>



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## ***A tribute to Sergej Zilitinkevich***

Professor Sergej S. Zilitinkevich, our long-standing convener of the Boundary Layer Session at EMS, passed away on Monday, February 15, 2021. Prof. Zilitinkevich (1936-2021) will be remembered for his pioneering work in the physics of atmospheric turbulence and planetary boundary layers, but also for the energy and passion he displayed in all aspects of his work and last not least his unique personality. He was always developing new ideas even in his 80s. Along his career he has received many prominent Awards such as the Vilhelm Bjerknes Medal of the European Geophysical Society, the Alfred Wegener Medal of the European Geophysical Union (in 2015), and the most prestigious award in hydrometeorology, the International Meteorological Organization Prize for outstanding contributions to meteorology, climatology and research in related fields (see more details at: <https://www.emetsoc.org/obituary-for-sergej-zilitinkevich/>).

It was thus natural that EMS organised a special session as a tribute to his work. The session brought together some of his co-workers along his career, bringing forward some of his main contributions to science together with some personal memories and experiences about these cooperations and how they have influenced the career of his co-workers. The session brought many nice memories and revealed the extent of Sergej's interests and profound thinking.

Furthermore, to keep the spirit and stamina of Sergej still with us, several Finnish Learned Societies (his country of residence for the last 20 years or so) decided to establish an Award to recognise scientific work in the field of Sergej. EMS and WMO decided to join the sponsoring and selection committee for this Award. The announcement of the first award recipient winner brought the spotlight on the EMS, since the current EMS President Bert Holtslag was honoured.



## ***Horizon Europe***

The EU has recently adopted its new Framework Programme for Research & Innovation called Horizon Europe (HE) with a budget of 95 billion euros over 7 years (2021-2027). It includes many fundamental and application science areas where the meteorological and climate community at large can contribute to and benefit from funding. Therefore, EMS wanted to draw the attention of our community to this broad potential for funding and forum for cooperation by organising an

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event introducing all main components of HE. This was masterially done by Dr Adrian Broad (UK Met Office and EUMETNET) who presented an insightful, vivid and clear review of many relevant topics such as: climate systems and extreme weather; sustainable and intelligent transport systems in the air, on the road or seas; space weather and earth observation; renewable energy and agriculture sectors; the ocean and marine environment; heat waves and air pollution impact on health; technology and the digital economy; or safe systems for critical infrastructures. Links between HE and other relevant EU policies were highlighted, principally Copernicus, Digital Europe and the Civil Protection Mechanism. The presentation was followed by questions and clarifying answers.

### **Feedback**

The EMS Annual Meeting 2021 was attended by 549 participants from 43 countries. Display material could be uploaded until 30 September 2021, and has then been made publicly accessible, given the authors had agreed to the publication. Please visit the uploaded material: <https://meetingorganizer.copernicus.org/EMS2021/abstracts/displaymaterials>  
<https://ec.europa.eu/eusurvey/publication/EMS2021-feedback>.

### **Future Meetings:**

After the recognition that the COVID-19 pandemic would not be a short-lived disruption, EMS bodies, especially its Committee on Meetings (CoM), supported by the Programme and Science Committee (PSC), started to plan what future meetings could look like, combining physical presence and remote attendance, but still ensuring ample possibilities for networking and discussions for all. For 2022, the hope is that a physical meeting in Bonn, Germany, will be possible for all those who want and can travel, but options for online participation will also be provided.

- EMS Annual Meeting 2022: 4 – 9 September 2022, scheduled to take place at the University of Bonn, Germany.

EMS Annual Meetings have also been arranged for the subsequent two years:

- EMS Annual Meeting 2023: The University of Economics in Bratislava, Slovakia, has been reserved for 3 – 8 September 2023.
- EMS Annual Meeting 2024: The Historical University of Barcelona, Spain, has been reserved 2 – 6 September 2024.

For 2025, the option to convene in Split, Croatia, is under consideration.

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## 06 Communication, sharing of information, publications

One of the aims the Meteorological Societies in Europe had in mind with the creation of the EMS as a Europe-wide organisation was to establish structures and channels to facilitate mutual communication and to share experiences. Providing information about the endeavours of EMS Members, sharing examples of good practice, and fostering collaboration between the Members and Associate Members are objectives the EMS tries to implement with its channels of communication: the website [emetsoc.org](https://www.emetsoc.org), the electronic newsletter named the “ems-message” and social media channels. In addition, short conference papers based on contributions to the EMS Annual Meetings are published in *Advances in Science and Research – Contributions to Applied Meteorology and Climatology*. Discussions at the General Assembly also play an important role in the exchange of information. For more information go to <https://www.emetsoc.org/publications/>.

**Website and Social Media:** The most important tool of communication between the EMS and its Members is the EMS website: <https://www.emetsoc.org/>. It provides information about the activities of the EMS, its Members and other initiatives and events of interest to the wider meteorological community:

- Information on each Member and Associate Member including links to reports about their most recent initiatives and activities.
- News section dedicated to recent developments involving EMS Members and the wider meteorological community.
- Many resources and links, plus announcements of awards and job opportunities.

The EMS also posts information on current activities, calls, or videos on:

- Twitter: <https://twitter.com/EuropeanMetSoc>
- LinkedIn: <https://www.linkedin.com/company/European-meteorological-society>
- YouTube: <https://www.youtube.com/channel/UC5Ecbudpe7G8O-jpBcKe9fA/videos>

Recordings of the sessions on the virtual EMS2021 and interviews are also available on YouTube.



