

The 171st Annual Report of the Royal Meteorological Society for the period 1 January – 31 December 2021

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THE SOCIETY'S MISSION

The Royal Meteorological Society is the UK's Professional and Learned Society for weather and climate and its mission is to advance the understanding of weather and climate and its application for the benefit of all. At the heart of this lies the responsibility for the stewardship of both the profession and science of meteorology. The Society plays a key role as the custodian of both the science and the profession of meteorology in the UK and has an important role to play internationally as one of the world's largest meteorological societies. The Society is owned by its membership but exists for the benefit of all.

PUBLIC BENEFIT

The Royal Meteorological Society is dedicated to providing benefit to the wider public, or sections of it, in achieving its aims. The Charity Act 2011 lists 13 main charitable purposes that would be regarded as 'for public benefit'. In the Society's case, the public benefit of our activities falls into four of these categories.

The advancement of health or the saving of lives

Through partnerships such as the General Aviation Safety Council (GASCo), the UK Flight Safety Committee (UKFSC), and the Royal Institute of Navigation (RIN) as well as many weather service providers, the Society offers support and training for weather-related safety-critical issues. The Society holds weather education seminars and events for operational meteorologists, private pilots and sailors, with the specific purpose of improving safety and reducing the number of accidents and incidents relating to poor weather conditions, which can sometimes be fatal.

In 2021, the Society attended a series of Aviation Safety Information Exchange meetings and GASCo meetings, held a joint training seminar with GASCo for private pilots, held a joint meeting with RIN on Weather and Sailing (<https://youtu.be/GiSFinkVpok>) and held 6 Met Masterclass events for operational meteorologists in partnership with the University of Reading. Many of these events were free to attend.

The Society is the academic partner with EUROCONTROL to support the SKYbrary website (skybrary.aero/index.php/Main_Page) to oversee weather content in order to encourage a meteorological exchange of information with the aim of enhancing flight safety.

While responsibility for implementing and maintaining the Aeronautical Meteorological Personnel (AMP) standards rests with the weather service providers in the aviation sector, the Society continues to provide support and impartial advice where required to enable them to comply with the World Meteorological Organization's (WMO) and the International Civil Aviation Organization's (ICAO) criteria for competence and qualifications.

The advancement of education

The Society's mission has a wide remit that looks to support people's understanding, interest and enthusiasm in meteorology, whether they are research scientists, amateur meteorologists, practitioners or members of the general public. It goes further, supporting the development of high-quality science, the next generation of scientists, the professional development of individuals, accrediting further and higher education courses, informing

policy and supporting learning in weather and climate through education and outreach activities.

The Society works with teachers and students at primary, secondary and higher education levels to promote understanding of weather and climate, and runs interactive projects to both stimulate the interest of students in meteorology and to improve the quality of teaching materials and resources in schools. The Society's aim is to reach every student in the UK so that they leave school with the basic weather and climate literacy to understand the impact of weather on their personal life, leisure activities and employment, and to engage with the climate conversation and make informed decisions about their own opportunities and responsibilities.

In 2021, the Society's relaunched its education website, MetLink (metlink.org), and developed new curriculum focused resources, including some for chemistry, KS3/Core maths, and resources for geography teachers based on the 2021 IPCC report. These free resources are designed for teachers and are accompanied by lesson plans and some short videos or animations that can set the scene in the classroom or when homeschooling.

Other educational resources provided by the Society, including the loan of instruments to schools, are made freely available to all schools. In addition, the Society is also freely providing an increasing number of Continuing Professional Development (CPD) opportunities for teachers who have come to teaching meteorology from a non-meteorological background. The educational focus during 2021 was on the continued support of teachers and those home-schooling due to the COVID-19 pandemic. Our online weather and climate course, Come Rain or Shine, continues to be permanently available and had over 3,000 people interact with it in 2021 and still remains one of the top-rated 'nature and environment' courses on the FutureLearn platform.

In 2021, the Society launched a weather and climate textbook to be used in geography teaching for 11- to 14-year-olds, called "Weather and Climate: A Teachers' Handbook". This resource consists of a printed teachers' guide and an online collection of teaching resources and background information for teachers. The book was distributed to over 3,000 schools across the UK and the resource won a 'Highly Commended' award from the Scottish Association for Geography teachers. In addition, the Welsh exam board, WJEC, translated the Teacher's Guide into Welsh and made it available online to teachers in Wales. We were able to fund this project because of a generous legacy from Colin McKerrow, a member of the Royal Meteorological Society until 2019.

