

# SURVEY OF USERS OF THE DPI SOI HOTLINES

October 2003

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and

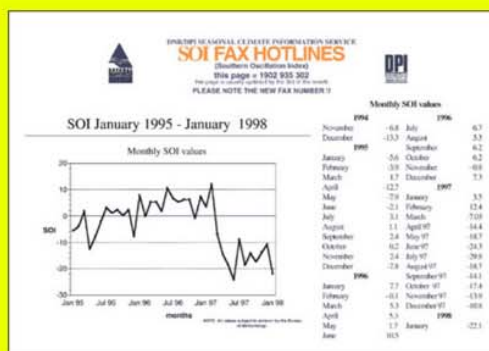
Alan Peacock, Department of Natural Resources and Mines, Queensland



**SOI HOTLINES**

1902 935 300 Index to services  
 1902 935 301 Weekly SOI message  
 1902 935 302 SOI graphs  
 1902 935 303 Rainfall maps  
 1902 935 304 SOI explanation  
 1902 935 305 Drought-declared Shires  
 1902 935 306 Aus-Rainman order form  
 1902 935 307 Sea-surface temp. map  
 1902 935 308 Daily SOI values  
 1902 935 309 Rainfall outlook (median)  
 1902 935 324 Rainfall outlook (amounts)

1800 808 096 Main INFOFAX Index  
 (07) 389 69602 Phone SOI message



SEASONAL CLIMATE INFORMATION SERVICE  
**SOI FAX HOTLINES**  
 (Southern Oscillation Index)

**How To Use Infotax™**  
 (a.) Fax machines with telephone handsets (Manual-receive method).

Step 1. Lift handset & dial 1902 935 300.  
 Step 2. Listen for voice prompt.

Step 3. Press fax machine Start/Receive Button.  
 Step 4. Return handset once fax reception starts.

(b.) Fax machines without telephone handsets (Poll-receive method).

Step 1. Follow instructions in fax handbook.  
 FURTHER ENQUIRES: Freecall 1800 636 183



**Queensland  
Government**

Department of  
Primary Industries

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and  
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Information contained in this publication is provided as general advice only. For application to specific circumstances, professional advice should be sought.

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# **EXECUTIVE SUMMARY**

## **Introduction**

The DPI SOI Phone Hotline service was commenced in April 1992. It consisted of a two-minute SOI message recorded on an answering machine that was attached to a standard telephone line.

The DPI SOI Fax Hotlines service was established in April 1993. By January 1996, the system contained 19 pages of information spread over 11 lines. The most popular product on this information system was the SOI Message (see example in Appendix I) that was updated weekly; it was also used on the SOI Phone Hotline.

From the commencement of these services to January 1996, over 44,000 calls were received. A survey was conducted in mid-1995 in order to help us to improve the services so that they better satisfied client needs. The aims of the survey were:

- To identify the location of our clients, and the main businesses in which they are involved;
- To investigate the relative usefulness of individual products to our clients;
- To document how clients are using the information;
- To provide an initial assessment of the value of using SOI-based information in business decision-making; and
- To obtain feedback on how the service could be improved.

## **Methods**

The survey was conducted from 28 June 1995 to 3 August 1995. A two-page questionnaire was developed (see Appendix 2). It was then placed on the Fax Hotlines system as additional pages after the weekly SOI Message, the sea-surface temperature map and also the weekly SOI data. On the SOI Phone Hotline, clients were asked to ring Col Paull and request a survey form.

Users returned a total of 63 completed survey forms. Almost all of these were from users who received the forms with information sought on the SOI Fax Hotlines. Some clients mailed the questionnaire rather than faxing it.

## **Results of Survey**

### **The Respondents**

Respondents were located mainly in the coastal and cropping districts of central Queensland, southern Queensland and the northern half of NSW. A total of 45% of respondents was in Queensland, and 42% in NSW.

The main businesses of respondents were primary production (78% of respondents), agribusiness (16%), government (14%), education (5%) and media (2%).

### **Accessing Products**

Almost all respondents (that is, 97%) had the use of a facsimile machine. Thus the feedback was virtually from users of the SOI Fax Hotlines, with very little feedback from users of the SOI Phone Hotline. However, some people with the use of a facsimile machine also made some use of the SOI Phone Hotline.

