

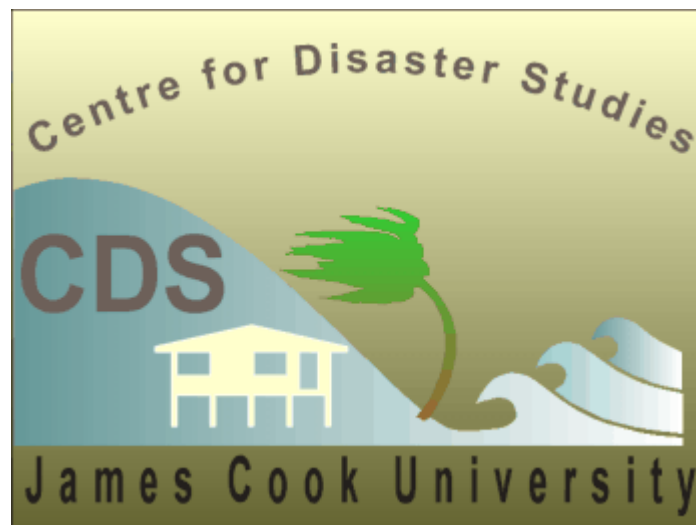
# POST CYCLONE MONICA SURVEY

**MAY 2006**

**Centre for Disaster Studies**

**James Cook University**

**Bureau of Meteorology**



## POST CYCLONE MONICA SURVEY MAY 2006

### Summary

- The experience of Cyclone Monica has not undermined peoples' confidence in cyclone warnings and preparation
- Nearly everyone prepared for the cyclone
- People were positive about warnings and information
- People want lots more information
- The BoM website dominates web use
- People expect more cyclones
- People will do the same or more preparation next time
- Workplaces might possibly be neglected more than residences – an area for further research

### Acknowledgements

Thanks to the residents of Darwin who participated in this telephone survey.

Funded and authorized by the Bureau of Meteorology.

Survey Instrument devised and modified by Douglas Goudie, Mike Bergin and Bureau Staff in Darwin and David King

Survey coordinated and main report written by David King

Telephone surveys carried out by Margaret Spillman, Allan McCall, and Katy Girling-King

Data Entry carried out by Bretta and Hamish Mitchell

Tables and graphs produced by Gary Searle and David King

## Background to Cyclone Monica

Cyclone Monica was first declared a cyclone in the Coral Sea on April 17<sup>th</sup> 2006. It moved westward crossing the Queensland coast south of Lockhart River on April 19<sup>th</sup> as a category 3. It left the west side of Cape York the next day still a tropical cyclone and tracked north west across the Gulf of Carpentaria intensifying to a category 5 as it neared Nhulunbuy on April 23<sup>rd</sup>. However it remained offshore for the next day, skirting the north of Arnhem Land. On April 24<sup>th</sup> it began to track more south west and crossed the coast again, on April 24<sup>th</sup> near Maningrida as a category 5. It then weakened to a category one by the time it impacted Jabiru, and by the time it reached Darwin it had diminished to below cyclone intensity.



**Figure 1. The Track of Cyclone Monica**

Source: Bureau of Meteorology website, accessed 9/10/06

A description of Cyclone Monica by the Bureau of Meteorology is as follows.

“Sustained winds with very destructive gusts caused extensive defoliation and felling of trees in a 30-40km wide area west of Maningrida. A dozen houses and a school in Maningrida were unroofed or extensively damaged. Houses were damaged and power lines downed by falling trees in Milingimbi, Oenpelli, Jabiru and Elcho Island. Power lines were also damaged in Yirrkala, Ramingining, Goulburn Island and other smaller communities and outstations.

Flood waters cut the Arnhem Highway at the Adelaide River and Cox Peninsula Road at Berry Creek. The town bore at Oenpelli was covered with flood water, cutting off the town water supply.

Very heavy rainfall (>100mm) was recorded in parts of the western Arnhem District on 23 and 24 April, in the Darwin-Daly District on 24 and 25 April, and in the Victoria River District on 26 April.

TC Monica was the strongest tropical cyclone on record to affect the Northern Territory. Monica's estimated maximum intensity was stronger than TC Tracy in 1974, TC Neville in 1992 and TC Ingrid in 2005. Monica was an unusual late season tropical cyclone and was the first cyclone to affect the NT area of responsibility in the 2005/06 season.”

BoM website <http://www.bom.gov.au/announcements/sevwx/nt/nffc20060417.shtml>  
accessed 13/6/6.

A primary issue of cyclone Monica was the reaction of an urban population to preparation for a very severe cyclone that eventuated as a minor event with minimal impact. However, it must be borne in mind that even as late as 12 hours out the uncertainty in the forecast TC track (map) indicated that there was a chance that Darwin would be directly impacted by a severe cyclone.

## **Post Cyclone Monica Survey**

The Centre for Disaster Studies was approached by the Bureau of Meteorology to conduct a brief survey to gauge the reactions of residents to preparation for a severe event that fortunately did not transpire. This was carried out as a brief telephone survey of Darwin residents between 6<sup>th</sup> and 10<sup>th</sup> May. The Bureau had been keen on a separate survey of residents in Arnhem Land communities who were more directly impacted by the cyclone. Unfortunately there are many logistical problems with carrying out telephone surveys in remote locations, and insufficient funds for face to face surveys of the type we had just completed in the Cyclone Larry impact communities. Thus telephone numbers were randomly generated for suburbs of Darwin. These were contacted until surveys of 200 households had been completed (201). A random coverage of Darwin was achieved, but as in all such surveys based on landlines there is a bias against households that are privately listed and those (often lower socio-economic groups) that do not have a telephone. Mobile numbers were not contacted. Nearly all households in the urban area have a phone and as the questionnaire was aimed at household preparation activities the coverage is sufficient to indicate general patterns of behaviour, but does not lend itself to sophisticated statistical tests. Telephone surveyors all had knowledge of Darwin suburbs and previous research experience. Responses were overall positive and helpful.