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**ems-message:** The ems-message is an e-mail-based newsletter highlighting the latest news items published on [www.emetsoc.org](http://www.emetsoc.org):

- Six issues of the ems-message were published in 2021, with 6 to 12 articles in each edition.
- The majority of articles contain information about activities, events and new initiatives by EMS Members; but information on European organisations such as EUMETNET and scientific articles have also been included.
- Additional topical information about the activities of the EMS, job announcements, upcoming conferences, and announcements and closing dates related to EMS awards are provided.

**Conference Proceedings:** Contributions to the EMS Annual Meetings can be published as short conference papers in *Advances in Science and Research - Contributions in Applied Meteorology and Climatology*: <https://www.advances-in-science-and-research.net/>. Advances in Science and Research (ASR) publishes original contributions on (a) advances in understanding weather and climate processes and (b) the development of operational systems and applications of meteorology, climatology, and related disciplines. This also includes new challenges and the role of communication, education and training, and engagement with society for the profession and its practices. ASR is an open-access journal for contributions presented at the Annual Meetings of the EMS and other related events. Submissions to ASR undergo a peer-review and convenors of sessions at the EMS Annual Meetings volunteered to be guest editors for their specific topics. Articles published in ASR are included in major data bases, including the Conference Proceeding Citation Index (CPCI) which is part of the Web of Science™ Core Collection, and SCOPUS.



*Advances in Science and Research (ASR) welcomes submissions in meteorology, climatology and related disciplines*

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## 07 International Collaboration

The EMS as an international organisation strives to maximise the effectiveness and efficiency of its activities by engaging and collaborating with other organisations in the meteorological, climatological and related areas.

**International Society of Biometeorology (ISB):** Biometeorologists have been attending the Annual Meeting of the EMS for many years, with relevant sessions like urban climate or biometeorology long established.



To strengthen the connections of our communities, the [ISB](#) and the EMS have recently signed an agreement that specifies the arrangements for the cooperation between the two organisations; this is based on our shared vision of advancing meteorology and in particular biometeorology for the benefit of societies within Europe and elsewhere. The [Memorandum of Understanding](#) was approved by the [EMS Council](#) at its Session C47 in August 2021, and signed by the EMS President, Bert Holtslag and the then-President of ISB, Marie Keatley, in October 2021.

The ISB provides an international forum for the promotion of interdisciplinary collaboration between meteorologists, health professionals, biologists, climatologists, ecologists and other scientists. The Society, as a community of scientists with similar interests, fulfils an important role in providing information, expertise and advice to international organizations requesting this assistance.

**Tromp Foundation:** The EMS Tromp Award for an outstanding achievement in biometeorology was established in 2015 as a collaboration between the Tromp Foundation and the EMS. This award, funded by the Tromp Foundation, is aimed at promoting biometeorology in Europe, and is given for an outstanding achievement in biometeorology.

**S. W. Tromp  
Foundation**

The EMS Tromp Award 2021 was won by Athanasios Damialis from the University of Augsburg in Germany. He is the Head of the Aerobiology Group at the University's Department of Environmental Medicine, Faculty of Medicine. He was awarded for the publication: "*Higher airborne pollen concentrations correlated with increased SARS-CoV-2 infection rates, as evidenced from 31 countries across the globe*", Proceedings of the National Academy of Sciences of the United States 2021 Vol. 118 No. 12 e2019034118; <https://doi.org/10.1073/pnas.2019034118> by Athanasios Damialis et al. (\*)

*Athanasios Damialis: "Co-exposure to airborne pollen enhances susceptibility to respiratory viral infections, regardless of the allergy status. To investigate if this could be also true for SARS-CoV-2 infections, we tested for relationships between SARS-CoV-2 infection rates and pollen concentrations, along with humidity, temperature, population density, and lockdown effects. We found that from the environmental factors examined, pollen, in synergy with humidity and temperature, explained, on average, 44% of the infection rate variability. Lockdown halved infection rates under similar pollen concentrations.*

*My particular interest is the study of the 'soup' of environmental exposure and associated health*

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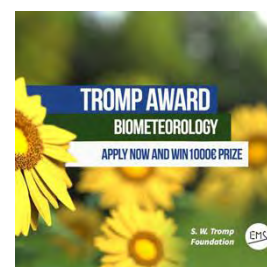
*impacts. Towards this direction, I focus on multiple environmental exposure, environmental health, aeroallergen detection and quantification, and forecasting all-level spatiotemporal interactions towards the aim to provide accurate and timely risk alerts. To achieve many of these challenging tasks, I also endeavour to use novel technologies in research and development."*

Athanasios Damialis also gave the Award Lecture during EMS2021 in the session on Atmospheric effects on humans [on this paper](#).

(\*): Athanasios Damialis<sup>1\*\*</sup>, Stefanie Gilles<sup>1\*\*</sup>, Mikhail Sofiev<sup>2</sup>, Viktoria Sofieva<sup>2</sup>, Franziska Kolek<sup>1</sup>, Daniela Bayr<sup>1</sup>, Maria P. Plaza<sup>1</sup>, Vivien Leier-Wirtz<sup>1</sup>, Sigrid Kaschuba<sup>1</sup>, Lewis H. Ziska<sup>3</sup>, Leonard Bielory<sup>4,5,6</sup>, László Makra<sup>7</sup>, Maria del Mar Trigo<sup>8</sup>, COVID-19/POLLEN study group<sup>#</sup>, Claudia Traidl-Hoffmann<sup>1</sup>.