While only 3% of respondents did not have the use of a facsimile machine, 36% of respondents indicated that the SOI Phone Hotline was fairly useful to very useful.

## **Preferred Products**

The most popular products were SOI Message on facsimile (fairly useful to very useful - 92%), sea-surface temperature maps (78%) and SOI data page (66%). This was probably because they were perceived as relevant, and being of value, by clients outside Queensland (that is, 55% of respondents). In contrast, the least popular product was the drought situation in Queensland; however, 32% of respondents considered this product fairly useful to very useful.

Indicated frequencies of use of the most popular products was: SOI Message (used by 76% of respondents, averaging 2.6 calls per month), sea-surface temperature maps (60%, 1.4 calls/month), and SOI data page (35%, 2.1 calls/month). Some products that were only updated monthly were accessed more frequently than once per month, for example the average number of calls to the rainfall outlook-median were 1.8 per month. Possible reasons for this include producing copies of the information for a friend or client, and checking on whether updating of the information had been carried out.

## **Use of Information in Decision-making**

### ***Types of Decisions***

The respondents had used the SOI-related information from the Hotlines in business decisions in the following ways/areas:

- Management decisions/rainfall outlook/climate risk management/planning inputs (20 respondents);
- Educating/informing/discussion with other people (14);
- Personal interest/personal use/recreation (9);
- General background information (7);
- Buying/selling livestock (5);
- Planting crops/pastures (4);
- Crop management/crop selection (4);
- Advising clients (3);
- Pest and disease management/timing spraying (2);
- Construction risks and costs;
- Forecasting production (2);
- Market prediction/strategies (2);
- Managing feed supplies (2);
- Water management;
- Frost prediction;
- Livestock management/weaning;
- Mass media outputs;
- Employment of staff;
- Equipment sales and purchases; and
- Policy inputs.

### ***Examples of Management Decisions***

The main specific management decisions referred to by respondents were:

#### **Enterprise Selection**

- Whether to plant annual crops or pasture (spring 1993);
- Whether to lease additional land for dryland crops (April-May); and
- Decided on appropriate cropping options and inputs.

#### **Crops**

- Whether to risk planting a late crop (May-June 1995);
- Selected strategies for avoiding or minimising the impacts of late frosts on crops and pastures;

- Whether to plant a crop on marginal moisture (May 1995); and
- Decisions regarding sowing of winter or summer crops.

### **Crop Inputs**

- Determine fertiliser rates (July-August);
- Reduced area treated with expensive pre-emergent herbicide (March and April); and
- Whether to spray with Roundup or cultivate.

### **Pastures**

- Decided how much pasture to plant.

### **Livestock Numbers**

- Reduced stock numbers;
- Sold cattle (December);
- Retained cattle (January and May 1995);
- Sold off non-producing livestock (dry cows) when feed prospects were poor;
- Whether to purchase stock or not (March 1995);
- Sold cattle on agistment rather than bring them home (July 1991); and
- Whether to buy extra cattle before spring-summer.

### **Water supplies**

- Changed to short-season crops when water (including that for irrigation) was likely to be limited (November-December).

### **Cash-flow Management**

- Changed budget to allow for full drought feeding August –December); and
- Expansion or contraction of equipment sales and purchases depending on the seasonal climate outlook.

### **Marketing**

- Predicting cattle prices.

### **Staff**

- Expansion and contraction of staff numbers depending on the seasonal climate outlook; and
- Decided to increase staff numbers in call centre between October 1994 and December 1994.

### **Miscellaneous**

- Likely delays in construction/best use of plant and personnel; and
- Deciding whether drought conditions are likely (autumn).

