

V.2.4 (Sun 3 Feb)

## **AN ASSESSMENT OF PERFORMANCE AND IDENTIFIED ISSUES**

### **EXTREME WEATHER IN THE 2012-13 SEASON TO DATE:**

**HEAT WAVE, FIRES, TROPICAL CYCLONES, SEVERE STORMS, TORNADOS, STORM SURGE AND RAINFALL, WITH MAJOR FLOODING IN QUEENSLAND AND NSW FROM EX-TC OSWALD**

*DDS, 3 February 2013*

### **INTRODUCTION**

This paper provides a first analysis of the extreme weather event resulting from an extensive and prolonged record breaking heatwave, associated fires and the impact of Ex-Tropical Cyclone Oswald on Queensland and NSW. It includes consideration of pre-event planning, operational preparation prior to the event, the Bureau's response throughout the events and issues arising.

S.22 Irrelevant

In particular the criticality of the Bureau's weather and flood services will be highlighted in terms of emergency response prior to and during the event. Again suggestions on how this should be addressed will be given.

### **DESCRIPTION OF EVENTS AND SCOPE OF BUREAU OPERATIONS**

As expected, in late 2012, the first part of the 2012-13 Severe Weather Season, there were no significant widespread events apart from severe thunderstorms in Brisbane over the weekend of 17-18 November. Again, as predicted, the first tropical cyclone recorded in the Australian Region was quite late.

However, over Christmas and the early part of January an extremely hot pool of air developed over Western Australia and extended over most of the inland of Australia. As this hot air dissipated, significant severe weather occurred during most of January. On 21 January ex-Tropical Cyclone Oswald then caused record breaking rainfalls and major flooding in Queensland and NSW after decaying and moving southward inland as a tropical low pressure system. In summary, during January:

#### **A Heat Wave and Fires across Australia: 4-31 January 2013**

- A significant heatwave affected much of Australia around the start of 2013. The record average maximum temperature for Australia of 40.33°C was set on Monday 7 January, beating the previous record of 40.17°C recorded in 1972. Tuesday 8 Jan was the third hottest day on record at 40.11°C. The heat wave also saw seven

consecutive days with the average maximum temp for Australia exceeding 39°C, which easily broke the previous record of four set in 1973.

- Hobart had a maximum temperature of 41.8°C on 4 January which is a new all-time record for the city.
- Sydney also recorded its hottest day on record of 45.8C on 18 Jan along with a host of other locations along the NSW coast south of Williamstown. Canberra recorded its second hottest day on record with 42.0C.
- Significant bushfires occurred in Tasmania, Victoria and South Australia, and New South Wales during January with the Tasmanian town of Dunalley being devastated on 4 January.
- A large fire in Warrumbungle area of NSW claimed a life.
- There have been several large fires in the Victorian Highlands which were still burning at the end of January.

### **High Level Service Summary**

Throughout this heat wave and associated fires, the Bureau provided early advice to media, emergency services and the community through a series of communication channels. These included:

- the core forecast and warning products transmitted from forecasting offices in several distribution forms, including radio, television, fax, SMS, recorded telephone services and newspapers
- additional national media releases and appearances by senior staff and forecasters
- additional briefings to State and Territory governments
- additional briefings to the AGDCCC
- additional briefings to State Emergency Management Groups
- responses to numerous media enquiries.

### **B Tropical Cyclones, Severe storms, winds, heavy rainfall, flash flooding, riverine flooding, tornadoes, heavy swells and storm surges across WA, Qld and NSW: 10 January- early February (fires and flooding continues)**

- Four tropical cyclones formed in the Australian region during January 2013.
- The most intense cyclone was TC *Narelle* which developed in the Timor Sea and quickly intensified to Cat-4 strength. It then tracked along the WA coast slightly affecting the NW Cape Region before dissipating off the west coast around Jan 14.
- The most significant cyclone to date has been TC *Oswald*. Even though this system was only a Tropical Cyclone (at Cat-1 level) for a matter of hours, it subsequently moved south-eastwards down the Queensland coast inland, bringing flood rains, strong winds which were damaging in some areas and high tides to most coastal communities in Queensland and NSW.
- Six dangerous tornadoes in populated regions were also reported along the Queensland coast associated with the severe tropical low pressure system.
- There have been six deaths recorded to date that have occurred as a result of this system, mostly people caught in flood waters.

### **High Level Service Summary**

In providing extensive emergency service briefings as Tropical Cyclone Oswald was developing in the Gulf of Carpentaria, Bureau senior managers advised that the computer

models were presenting a number of scenarios ranging from benign to the serious. Consequently, the Bureau adopted the additional communications:

- The possible risks associated with the various scenarios were communicated to emergency service stakeholders to allow for provisional contingency planning to be considered. Briefings on Tuesday 22 Jan indicated that the most likely outcomes were another TC in the Gulf or movement over the Coral Sea.
- As the event unfolded and it became more apparent to forecasters that the low pressure system was likely to traverse virtually the entire Queensland coast, emergency managers were advised and warnings to the public were modified.
- Two media releases were issued, one on Thursday 24 Jan indicating dangerous conditions over northern and central parts and another on Friday 25 Jan that moved the focus more to the SE for the long weekend. The releases contained strong wording to emphasise the dangers associated with the event.
- Regular briefings were held with Emergency Management Queensland (EMQ) regarding the event as it unfolded. Daily briefings took place from Friday 25 Jan with the Premier, Senior Ministers, the State Disaster Management Group or EMQ. Numerous press conferences were conducted to alert people of the impending danger.
- Warning was provided for some mitigation activities to be enacted, such as the early release of water from Wivenhoe Dam on Friday 25 January. The Queensland State Minister responsible for water resources was briefed on Wednesday 23 Jan, Thursday 24 Jan and Friday 25 Jan regarding expected rainfall in the catchment areas.
- Large numbers of flood warnings were issued in a complex, rapidly-changing environment. In many cases rivers ultimately rose to record levels.
- On Sunday morning (27 Jan), the Bureau updated flood warnings for the Burnett catchment to include very strong language and requesting the use of the Standard Emergency Warning Signal. Mundubbera peaked 14 hours later, Gayndah 24 hours later, and Bundaberg reached record levels later on Monday (28th Jan).

The Bureau provided high quality and timely advice to all levels of Government and the public during this event, which allowed for mitigation actions to be taken by emergency service agencies and the community.

- There is scope for further improvement with the introduction of improved science and greater model resolution, requiring further research and investment in the latest super-computer technology. This applies to both weather and flood modelling.
- The complex nature of the atmosphere and the complexity of creeks and urban drainage feeding river systems (many ungauged) means that the models will never be perfect, but the work of its researchers in recent decades has advanced the Bureau's capability remarkably, with warning of major record breaking weather events several days ahead.
- Dangerous swells and storm surge affected the Queensland NSW coasts and led to the closure of beaches. This required close liaison between the Bureau and the surf lifesaving authorities.
- Tornados were a major impact during the decaying tropical cyclone. Although these have occurred in other events, this one was unique in the high number of confirmed tornados and the impact on populated areas.