Also in 2021, the Society:

- developed new partnerships with Geography SW and Transform our World which are leading to greater exposure of our resources;
- developed an annual diversity survey of meteorology undergraduates across the UK, launched in September 2021;
- developed a framework for analysing the geographical diversity of the Society's interactions with teachers;
- acted as consultants for a new children's book, 'My First Book of Weather';
- developed new resources which included infographics, films and animations;

- delivered teacher training at ten Universities and one large Academy Trust, making use of the opportunities for online teaching to reach a wider audience than has been previously possible;
- awarded MetMark – our quality mark for weather and climate teaching in schools, to eight schools;
- produced 11 new careers videos on the theme of ‘so you want to do something about climate change.

The Society has an Education Committee with representatives from organisations including the Institute of Physics, the Royal Geographical Society, the Met Office, and the Geographical Association to ensure partnership and collaboration.

At higher education levels, the Society awards financial support to enable students to broaden their studies of meteorological sciences. The Society provides careers information, such as our updated careers booklet rmets.org/careers-meteorology-guide published in 2021. It also helps with the development of careers in meteorology through its work on National Occupational Standards in meteorology as part of the Regulated Qualifications Framework (RQF), which provides the structure for creating and accrediting qualifications. The Society is recognised in European and UK law as both the Competent Authority and the Regulatory Body for Meteorology in the UK, and offers independent recognition and regulation around training and professional development for meteorology and meteorologists. The Society’s accreditation framework offers individuals a range of recognised vocational qualifications, professional registration and chartered status as well as related CPD opportunities. The Society offers a number of CPD opportunities through the events programme, scientific journals and volunteering.

[The advancement of the arts, culture, heritage or science](#)

One of the Society’s charitable objectives is to promote the advancement and dissemination of knowledge and education in science for public benefit. The Society aims to advance professionalism in meteorology through the Chartered Meteorologist and Registered Meteorologist accreditation schemes which recognise high professional standards and competencies and follow an established code of conduct. The Society sets standards for CPD, and professional conduct and performance, so that meteorologists are empowered to conduct high-quality, ethical work consistently throughout their careers. The Society works with professional bodies, government, employers and national academies, and aims to ensure the workforce across the meteorological community reflects the diversity of society.

The Society publishes eight world-leading scientific journals, including our recently launched new journal Climate Resilience and Sustainability. These are made available free to developing countries through publishing aid programmes and to the World Meteorological Organisation’s (WMO) Regional Training Centres. Half of our portfolio is fully open access providing free access to important science to readers.

The Society has a curation programme for a historical and culturally valuable archive of documentation on behalf of the UK. Most of our important artefacts are held at the National Meteorological Library and Archive in Exeter, with many articles being digitised to make them accessible to all. The Society also owns a set of cloud study drawings (c1803-1811)

produced by Luke Howard, famous for naming the clouds, which are held in the archives at the Science Museum and are regularly exhibited.

The Society runs a comprehensive events programme, which is open to all with an interest in weather and climate. This includes free public meetings to encourage a focus on global, national and local issues, and also conferences to bring about the advancement in the understanding of meteorology as a science, through its applications and as an interest to all. Prior to the COVID-19 pandemic, the Society was live-streaming some of its face-to-face events, but during 2021 all our events have been fully virtual making them more accessible to wider audiences.

The Society hosts an annual Student and Early Career Scientists' Conference that brings together those involved in graduate and post-graduate studies, as well as early-career scientists from the UK and internationally, to create a community of young scientists and to give them experience in active participation in scientific conferences. In 2021 the conference was a virtual 2-day event attracting students and young scientists from the UK and from around the world, including Argentina, Ghana, India, Turkey and Senegal.

The Society offers grants and bursaries to encourage interaction between scientific groups both in the UK and internationally, to allow attendance at meetings and conferences, and more recently, due to the travel restrictions relating to the pandemic, to fund small research projects.

The Society's Special Interest Groups deliver events and other activities to facilitate the exchange of information and views within specific areas of meteorology. The groups are primarily a way of communicating at a specialist level and include areas such as the History of Meteorology and Physical Oceanography, Atmospheric Electricity, Climate Science, Weather, Art and Music (WAM) and Meteorological Observing Systems.

[The advancement of environmental protection or improvement](#)

The Society is at the heart of the debate on climate change. It plays a particularly important role in communicating some of the more complicated scientific and technical issues to the public at large, enabling them to understand and engage with what is one of the most important global issues that we face today. This role is overseen by the Society's Science Engagement Committee, which aims to sustain, encourage and progress activity in climate science and its relevance to society.