## **Benefits from Using Information**

### ***Economic Benefits***

Summary of quantitative responses:



<b>Profit</b>	<b>Loss</b>
<b>0</b> (9 respondents)	
Came out even (not included in averages)	
<b>\$2000</b> (2 respondents)	
<b>\$5000</b> (1 respondent)	
<b>\$50 000</b> (1 respondent)	<b>\$20 000</b>
	<b>\$10 000</b> (1 respondent)
Average profit \$4214	Average Loss: \$2143
<b>Average Net Outcome: Profit of \$1933</b> (15 respondents)	

The following points should be noted:

- Five respondents used SOI information in decisions that resulted in a significant profit (up to \$50 000) or a significant loss (up to \$20 000). This emphasises the ‘duty of care’ involved in releasing climate-forecast information.
- Only 15 respondents gave quantitative estimates of additional profit or loss due to the use of SOI information. Most of them found it too difficult to give quantitative estimates.
- Out of those 15 respondents, four made a net profit, 10 made neither a profit nor a loss, and one made a net loss.
- In all the decisions involved, it is not known what weighting was given to the SOI information in the decision-making process (that is, whether the information was responsible for changing the usual decision). Presumably, in many decisions the SOI information was only one factor influencing a change in the usual management decision. It is suspected that in some cases the products were only used as ‘background information’, and had little influence on the decision made.
- Respondents were not asked to indicate the profit or loss from individual decisions. However, two indicated that they had incurred both profits and losses from particular decisions. Theoretically, if a perceived forecast (expressed as a probability) is ‘correct’ 70% of the time, it will also be ‘wrong’ 30% of the time. The loss from a forecast, that proves to be ‘wrong’, needs to be regarded as part of the cost of climate risk management.

### ***Other Benefits***

The following additional benefits were mentioned by respondents:

- Increase in enquiries from clients resulting in more turn-over (agribusiness).
- Explanation for lost revenue during drought (agribusiness).
- Takes some of the emotions out of decisions (that is, greater confidence in decision-making).
- Develops a better understanding of climate/weather risk management.
- Helps to reduce losses.
- Am able to say to government advisors ‘I do climate planning’, which keeps them happy.

### **Sharing the Information**

Answers of respondents who gave quantitative estimates are summarised in the following table:

<b>Number of people with whom information is shared</b>	<b>Number of respondents</b>	<b>Percentage of respondents</b>	<b>Average number of people per respondent</b>
Zero	<b>11</b>	24	0
1 - 5	<b>20</b>	43	2.7
6 - 10	<b>9</b>	20	9.3
11 - 20	<b>2</b>	4	20.0
21 - 50	<b>0</b>	0	0
51 - 200	<b>1</b>	2	200
>200	<b>3</b>	7	4,063

The following points should be noted:

- Sharing of the SOI information by the respondents results in many more clients being exposed to the products.
- The most exposure from sharing information is obtained through the media. The other methods indicated by respondents, in order of importance, were newsletters, training/education, agribusiness, sharing with employees and personal interaction.
- Sharing of SOI information has considerable potential for helping to market the products, providing users of the SOI Hotlines regard the information as potentially valuable.

## **Improving the Service**

The main points covered by respondents were:

- Many positive comments were received, indicating that users valued the services.
- Make the products more relevant to people outside Queensland (particularly New South Wales).
- Provide additional information on topics such as cloud activity, climate indicators other than the SOI, weekly sea-surface temperature maps and crop modelling forecasts.
- Provide more-detailed interpretive comments on a monthly basis.
- Reduce the cost of accessing the information by overcoming slow transmission times for some products (for example, the sea-surface temperature map); provide an information package to agribusiness; and send it automatically to subscribers.
- Improve the accuracy of SOI-based forecasts.
- Make forecasts more timely by increasing the lead-time.
- Make products more relevant to specific locations.
- Provide a glossary of the technical terms used in the products.

## **Conclusions**

The following conclusions can be made from the feedback obtained:

- The main clients for SOI information were located mainly in the coastal and cropping districts of central Queensland, southern Queensland and the northern half of NSW. Their main businesses were concerned with primary production, agribusiness, government, education and media.
- Generally, at that time, obtaining such information by facsimile machine appeared to be quite acceptable. However, some of the problems identified indicated that the system had disadvantages (for example, some products had a slow transmission speed and a relatively high cost to the client).
- The most popular products were SOI Message on facsimile, sea-surface temperature maps and SOI data page. However, all products were useful to a significant number of clients, emphasizing that the information needs of individual clients varied considerably.
- Clients had used the SOI-related information from the Hotlines in business decisions in the following ways/areas:
  - Climate-risk-management planning/decisions;
  - Educating/informing/discussion with other people;
  - Personal interest/personal use/recreation;
  - General background information;
  - Adjusting livestock numbers;
  - Planting crops/pastures;
  - Enterprise selection and management;
  - Adjusting production inputs;
  - Advising clients;
  - Pest and disease management;
  - Construction risks, costs, and best use of plant and personnel;
  - Forecasting production;
  - Marketing - price predictions/strategies;