Responses were partly pre-coded to aid consistency of responses and were mostly entered into the database as coded answers in order to generate simple tables. Telephone surveys are most successful when kept brief and simple, although inevitably the depth of data is reduced. A questionnaire survey was developed in 2005 and used in Port Douglas after category 5 Cyclone Ingrid had threatened the Queensland coast before landfalling in

sparsely populated regions of Cape York. This survey instrument was used as a basis for the Cyclone Monica survey.

As the survey was brief, this report has been structured around the questions that were asked. Each dealt with a theme that was generally developed in the next question. Two marker questions, gender and previous cyclone experience, have been used throughout the report to cross-tabulate responses. Generally the cross-tabulations add little variation, although that is itself a significant result i.e. there generally was little difference in response between males and females.

### Questions 1 and 2

1. Did you prepare as the cyclone warnings intensified?
2. Did public education campaigns, such as on TV and radio, and pre cyclone season advice have an influence on your preparations?

Question one was originally worded “what did you do to prepare” but was shortened during the survey to a simple yes or no answer. Thus 64% of the respondents were influenced by educational campaigns and prepared for the cyclone. It’s significant that as many as 29% were not influenced by public education but still made preparations. The difference by gender is not significant as 93% of the population prepared anyway. Similarly there is little difference by previous experience of a cyclone, but the majority of those who made no preparations, (13 out of 15), had previously been through a tropical cyclone.

**Table 1. Preparation by Education**

Preparation	Cyclone Education		Total
	Yes	No	
Yes	127	59	186
No	2	13	15
<b>Total</b>	129	72	201

Of those who had not been influenced by educational campaigns, most (29% of the total), prepared for cyclone Monica. Of those who made no preparations, males were double the proportion of females.

**Table 2. Preparation by gender**

Preparation	Gender		Total
	Male	Female	
Yes	77	109	186
No	9	6	15
<b>Total</b>	86	115	201

**Table 3. Preparation by Previous Cyclone Experience**

Preparation	Previously experienced a cyclone		Total
	Yes	No	
Yes	130	56	186
No	13	2	15
<b>Total</b>	143	58	201

**Table 4. Cyclone Education by Gender**

Cyclone Education	Gender		Total
	Male	Female	
Yes	56	73	129
No	30	42	72
<b>Total</b>	86	115	201

**Table 5. Cyclone Education by Previous Cyclone Experience**

Cyclone Education	Previously experienced a cyclone		Total
	Yes	No	
Yes	83	46	129
No	60	12	72
<b>Total</b>	143	58	201

Of the population who had previously experienced a cyclone 42% had not been influenced by public education campaigns, but of those who had not been through a cyclone only 21% claimed not to have been influenced by cyclone education. The proportions are small but clearly newcomers and inexperienced residents are giving more attention to cyclone education than those who have had greater experience. Of course this does not mean that those who have experienced a cyclone in the past have not been influenced either directly or indirectly by educational campaigns. In a brief telephone survey of this sort people give simple direct answers, and would particularly have responded in relation to the Monica experience. Campaigns reinforce what people know and act as reminders and prompts.

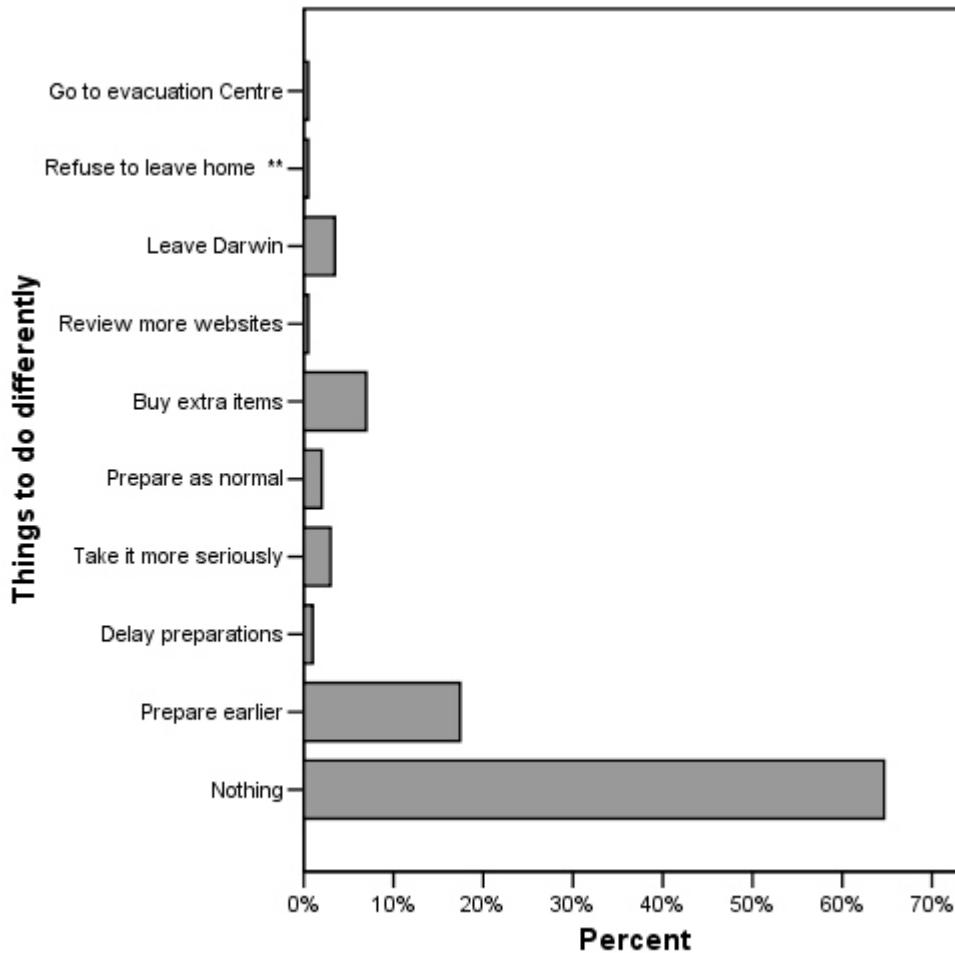
### **Question 3.**

**3. What things would you do differently if you are threatened by a severe cyclone again?**

The dominant response was “nothing different”, followed a long way behind by “prepare earlier”. In terms of gender there is no significant difference although it is interesting that more males than females propose that they would do more shopping next time.

