

## ARE AMS CONFERENCE PRACTICES CHANGING FOR BETTER OR WORSE?

A Report on Developments from the 32nd Radar Meteorology and 11th Mesoscale Processes Joint Conference

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The 32nd AMS Conference on Radar Meteorology and the 11th AMS Conference on Mesoscale Processes, held in Albuquerque, New Mexico, during 23–29 October 2005, proved very popular: a total of 552 papers were presented and 525 people attended the joint meeting. The conference was quite busy, including a one-day “Educational Forum,” two occasions with triple parallel sessions, plus evening and Saturday sessions.

This was the first time in the history of the AMS that these two naturally related communities in meteorology (i.e., those using radar and those studying mesoscale processes) joined in conference<sup>1</sup>. The conference was novel in several other ways, and we will focus here on the conference structure and evolving conference archival options, so as to make specific recommendations for future AMS conferences. These recommendations pertain to the organization of short courses, the challenge of poster sessions, trends in conference attendance, and a disturbing trend concerning the changing character and purpose of extended abstracts.

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<sup>1</sup> The only other meeting that clearly linked the radar meteorology community to a related community was held in 1986: the 23rd Conference on Radar Meteorology and the Conference on Cloud Physics featured 13 joint sessions.

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**EDUCATIONAL FORUM.** The novel one-day Educational Forum (EF) titled “A Primer on Radar Analysis Techniques Used in Mesoscale Meteorology” preceded the conference and set the theme for this highly interconnected joint conference. The four EF sessions were devoted to radar instrumentation, the use of radar data in understanding the structure of mesoscale phenomena, and the assimilation of radar data into mesoscale prediction models. The purpose of these sessions was to provide a state-of-the-art summary and discussion to the attendees of both conferences on new approaches in radar observations as related to mesoscale phenomena. The program chairs developed the forum—they chose the topics, selected the speakers, reviewed the presentation graphics for consistency and completeness, and served as the session conveners. While it is not unusual for the AMS to offer one or more short courses in association with a conference, the EF was unique in that it was offered free of charge to all conference registrants on a first-come first-served basis, with the intent being to draw a large group of mainly graduate students. In practice, the AMS realized this by treating the EF as an additional joint session—and thus, part of the conference—without increasing the conference registration fee. The organizing committee and EF participants were quite pleased with this arrangement.

The EF was different from regular conference sessions in two other ways: first, the presentations are not found in the extended abstract CD-ROM, nor were they recorded live by the AMS, so they cannot be found on the AMS conference archive Web site. (Spiral-bound notebooks containing the outlines and presentation slides were produced and distributed to attendees in color at cost-recovery price.) Second, EF attendance was capped at 100—a number reached early during the online registration period despite limited advertising—although 120 people were eventually admitted because space was avail-

able. The group was split equally and distributed in two rooms in order to facilitate interaction between speakers and audience (hence the word “forum”), though this required all the speakers to give their presentations twice.

Although the EF was aimed primarily at graduate students, 50% of the participants held a Ph.D. degree and two-thirds had completed an M.S. degree; in fact, 53% of the audience consisted of professionals looking for a survey or update on recent developments in the field, according to a participant poll conducted at the end of the forum. The EF announcement stated that a basic, formal understanding of both radar and mesoscale meteorology was required, yet 39% of the audience said that they had no prior formal education in radar meteorology, and 36% said that they had no prior formal education in mesoscale meteorology. Nevertheless, the stated expertise of the audience was mainly in radar and/or mesoscale meteorology (76%); thus, many participants gained familiarity with their field outside of formal courses. Most of the remaining 24% listed synoptic meteorology, data assimilation/numerical weather prediction, or severe weather as their primary specialty.

The EF featured 10 experts who spoke on the state of the science with a focus on fundamental analysis techniques, illustrated by the applications of radar data to improving the basic understanding of specific mesoscale atmospheric phenomena, such as cold fronts aloft and bow echoes. The speakers served as an excellent prelude to the conference material, because many conference presentations employed or explored these techniques.

In general, the EF was deemed to be of excellent quality; participants gave high marks to all of the lecturers for their presentations. The audience was more divided on the perceived complexity of the material presented. For example, a small percentage of respondents felt that quantitative methods were overemphasized, while others expressed the opposite viewpoint. In particular, the talks on data assimilation and airborne radar data analysis techniques were viewed as too advanced for a significant number (39–47%) of those present. A slight majority felt that too much was covered in one day. We tend to agree that perhaps better learning would have resulted from either an additional half day, or else by selecting fewer topics.

