



**BUREAU OF METEOROLOGY**



# **FIRE WEATHER WORKSHOP**

**16 - 20 JUNE 1991**

**AUSTRALIAN COUNTER DISASTER COLLEGE  
MT MACEDON**

## FIRE WEATHER WORKSHOP

June 16 - 20

Australian Counter Disaster College

Mt Macedon

This workshop was a joint activity between the Australian Counter Disaster College and the Severe Weather Programme Office of the Bureau of Meteorology. It was aimed at bringing fire weather service providers and service users closer together. The direction of the Bureau's fire weather services will be greatly influenced by the outcomes.

There were 39 participants at the workshop including representatives of 11 state and territory authorities with responsibilities for rural fires, five fire weather researchers from universities and CSIRO and meteorologists from all regions. A complete list of participants is at Attachment 1.

The format of the workshop was classic Mt Macedon style with separate themes using short provocative papers followed by syndicate discussion and plenary sessions. A "neutral" facilitator was used to great effect.

The major themes were:-

- 1) Fire Weather Forecasting Operations, which included outposting of meteorologists to bushfires, the soil dryness index, cold front reconnaissance and fire danger models,
- 2) Severe weather policy issues, i.e. how the severe weather sections fit into the Regional Forecasting Centres and the role of the Bureau's commercial arm, the Special Services Unit,
- 3) Forecasting problems, i.e. over-forecasting of winds etc., probability forecasts for fire weather, gustiness and insolation, and
- 4) Communication of warnings which included warning effectiveness. A copy of the full agenda in attachment 2.

The outcomes of the workshop were a series of syndicate presentations of which the raw notes are available from Helen Tseros in the Bureau's Services Policy Branch, a research shopping list and nine realistic achievable fire weather objectives that can be undertaken within the next two years. The research list and the objectives are attachments 3 and 4 respectively to this short report.

From the Severe Weather Programme Office viewpoint the workshop was very helpful in focusing our attention onto certain development areas. In particular it will encourage us to continue to support outposting of meteorologists to fires, cold front reconnaissance and promoting fire weather activities in close collaboration with the regions and their clients.

We commit ourselves to achieving at least some of the outcomes of the workshop and urge others in the regions, fire services and the universities to do likewise.

At the conclusion of the conference participants were requested to complete a questionnaire which addressed their reaction to the workshop. Some 17 questionnaires were returned and a summary of the results of this survey is given in Attachment 5.

It is intended to have a scientific conference in 1993 but we will set aside a day to consider whether we have achieved any of the set objectives from this workshop and hear from others as to the progress that they have made.

I am very grateful to all participants who, despite insufficient relaxation time, kept working away and contributing. Thanks and see you next time.



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Severe Weather Programme Office

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## MONDAY 17 JUNE

### THEME 1 - FORECASTING OPERATIONS

Chairperson - Allan Cameron

- 0830 - 0900      Outposting of meteorologists to campaign fires  
*Peter Gigliotti*
- 9000 - 0930      Changing Byram-Keetch drought index to soil dryness index  
*Stephen Petris*
- 0930 - 1000      Cold front reconnaissance  
*Andrew Watson*
- 1000 - 1015      Morning Tea
- 1015 - 1045      Change from McArthur to "Red book" fire danger models  
*David Packham & Judi Beck*
- 1045 - 1100      Fire behaviour in Canadian pine plantation in relation to two  
Australian fire danger indexes  
*Marty Alexander & Phil Cheney*
- 1100 - 1200      Workshop (Syndicate Groups)
- 1200 -1230      Aspects of IDNDR  
*Lynda Drosdowsky*
- 1230 - 1330      Lunch
- 1330 - 1400      The fire weather requirements of the CFA -  
The role of the AWS.  
*Stephen Petris*
- 1400 - 1500      Workshop
- 1500 - 1515      Afternoon Tea
- 1515 - 1715      Plenary (David Packham)  
Summary of first workshop outcomes
- 1830              Dinner
- 1930              Chairperson - Col Pierrehumbert
- 11th Conference on fire & forest meteorology  
& Fire Weather Course  
*Tarini Casinader*