**Table 6. Things to do Differently Next Time**

Things to do differently	Count	Col %
Nothing different	130	64.7%
Prepare earlier	35	17.4%
Delay preparations	2	1.0%
Take it more seriously	6	3.0%
Prepare as normal	4	2.0%
Buy extra items	14	7.0%
Review more websites	1	.5%
Leave Darwin	7	3.5%
Refuse to leave home **	1	.5%
Go to evacuation Centre	1	.5%
<b>Total</b>	<b>201</b>	<b>100.0%</b>



**Figure 2. Preparations Next Time**

Note: “Nothing” means nothing different

**Table 7. Things to do Differently Next Time by Gender**

Things to do differently	Gender				Total	
	Male		Female			
	Count	Col %	Count	Col %	Count	Col %
Nothing different	54	62.8%	76	66.1%	130	64.7%
Prepare earlier	14	16.3%	21	18.3%	35	17.4%
Delay preparations	1	1.2%	1	.9%	2	1.0%
Take it more seriously	3	3.5%	3	2.6%	6	3.0%
Prepare as normal			4	3.5%	4	2.0%
Buy extra items	10	11.6%	4	3.5%	14	7.0%
Review more websites			1	.9%	1	.5%
Leave Darwin	3	3.5%	4	3.5%	7	3.5%
Refuse to leave home **			1	.9%	1	.5%
Go to evacuation Centre	1	1.2%			1	.5%
<b>Total</b>	<b>86</b>	<b>100.0%</b>	<b>115</b>	<b>100.0%</b>	<b>201</b>	<b>100.0%</b>

When these responses are broken down by a previous cyclone experience there is no significant difference between those who have experienced a cyclone to those who have not – nothing different rating 65% and 64% respectively (see row 1 of table 8).

**Table 8. Things to do Differently Next Time by Previous Cyclone Experience**

Things to do differently	Previously experienced a cyclone		Total
	Yes	No	
Nothing different	93	37	130
Prepare earlier	25	10	35
Delay preparations	2	0	2
Take it more seriously	5	1	6
Prepare as normal	3	1	4
Buy extra items	9	5	14
Review more websites	0	1	1
Leave Darwin	5	2	7
Refuse to leave home **	0	1	1
Go to evacuation Centre	1	0	1
<b>Total</b>	<b>143</b>	<b>58</b>	<b>201</b>

#### Question 4.

##### 4. Where or who did you get information from about cyclone Monica?

Information on cyclone preparation and warnings came from several sources. This is similar to responses in the cyclone Larry survey carried out in North Queensland. People are more information rich than maybe in the past, and rely on a variety of sources of information. Again there was no difference with gender or between those who had or had not previously experienced a cyclone



**Table 9. Information Source**

Information Source	Count	Col %
TV	14	7.0%
Radio	2	1.0%
Friends & relatives	1	.5%
Emergency Services	1	.5%
Internet	15	7.5%
Other sources	3	1.5%
Multiple sources	165	82.1%
<b>Total</b>	201	100.0%

**Table 10. Information Source By Gender**

Information Source	Gender		Total
	Male	Female	
TV	8	6	14
Radio	2	0	2
Friends & relatives	1	0	1
Emergency Services	0	1	1
Internet	6	9	15
Other sources	0	3	3
Multiple sources	69	96	165
<b>Total</b>	86	115	201

**Table 11. Information Source By Previous Cyclone Experience**

Information Source	Previously experienced a cyclone		Total
	Yes	No	
TV	13	1	14
Radio	1	1	2
Friends & relatives	1	0	1
Emergency Services	1	0	1
Internet	9	6	15
Other sources	2	1	3
Multiple sources	116	49	165
<b>Total</b>	143	58	201

