



**Meteorological Observing Systems
Special Interest Group**

Newsletter Issue 54

Spring 2024



Contents

Introduction	3
Summer Visit to Eskdalemuir Observatory.....	4
News from the Committee.....	5
Dobson spectrophotometer automation at Halley station in Antarctica	6
Manufacturer Article	8
Committee Members Short Biographies - Part 1.....	9
Committee Meeting Minutes	11
Autumn Committee Meeting	11
Annual General Meeting	14
Spring Committee Meeting	16
Group Officers.....	18

Front Cover Photo – Dobson spectrophotometer. Source: © Crown Copyright. Information provided by the National Meteorological Library and Archive – Met Office, UK.

You can now find us on X (formerly known as Twitter)!

https://twitter.com/RMetS_MetObs

Introduction

Welcome everyone to the 54th edition of the Meteorological Observing Systems Special Interest Group newsletter.

We hope you find this edition of the Newsletter informative!

Steve Turner, Newsletter Editor

Group Website: Members are encouraged to regularly check the Group's pages on the RMetS website at [Meteorological Observing Systems | Royal Meteorological Society \(rmets.org\)](http://Meteorological Observing Systems | Royal Meteorological Society (rmets.org)) for details of meetings and booking information, including on-line registration for meetings. Whilst every effort is made to publicise meetings via the inserts in Weather magazine and the Newsletter the website is the quickest medium of communicating with you.

Have Your Say: This is your Group, and your Officers are always happy to receive feedback about what is being done on your behalf. If you have any comments or suggestions on matters relating to the Group and our activities, please do not hesitate to get in touch with any Officer. Contact details are shown on the last page of the Newsletter. Suggestions for future meetings and speakers and items for the newsletter are always very welcome.

Material for Publication: Written material must be in electronic format, preferably in MS Word or Excel, although PDF format can be accepted. Digital image format should be JPEG (preferable) TIFF or BITMAP. Short news items as email are acceptable. Material can be sent as email attachments to stetur@ceh.ac.uk. In all cases please include your name, address and email or telephone number with submissions.

Publication deadlines are 29th February for Spring/Summer Newsletters and 30th September for Autumn/Winter Newsletters.

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Summer Visit to Eskdalemuir Observatory

A summer visit to Eskdalemuir Observatory will take place on **Wednesday 24th July 2024 commencing at 11am**. Following presentations about the history, meteorological and geological work carried out at Eskdalemuir Observatory there will be a site tour of the Meteorological and British Geological Survey facilities including the small museum which houses a collection of instruments, photographs, and historical documents. The tour will last approximately 2hrs.

Eskdalemuir Observatory is situated in the Southern Uplands of Scotland and is a synoptic meteorological station involved in measurement of solar radiation, levels of atmospheric pollution, and in chemical sampling. The observatory operates a US standard seismograph and an International Deployment Accelerometer Program long-period sensor. The British Geological Survey has a broadband three-component seismometer set installed at the observatory and records data from four remote sites transmitted to the observatory by radio link.

The observatory opened in 1908. It was built because of disruption to geomagnetic measurements at Kew Observatory following the advent of electric tramcars at the beginning of the 20th century. BGS took over responsibility for magnetic observations from the Meteorological Office in 1968.

Due to its remote location, members are advised to wear stout footwear and bring waterproof clothing, you will also need to bring your own food and drink if required. There is a Community Hub nearby which houses a café approximately 3 miles from the observatory.

Address. Met Office, Eskdalemuir Geomagnetic Observatory, Langholm, Dumfriesshire, DG13 0QW.

The observatory is approximately 1.5 hours' drive by car from Glasgow Airport and 2hrs by car from Edinburgh Airport.

Eskdalemuir Community Hub - The School, Eskdalemuir, Langholm DG13 0QJ



News from the Committee

Mark Dutton has been the Newsletter Editor for the RMetSoc Meteorological Observing Systems Special Interest Group for 14 years and has decided to hand over the role.

From this issue (54), Steve Turner (UK Centre for Ecology & Hydrology) will start the role as Newsletter Editor going forwards.

We would like to thank Mark for his dedication and hard work in curating our newsletter over the years and are pleased that he will remain on the committee going forwards.

In our next Issue Autumn/Winter 2024/2025, we would like to hear from you, our members! Do you have some interesting stories, data problems, new equipment, or anything else you think relevant that you would like to share with the group?

