

**Senate Standing Committee on Environment and Communications  
Legislation Committee**  
Answers to questions on notice  
**Sustainability, Environment, Water, Population and Communities portfolio**  
Additional Budget Estimates, February 2013

<b>Program: Division or Agency:</b>	BOM	<b>Question No:</b>	137
<b>Topic:</b>	BOM – operational meteorologists		
<b>Proof Hansard Page and Date</b>	90		
<b>or Written Question:</b>	(11/2/13)		

**Senator Boyce asked:**

Senator BOYCE: Could you give me on notice the numbers of operational meteorologists?

Dr Vertessy: Yes, we could provide clarification.

**Answer:**

Operational meteorologists funded through appropriation total 101. They are staff that work on the frontline on rosters that cover 24 hours per day, seven days per week and undertake a full range of forecast and warning services.

**Senate Standing Committee on Environment and Communications  
Legislation Committee**  
Answers to questions on notice  
**Sustainability, Environment, Water, Population and Communities portfolio**  
Additional Budget Estimates, February 2013

<b>Program: Division or Agency:</b>	BOM	<b>Question No:</b>	138
<b>Topic:</b>	BOM – Queensland operations budget		
<b>Proof Hansard Page and Date or Written Question:</b>	91 (11/2/13)		

**Senator Boyce asked:**

Dr Vertessy: I believe, Senator, that that comment was taken out of context—that it was part of a deliberative discussion regarding the potential should a particular level of cuts be attained. That level of cut was not realised to my knowledge. As I understand it, allocations were subsequently modified upwards so that assertion—

Senator BOYCE: By how much?

Dr Vertessy: That I do not know. I cannot advise at this stage but I could—

Senator BOYCE: You can take that on notice.

**Answer:**

Overall the Bureau of Meteorology's (the Bureau) Budget allocation for the Queensland region has increased over the past three financial years. The observations to which Mr Harrison was referring have continued to be delivered as part of the Bureau's composite observations program throughout 2012/13, within the current Budget and without any significant impact on operations.

**Senate Standing Committee on Environment and Communications  
Legislation Committee**  
Answers to questions on notice  
**Sustainability, Environment, Water, Population and Communities portfolio**  
Additional Budget Estimates, February 2013

**Program: Division or Agency:** BOM **Question No:** 139  
**Topic:** BOM – radiosonde operations  
**Proof Hansard Page and Date** 92  
**or Written Question:** (11/2/13)

**Senator Boyce asked:**

Senator BOYCE: Okay. On notice, could you provide me with a list of what inputs you have from what locations—is it 10,000 from Sydney and 100 from Alice Springs—across some sort of a time period for each location.

**Answer:**

Information on the Bureau of Meteorology's Observations Program is set out in detail on pages 26, 27 and 28 of the Bureau of Meteorology's 2011/12 Annual Report. That information notes that there are 50 upper air stations that track information from weather balloons. Depending on the location, weather balloons are typically released two to four times per day.

Figure 6 on page 21 of the 2011/12 Annual Report shows the location of the Bureau of Meteorology's regional offices, field offices and other facilities.

Further details of the Bureau of Meteorology's Observations Program for each state and territory are available from the following websites:

New South Wales (<http://www.bom.gov.au/nsw/observations/index.shtml>).

Victoria (<http://www.bom.gov.au/vic/observations/>).

Queensland (<http://www.bom.gov.au/qld/observations/index.shtml>).

Western Australia (<http://www.bom.gov.au/wa/observations/index.shtml>).

South Australia (<http://www.bom.gov.au/sa/observations/index.shtml>).

Tasmania (<http://www.bom.gov.au/tas/observations/>).

Australian Capital Territory (<http://www.bom.gov.au/act/observations/index.shtml>).

Northern Territory (<http://www.bom.gov.au/nt/observations/index.shtml>).

**Senate Standing Committee on Environment and Communications  
Legislation Committee**  
Answers to questions on notice  
**Sustainability, Environment, Water, Population and Communities portfolio**  
Additional Budget Estimates, February 2013

<b>Program: Division or Agency:</b>	BOM	<b>Question No:</b>	140
<b>Topic:</b>	BOM – staffing levels		
<b>Proof Hansard Page and Date or Written Question:</b>	95 (11/2/13)		

**Senator Macdonald asked:**

Senator IAN MACDONALD: About 30 seconds. I just need some updates, on notice, of your staffing levels. I am particularly interested in Tennant Creek and right across the north. Can you tell me what your change in staffing levels is from this time last year, and also your current budget allowance compared with previous ones; and what you expect in the future to deal with all this extra work that you are talking about. Can you relate what you need in money to all of the things you have been telling Senator Cameron about and indicate what the forward estimates show for that sort of money for the bureau?