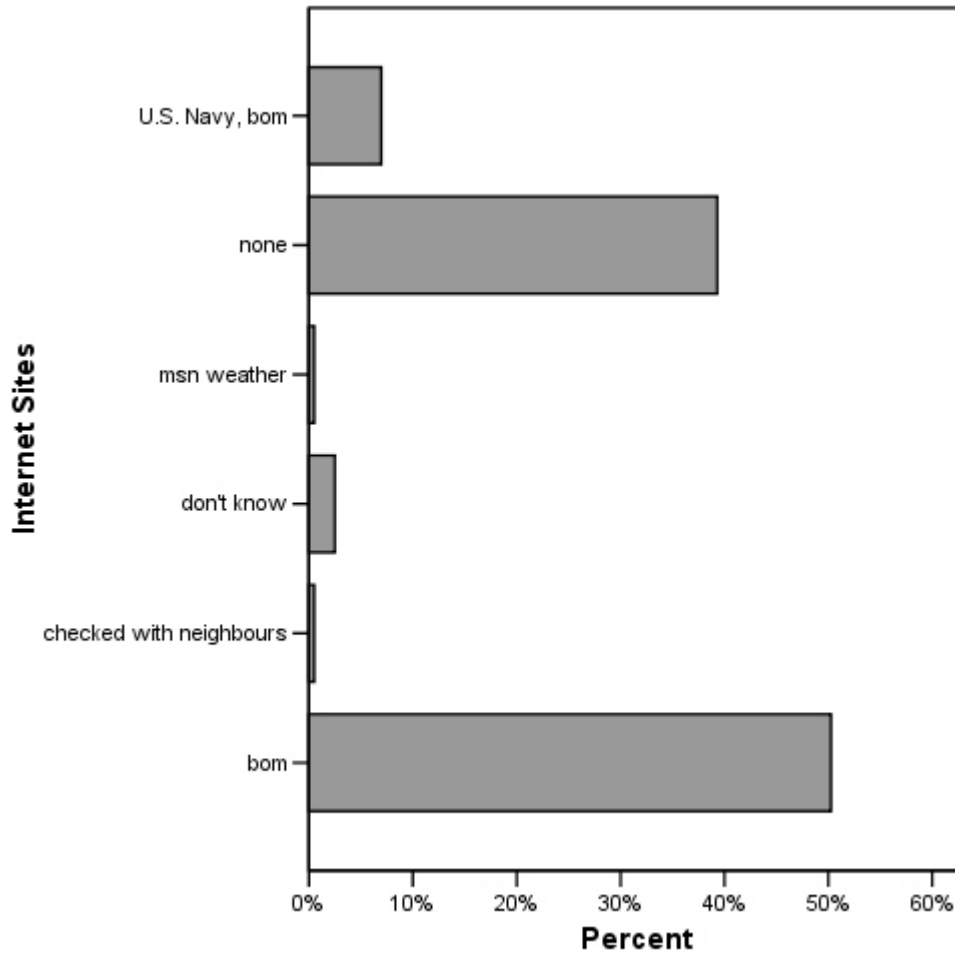
**Questions 5 and 6: Internet Sites**

**5. If you used the Internet which sites did you use?**

**6. Which Internet site did you prefer?**

Again it is interesting to compare the Darwin experience to that of Johnstone Shire after Cyclone Larry. Each epitomises the difference between the rural and the urban sectors, where far more urban residents have access to the Internet than rural households. Altogether 58% of households used the Bureau of Meteorology site, 51% of them

exclusively. This follows through into the next question as to which is the preferred site. Only the United States Navy website is a very minor alternative.



**Figure 3. Use of Internet Sites**

**Table 12. Internet Sites Used and Table 13. Preferred Internet Site**

Internet Sites	Count	Preferred site	Count
bom	102	bom	103
checked with neighbours	1	don't know	9
don't know	4	n/a	78
msn weather	1	none	5
none	79	U.S. Navy	6
U.S. Navy, bom	14	<b>Total</b>	201
<b>Total</b>	201		

**Question 7 and 8.**

**7. Did you look at the cyclone forecast map on the Bureau website or did you see them on TV?**

**8. If you saw the cyclone track forecast map what did you think the grey zone meant?**

Use of the forecast map is high, but there is no important difference either by gender or previous cyclone experience.

**Table 14. Use of Forecast Map**

Forecast Map	Count	Col %
Yes	186	92.5%
No	15	7.5%
<b>Total</b>	201	100.0%

**Table 15. Use of Forecast Map By Gender**

Forecast Map	Gender		Total
	Male	Female	
Yes	78	108	186
No	8	7	15
<b>Total</b>	86	115	201

**Table 16. Use of Forecast Map By Previous Cyclone Experience**

Forecast Map	Previously experienced a cyclone		Total
	Yes	No	
Yes	129	57	186
No	14	1	15
<b>Total</b>	143	58	201

Understanding the forecast map was a difficult question to ask in a telephone survey, as it required describing something that is intended to be visually intuitive. The results of this question do not necessarily indicate a failure to understand the meaning of the map, rather than a failure to understand the verbal question. Researchers at the Centre experienced similar problems with the Marine forecast survey several years ago (which was in itself far too complex for a telephone survey). We may thus interpret the “don’t knows” and “don’t remembers” as not knowing what the grey area was in the telephone survey question, but not necessarily as it would have appeared on the map if people had been able to visualise it. The incorrect answer (11%), and correct answers (33%) are the most reliable indicative responses. They suggest a probable rate of understanding by three quarters (75%) of the population. Again there is no difference in gender or previous cyclone experience

**Table 17. Understanding Forecast Map**

Grey Zone	Count	Col %
Forecast track	56	27.9%
Don't know	92	45.8%
Don't remember	15	7.5%
Incorrect answer	23	11.4%
Guessed correctly	10	5.0%
Used legend	5	2.5%
<b>Total</b>	201	100.0%

**Table 18. Understanding Forecast Map by Gender**

Grey Zone	Gender				Total	
	Male		Female		Count	Col %
	Count	Col %	Count	Col %		
Forecast track	24	27.9%	32	27.8%	56	27.9%
Don't know	36	41.9%	56	48.7%	92	45.8%
Don't remember	4	4.7%	11	9.6%	15	7.5%
Incorrect answer	14	16.3%	9	7.8%	23	11.4%
Guessed correctly	6	7.0%	4	3.5%	10	5.0%
Used legend	2	2.3%	3	2.6%	5	2.5%
<b>Total</b>	86	100.0%	115	100.0%	201	100.0%

**Table 19. Understanding Forecast Map by Previous Cyclone Experience**

Grey Zone	Previously experienced a cyclone		Total
	Yes	No	
Forecast track	39	17	56
Don't know	68	24	92
Don't remember	11	4	15
Incorrect answer	17	6	23
Guessed correctly	6	4	10
Used legend	2	3	5
<b>Total</b>	143	58	201

**Question 9.**

**9. Were the text messages issued by the Bureau of Meteorology and read out on TV or radio clear and understandable?**

There is universal acclaim for the intelligibility and clarity of the Bureau of Meteorology messages. There seems to be a recalcitrant group in these tables who gave no as a predictable response (possibly uncooperative individuals who don't like telephone surveys, although there was no evidence for this during this survey), in which case they were a very small proportion.