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**Tromp Foundation Travel Funds for Young Scientists:** The Tromp Foundation has also provided funding for young scientists to attend the EMS Annual Meetings and give presentations about aspects of biometeorology since 2015. In 2020 the awards could not be given due to the cancellation of the Annual Meeting, but for the virtual EMS2021 the support continued and five early career researchers were selected: their registration was covered and they were offered funding for publishing their contribution in the peer-reviewed EMS Proceedings Journal Advances in Science and Research (ASR).



### Ge Cheng



Meteorological Institute, CEN, Universität Hamburg, Hamburg, Germany  
She gave a presentation on [Parameterizing the impact of vegetated urban canopies on wind and temperature fields by using a simple nudging method](#) in session [UP2.1 Cities and urban areas in the earth-atmosphere system](#).

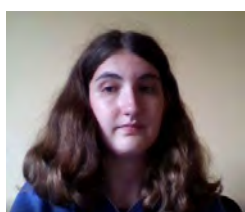
### Sergio Ibarra



University of Sao Paulo, Institute of Astronomy, Geophysics and Atmospheric Sciences, São Paulo, Brazil  
He gave a presentation on [Association between COVID-19, mobility and environment in Brazilian capitals](#) in session [UP2.2 Interactions between air pollution, meteorology and the spread of COVID-19](#).

- [Link to the presentation](#)

### Chloe Brimicombe



University of Reading, Reading, United Kingdom  
She gave a presentation on [Borderless Heat Stress](#) in session [OSA2.4 Atmospheric effects on humans](#).

- [Link to Presentation](#)

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## Aleš Urban



Faculty of Environmental Sciences, Czech University of Life Sciences, Prague, Czechia; Institute of Atmospheric Physics, Prague, Czechia

He gave a presentation on [Changes in heat-attributable deaths in Prague, Czech Republic, over 1982-2019](#) in session [OSA2.4 Atmospheric effects on humans](#).

- [Link to presentation](#)

## Leonardo Yoshiaki Kamigauti



University of São Paulo, Institute of Astronomy, Geophysics and Atmospheric Sciences, Department of Meteorology, Brazil

He gave a presentation on [Casual relationships between particulate matter and COVID-19 cases in USA cities](#) in session [UP2.2 Interactions between air pollution, meteorology and the spread of COVID-19](#).

- [Link to the presentation](#)

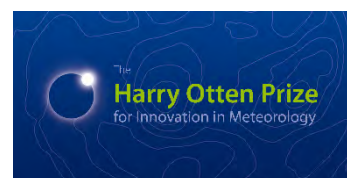
All five researchers provided a one-minute video on their work that was shown during the *virtual Awards Session* in September 2021: <https://www.youtube.com/watch?v=b6qX2i48rkk>.

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**ITU/WMO Focus Group on AI for Natural Disaster Management:** The EMS supported the launch of an ITU/WMO Focus Group on Artificial Intelligence for Disaster Risk Management (FG-AI4NDM). This focus group pursues the goal to converge a community of stakeholders, including representatives of the UN, government agencies/policy-makers, scientific unions and professional societies, researchers, and industry members, from around the globe to explore this topic and define best practices on the use of AI (and other digital methods) to model (reconstruct, forecast, or project) natural disasters, based on input from natural disaster use cases.

At the [third ITU/WMO/UNEP Workshop on Artificial Intelligence for Natural Disaster Management](#) the EMS President provided a presentation on [“Some notions on the increasing role of Artificial Intelligence in the Atmospheric Sciences within Europe”](#).

**Harry Otten Foundation:** Since 2011 the EMS and the Harry Otten Foundation (HOF) have been collaborating to promote the Harry Otten Prize, an award endowed with 25 000€ for innovative ideas in meteorology that help improve the lives of citizens in Europe and worldwide. With a biennial cycle, finalists for the Harry Otten Prize present their ideas in a special session at the EMS Annual Meetings, and the winner is revealed during the Awards Session of the conference.



In 2021, the Harry Otten Prize for Innovation in Meteorology has been awarded for the fifth time. During the Annual Meeting the jury announced Kirien Whan, from the Royal Netherlands

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Meteorological Institute (KNMI) and Kate Saunders from the Queensland University of Technology (QUT) as the winners of the first prize of 25,000 Euro. Their idea, **Second Wind: Extending the official wind gust record with citizen science observations**, is to use citizen observations of wind gusts, apply new methods of quality control to them and integrate the data into observations taken from standard measurement networks. Wind gusts are causing severe damages. Every seven out of eight weather warnings issued by KNMI in 2018 involved extreme wind gusts. Often, high wind gusts occur very locally, in between the traditional measurement network. A more detailed picture of the wind gusts can help to alert the public further in advance and more accurately.

The winners of the prize were selected from three finalists. The other two finalists received 2,500 Euros respectively for their ideas.

- Moritz Mauz from the University of Tübingen in Germany presented his innovative idea on **A high-frequency chilled-mirror hygrometer for turbulent stationary and airborne dew-point measurements**.
- Joshua Soderholm from the Australian Bureau of Meteorology presented his idea **Observing the Impossible – in situ observations of hail trajectories using the HailSonde**.

