

SCIENCE'S COMPASS

mosphere temperature has not risen at all, but instead has cooled at a rate of 0.05°C per decade between 1979 and 1995 (4). Today we know that variations in the satellite orbital geometry were one of several reasons for these spurious results (5). The same data, reanalyzed, now show a positive trend of $+0.07^{\circ}\text{C}$ per decade (R. A. Kerr, News Focus, 25 Sept., p. 1948).

Another recent paper (6) reports that the growing season in the Northern Hemisphere has lengthened by about 10 days in a decade, very close to the model predicted value. However, another paper (7), using data from the same satellite series, but correcting for sensor degradation and so forth differently, concludes that "[t]he artificial trends caused by the combination of calibration residuals and satellite orbit drift should be removed to alleviate their misidentification as real trends in the earth's climate system...."

It is clear that to build a 10- to 20-year history of planetary-scale changes with the needed accuracy to assess the predicted global climate change requires extreme caution. The reason is obvious. The "weather satellites" [NOAA (National Oceanic and Atmospheric Administration) series] that are being used to unravel these long-term and highly subtle changes were not designed for this job. They were made to observe the changes in weather patterns from one day to the next, not to monitor climate change from one year to another. The latter can only be achieved with great difficulty, if at all. In any case, in such published work, a statement about the confidence limit around any quantitative estimate of global climate change should be included.

Finally, just before the November 1998 global warming conference in Buenos Aires, S. Fan *et al.* (Reports, 16 Oct., p. 442) reported that the United States is a major sink of an amount of carbon close to what it emits. This is result of a model run, and there appears to be no credible way to test it. The carbon "sink" resulting in more storage in the soils or more rapid growth in the vegetation cover, or both, may remain undetectable for years, even beyond the next generation of satellites. Let us hope that these modelers are right; otherwise, the U.S. research community will begin to lose credibility in this critical field.

As the debate on global warming moves from the scientific to the policy world, we must be careful not to rush to publish. The price for a wrong decision based on spurious analyses may not be insignificant.

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References and Notes

1. R. S. Nerem, *Science* **268**, 708 (1995).
2. — *et al.*, *Geophys. Res. Lett.* **24**, 1331 (1997).
3. For example, A. Cazenave *et al.*, *AVISO Newslett.*, no. 6 (1998), p. 43.
4. J. R. Christy and R. W. Spencer, *J. Clim.* **5**, 858 (1992); J. R. Christy *et al.*, *ibid.* **11**, 2016 (1998).
5. F. J. Wentz and M. Schabel, *Nature* **394**, 661 (1998).
6. R. B. Myneni *et al.*, *J. Geophys. Res.* **103**, 6145 (1998).
7. G. Gutman, *ibid.*, in press.

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CORRECTIONS AND CLARIFICATIONS

In the Table of Contents of the issue of 29 January (p. 596), the author of the Editorial (*Science's* Compass, p. 637) should have been given as "L. Zhu."

In the News Focus article "The mystery of the migrating galaxy clusters" by Alexander Hellmanns (29 Jan., p. 625), the list of members of the Streaming Motions of Abell Clusters (SMAC) Collaboration should also have included the following researchers: Russell Smith, John Lucey, David Schlegel, and Roger Davies, all at the University of Durham, United Kingdom.

In L. Gabriel Navar's letter of 29 January (*Science's* Compass, p. 639), the Web address given for the animal rights brochure

was incorrect. It should have read, "www.faseb.org/aps/pubaff/animals/index.html."

Reference 1 of the letter "Georgetown faculty grievance" by Robert I. Glazer and Donald Massaro (*Science's* Compass, 22 Jan., p. 487) contained an error. The Web address of the first item should have read, "C. Risen, *The Hoya*, 6 November 1998 (www.thehoya.com/news/110698/news4/htm)."

In the Perspective "Warm, warm on the range" by Jerry M. Melillo (*Science's* Compass, 8 Jan., p. 183), in the first paragraph of column 3, the common name of *Boutelous gracilis* should have been given as "blue grama," not "buffalo grass."

In table 1 (p. 88) in the report "Measuring the spin polarization of a metal with a superconducting point contact" by R. J. Soulin Jr. *et al.* (2 Oct., p. 85), the percentage of P_c for NiFe should have been given as 46 ± 2 . In the same report, in note 20, G. Deutscher should also have been thanked for the seminal role he played in initiating the Andreev Reflection program at the Naval Research Laboratory.



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