**Table 20. Clarity of Text Messages**

<b>Text messages understandable</b>	<b>Count</b>	<b>Col %</b>
Yes	185	92.0%
No	16	8.0%
<b>Total</b>	<b>201</b>	<b>100.0%</b>

**Table 21. Clarity of Text Messages by Gender**

<b>Text messages understandable</b>	<b>Gender</b>				<b>Total</b>	
	<b>Male</b>		<b>Female</b>		<b>Count</b>	<b>Col %</b>
	<b>Count</b>	<b>Col %</b>	<b>Count</b>	<b>Col %</b>		
Yes	76	88.4%	109	94.8%	185	92.0%
No	10	11.6%	6	5.2%	16	8.0%
<b>Total</b>	<b>86</b>	<b>100.0%</b>	<b>115</b>	<b>100.0%</b>	<b>201</b>	<b>100.0%</b>

**Table 22. Clarity of Text Messages by Previous Cyclone Experience**

<b>Text messages understandable</b>	<b>Previously experienced a cyclone</b>		<b>Total</b>
	<b>Yes</b>	<b>No</b>	
Yes	130	55	185
No	13	3	16
<b>Total</b>	<b>143</b>	<b>58</b>	<b>201</b>

**Question 10**

**10. On a scale of 1 to 5 where 1 is very likely and 5 is very unlikely please rate the likelihood of another cyclone affecting this area in the next 10 years.**

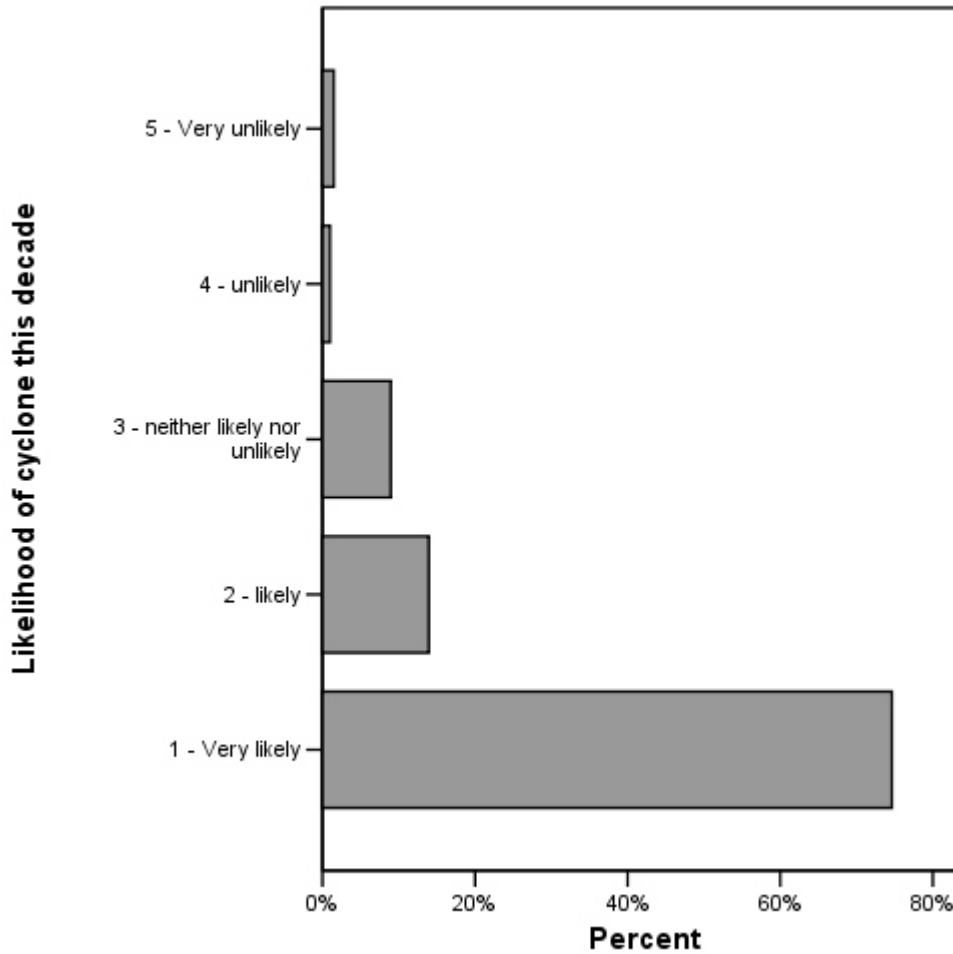
Most respondents expect a strong likelihood of another cyclone impacting Darwin within the next 10 years. The mean puts perception as between likely and very likely.

**Table 23. Perception of Cyclone Likelihood**

<b>Likelihood of cyclone this decade</b>	<b>Count</b>	<b>Col %</b>
1 - Very likely	150	74.6%
2 - likely	28	13.9%
3 - neither likely nor unlikely	18	9.0%
4 - unlikely	2	1.0%
5 - Very unlikely	3	1.5%
<b>Total</b>	<b>201</b>	<b>100.0%</b>

**Table 24. Perception of Cyclone Likelihood. Mean**

	No.	Mean	Std. Deviation
Likelihood of cyclone this decade	201	1.41	.814



**Figure 4. Perceived Likelihood of Further Cyclones this Decade**

**Table 25. Perception of Cyclone Likelihood by Gender**

Likelihood of cyclone this decade	Gender				Total	
	Male		Female		Count	Col %
	Count	Col %	Count	Col %		
1 - Very likely	63	73.3%	87	75.7%	150	74.6%
2 - likely	12	14.0%	16	13.9%	28	13.9%
3 - neither likely nor unlikely	10	11.6%	8	7.0%	18	9.0%
4 - unlikely			2	1.7%	2	1.0%
5 - Very unlikely	1	1.2%	2	1.7%	3	1.5%
Total	86	100.0%	115	100.0%	201	100.0%