Dr Vertessy: We will do our best, Senator.

**Answer:**

***Change in staffing levels***

Between 31 January 2012 and 31 January 2013 the number of Bureau of Meteorology (the Bureau) staff located in Queensland and the Northern Territory have changed by two, from 243 staff to 241 staff.

***Current Budget allowance***

The current Budget for the current year is set out in the Portfolio Budget Statements 2012/13, at pages 120 and 121 which outline resources allocated to the Bureau.

***Future Budget allowance***

The current Budget for future years is set out in the Portfolio Budget Statements 2012/13, at pages 120 and 121 which outline resources allocated to the Bureau. The Australian Government is also considering its response to the Munro review of the Bureau of Meteorology in the context of the 2013/14 Budget.

**Senate Standing Committee on Environment and Communications  
Legislation Committee**  
Answers to questions on notice  
**Sustainability, Environment, Water, Population and Communities portfolio**  
Additional Budget Estimates, February 2013

**Program: Division or Agency:** BOM **Question No:** 141  
**Topic:** BOM – Queensland’s radiosonde Budget  
**Proof Hansard Page and Date or Written Question:** Written

**Senator Boyce asked:**

During the Estimates hearings of February 2013, Dr Vertessy of the Bureau of Meteorology gave the following evidence,

“Senator BOYCE: Anyway, we will get that on notice. There was a freedom of information request from the Queensland media last year suggesting that your Queensland office has had the funds for its observations budget cut by more than 25 per cent over the last three years. Could you please tell me what services were cut or reduced as a result of that?”

Dr Vertessy: As I understand it, there is an error in that article. The observations capacity in the Brisbane office has not been cut by 25 per cent.

Senator BOYCE: Has the budget been cut?

Dr Vertessy: Not to my understanding, though I might seek confirmation from my colleagues.”

1. Are claims that the Queensland BOM Radiosonde Budget has been cut by 25 per cent over the last three years true or false?
2. Has that budget been cut at all over the last three years? If so, by how much in dollar and percentage terms?

**Answer:**

1. False.
2. Overall the Bureau of Meteorology’s (the Bureau) Budget allocation for the Queensland region has increased over the past three financial years. New, improved and lower cost observations mechanisms within the Bureau’s composite observations system allowed a \$70,000 saving in the radiosonde Budget for the 2012/13 financial year (4.5 per cent of Queensland’s total observations system Budget).

**Senate Standing Committee on Environment and Communications**  
**Legislation Committee**  
Answers to questions on notice  
**Sustainability, Environment, Water, Population and Communities portfolio**  
Additional Budget Estimates, February 2013

**Program: Division or Agency:** BOM **Question No:** 142  
**Topic:** BOM – Queensland’s Budget position  
**Proof Hansard Page and Date** Written  
**or Written Question:**

**Senator Boyce asked:**

In a document released under FOI (Document 55- Email Bruce Gunn to Qld Staff 27/7/12) the following is stated;

“1. ADO has directed that the 2012/13 O&E budget requires savings of \$600k from radiosonde expenditure. Accordingly a national plan has been devised to achieve this saving. The memo provides background detail. The Queensland stations affected are Brisbane Airport, Rockhampton, Mt Isa and Weipa. There are no changes expected at the other radiosonde stations (Charleville, Townsville and Willis Island. Wind only upper air stations (Cairns, Longreach and Mackay) are also unaffected.”

1. What percentage of BOM’s Queensland total observational budget for the year 2012-2013 does \$600,000 represent?
2. Given his seniority why did Dr Vertessy claim that he didn’t think the budget of the Queensland Radiosonde Budget had been cut when it is clear that has been and that it and other funding cuts and their consequences were the subject of dozens of staff and senior management meetings from July through to November 2012?

During these same Estimates hearings Dr Vertessy said the following in regard to the issue of budget cuts;

“Dr Vertessy: One thing I might add is that I am not aware of any reduction in service per se in Queensland.”