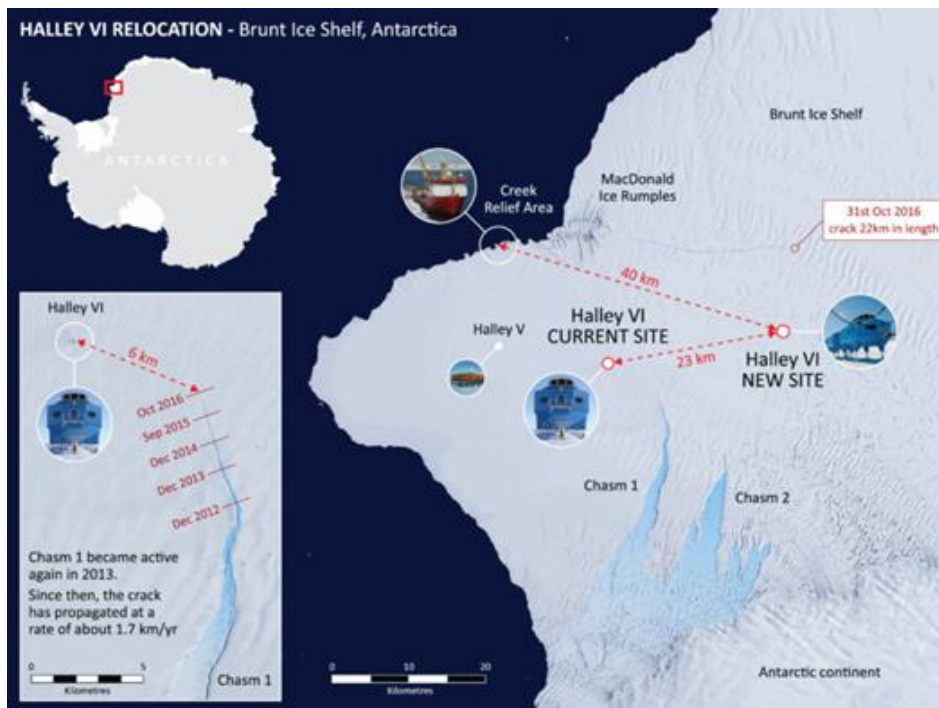
Please send items for inclusion in the newsletter to stetur@ceh.ac.uk, preferably in MS Word. We would encourage you to send images alongside text. Digital image format should be JPEG (preferable) TIFF or BITMAP. Short news items as email are acceptable.

Finally, the committee has set up a [Shared Drive](#) to house the minutes from committee meetings.

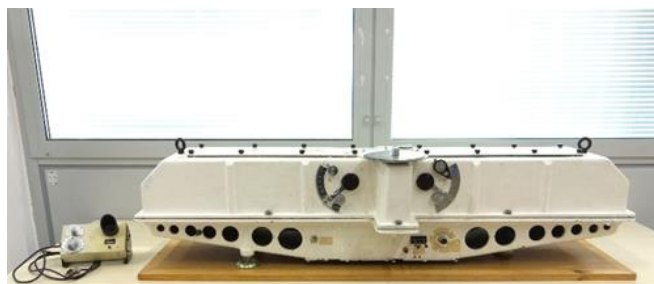
Dobson spectrophotometer automation at Halley station in Antarctica

By Steve Colwell, BAS

The British Antarctic Survey has been making ozone measurements at Halley station in Antarctica using a Dobson spectrophotometer since 1956. It was data from these instruments at Halley that BAS scientist used to discover the hole in the ozone layer over Antarctica.



In October 2016, a crack formed in the floating ice shelf that Halley station is on, and this led to the decision to not have a wintering team at Halley for safety reasons.



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The Dobson spectrophotometer is a very manual instrument and requires an operator to move dials to make the measurements see picture left.

Two types of measurements are made, the first is a direct sun measurement using a periscope and a sun director with a quartz prism in it to bring sunlight directly into the top of the instrument. The second type are zenith measurements using the scattered sunlight coming into the top of the instrument.

To maintain the data record from Halley a microturbine was installed to supply mains power and one Dobson spectrophotometer was automated to operate in zenith mode by using servos to control the dials that are normally operated by a person.

The final part of the project is to install a second automated Dobson spectrophotometer that will operate in direct sun mode, this is being developed in Cambridge at the moment and it is hoped that it will be installed at Halley in the 2025/26 Antarctic summer season.