## TUESDAY 18 JUNE

### THEME 2 - POLICY

Chairperson - Geoff Moynihan

0830 - 1000      Role of the severe weather sections in fire weather forecasts  
*Col Pierrehumbert & Keith Colls & Jon Gill*

Panel Discussion

1000 - 1015      Morning Tea

1015 - 1115      The Special Services Unit and fire weather forecasting  
*Robert Wright*

1115 - 1200      Fire weather problems in arid zones  
*Jon Gill*

1230 - 1330      Lunch

### THEME 3 - COMMUNICATION

Chairperson - Tarini Casinader

1330 - 1410      Dissemination & Reception of Warnings  
*John Salter*

1410 - 1430      What communication theory means to the Bureau  
*David Packham*

1430 - 1500      Perspectives:  
Mike Whelan (Fire service perspective)  
Jim Dance (Public warning perspective)  
Keith Colls (The forecasters perspective)

1500 - 1515      Afternoon Tea

1515 - 1645      Workshop (Syndicate groups)

1645 - 1715      Plenary Report

1830 - 1930      Dinner

1930              Research Papers

Measuring fire danger  
*Noreen Krusel*

Recent rain and fire danger  
*Marieanne Apap*

## WEDNESDAY 19 JUNE

### THEME 4 - FORECASTING PROBLEMS

Chairperson - Bill MacIntosh

- |             |   |
|-------------|---|
| 0830 - 0840 | Problems of overforecasting winds/underforecasting dew point<br><i>Andrew Watson</i>  |
| 0840 - 0900 | Probability forecasts for all fire weather forecasts<br><i>Peter Gigliotti &amp; Geoff Moynihan</i>                               |
| 0900 - 0910 | Inclusion of gustiness and insolation in fire weather forecasts<br><i>David Packham</i>   |
| 0910 - 1130 | Workshop (Syndicate Groups)   |
| 1130 - 1230 | Plenary   |
| 1230 - 1330 | Lunch   |
| 1330 - 1345 | Fire weather research needs<br><i>Col Pierrehumbert</i>   |
| 1345 - 1600 | Workshop (Syndicate Groups)   |
| 1600 - 1700 | Plenary   |
| 1800 - 1845 | Guest Speaker:<br>Stress in emergency response and methods of dealing with it<br><i>Sue McNulty, Victoria Police Psychologist</i> |
| 1900        | Workshop Dinner   |

**THURSDAY 20 JUNE**

Chairperson - Allan Cameron

0830 - 1000

Final Plenary Session

1000 -1015

Morning Tea

1015

Workshop Results

Review of workshop output  
Proposals for future action

1200 - 1215

Workshop Conclusion  
*Peter Noar*

1230 - 1330

Lunch

1330

Depart



FIRE WEATHER WORKSHOP  
JUNE 1991  
RESEARCH PROJECTS  
A SHOPPING LIST

Effect of fuel type on fire behaviour

Distribution of fuel types and amounts around Australia

Factors that influence fuel dryness, how to quantify and forecast

Areal estimation of fuel dryness

Effect of insolation, cloudiness and wind on fuel moisture

Diurnal variation of fire danger and influencing factors

Effect of rainfall on 100% cured grass

Effect of upper winds on fire behaviour

Effect of gustiness on fire behaviour and forecasting gustiness

Factors that control transport and dispersion of smoke

Modelling local winds especially in mountainous terrain

Meso scale fire meteorology eg. small lows, local upper winds, pre frontal troughs

Movement and evolution of frontal systems

Long range seasonal forecasting

Warnings and the sociology of warning, communication and reaction

Synoptic forecasting of fire danger

Fire climatology

Convection processes within large-fire plumes

Validation of fire weather forecasting

Needs analysis for client organisations

All aspects of lightning ignitions

## WORKSHOP OUTCOMES

### OBJECTIVES FOR THE FUTURE

#### 1. Service delivery/quality

. Develop software and computer links to display observations data incl. AWS and forecasts from BOM to the offices of the users (HO and Field)

. Implement in at least one state

#### 2. Communication of fire weather warnings

. Determine the level of understanding, by the public both rural and urban of fire warnings