In even the limited documentation obtained under FOI by the Courier Mail staff meetings and email communications are detailed where months of efforts have gone in to re-organising operations and rosters because of budget and staff cuts.

Those same documents make it clear in many cases that services have been cut, work foregone and work practices changed to manage those budget cuts.

As well in those same documents it is also clear sufficient staff numbers to make it significant, complain of being over worked and being unable to perform all the required duties or perform them to a expected professional standard.

3. How then can Dr Vertessy maintain that there has been no reduction in service as a result of prolonged Budget cuts to the BOM?

**Answer:**

1. The \$600,000 Budget saving referred to in the question, relating to radiosonde expenditure, is a total saving across all states and territories for the financial year 2012/13. Of this total, \$70,000 relates to Queensland radiosondes, which represents 4.5 per cent of the Queensland total observations Budget.
2. Dr Rob Vertessy did not claim that he didn't think the Queensland Radiosonde Budget had been cut. Dr Vertessy stated: 'To my understanding there has been no change at all in the number of forecasters in the last three years. That article also made some reference to suggested cuts in the budget available for making observations in the state of Queensland. I think it cited a 25 per cent reduction. That is not the case. There may have been a lesser reduction but I am not aware of that figure-I could provide it to you on notice.'
3. Dr Neville Smith in his evidence explained that there had been a 20 per cent reduction in the radiosonde program nationally. Dr Smith explained this reduction had been achieved by increasing the uptake of data from other sources, for example from aircraft descents and ascents. This progression had enabled a reduction in the use of radiosondes, or weather balloons, which are consumables and a relatively expensive source of observations.

**Senate Standing Committee on Environment and Communications**  
**Legislation Committee**  
Answers to questions on notice  
**Sustainability, Environment, Water, Population and Communities portfolio**  
Additional Budget Estimates, February 2013

**Program: Division or Agency:** BOM **Question No:** 143  
**Topic:** BOM – Queensland’s radiosonde program  
**Proof Hansard Page and Date or Written Question:** Written

**Senator Boyce asked:**

1. In the February Estimates hearings a representative of the BOM claimed that reports that suggested that there had been a 50 per cent cut in the use of weather balloons in Queensland and that it was in fact just 20 per cent? Can you please provide the evidence to support this claim?

Further to that issue in its evidence in the February Estimates hearings the Bureau seemed to be implying that the cut in the number of Radiosonde flights was because they had become unnecessary as a better and cheaper method had replaced their need, [Page 91-Estimates-11/2/13]

“Dr Smith: In the Radiosonde—these are the upper-air balloons—and the rationale behind that is that we now gather a whole lot of other data, particularly from aircraft descents and ascents, and those data are effectively feeding into exactly the same sort of information base which then in turn impacts on our forecasts. We have been monitoring that impact and till this stage we have not noticed any adverse impact from that reduction. It seems to have been a very smart reduction ...”

2. Doesn’t the fact that the cuts to this program occurred before another data source was utilized indicate the cuts to the Radiosonde flights were clearly driven by the budget shortfalls and not ingenuity or new technology?
3. If you refute that analysis does it not imply the BOM has been wasting money on systems that could have easily been replaced to at least some degree (20%) years ago?
4. Would you be able to quantify the reductions in funding that have occurred in the Queensland office of the Bureau of Meteorology over the past three years?
5. Is it not true that the BOM now has 45 per cent fewer staff than it did in the mid 70’s?

**Answer:**

1. In the financial year 2012/13 the budget for radiosondes in Queensland was reduced by \$70,000 (17.5 per cent) compared to the financial year 2011/12.
2. No.
3. No.
4. Overall the budget allocation for the Queensland region has increased over the three financial years concerned.

5. The Bureau of Meteorology (the Bureau) has changed significantly in the last 40 years, including a substantial increase in automation. The Bureau's current staff perform functions that are substantially different from those performed in the mid-1970s. A direct comparison of staffing numbers from the mid-1970s to 2013 would therefore not provide an accurate comparison in terms of service levels.