Manufacturer Article

Vaisala has launched the new Radiosonde: RS41 E-models.

The environmental impact of radiosondes mainly comes from batteries, electronics and mechanics. The new model includes the BioCover™, Vaisala's patent-pending, plastic-free and biodegradable radiosonde cover, and insulation, and BioTwine™, the plastic-free and biodegradable unwinder twine leading to 66% less plastic waste.

According to the manufacturer, RS41 E-models can replace standard RS41 radiosondes in operational use, with the same performance and accuracy.

More information is available in [Vaisala's website](#).

Committee Members Short Biographies - Part 1

Steve Colwell

Steve has worked for the British Antarctic Survey (BAS) for over 30 years. He overwintered at Halley research station in 1991 and has returned to Antarctica 10 times since for Antarctic summer seasons. He is currently head of meteorology and ozone monitoring (MOM) at BAS which is responsible for its operational meteorology program. He is actively involved with the World Meteorological Organisation (WMO) and sits on the Antarctic Advisory Group and the Global Cryosphere Watch steering committee. He is also actively involved with the Scientific Committee on Antarctic Research (SCAR) and chairs its expert group on operation meteorology in the Antarctic. He was awarded a Polar Medal in 2012 for services in the Antarctic which he received from the Queen at Buckingham Palace.

Mike Brettle

I am a chartered meteorologist and fellow of the Royal Meteorological Society. I've worked for the British Antarctic Survey, the Met Office, Vaisala and Campbell Scientific all in roles based around meteorological instrumentation of varied kinds. I also have interests in sailing meteorology and more recently applying real time data to assessing risks from airborne plumes. I've been involved in the RMetS and this group for most of my career.

Stephen Burt

Stephen began his career in the Met Office in 1977. His research interests focus on case studies of notable British and Irish weather events, data rescue and analysis of long climatological series within the British Isles, and objective laboratory and field analyses of performance and reliability of surface-based meteorological instruments. He has an MSc in Applied Meteorology and a PhD in Meteorology from the University of Reading, and is a Fellow of the Royal Meteorological Society, a member of the American Meteorological Society and the Irish Meteorological Society. He has over 50 peer-reviewed papers and five books to his name, including *Oxford Weather and Climate since 1767* (Oxford University Press, with Tim Burt) and *The Weather Observer's Handbook* (Cambridge University Press). He retired from the University of Reading in 2018, where he remains an active Visiting Fellow.

Keri Nicoll

I'm an associate professor in the Department of Meteorology at the University of Reading. My research mainly focuses on making measurements and developing instrumentation for aerosol, cloud and atmospheric electricity research. I work a lot on airborne observations, making regular balloon flights with radiosondes instrumented with specially designed sensors, unmanned aerial vehicles, and more recently manned aircraft. My research has led to field campaigns all over the world to study space weather in Antarctica, electrified volcanic ash from Stromboli volcano, and charged dust plumes in the United Arab Emirates.

Ian Strangeways

Ian Strangeways has a degree in electronics and a PhD in meteorological instrumentation. He is not a meteorologist or hydrologist but came into these fields as an instrument-designer, at the Institute of Hydrology (IH), now CEH. Here he developed (probably the first) modern Automatic Weather Station. He also developed instruments for measuring a variety of hydrometeorological variables. He worked overseas on many hydrological projects, some involving the development of new sensor-systems, and for data-telemetry from remote areas. Since leaving IH, he has continued the same work under the name of TerraData, including further overseas projects and the development of an aerodynamic rain gauge. He is author of three books for CUP, and numerous papers for *Weather*. He is a Fellow of the RMetS and of the Royal Astronomical Society. (www.ianstrangeways.uk)

Mike Molyneux

Mike has worked at the Met Office since 1979 and currently is a specialist on Automatic Weather Station measurements. In that time he has worked on 2 generational upgrades of the UK 24/7 AWS systems known as MMS and SurfaceNet. In addition he has led sensor integrations to the network such as cloud base recorders and visimeters. Other projects have included Studies of Citizen Science Weather Station quality, Uncertainty of measurements from operational AWS, Dobson spectrophotometer total ozone measurements in UK and Kilometre scale dispersion field experiments.

International role

- WMO expert team, most recently facilitating workshops on transition to automation.
- EUMETNET working group on instruments.

We will hear from the rest of the committee in our Issue 55 - Autumn/Winter 2024/2025.