S.22 Irrelevant

## **PRE-SEASON PLANNING**

The Bureau has well-developed agreed service levels with emergency agencies in each state which are documented through either MOUs or Bureau Directives. The latter include the standard operating procedures (SOPs) for the Bureau's regional operations prior to, and during weather and flood events. These documents are updated prior to each severe weather season.

As part of the Bureau's planning, meteorologists and hydrologists undergo competency training in their specialist areas. In addition some staff from Head Office familiarise themselves with the services provided out of key states such as Queensland and NSW. Indeed some flood forecasting staff from Victoria were already trained in Queensland procedures.

The Bureau also undertakes comprehensive pre-season briefings to emergency services and community groups as a method of highlighting and preparing the community for changing seasonal weather. For example in Queensland several "road show" briefings were provided by meteorologists and hydrologists in October 2012. At that stage potential fire weather and tropical cyclones were highlighted as features for this season.

## **EVENT PREPARATION**

Leading into this season, two extraordinary extreme weather workshops were held to ensure contingency arrangements were up to date so that regional offices were able to call on additional support at short notice. This included staffing rosters that drew on trained staff from Head Office and pre-arranged availability of recently retired officers. During early

January there was an extreme heatwave event and associated fires in many states. These staffing rosters and resources were fully occupied responding to those events. However the decaying Ex-Tropical Cyclone Oswald added another acute dimension to these contingency arrangements.

As a result of the heatwave and fire weather demands on the Bureau, there were limited remaining staff resources to respond to this new extreme weather event. While staff were recovering from interstate missions for the fires, they were recalled where possible to support Queensland and NSW. This of course did not apply to hydrologists. For the latter separate challenges to those specialist staff needed to be considered.

Attachment A shows the resulting contingency transfers across the Bureau in order to manage these events in January 2013.

## RESPONSE

Numerical weather modelling of Tropical Cyclone Oswald was effective in the early stages until it crossed land from the gulf waters. Once on land, removed from its energy source, its track was not clear from the weather modelling. Indeed the two initial scenarios had it either moving in an easterly direction into the Coral Sea or re-curving into the Gulf waters.

Although modelling was not able to distinguish between the two scenarios, forecasters were aware in tracking the system that it would track in a SSW direction inland following the Qld coast. Immediately this was clear the Bureau issued a special media release on Friday 25th January to allow planning by emergency services and the community prior to the Australia Day long weekend. This media release was of course supported by detailed severe weather and flood warnings where appropriate.

As a result, regional officers in Qld and NSW geared up for extensive severe weather and extensive flooding in both states. At this stage the numerical weather modelling was clearer in its prediction for Central coastal rivers.

Interstate staffing arrangements included xx hydrologists from Victoria to QLD,

Fire weather----- 20 spot fire forecasts provided for Tasmania xxxxx systems upgraded to cater for this number previously 8-. NSW upgraded to 40 locations and two additional full shifts of meteorologists added from interstate contingency to handle the extreme workload of spot fire forecasting for over 100 fires in that state alone.

S.22 Irrelevant

S.22 Irrelevant

Released under FOI

The following table summarises the current issues, treatments and impacts on the Bureau and its stakeholders.

Issue	Treatment	Impacts
<b>Staffing – fatigue and reliance on less experience and old systems.</b>	Staffing rosters and resources were fully occupied.	As a result of the heatwave and fire weather demands on the Bureau, there were limited remaining staff resources to respond to this new extreme weather event.
<b>January - an extreme heatwave event and associated fires in many states.</b>	Contingencies staff transfers in place.	Staff were recovering from interstate missions for the fires - were recalled where possible to support Qld and NSW in severe weather and floods.
<b>However the decaying Ex-Tropical Cyclone Oswald added another dimension to contingency arrangements.</b>	US Fire Weather specialist brought directly into ops.  Additional staff movements to cover surge requirement in Qld and NSW	Fatigue of too few surge staffing (incl retirees)
		High risk to ops.
		Reduced numbers of experienced staff (resignations after recent events – stressful decision making by less experienced staff and out-of-date flood forecast systems

Released under

S. 22 Irrelevant

S. 22 Irrelevant

Released under FOI



# 2012-13 Severe Weather Contingency Actions

Date		Bureau office	Action	Purpose	Comments
From	To				
June	Nov	Various	Science briefing	Australian Gov't Pre-Season Briefing	70+ pre-season briefings to Australian Government
Since 3 Jan		NMOC + various	Science briefing	Critical Event Briefings	18 Briefings to the CCC, Prime Minister's Office and other agencies (examples include Jakarta flooding, heat wave and TC Narelle). These Briefings apply to rare, extreme events which could require a Commonwealth response beyond that normally provided by State/Territory emergency management agencies. Briefings extend out to a 7 day forecast of conditions.
Various		NMOC + Corp Comms	Science briefing	Australian Government Talking Points	Over 20 of these have been completed during January. They provide information and guidance for Government and agencies on critical weather events.
24 Nov+	21 Dec+	WARO	Staff relocation	USA/Aus exchange	Main purpose to provide augmentation through Australian summers
7 Dec+	5 Jan+	NSWRO	Staff relocation	USA/Aus exchange	
1 Jan+	4 Feb+	VRO	Staff relocation	USA/Aus exchange	
11 Jan+	9 Feb+	SARO	Staff relocation	USA/Aus exchange	
9 Jan	13 Jan	Various	Additional fire weather services during critical weather events	Disaster Mitigation	The Bureau provided an average of 60 Spot Fire Forecasts each day via specialist Bureau fire and severe weather forecasters embedded in State Disaster Coordination Centres in NSW, VIC and WA. The Bureau has provided a total of 762 Spot Fire Forecasts from 1-21 Jan. 24/7 direct phone line contact from State Disaster Coordination Centres to specialist forecasters in every state for briefings and advice on critical weather events. Detailed fire weather or smoke plume forecasts for fire agencies provided at least daily for fire agencies in each state.
9 Jan+	11 Jan	SARO to NSWRO	Staff relocation	NSW fires	Specialist forecaster relocated to assist with fire weather forecasting
10 Jan+	15 Jan+	WOSB to WARO	Staff relocation	TC Narelle	Specialist forecaster relocated to assist with tropical cyclone forecasting
9 Jan	11 Jan	WOSB to NMOC	Staff relocation	National Severe	

