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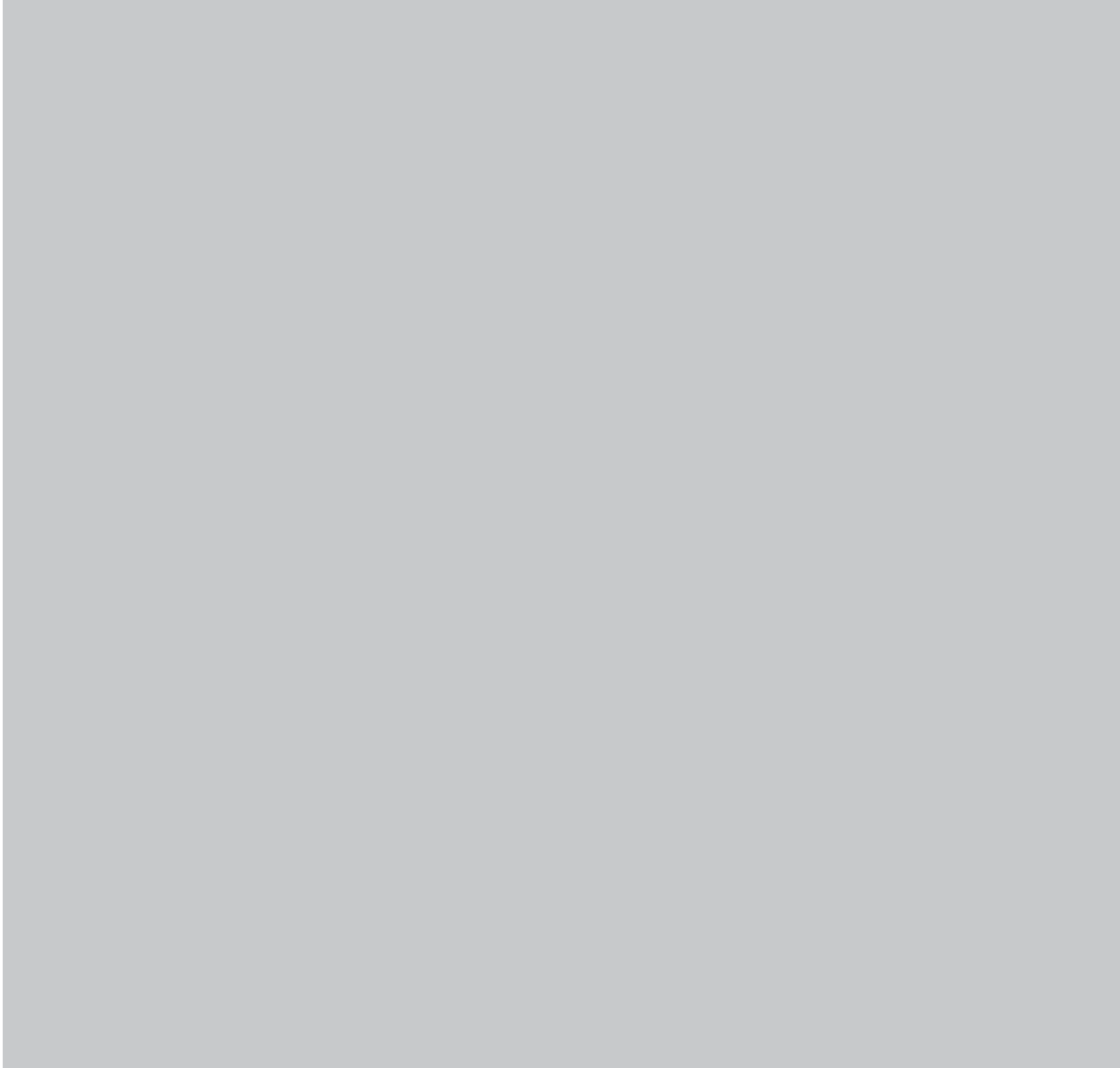


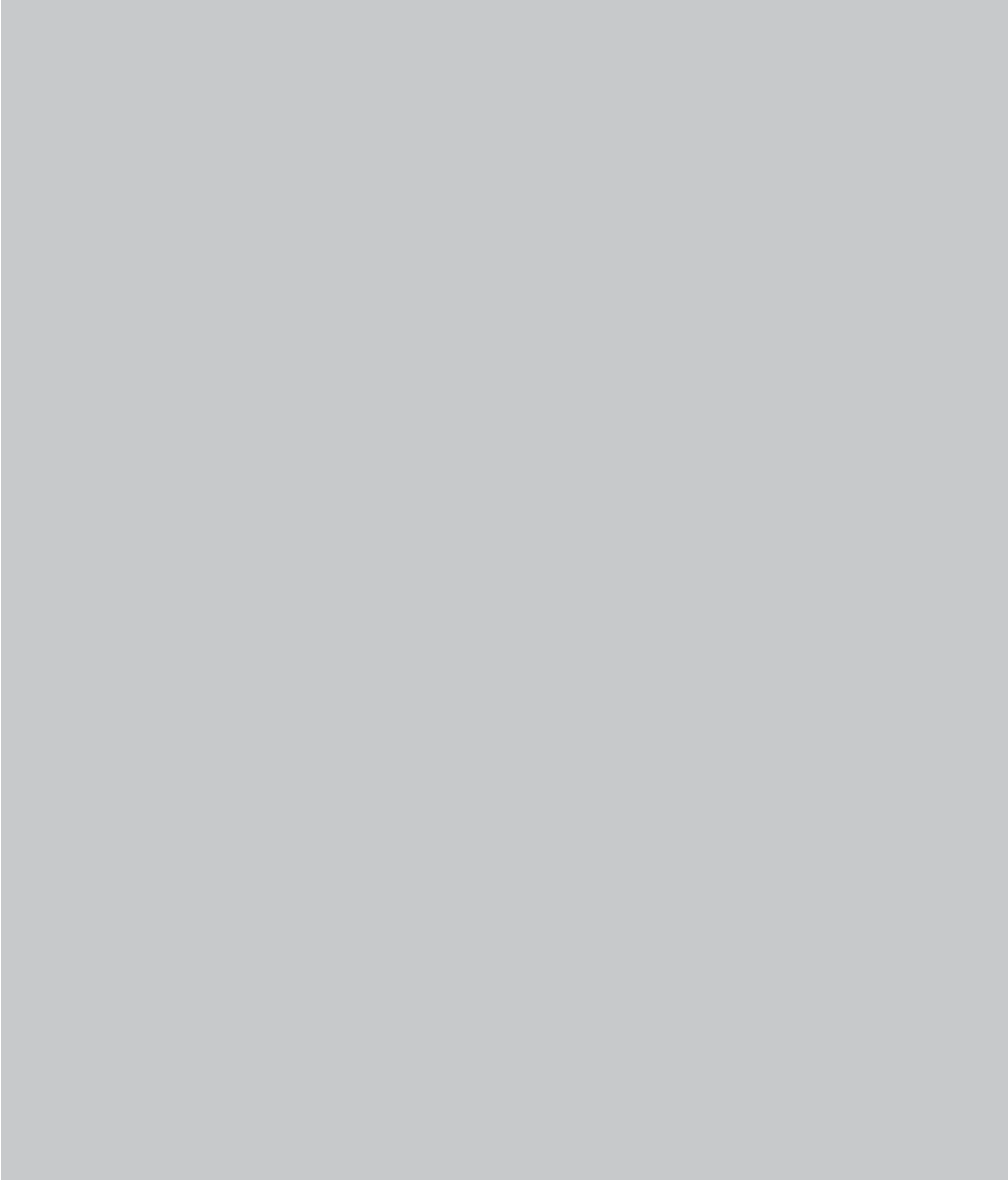
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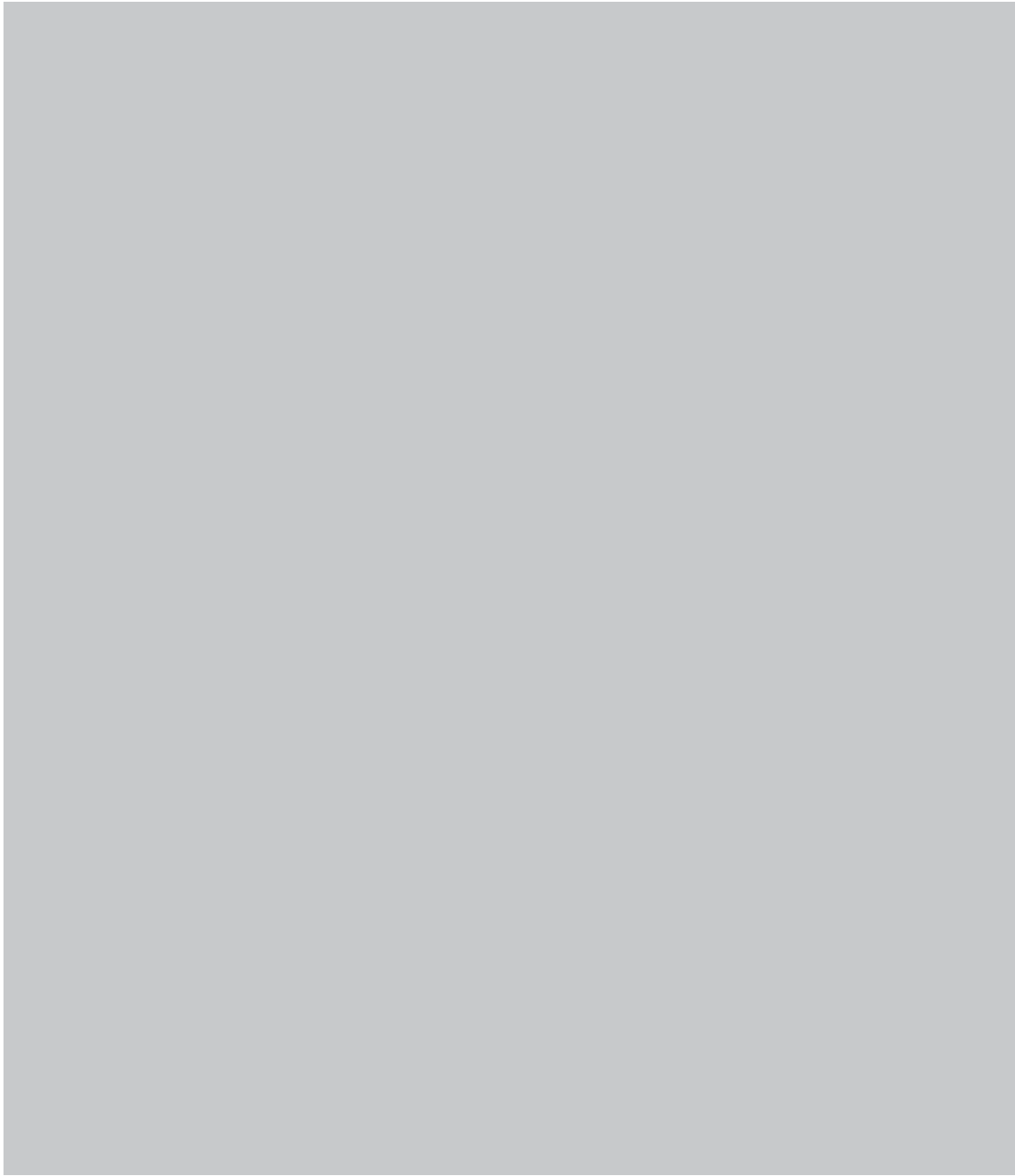
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Fire Weather Warning Performance: April 2014







Australia's National Meteorological Service

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ABN 92 637 533 532

Forecast Performance Results:

During April 2014, 11 Severe or higher (SOH) events were recorded on 3 days. Of the 11 events recorded, 9 were forecast and a district Fire Weather Warning was issued. There were 2 SOH events which were unforecast and considered to be missed events. There were another 3 occasions when SOH fire danger was forecast to affect at least 10% of a district and a Fire Weather Warning was issued, but a SOH event was not observed. These are considered to be false alarms. This information is shown in table 1.

