by Gianluca Alimonti

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About "scientific consensus on climate change"

I'm writing this personal opinion about a "hot" topic: the Antropogenic Global Warming (AGW) consensus.

In EPN 44/6, John Cook presents the conclusions of a paper by himself *et al.*, published in *Environmental Research Letters* **8** (2013) doi:10.1088/1748-9326/8/2/024024, where almost 12000 abstracts of papers dealing with global warming, published since 1991, are classified depending on their position about AGW.

It is immediately clear from the abstract that two thirds of the analyzed papers do not express a position on AGW: this should be indicative of the scientific uncertainty on the issue. However, this figure is not taken into account and the authors focus on the remaining 33% of the papers.

Among these 33% papers, 97% support the AGW: papers stating that "humans are contributing to global warming without quantifying the contribution" are considered to support AGW. It is practically impossible to find a climate scientist against such a statement (it would be like saying that CO_2 is not a greenhouse gas), but this is well different from being in agreement with AGW, which – as Cook *et al.* remind us – means that "humans are contributing more than 50% of global warming, consistent with the 2007 IPCC statement that most of the global warming since the mid-20th century is very likely due to the observed increase in anthropogenic greenhouse gas concentrations".

Indeed, an analysis of the papers classified in the support category (which can be done by following the link "online supplementary data") shows that papers by famous climate scientists known to be against AGW (*e.g.*, Lindzen and Shaviv) fall among those in favour.

Trying to reduce the percentage of papers that do not express a position, Cook *et al.* contact the authors via e-mail: only 14% respond to such a query. At this point it would not make sense to proceed because the sample is drastically reduced and, more important, such a sample can no longer be considered "unbiased" (the analysis is based only on those who have decided to respond and it is reasonable to assume that this is a polarised sample).

J. Cook *et al.* proceed anyway and 35% of the authors, among the 14% who answered to such a query, confirm that they do not have definite position with respect to AGW: a rather high percentage to claim an almost complete consensus, as Cook *et al.* would like to do.

Finally, the reasons given by Cook *et al.* to find a justification to the high number of papers that do not take a position, show an internal logical contradiction: AGW would be such a scientific certainty that it is no longer needed to specify the authors' position in the abstract. Besides the fact that this assertion is contradicted by the 35% that confirms "no position", even if it were true, why is the research by Cook *et al.* based on such abstracts?

Given that the verification of the scientific hypothesis is not based on the level of consensus they get but on a tighter comparison with reality, all of the above has nothing to do with the consistency of AGW.

If any meaning may be given to the work about the AGW consensus, I would say it does not point to a unanimous consensus, rather to a scientifically still quite open issue, taking also into account that the percentage of papers that do not take a position grows with time. ■

John Cook responds

Gianluca Alimonti comments that because 67% of abstracts fail to state a position on anthropogenic global warming (AGW), this indicates scientific uncertainty. As discussed in Cook *et al.* (2013), this is explicitly not the case. To quantify the degree of scientific uncertainty, we re-examined 1000 of the "no position" papers and found only 5 expressed uncertainty on the issue. The relevance of "no position" papers was discussed by Naomi Oreskes in 2007. She predicted that as a consensus strengthened, less papers should see the need to restate the consensus position. For example, few astronomy papers state the consensus position that the Earth orbits the sun. Our data confirms Oreskes' prediction, with the proportion of "no position" abstracts increasing at the same time that the consensus among relevant climate abstracts increases. The significance of "no position" papers is discussed in our paper. Alimonti is correct about one point: verification of a scientific hypothesis is based on empirical confirmation, not consensus. However, the general public use expert opinion as a heuristic to guide their views on complicated scientific matters. As there is a large gap between perceived scientific agreement and the 97% reality, this necessitates communication of the overwhelming consensus. ■

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