Thanks to the enthusiastic support from the Cooperative Program for Operational Meteorology, Education and Training (COMET), the EF lectures have been rerecorded as staged presentations and

organized in subsections, allowing easy navigation. Both the lectures and the presentation files are available at [www.meted.ucar.edu/AMS\\_Radar05.htm](http://www.meted.ucar.edu/AMS_Radar05.htm) as part of the Meteorology Education & Training (MetEd) curriculum. Until now, the MetEd curriculum has been very limited in the area of radar meteorology, thus the EF lectures will fill a void, although the EF material probably is more complex and less forecast-oriented than most COMET/MetEd material. A large majority of the audience (86%) indicated that they planned to use the recorded presentations in their teaching and/or research.

We highly recommend that other AMS conferences include an educational forum of the kind held in Albuquerque, as a way to highlight new developments and to explain new methods at a level appropriate to new researchers and graduate students in a specialized field. Many participants agreed that such a forum was an excellent preparation for the conference. We recommend that Program Committees make similar educational events an integral part of their planning, and the AMS Meetings Department should continue to support such forums, at a cost that does not exceed actual expenses, and with only minimal management.

**POSTER PRESENTATIONS.** As is usually the case in large AMS conferences, the Program Committees struggled to fit the 552 presentations into the five full days allotted for Radar (Monday morning through Saturday morning, excluding Wednesday afternoon) and four full days for Mesoscale (ending at noon on Friday). The authors of just over half of all abstracts had requested that their presentation be oral, but we could accommodate oral slots for only 36% of all abstracts, notwithstanding two triple-parallel and eight double-parallel periods. Initially, the oral fraction was only 33%, but some posters were withdrawn in advance, not presented, or transferred to oral slots that became vacant upon withdrawal of oral papers.

The proportionally large number of posters is an inevitable drawback of the size of this conference. In essence, two-thirds of all conference presentations were concentrated in five poster sessions, with a total scheduled viewing time of 8.75 hours, which is just 23% of the time allocated to all sessions. Officially, the poster sessions were 105 minutes long, but the afternoon sessions were preceded by lunch (60 minutes) and followed by a coffee break (30 minutes), so some more time was available for those interested.

The number of posters in a single session ranged between 63 and 75. The consensus among attendants and organizers was that not enough time was available for poster viewing and discussions. This applied especially on one day, when a second poster session was held in the evening.

We recommend the following guiding principles for poster sessions at future radar meteorology conferences and other large AMS conferences: 1) poster sessions should be separated by a full day, to allow for continued informal viewing and discussions during breaks; 2) the scheduled poster session period should be at least one hour per set of 30 posters; 3) the early afternoon is a preferred time for scheduled poster sessions; and 4) enough space should be made available for posters to remain up for a second day to accommodate further informal viewing.

If space or time constraints prevent conferences from adhering to these guidelines, program committees might consider limiting the number of total presentations (poster and oral). This can be done by restricting presentations to only one per lead (or rather, presenting) author, or to those authors willing to prepare an extended abstract. These methods are less arbitrary than, say, rejection of abstracts based on the committee's opinion of the science.

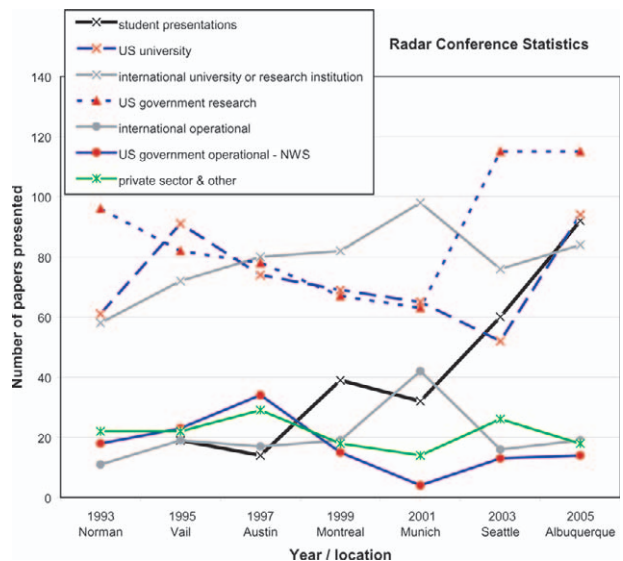
**CONFERENCE ATTENDANCE.** Of the seven most recent AMS Radar Meteorology conferences, the last two (Seattle, 2003 and Albuquerque, 2005) were jointly held with another conference. At the Seattle meeting, only two sessions were held jointly (with Broadcast Meteorology), compared to eight at the Albuquerque meeting. The mesoscale processes community has more frequently held joint conferences with other disciplines: with Numerical Weather Prediction and Weather Analysis and Forecasting in Fort Lauderdale, Florida, in 2001; with Numerical Weather Prediction in Portland, Oregon, in 1994; at the AMS Annual Meeting in Atlanta, Georgia, in 1992; with Mountain Meteorology in Boulder, Colorado, in 1990; and with the International Union of Geodesy and Geophysics in Vancouver, Canada, in 1987. One other Mesoscale Processes conference has been held abroad, in Reading, England, in 1996. Of the last seven AMS Radar Meteorology conferences, two were abroad: in Montreal, Canada, in 1999, and in Munich, Germany, in 2001.