	FWW Issued	FWW Not Issued
SOH Fire Danger Observed	9	2
SOH Fire Danger Not Observed	3	436

Table 1: Frequency table for forecast and observed Severe or higher (SOH) Fire Danger for April 2014

The information shown in Table 1 results in a

Probability of Detection (POD) = 82% [published objective = 70%]
 False Alarm Ratio (FAR) = 25% [published objective = 40%]

Table 2 gives a district by district and day by day breakdown of when SOH district Fire Danger Ratings were declared by CFS due to the meteorological conditions (i.e. disregarding the ban's enforced for operational reasons) and therefore when Fire Weather Warnings (FWW) were issued by the Bureau, together with observed district SOH Fire Danger events, where
 WE = Fire Weather Warning issued and SOH Fire Danger observed = Verified FWW
 W = Fire Weather Warning issued but SOH Fire Danger not observed = False Alarm
 E = SOH Fire Danger event observed but NO Fire Weather Warning = Missed Event

	1/04/2014	21/04/2014	28/04/2014	W	E	WE	POD	FAR
NWP	E			0	1	0	0%	N/A
NEP				0	0	0	N/A	N/A
WC	WE	WE	W	1	0	2	100%	33%
EEP	WE	W	WE	1	0	2	100%	33%
LEP	WE	WE	W	1	0	2	100%	33%
F				0	0	0	N/A	N/A
MN				0	0	0	N/A	N/A
MLR	WE			0	0	1	100%	0%
AM				0	0	0	N/A	N/A
YP			WE	0	0	1	100%	0%
KI				0	0	0	N/A	N/A
RIV				0	0	0	N/A	N/A
ML				0	0	0	N/A	N/A
USE	WE			0	0	1	100%	0%
LSE	E			0	1	0	0%	N/A
W	0	1	2	3				
E	2	0	0		2			
WE	5	2	2			9		

Table 2: District by district and day by day breakdown of Fire Weather Warnings and SOH Fire Danger events for April 2014

There were no significant fire weather days during April 2014 when SOH fire danger was recorded in seven or more districts.

Basic performance measures for the categories at SOH were classified as either **correctly forecast** (e.g. Catastrophic fire danger was observed and forecast), **over forecast** (e.g. Extreme fire danger or less observed, when Catastrophic fire danger was forecast) or **under forecast** (e.g. Catastrophic fire danger was observed when Extreme or less was forecast). Table 3 below summarises the results for April 2014.

Forecast FDR Category	No of district forecasts				
	Severe	Extreme	Catastrophic	Total (number)	Total (%)
Correctly forecast	7	0	0	7	58
Over forecast	3	0	0	3	25
Under forecast	2	0	0	2	17
Total	12	0	0	12	100

Table 3: Number of correctly, under and over forecast categories on a district basis for days in April 2014 when Severe or higher fire danger was forecast.

Table 3 shows the fire danger rating categories for April 2014. Severe was the only SOH fire danger rating category forecast during the month, and the majority of the time this was an accurate forecast. On two occasions during April, Severe was forecast but Extreme was observed and on three occasions Severe was forecast but SOH fire danger rating was not observed.



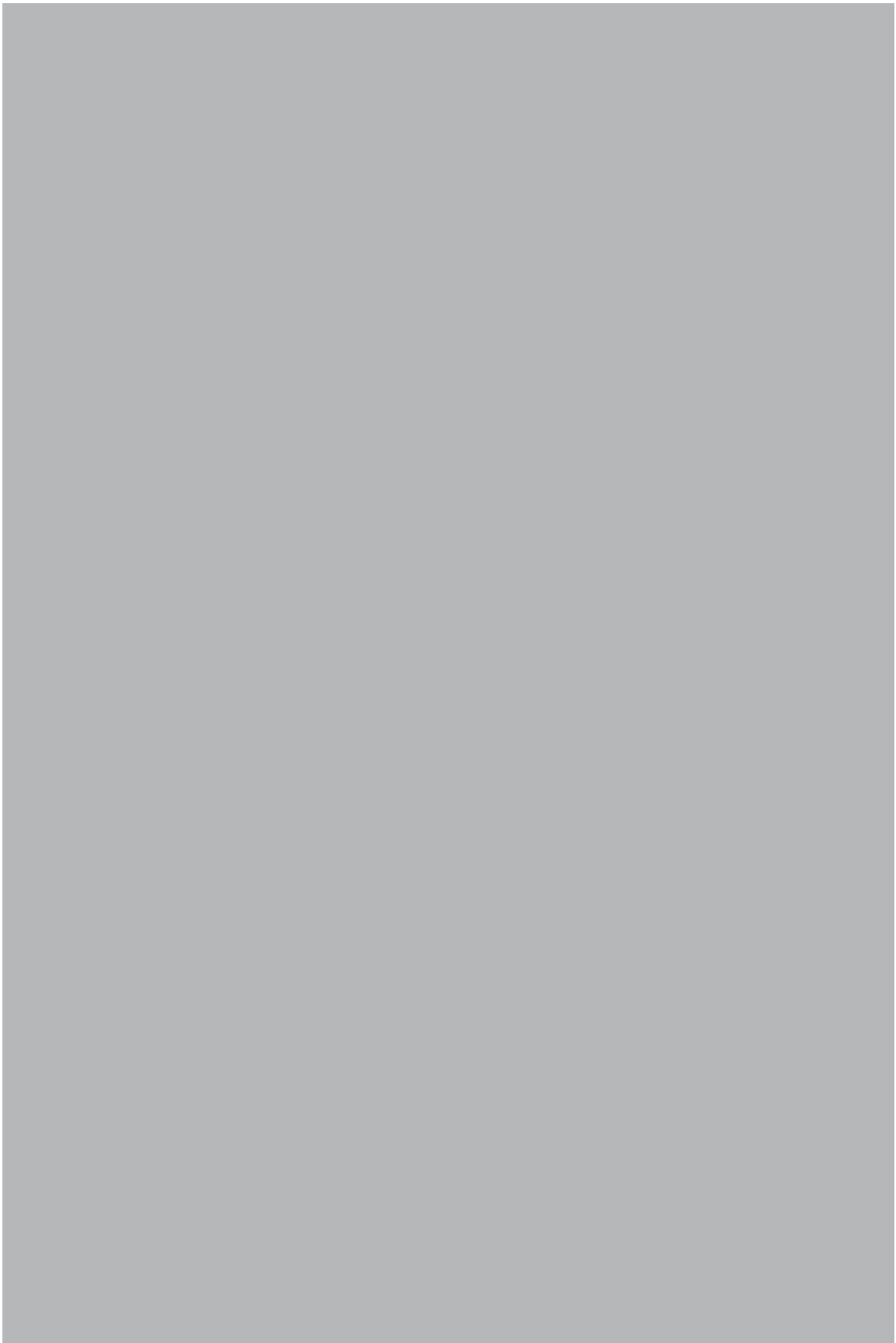
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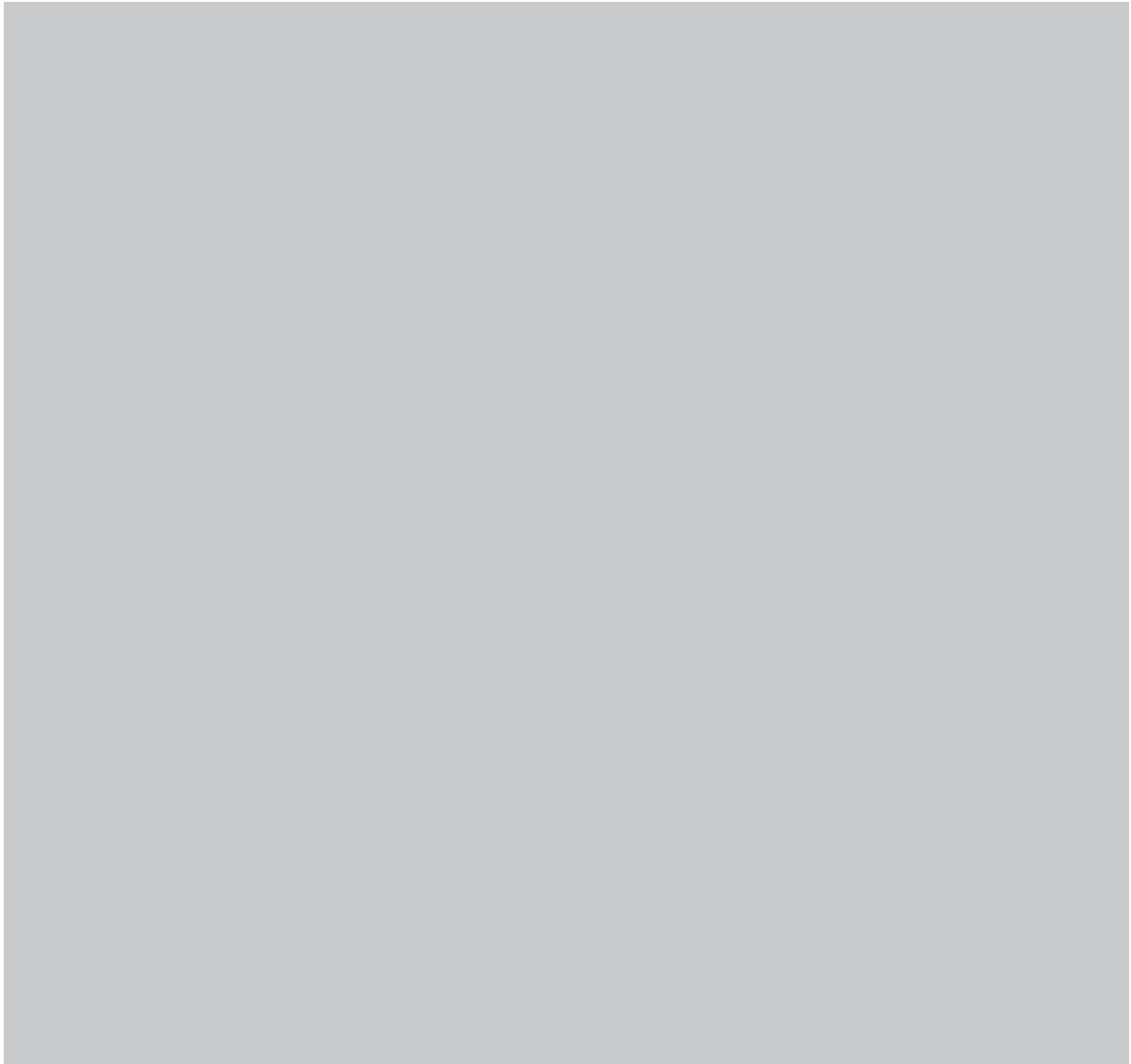