**Senate Standing Committee on Environment and Communications  
Legislation Committee**  
Answers to questions on notice  
**Sustainability, Environment, Water, Population and Communities portfolio**  
Additional Budget Estimates, February 2013

**Program: Division or Agency:** BOM **Question 144**  
**Topic:** BOM – Queensland’s operations **No:**  
**Proof Hansard Page and Date** Written  
**or Written Question:**

**Senator Boyce asked:**

According to documents obtained by the Courier Mail under FOI state that Rod Harrison, the Regional Operations Manager in Queensland, warned in July last year that cuts to their budget would have , and I quote; “a significant impact to operations.”

In the February Estimates hearings BOM claimed that this comment had been taken out of context.

1. Can you explain the correct context and can you state that the proposals about which the Queensland Regional Operations Manager was concerned did not go ahead to any degree?

Rob Webb Regional Director (Queensland) at Bureau of Meteorology is in record (ABC Radio) acknowledging that no new staff has been hired in Queensland in the past five years. At the same time according to the BOM there has been a tenfold increase in the number of severe weather warnings since 1997.

2. How can the Bureau argue that an acknowledged shortage of staff and an incapacity to hire staff because of budget cuts has not in some way affected its performance, the services it offers or could offer, the pursuit of excellence, meeting KPI’s and maintaining staff morale?

**Answer:**

1. The observations to which Mr Harrison was referring have continued to be delivered as part of the Bureau of Meteorology’s (the Bureau) composite observations program throughout 2012/13, within the current Budget.

For the purposes of clarification the following is the relevant extract from the ABC Radio Brisbane interview with Rob Webb, Regional Director Queensland on 12 February 2013.

“Presenter: Now, the Munro Report which was a report that looked at you guys in 2011, recommended more meteorologists be employed because of a 10-fold increase in the number of severe weather warnings since 1997. A) Have more meteorologists been employed?”

Rob Webb: What we've done – initially the Government taken the Munro Report and had an interim measure in the last budget and allowed us to keep some more extra contractors on, but we're waiting on the report back from the Government in this next budget, I suppose, to see their final report, so no additional meteorologists has been employed as a result of the Munro Report but we have been able to keep on forecasters that were in a contract capacity.”

2. The Bureau does not acknowledge a shortage of staff. Budget efficiency dividends have not resulted in an incapacity to hire staff in Queensland and have not affected the Bureau's performance. The Bureau continues to meet its Key Performance Indicators and staff remain highly motivated and committed to delivering high quality services.

**Senate Standing Committee on Environment and Communications  
Legislation Committee**  
Answers to questions on notice  
**Sustainability, Environment, Water, Population and Communities portfolio**  
Additional Budget Estimates, February 2013

**Program: Division or Agency:** BOM **Question No:** 145

**Topic:** BOM – climate program

**Proof Hansard Page and Date** Written

**or Written Question:**

**Senator Boyce asked:**

1. In a changing climate what role does the BOM play?
2. That role must have grown apace in the last decade, have the budget cuts affected the quality of the work BOM does or could do in this regard?

Professor Neville Nicholls, a senior climate scientist who had a 35 year career with the Bureau, in a submission he made in early 2012 to the Productivity Commission Enquiry into “Barriers to Effective Climate Change Adaptation” in early 2012. Said, and I quote; “These successive cuts have seriously compromised the ability of the Bureau to monitor how our regional climates are changing” and I quote “has created a poorer monitoring network than we had 30 years ago.”

3. Is he correct and if not, can you provide a detailed and cogent response as to why?

In document 56 obtained under FOI by the Courier –Mail (Email- David Nottage 26/7/13) the following is stated;

“12. While the climate program has only recently submitted an elevated concern over the proposed reduced radiosonde program, (Attachment D) the climate program requirements in relation to the non-GUAN national radiosonde program are not affordable within the 2012/13 budget framework. However the current GUAN program as at 1 July 2012 of 00UTC and 12UTC.”

4. Does this not state that the Climate Program had elevated concerns regarding the effect of Budget cuts on their ability to perform their tasks?
5. Doesn't this also clearly state that some of the “Climate Program requirements ---- are not affordable within the 2012-2013 Budget framework?”
6. How have these budget cuts affected the ability of the BOM to undertake climate modelling?
7. We as a nation used to lead the world in this regard? Do we now?

**Answer:**

1. The Bureau of Meteorology's (the Bureau) mission is to provide Australians with the information they need to manage and live within their natural environment, encompassing the atmosphere, oceans, water and land. To achieve this, the Bureau:

- Monitors and reports on current environmental conditions.
- Analyses and explains trends in environmental data.
- Provides forecasts, warnings and long-term outlooks on environmental phenomena that affect the safety, prosperity and resilience of Australians.
- Fosters greater public understanding and use of environmental intelligence.