Participation by the private sector and NOAA NWS personnel at Radar Meteorology conferences peaked at the Austin, Texas, meeting in 1997, fol-

lowing the deployment of the Weather Surveillance Radar (WSR)-88D network (Fig. 1). A lack of international travel funding may explain the rather low attendance of personnel from NOAA and other U.S. government agencies in 1999 and especially 2001. Since then, the contributions from U.S. government researchers (mainly from NCAR and NOAA) have dominated. The participation of European scientists has decreased since the 2001 Munich meeting, in part because of the growing popularity of the European Radar (ERAD) conference, held every even year since 2000. By contrast, the number of papers from researchers based in East Asia has increased steadily.

The most remarkable change in Radar Meteorology conferences was the dramatic increase in the number of papers with a student as first author at the last two radar conferences. Clearly, few U.S. students could afford to attend the 2001 meeting in Munich, but the trend of increasing student participation since the mid 1990s is a solid one. This may in part reflect an increased participation by graduate students, and perhaps the EF boosted their numbers in Albuquerque. We believe that the inclusion of such educational material at other AMS conferences would also increase student participation.

It is possible that the increase in student papers at least partly reflects a response to a change in



**FIG. 1. Distribution of contributions for the past seven radar conferences, based on the affiliation of the first author. Data on student status was collected by the AMS. Data for the 1993–2001 conferences are from a *Bulletin* meetings summary by Steiner and Meischner (November 2002, pp. 1649–1656).**

how conference programs are composed. Given the large number of abstracts and the high demand for oral slots, it has become common practice at most AMS conferences to allow only one oral slot per first author. It became clear in Albuquerque that the first (or presenting) author is all too often not in attendance to present his/her paper, and in several cases this turned out to be a graduate student. As a result, some senior scientists managed to orally present two and even three papers. According to Fig. 1, 92 presentations had a student as lead author, but only 83 Radar Meteorology participants registered at the discounted student rate. A policy change we recommend is that oral papers can only be presented by the lead author on the paper, and that a change in lead authorship must be approved by the conference or session chair in advance of the conference. In any event, we are pleased that a total of 135 students (26% of the total attendance) were registered for this joint conference.

**EXTENDED ABSTRACTS: A DISTURBING TREND.** As with most AMS conferences in the past two years, no preprint volume was published for this joint conference. Instead, according to the current AMS custom, authors were invited (but not required) to electronically submit an extended abstract, which was included in the conference CD and posted online following the conference.

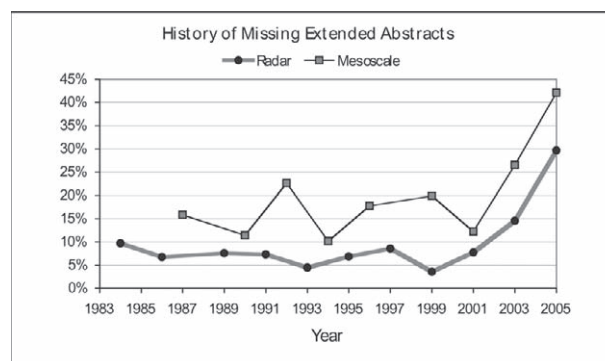
In the not-too-distant past, extended abstracts were known as “preprint volume” papers, or “preprints,” and conference participants wrote these papers according to strict formatting and length requirements. The term “extended abstract” is a misnomer that arose during the brief time that preprint papers were limited to 2–3 pages or even less. Authors often referenced conference publications in later papers, provided that the preprint work had not subsequently been published in the peer-reviewed literature. Indeed, many old Radar Meteorology and Mesoscale Processes conference preprints are still referenced. In the not-so-distant past, it was expected of conference presenters (although never required by the AMS) to submit a written conference preprint.