- Managing feed supplies;
- Water supplies and management;
- Frost prediction and avoidance;
- Cash-flow management;
- Mass media outputs;
- Employment of staff;
- Equipment sales and purchases; and
- Policy inputs.
- Some clients have used SOI information in making major business decisions. This emphasises the ‘duty of care’ involved in releasing climate-forecast information.
- It is difficult for clients to make quantitative estimates of additional profit or loss due to the use of SOI information. In many decisions the SOI information is only one factor influencing a change in the usual management decision. In addition, it is often difficult to decide what weighting was given to the SOI information in the decision-making process (that is, whether the information was responsible for changing the usual decision).
- When using probabilities, the outcome of a particular decision may be a profit, a loss, or neither a profit nor a loss. The loss from a forecast, that proves to be ‘wrong’, needs to be regarded as part of the cost of climate risk management.
- Some clients also receive non-economic benefits from using SOI information; for example, greater confidence in decision-making, and a better understanding of climate/weather risk management.
- Sharing of SOI information has considerable potential for helping to market the products, providing users of the SOI Hotlines regard the information as potentially valuable.
- The SOI Hotlines are valued by clients but can be improved by making the products, providing additional information and more-detailed interpretive comments, reducing the cost of accessing products, improving the accuracy and lead-time of forecasts, and making products more relevant to specific locations.

## Outcomes of Project

The survey gave us better knowledge and understanding of our clients, how they were using the products, the benefits received, problems in using the SOI Hotlines, and how the information system could be improved to better satisfy their needs.

At the time, it was difficult to respond positively to most of the feedback because:

- Most available resources were being concentrated on developing a more-comprehensive climate information system on our Internet site called ‘The Long Paddock’; and
- Further research and development were required to provide climate-forecast products that were more accurate and customised for specific locations.

In December 2000, responsibility for managing and maintaining the SOI Fax Hotlines and the SOI Phone Hotline was transferred within QCCA from Brisbane to Toowoomba. Some of the products on the SOI Fax Hotlines were discontinued, and the remaining products (or modified products) were made available on the DPI FarmFax Information Service. Subsequently DPI management decided to terminate the FarmFax Service, and to concentrate on providing such information on their Internet site.

# INTRODUCTION

## Developing the Delivery System

In 1993 it was decided to trial a fax-on-demand service that allowed consumers of seasonal-climate-outlook information to download information posted by the Drought Group. Operationally, two types of system were considered:

- The information could be prepared in-house and delivered directly to the consumer on demand; or
- The information could be internally prepared, and then delivered via a third-party vendor.

The first option would have involved the installation of several fax lines and the ongoing costs associated with their operation; the software to enable delivery was in its first release in 1993 and only available directly from the USA. Ultimately it was decided to run the system through the Telecom (later Telstra) Infifax TM system. The benefit of 24-hour support through their FaxStream support group meant that clients of the service could obtain assistance with using their facsimile machines in this novel, and sometimes tricky, way.

The information posted included text, graphs and maps in both vector and raster format. All data were converted to 200dpi bitmaps by our upload software, FaxSTF. Pages were developed on a Macintosh Quadra 950 from data processed in-house on Silicon Graphics Unix workstations; for example, rainfall maps were supplied in Adobe Postscript format to the Macintosh, these were opened manually and rasterised using Adobe Photoshop version 2, and layouts were desktop published in Quarkexpress version 3.

Upload of data to Infifax was via a Netcomm external fax modem. This process was prone to dropouts and computer restarts. A confirmation fax sent to our office fax machine subsequently confirmed if the upload had been successful or not.

