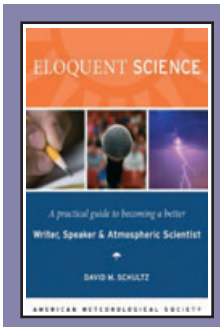
Book review



Eloquent Science. A Practical Guide to Becoming a Better Writer, Speaker & Atmospheric Scientist

By David M. Schultz

American Meteorological Society, 2010
Paperback £31 (Amazon)
412 pages +xxviii
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This is a highly commendable book to bring to a market where literary standards so often leave much to be desired. As the author states in the introduction *whether I am serving as a voracious reader of the scientific literature, as a reviewer for manuscripts submitted to scientific journals, or as an editor for one of four scientific journals, many papers I read lack sound scientific knowledge, properly constructed arguments, and basic language skills*. This is no less true of material submitted to *Weather* – many articles require significant rewriting before they can be published.

Through this book, the author aims to excite *you about your writing and presentations, encouraging you to make them better, interesting, and unique*. He does not claim infallibility. *Many ways exist to write a journal article or make a presentation. Not every technique will work for every person or in every circumstance. Some people can deliver humour in their presentation flawlessly. Others should not even try.* What he does do is give the reader plenty to mull over as he highlights the traps to avoid – be they grammatical, a lack of clarity, or plain and simple dullness – and puts forward a host of ideas to improve both written and verbal presentations in science. An appendix covers *commas, hyphens, and dashes* – the title of which illustrates that there is no single opinion on the subject of expert writing: you do not need the comma after 'hyphens' – just as you do not need it in the last part of the first and second quotes above. In the words of our Senior Production Editor, commas should only be used to 'disambiguate' – a new word to the Editor, but it does exist and the sense is clear and beyond argument.

So the discerning reader will not agree with everything in this book, but this should not disguise the absolute requirement for careful preparation of all scientific material, whether written or verbal, so that it is clear, unambiguous and interesting throughout. It is never easy to do this, but why should it be? No one has a right to have their material published and we must all, forever, be seeking to improve. *Weather* will be a better journal if intending authors study this (and similar) books.

Bob Prichard

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Readers' forum

Readers are invited to contribute short questions on any meteorological topic. We will endeavour to obtain answers to all submitted questions.

Contrasts between air and grass minimum temperatures

I have for some time been puzzled by the variations between the lowest (air) minimum temperature and the number of ground/grass frosts noted in the Climatic Data pages of *Weather log*.

For example in the log for September 2010, Lowestoft had a lowest air minimum of 5.4°C and one ground frost, Valley had a lowest temperature of 5.1°C and two ground frosts – and Aldergrove a minimum of 2.9°C but no ground frosts.

I would appreciate an explanation of these variations.

Richard Irvine

Reply by Roger Brugge, editor of the *Climatological Observers Link*

On most nights the lowest temperature occurs close to the ground, and to measure it a thermometer freely exposed to the sky is placed at grass-tip level and read at 0900 UTC every day: the grass it is placed on should be short, akin to a freshly-mown lawn. This gives us the grass minimum temperature, as opposed to the air minimum temperature which is recorded inside a Stevenson screen. A ground frost is recorded for every morning when the grass minimum temperature reading is below 0.0°C.

At night, in the absence of cloud and much wind, it is the ground/grass surface that cools most quickly, and this cooling is transferred to the overlying air. Thus, the grass minimum temperature is almost always lower than the air minimum – on a clear, calm, night over a snow surface by as much as 10 degC. Grass is a relatively poor conductor of heat and so a thermometer in contact with the grass tips will usually also read lower than one in contact with bare soil or concrete.

Grass minimum temperatures can vary widely in any given locality. Hollows and sandy lowlands will experience lower readings than level marshy areas and anyone with a garden will have noticed how the frostiest part of the lawn on a winter's morning is near its centre – away from radiating objects. Sandy soils have a low thermal capacity and a low thermal conductivity because of their air content, but clay soils (usually containing more moisture) have a higher thermal capacity and higher thermal conductivity. As a result dry soils topped by grass will have a tendency towards a greater fall in grass temperature (they contain less heat and conduct it less well towards the soil/grass surface) – and thus a larger difference between the grass minimum and air minimum temperatures.

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