Committee Meeting Minutes

Autumn Committee Meeting

Thursday 14th September 2023 at 13:00 at the society headquarters and online

Minutes

1. The chair opened the meeting by thanking everyone for coming along and especially thanked Mike Molyneux and Ali Price for joining the committee.
2. Apologies
 - Katie
3. Minutes of last meeting
 - Agreed
4. Chair's Report
 - Attended one meeting of the meetings committee since the last SIG committee meeting.
5. Treasurer's Report
 - Our financial position remains good.
 - We can pay reasonable expenses if required to invite speakers to meetings who otherwise may not attend and to support activities that the committee might deem worthwhile and relevant but unlikely to proceed without our support.
 - Membership stands at 47.
6. Newsletter Editor's Report
 - Spring/Summer 2023 Newsletter contained the following:

Meeting Report – Making Weather and Climate Measurements in Difficult Places

Meeting Report – Summer Visit to Eskdalemuir Observatory

Scientific Article – Probing turbulent processes in the atmosphere.

- Autumn/Winter 2023 ideas:

It was suggested that we put in the biographies of all the committee members, 200-word limit.

Steve to write an article about the automation of the Dobson spectrophotometer.

Mark is going to the Met Expo in Geneva in October and said he would be able to write about some of the exhibitors.

Any other ideas welcome

7. Committee membership/recruitment

- It would be good to get more representation from early career researchers and also students.

8. The UK Climate Extremes Review Committee: Membership and topics.

- Discussions are still ongoing.

9. Review SIG TOR's and text on the society website

- People can send suggested changes to Stephen by the end of September.

10. Past meetings

- None

11. Future Meetings

(a) Meteorology for transport

- Dave is still in discussion about this.

(b) Other suggestions

- UAV measurements.
- Measurements in back gardens and WOW.
- Measurements in war zones.
- Measurements from automated cars.

12. Possible visit to Eskdalemuir Observatory

- It was felt that the date in July that has been suggested is too late as it clashes with the start of the summer school holiday, Steve to contact Richard to see if dates in May or June are possible.

13. Any other Business

- We still need to have an AGM; this will be held online, and Steve will send round some dates to see which work for the committee.
- Steve suggested arranging a group dinner in Reading after the next committee meeting.

14. Date and venue of the next committee meeting

- Steve to check room availability at the main society in February and avoid the February half term.

Annual General Meeting

Held from 12.00 to 12.20 on Wednesday 1st November 2023 via zoom.

Minutes

1. Apologies.
 - a. Katie Muchan, Keri Nicoll, Anthony Stickland, Trevor Goodall, Alan Hiscott, and Richard Griffith.
2. Minutes of last AGM (via Teams on the 27th September 2022)
 - a. These were agreed.
3. Chair's Report.
 - a. There have been 3 committee meetings since the last AGM on the 27th September 2022 just after last year's AGM and also on the 20th April and the 14th September this year.
 - b. I have also represented the SIG at 3 meetings of the meeting and conference committee.
 - c. We have run one in person event since the last AGM which was the meeting on "Weather and climate measurements in difficult places" which was held in Cambridge on the 14th March.
4. Treasurer's Report.
 - a. Membership numbers steady and finances still good
 - b. We spent about £700 on the 'Making Weather and Climate Measurements in Difficult Places'. Meetings such as this are of course one of the main reasons we have membership fees.
 - c. We can pay reasonable expenses if required to invite speakers to meetings who otherwise may not attend and to support activities that the committee might deem worthwhile and relevant but unlikely to proceed without our support.
 - d. The committee would welcome suggestions from the wider membership.
5. Newsletter Editor's Report.
 - a. So far in 2023 we have produced one newsletter (Spring/Summer edition) and are currently planning the Autumn/Winter edition. I would like to thank the committee and members for their support in the production of the newsletter.
 - b. Spring/Summer 2023 Newsletter (the last edition) covered:
 - i. Meeting report on "Making Weather and Climate Measurements in Difficult Places."
 - ii. Meeting report on "Summer Visit to Eskdalemuir Observatory."
 - iii. Article "Probing turbulent processes in the atmosphere."