Date		Bureau office	Action	Purpose	Comments
From	To				
14 Jan	18 Jan	Launceston to NMOC	Staff relocation	Warnings Desk	
standby	standby	SARO to WARO	Staff relocation	TC Narelle and Oswald	Specialist forecaster relocated to assist with tropical cyclone forecasting
14 Jan+	17 Jan	BMTC(SA) to NSWRO	Staff relocation	NSW Fires	Specialist Forecaster relocated to assist with fire weather forecasting
9 Jan	TBA	BMTC(WA) to WARO	Staff relocation	TC Narelle and Oswald	Specialist Forecaster relocated to assist with tropical cyclone forecasting
11 Jan	TBA	Contracted to NSWRO	Contractor	NSW Fires	Specialist forecaster employed on short-term contract to assist during peak demand periods
17 Dec	15 Jan	Tindal to CbMO	Staff relocation	ACT Fire Wx	Specialist forecaster relocated to assist with fire weather forecasting
6 Jan	11 Jan	NSWRO	Staff relocation	NSW Fires	2 Forecasting Staff recalled to duty from annual leave
13 Jan+	TBA	QRO to WARO	Staff relocation	TC Narelle and Oswald	Specialist Forecaster relocated to assist with tropical cyclone forecasting
13 Jan	13 Jan	WARO	Staff relocation	TC Narelle	Forecasting Staff recalled to duty from annual leave
7 Jan	8 Jan	NTRO + TCWC	Remote forecasting	TC Narelle	NT Staff assumed responsibility for monitoring and activation of TC warnings for WA. This provided critical rest time for WA staff ahead of TC critical-activity in the region.
19 Jan	21 Jan	NTRO + TCWC providing assistance to WARO and QRO	Remote forecasting	TC monitoring	NT Staff assumed responsibility for monitoring developing QLD and WA tropical cyclones. This provided critical rest time for QLD and WA staff ahead of potential TC critical-activity in the two regions.
26 Jan	29 Jan	HO to QRO	Staff Relocation	Media and Admin Support	Two staff (1 x SES2) to provide support to QLD regional office for Ex-TC Oswald

Definitions:  
TC – Tropical Cyclone (Ex-TC has been downgraded so no longer a TC)  
NMOC – The Bureau's National Meteorological and Oceanographic Centre  
WARO – The Bureau's Western Australian Regional Office

NSWRO – The Bureau’s New South Wales Regional Office  
VRO – The Bureau’s Victorian Regional Office  
SARO – The Bureau’s South Australian Regional Office  
QRO – The Bureau’s Queensland Regional Office  
CbMO - The Bureau’s Canberra Meteorological Office  
NT TCWC – Northern Territory Tropical Cyclone Warning Centre  
WA TCWC – Western Australian Tropical Cyclone Warning Centre  
WOSB – Weather and Ocean Services Policy staff (located in Melbourne)  
BMTc – Bureau’s Training Centre

Rest of Document (pp 12-27)

Irrelevant to request -

removed s.22

**From:** [REDACTED]  
**Sent:** Tuesday, 8 January 2013 5:20 PM  
**To:** [REDACTED]  
**Cc:** WA RO Regional Director; STAN; ADS; STSW  
**Subject:** RE: RESOURCING FOR CURRENT EVENT - URGENT REMINDER : Contingency Arrangements for this season - staffing support, travel, current talking points and statements where available. [DLM=For-Official-Use-Only]

Thanks [REDACTED]..much appreciated.. [REDACTED]

[REDACTED] | DDS



**Australian Government**  
**Bureau of Meteorology**

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Disaster Mitigation and Oceans]  
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Level 6, 700 Collins Street, Docklands VIC 3008  
Tel: [REDACTED]  
Mobile [REDACTED]  
www.bom.gov.au

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**From:** [REDACTED]  
**Sent:** Tuesday, 8 January 2013 5:10 PM  
**To:** [REDACTED]  
**Cc:** WA RO Regional Director; STAN; ADS; STSW  
**Subject:** RE: RESOURCING FOR CURRENT EVENT - URGENT REMINDER : Contingency Arrangements for this season - staffing support, travel, current talking points and statements where available. [DLM=For-Official-Use-Only]

Hi [REDACTED]

We have activated some contingency/surge support arrangements this afternoon, so I'll provide details in case they haven't been sent yet:

Assistance requested by WA SupMet for TCWC/media support followed by fire weather / RFC operational support. [REDACTED] travel Wed 9/1 for duty from Thu 10/1 with tentative return date of Tue 15<sup>th</sup>, depending on operational requirement.

2) NMOC additional day shift to commence Wed 9/1 maintaining national extreme weather monitoring, situational awareness, preparing briefs and talking points and available for some media interviews. [REDACTED] deployed from WOSB to cover Wed 9/1. Project shifts to cover Thu & Fri and further requirements to be determined by SRCO. Action initiated following WOSB/NMOC discussions.

Cheers,  
[REDACTED]

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**From:** [REDACTED]  
**Sent:** Tuesday, 8 January 2013 3:02 PM  
**To:** rds; RESMS; ROMS; RCMs (Regional Computing Managers)  
**Cc:** DDC; ADS; STPM; STSW; RFC Superintendant Mets; ADO; [REDACTED]  
**Subject:** RESOURCING FOR CURRENT EVENT - URGENT REMINDER : Contingency Arrangements for this season - staffing support, travel, current talking points and statements where available. [DLM=For-Official-Use-Only]

Dear RDs and Regional Managers

## RESOURCING FOR EXTREME EVENTS SUCH AS BEING EXPERIENCED NOW.

I understand you and all regional staff are working extremely hard and are fully occupied at the moment with the severe weather conditions.

To assist with regard to emergency funding for staff and resources to fill gaps, support operations and provide additional observations, we arranged for the escalation process before Christmas. I understand escalation requests have already happened in some regions. Please do not hesitate to use this escalation process for operationally significant requirements during extreme events this summer (see below).

Please contact me if necessary. Clearly RDs are the first point of reference

**REQUEST** - I ask that you send me a very short email at the time of the request just noting what you are activating (eg that you are organising xx to travel to region y for 2 days or you have requested a special maintenance trip) - or copy me on the escalation request to the program manager).

My best to all during this very difficult period.

Regards,

**Weather and Ocean Services Branch**

### Severe Weather and Flood Contingency Plan 2012-13

For emergency arrangements during severe weather this season please refer to the following documents. It is recommended that you print out the contingency staff rosters for emergency use (in case your intranet link goes down).

<b>Shut Down Period - Support Roster</b> <ul style="list-style-type: none"><li>Contingency staff availability</li></ul>	<b>Severe Weather Season - Support Roster</b> <ul style="list-style-type: none"><li>Contingency staff availability</li></ul>
<b>Travel Guidelines</b> <p>For staff required to travel to a region experiencing a severe weather emergency</p> <ul style="list-style-type: none"><li>Guidelines</li></ul>	<b>Key Messages/Talking Points</b> <ul style="list-style-type: none"><li>Climate</li><li>Water</li><li>Flooding</li></ul>

#### Escalation Contacts

- WOSB**
  - (ADS):
  - (STSW):
  - o 19 Jan- 1 Feb 2001
  - (ODS):
- HMOC**
  - Help Desk:
  - (ASTAN):
  - (WSRCO):
- OEB**
  - (ADO):
  - (ASTCO):
- Corporate Comms**
  - (COGB):
- ITB**
  - ITB Escalation Process
  - (STN):
  - (STDN):
  - (STMS):
  - (SRUC):
  - (SRGC):
- Hydrology/Water**
  - (SFFN):
  - (STFF):

[http://web.bom.gov.au/spb/disaster\\_mitigation/2012-13/Severe Weather Contingency/severe\\_weather\\_contingency\\_plan\\_2012-13.shtml](http://web.bom.gov.au/spb/disaster_mitigation/2012-13/Severe%20Weather%20Contingency/severe_weather_contingency_plan_2012-13.shtml)

