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Opinion Open Access

Quantifying Uncertainty in Forecasting

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Remember the snowstorm forecast bust in Washington, D.C. last winter? Forecasts were calling for up to a foot of snow and what fell was a cold rain with a few wet snow flakes mixed in. Businesses and government shut down, people's lives were inconvenienced, and untold money was lost due to the anticipation of this major "snowstorm". Then some weather companies, such as "The Weather Channel" had to change their focus for viewers that, yes, big snows hit the higher elevations of Virginia north and west of town. To give some credit, there were some forecasting companies that gave explanations for the bad prediction, such as "lack of cold air", "weak vertical motion", etc.

This event led to a discussion between my buddy and I about what could be done to better prepare the public for uncertainties in a forecast. As a meteorologist I was interested in the complaints from a layperson about what could be improved in our predictions so as to give a better handle on how certain we are about the future weather. This got me to thinking that if we could have some index to *quantify uncertainty* that this might be of help, to those who are more "weather-wise" and are interested. A few companies employ uncertainty with their predictions already, such as the Capital Weather Gang in D.C., I understand. Also my old Alma Mater, Millersville University, has an index of sorts. I'm sure there are others that I don't know about. I'd just like to see more widespread use of some system in our day-to-day weather broadcasts, at least in the private sector.

We could possibly have an index system like below:

Index	Confidence
5	Sure bet
4	Confident
3	Avg confidence
2	Low confidence
1	Our best shot

And for a case like the D.C. forecast there could be a narrative talking about the uncertainties, the borderline temperatures, etc. and then an index number above the forecast. In this case – if we were being honest – it might have warranted a number 1 or 2. I would be curious to hear what others might suggest to better communicate uncertainties in weather forecasts (especially snowfall) to the general public.

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