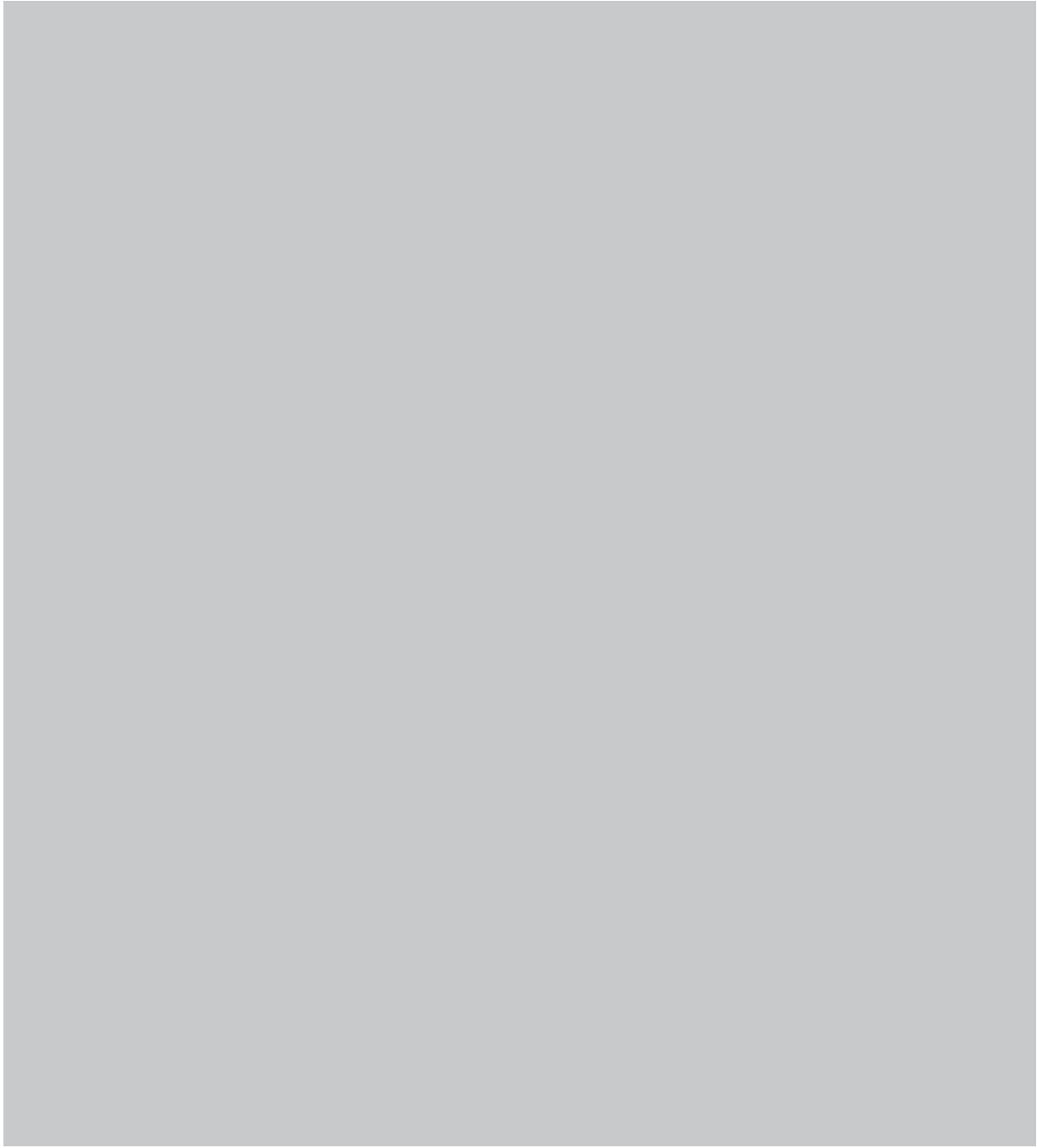
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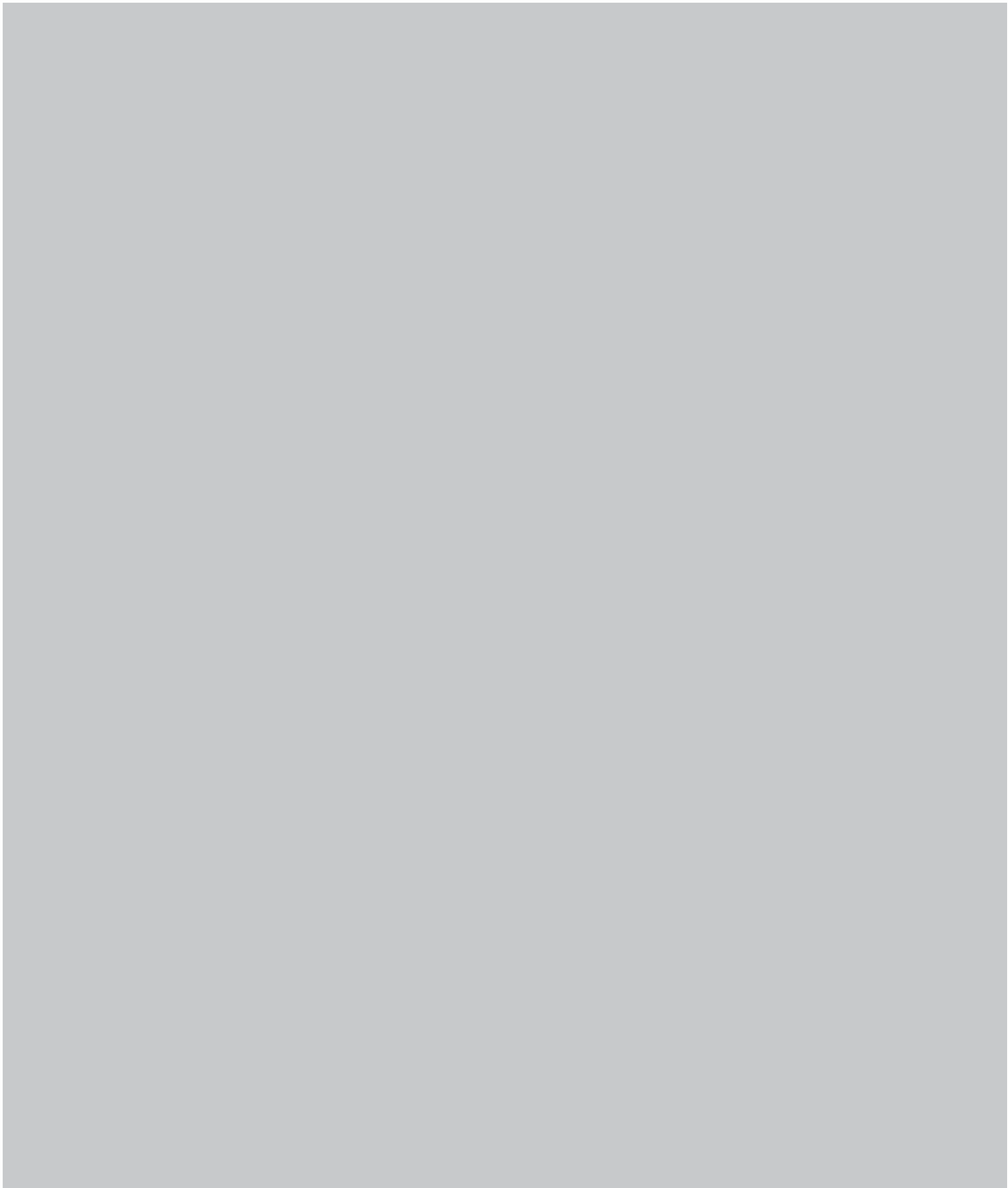
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Fire Weather Warning Performance: March 2014







Forecast Performance Results:

During March 2014, 7 Severe or higher (SOH) events were recorded on 5 days. Of the 7 events recorded, 4 were forecast and a district Fire Weather Warning was issued. There were 3 SOH events which were unforecast and considered to be missed events. There were another 3 occasions when SOH fire danger was forecast to affect at least 10% of a district and a Fire Weather Warning was issued, but a SOH event was not observed. These are considered to be false alarms. This information is shown in table 1.

	FWW Issued	FWW Not Issued
SOH Fire Danger Observed	4	3
SOH Fire Danger Not Observed	3	455

Table 1: Frequency table for forecast and observed Severe or higher (SOH) Fire Danger for March 2014

The information shown in Table 1 results in a

Probability of Detection (POD) = 57% [published objective = 70%]
 False Alarm Ratio (FAR) = 43% [published objective = 40%]

Table 2 gives a district by district and day by day breakdown of when SOH district Fire Danger Ratings were declared by CFS due to the meteorological conditions (i.e. disregarding the ban's enforced for operational reasons) and therefore when Fire Weather Warnings (FWW) were issued by the Bureau, together with observed district SOH Fire Danger events, where

WE = Fire Weather Warning issued and SOH Fire Danger observed = Verified FWW
 W = Fire Weather Warning issued but SOH Fire Danger not observed = False Alarm
 E = SOH Fire Danger event observed but NO Fire Weather Warning = Missed Event

	4/03/2014	9/03/2014	11/03/2014	14/03/2014	30/03/2014	W	E	WE	POD	FAR
NWP	W		E	E	W	2	2	0	0%	100%
NEP						0	0	0	N/A	N/A
WC	WE				WE	0	0	2	100%	0%
EEP	WE					0	0	1	100%	0%
LEP	WE				W	1	0	1	100%	50%
F						0	0	0	N/A	N/A
MN						0	0	0	N/A	N/A
MLR						0	0	0	N/A	N/A
AM						0	0	0	N/A	N/A
YP						0	0	0	N/A	N/A
KI						0	0	0	N/A	N/A
RIV						0	0	0	N/A	N/A
ML						0	0	0	N/A	N/A
USE						0	0	0	N/A	N/A
LSE		E				0	1	0	0%	N/A
W	1	0	0	0	2	3				
E	0	1	1	1	0		3			
WE	3	0	0	0	1			4		

Table 2: District by district and day by day breakdown of Fire Weather Warnings and SOH Fire Danger events for March 2014

There were no significant fire weather days during March 2014 when SOH fire danger was recorded in seven or more districts.

Basic performance measures for the categories at SOH were classified as either **correctly forecast** (e.g. Catastrophic fire danger was observed and forecast), **over forecast** (e.g. Extreme fire danger or less observed, when Catastrophic fire danger was forecast) or **under forecast** (e.g. Catastrophic fire danger was observed when Extreme or less was forecast). Table 3 below summarises the results for March 2014.

Forecast FDR Category	No of district forecasts				
	Severe	Extreme	Catastrophic	Total (number)	Total (%)
Correctly forecast	4	0	0	4	57
Over forecast	3	0	0	3	43
Under forecast	0	0	0	0	0
Total	7	0	0	7	100

Table 3: Number of correctly, under and over forecast categories on a district basis for days in March 2014 when Severe or higher fire danger was forecast.

Table 3 shows the fire danger rating categories for March 2014, but since the only forecast category was Severe it does not provide us any more information than table 1.