The Harry Otten Prize 2023 will be announced in autumn 2022, with the selection and award presentation planned at the EMS Annual Meeting 2023 in Bratislava.



**Global Weather Enterprise (GWE):** The GWE consists of activities by individuals and organisations to enable weather information to be created and provided to society. The aim is to take action to provide up-to-date systems that protect life, property, and well-being. PRIMET and ECOMET, along with the World Meteorological Organization and the World Bank, are key actors in this effort. PRIMET and ECOMET organised a well-attended session at the virtual EMS2021: [Developing the weather services value chain to serve society better](#). The session did showcase examples of how working together is already providing tangible benefits for society and highlight opportunities for the future roadmap, and resulted in interesting and fruitful discussions. An eNewsletter produced by the GWE Forum can be accessed by going to <https://www.gweforum.org/>.

**American Meteorological Society (AMS):** There is an agreement between the EMS and the AMS which covers topics such as non-conflicting meeting dates, co-sponsoring of meetings, and publications. Also, as part of this agreement, each society does nominate a representative and speaker at the annual meeting of the other. By invitation, the EMS President participated in a Presidential Session at the





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AMS2021 and gave the EMS Lecture on “Working together in Meteorology and the Atmospheric Sciences”, using his vast experiences as leader of GEWEX/GABLS as an example. Similarly, Mike Farrar (AMS President 2021) was invited to give a keynote presentation at the virtual EMS2021; He provided the keynote for the Operational Systems and Applications Programme Stream, presenting interesting insights in developments in the US: “*The state of weather, water and climate services in the U.S. and strategic challenges for the next decade: the perspective from the American Meteorological Society and U.S. National Weather Service*”.

**International Forum of Meteorological Societies (IFMS):** The

International Forum of Meteorological Societies (IFMS) aims to foster international collaboration and cooperation in science and technology and to help National Meteorological Societies to form and become stronger to help build capacity in their countries. It does this by facilitating exchange of knowledge, ideas and resources between the meteorological societies of the world. The IFMS has around 40 members, including the EMS and some other national meteorological societies in



Europe. In 2021, the IFMS focussed on supporting the creation of the African Meteorological Society (**AfMS**) for this to become one of its strongest proponents to build capacity in Africa through this volunteer-based organization.

The IFMS Global Meeting 7 was held in 5 Sessions between November 17 to December 15, 2021 as a virtual event.

- Session 1, part A on November 17 and Session part B on November 18: *Get to know your sister Societies*: In both session parts, each Society had approximately eight minutes to present their activities and projects. A total of 22 Societies made their presentations and that was followed by a short discussion on how IFMS can help member Societies to grow.
- Session 2 on November – Part 1: *Importance of Creating NMSocs* and Part 2: *A Panel Discussion on IFMS Approach on Education and Training*.
- Session 3 on December 1 - Part 1: Presentation on *IFMS Value Proposition and Financial arrangements*; Part 2: A Panel Discussion on *IFMS Value Proposition (VP) and prioritization of VP items*.
- Session 4 on December 8 – Part 1: Public Lecture on *Causes of Global Warming & Climate Change (GW&CC), its Remedies and knowing it is happening how to cope with the effects of GW&CC*; Part 2: Panel Discussion.
- Session 5 on December 15 – Part 1: First hour - Presentations on Multi Hazard, Early Warning System of Europe A4EU (MH-EWS) by two European Speakers. Part 2: Panel Discussion on Requirements of MH-EWS and best ways to make it available to all countries. This session lasted approximately 2.5 hours. (YouTube Link for Session 5: <https://youtu.be/uBRQmtCqjIQ>). The Report of the 5 Sessions is provided [here](#).

Meteorological societies in Europe can join the IFMS, for which there are no fees:

<https://ifms.org/index.cfm/ifms/members/>.

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## 08 Outreach & Media

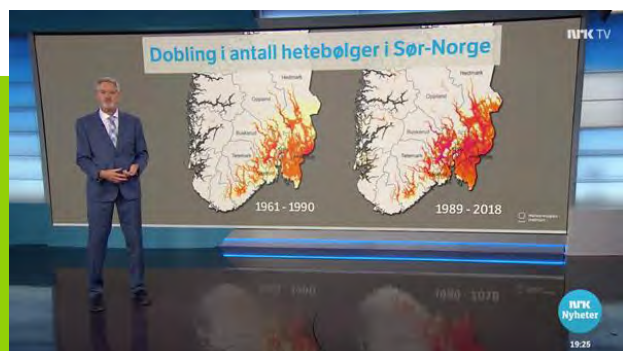
The Media & Communications Committee investigates the way presentations have an impact on the public, serves as a forum for exchange of experience between meteorologists and climatologists working in the media in different countries, and cooperates with weather presenters that are members of the AMS, the International Association of Broadcast Meteorologists (IABM) and other organisations.

As it was not possible to hold an in-person Awards ceremony in 2020 for the recipients of EMS Awards, the Media & Communication Committee prepared a video compilation highlighting the Media and Tromp Awardees 2020 and thus providing these awardees with an opportunity to present themselves and their work to a wider community. [This video is available to the EMS YouTube channel](#). **We are grateful to all contributors.**

**Media Awards:** One of the central objectives of the EMS since its foundation has been the exchange of views on how to improve communication of meteorological and climatological information between developers, users and decision makers, and to the general public. To highlight outstanding examples and achievements in this area, the EMS Media Awards have been established.