The Society had a very busy year in 2021 as it prepared for and attended COP26 which took place in Glasgow in November. Some of the activities included:

- publishing a Joint International Climate Communiqué and five new climate briefing papers;
- hosting a virtual one-day event on the IPCC's AR6 Working Group 1 report;
- producing two video bulletins each day at COP26 for schools and the public reaching an estimated 50,000 young people;
- hosting a joint Green Zone exhibition stand with UKRI and the Met Office;
- producing two articles for BBC Bitesize;
- delivering climate change communication training to ITV; and

- responding to numerous media requests.

A fuller list of COP26 activities is presented in the highlights section of this report and in the annexes to this summary. The Society has observer status at COP events. In November, four members of staff and a volunteer attended COP26 in Glasgow, where they participated in formal meetings and provided valuable input into the negotiation process through the constituencies. The Society's attendance at COP26 will have an ongoing, valuable contribution to its work, through new partnerships which have emerged and ideas that were developed.

The Society provided support by chairing an expert panel for the Jersey Citizens Assembly on Climate Change hosted by the Government of Jersey during the first half of 2021. The Assembly was a 'people-powered' approach, giving the islanders living on Jersey a say over when and how the island should become carbon neutral.

In 2021 the Society delivered several outreach and engagement activities that promote public interest in the environment:

- The launch of MetMatters rmets.org/metmatters in April 2021 (following the review and rebrand of theWeather Club) after integrating the content into the main Society website.
- the Weather Photographer of the Year Competition ran for the sixth year in 2021 and this was the third time it has been supported by AccuWeather. We received over 8,900 photos from over 3,300 photographers around the world. A new mobile phone category was introduced for 2021 and after announcing the competition shortlist, over 12,300 votes were cast by the public.

The Society's website rmets.org has a wide range of information and content that is freely available to all with an interest in the Society and in meteorology. The Society continues to invest significantly in making its website more accessible and informative, providing a wide range of freely available educational, scientific and professional material.

PRESIDENT'S FOREWORD

Well COVID-19 didn't go away in 2021, so my presidency has been a continuation of emails, online meetings and Zoom calls. It is an enormous regret that I must be the most invisible President the Society has ever had. Being a public face of the Society is normally a critical role of the President and by not being able to meet people in person I feel that I have only been doing half the job. But on the bright side, the Society and its staff have managed to maintain, and in many cases expand, the number and range of activities undertaken this year.

It is unfair, to pick out some activities to highlight here, but I am going to do it anyway. The annual State of the UK Climate report published in International Journal of Climatology (IJOC) resulted in over 1,100 news items. Throughout the COP meeting in Glasgow the Society produced two video bulletins each day, one for schools and one for the public as well as a COP26 newsletter. The Society continued to deliver climate change communication training to ITV throughout 2021. MetMatters was launched in April 2021 (following the review and rebrand of theWeather Club) after integrating the content into the

main Society website. The Weather Photographer of the Year Competition continues to grow in size and profile, receiving over 8,900 photos from over 3,300 photographers around the world and with over 12,300 votes cast by the public. The weather and climate textbook “Weather and Climate: a Teachers’ Guide” was distributed to over 3,000 schools across the UK. The online weather and climate course, Come Rain or Shine, remains permanently available and was taken by well over 3,000 people in 2021.

Obviously COVID-19 had a massive impact on events this year with no face-to-face meetings possible. Despite this, the number of attendees for 2021 showed a significant increase from 2020. The Atmospheric Science Conference returned this year, held across 3 working days, having been postponed in 2020. The Student and Early Career Scientists Conference held parallel sessions, allowing more students to present their work. With the support of others, the Society hosted a virtual one-day event on the IPCC’s AR6 Working Group 1 report, with over 400 live attendees. The Local Centres and Special Interest Groups have continued to organise meetings across the UK with a wide variety of talks which have attracted attendees (and speakers) from all over the world.

As the learned Society for weather and climate, it is important that we practice what we preach. I am therefore particularly pleased that the Society made a commitment to achieving net-zero direct carbon emissions (Scope 1 & 2) by 2025.

So, despite the uniquely difficult circumstances, the Society continues to go from strength to strength. But this has only been possible through the extraordinary efforts of the staff and the unstinting support from you, our members, for which I am eternally grateful.

I thoroughly commend to you our Annual Report for 2021.