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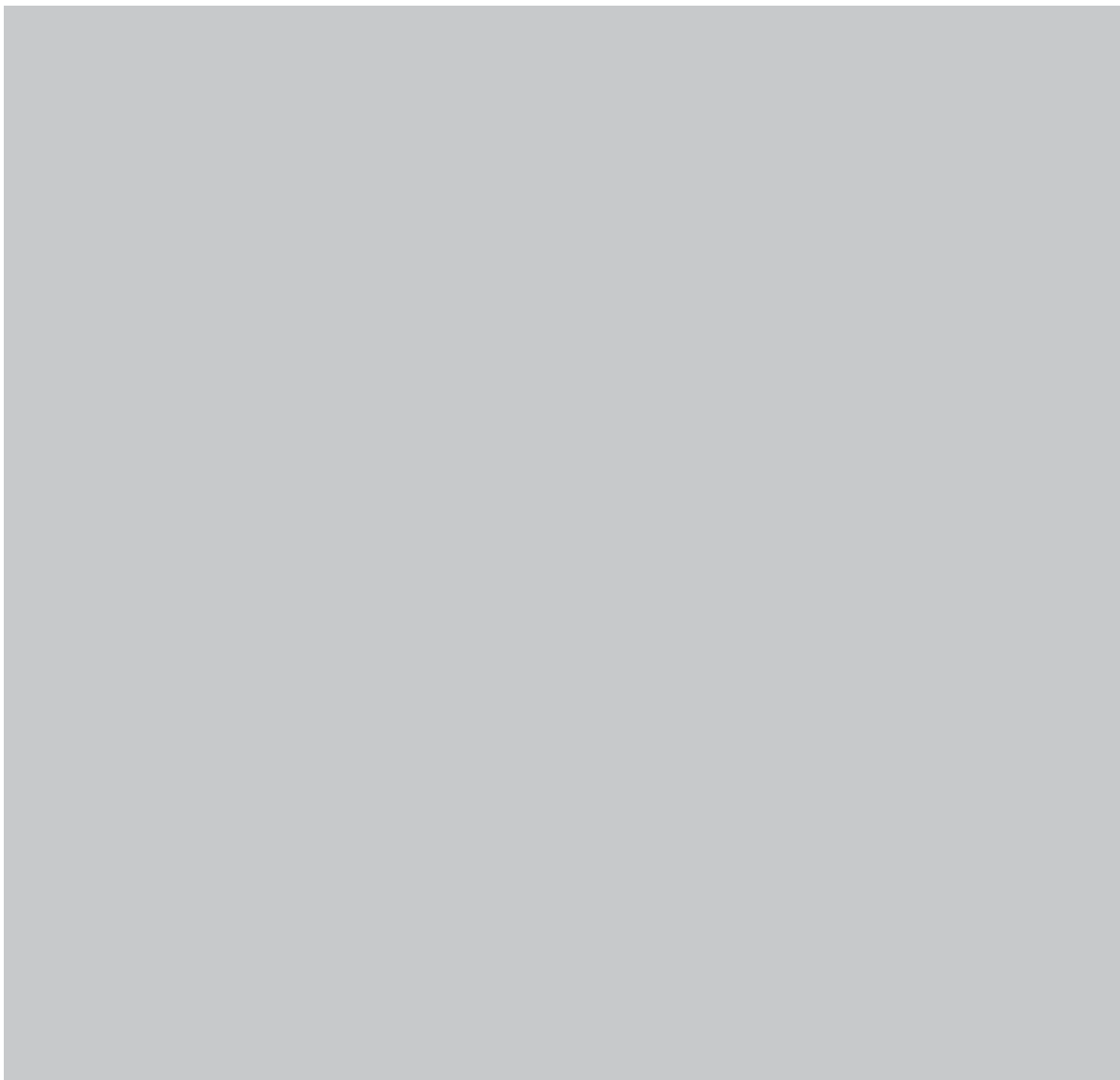


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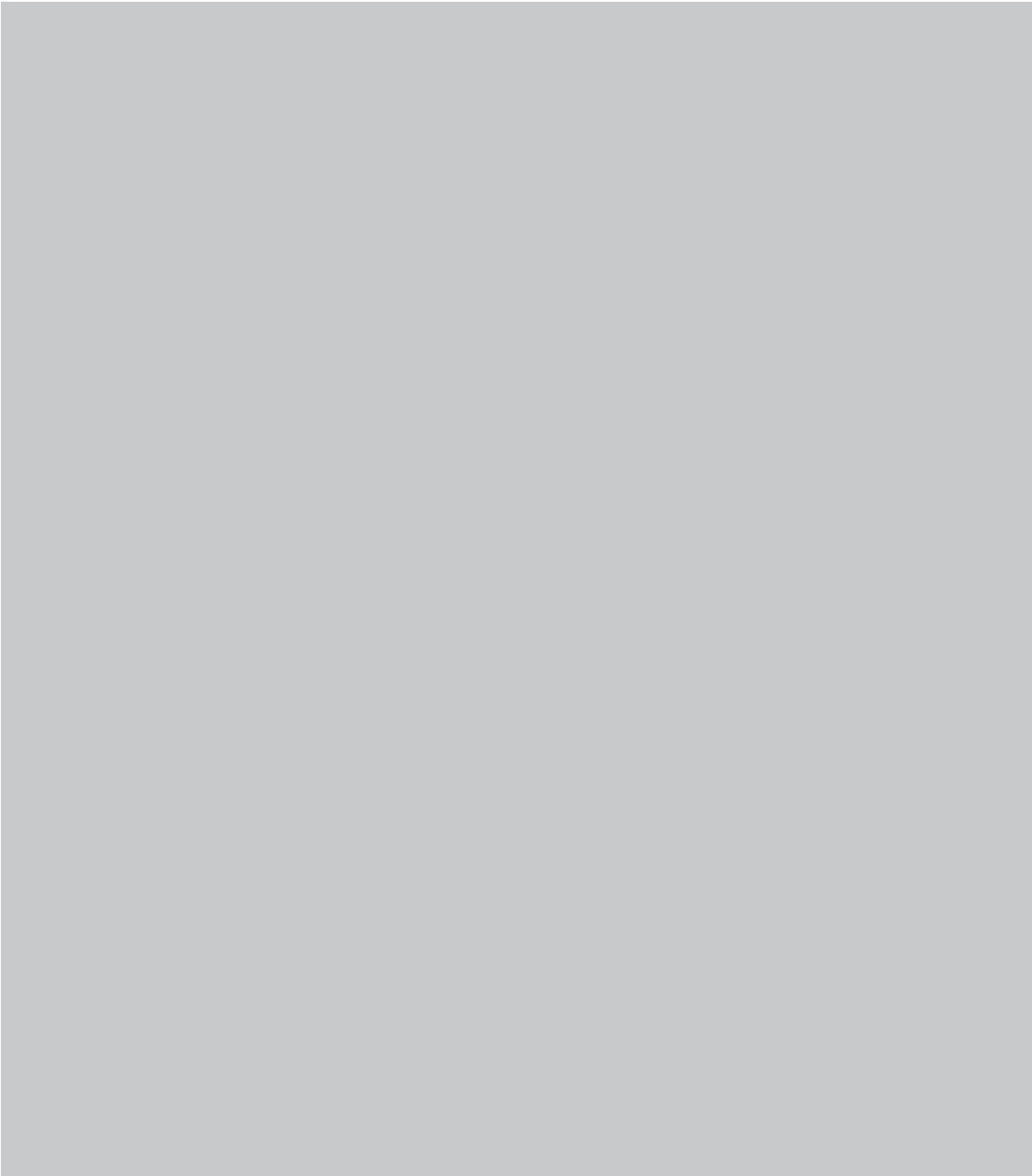
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Fire Weather Warning Performance: February 2014







Forecast Performance Results:

During February 2014, 66 Severe or higher (SOH) events were recorded on 14 days. Of the 66 recorded SOH events, 41 were forecast and a district Fire Weather Warning was issued. There were 25 SOH events which were unforecast and considered to be missed events. There were another 17 occasions when SOH fire danger was forecast to affect at least 10% of a district and a Fire Weather Warning was issued, but a SOH event was not observed. These are considered to be false alarms. This information is shown in table 1.

	FWW Issued	FWW Not Issued
SOH Fire Danger Observed	41	25
SOH Fire Danger Not Observed	17	337

Table 1: Frequency table for forecast and observed Severe or higher (SOH) Fire Danger for February 2014

The information shown in Table 1 results in a

Probability of Detection (POD) = 62% [published objective = 70%]
 False Alarm Ratio (FAR) = 29% [published objective = 40%]

Table 2 gives a district by district and day by day breakdown of when SOH district Fire Danger Ratings were declared by CFS due to the meteorological conditions (i.e. disregarding the ban's enforced for operational reasons) and therefore when Fire Weather Warnings (FWW) were issued by the Bureau, together with observed district SOH Fire Danger events, where

WE = Fire Weather Warning issued and SOH Fire Danger observed = Verified FWW
 W = Fire Weather Warning issued but SOH Fire Danger not observed = False Alarm
 E = SOH Fire Danger event observed but NO Fire Weather Warning = Missed Event

	1/02/2014	2/02/2014	3/02/2014	4/02/2014	5/02/2014	6/02/2014	7/02/2014	8/02/2014	9/02/2014	10/02/2014	11/02/2014	12/02/2014	13/02/2014	14/02/2014	25/02/2014	W	E	WE	POD	FAR
NWP	WE	W	WE	WE		E		WE	W		E		WE		E	2	3	5	63%	29%
NEP	WE	WE	WE	WE	E			WE	WE	WE			W	W		2	2	7	78%	22%
WC	WE	WE	E			E	E	WE			E					0	4	3	43%	0%
EEP		WE						WE			E	W				1	1	2	67%	33%
LEP	E	W						WE								1	1	1	50%	50%
F	WE	WE	W	W	E	E		WE	W	W		W	W			6	2	3	60%	67%
MN		WE						WE			E	WE				0	1	3	75%	0%
MLR	E	WE	W	W		E		WE			WE	WE				2	2	4	67%	33%
AM		E						WE				E				0	2	1	33%	0%
YP		WE	E					WE				WE				0	1	3	75%	0%
KI		WE	E					W								1	1	1	50%	50%
RIV	E	W						WE					W			2	1	1	50%	67%
ML	E	WE						WE				E				0	2	2	50%	0%
USE	E	WE						WE								0	1	2	67%	0%
LSE		WE						WE			E	WE				0	1	3	75%	0%
W	0	3	2	2	0	0	0	1	2	1	0	2	3	1	0	17				
E	5	1	3	0	2	4	1	0	0	0	6	2	0	0	1		25			
WE	4	11	2	2	0	0	0	14	1	1	1	4	1	0	0			41		

Table 2: District by district and day by day breakdown of Fire Weather Warnings and SOH Fire Danger events for February 2014

There were four significant fire weather days during February 2014 when SOH fire danger was recorded in seven or more districts. These were:

1 February: SOH fire danger was observed in nine districts, with Extreme fire danger observed in the North West Pastoral.

2 February: SOH fire danger was observed in twelve districts, with Extreme fire danger in the Mount Lofty Ranges, Yore Peninsula, Kangaroo Island and the Lower South East.