Downloading of data from Infifax to a client's home or office facsimile machine required one of two procedures. If the facsimile machine was enabled with a function called poll-receive mode, the user needed to follow the instructions in the handbook of their machine. Alternatively, usually on the relatively cheap home facsimile machines, the user was picked up the associated handset, dialed the number and followed the voice prompts provided automatically by Infifax.

Charges for each number held, and the upload time, were borne by the information provider (that is, DPI). The costs for retrieving the information were charged to the client's phone bill; the initial charge was 55cents per minute and this amount was increased in later years. Overall the cash costs of operating the system were cost-neutral (without considering the cost of salaries and computer equipment).

## Operating the System

The DPI SOI Phone Hotline service was commenced in April 1992. It consisted of a two-minute SOI message recorded on an answering machine that was attached to a standard telephone line.

The DPI SOI Fax Hotlines service was established in April 1993. By January 1996, the system contained 19 pages of information spread over 11 lines (see Index page in Appendix III). The most popular product on this information system was the SOI Message (see example in Appendix I) that was updated weekly; it was also used on the SOI Phone Hotline.

From the commencement of these services to January 1996, over 44,000 calls were received.

## Client Survey

A survey was conducted in mid-1995 in order to help us to improve the services so that they better satisfied client needs. The aims of the survey were:

- To identify the location of our clients, and the main businesses in which they are involved;
- To investigate the relative usefulness of individual products to our clients;
- To document how clients are using the information;
- To provide an initial assessment of the value of using SOI-based information in business decision-making; and
- To obtain feedback on how the service could be improved.

## METHODS

The survey was conducted from 28 June 1995 to 3 August 1995. A two-page questionnaire was developed (see Appendix 2). It was then placed on the Fax Hotlines system as additional pages after the weekly SOI Message, the sea-surface temperature map and also the weekly SOI data. On the SOI Phone Hotline, clients were asked to ring Col Paull and request a survey form.

Users returned a total of 63 completed survey forms. Almost all of these were from users who received the forms with information sought on the SOI Fax Hotlines. Some clients mailed the questionnaire rather than faxing it.

## RESULTS OF SURVEY

The responses, to individual questions, of those who completed questionnaires are summarised below. Generally the number of respondents in a particular category is shown in bold type, while the percentage of the total number of respondents to that question is in brackets (or sometimes in an adjacent column).

### 1. (a) What State do you live in?

State	Number of Users	% of Respondents
Queensland	<b>28</b>	45
New South Wales	<b>26</b>	42
Victoria	<b>2</b>	3
South Australia	<b>2</b>	3
Western Australia	<b>2</b>	3
Tasmania	<b>1</b>	2
South Africa	<b>1</b>	2

### (b) What is your district or centre?

Respondents were located mainly in the coastal and cropping districts of central Queensland, southern Queensland and the northern half of NSW.

### 2. (a) Do you have the use of a fax machine?

Yes **60** (97%) No **2** (3%)

### (b) If yes, what switch/procedure is used when requesting information from other facsimile machines?

Poll-receive **35** (58%) Manual-receive **19** (32%) Not sure **6** (10%)

### 3. What is your main business?

Type of Business	Number of Respondents	% of Respondents
Primary production	49	78
Cropping	14	22
Beef cattle	19	30
Sheep	8	13
Other primary production	9	14
Agribusiness	10	16
QDPI	5	8
Government (other than QDPI)	4	6
Education	3	5
Media	1	2
Other	6	10

### 4. To what extent is each information product useful to you?

Product	Very little use	Some use	Fairly useful	Quite useful	Very useful	% Fairly Useful to Very Useful
Phone Hotline (07) 877 9602	24 (57)	3 (7)	5 (12)	4 (10)	6 (14)	36
SOI message 019 725 301	0 (0)	4 (8)	8 (16)	17 (33)	22 (43)	92
SOI graphs 019 725 302	13 (28)	6 (13)	5 (11)	15 (32)	8 (17)	60
Recent rainfall maps 019 725 303	20 (48)	8 (19)	6 (14)	5 (12)	3 (7)	33
Drought situation 019 725 305	19 (46)	9 (22)	8 (20)	3 (7)	2 (5)	32
Sea temperature maps 019 725 307	8 (16)	3 (6)	5 (10)	13 (25)	22 (43)	78
SOI data page 019 725 308	11 (29)	2 (5)	6 (16)	6 (16)	13 (34)	66
Rainfall outlook-median 019 725 309	14 (36)	4 (10)	8 (21)	6 (15)	7 (18)	54
Rainfall outlook-specific amounts 019 725 324	13 (33)	6 (15)	8 (21)	6 (15)	6 (15)	51