A count of “missing” preprints in the conference volumes (Fig. 2) of the past two decades indicates that typically no more than 10% of the conference presentations in Radar, and no more than 20% in Mesoscale, were not submitted in written form for the hard-copy preprint volumes. We cannot explain the historically lower rate of submission from the

mesoscale processes community, compared to the radar meteorology community.

Times have changed with the advent of electronic-only publishing of the conference proceedings. The electronic delivery and archival of extended abstracts gradually came into practice between 2001 and 2003. An alarming trend has developed recently: over the past two conferences, an increasing number of authors (30% of the Radar attendees and 42% of the Mesoscale attendees at the 2005 joint conference) have opted not to submit written extended abstracts to the conference. Moreover, only four of the keynote addresses at this conference, out of a total of 13, have such a written document. The effect this rapidly decreasing fraction of extended abstracts has had on the Mesoscale Conference is particularly serious, as the increasing gap between titles (listed in the program) and extended abstracts equates to a decreasing permanent record of participation in mesoscale process research. Had each presentation been accompanied by an extended abstract, the activity in mesoscale process research as represented by the AMS conference would have been fairly constant since 1993 (~200 papers per conference). However, the falloff in the number of preprints since then (< 150 papers per conference) gives a different and misleading perception that the volume of mesoscale research has declined.

Possibly the trend evident in Fig. 2 for Radar Meteorology and Mesoscale Processes is common among all AMS conferences. It is conceivable that in the near future the percentage of extended abstracts



**FIG. 2. Percentage of oral or poster presentations unaccompanied by an extended abstract at Radar Meteorology conferences since 1984 and at Mesoscale Processes conferences since 1987. In the preelectronic era, this percentage is based on the number of preprint volume titles without a manuscript in the conference proceedings book. In the electronic era, it is based on the number of titles in the program (online or on the CD) without a PDF manuscript.**

will drop below the threshold that economically justifies the production of a CD. Then, the only extended abstract repository will be the online archive, which will become increasingly populated with recorded oral presentations and uploaded electronic posters, and progressively less with extended abstracts. At some point then, the AMS may decide not to collect extended abstracts at all, thus letting the recorded presentations and posters be the only permanent record of the conference. This scenario is not far-fetched, and is disturbing.

We believe that the decreasing fraction of extended abstracts is a direct result of the AMS's switch from paper submissions to electronic file submissions. The fact that preprint submission rates have been quite high in the past (averaging 83% for mesoscale and 92% for radar from 1984–2003) is a testament to the importance the scientific community has attached to the conference proceedings. The proceedings have been clearly judged as valuable in communicating research work and results to the community at large. They have also served as an intermediate step toward peer-reviewed publication, as a useful adjunct or alternative to peer-reviewed publication, as a record in one's resume, and as references to researchers and librarians alike. Written conference papers (preprints or extended abstracts) are used as a measure of performance by some supervisors evaluating their staff, by faculty members evaluating their graduate students, and by program managers and reviewers evaluating research proposals for possible funding. Clearly, conference papers do not have an equivalent status to that of peer-reviewed journal publications. Yet it would be clearly wrong to dismiss their importance for so many purposes. If this recent trend continues, the community risks losing most of the record of a conference, at least at a level of excellence that has characterized AMS conferences.

Assuming all agree this is not a good thing, the question is, "What are the causes of decreased written conference submissions?" We do not know about a change in policy among research agencies or in academia that has implied a decreased merit of conference papers. One cannot help but attribute the changes to the general transition to electronic and online publishing. Beginning about the time of the 2001 Radar and Mesoscale conferences, the AMS started posting computer file submissions online following the conference and initiated the transition to electronic-only publishing of the

conference proceedings. Perhaps authors perceive the electronic extended abstract to have less value than the printed preprint papers. There even seems to be a willingness to substitute the recorded oral presentation for the extended abstract. However, a recorded presentation and a written document are fundamentally different in structure and depth, and the former cannot be considered a substitute for the latter, nor is it a permanent record of accomplished research. It is much easier to patch together a pre-

## EDUCATIONAL FORUM PRESENTATIONS

The following rerecorded lectures and PowerPoint slide show presentations from the special forum, "A Primer on Radar Analysis Techniques Used in Mesoscale Meteorology," are posted on the COMET Program's Meteorology Education and Training Web site: [www.meted.ucar.edu/AMS\\_Radar05.htm](http://www.meted.ucar.edu/AMS_Radar05.htm).