There is no difference by gender. Of those who had not previously experienced a cyclone the expectation was slightly more strongly towards a greater likelihood

**Table 26. Perception of Cyclone Likelihood by Previous Experience of Cyclone**

Likelihood of cyclone this decade	Previously experienced a cyclone		Total
	Yes	No	
1 - Very likely	109	41	150
2 - likely	16	12	28
3 - neither likely nor unlikely	13	5	18
4 - unlikely	2	0	2
5 - Very unlikely	3	0	3
<b>Total</b>	143	58	201

**Question 11.**

**11. As Monica weakened very quickly, how do you feel about preparing for a major cyclone next time? On a scale of 1 - 5, where 1 you are far more likely to make comprehensive cyclone preparations next time there is a major cyclone threat in your area. and 5 = you are far less likely.**

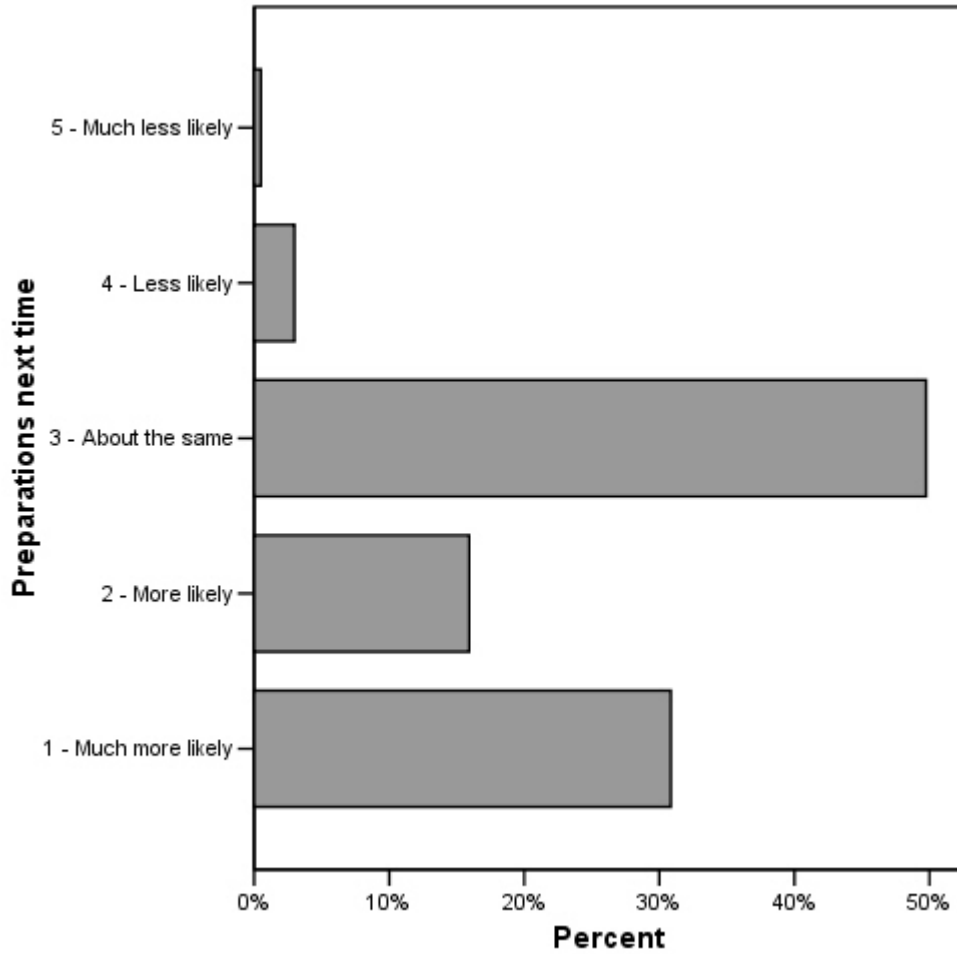
**Table 27. Likely Preparations Next Time**

Preparations next time	Count	Col %
1 - Much more likely	62	30.8%
2 - More likely	32	15.9%
3 - About the same	100	49.8%
4 - Less likely	6	3.0%
5 - Much less likely	1	.5%
<b>Total</b>	201	100.0%

**Table 28. Likely Preparations Next Time: Mean**

	N	Mean	Std. Deviation
Preparations next time	201	2.26	.951

Question 11 is perhaps the core to the questionnaire and to the main research question. Despite the lack of a serious impact from cyclone Monica, people were slightly on the side of preparing for more next time rather than less. The strongest answer was half of the respondents saying that they would do the same next time. There is no significant difference by gender, although men are very slightly more towards doing the same, with women very slightly towards doing more. Of those who have had no previous experience of cyclones 41% tended towards the much more likely to do more, while of those who had previous experience, only 27% tended towards doing significantly more in a future event.



**Figure 5. Future Preparations**

**Table 29. Likely Preparations Next Time By Gender**

Preparations next time	Gender				Total	
	Male		Female		Count	Col %
	Count	Col %	Count	Col %		
1 - Much more likely	25	29.1%	37	32.2%	62	30.8%
2 - More likely	14	16.3%	18	15.7%	32	15.9%
3 - About the same	46	53.5%	54	47.0%	100	49.8%
4 - Less likely	1	1.2%	5	4.3%	6	3.0%
5 - Much less likely			1	.9%	1	.5%
Total	86	100.0%	115	100.0%	201	100.0%



**Table 30. Likely Preparations Next Time by Previous Cyclone Experience**

Preparations next time	Previously experienced a cyclone		Total
	Yes	No	
1 - Much more likely	38	24	62
2 - More likely	20	12	32
3 - About the same	79	21	100
4 - Less likely	5	1	6
5 - Much less likely	1	0	1
<b>Total</b>	143	58	201

**Question 12**

**12. How would you rate the cyclone information and warnings from the Bureau of Meteorology?**

Despite the cyclone warning being for a category five and the reality being much less, the ratings of warnings is extremely positive. Again there is no significant bias by gender or previous cyclone experience.