Prof Dave Griggs FRMetS

Date 20 April 2022

THE YEAR JANUARY TO DECEMBER 2021

A brief review of the highlights.

Another record-breaking year, despite 2021 being rather an average year on the whole for the UK, with annual temperature, rainfall and sunshine amounts being close to the norm. The year ended with a daily record being broken on New Year’s Eve as the UK experienced its highest ever temperature on that day. Other notable events during the year included wintry weather with snowfalls during January and February, a hot spell in July leading to the issue of heat health warnings, heavy and persistent rain in northern England and southern Scotland in late October, and significant disruption caused by Storm Arwen in late November for which a rare red weather warning was issued. April 2021 was exceptionally dry and sunny with only 28% of normal rainfall for the UK overall for that month and it was the sunniest April on record in a series from 1919.

It was another challenging year for the Society, as it has been for us all, due to the impact of COVID-19. The main impacts to Society activities were again for our events programme to be unable to host in-person meetings and staff continuing to work from home for a large part of the year. Despite the challenges, the Society has continued to deliver the vast majority of

its activities including hosting over 50 virtual meetings, conferences or seminars during 2021.

A priority for 2021 was the Society's involvement in the run-up to and during COP26. Activities included:

- The Society has observer status at COP events and in November, sent four members of staff and a volunteer to COP26 in Glasgow for two weeks. The team attended to participate in the formal meetings and input into the process through the constituencies;
- Produced two video bulletins each day of COP26, one for schools and one for the public, as well as a COP26 newsletter. The schools' bulletins were shown in assemblies, lessons and during registration with over 5,000 unique views during the event, reaching an estimated 50,000 young people. The purpose was to engage young people with the COP process and create a lasting legacy;
- Delivered climate change communication training to ITV throughout 2021, with the help of climate scientists and policy experts;
- On World Meteorological Day, the Society released a Joint International Climate Communiqué with 42 other national meteorological societies and organisations working on climate and sustainability www.rmets.org/news/joint-international-climate-communicue. The communiqué reiterated the critical importance of addressing climate change and was one of the top three news stories published in 2021 on the Society website;
- Published five new climate briefing papers in Weather with accompanying podcast episodes. These were promoted in the run-up to and around COP26;
- Hosted a virtual one-day event on the IPCC's AR6 Working Group 1 report, with the support of the Grantham Institute, BEIS, the Met Office and National Centre for Atmospheric Science (NCAS). It was multidisciplinary with over 400 individuals attending live. This event was followed up by a 2nd workshop held on the 17 September 'Responding to the Climate Crisis' led by the Grantham Institute;
- Joint hosted a Green Zone exhibition stand with UKRI and the Met Office, where various resources were showcased to the public, including our 3D model of the Central England Temperature record.
- Produced two articles for BBC Bitesize – one on the goals of COP26 and benefits of meeting them, and the other on careers in climate;
- Published COP26 journal special issues;
- Partnered with BBC Bitesize to produce content: 'COP26: What are its aims and how do we meet them?' and partnered with the Science Council's 'Connected for COP26' campaign with blogs and glossary content;
- Hosted an in-person networking event for members at COP26.

In 2021 membership totals saw a promising rise after recent years of decline, with a 3.7% increase in membership (3,278 members). Membership development remains one of the strategic aims of the Society focusing on retention and new member acquisition through a series of activities. Retention rates increased by 7% to 98% in 2021, which is all credit to the hard work of the membership team. An upgrade to the Society's membership database has led to an improvement in tracking member recruitment, follow-up opportunities and member engagement. In 2021, the Society introduced a new member welcome telephone campaign,

contacting over 300 new members. The Society's membership is made up of amateurs (25%), practitioners (30%), academics (30%) and students (15%).

The Society is extremely grateful for the continued support from an active and engaged community of volunteers, with approx. 300 involved on the Society's committees or contributing in other ways. This important contribution from volunteers allows the Society to successfully achieve many of the activities highlighted in this annual report.

The Society gave 188 media interviews in 2021 leading to 2,531 items of media coverage mentioning the Society (compared to 1,650 items in 2020), website users grew by 210% and page views by 77% in 2021, social media presence continued to grow with 14,116 followers on Twitter, 6,154 on Instagram, 4,474 on Facebook and over 2,000 followers on LinkedIn. The Society published its first impact report in June 2021 to showcase the work of the Society based on the 2020 Annual Report. New online content, videos and podcasts helped to increase our public engagement. We reached wider audiences attending our events and experienced a 10% increase in the number of accredited meteorologists to 195 in 2021.