More specific to climate change, the Bureau is committed to reducing the uncertainty in long range climate change monitoring and projections. An example of the former is the recent work to upgrade our historical temperature dataset (see <http://www.bom.gov.au/climate/change/acorn-sat/#tabs=3>). An example of the latter is the collaboration with the CSIRO in developing the next generation climate change projections for the Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment report to be published later in 2013.

Recent climate change work has been well received and this includes:

- The Bureau of Meteorology/CSIRO 2012 State of the Climate report (<http://www.csiro.au/Outcomes/Climate/Understanding/State-of-the-Climate-2012.aspx>).
- Annual Climate Summary ([http://www.bom.gov.au/climate/annual\\_sum/2012/](http://www.bom.gov.au/climate/annual_sum/2012/)).
- ABC Catalyst Taking Australia's Temperature (<http://www.abc.net.au/catalyst/stories/3633447.htm>).

International collaboration is also a priority for our climate change work. This is most evident in the contributions for the IPCC and also for the AusAID/Department of Climate Change and Energy Efficiency funded work the Bureau has undertaken for Pacific Island countries (<http://www.cawcr.gov.au/projects/PCCSP/>).

The importance of the Bureau's role in a changing climate is also encapsulated in our submission to the Senate Inquiry on Recent trends in and preparedness for extreme weather events ([http://www.aph.gov.au/Parliamentary\\_Business/Committees/Senate\\_Committees?url=ec\\_ctte/extreme\\_weather/submissions.htm](http://www.aph.gov.au/Parliamentary_Business/Committees/Senate_Committees?url=ec_ctte/extreme_weather/submissions.htm)). (Refer submission 65, Section 2, pages 4 and 5).

2. No.
3. Professor Nicholls' statement is not correct. Improvements in capability over the past 30 years, including in scientific understanding and technology, have improved the Bureau's ability to monitor how our regional climates are changing.
4. No. There has been no impact on the ability of the climate program to perform its tasks.
5. No. The climate program requirements have been established so as to be affordable within the 2012/13 Budget.

6. The Bureau has significantly improved its climate modelling in recent years, including for seasonal forecasting and longer term climate projections.
7. The Bureau continues to perform very well in climate modelling, especially for a country of our size.

**Senate Standing Committee on Environment and Communications  
Legislation Committee**  
Answers to questions on notice  
**Sustainability, Environment, Water, Population and Communities portfolio**  
Additional Budget Estimates, February 2013

**Program: Division or Agency:** BOM **Question No:** 146

**Topic:** BOM – implementation of capacity review recommendations

**Proof Hansard Page and Date** Written

**or Written Question:**

**Senator Boyce asked:**

1. An independent review of BOM, the Munro Report, released in December 2011 and that was commissioned by this government, made a number of recommendations. How many of those have been implemented?
2. One of their main recommendations was that the BOM recruit more frontline meteorologists to and I quote, “build response capacity in regional centres.” Has that been done?
3. The Munro Report also made it clear that unless there was a dramatic improvement in funding BOM would struggle to provide adequate warning of future natural disasters?

**Answer:**

1. As part of the 2012/13 Budget, the Australian Government made an initial response to the highest priority recommendations by announcing it would strengthen the Bureau of Meteorology's (the Bureau) frontline capacity. This included providing additional funding of \$4.8 million in 2012/13 to increase the Bureau's frontline capabilities including up to 20 expert meteorologists, recruitment and training of up to 10 new local meteorologists and recruitment and training of up to 10 additional flood forecasters.

As identified in the review, the Bureau will also commence a one year trial to host advertising on its website, with any revenue raised contributing to offsetting the measures announced in the Budget.

2. Yes. Staff announced in the interim response have been operating in regional forecasting centres.
3. The government is considering its response to the Munro Review in the context of the 2013/14 Budget.