**EMS Outreach & Communication Award 2021** This award was presented to the project “The benefits of using TV meteorologists as climate change communicators”, established by the Norwegian Meteorological Institute (MET Norway). The main objective of the project is to integrate research-based climate material into weather presentations so that members of the public are informed and engaged about human-caused climate change. A key to engagement is to provide a local perspective to the often abstract and global phenomenon of climate change. The project team believes it is important to link knowledge about climate change to people’s everyday lives and their experience of the weather.

**Citation:** “By educating and using TV meteorologists as climate communicators, MET Norway reaches a large part of the population through well-established channels. In this way knowledge about climate change is brought closer to people’s everyday lives and their experience of the weather so that connections between weather and climate become clearer to the public. This project is a good example of what can be achieved when scientists, meteorologists, designers and communication advisors work closely together”.



*Project “The benefits of using TV meteorologists as climate change communicators”, Recipient of the EMS Outreach & Communication Award 2021*

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**EMS Journalistic Award 2021:** This biennial award was presented to Conor Purcell, Ireland, for his article “A sharper view of the world’s oceans – Models of the behaviour of the oceans with higher spatial resolution could lead to more accurate climate predictions.” which was published on 13 November 2019 in Nature Outlook: Physical oceanography, doi: <https://doi.org/10.1038/d41586-019-03465-9>.

**Citation:** “Conor Purcell receives this award for outstanding science writing that presents state-of-the-art scientific research in a well readable article with a gripping narrative to the general public.

Gripping the reader’s attention with the mystery of Malaysian Airlines flight MH370, he uses the air traffic catastrophe and the search for debris – found thousands of kilometres away – to write about ocean circulation and the possibilities around using ocean modelling. This is a welcome contribution, especially since climate models are rather abstract constructions and not easy to understand.”



Conor Purcell, Recipient of the EMS Journalistic Award 2021

The *virtual* awards ceremonies gave much room to all awardees, each of them presenting a statement on their work and achievements.



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## 09 Awards

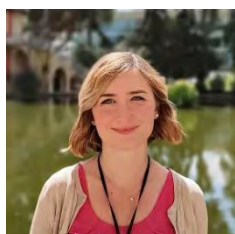
The Awards Programme of the EMS honours outstanding achievements of meteorologists through the EMS Silver Medal, the Technology Achievement Award and the Media Awards, acknowledges excellence in young scientists through the Young Scientist Award, and provides travel support for young scientists in the early stage of their career. The Outstanding Poster Award and newly launched Innovative Presentation Award highlight good practice in poster presentations and creative new ideas how to harness possibilities for capturing online presentations at EMS Annual Meetings; the Outstanding Contribution Award recognises important contributions to the development of the Society.

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**Young Scientist Travel Awards:** Most awards are given as travel support for young scientists in the early stage of their careers. Many events were again shifted to 2022, but for those that took place as a virtual event, conference awards were given, that included the option to receive support for publication charges.

For the EMS Annual Meeting Young Scientist Conference Awards were given to the following five young researchers who presented their work during the conference:

### Bianca Mezzina



Barcelona Supercomputing Center, Earth Sciences Department, Barcelona, Spain, gave a presentation on [Multi-model assessment of the late-winter stratospheric response to El Niño and La Niña](#), in session [UP3.2 Mid-latitude atmospheric teleconnection dynamic](#).

### Eduardo Utrabo-Carazo



Spanish National Research Council (CSIC), Centro de Investigaciones sobre Desertificación, Moncada, Spain, presented [A spectral analysis of near-surface wind speed and possible sources of predictability in the Iberian Peninsula](#) in session [UP3.1 Climate change detection, assessment of trends, variability and extremes](#).

### Sarah Ivušić



Croatian Meteorological and Hydrological Service (DHMZ), Zagreb, Croatia, did talk about the [Future precipitation changes over the eastern Adriatic and Dinaric Alps areas in the latest EURO-CORDEX ensemble](#) in session [UP3.1 Climate change detection, assessment of trends, variability and extremes](#).



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### Alice Baronetti



Institute of Geosciences and Earth Resources, National Research Council, Pisa, Italy, presented her work on [Future drought episodes over the North of Italy](#) also in session [UP3.1 Climate change detection, assessment of trends, variability and extremes](#).

### Francesca Larosa



Ca' Foscari University, Economics, Economics, Italy, and Euro-Mediterranean Center on Climate Change, discussed [The role of knowledge networks in facilitating the creation of climate information services](#) in session [ES1.6 Climate Service 3: National and international climate services: user engagement and governance](#).

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**EMS Silver Medal:** In 2021 Erik Lundtang Petersen, Denmark, was selected to receive the EMS Silver Medal in recognition of his outstanding scientific contribution to wind energy meteorology and the leading role he had in the creation of the European Wind Atlas.

Erik Lundtang Petersen has been instrumental in developing the meteorological/climatological discipline “Wind Power Meteorology”. He led the work that resulted in the “Danish Wind Atlas”. Together with the Danish Meteorological Institute, Erik and his co-workers developed the “Wind Atlas Methodology” based on basic meteorological principles which enables wind power developers to calculate the wind climate at any place in Denmark. It helped to increase the public understanding of the nature of the wind and its dependence of terrain roughness and orography. The concept “Wind Atlas Method” is now recognized worldwide.