[REDACTED] | DDS



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Mobile [REDACTED]

[www.bom.gov.au](http://www.bom.gov.au)

**From:** [REDACTED]

**Sent:** Friday, 4 January 2013 3:15 PM

**To:** ADC; ADD; ADE; ADEI; ADF; ADI; ADIP; ADM; ADO; ADP; ADR; ADRD; ADS; ADW; DDC; DDR; DDS; DDW; DIR; rds; WOSB sectheads; OEB SECTHEADS; RESMS; ROMS; RCMs (Regional Computing Managers); SROC; ito2s; BoM Media; MACR; [REDACTED]; AOSPB; [REDACTED]; STWA; STEP; [REDACTED]

**Cc:** [REDACTED]

**Subject:** URGENT REMINDER : Contingency Arrangements for this season - staffing support, travel, current talking points and statements where available. [SEC=UNCLASSIFIED]

Dear all

1. With the current heatwave conditions likely to continue for some time across most regions, it is important that we remind ourselves of the contingency arrangements we put in place prior to the season.
2. Note there are many officers across many programs who have agreed to assist in one way or another. Have a look at the "contingency staff availability" link on the web site below and see if you are named.
3. Note my comment in the email below: *"However I suggest key operational managers print out the "back up staff" available during both the shutdown and summer season"*. The shutdown period is now complete, so the table is to be used for the remainder of this season.
4. I am happy for any updates.
5. Please see the attached memo and re-visit the following link, which also includes the escalation procedures and officers.

[http://web.bom.gov.au/spb/disaster\\_mitigation/2012-13\\_Severe\\_Weather\\_Contingency/severe\\_weather\\_contingency\\_plan\\_2012-13.shtml](http://web.bom.gov.au/spb/disaster_mitigation/2012-13_Severe_Weather_Contingency/severe_weather_contingency_plan_2012-13.shtml)

Regards, [REDACTED]

a/DIR to 6 Jan 2013

[REDACTED] | DDS



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[www.bom.gov.au](http://www.bom.gov.au)

**From:** [REDACTED]

**Sent:** Monday, 17 December 2012 3:33 PM

**To:** ADC; ADD; ADE; ADEI; ADF; ADI; ADIP; ADM; ADO; ADP; ADR; ADRD; ADS; ADW; DDC; DDR; DDS; DDW; DIR; rds; WOSB sectheads; OEB SECTHEADS; RESMS; ROMS; RCMs (Regional Computing Managers); SROC; ito2s; BoM Media; MACR; [REDACTED] AOSPB; [REDACTED] STWA; STEP

**Cc:** [REDACTED]

**Subject:** Contingency Arrangements for this season - staffing support, travel, current talking points and statements where available. [SEC=UNCLASSIFIED]

Dear all

Please see the attached memo. It resulted from two meetings I convened with all operational programs and operational support areas in the Bureau.

We have designed this to allow URL links that can be continually updated. However I suggest key operational managers print out the "back up staff" available during both the shutdown and summer season. We have tried to make it as comprehensive as possible and corrections/updates are welcome.

My thanks to [REDACTED] for liaising across programs for this purpose.

Regards, [REDACTED]

[REDACTED] | DDS



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**From:** Mbx\_NT\_TCWC  
**Sent:** Monday, 7 January 2013 09:17  
**To:** TC\_Contingency\_Activation  
**Cc:** WA TCWC; Mbx\_NT\_TCWC; NT Supervising Met SM; tcmodule\_developers  
**Subject:** TD 05U - Darwin TCWC activation [SEC=UNCLASSIFIED]

Hi all,

This email is to advise that WARO has requested that Darwin TCWC takes responsibility for the developing tropical disturbance (05U) in the Indian Ocean near Timor for the next two days. This is due to staffing availability, ie. Darwin TCWC currently has capacity whereas Perth TCWC have some key staff on leave.

Darwin TCWC will issue products from TC Module operating under backup contingency arrangements for Perth TCWC. All products will appear as if they have been issued by Perth TCWC.

The system will be handed back as soon as there is a threat to the WA coast, so that Perth TCWC will take responsibility for TC Advices, emergency service liaison and media interest.

Will advise of any change to this situation.

Regards, [REDACTED]

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*Darwin Tropical Cyclone Warning Centre  
Australian Bureau of Meteorology | Northern Territory  
PO Box 40050 Casuarina NT 0811*

[REDACTED] <http://www.bom.gov.au/cyclone/>

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DOC 4

[REDACTED]

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**From:** [REDACTED]  
**Sent:** Friday, 10 May 2013 18:31  
**To:** [REDACTED]  
**Cc:** [REDACTED]  
**Subject:** RE: [REDACTED] Release to Antarctic [SEC=UNCLASSIFIED]  
 Hi [REDACTED]

Thanks for doing the work to arrange staffing to enable [REDACTED] release. We are also supportive of this and realise the benefits for the AAD and the development opportunity for [REDACTED]

We understand that, in the event of unplanned leave or extended severe weather surge requirement, you may need to seek temporary support from outside the region. We have plans in place to manage these situations and are ready to assist should the need arise.

Cheers,  
 [REDACTED]

**From:** [REDACTED]  
**Sent:** Friday, 10 May 2013 1:04 PM  
**To:** [REDACTED]  
**Cc:** [REDACTED]  
**Subject:** RE: [REDACTED] Release to Antarctic [SEC=UNCLASSIFIED]

Hi [REDACTED]

Apologies for being a bit tardy on this, but it has enable us to have a long hard look at rostering implications and I thank a/SR [REDACTED] and roster manager [REDACTED] for their considerable input.

The bottom line is that SA Region is prepared to release [REDACTED] for the period indicated. The decision has been influenced largely by our willingness to assist in the national (AAD) interest plus [REDACTED] obvious keenness to explore new horizons.

I would however like to highlight (mainly for [REDACTED] and [REDACTED] information) the additional risk to the RFC and Severe Weather operational rosters over the period of [REDACTED] absence. In regard to staffing and weather services delivery we expect to be able to manage if nothing unexpected happens. However, if there is unexpected staff absence and/or an extended weather scenario which arises, we would trust that we could call on the necessary staff support from either WOSB or interstate to assist us through.

Regards,

-----  
 [REDACTED]  
 Regional Director  
 South Australian Regional Office  
 Bureau of Meteorology  
 (ph) [REDACTED] (mobile) [REDACTED]  
 email : [REDACTED]  
 -----

**From:** [REDACTED]  
**Sent:** Friday, 10 May 2013 11:37  
**To:** [REDACTED]  
**Subject:** [REDACTED][SEC=UNCLASSIFIED]

[REDACTED]  
We are starting to work with the AAD on station allocations for next summer. Can you advise on release of [REDACTED] for 2013/14?

Unfortunately we cannot give firm dates until the budget is released but mid September until late March is likely.  
Thanks and regards,  
[REDACTED]

[REDACTED] | Acting Regional Director  
Bureau of Meteorology (Tasmania & Antarctica Region),  
Hobart, Tasmania, Australia. Email: [REDACTED]  
[REDACTED]

Released under FOI

DOC 5

[REDACTED]

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**From:** [REDACTED]  
**Sent:** Sunday, 6 January 2013 16:09  
**To:** NT Supervising Met SM  
**Cc:** NT Regional Director RD; NT Severe Weather SMSW; Mbx\_NT\_TCWC  
**Subject:** FW: Handling 05U [SEC=UNCLASSIFIED]

FYI...