**Session 1:** Microphysical characterization of precipitation systems using dual-polarization radar measurements

- *Rain rate estimation from dual-polarization radar observations* (Anthony Illingworth)
- *Hydrometeor identification* (V. Chandrasekar)

**Session 2:** Single Doppler retrieval and assimilation techniques for use in mesoscale models

- *Single radar velocity retrieval* (Alan Shapiro)
- *Assimilation of radar data into NWP models* (Juanzhen Sun)

**Session 3:** Analysis of mesoscale processes using wind profiling radars and Velocity Azimuth Display (VAD)

- *The use of profilers and VAD to study the structure and dynamics of split cold fronts and cold fronts aloft* (Mark Stoelinga)
- *Mesoscale structure and dynamics of topographic and boundary-layer circulation systems revealed by wind profiler* (Paul Neiman)

**Session 4:** Airborne Doppler radar analysis of tropical and extratropical mesoscale systems

- *An introductory overview of the principals of airborne Doppler radar and applications to hurricane and MCS studies* (David Jorgensen)
- *An overview of the derivation of pseudo-dual-Doppler wind fields and sources of uncertainty* (Wen-Chau Lee)
- *Applications to orographic flow and precipitation studies* (Bradley Smull)
- *Applications to convective and frontal system studies* (Roger Wakimoto)

sensation (e.g., using PowerPoint) than it is to craft a well-written paper, and authors are avoiding what is not absolutely required—namely, the extended abstract. Starting with the Annual Meeting earlier this year, the AMS has also offered the archival of poster presentations. For the 2005 conference, where this was not an option, no systematic difference existed in the fraction of nonsubmitted extended abstracts for posters and for oral presentations. Posters, even more than oral presentations, may be considered to be adequate surrogates for extended abstracts, and thus the archival of electronic posters may accelerate the trend in the next few years, leading to the extinction of extended abstracts. However, we still believe that a good poster is no substitute for a well-written extended abstract.

There may be other factors also affecting this trend beyond the change in attitude about writing conference papers, but none of these factors are likely to be as important. There is the issue of how many people actually look at or read the conference CD or online publications, now that it is more difficult to follow or to “leaf through” the electronic proceedings during the conference itself. This has happened in part because of the limit (imposed by the AMS) on the number of power strips supporting laptop computers, and the logistical limit imposed by the “classroom” (table) seating arrangement compared to the denser “theater” arrangement.

Another contributor to the decline in submissions may be the cost of submitting an extended abstract. The extended abstract upload fee of \$130 is perhaps viewed by some as unjustifiably high. Oral presenters who chose not to submit an extended abstract were asked to pay a \$55 fee for preloading their presentation via the AMS Web site. This fee is intended to offset the cost of using licensed software (Conference Presenter) for recording and archiving the presentation. Speakers who uploaded their talk on-site did not have to pay a fee for the upload, though they were subsequently charged \$50 for their presentation to be posted online. Finally, perhaps terminology matters: by virtue of its name, an “extended abstract” could be viewed as just a second abstract, as opposed to a “preprint paper” being an actual paper or publication.

How can we reverse the trend? The AMS can and should address this issue; otherwise a written record of the conference proceedings may soon become a historic relic. We hear some voices advocating the return to the hard-copy preprint volume. Many are proud of a bookshelf full of past conference proceedings,

and are more likely to consult the printed resource than the electronic one. Today, some people print out manuscripts of relevance from the CD or the Web. Clearly, the transition is challenging, but electronic technology is far superior (e.g., use of color), less constraining (e.g., paper length), and ultimately cheaper to produce. Reverting to hard-copy volumes is a step backward. Yet we need to find ways to make conference papers more attractive to submit and to use.

First of all, we believe that the extended abstract upload fee should reflect the true cost of the service, rather than be used to offset the overall conference cost, which should be covered by the registration fee. We applaud the introduction of a poster upload option (which commenced in 2006), but the steep upload charges for poster and oral presentations should be given a critical review as to the need for their continuance. Second, the electronic conference proceedings online should be archived with extended search capabilities, similar to the peer-reviewed AMS journals (Allen Press online), in particular by title and author name. Third, a broadly recognized referencing system needs to be implemented to substitute for the traditional page-numbering system, allowing these electronically published manuscripts to be acceptably cited. (The AMS Publications Commission should dictate to their journals that citations to recorded presentations and electronic posters should not be acceptable references, not even as URL references in a footnote.)

Most importantly, all of us in the meteorological community must respond, by considering electronic extended abstracts as equivalent to written preprint papers, and by opposing the increasingly prevailing notion that electronic posters or recordings of oral presentations are sufficient substitutes for written extended abstracts.

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