- c. Autumn/Winter 2023 Newsletter articles:
 - i. Introduction to the committee members - including short biographies.
 - ii. Any other ideas still welcome?
- 6. Election of Committee.
 - a. Welcome to Mike Molyneux and Ali Price who have joined the committee, Simon Bell is stepping down and the committee would like to thank him for all the effort that he has put in while on the committee for the past 7 years.
- 7. Election of Officers.
 - a. Steve is happy to stay on as chair.
 - b. Mike is happy to stay on as treasurer.
 - c. Mark is handing over the newsletter editor position to Stephen Turner.
 - d. We are still looking for a secretary.
- 8. Past meetings.
 - a. Weather and climate measurements in difficult places on the 14th March 2023
 - i. It was felt that this was a very successful meeting with about 40 people attending in person and most of them visiting the SPRI museum after the meeting. It was felt that the charges from SPRI to cover the meeting were very reasonable.
- 9. Future meetings, some ideas being considered are:
 - a. Meteorology for transport
 - b. UAV measurements.
 - c. Measurements in back gardens and WOW.
 - d. Measurements in war zones.
 - e. Measurements from automated cars.
 - f. A visit to Eskdalemuir Observatory on the 24th July 2024 has been organised by Richard Griffith.
- 10. Any other Business.
 - a. None.
- 11. . Date and venue of the next AGM.
 - a. To be discussed at the next committee meeting.

Spring Committee Meeting

Tuesday 27th February 2024 at 14:00 at the society headquarters and online

Minutes

1. Apologies
 - Katie and Ali
2. Minutes of last meeting
 - Agreed
3. Chair's Report
 - The chair attended one meeting of the meetings and conferences committee since the last SIG meeting.
4. Treasurer's Report
 - The financial situation is still good and membership at 45.
5. Newsletter Editor's Report
 - In Spring/Summer 2023 we produced a newsletter as planned. I would like to thank the committee and members for their support in the production.
 - Spring/Summer 2023 Newsletter contained the following:
 - Meeting Report – Making Weather and Climate Measurements in Difficult Places
 - Meeting Report – Summer Visit to Eskdalemuir Observatory
 - Scientific Article – Probing turbulent processes in the atmosphere.
 - Autumn/Winter 2023 Newsletter draft contained the following:
 - Summer Visit to Eskdalemuir (2024)
 - Committee Members Short Biographies. Half received. Half still to be done. Could split between editions.
 - Steve to write an article on the automation of the Dobson ozone spectrophotometer.
6. Committee membership/recruitment

- It would be good to get a student or early career scientist on the committee.

7. Review SIG TOR's and text on the society website

- The new TORs were agreed with one minor change to clarify the status of the TORs for the UK weather extremes review committee, Steve to contact the main society to get the TOR's updated on the website.

8. The UK weather Extremes Review Committee: Membership and topics.

- The TORs for this are still being discussed.

9. Past meetings

- None

10. Future Meetings

- There was some discussion about holding a 1-day mini conference in September where members of the SIG could give either an oral presentation or a poster.
- Stephen Burt to check the availability of the conference room at Reading on Thursday 12th September and Steve Colwell to check with the society if they can create a web page to allow people to register for the event and indicate if they wish to present.
- Keri to contact Ben Pickering to see if he would be able to do a talk about UAV's.
- Steve Colwell to find out details about the BAS Windracer UAV.
- There will be an online meeting of the committee at 2pm on the 25th of April to discuss it in more detail.
- It is hoped that this can then become an annual event.


11. Any other Business

- None

12. Date and venue of the next committee meeting

- Steve to check availability of the meeting room at the Society from mid-May until early June.

Group Officers

Chairman and Acting Meetings Secretary	Treasurer & Membership Secretary	Newsletter Editor
 <p>Steve Colwell British Antarctic Survey Madingley Road Cambridge. CB3 0ET Tel: 01223 221483 src@bas.ac.uk</p>	 <p>Mike Brettle 94 Countrymans Way Shepshed Loughborough Leics. LE12 9RB mike.brettle@hotmail.com</p>	 <p>Steve Turner UK Centre for Ecology & Hydrology Maclean Building, Benson Lane, Crowmarsh Gifford, Wallingford. OX10 8BB, UK Tel: 01491 692555 stetur@ceh.ac.uk</p>
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 <p>Katie Muchan Environment Agency (EA) katie.muchan@environment-agency.gov.uk</p>	 <p>Ian Strangeways Terradata 7 Cherwell Close Thames St, Wallingford Oxfordshire. OX10 0HF Tel: 01491 839398 ian.strangeways@ntlworld.com</p>	