**From:** [REDACTED]  
**Sent:** Sunday, 6 January 2013 14:56  
**To:** [REDACTED]  
**Cc:** [REDACTED]  
**Subject:** Handling 05U [SEC=UNCLASSIFIED]

Hi [REDACTED]

To confirm our phone discussion, would it be possible for NT TCWC to handle the products and warnings related to 05U up until sometime Wednesday 9th of Jan ? Even though the system is expected to be in the WA area for this time.

The reason for this is that it could be a long lived system, and the limited number of TCWC able staff in WA will probably be needed later in the week when the system moves closer to the coast.

Can we confirm the Wednesday hand over time on Monday or Tuesday ?

If the situation changes and watch or warnings are needed before Wednesday, then the hand over should happen earlier than Wednesday.

Thanks !

[REDACTED]

ps. I couldn't find the NT MWS in Contacts so could you please forward this email through to them ?

---

[REDACTED]  
Acting Regional Manager of SevWx - Western Australia  
Bureau of Meteorology  
[REDACTED]

[REDACTED]

---

**From:** [REDACTED]  
**Sent:** Wednesday, 9 January 2013 9:41 PM  
**To:** WA TCWC; Mbx\_NT\_TCWC; TC\_Contingency\_Activation; WA TCWC  
**Cc:** NT Supervising Met SM; tcmodule\_developers; NT RFC ALL SPOCs; [REDACTED]  
**Subject:** RE: TC Narelle (05U) - handover to Perth TCWC [SEC=UNCLASSIFIED]

Hi [REDACTED] and whomever else was rostered on in the Darwin TCWC,

My thanks as well.

I thought it went very smoothly and is going to be very handy in coping with what could end up being a long period of warnings.

Regards,

[REDACTED]

---

[REDACTED]  
WA Forecaster - Bureau of Meteorology  
[REDACTED]

---

**From:** WA TCWC  
**Sent:** Wednesday, 9 January 2013 7:05 AM  
**To:** WA RO Severe Weather  
**Subject:** FW: TC Narelle (05U) - handover to Perth TCWC [SEC=UNCLASSIFIED]

---

**From:** [REDACTED]  
**Sent:** Wednesday, January 09, 2013 10:05:58 AM  
**To:** Mbx\_NT\_TCWC; TC\_Contingency\_Activation; WA TCWC  
**Cc:** NT Supervising Met SM; tcmodule\_developers; NT RFC ALL SPOCs; [REDACTED]  
**Subject:** RE: TC Narelle (05U) - handover to Perth TCWC [SEC=UNCLASSIFIED]  
Auto forwarded by a Rule

Thanks to the Region for helping out this way – good luck with your monsoon onset

Regards

[REDACTED]  
a.STSW

**From:** Mbx\_NT\_TCWC  
**Sent:** Wednesday, 9 January 2013 10:02 AM  
**To:** TC\_Contingency\_Activation; WA TCWC  
**Cc:** NT Supervising Met SM; tcmodule\_developers; Mbx\_NT\_TCWC; NT RFC ALL SPOCs  
**Subject:** TC Narelle (05U) - handover to Perth TCWC [SEC=UNCLASSIFIED]

Hi all,

Darwin TCWC has handed responsibility for TC Narelle (05U) to WA. Perth TCWC will issue all TC-related advices for the duration of this system.

The existing arrangements for WA/NT back-up contingency operations worked well in this event, without any major issues.

This has been a valuable opportunity for Darwin TCWC forecasters to shake off rust and gain experience on a developing and intensifying offshore TC. This type of load sharing is excellent for reducing fatigue in long events and to distribute the work around the dispersed TCWC forecaster group. The TC Module software is now fully configured to allow backup contingency operations between any of the 3 TCWCs.

Good luck to the Perth team in forecasting the coastal impacts this potentially serious TC.

Regards,  
[REDACTED]

---

**From:** Mbx\_NT\_TCWC  
**Sent:** Monday, 7 January 2013 07:47  
**To:** TC\_Contingency\_Activation  
**Cc:** WA TCWC; Mbx\_NT\_TCWC; NT Supervising Met SM; tcmodule\_developers  
**Subject:** TD 05U - Darwin TCWC activation [SEC=UNCLASSIFIED]

Hi all,

This email is to advise that WARO has requested that Darwin TCWC takes responsibility for the developing tropical disturbance (05U) in the Indian Ocean near Timor for the next two days. This is due to staffing availability, ie. Darwin TCWC currently has capacity whereas Perth TCWC have some key staff on leave.

Darwin TCWC will issue products from TC Module operating under backup contingency arrangements for Perth TCWC. All products will appear as if they have been issued by Perth TCWC.

The system will be handed back as soon as there is a threat to the WA coast, so that Perth TCWC will take responsibility for TC Advises, emergency service liaison and media interest.

Will advise of any change to this situation.

Regards, [REDACTED]

---

Darwin Tropical Cyclone Warning Centre  
Australian Bureau of Meteorology | Northern Territory  
PO Box 40050 Casuarina NT 0811  
T: [REDACTED]  
[REDACTED] au <http://www.bom.gov.au/cyclone/>

---

DOC 7

[REDACTED]

---

**From:** [REDACTED]  
**Sent:** Wednesday, 9 January 2013 10:16  
**To:** [REDACTED]  
**Cc:** [REDACTED]  
**Subject:** RE: Thanks for the assistance [SEC=UNCLASSIFIED]

It was our pleasure, [REDACTED]

This was certainly a win-win outcome, as we had some new staff to blood into the TCWC, as well as being a great opportunity for us to fine-tune our procedures (including takeover contingencies).

All good, and best of luck with the rest of the event.

[REDACTED]

---

[REDACTED] *Regional Director (acting)*  
Northern Territory Region  
PO BOX 40050 Casuarina NT 0811  
T: [REDACTED]  
M: [REDACTED]  
E: [REDACTED]  
Bureau's Web Page: <http://www.bom.gov.au/>

---

**From:** [REDACTED]  
**Sent:** Wednesday, 9 January 2013 09:45  
**To:** [REDACTED]  
**Cc:** [REDACTED]  
**Subject:** Thanks for the assistance [SEC=UNCLASSIFIED]

[REDACTED] (and the Darwin TCWC Team)

Many thanks for your efforts over the past few days. We have done this type of load sharing a number of times over recent seasons and it works really well for these type of tracks. Without your work at start of the track it wouldn't be possible for us to staff a roster for what looks likely to be another week. As [REDACTED] says there are benefits for your team as well which is great.

thanks to all

[REDACTED]

DOC 8.