**Table 31. Rating of BoM Warnings**

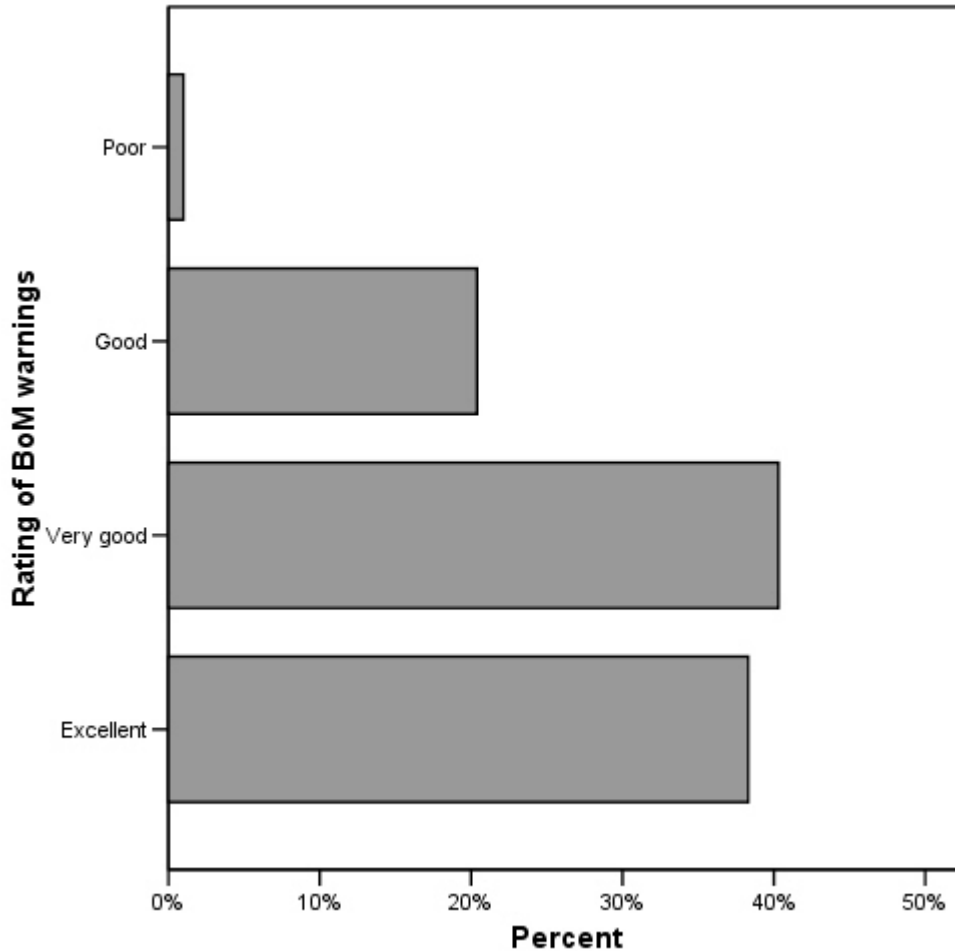
Rating of BoM warnings	Count	Col %
Excellent	77	38.3%
Very good	81	40.3%
Good	41	20.4%
Poor	2	1.0%
<b>Total</b>	201	100.0%

**Table 32. Rating of BoM Warnings: Mean**

	No.	Mean	Std. Deviation
Rating of BoM warnings	201	1.84	.778

**Table 33. Rating of BoM Warnings by Gender**

Rating of BoM warnings	Gender				Total	
	Male		Female		Count	Col %
	Count	Col %	Count	Col %		
Excellent	30	34.9%	47	40.9%	77	38.3%
Very good	35	40.7%	46	40.0%	81	40.3%
Good	21	24.4%	20	17.4%	41	20.4%
Poor			2	1.7%	2	1.0%
<b>Total</b>	86	100.0%	115	100.0%	201	100.0%



**Figure 6. Rating of BoM Warnings**

**Table 34. Rating of BoM Warnings by Previous Cyclone Experience**

Rating of BoM warnings	Previously experienced a cyclone		Total
	Yes	No	
Excellent	48	29	77
Very good	63	18	81
Good	30	11	41
Poor	2	0	2
Total	143	58	201

**Question 13 and 14**

**13. What would you like to see done differently next time?**

**14. Do you have any other comments about information from the Weather Bureau?**

Table 35 lists summaries of open-ended comments on what might be done better next time. The single largest response, half of respondents, is nothing. Most of the others all relate to information. The question itself may have suggested a response on information,

although it does not contain that word, but it does come after previous questions that related to information and warnings. However, clearly information is a dominant theme - people want more information, more frequent information, more types of information and so on.

The next table, Table 36, replicates the themes of Table 35 with an emphasis on information, but specifically oriented towards the warnings and information that come from the Bureau of Meteorology. Whether or not some of these comments are realistic is beside the point as these were the responses from the survey. However, 58% had nothing to add and a further 17% gave praise. Of the rest of the comments, which are mostly about more information, the strongest (9%), was for more regular updates.