8 February: SOH fire danger was observed in fourteen districts, with Extreme fire danger in the West Coast, Mid North, Mount Lofty Ranges, Yore Peninsula, Murraylands, and the Lower South East.

11 February: SOH fire danger was observed in seven districts.

Basic performance measures for the categories at SOH were classified as either **correctly forecast** (e.g. Catastrophic fire danger was observed and forecast), **over forecast** (e.g. Extreme fire danger or less observed, when Catastrophic fire danger was forecast) or **under forecast** (e.g. Catastrophic fire danger was observed when Extreme or less was forecast). Table 3 below summarises the results for February 2014.

Forecast FDR Category	No of district forecasts				
	Severe	Extreme	Catastrophic	Total (number)	Total (%)
Correctly forecast	26	4	0	30	52
Over forecast	17	2	3	22	38
Under forecast	6	0	N/A	6	10
Total	49	6	3	58	100

Table 3: Number of correctly, under and over forecast categories on a district basis for days in February 2014 when Severe or higher fire danger was forecast.

From table 3, it can be seen that when Severe or higher fire danger was forecast the fire danger category was correctly forecast on 52% of occasions and was overforecast 38% of the time and underforecast 10% of the time. A fire danger rating of Severe was forecast on 49 occasions and was correct on 26 of those occasions, an overforecast on 17 of these occasions and an underforecast on 6. A fire danger rating of Extreme was forecast on 6 occasions and was correct on 4 of those occasions and was an overforecast on 2 occasions. A fire danger rating of Catastrophic was forecast 3 times and was an overforecast on all 3 occasions since Catastrophic fire danger was not observed during February.



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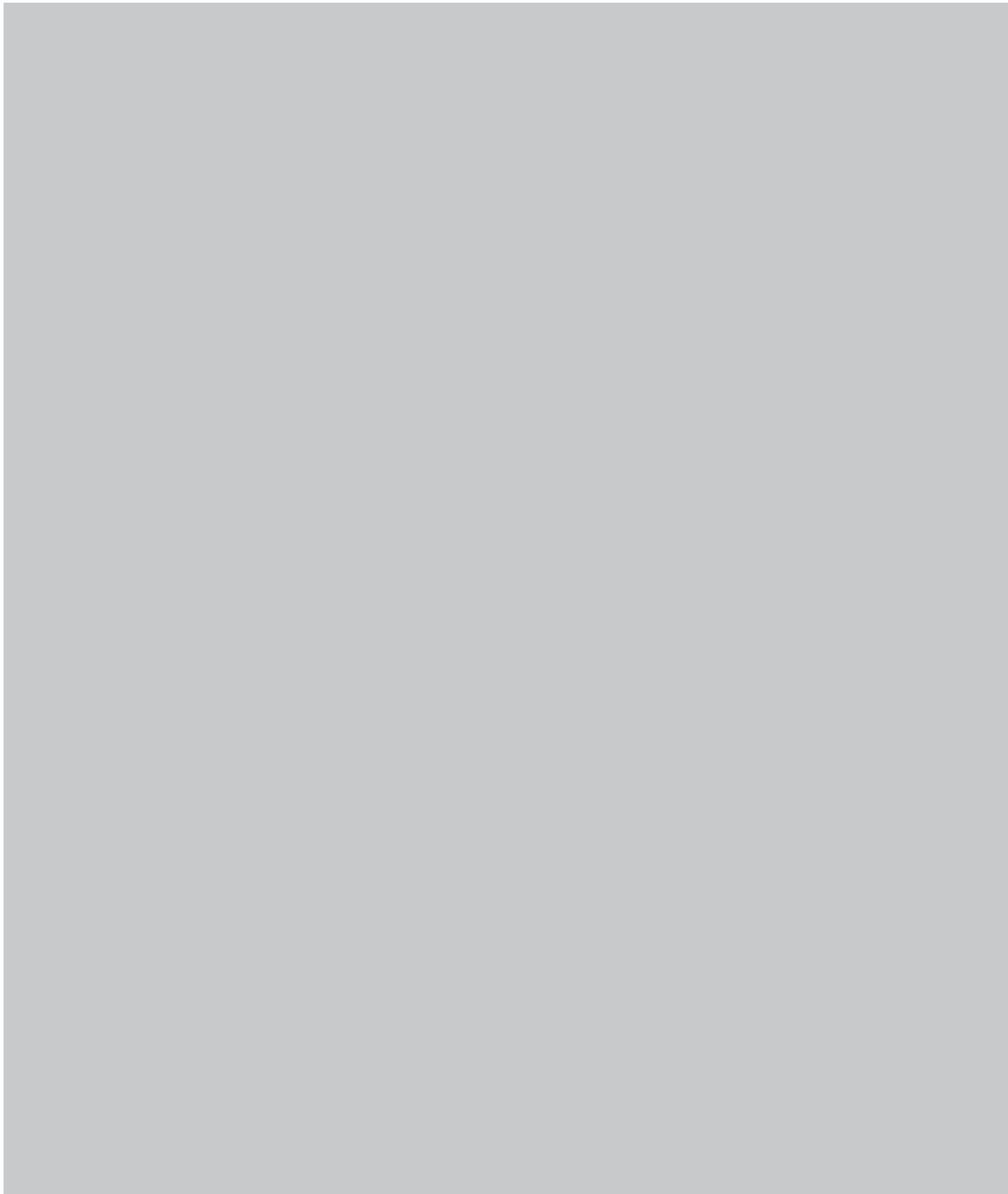


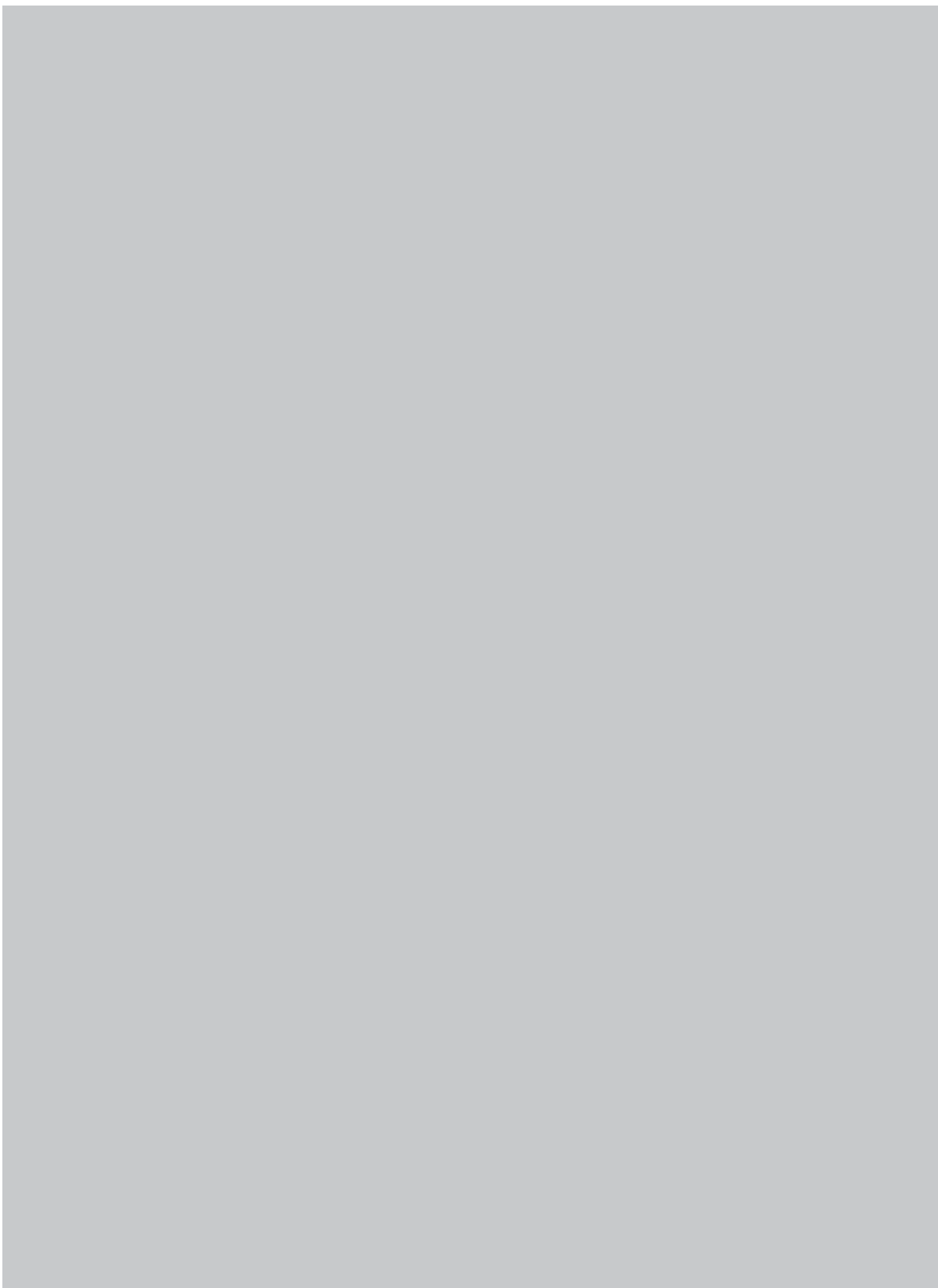
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Fire Weather Warning Performance: January 2014





Forecast Performance Results:

During January 2014, 104 Severe or higher (SOH) events were recorded on 21 days. Of the 104 recorded SOH events, 75 were forecast and a district Fire Weather Warning was issued. There were 29 SOH events on 14 days which were unforecast and considered to be missed events. There were another 15 occasions spread over 9 days when SOH fire danger was forecast to affect at least 10% of a district and a Fire Weather Warning was issued, but a SOH event was not observed. These are considered to be false alarms. This information is shown in table 1 below. The CFS imposed Total Fire Bans for operational reasons in some districts over the period 15-18 January, which have not been included in the forecast statistics.