**Senate Standing Committee on Environment and Communications**  
**Legislation Committee**  
Answers to questions on notice  
**Sustainability, Environment, Water, Population and Communities portfolio**  
Additional Budget Estimates, February 2013

**Program: Division or Agency:** BOM **Question 147**  
**Topic:** BOM – Holmes report **No:**  
**Proof Hansard Page and Date** Written  
**or Written Question:**

**Senator Boyce asked:**

1. According to the Holmes Report into the Brisbane floods of 2011 BOM was and I quote 'oblivious to the rapid rise of Lockyer Valley creeks – saying and I quote; "It seems extraordinary and a very great pity that the Bureau was oblivious." In fact the Bureau's flood warnings for the Lockyer valley and Gatton were issued one whole hour AFTER it happened. How do you explain this and is this in any way connected to the effects on performance of yearly budget cuts?
2. The Holmes Report recommended that BOM increase the number and range of flood and rainfall gauges across the state. Is that underway or been done?
3. Has BOM received an extra Budget allocation for that work or will it have to come from your existing appropriations?
4. Was it done for example in the regions of the Burnett and Mary Rivers?
5. What percentage of early warning sites are fully operational at this moment?
6. How many of them are actually providing data?

**Answer:**

1. The Bureau of Meteorology (the Bureau) does not have responsibility for rapidly occurring flash flood warnings. Flash flood warnings are the responsibility of local government. Recommendation 4.30 of the Interim Queensland Floods Commission of Inquiry report stated that councils should continue to take responsibility for issuing flash flood warnings.
2. The Bureau does not have unilateral responsibility for increasing the number of flood and rain gauges across jurisdictions, including Queensland. Recommendation 4.10 of the Interim Report of the Queensland Floods Commission of Inquiry stated: 'Councils, with the assistance of the Bureau of Meteorology, should examine the feasibility of and priorities for installing additional river height and rainfall gauges in areas of identified need.'  
Since January 2011, the Bureau has worked with state and local governments to install an additional 69 gauges. The Bureau has provided advice to councils on the prioritisation, design and operation of these additional rain and river gauges.
3. The Bureau has not received extra Budget allocations for assisting with the installation of additional flood and rain gauges.

4. A new rain gauge has been installed at the Bundaberg Council station, which is a local flash flood location. The council funded rain gauge was installed by a contractor. The Bureau has agreed to display its data output on its website.

The Sunshine Coast Regional Council has also funded and installed two gauges in the upper Mary River above Gympie at Conondale. The Bureau has agreed to display its data output on its website.

5. 93 per cent of the stations that the Bureau has a role in maintaining in Queensland were fully operational as at 28 February 2013. The 7 per cent of non-operational stations have been affected by a number of flood event related reasons, including debris damage and communications failure. As per standard practice, initiatives are in place to re-commission these stations by the responsible agency.
6. 93 per cent of the stations the Bureau has a role in maintaining in Queensland were fully operational and therefore providing data as at 28 February 2013.

**Senate Standing Committee on Environment and Communications  
Legislation Committee**  
Answers to questions on notice  
**Sustainability, Environment, Water, Population and Communities portfolio**  
Additional Budget Estimates, February 2013

**Program: Division or Agency:** BOM **Question 148**  
**No:**

**Topic:** BOM – predicted flood peak in  
Rockhampton

**Proof Hansard Page and Date** Written

**or Written Question:**

**Senator Boyce asked:**

Rockhampton Deputy Mayor Tony Williams was quoted in the Daily Telegraph of February 3 this year saying that there had been serious concerns that the BOM had initially miscalculated the predicted flood peak in Rockhampton by some 200mm placing hundreds of extra homes at risk. What is the Bureau's response to these claims?

**Answer:**

The claims are incorrect.

**Senate Standing Committee on Environment and Communications**  
**Legislation Committee**  
Answers to questions on notice  
**Sustainability, Environment, Water, Population and Communities portfolio**  
Additional Budget Estimates, February 2013

**Program: Division or Agency:** BOM **Question No:** 149

**Topic:** BOM – tsunami warning system

**Proof Hansard Page and Date** Written

**or Written Question:**

**Senator Boyce asked:**

1. How many deep sea tsunami early warning buoys do you have?
2. How many are actually working?

**Answer:**

1. The Bureau of Meteorology has six deep sea tsunami early warning buoys (also known as tsunameters) in its core network of tsunameters, configured as three pairs with one pair in each of the Indian Ocean, the Coral Sea and the Tasman Sea. The pairing of the tsunameters provides redundancy in each of the three regions. In addition, a new tsunameter was jointly deployed with Indonesia to the North West of Australia in February 2012.
2. Currently all three areas are covered with five of the six tsunameters operating in the core network. One tsunameter in the Tasman Sea is not working. A restoration service voyage is planned in April/May 2013. Due to the redundancy of monitoring networks (having two buoys in each area), warnings are not affected.

