

Dear Folks of CIRA,

For those of you who have not already seen it, please take a moment to read this recent message from ... (Assistant Administrator of NOAA's Satellite and Information Service), where he shares his thoughts on effective and mindful communication, both specific to our field and in a general sense as well. ....

Thanks and have a great rest of the week!

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Director, Cooperative Institute for Research in the Atmosphere (CIRA)  
Professor, Atmospheric Science  
Colorado State University

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From: Trusted NESDIS Sender - NOAA Service Account  
Subject: From the NESDIS AA: Let's Be Thoughtful About the Terms We Use  
To: \_NESDIS ALL HANDS

Dear Colleagues,

The words we use matter. Think about the terms we use when collaborating with partners and conveying our work to the public, or when we are trying to engage new and different communities to understand the use of information in their lives. Are we using terms that convey the essential messages with a minimum of jargon, are they the most accurate and simple terms? Are they the same terms our partners in government, industry, and academia use, and are we certain they mean the same thing to all of us?

I have been thinking about this a lot, as I talk to different communities and stakeholders for our science and our services, and I recently came across an article in the Bulletin of the American Meteorological Society. The article was about a study that aims to redefine drought and rainfall events. The lead scientist, Samantha Stevenson of UC Santa Barbara's Bren School of Environmental Science and Management, suggests that our language around extreme events, drought specifically in her article, may be sending the wrong message. We often refer to what we are seeing in the western United States as severe drought, extreme drought, etc.; communicating the drought conditions as a deviation from normal with the implication that we will, someday, return to "normal." It is possible, even likely, that for the foreseeable future there will be no return to pre- industrial norms, and that we as a community will need to stop thinking of interim solutions but rather look to permanent changes in the way we live. The author argues that we should do this because the hydroclimate, related to droughts and floods, is evolving throughout the world.

Therefore, whatever baseline we consider "normal" also changes.

That article and study were interesting, but what I really found thought provoking were their broader implications: that the words we use matter far more than we may realize. If scientists begin using a different definition of "drought," how will the people we are talking to interpret our messages to mean? What exact message do we want to send? And what are the implications of any potential misunderstanding?

### **The Danger of Assumptions and Analogies**

Often, we revert to analogies to get our point across; I am sometimes one of the worst in doing this. But analogies can fail spectacularly, especially when communicating with a diverse group. I remember an experience as a physics teaching assistant in graduate school. I was teaching non-calculus physics to a mixed class of some first and second year college students, and devised a test problem in simple mechanics using a football scenario. “The quarterback wants to throw a long pass to the receiver. The receiver is running downfield at 10 yards/sec and is 10 yards down the field when the QB throws the ball at 25 yds/sec at an initial angle of 45 degree. How far down the field will the receiver catch the ball?” Simple, I thought. I even explained what a quarterback and receiver were. Was I so wrong! Fully half the class missed the point entirely. Questions such as: What is a pass? Why didn’t he throw right to the player? What does it mean to lead the player? What is “downfield?” I saw then, and in other similar examples, that no analogy is equally understood by a large group. I’d like to say I learned the lesson, but it is something I have to keep relearning. We get used to working in our communities of common experiences and forget that not everyone shares those experiences.

### **We need to treat science terms more carefully**

We are all teachers at some level in the work we do. Our mission is to collect observations and information, and to provide that information so that others can benefit from it. We are teaching the world about the world (and teaching ourselves in the process). For our mission, there is harm in using terms whose meaning people debate. There are countless articles and studies about how common scientific terms are confusing to the general public. There are also some articles and studies about how scientists—or lawyers, doctors, or any other technical group—get confused by their own technical terms. The consequences of all this confusion vary. Maybe it makes us less likely to receive the funding we need. Maybe it makes it more likely that the people we are trying to serve ignore our warnings because they don’t understand them.

My request is that we be as conscientious and collaborative in choosing the terms we use, and in defining their meanings, as we are when performing the great work we do. Let us all, including me, be better communicators to the people whom we serve.

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(Assistant Administrator of NOAA’s Satellite and Information Service)

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