[REDACTED]

**From:** [REDACTED]  
**Sent:** Friday, 3 May 2013 11:27 AM  
**To:** [REDACTED] NSW Manager Weather Services; NT Supervising Met SM; QLD Weather Services Manager; SA RFC Supervising Manager; [REDACTED]; TAS Supervisor Meteorologist; VIC Supervising Meteorologist; WA RO Weather Services Manager  
**Subject:** RE: Review of RFC Staffing Issues for Post Season Review Meeting (Feedback by Tuesday 9 May) [SEC=UNCLASSIFIED]

**Categories:** FOI

Hi [REDACTED]

Response for you -

- Did your Region have enough suitable staff to maintain severe weather operations?

Additional staff required to cover fire episode for 2 weeks in February - approximately 20 additional shifts required. 10 covered by non VRO staff (BMTC, NMOC, HO either doing fire weather duties or releasing other staff to do so).

- Can you identify roles where additional staff or training are required?

The fire weather competencies restricted the staff utility (this will soon be the case for aviation) however this was overcome by using non VRO staff to cover other functions and releasing suitable staff to fire weather.

- Were interstate (flying squad) staff fully utilised?

No need to fly from HO to VRO but we used HO/NMOC/BMTC staff.

S. 22 Irrelevant

s.22 Irrelevant

Cheers



[Redacted] | Supervising Meteorologist | Victoria



Australian Government  
Bureau of Meteorology

Bureau of Meteorology  
GPO Box 1636 Melbourne VIC 3001  
6th Floor, 1010 Latrobe Street, Docklands VIC 3008  
Tel: [Redacted]  
[www.bom.gov.au](http://www.bom.gov.au)

s.22 - irrelevant

**From:** [Redacted]  
**Sent:** Thursday, 2 May 2013 5:29 PM  
**To:** NSW Manager Weather Services; NT Supervising Met SM; QLD Weather Services Manager; SA RFC Supervising Manager; [Redacted]; TAS Supervisor Meteorologist; VIC Supervising Meteorologist; WA RO Weather Services Manager  
**Subject:** Review of RFC Staffing Issues for Post Season Review Meeting (Feedback by Tuesday 9 May)  
[SEC=UNCLASSIFIED]

Hi Supmets,

I have been asked to collate Regional views and issues surrounding staffing during the 2012/13 Severe Weather Season. My brief is a little nebulous, but would appear to focus on the availability of suitably qualified staff to undertake severe weather responsibilities during the period, especially during outbreak periods. Information on rostering contingencies will be covered by another speaker although some overlap will no doubt exist.

23/07/2013



A short answer around the following (or other pertinent) points would be appreciated by Tuesday morning (9 May):

- Did your Region have enough suitable staff to maintain severe weather operations?
- Can you identify roles where additional staff or training are required?
- Were interstate (flying squad) staff fully utilised?

S. 22 Irrelevant

Thanks in anticipation ...

[Redacted]

[Redacted] | Manager NSW Weather Services



Australian Government  
Bureau of Meteorology

NSW Regional Forecasting Centre  
PO Box 413 Darlinghurst NSW 1300  
Level 16, 300 Elizabeth Street, Surry Hills NSW  
Tel: [Redacted] [www.bom.gov.au](http://www.bom.gov.au)

DOC 9.

From: [REDACTED]  
 Sent: Friday, 3 May 2013 11:44 AM  
 To: [REDACTED]  
 Cc: [REDACTED]  
 Subject: RE: Review of RFC Staffing Issues for Post Season Review Meeting (Feedback by Tuesday 9 May) [SEC=UNCLASSIFIED]  
 Categories: FOI

Hi [REDACTED]

My input from Qld...I've also cc'd [REDACTED] because I've spoken on his behalf a couple of times and he may wish to correct me...

S.22 Irrelevant

**Did your Region have enough suitable staff to maintain severe weather operations?**

Yes. However, this involved the use of OT/ED and the longer events (e.g. ex-TC Oswald) or simultaneous events (TC Sandra and Tim) started to deplete the available resources due to use earlier in the event(s).

Also, it should be noted that we used an Observer to triage most of the calls coming into the RFC from external to the Bureau.

**Can you identify roles where additional staff or training are required?**

An additional Media person was critical in meeting the workload during the severe wx events such as ex-TC Oswald and Severe TS days/weekends.

**Were interstate (flying squad) staff fully utilised?**

Yes. In the RFC we had [REDACTED] and [REDACTED] fly in for ex-TC Oswald. [REDACTED] played a very useful role as liaison between the RFC and Hydrology (the Flood Warning Centre) and backfilled the RWSM position for an afternoon. *S.22 - irrelevant*

We successfully used two staff remotely from their RFC on the roster here in Qld; [REDACTED] (NT) for one TC [REDACTED] (BMTc-WA) for one TC Zane shift.

Also, Note that the Flood Warning Centre had Melbourne based staff fly up for the flooding associated with ex-TC Oswald.

S.22 Irrelevant

S.22 Irrelevant

Cheers

[Redacted]

[Redacted] (Manager, Weather Services Unit)

Bureau of Meteorology  
PO Box 413 Brisbane Qld 4001

[Redacted]

Rest of email thread duplicates  
doc 8 - removed S.22

Released under FOI

DOC 10

[Redacted]

From: [Redacted]  
 Sent: Friday, 3 May 2013 4:24 PM  
 To: [Redacted] NSW Manager Weather Services; NT Supervising Met SM; QLD Weather Services Manager; SA RFC Supervising Manager; [Redacted] TAS Supervisor Meteorologist; VIC Supervising Meteorologist; WA RO Weather Services Manager  
 Cc: rd\_wa  
 Subject: RE: Review of RFC Staffing Issues for Post Season Review Meeting (Feedback by Tuesday 9 May) [SEC=UNCLASSIFIED]

Categories: FOI

Hi [Redacted]

WA Response: -

- Did your Region have enough suitable staff to maintain severe weather operations?

No. Additional staff required to cover a number of TC events, including interstate and (WA based) HO staff.

- Can you identify roles where additional staff or training are required?

Yes. Greater depth at TCWC lead forecaster role and to lesser extent at support role. Greater pool of experienced PO2s who have had suitable exposure and dualling at a/SPOC (RFC) level.

*S22 - irrelevant*

Greater pool of people who can handle severe weather ops desk (primarily storm and fire events) esp when TCWC activated.  
 Fire weather competencies.  
 Severe thunderstorm training refresher.  
 Media/communication training.

However, echo [Redacted] comments that competency assessments (and subsequent prevention of non certified people on desk) can severely limit flexibility

- Were interstate (flying squad) staff fully utilised?

Yes-multiple occasions. In addition, NT also took over TCWC for some oceanic cyclones.

*S22 - Irrelevant*

S.22 Irrelevant

S.22 Irrelevant

S.22 Irrelevant

[REDACTED] | Manager Weather Services  
Western Australia Region



Bureau of Meteorology  
PO Box 1370 West Perth WA 6872  
Level 6, 1100 Hay Street, West Perth WA

[REDACTED]  
[www.bom.gov.au](http://www.bom.gov.au)

Released under FOI  
Rest of email thread duplicates  
Doc 8 and has been removed - S.22

**From:** [redacted]  
**Sent:** Monday, 4 March 2013 14:43  
**To:** [redacted]  
**Subject:** VIC Contingency Arrangements this Season [SEC=UNCLASSIFIED]  
**Attachments:** Resource Requirements 2013 Season updated 1st Feb 2013.docx

Hi [redacted]

sorry you also wanted to know -

We started additional night shifts from 15 Feb to cope with the complexity of the Alpine fires.