**Senate Standing Committee on Environment and Communications  
Legislation Committee**  
Answers to questions on notice  
**Sustainability, Environment, Water, Population and Communities portfolio**  
Additional Budget Estimates, February 2013

**Program: Division or Agency:** BOM **Question No:** 150  
**Topic:** BOM – Tenant Creek radar station  
**Proof Hansard Page and Date** Written  
**or Written Question:**

**Senator Macdonald asked:**

It was reported in December 2012 that the Bureau of Meteorology had turned off the weather radar at Tenant Creek – removing weather imaging functionality from a 250,000sqkm area - and was planning to dismantle the facility.

Six weeks later, the Bureau has announced that the weather radar at Tenant Creek will be turned back on.

It has, however, been reported that the facility's future is only secure for a further two years.

1. Why was the centre being closed? What were the reasons for the closure?
2. If the reasons for closure were compelling, how was a decision to remain open reached so easily?
3. What alternate facilities exist in the region that may provide valuable weather data to primary producers, statutory authorities and Commonwealth departments?
4. How can the national weather monitoring and warning system operate effectively with such a large gap?

**Answer:**

1. The Tennant Creek observation station has not been closed; it has been automated. As part of the automation of the Tennant Creek Meteorological Office, a wind profiler was installed to provide forecasters with a continuous readout of atmospheric winds.  
  
The wind profiler replaced the primary meteorological functionality of the radar.
2. The decision to recommission the radar was made by the Australian Government and has been implemented by the Bureau of Meteorology (the Bureau).
3. The Bureau continues to provide automated observations from the Tennant Creek Meteorological Office, including an automatic weather station and a wind profiler on site. This is further supported by a co-operative observer providing daily manual observations from the station. Observations from aircraft and satellite systems are also available for the region.

4. The Bureau's weather forecasts and warnings for all regions, including the Barkly, are not reliant on any single piece of observational equipment. The national system is based on a combination of various observing systems, including satellite, lightning detectors, upper air and surface observations, together with predictions from advanced computer-based models. These observations are gathered from diverse sources, ranging from the Bureau's own networks to networks operated by the meteorological agencies of other countries.

In 2014, as part of a national roll out, a new forecasting system will be introduced in the Northern Territory that will enable forecasters to provide much more detailed weather forecasts and warnings at the resolution of 6 kilometres. This detailed weather information was previously only available to capital cities.

**Senate Standing Committee on Environment and Communications  
Legislation Committee**  
Answers to questions on notice  
**Sustainability, Environment, Water, Population and Communities portfolio**  
Additional Budget Estimates, February 2013

**Program: Division or Agency:** BOM **Question No:** 151  
**Topic:** BOM – bushfire CRC  
**Proof Hansard Page and Date** Written  
**or Written Question:**

**Senator McKenzie asked:**

1. Could you name the number of research projects that BOM has been involved in through the Bushfire CRC since 2003?
2. Could you also specify the dollar value of these projects?
3. What is the dollar value of BOM research that was carried outside the Bushfire CRC framework (i.e. non fire related) for the year 2011-2012?
4. Given the increased frequency of serious fires over the last several years, is there need to expand BOM fire related research?
5. Are there any BOM research projects conducted through the Bushfire CRC that will be incomplete or still running after 1 July 2013?

**Answer:**

1. The Bureau of Meteorology (the Bureau) has been involved in eight research projects through the Bushfire Cooperative Research Centre (CRC) since 2003.
2. \$4,864,000.
3. Excluding the Bushfire CRC framework the dollar value of research work for the 2011/12 year completed by the Bureau research program was \$27,282,000.
4. The Bureau continually re-evaluates its research priorities. It is our experience that the Bureau's research program has contributed significant benefits for fire research, in particular through improved weather prediction capability.
5. "Understanding Complex Fire Behaviour: Modelling investigation of lofting phenomena and wind variability" and "Fire Impact and Risk Evaluation Decision Support Tool (FIREDEST)" are due to conclude in December 2013. "Climatology of Extreme Fire Events" is due to conclude in September 2013.