	FWW Issued	FWW Not Issued
SOH Fire Danger Observed	75	29
SOH Fire Danger Not Observed	15	346

Table 1: Frequency table for forecast and observed Severe or higher (SOH) Fire Danger for January 2014

The information shown in Table 1 results in a

Probability of Detection (POD) =	72%	[published objective = 70%]
False Alarm Ratio (FAR) =	17%	[published objective = 40%]

Table 2 gives a district by district and day by day breakdown of when SOH district fire danger ratings were declared by CFS due to the meteorological conditions (i.e. disregarding the Total Fire Bans declared for operational reasons) and therefore when Fire Weather Warnings (FWW) were issued by the BoM, together with observed district SOH Fire Danger events, where

WE = Fire Weather Warning issued and SOH Fire Danger observed	= Verified FWW
W = Fire Weather Warning issued but SOH Fire Danger not observed	= False Alarm
E = SOH Fire Danger event observed but NO Fire Weather Warning	= Missed Event

	1/01/2014	2/01/2014	3/01/2014	5/01/2014	9/01/2014	10/01/2014	11/01/2014	13/01/2014	14/01/2014	15/01/2014	16/01/2014	17/01/2014	20/01/2014	21/01/2014	22/01/2014	23/01/2014	27/01/2014	28/01/2014	29/01/2014	30/01/2014	31/01/2014	W	E	WE	POD (%)	FAR (%)
NWP	WE	WE	WE	E		W	WE	E	E	WE	WE	E		E		E		WE		E	WE	1	7	8	53	11
NEP	WE	WE	W						WE	WE	E	W	E	E	E			WE	E	E	WE	2	6	6	50	25
WC	WE	W			E	E		E	E	WE	WE	E						WE	WE		W	2	5	5	50	29
EEP	WE							E	E	WE	WE	WE						WE	WE			0	2	6	75	0
LEP	WE								E	W	WE							WE				1	1	3	75	25
F	WE	W				WE	W	E	E	WE	WE	WE						WE			WE	2	2	7	78	22
MN	WE							W	WE		WE	WE						WE			W	2	0	5	100	29
MLR	WE							WE	WE	WE	WE	WE						WE	WE			0	0	8	100	0
AM	W								E		E							WE				1	2	1	33	50
YP	WE							WE	WE	WE	WE	WE						WE				0	0	7	100	0
KI								WE	W	WE								E	WE			1	1	3	75	25
RIV	WE									WE	WE							WE				0	0	4	100	0
ML	W					E			E	WE	WE							WE				1	2	3	60	25
USE	W								WE		E	WE						WE				1	1	3	75	25
LSE								WE	WE	W	WE	WE						WE	WE			1	0	6	100	14
W	3	2	1	0	0	1	1	1	0	3	0	1	0	0	0	0	0	0	0	0	0	2	15			
E	0	0	0	1	1	2	0	4	7	0	3	2	1	2	1	1	1	0	1	2	0			29		
WE	10	2	1	0	0	1	1	3	7	7	12	9	0	0	0	0	4	15	0	0	3				75	

Table 2: District by district and day by day breakdown of Fire Weather Warnings and SOH Fire Danger events for January 2014

There were seven significant fire weather days during January 2014 when SOH fire danger ratings were recorded in seven or more districts. These were:

1 January: SOH fire danger rating was observed in ten districts, including Extreme fire danger conditions in the North East Pastoral, Eastern Eyre Peninsula, Flinders and Mount Lofty Ranges districts, and Catastrophic fire danger rating conditions in the North West Pastoral district.

13 January: SOH fire danger rating was observed in seven districts.

14 January: SOH fire danger rating was observed in fourteen (of the fifteen) districts, including Extreme fire danger rating in the Mount Lofty Ranges and Yorke Peninsula.

15 January: SOH fire danger rating was observed in seven districts.

16 January: SOH fire danger rating was observed in all fifteen of the forecast districts. This included Extreme fire danger rating conditions on the West Coast, Flinders and Mount Lofty Ranges districts, and Catastrophic fire danger rating conditions on Yorke Peninsula.

17 January: SOH fire danger rating was observed in eleven districts, including Extreme fire danger rating conditions in the Lower South East district.

28 January: SOH fire danger rating was again observed in all fifteen of the forecast districts. This included Extreme fire danger rating conditions on the Lower Eyre Peninsula, Mid North, Mount Lofty Ranges and Kangaroo Island, and Catastrophic fire danger rating conditions on Yorke Peninsula and in the Lower South East.

The period from 14 to 17 January was particularly significant from a fire weather perspective. Hot and dry conditions with generally northeast to northerly winds were observed ahead of a trough which passed over southern parts of the State on Tuesday 14 January. High based thunderstorm activity ahead of and near the trough resulted in the ignition of more than 200 fires across the State from midday onwards. Moister and milder conditions were experienced in the south of the State on

Wednesday, however very hot and dry conditions persisted further north. During Thursday, a second trough, linked to a cold front in the south, pushed into the far west of the State and then progressed eastwards through the State on Friday. Again, hot to very hot conditions were experienced with moderate to fresh north to northeasterly winds ahead of the trough. Thunderstorm activity was again initiated with the passage of the trough, which resulted in another increase in fire activity on Friday afternoon and evening. Some of the most significant fires that burnt throughout this period included the Eden Valley, Bangor, Billiatt, Riverland Complex and Ngarkat Complex fires. Overall approximately 425 000 ha were burnt across the State.

Basic performance measures for the categories at SOH were classified as either **correctly forecast** (e.g. Catastrophic fire danger rating was observed and forecast), **over forecast** (e.g. Extreme fire danger rating or less observed, when Catastrophic fire danger rating was forecast) or **under forecast** (e.g. Catastrophic fire danger rating was observed when Extreme or less was forecast). Table 3 below summarises the results for January 2014.

Forecast Category	FDR	No of district forecasts				
		Severe	Extreme	Catastrophic	Total (number)	Total (%)
Correctly forecast		47	7	2	56	62
Over forecast		13	9	5	27	30
Under forecast		6	1	N/A	7	8
Total		66	17	7	90	100

Table 3: Number of correctly, under and over forecast categories on a district basis for days in January 2014 when Severe or higher fire danger rating was forecast.

From table 3, it can be seen that Severe fire danger rating was forecast most frequently out of all the SOH categories. The SOH fire danger rating category was correctly forecast for 62% of the events, over forecast for 30% of the events, and under forecast for only 8% of the events. There were two correctly forecast Catastrophic fire danger rating events (in the North West Pastoral on 1 January and the Lower South East on 28 January). Catastrophic fire danger rating conditions were forecast a further five times (North East Pastoral, Flinders and Mid North on 1 January, and in the North East and North West Pastoral districts on 2 January), but not observed. Furthermore, Catastrophic fire danger rating conditions were observed twice on Yorke Peninsula (16 January and 28 January), when Severe or Extreme fire danger ratings were forecast.