[redacted] covered 6 night shifts, 7 additional nights by VRO forecasters.

The rosters are a bit messy but I think BMTC covered 4 or 5 shifts to free up Vic staff to do spot fire forecasts ([redacted] covered 1 fire weather shift, [redacted] did about 3 or 4 Convection shifts).

[redacted] from NMOC did 3 Public weather shifts to release Vic staff to additional fire duties.

.regards

[redacted]

[redacted] | Supervising Meteorologist | Victoria

Bureau of Meteorology  
GPO Box 1636 Melbourne VIC 3001  
6th Floor, 1010 Latrobe Street, Docklands VIC 3008  
[redacted]  
[www.bom.gov.au](http://www.bom.gov.au)

**From:** [redacted]  
**Sent:** Monday, 4 March 2013 14:28  
**To:** [redacted]  
**Subject:** RE: VIC Contingency Arrangements this Season [SEC=UNCLASSIFIED]

Hi [redacted]

additional detail for Vic included in the attached.

[redacted]

[redacted] | Supervising Meteorologist | Victoria



Bureau of Meteorology  
GPO Box 1636 Melbourne VIC 3001  
6th Floor, 1010 Latrobe Street, Docklands VIC 3008

[www.bom.gov.au](http://www.bom.gov.au)

**From:** [REDACTED]  
**Sent:** Friday, 1 March 2013 12:31  
**To:** [REDACTED]  
**Subject:** FW: VIC Contingency Arrangements this Season [SEC=UNCLASSIFIED]

Efforts are being made by WOSB to document the extent of contingency arrangements used this season to cover severe weather and floods. [REDACTED] has sent the attached, and would appreciate any additional information we can provide on what was done in Victoria.

For a start, I think we should reflect other additional staff (e.g. BMTC) who helped us out; if we can supply the dates and number of additional shifts, or similar, that would also be useful. Counting separately the number of additional shifts for our own staff and those done by external staff would be ideal. Documenting the managerial overhead is also important; you and I have discussed several times the extent of the impact on your time of arranging all these additional shifts – if you can estimate the time taken up for you by the special arrangements, that would be much appreciated.

Could you send your input, in the attached table, to me in the first instance; I will consider whether I should add anything for my own time before forwarding to [REDACTED]

Many thanks in advance.

Cheers,

[REDACTED]

[REDACTED] | Regional Director (Victoria)



Australian Government  
Bureau of Meteorology

Victoria Regional Office  
Bureau of Meteorology  
PO Box 1636, Melbourne VIC 3001  
Level 6, 1010 Latrobe Street, Docklands VIC 3008  
Tel: [REDACTED]  
[www.bom.gov.au](http://www.bom.gov.au)

**From:** [REDACTED]  
**Sent:** Friday, 1 March 2013 11:16 AM  
**To:** [REDACTED]  
**Cc:** [REDACTED], STSW  
**Subject:** VIC Contingency Arrangements this Season [SEC=UNCLASSIFIED]

Hello [REDACTED]

Further to our conversation this morning re: your contingency arrangements thus far this season, enclosed you'll find our attempt at capturing some of the activities. If you or [REDACTED] see any areas for comment, edit, etc – please feel free to amend as you see fit. The last page of the doc includes the attempt to capture Managerial Overhead which unfortunately hasn't been updated since 12 Jan (too busy!).

[REDACTED] | Executive Assistant for



Australian Government

Bureau of Meteorology

Weather and Ocean Services Branch  
Bureau of Meteorology  
GPO Box 1289 Melbourne VIC 3001  
Level 6, 700 Collins Street, Docklands VIC 3008  
Tel: [REDACTED]  
[www.bom.gov.au](http://www.bom.gov.au)

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# 2012-13 Severe Weather Contingency Actions

Date From	Date To	Bureau/office	Action	Purpose	Comments
June	Nov	Various	Science briefing	Australian Gov't Pre-Season Briefing	70+ pre-season briefings to Australian Government
Since 3 Jan		NMOC + various	Science briefing	Critical Event Briefings	18 Briefings to the CCC, Prime Minister's Office and other agencies (examples include Jakarta flooding, heat wave and TC Narelle). These Briefings apply to rare, extreme events which could require a Commonwealth response beyond that normally provided by State/Territory emergency management agencies. Briefings extend out to a 7 day forecast of conditions.
Various		NMOC + Corp Comms	Science briefing	Australian Government Talking Points	Over 20 of these have been completed during January. They provide information and guidance for Government and agencies on critical weather events.
24 Nov+	21 Dec+	WARO	Staff relocation	USA/Aus exchange	Main purpose to provide augmentation through Australian summers
7 Dec+	5 Jan+	NSWRO	Staff relocation	USA/Aus exchange	
1 Jan+	4 Feb+	VRO	Staff relocation	USA/Aus exchange	
11 Jan+	9 Feb+	SARO	Staff relocation	USA/Aus exchange	
9 Jan	13 Jan	Various	Additional fire weather services during critical weather events	Disaster Mitigation	The Bureau provided an average of 60 Spot Fire Forecasts each day via specialist Bureau fire and severe weather forecasters embedded in State Disaster Coordination Centres in NSW, VIC and WA. The Bureau has provided a total of 762 Spot Fire Forecasts from 1-21 Jan. 24/7 direct phone-line contact from State Disaster Coordination Centres to specialist forecasters in every state for briefings and advice on critical weather events. Detailed fire weather or smoke plume forecasts for fire agencies provided at least daily for fire agencies in each state.
9 Jan+	11 Jan	SARO to NSWRO	Staff relocation	NSW fires	Specialist forecaster relocated to assist with fire weather forecasting
10 Jan+	15 Jan+	WOSB to WARO	Staff relocation	TC Narelle	Specialist forecaster relocated to assist with tropical cyclone forecasting
9 Jan	11 Jan	WOSB to NMOC	Staff relocation	National Severe Warnings Desk	
14 Jan	18 Jan	Launceston to NMOC	Staff relocation	National Severe Warnings Desk	
standby	standby	SARO to WARO	Staff relocation	TC Narelle and Oswald	Specialist forecaster relocated to assist with tropical cyclone