. Develop an appropriate system of fire weather warnings using classes of fire danger

#### 3. Gustiness

. Define gusts and gustiness for fire weather purposes

. Develop and test a simple model for predicting gustiness (flat terrain) and include gustiness in forecasts

#### 4. Identify user needs

. Consult with each state fire agency to prepare a prioritised list of research and service fire weather needs

#### 5. Cold fronts and other meteorological research

. Expand and test mesoscale modelling of wind (BMRC)

6. Rationalise warning/ban system to give a more adequate service designed for both technical and public user needs

#### 7. Education

. Establish a bi-directional fire weather education activities (BOM/Fire Authorities)

. Expand public fire weather education effort

#### 8. Observation networks including AWS

. Improve policy co-ordination (BOM and others)

. Need for better and more sophisticated wind measuring equipment

9. Establish and promote effective liaison with fire agencies by:

- . Inviting fire agencies to attend weather briefings and chart discussions
- . Offering appropriate training to fire agency personnel
- . Maintaining closer personal and field contact
- . Setting up a working group comprising operational and research units to recommend research directions

# FIRE WEATHER WORKSHOP 1991

## SURVEY RESULTS

Australian Counter Disaster College

Mt Macedon

A survey was conducted at the end of the Fire Weather Workshop to obtain an insight into its effectiveness in regard to whether the aims and objectives were reached and if it warrants further fire weather workshops of this kind in the future. Seventeen responses were received. A copy of the survey form is attached.

The reasons why participants attended the workshop were wide and varied, but most agreed that information exchange, better understanding of the needs and requirements of their respective authorities were the main reasons for their attendance. They welcomed the opportunity to have input to future recommendations. The workshop was deemed necessary in order to provide a more useful service. Others had a purely personal interest in the field or simply felt it was a good opportunity to meet with other members in their own organisations.

The majority of the participants stated that their objectives were realised although there was a mixed reaction to this question. One participant stated that the objectives were met more than what was expected or hoped for or were met quite significantly. Others felt that some specific aspects were not addressed or were disappointed that no firm future objectives were set.

Aspects of the workshop that were liked were the pleasant informal discussion, interaction, co-operation and contribution to future directions as well as the face to face interaction of Fire Authority and Bureau of Meteorology personnel. The excellent session facilitation enabled participants to gain valuable information and exchange of ideas. Several participants reiterated the fact that the informal syndicate work and discussion sessions were of great benefit, giving them an opportunity to discuss problems, issues and have input into the Bureau of Meteorology's future direction and policy. Other comments such as "stimulating debates" and "no rubbish!" were also noted.

Most participants were generally happy. However, with the great amount of work to cover, some people felt that the evening sessions made the program too full and that more time should have been allowed for social interaction and recreation. The fact that ACDC ran another course concurrently meant that several participants had to be accommodated at a nearby motel. Some felt that this split in accommodation was a hindrance to the overall workshop. One participant commented that the negative attitude of people towards change and research was a "dislike" about the workshop. Several people reported no dislikes at all except for "not enough time" or "too much food!". A participant felt that there was too much emphasis on south east Australia and suggested the next workshop be held elsewhere.

All participants were in favour of attending another similar workshop of this kind. This was thought to be in about 2-4 years time when implementation of recommendations and achievements since the workshop would be reviewed. However, it was felt by one participant that a more formal, scientific presentation would also be of benefit. One participant stated that he would strongly support a workshop of this kind and would contribute to costs involved.

The overall rating of the workshop was very encouraging. Participants rated the workshop from very good to excellent. Needless to say the Severe Weather Program Office has noted all the comments good, bad and between and will take them into account when future workshops are planned.



Helen Tseros  
Services Policy Branch

FIRE WEATHER WORKSHOP 1991 - SURVEY

1. Why did you come to this workshop?
  
2. Were your objectives realised?
  
3. What did you like about this workshop?
  
4. What didn't you like about this workshop?



5. Would you come to another similar workshop?

6. Should there be another workshop on this subject If so when?

7. How would you rate this workshop overall?

poor  excellent

Any other comments