### 5. About how often do you use each SOI Hotline service?

Service	Av. Number of calls per month	Number of Users	% of all Respondents
Phone Hotline (07) 877 9602	1.8	14	22
SOI message 019 725 301	2.6	48	76
SOI graphs 019 725 302	1.1	20	32
Recent rainfall maps 019 725 303	1.3	12	19
Drought situation 019 725 305	1.1	12	19
Sea temp. maps 019 725 307	1.4	38	60
SOI data page 019 725 308	2.1	22	35
Rainfall outlook-median 019 725 309	1.8	14	22
Rainfall outlook-specific amounts 019 725 324	1.8	13	21

### 6. (a) How do you use the information?

The responses from individual respondents were:

- Decision support – using SOI phases to get a rainfall outlook. We are in the process of educating our farmers and decision-makers to use the SOI.
- Personal interest.
- Allows a little extra knowledge for future weather.
- Notice board; frost prediction; Research Station water restrictions; insect and pest management (limited).
- To assess construction risks and costs.
- Risk management.
- To predict future property decisions and production; linked this information with cloud maps and market information.
- In management – in relation to sales and feeding (beef cattle).
- See what is coming up – verify general consensus from media reports/other people.
- Use as a discussion point with pastoralists and will shortly be evaluating this information to provide advice to the various communities in NSW.
- As a guide to planting and stock selling decisions as well as feed management and weaning decisions. When outlook is bad I am more cautious.
- To get a general feel for the likelihood of a reasonable season, and to make selling decisions of stock.
- Hope for indication of wet or dry conditions – forecasting rain.
- In general discussions with landholders (QDPI).
- Agronomic advice to clients, crop selection, chemical (herbicide choice), also an interesting focus for client discussions.
- Personal use and grower information.
- In conjunction with ‘Rainman’ software package and various reports to assess market opportunities for crop insurance and general statistical purposes.
- Input into stocking rate and decisions regarding pasture/forage crop establishment.
- To gauge seasonal outlook.
- To determine the weather pattern for crop plantings.
- At what times we can spray/crop/harvest. Useful to us father/son as glider pilots.
- Data for Wheatman and Rainman programs.
- Correlate previous rainfall – establishing patterns. Use for stocking rate decisions.
- In Rainman and in Wheatman plus Barley Plan. Both excellent programs.
- To assist with business decision-making and clients members situation, and how suppliers to rural industry perceive the future (rural promoter/conference organiser).
- Management decisions related to cropping and beef cattle buying and selling.
- Personal interest – shared with workplace and family/friends.
- Keep check on SOI. In looking for rain.
- Management decisions.
- For teaching purposes, I use the SOI figures weekly, and the SST once a month (for geography and agriculture). For broadcasting, I give monthly climate forward planning broadcasts on ABC/local station.
- In conjunction with Rainman to attempt to understand the weather pattern and likelihood of rain.
- To use science to balance human intuition – meteorology to measure and monitor what nature tells me on the ground. Meteorology, on its own, remains an imprecise tool.
- Hold/sell cattle – ploughing.
- Employment of staff, equipment sales or purchases.
- Rainfall outlook.
- Trying to be confident in decision-making for this summer.
- Impact on potential crop yield.
- As a type of crystal ball. It gives a bit of forewarning.
- We have been watching the SOI in earnest for past 16 months.
- I graph 30-day SOI figures and get a long-term view of what our rainfall will be. I pay particular attention to March-June figures.
- For our information – we are a Commonwealth Government Information Service.
- Private research.
- To assist making decisions regarding stocking rate.