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SA Severe Weather Section





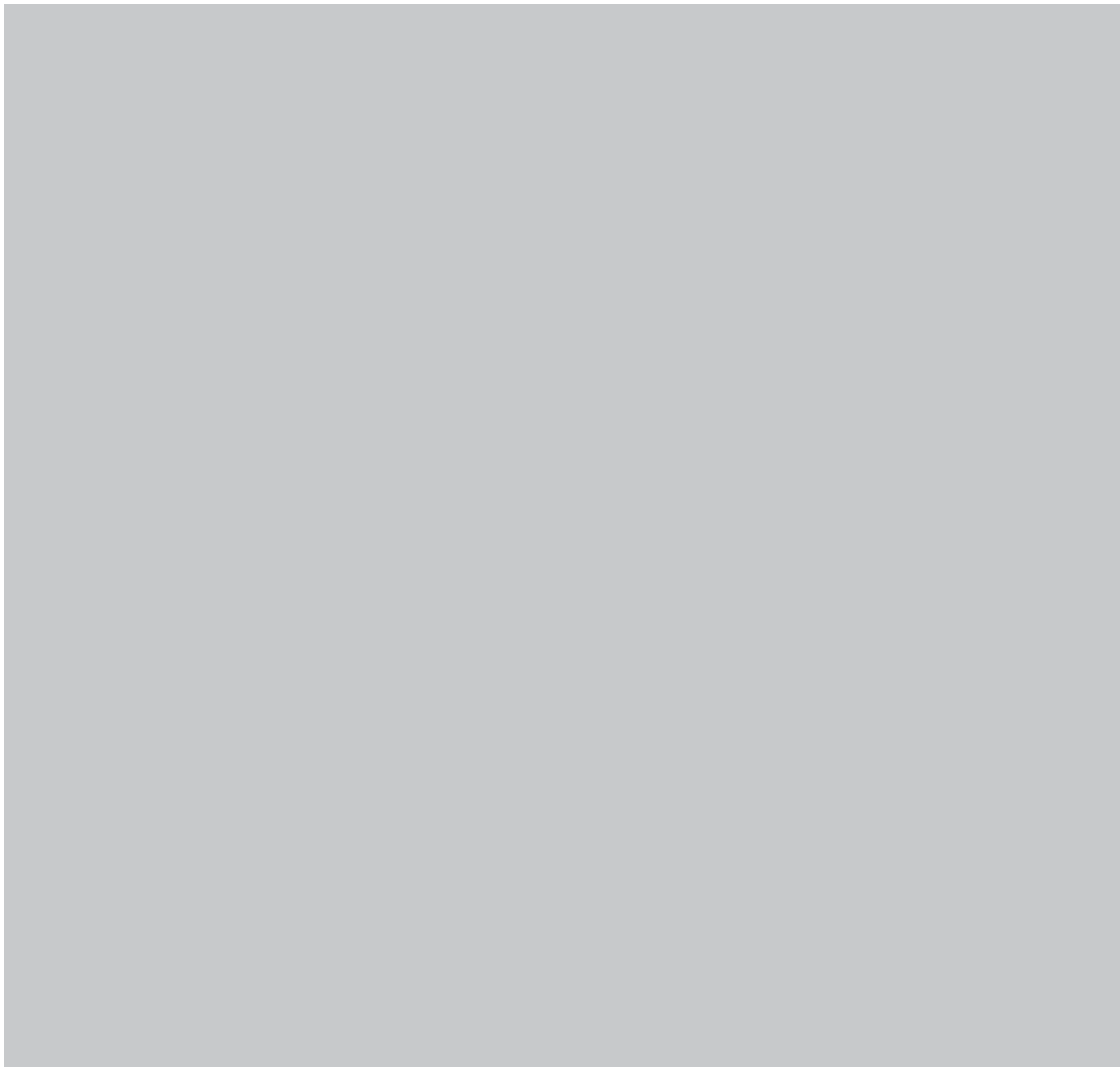


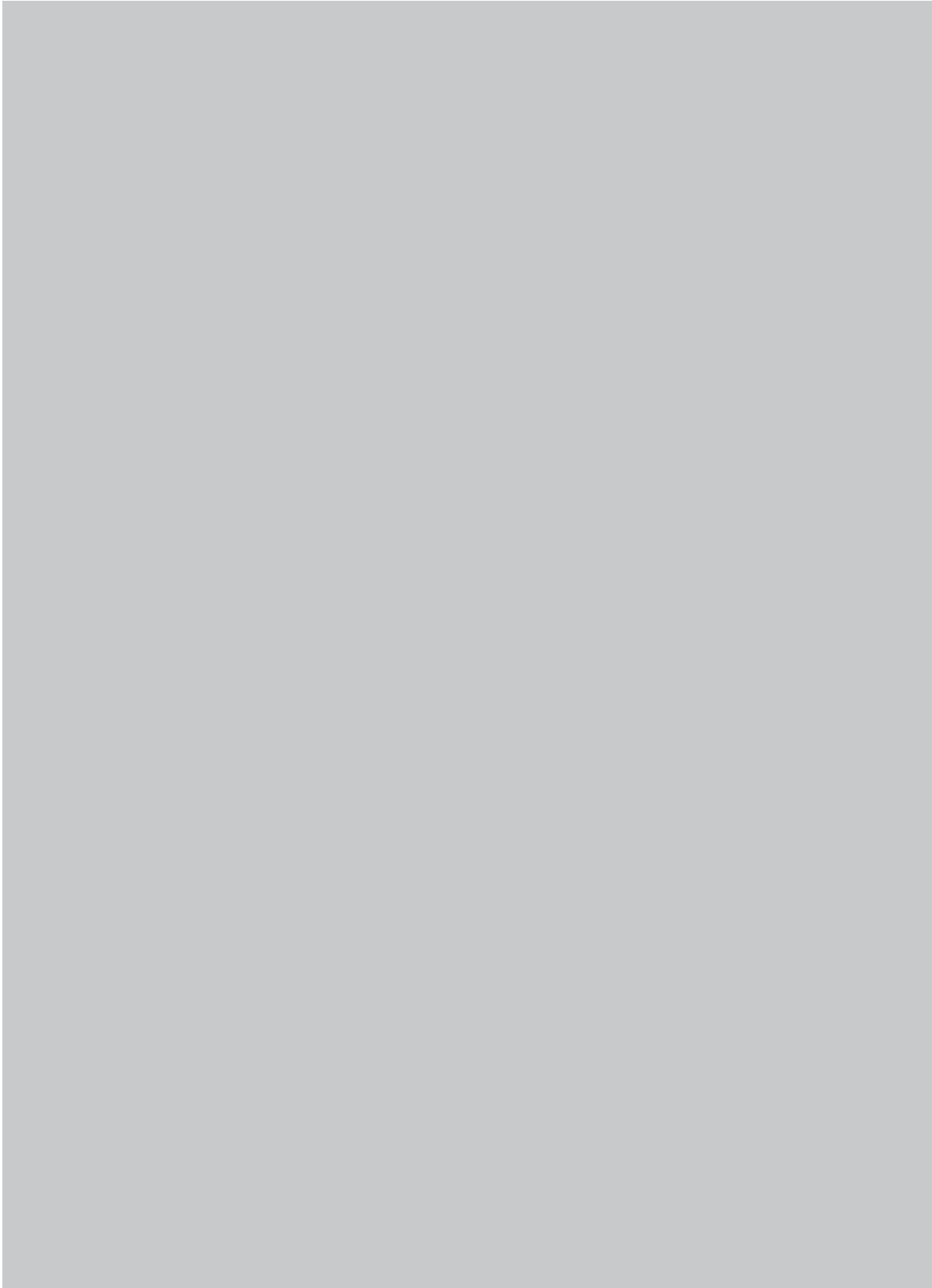
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Fire Weather Warning Performance: December 2013





Forecast Performance Results:

During December 2013, 76 Severe or higher (SOH) fire danger rating events were recorded on 17 days. Of the 76 events, 58 were forecast and a district Fire Weather Warning was issued. There were 18 SOH fire danger rating events on 11 days which were unforecast and considered to be missed events. There were another 28 occasions spread over 12 days when SOH fire danger rating was forecast to affect at least 10% of a district and a Fire Weather Warning was issued, but a SOH fire danger rating event was not observed. These are considered to be false alarms. This information is shown in table 1.

The CFS imposed Total Fire Bans on 31 December in some districts for operational reasons, which have not been included in the forecast statistics.

	FWW Issued	FWW Not Issued
SOH Fire Danger Observed	58	18
SOH Fire Danger Not Observed	28	361

Table 1: Frequency table for forecast and observed Severe or higher (SOH) Fire Danger Rating for December 2013

The information shown in Table 1 results in a

Probability of Detection (POD) = 76% [published objective = 70%]
False Alarm Ratio (FAR) = 33% [published objective = 40%]

Table 2 gives a district by district and day by day breakdown of when SOH district Fire Danger Ratings were declared by CFS and therefore when Fire Weather Warnings (FWW) were issued by the BoM, together with observed district SOH Fire Danger events, where

WE = Fire Weather Warning issued and SOH Fire Danger observed = Verified FWW
W = Fire Weather Warning issued but SOH Fire Danger not observed = False Alarm
E = SOH Fire Danger event observed but NO Fire Weather Warning = Missed Event

	1/12/2013	2/12/2013	3/12/2013	4/12/2013	7/12/2013	8/12/2013	17/12/2013	18/12/2013	19/12/2013	20/12/2013	21/12/2013	25/12/2013	26/12/2013	28/12/2013	29/12/2013	30/12/2013	31/12/2013	W	E	WE	POD	FAR
NWP	WE		WE	E	W	WE		W	WE	WE	W	W	E	WE		W	WE	5	2	7	78%	42%
NEP	WE	WE	WE	E		W	E	W	WE	WE	WE			WE	E			2	3	7	70%	22%
WC	WE		W		WE	WE	W	WE	WE	WE		WE				W	WE	3	0	8	100%	27%
EEP	WE					WE		WE	WE	WE		E		E			WE	0	2	6	75%	0%
LEP	W							W	WE	W		E					E	3	2	1	33%	75%
F	W	W	WE			WE	E	WE	WE	WE	W			WE		E		3	2	6	75%	33%
MN	W					WE		WE	WE	WE	W			WE				2	0	5	100%	29%
MLR	W					WE		WE	WE	WE				E			E	1	2	4	67%	20%
AM									W									1	0	0	#DIV/0!	100%
YP	WE				E	WE		E	WE	WE								0	2	4	67%	0%
KI									W	W							E	2	1	0	0%	100%
RIV	W	W				E			WE	WE	W			WE				3	1	3	75%	50%
ML	W					WE			WE	WE				WE				1	0	4	100%	20%
USE	W								WE	W				WE				2	0	2	100%	50%
LSE									WE					E				0	1	1	50%	0%
W	7	2	1	0	1	1	1	3	2	3	4	1	0	0	0	2	0	28				
E	0	0	0	2	1	1	2	1	0	0	0	2	1	3	1	1	3		18			
WE	5	1	3	0	1	8	0	5	13	10	1	1	0	7	0	0	3					58

Table 2: District by district and day by day breakdown of Fire Weather Warnings and SOH Fire Danger Rating events for December 2013.

There were five significant fire weather days during December 2013 when SOH fire danger rating was recorded in seven or more districts, or in five or more districts with at least one district observing a Catastrophic fire danger rating. These were:

8 December: Severe or higher fire danger rating was observed in nine districts including Extreme fire danger rating in the Mid North district.

19 December: Severe or higher fire danger rating was observed in thirteen of the fifteen districts.

20 December: Severe or higher fire danger rating was observed in ten districts, including Extreme fire danger rating in the North West Pastoral district.

28 December: Severe or higher fire danger rating was observed in ten districts, with Extreme fire danger rating observed in the North East Pastoral and Riverland districts.

31 December: Severe or higher fire danger was observed in six districts, including Catastrophic fire danger rating observed in the West Coast district.

Basic performance measures for the categories at SOH fire danger rating were classified as either **correctly forecast** (e.g. Catastrophic fire danger rating was observed and forecast), **over forecast** (e.g. Extreme fire danger rating or less observed, when Catastrophic fire danger rating was forecast) or **under forecast** (e.g. Catastrophic fire danger rating was observed when Extreme fire danger rating or less was forecast). Table 3 below summarises the results for December 2013.

Forecast FDR Category	No of district forecasts				
	Severe	Extreme	Catastrophic	Total (number)	Total (%)
Correctly forecast	45	3	0	48	56
Over forecast	26	6	0	32	37
Under forecast	5	1	N/A	6	7
Total	76	10	0	86	100

Table 3: Number of correctly, under and over forecast categories on a district basis for days in December 2013 when Severe or higher fire danger was forecast.

From table 3, it can be seen that Severe fire danger rating was forecast most frequently out of all the SOH categories. The fire danger rating category was correctly forecast for 56% of the events, over forecast for 37% of the events, and under forecast for only 7% of the events.

There were no forecasts of Catastrophic fire danger rating for December, although it was observed briefly on two occasions, on Eastern Eyre Peninsula on 1 December and on the West Coast on 31 December.