**Table 35. Improvements for Next Time**

<b>Things to be done differently next time</b>	<b>Count</b>
More accurate info	1
Consistency – radio/TV/pay TV	3
Better category info	1
Check on neighbours	2
Child education, shelters for the poor	1
Better colours on map	1
More info on pay TV	6
Update directions	1
Elderly people stubborn to move	1
Good job	8
Improve cyclone shelters	2
Industry to clear up ***	1
Timely info	3
More supplies in shops	1
Integrate disaster management	1
Better kit in newspaper	1
Late updates TV/radio	1
Less panic buying	4
Make better use of maps	2
Make decision to leave earlier	1
More comprehensive info	2
More education on preparation	1
More frequent updates on TV	2
More info at end of threat	3
More info on radio	2
More info on TV	11
More info on TV and radio	12
More info on shelters	3
More frequent info	2
Musical intro for attention **	1
Newspaper sensationalised **	1
Nothing	99
Pre-season clean up	7
Repetitive	3
Slow down text messages ***	2
Make info easier to understand	3
Tone it down	1
WA system better	1
When to evacuate schools/care	2
Wind speed in kph	1
<b>Total</b>	<b>201</b>

**Table 36. General Comments on BoM Information**

<b>Comments on BoM information</b>	<b>Preparation</b>
None	116
OK	3
Good	20
Excellent	10
Better images on TV & internet	1
Caused some panic	1
Quite comprehensive	3
Has improved over the years	1
Inconsistent/complex/more	1
Info accessible and clear	1
Info constant	2
Info on cyclone scattered	1
Like new tracking system	1
More accuracy on cyclone location	1
More details in maps/location	1
More info	1
More info for newcomers	1
More info for remote locations	2
More notice on flooding	1
More public education	1
More regular updates	18
More user friendly info	1
Need more correct info	1
Other languages available	1
OVERRATED	1
Sensible, plenty of notice	1
Sound warnings for text messages	1
Too technical	1
TV tracking same as website	1
Updates delayed	1
US sites more accurate	1
Used scare tactics	1
WA system better	2
Writing bigger on TV	1
<b>Total</b>	<b>201</b>

**Question 15.**

**15.. What impact did the cyclone threat have on your work? i.e. your business or your job.**

The final major question was aimed at gauging the inconvenience of Cyclone Monica, by recording the impact on workplaces. An observation that has been emerging from a number of the centre's post cyclone studies concerns the relatively high levels of

preparation of residential dwellings, against a lack, or even negligence, where workplaces are concerned. It is surprising that a category 1 cyclone should have had “some” up to a “very great impact” on places of work for almost half of the respondents.

**Table 37. Impact on Work**

Impact on Work	Count	Col %
None	72	35.8%
Little	33	16.4%
Some	36	17.9%
A lot	33	16.4%
Very great	27	13.4%
<b>Total</b>	<b>201</b>	<b>100.0%</b>

The impact is even greater in these categories for males. The main gender difference in impact on workplace is undoubtedly distorted by females who are not in the workforce and probably responded none. We did not go into further details on household structure and economy and can only guess at this difference. However, an area worthy of further research in such studies is impact on place of work, preparations made at workplaces and awareness of cyclone preparation for places of work.

**Table 37. Impact on Work by Gender**

Impact on Work	Gender				Total	
	Male		Female			
	Count	Col %	Count	Col %	Count	Col %
None	24	27.9%	48	41.7%	72	35.8%
Little	16	18.6%	17	14.8%	33	16.4%
Some	19	22.1%	17	14.8%	36	17.9%
A lot	14	16.3%	19	16.5%	33	16.4%
Very great	13	15.1%	14	12.2%	27	13.4%
<b>Total</b>	<b>86</b>	<b>100.0%</b>	<b>115</b>	<b>100.0%</b>	<b>201</b>	<b>100.0%</b>

### Question 16. Demographics

**Table 38. Number in Household and Table 38. Mean Number in Household**

Number in household	Count	Col %	
1	23	11.4%	
2	77	38.3%	
3	40	19.9%	
4	32	15.9%	
5	19	9.5%	
6	6	3.0%	
7	3	1.5%	
10	1	.5%	
<b>Total</b>	<b>201</b>	<b>100.0%</b>	
	<b>N</b>	<b>Mean</b>	<b>Std. Deviation</b>
Number in household	201	2.92	1.461

## Appendix. Telephone Survey Questionnaire



### POST CYCLONE MONICA SURVEY MAY 2006

**1. What did you do to prepare as the cyclone warnings intensified?**

Yes or No

**2. Did public education campaigns, such as on TV and radio, and pre cyclone season advice have an influence on your preparations?**

Yes or No

**3. What things would you do differently if you are threatened by a severe cyclone again?**

List first thing

**4. Where or who did you get information from about cyclone Monica?**

1. From the TV      2. From radio      3. From friends and relatives  
4. From the Emergency Services      5. From the council      6. From your employer  
7. From your own knowledge and experience      8. Internet      9. Other source

**5. If you used the internet which sites did you use?**

Name them

**6. Which internet site did you prefer?**

Name it

**7. Did you look at the cyclone forecast map on the Bureau website or did you see them on TV?**

Yes or No

**8. If you saw the cyclone track forecast map what did you think the grey zone meant?**

**9. Were the text messages issued by the Bureau of Meteorology and read out on TV or radio clear and understandable?**

Yes No

**10. On a scale of 1 to 5 where 1 is very likely and 5 is very unlikely please rate the likelihood of another cyclone affecting this area in the next 10 years.**

Very likely      1      2      3      4      5      Very unlikely

**11. As Monica weakened very quickly, how do you feel about preparing for a major cyclone next time? On a scale of 1 - 5, where 1 you are far more likely to make comprehensive cyclone preparations next time there is a major cyclone threat in your area. and 5 = you are far less likely.**

1	2	3	4	5
Much more likely	More likely	About the same	Less likely	Much less likely

**12. How would you rate the cyclone information and warnings from the Bureau of Meteorology?**

1. Excellent	2. Very good	3. Good	4. Poor	5. Very poor
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**13. What would you like to see done differently next time?**

List one issue

**14.** Do you have any other comments about information from the **Weather Bureau?**

**15.. What impact did the cyclone threat have on your work? ie. your business or your job.**

**16. Personal Details:** Sex. Number of members in this family/ household

**17. Have you previously experienced a cyclone?**

Yes or No