

The accuracy of the Victorian component of the Australian Bureau of Meteorology's seasonal outlook service

HARVEY STERN
 Victorian Regional Office, Bureau of Meteorology
 GPO Box 1636M, Melbourne,
 Vic., 3001, Australia
 Email harveys@bom.gov.au

The purpose of this paper is to report on the accuracy of the Victorian component of the Australian Bureau of Meteorology's (ABM) seasonal outlook service.

Stern and Williams (1988, 1989) (S&W) investigated the feasibility of providing Victorian fire control authorities with advice as to the likely severity of forthcoming fire seasons (usually December to March). To achieve that end, the relationship between the El Niño Southern Oscillation (ENSO) phenomenon and Melbourne rainfall was studied and found to be "particularly marked" during spring with a somewhat weaker relationship in summer.

An extended dry period is a necessary, although not sufficient, precursor to a severe fire weather season in Victoria (Foley, 1947). On this basis, S&W's work led to the Victorian Regional Office (VRO) of ABM adopting the practice of providing a briefing to fire control authorities about the likely severity of forthcoming fire seasons.

Since 1989, ABM has provided a publicly issued national seasonal outlook (Bur. Met., Australia, 1989) in qualitative terms (map & text). Initially, it was restricted to particular times of the year (June to December) and to limited areas of the country (mainly inland eastern and northern Australia).

The outlook indicates the expected precipitation regime on a three-category basis (below average (deciles 1-3), average (deciles 4-7), or above average (deciles 8-10)). It now applies to all seasons and most areas (with the exception of those designated as "seasonally dry") and includes a quantitative component (% probability of each precipitation category).

Fig 1 summarises the monthly variation in the accuracy (on the three-category basis) of that part of the qualitative component of the outlook valid for part or all of Victoria. Each outlook that relates to a part of the State is verified, and its performance is attributed to all months of the particular outlook period.

It can be demonstrated that randomly generated outlooks are correct, on the one in three category basis used here, on 34% of occasions, while the assumption of climatology (average) is correct on 40% of occasions. Over the verification period, an outlook based on the assumption of persistence (that the preceding three months' rainfall anomaly would be repeated in the subsequent three-month period) would have been correct on 44% of occasions.

Fig 1 shows that in the second half of the calendar year the national seasonal outlook has outperformed each of these "no-skill" measures. This corresponds with Bur. Met., Australia's (1989) expectation as to that part of the year with highest skill and is only slightly different to that anticipated by S&W. The performance depicted in the January to June period is a reflection of the weakness of the rainfall/ENSO relationship during the first half of the calendar year. The improved accuracy during the latter half justifies the issue, to fire authorities, of a statement of expected severity of the forthcoming fire season.

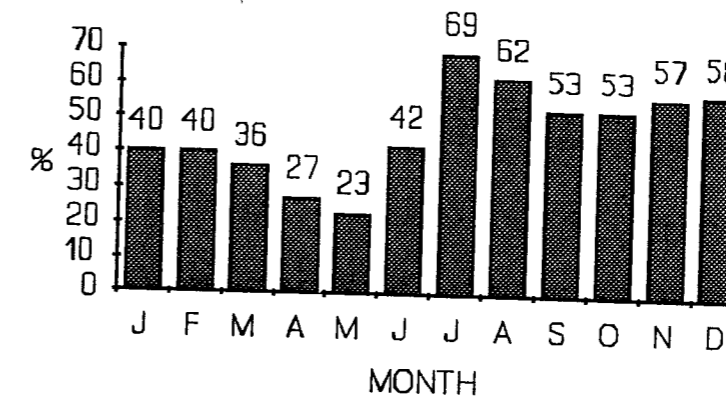


Fig 1 Monthly variation in the percentage of correct outlooks.

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