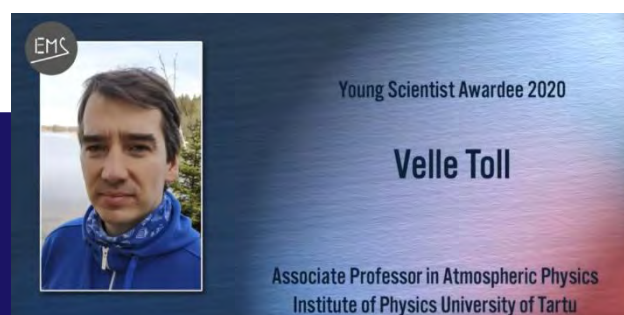
*Erik Lundtang Petersen, EMS Silver Medal 2021*

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Erik, in cooperation with various European meteorological organizations, led the European Commission's project "European Wind Atlas". After eight years of researching and developing new wind climatological methodologies, the work was successfully completed with the publication of "The European Wind Atlas" in five languages. The new methodologies were made publicly available in 1987 through the "Wind Atlas and Analysis Programme" (WASP). A New European Wind Energy Atlas was finalized in 2019 and the methodologies and statistics have also been made publicly available.

The Silver Medal ceremony, which included a Silver Medal Lecture by the Laureate, took place in September 2021 during the virtual EMS Annual Meeting, with Erik Lundtang Petersen giving the Silver Medal Lecture "Wind Energy Meteorology for Sustainable Development". The recording is available at <https://meetingorganizer.copernicus.org/EMS2021/sessionprogramme/PSE>

**Award Ceremony 2020:** In 2020, Jean Jouzel, France, was selected to receive the EMS Silver Medal. Also Velle Toll, Estonia, won the EMS Young Scientist Award (see also EMS Annual Report 2020). As an in-person meeting and awards ceremony could not take place in 2020, a virtual event was organised in early June 2021 to celebrate these two outstanding scientists. The Ceremony was streamed on the EMS YouTube Channel and now available there (<https://www.youtube.com/watch?v=CC2s0B5i8Gk>).



**Outstanding Contribution Award:** Frank Beyrich was honoured with the Outstanding Contribution Award for his commitment to develop and enhance the session programme of the EMS Annual Meetings. This recognised his relentless activity as the Programme Stream Moderator for Understanding Weather and Climate Processes. Throughout, Frank has been committed to developing and enhancing the session programme in a way that takes account of new directions and upcoming trends in research and applications.



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**Technology Achievement Award:** In 2021 the Technology Achievement Award was presented to Geert Jan van Oldenborgh for his outstanding work on his Climate Explorer, a platform that enables scientists in the meteorological community to perform quick analyses on vast amounts of data. Researchers can not only download data onto the system but also upload data, which would then be transformed into a suitable format such that data analysis would become easy. Geert Jan had at first set it up at KNMI in the nineties for himself to give quick answers to questions he got about El Niño (which he was working on at the time) and the impact El Nino had on the rest of the world. As he was also validating and verifying seasonal forecasts (which is closely related to El Niño) he became interested in seasonal anomalies. He had noticed very quickly that forecasting a “warm” anomaly became too easy if you did not carefully define your reference climate. In doing so he became more and more interested in climate and climate change and attribution issues. The Climate Explorer, after a few modifications turned out, once more, to be extremely helpful in calculating useful statistics about how various climate parameters were linked.

The award ceremony, for well-known reasons, carried out in the Back Garden of Geert Jan in Gouda, was one of mixed emotions. Geert Jan had always been very open about the fact that he had been seriously ill. In fact, he shared the detailed scientific and medical developments on his disease with most of his colleagues. It was very apparent that day in September in Gouda, that his illness was catching up with him. All experimental methods had run out, the doctors had advised him to go for chemotherapy otherwise he would not make it to the end of the year. Unfortunately, it turned out that the chemo had an adverse effect on his body. It was therefore very good to see and feel that Geert Jan truly appreciated the Award. It is exactly the kind of work and the kind of system that is very often underrated by the scientific world, as it is not seen as “true” science, but engineering. As it happened, he was also chosen by TIME Magazine to be in the top 100 influential people of 2021, but he laughed that Prize away. Geert Jan was however very proud of his Climate Explorer and the official appreciation from the EMS was received well.

Geert Jan van Oldenborgh passed away 11 October 2021. He will be missed by the meteorological world. Obituaries appeared in many national (Dutch) and international newspapers. In all these the TAA was mentioned.



*R. Mureau presenting the Award Certificate to Geert Jan in August 2021 in Gouda.*

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**Young Scientist Award:** With a number of outstanding candidates, the Awards Committee selected two recipients for the 2021 EMS Young Scientist Award (YSA): Karin van der Wiel, working at KNMI in the Netherlands, and Gabriele Messori, working at Uppsala University in Sweden.



**Karin van der Wiel** received the YSA for her important contribution to understanding the meteorological and climatological impacts on renewable energy shortfall, and for her constant outreach activities in climate science. She was nominated with the publication: *Meteorological conditions leading to extreme low variable renewable energy production and extreme high energy shortfall*, 2019, K. van der Wiel, L.P. Stoop, B.R.H. van

Zuijlen, R. Blackport, M.A. van den Broek, F.M. Selten, *Renewable and Sustainable Energy Reviews*, 111, pp. 261-275, DOI: 10.1016/j.rser.2019.04.065.

