

The Keetch–Byram Drought Index: A Corrigendum

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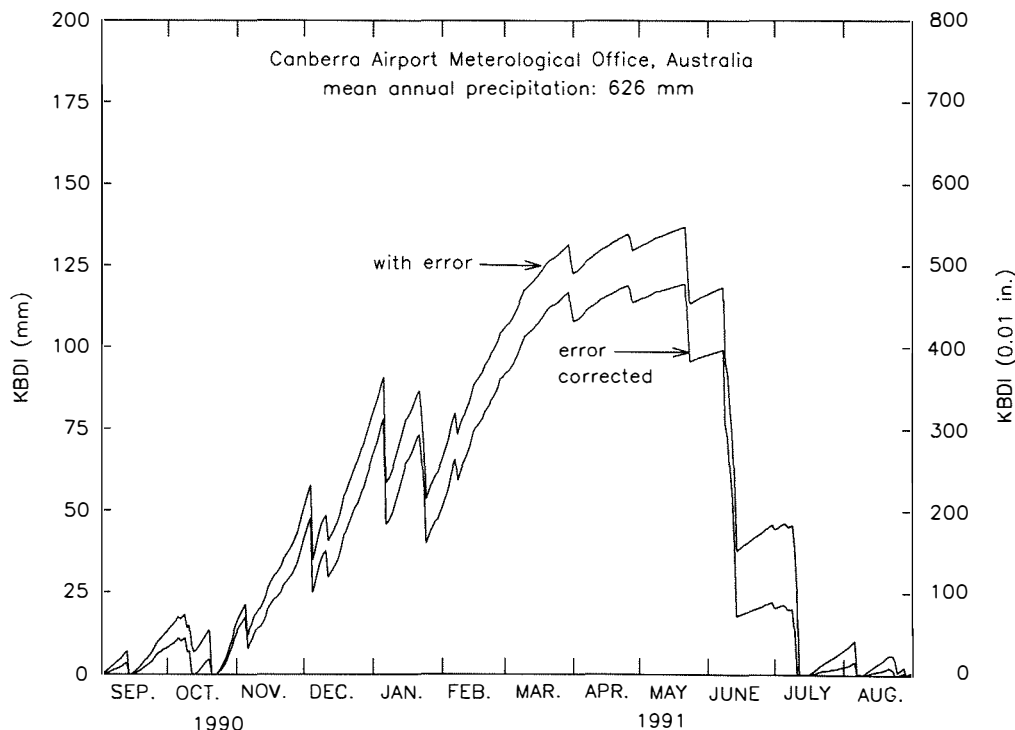


FIG. 1. Comparison of computer-calculated values of the Keetch–Byram Drought Index (KBDI) with and without the typographical error in the daily drought factor equation of Keetch and Byram (1968). The daily maximum temperature and precipitation data used in the calculations was kindly provided by the Commonwealth of Australia, Bureau of Meteorology, Canberra Regional Office.

The drought index developed for fire control purposes by Keetch and Byram (1968) is widely used by forestry authorities in the United States and in many other regions of the world (e.g., Livingston 1974; Rose 1990). The objective of this brief communication is to highlight the existence of a significant typographical error in the empirical equation used to calculate the daily drought factor of the index (Fig. 1), the details of which are given elsewhere (Alexander 1990). However, for present purposes, it is sufficient to simply refer to the second equation given on page 23 of WMO (1975). The last constant in the numerator should be 8.30, not 0.83 (this also applies to Eq. 18 in Keetch and Byram 1968). Although this error has now been detected by others (e.g., Beer 1991), it is hoped that the existence of this note will be of value to others who may use this drought index in the future; presumably it will be distributed as an erratum with further sales of the WMO (1975) publication.

References

- Alexander, M. E., 1990: Computer calculation of the Keetch–Byram Drought Index—programmers beware! *Fire Manage. Notes*, **51**(4), 23–25. [Available from: Chief, Forest Service (Attn: Fire Management Notes), P.O. Box 96090, v.s. Department of Agriculture, Washington, DC 20090-6090.]
- Beer, T., 1991: Applied Environmetrics hydrological tables. *Applied Environmetrics*, Australia, 73 pp. + disk.
- Keetch, J. J., and G. M. Byram, 1968: A drought index for forest fire control. Research Paper SE-38, U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station, Asheville, North Carolina. 32 pp. (revised November 1988).
- Livingston, R., 1974: A slip-on tanker for pine plantation fire control in peninsular Malaysia. *Malaysian Forester*, **73**, 167–178.
- Rose, R., 1990: How bad is your fire season? *Bush Fire Bull.*, **12**(2), 16.
- WMO, 1975: Drought and agriculture. Report of the CAgM Working Group on the Assessment of Drought, prepared by C. E. Hounam (chairman), J. J. Burgos, M. S. Kalik, W. C. Palmer, and J. Rodda. World Meteorological Organization, Technical Note No. 138 (WMO-No. 392), 127 pp.