Meteorologist
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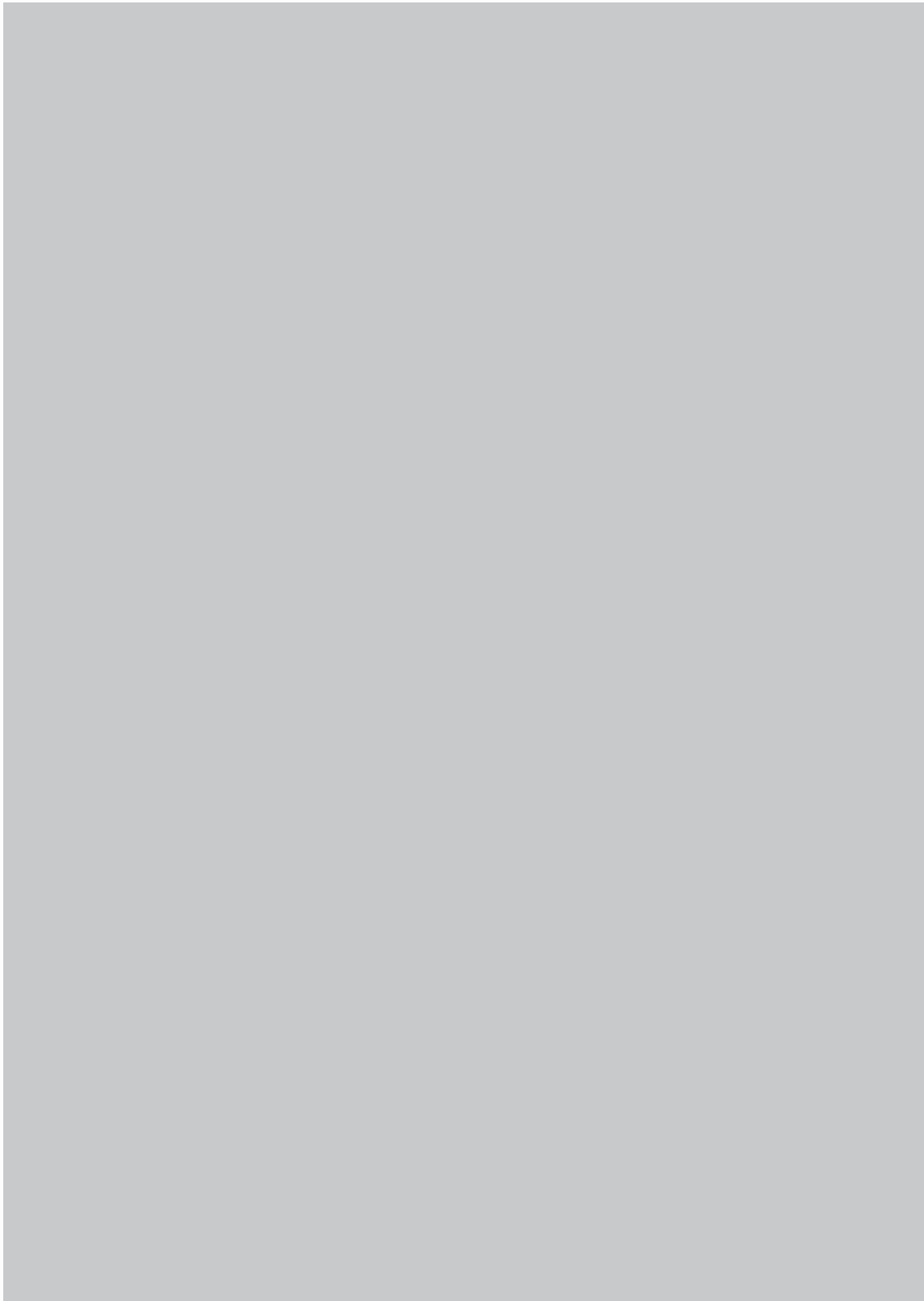
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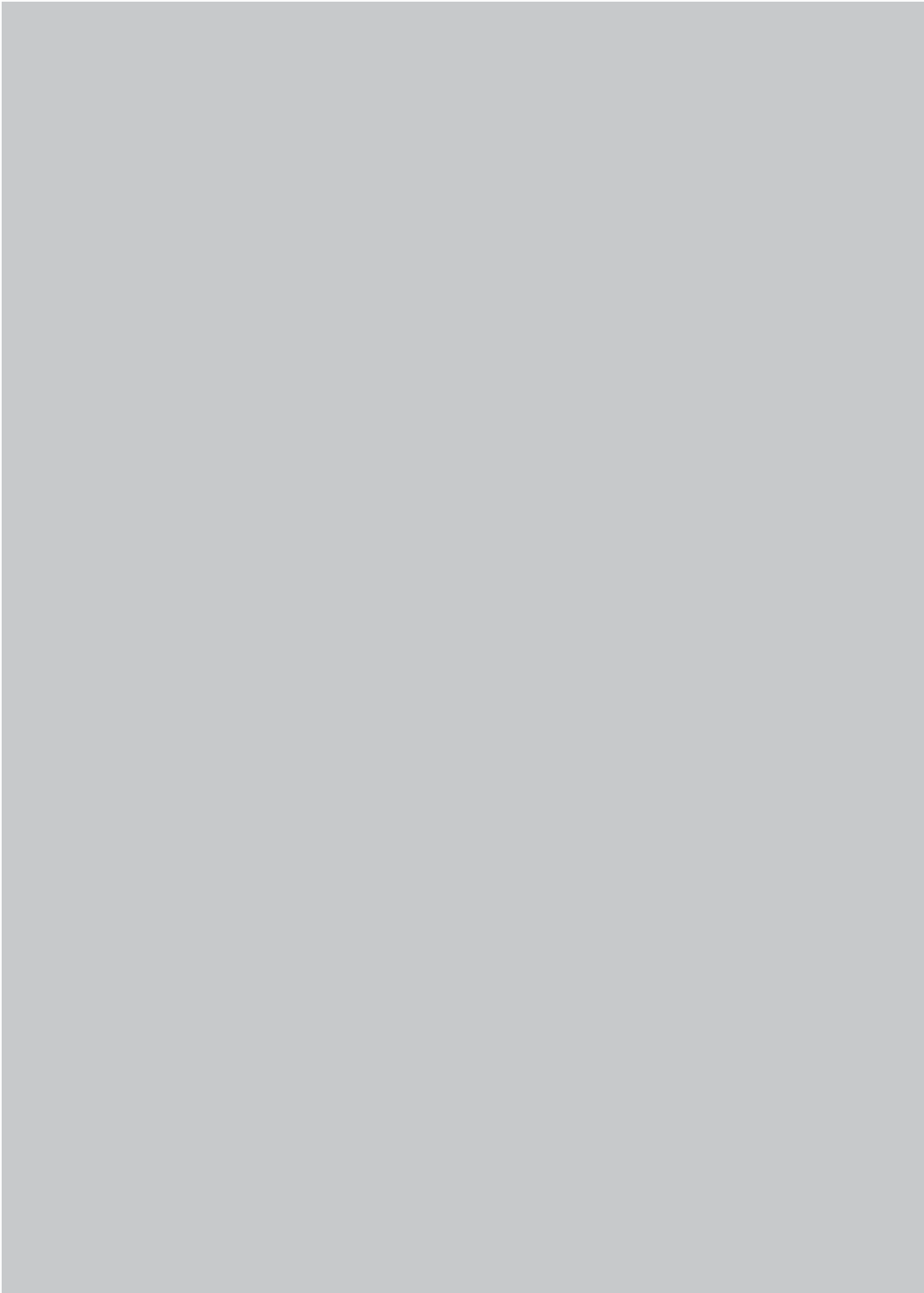
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Fire Weather Warning Performance: October & November 2013







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Forecast Performance Results for October & November 2013:

A severe or higher (SOH) district event occurs when weather conditions at one or more locations in a district result in a fire danger index corresponding to a severe or higher fire danger category.

During October 2013, forecasts were only issued for days when fire danger indices corresponding to a severe or higher (SOH) fire danger category were forecast in one or more districts and a district Fire Weather Warning was issued. There were 15 such forecast events on 8 days, with SOH events recorded for 14 of these and just one false alarm. There were no unforecast SOH events in October.

This information is summarised in Table 1 and results in a

Probability of Detection (POD) = 100% [published objective = 70%]
 False Alarm Ratio (FAR) = 7% [published objective = 40%]

	FWW Issued	FWW Not Issued
SOH Fire Danger Observed	14	0
SOH Fire Danger Not Observed	1	---

Table 1: Frequency table for forecast and observed SOH events for October 2013.

During November 2013, 25 severe or higher (SOH) events were recorded on 9 days. Of the 25 recorded SOH events, 20 were forecast and a district Fire Weather Warning was issued. There were 5 SOH events on 3 days which were unforecast and considered as missed events. There were another 20 occasions spread over 7 days when SOH fire danger was forecast to affect at least 10% of a district and a Fire Weather Warning was issued, but a SOH event was not observed. These are considered as false alarms.

This information is shown in Table 2 and results in a

Probability of Detection (POD) = 80% [published objective = 70%]
 False Alarm Ratio (FAR) = 50% [published objective = 40%]

	FWW Issued	FWW Not Issued
SOH Fire Danger Observed	20	5
SOH Fire Danger Not Observed	20	405

Table 2: Frequency table for forecast and observed SOH events for November 2013.

Tables 3 and 4 (over page) give a district by district and day by day breakdown of when SOH district fire danger ratings were declared by CFS and therefore when the Bureau issued district Fire Weather Warnings (FWW), together with observed district SOH events, for October (Table 3) and November (Table 4), where

WE = Fire Weather Warning issued and SOH Fire Danger observed = Verified FWW
 W = Fire Weather Warning issued but SOH Fire Danger not observed = False Alarm
 E = SOH Fire Danger event observed but NO Fire Weather Warning = Missed Event

	9/10/2013	12/10/2013	16/10/2013	19/10/2013	20/10/2013	21/10/2013	22/10/2013	27/10/2013	W	E	WE	POD	FAR
NWP		W	WE	WE	WE	WE		WE	1	0	5	100%	17%
NEP			WE		WE	WE	WE		0	0	4	100%	0%
WC				WE				WE	0	0	2	100%	0%
EEP								WE	0	0	1	100%	0%
LEP									0	0	0	-	-
F									0	0	0	-	-
MN									0	0	0	-	-
MLR	WE		WE						0	0	2	100%	0%
AM									0	0	0	-	-
YP									0	0	0	-	-
KI									0	0	0	-	-
RIV									0	0	0	-	-
ML									0	0	0	-	-
USE									0	0	0	-	-
LSE									0	0	0	-	-
W	0	1	0	0	0	0	0	0	1				
E	0	0	0	0	0	0	0	0		0			
WE	1	0	3	2	2	2	1	3			14		

Table 3 : District by district and day by day breakdown of Fire Weather Warnings and SOH Fire Danger events for October 2013.

	1/11/2013	2/11/2013	5/11/2013	6/11/2013	7/11/2013	19/11/2013	26/11/2013	27/11/2013	28/11/2013	30/11/2013	W	E	top WE	POD	FAR
NWP		W		W	W	WE	W	WE		WE	4	0	3	100%	57%
NEP		W			W	W		W	WE		4	0	1	100%	80%
WC	E	WE	WE	WE			WE	E		WE	0	2	5	71%	0%
EEP		W		WE		W	W	WE		WE	3	0	3	100%	50%
LEP				W							1	0	0	0%	100%
F					W	W		WE	W		3	0	1	100%	75%
MN				W		E		WE			1	1	1	50%	50%
MLR				WE		E		WE			0	1	2	67%	0%
AM											0	0	0	-	-
YP				WE				WE			0	0	2	100%	0%
KI											0	0	0	-	-
RIV		W				W		W			3	0	0	0%	100%
ML				E				WE			0	1	1	50%	0%
USE								W			1	0	0	0%	100%
LSE								WE			0	0	1	100%	0%
W	0	4	0	3	3	4	2	3	1	0	20				
E	1	0	0	1	0	2	0	1	0	0		5			
WE	0	1	1	4	0	1	1	8	1	3			20		

Table 4 : District by district and day by day breakdown of Fire Weather Warnings and SOH Fire Danger events for November 2013.

There was only one “significant” fire weather day during the October – November period (a “significant” day defined as one when Severe or higher fire danger is recorded in seven or more districts; or in five or more districts with at least one district being Catastrophic).

This occurred on 27 November 2013 with hot and dry conditions and north to northwest winds affecting most of central and eastern SA ahead of a southwest to southerly wind change. Severe fire danger was forecast and a FWW issued for 11 districts. Severe or higher fire danger was observed in 9 districts, with extreme fire danger observed briefly in the Mid North and Mount Lofty Ranges. Of the 9 districts where SOH fire danger was observed, 8 were forecast and one was a missed event. There were 3 false alarms.

Basic performance measures for the categories at SOH were classified as either **correctly forecast** (e.g. Catastrophic fire danger was observed and forecast), **over forecast** (e.g. Extreme fire danger or less was observed when Catastrophic fire danger was forecast) or **under forecast** (e.g. Catastrophic fire danger was observed when Extreme or less was forecast). Tables 5 and 6 summarise the results.

Forecast FDR Category	No of district forecasts				
	Severe	Extreme	Catastrophic	Total (number)	Total (%)
Correctly forecast	9	2	0	11	73%
Over forecast	1	2	0	3	20%
Under forecast	1	0	0	1	7%
Total	11	4	0	15	100%

Table 5: Number of correctly, under and over forecast categories on a district basis for days when SOH fire danger was forecast in October 2013.

Forecast FDR Category	No of district forecasts				
	Severe	Extreme	Catastrophic	Total (number)	Total (%)
Correctly forecast	16	1	0	17	43%
Over forecast	18	1	1	20	50%
Under forecast	3	0	0	3	7%
Total	37	2	1	40	100%

Table 6: Number of correctly, under and over forecast categories on a district basis for days when SOH fire danger was forecast in November 2013.

From Tables 5 and 6, it can be seen that the majority of the forecasts of district fire danger category were correct in October. However, these figures are affected by the grass fuels being fairly green in many southern districts leading to the fire danger index being less sensitive to errors in the forecast weather parameters than later in the season when the grass fuels are nearly or fully cured.

During November, half of the forecasts of district fire danger rating category were over forecasts. There were 18 district forecasts in the severe category, where no SOH events were observed, one forecast in the extreme category (North East Pastoral on 28 November 2013 where severe was observed and one forecast in the catastrophic category (West Coast district on 6 November 2013), where extreme was observed.

There were only 3 cases of under forecasting, in each of these the forecast was in the severe category and an extreme category was observed. Two of these occurred on 27 November 2013 (in Mid North and Mount Lofty Ranges) and the third was on 30 November 2013 (West Coast) and in each case the observations in the extreme category were only just in and for a very short period. Not shown in Table 6 are the 5 missed events that occurred in November, where no Fire Weather Warning was issued and severe fire danger was observed.



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