Karin's recent research has focused on understanding (changing) climate extremes and how these impact society or natural systems. With different, often interdisciplinary, teams she has shown the importance of considering the internal variability in climate impact-oriented research. Other work concerns understanding the atmospheric dynamics of climate variability, and climate attribution.

More details: <https://www.emetsoc.org/awards/award/karin-van-der-wiel/>.



**Gabriele Messori** received the YSA for his ground-breaking contribution to the understanding of planetary wave-breaking, storm-track variability and their link to mid- and high-latitude weather extremes. He was nominated with the publication: *On the Drivers of Wintertime Temperature Extremes in the High Arctic*, 2018, G. Messori, C. Woods, R. Caballero, *J. Climate*, 31, DOI: 10.1175/JCLI-D-17-0386.1

Gabriele's research focuses on linking large-scale atmospheric dynamics to mid and high-latitude weather extremes, and tackles two crucial challenges in modern climate science: namely to characterize the physical drivers of societally and economically relevant extreme events and enhance our ability to predict them. His work has spanned processes ranging from storm track and jet-stream variability to recurring planetary wave patterns and atmospheric energy transport, linking these to a broad range of weather extremes including windstorms, heatwaves, cold spells, heavy precipitation and flooding, and compound extremes.

More details: <https://www.emetsoc.org/awards/award/gabriele-messori/>.

**Award Lectures:** Both awardees gave Young Scientist Award Lectures at the EMS Annual Meeting:

- Karin spoke in session [OSA2.3](#) | Energy meteorology:  
[Wind droughts and winter cold threaten Europe's future energy security](#) (EMS2021-505)
- Gabriele spoke in session [UP3.3](#) | Synoptic climatology:  
[Wintertime temperature extremes in the high Arctic: drivers, statistics and implications for the mid-latitudes](#) (EMS2021-4)



## 10 Our Resources: Financial Accounts 2021

The balance as at 31 December 2021 was 203,769.44€ and has increased by 19,230.17€ as compared to 31 December 2020. On 31 December 2021, an amount of 30,181.58€ was held on the current account at Deutsche Bank and 74,266.21€ on the account at GLS; 99,321.65€ are held on the daily account at Triodos Bank.

### Summary Statement of Financial Activities for the Year 2021

All financial figures are given in Euro.

<b>INCOME</b>	<b>2021</b>	<b>2020</b>
Income Societies Membership Fees	19 627.99	19 748.88
Income Associate Membership Fees	31 800.00	32 600.00
Annual Meeting	72 728.59	0.00
Other	7 160.94	0.00
Interests	2.48	9.92
<b>TOTAL INCOME</b>	<b>131 320.00</b>	<b>52 358.80</b>
<b>EXPENDITURE</b>		
Salaries (incl. expenses for employer)	99 795.78	88 540.94
Awards, Europhotometeo	3 200.00	3 000.00
Publications	1 471.62	760.30
Workshops	0.00	0.00
Honoraries, Fees, Insurances	4 709.88	5 067.15
Travelling	201.02	5 194.68
Banking charges	247.09	291.21
Office costs	1 531.56	1 146.94
Other costs	0.00	59.64
Annual Meeting expenditures, incl. VAT	0.00	13 399.33
VAT Annual Meeting prior year	0.00	8 031.38
Other taxes	-69.11	0.00
<b>TOTAL EXPENDITURE</b>	<b>112 089.83</b>	<b>125 491.57</b>
<b>INCOME – EXPENDITURE</b>	<b>20 232.16</b>	<b>-73 132.77</b>
Payments on fixed and intangible assets	-1 001.99	-59.99
ACCOUNT BALANCE 1 JANUARY	184 539.27	257 732.03
<b>ACCOUNT BALANCE 31 DECEMBER</b>	<b>203 769.44</b>	<b>184 539.27</b>

#### Audit

The financial accounts were audited on 30 May 2022 by the auditor appointed by the EMS General Assembly 2021. The auditor's report of 16 June 2022 is submitted to the EMS General Assembly 2022.

#### Auditors:

Dipl.-Finanzwirt  
Matthias Keil  
Wirtschaftsprüfer  
Dr. Broll Schmitt Kaufmann & Partner  
Taubenstraße 20-22  
10117 Berlin



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# 11 Council and Council Bodies

## COMMITTEE ON MEETINGS

Sylvain Joffre (Chair, Finland)  
Carlo Buontempo (ECMWF)  
Carola Detring (Germany)  
Martina Junge (EMS)  
Peter Kalverla (The Netherlands)  
Haleh Kootval (Switzerland)  
Jaakko Nuottokari (Finland)  
Victoria Sinclair (Finland/UK)

## MEDIA AND COMMUNICATIONS COMMITTEE

Tanja Cegnar (Chair, Slovenia)  
Rasmus Benestad (Norway)  
Gerald Fleming (Ireland)  
Inge Niedek (Germany)  
Jay Trobec (USA, AMS-liaison)

## EMS COUNCIL

From 26 August 2021 Council consisted of the following:

President: Albert A.M. Holtslag  
Vice-President: Dominique Marbouty  
Treasurer K. Heinke Schlünzen

### Permanent representatives:

Météo et climat, France:  
Dominique Marbouty  
DMG, Germany: K. Heinke Schlünzen  
RMetS, UK: Shanti Majithia