- I would allow it to influence my decisions to some degree.
- Assist in marketing and planting strategies.
- In Rainman.
- Long-term farm planning.
- For myself, mainly maintaining rural contact and interest. For rural friends, keeping informed on a weekly basis of current reports.
- To try and determine seasonal weather trends (drought/wet/average).
- Policy and planning inputs, presentations to clients and stakeholders.
- In conjunction with other data, to promote awareness of information sources which canegrowers can use for decision-support.
- Observation.
- Education teaching and own information.
- Own information, inclusion into newsletter to growers, over-the-counter service.
- To help predict rain 3-6 months ahead.
- As a vague guide for the next nine months.
- Helps to make recommendations more reliable.
- To make farm management decisions, short- and long-term; to further develop a person.

**(b) If used for management decisions, please give examples including the month decisions were made.**

The main specific management decisions referred to by respondents were:

***Enterprise Selection***

- Whether to plant annual crops or pasture (spring 1993);
- Whether to lease additional land for raingrown crops (April-May); and
- Decided on appropriate cropping options and inputs.

***Crops***

- Whether to risk planting a late crop (May-June 1995);
- Selected strategies for avoiding or minimising the impacts of late frosts on crops and pastures;
- Whether to plant a crop on marginal moisture (May 1995); and
- Decisions regarding sowing of winter or summer crops.

***Crop Inputs***

- Determine fertiliser rates (July-August);
- Reduced area treated with expensive pre-emergent herbicide (March and April); and
- Whether to spray with Roundup or cultivate.

***Pastures***

- Decided how much pasture to plant.

***Livestock Numbers***

- Reduced stock numbers;
- Sold cattle (December);
- Retained cattle (January and May 1995);
- Sold off non-producing livestock (dry cows) when feed prospects were poor;
- Whether to purchase stock or not (March 1995);
- Sold cattle on agistment rather than bring them home (July 1991); and
- Whether to buy extra cattle before spring-summer.



### ***Water supplies***

- Changed to short-season crops when water (including that for irrigation) was likely to be limited (November-December).

### ***Cash-flow Management***

- Changed budget to allow for full drought feeding August –December); and
- Expansion or contraction of equipment sales and purchases depending on the seasonal climate outlook.

### ***Marketing***

- Predicting cattle prices.

### ***Staff***

- Expansion and contraction of staff numbers depending on the seasonal climate outlook; and
- Decided to increase staff numbers in call centre between October 1994 and December 1994.

### ***Miscellaneous***

- Likely delays in construction/best use of plant and personnel; and
- Deciding whether drought conditions are likely (autumn).

The responses from individual respondents were:

- Used to determine fertiliser rates (July to August).
- Current and possible future rain affect construction costs by causing delays, and affect specifics such as culvert and river crossings of pipelines. Decisions are made on best use of plant and personnel up to one to two months in advance.
- May-August 1994 – watched figures, began unloading stock...
- Watching the SOI and SST maps for change to feed cattle in September 1994.
- Cattle sold December (drought, no feed; holding cattle in January 1995 and May 1995; hold on to cattle in September 1994 – lost about 40).
- Pre-emergent herbicide programmes, that is low sub-soil moisture plus strongly negative SOI will reduce area selected for more expensive residual cereal herbicides (March and April); irrigation crop management, that is if water allocation is limited and SOI is negative short season crops may be selected (November-December). Drought situation has information value over the counter. Lucerne hay producers asking – ‘Will it rain – can you look at the cloud map’ (agribusiness).
- The most significant has been a more positive outlook for the eastern states. I do not have responsibility for Queensland so some of the information for interest only. I do not make management decisions for crop insurers only provide an outlook for them (agribusiness).
- Chance of good rain not high, feed quality/quantity running down. Hence, despite low cattle prices, sell off non-producing livestock – dry cows.  
Trying to establish good permanent pasture over the last few years is almost a waste of money. Forage crops are more applicable. Also, planting in lighter soils is preferable because of easier establishment.
- Stock purchase (or not) – March 1995. Risk planting May-June 1995 (Central Highlands).
- The last 12 months we have been trying to make decisions using SOI and sea-surface temperatures as a guide to crop planting.
- Used more as a guide than for management decisions.
- Assists in outlook for season, with programs listed above. Also some probability of late frosts.
- Have used information over last 12 months to maintain cautious approach to stock management.
- Ascertaining whether to do certain activities, for example spray Roundup versus cultivate.

