

How to Write an Abstract and Scientific Paper

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ABSTRACT

For the purpose of expressing operational meteorological research results, clarity and consistency are perhaps the two major keys to unlocking the full potential of individual scientific self-expression while simultaneously having such conveyances easily understood by the intended audience. Questions such as “How far have others pushed the envelope of this particular research topic to?” or “How will my research build upon the work of others and consequently push the envelope even farther?” should be first and foremost in one’s mind during the self-expression process. Of course, it is an absolute pre-requisite to read all references in your topical research area to answer these types of questions. Sadly, this is not always the case.

Clarity is achieved when a general ‘plan of attack’ has been previously defined prior to writing and based on the achieved research results, their exact content and how they are organized. A natural flow should emanate thereafter resulting in a very smooth transition from one section of a scientific paper to the next. While reporting results, clarity and consistency are most definitely related, but more importantly, they are synergistic! One grows at the expense of the other. The former is realized through a great organization of the final results while the latter is realized through the pure act of ‘sticking to the main points’ and focusing your creative energies around highlighting those. There is no doubt that sound physical, mechanical and/or thermodynamic descriptions of atmospheric phenomena and processes definitely add to the value of a paper. However, do not forget about statistics and the insightful role they can play in quantifying your results. At some point, you will be forced to quantify your results. Remember this – simple statistics are the best statistics! Whether it is proving a significant difference in two means, showing the nature of a single distribution or choosing the exact way to construct a chart or a graph, they all can play a role in your success. When possible, let the results do the talking!

This presentation will discuss the basic steps and mechanics of preparing and writing both an abstract and scientific paper. The scope and content is aimed at providing assistance to undergraduate meteorology students who desire to become involved in the operational meteorological research process prior to graduation and/or shortly thereafter.