### Rotating Members of Council:

SMS, Slovakia: Paulína Valová  
ACAM, Spain: Jordi Mazon  
NVBM, The Netherlands: Gert-Jan Steeneveld  
ARMAE and SMR, Romania: Sorin Cheval  
VeF, Iceland: Guðrún Nína Petersen  
SMD, Slovenia: Tanja Cegnar

## AWARDS COMMITTEE

Patricia de Rosnay (Chair, France/ECMWF)  
Mojca Dolinar (Slovenia)  
Vincent Guidard (France)  
Anisora Irimescu (Romania)  
Gunilla Svensson (Sweden)  
Carlos Yagüe (Spain)

## TAA COMMITTEE

Robert Mureau (Chair, The Netherlands)  
Sorin Burcea (Romania)  
Paul Halton (Ireland)  
Dominique Marbouty (France)  
Mats Olofsson (Sweden)  
Tarja Riihisaari (Finland)

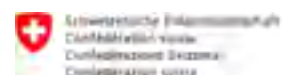
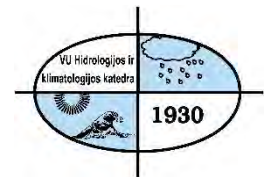
## STAFF

Executive Secretary: Martina Junge  
Assistant: Andrea Oestreich  
Media Assistant: Aaron Dantas  
Tel: +49 – 30 – 838 59431  
e-mail: [ems-sec@emetsoc.org](mailto:ems-sec@emetsoc.org)

The Free University of Berlin kindly hosts the EMS secretariat at the premises of the Institute for Meteorology.



## 12 Member Organisations



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## EMS Member Societies 2021

**ANDORRA** ASOCIACIÓ DE METEOROLOGÍA I CIENCES DE L'ATMOSFERA D'ANDORRA

**AUSTRIA** ÖSTERREICHISCHE GESELLSCHAFT FÜR METEOROLOGIE

**BELGIUM** SOCIÉTÉ ROYALE BELGE D'ASTRONOMIE, DE MÉTÉOROLOGIE ET DE PHYSIQUE DU GLOBE

**BOSNIA AND HERZEGOVINA** UDRUŽENJE METEOROLOGA, U BOSNI I HERCEGOVINI

**BULGARIA** AVIOMETEOROLOGICAL CLUB OF BULGARIA

BULGARIAN METEOROLOGICAL SOCIETY

**CROATIA** HRVATSKO METEOROLOSKO DRUSTVO

**CYPRUS** CYPRUS METEOROLOGICAL ASSOCIATION

**CZECH REPUBLIC** ČESKÁ METEOROLOGICKÁ SPOLEČNOST

**DENMARK** DANSK METEOROLOGISK SELSKAB

**ESTONIA** ESTONIAN METEOROLOGICAL SOCIETY

**FINLAND** GEOFYYSIKKOJEN LIITTO

GEOFYSIIKAN SEURA

**FRANCE** MÉTÉO ET CLIMAT - SOCIÉTÉ MÉTÉOROLOGIQUE DE FRANCE

**GERMANY** DEUTSCHE METEOROLOGISCHE GESELLSCHAFT

**GREECE** ELLINIKI METEOROLOGIKI ETAIREIA

**HUNGARY** MAGYAR METEOROLÓGIAI TÁRSASÁG

**ICELAND** VEDURFRÆÐIFÉLAGIÐ

**ISRAEL** ISRAEL METEOROLOGICAL SOCIETY

**IRELAND** IRISH METEOROLOGICAL SOCIETY

**ITALY** SOCIETÀ METEOROLOGICA ITALIANA

ASSOCIAZIONE ITALIANA DI AGROMETEOROLOGIA,

ASSOCIAZIONE ITALIANA DI SCIENZE DELL'ATMOSFERA E METEOROLOGICA

UNIONE METEOROLOGICA DEL FRIULI VENEZIA GIULIA

**KOSOVO**<sup>1</sup> SINDIKATA METEOROLOGJIKE AERONAUTIKE E KOSOVËS

**THE NETHERLANDS** NEDERLANDSE VERENIGING TER, BEVORDERING VAN DE METEOROLOGIE

**NORWAY** FORSKERFORBUNDETS METEOROLOGIFORENING

**POLAND** POLSKIE TOWARZYSTWO GEOFIZYCZNE – METEOROLOGICAL SECTION

**PORTUGAL** ASSOCIAÇÃO PORTUGUESA DE METEOROLOGIA E GEOFISICA

**ROMANIA** SOCIETATEA METEOROLOGICA ROMANA,

ASOCIAȚIA ROMÂNĂ DE METEOROLOGIE APLICATĂ ȘI EDUCAȚIEDEA

**SERBIA** METEOROLOSKO DRUSTVO SRBIJE, SMAK

**SLOVAKIA** SLOVENSKÁ METEOROLOGICKÁ SPOLOČNOST

**SLOVENIA** SLOVENSKO METEOROLOŠKO DRUŠTVO

**SPAIN** ASOCIACIÓN METEOROLOGICA ESPAÑOLA, ASSOCIACIÓ CATALANA DE METEOROLOGIA

**SWEDEN** SVENSKA METEOROLOGISKA SÄLLSKAPET

**SWITZERLAND** SCHWEIZERISCHE GESELLSCHAFT FÜR METEOROLOGIE

**UNITED KINGDOM** ROYAL METEOROLOGICAL SOCIETY