Date		Bureau office	Action	Purpose	Comments
From	To				
14 Jan+	17 Jan	BMTC(SA) to NSWRO	Staff relocation	NSW Fires	Specialist Forecaster relocated to assist with fire weather forecasting
9 Jan	TBA	BMTC(WA) to WARO	Staff relocation	TC Narelle and Oswald	Specialist Forecaster relocated to assist with tropical cyclone forecasting
11 Jan	TBA	Contracted to NSWRO	Contractor	NSW Fires	Specialist forecaster employed on short-term contract to assist during peak demand periods
17 Dec	15 Jan	Tindal to CbMO	Staff relocation	ACT Fire Wx	Specialist forecaster relocated to assist with fire weather forecasting
6 Jan	11 Jan	NSWRO	Staff relocation	NSW Fires	2 Forecasting Staff recalled to duty from annual leave
13 Jan+	TBA	QRO to WARO	Staff relocation	TC Narelle and Oswald	Specialist Forecaster relocated to assist with tropical cyclone forecasting
13 Jan	13 Jan	WARO	Staff relocation	TC Narelle	Forecasting Staff recalled to duty from annual leave
7 Jan	9 Jan	NTRO + TCWC	Remote forecasting	TC Narelle	NT Staff took responsibility for monitoring and activation of TC warnings for WA. This provided critical rest time for WA staff ahead of TC critical-activity in the region.
18 Jan	20 Jan	NTRO + TCWC providing assistance to WARO and QRO	Remote forecasting	TC monitoring	NT Staff provided operational support for pre-TC Oswald, as well as operational input (for WA GFE) for pre-TC Peta. This provided critical rest time for QLD and WA staff ahead of potential TC critical-activity in the two regions.
26 Jan	29 Jan	HO to QRO	Staff Relocation	Media and Admin Support	Two staff (1 x SES2) to provide support to QLD regional office for Ex-TC Oswald.
15 Feb	28 Feb	WOSB, BMTC, NMOC to VicRO	Staff relocation	VIC Fires	Specialist Forecasters relocated to assist with spot-fire forecasting (approximately 20 additional shifts required).
22 Feb	27 Feb	NTRO + TCWC providing assistance to WARO	Remote forecasting	TC monitoring	NT Staff provided operational support for TC Rusty. This provided critical rest time for WA staff ahead of potential TC critical-activity in the region. (asked [REDACTED] to edit on 01.03)

Definitions:

TC – Tropical Cyclone (Ex-TC has been downgraded so no longer a TC)  
 NMOC – The Bureau's National Meteorological and Oceanographic Centre  
 WARO – The Bureau's Western Australian Regional Office  
 NSWRO – The Bureau's New South Wales Regional Office  
 VRO – The Bureau's Victorian Regional Office

SARO – The Bureau's South Australian Regional Office  
QRO – The Bureau's Queensland Regional Office  
CbMO - The Bureau's Canberra Meteorological Office  
NT TCWC – Northern Territory Tropical Cyclone Warning Centre  
WA TCWC – Western Australian Tropical Cyclone Warning Centre  
WOSB – Weather and Ocean Services Policy staff (located in Melbourne)  
BMTC – Bureau's Training Centre

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**Managerial overhead:** (approximate hours)

*Excludes media work*

Date	DDS	ADS	STPM	STSW	Other WSB	Regional Managers	Other
Jan 2	0						
Jan 3	0						
Jan 4	0	1	1	0	0	1	0
Jan 5							
Jan 6							
Jan 7	1	1	3	2	1	2	0
Jan 8	1	2	3	2	1	2	0
Jan 9	1	2	3	2	1	2	0
Jan 10	1	2	5	4	1	2	0
Jan 11	1	1	5	4	1	2	0
Jan 12							
Jan 13							
Jan 14							
Jan 15							
Jan 16							
Jan 17							
Jan 18							
Jan 19							
Jan 20							
Jan 21							
Jan 22							
Jan 23							
Jan 24							
Jan 25							



DOC 12

**Senator the Hon Don Farrell**

**Parliamentary Secretary for Sustainability and Urban Water**

Ms Anastacia Palaszczuk MP  
Leader of the Opposition  
PO Box 15057  
CITY EAST QLD 4002

C12/27803

27 FEB 2013

Dear Ms Palaszczuk

I refer to your letter received 6 December 2012 concerning a storm cell over Brisbane. I regret the delay in responding.

The storm you refer to was one of several severe storms to affect southeast Queensland during the weekend of 17-18 November 2012. I am advised that the Bureau of Meteorology had been warning the community of severe thunderstorms in the days ahead of that weekend. The Bureau's warnings received significant media attention.

There were four particularly significant severe storm events in southeast Queensland over the two days, the first of which occurred on Saturday morning at 10:50 am, the second at around 5:00pm on Saturday, the third at 1:10pm on Sunday and the fourth at 4:45pm Sunday.

I am advised that the first storm was unusual in terms of its occurrence in the morning (rather than in the afternoon) and its rapid intensification to severe status. Only storms of severe status result in warnings, when specified conditions, such as high winds or hail, are occurring or are expected to develop (refer:

[http://www.bom.gov.au/catalogue/warnings/WarningsInformation\\_SW.shtml](http://www.bom.gov.au/catalogue/warnings/WarningsInformation_SW.shtml)). Evidence indicates that the first storm only just reached the nationally-agreed severe criteria in terms of its wind gusts (up to 90 km/h). The Bureau is not aware of any large hail associated with this first event. These factors resulted in no lead time for a specific thunderstorm warning for the first impact of the storm, but gave some lead time for warnings as it moved east.

The Bureau provided prior warning of the remaining major storms of the weekend, including a large hailstorm on the Sunday afternoon, perhaps the most significant hailstorm to affect Brisbane for several years. I am advised that warnings for these events were timely, detailed and accurate.

In response to your question regarding Bureau resourcing, I can advise that there are 25 forecasters working in the Brisbane Regional Forecast Centre undertaking various forecasting duties. This number varies depending on recruitment and training schedules. During the summer months the Bureau enhances its operations to cater for severe weather with approximately five forecasters rostered on during the daytime, depending on weather conditions.

Overnight staffing consists usually of three or four forecasters depending on weather conditions, of which two or three are staff whose sole responsibility is aviation forecasting.

The Bureau also maintains contingency arrangements throughout the summer to provide additional staff during major weather events. On the morning of 17 November 2012 there were six forecasters on duty covering a range of duties. This was sufficient to provide services within the Forecast Centre.

The Bureau's longer term resourcing needs are being considered as part of the government's response to the Review of the Bureau of Meteorology's capacity to respond to future extreme weather and natural disaster events and to provide seasonal forecasting services. The Review was led by Ms Chloë Munro, who assessed the Bureau's capacity to deliver services in the medium to long term.

The Review recommended 13 priority actions and identified a further 16 options for investigation. The government made an initial response to the highest priority recommendations by providing funding of \$4.8 million in 2012-13 for the continued employment of up to 20 overseas meteorologists, recruitment and training of up to 10 new local meteorologists and recruitment and training of up to 10 additional flood forecasters. This funding has strengthened the Bureau's frontline staffing capacity for the 2012-13 severe weather season. The locally trained Australian meteorologists will be ready for next summer (2013-14) and are part of the Bureau's succession plan to reduce the reliance on overseas meteorological staff, some of who are likely to return to their home countries.

The Review noted that many of its options, if implemented, would need to be staged over several years to allow adequate time for planning and consultation. In addition to the initial actions announced as part of the 2012-13 Budget, a formal Australian Government response to the Review's findings is currently being developed.

Should you wish to follow up on this or any weather or climate-related matters with the Bureau of Meteorology, you may like to contact the Regional Director in Queensland,

██████████ on ██████████

Thank you for writing on this matter.

Yours sincerely



Senator Don Farrell