The Society launched its latest 3-year strategic plan at the start of 2021 including a summary document, infographics and a video from the Chief Executive and President as part of the launch rmets.org/strategic-plan.

In 2021, the Society completed the Science Council Equality, Diversity and Inclusion (EDI) progression framework, refreshed its EDI committee, provided EDI opportunities for learning and development for its staff, and embedded EDI activities with partners. The Society's Council has long championed the benefits of diversity in decision-making and conducts an annual skill and EDI audit. The current Council membership has an equal gender balance, with some representation from ethnically diverse communities and sexual orientation.

The Society joined over 100 signatories on the [Pledge to Net Zero](#), [CAFA](#) (Climate Action For Associations), and helped develop and signed [The Charter for Climate Action](#) in 2021. The Society is committed to achieving net-zero direct carbon emissions (Scope 1 & 2) by 2025, where there is direct control through avoiding, reducing and substituting. It is also working towards net-zero indirect emissions (Scope 3) by 2030, subject to a full feasibility assessment. The Society has already cut its scope 2 electricity emissions to net-zero by switching to a 100% renewable energy tariff, switching to efficient lighting and installing solar panels on the roof to contribute to its energy demands. During 2021, the Society supported the Government of Jersey with the Jersey Citizens Assembly on Climate Change.

The Society continues to strengthen its relationship with strategic partners from a range of organisations including academic institutions, business and industry, NGOs and government to support the delivery of its charitable objectives.

Scientific publishing is one of the Society's strengths and aims to deliver a high-quality portfolio of journals and book programme to support scientific knowledge management and promotion of the science. Income from scientific publishing makes up a significant portion of the Society's total income and allows the Society to deliver several other important

programmes of work and charitable activities. In 2021, the Society worked with Wiley to launch a new open-access journal Climate Resilience and Sustainability. In partnership with the Natural History Museum, the Society published a book called Weather: A Force of Nature presenting the most powerful and dramatic images from the Weather Photographer of the Year competition.

The year was again dominated by the impacts of COVID-19; despite these challenges and because of the determination and flexibility of the staff and volunteers, the Society has managed to deliver the vast majority of activities we planned to do in 2021. The Society continues to be in a strong financial position. However, the next few years remain challenging from the long-term impacts of COVID-19, with pressures on income across the meteorological community and from scientific publishing due to the move to an Open Access model; the Society will enter this period on a firm financial footing.

FINANCE

The Annual Accounts for the year ending 31 December 2021 are published separately from this Annual Report in line with the requirements of the Charity Commission. The Auditors' report is on page 1-2 of the Accounts and certifies that in their opinion the financial statements give a true and fair view of the Society's affairs and of its income and expenditure for the year then ended.

The Society continues to be in a good financial position and total reserves at 31 December 2021 are £2,737,220 (2020: £2,515,308).

The operating surplus of the Society in 2021 was £115,849 (2020: £85,747) which exceeded our budget for the year. We have been fortunate that historical income streams have not been substantially affected by the pandemic although there has been a consequential delay in our progress towards income diversification. Investment gains of £106,063 (2020: loss £9,211) were recognised, this increase in the value of investments reflects the recovery in the investment market over the year to 31 December 2021.

The Society's scientific publications made up over 70% of our income, providing £814,515 (2020: £842,850), the 3% reduction in the year reflects adverse exchange rates and a continuing reduction in subscription income. Non-subscription publishing income from institutions has again made an important contribution and Open Access income is slowly increasing reflecting the gradual move away from traditional subscription journals. Other publishing activities such as the calendar and books contributed £14,154 (2020: £7,862). The associated expenditure on publications was £191,786 (2020: £161,972).

The total Membership Subscription income including Gift Aid and Accreditation Fees increased to £237,379 (2020: £204,604) with encouraging increases in individual membership income and associated Gift Aid. During 2021 staff have continued to develop the strategy and direction for the future, emphasis continues to be placed upon addressing the anticipated trend of falling individual membership numbers and re-invigoration of sustainable partnerships with corporate members. The pandemic has meant that the opportunities to maximise the financial impact of these initiatives have been more limited, but there is clear evidence that the public and professional profile of the Society continues to be

raised by increased digital and media communication. Conferences and meetings have successfully been run on virtual platforms which has resulted in reduced income but a corresponding reduction in costs associated with venues, speakers and travel.

The notes in the separate Annual Accounts provide more insight into the detailed figures and the way these have been compiled.