- To gain information of future weather patterns particularly when times are dry – drought persists. It is always nice to know if the dry weather pattern is changing to much rainfall – or vice versa.
- Planting on marginal moisture (May 1995); plant annual crops or pasture (spring 1993); sell cattle on agistment in Victoria rather than return home July 1991.
- Preparation for growing crops (cotton and grain). On storage for water – irrigation.
- N/a on a personal basis. When broadcasting, I try to summarise all existing data, mainly from the NCC (Bureau of Met/Melbourne) and the QDPI. The latter figures, I find very useful and in particular the explanatory comments which accompany the weekly SOI, and monthly SSTs. I try then to look ahead, and make informed comment on the possibilities, given the data, for the weather in the NSW Central Tablelands, Slopes and Plains.
- Nearly every week, short-range met advice is used to make decisions regarding the need to start up auxiliary stock water pumping equipment, as this property relies heavily on wind and windmills to literally stop all our cattle dying of thirst. Regarding service 307, it has become more obvious that expected near-zero values for the SOI through August to December now appear threatened due to recent slight changes in the Pacific Ocean. Cooling seems to have been reversed. It could be that a full-blown El Nino event has restarted and ocean temperatures each week need watching, I think.  
Therefore, I have changed my budgeting this week to allow for full drought feeding August to December. Up until now it seemed likely we could expect some relief in spring but I expect the SOI to shortly begin plunging into strongly negative values, presaged by ocean temperatures.  
It is a shame that no scientist can issue a probability forecast of the above scenario occurring, based on weekly changes in ocean temperatures.
- Ploughing first time in four years for summer crop.
- Employment – expansion (if looking good), contraction (until the drought breaks). Equipment sales and purchases – same reasons – all have been negative, that is selling off.
- We normally get some rain when index is positive.
- Fertiliser application to forage crops.
- All months as it will affect timing of sowing, precipitation during crucial late-vegetative/flowering stages of both winter and summer crops.
- At the moment my biggest decision, based on SOI data, has been to proceed with caution. Operating an aerial agricultural business at Mungindi is not much fun without irrigation allocation in the Barwon.
- We also have country at Coonamble NSW. During my 47 years there all major droughts start in the autumn. Our main months are March, April, May (that is, March 1994 SOI –23).
- I don't use the information to make specific decisions, but to give a long-term indication of what may happen. That is, this year's graph of the SOI figures is similar to last year. We are therefore preparing ourselves for a dryer-than-average spring and summer. We will not buy extra cattle that we may have bought if I did not have SOI figures.
- Major decisions made between October 1994 and December 1994 – toll-free answer line team increased from six to 18 then slowly decreased to nine (at present). Drought conditions could alter this again.
- We sell cattle more aggressively during winter months if SOI suggests drought.
- For the cattle enterprise major pasture plantings would be modified, and level of stocking would be modified.
- If tendencies would move towards a normal to wet season, I would think about leasing some dryland country – with a low allocation this year and a dry outlook we will not take a gamble and plant more than we can safely irrigate with our allocation (April-May).
- Used to try and position cropping options and inputs, reviewed monthly.
- The problem with the SOI is (especially in 1995) trends were not clear early enough to use in making strategic crop planting decisions. The NW cloudband, Indian Ocean SSTs were much more relevant (in Sth NSW).
- Planting crops.
- N/A.
- It helps predict cattle price fluctuations.
- Sowing pastures, sowing winter crops.
- August – delayed spring watering of mangoes due to possibility of late frosts; we have lost all the early flowers from frost. May-June – grazed our frost-prone flats early in the winter, as it

seemed likely, with a negative SOI that we would get some good frosts; also, located and bought cottonseed for cattle (during May-June) with the prospects of a dry winter-spring.

- No decisions can be made this year as the drought is so bad.

**(c) During the last 12 months, roughly how much additional profit or loss did you make from using the information?**

- Impossible to calculate/difficult to assess/ unable to say. (4 respondents).
- \$2000 profit.
- None (government other than QDPI).
- ?/don't know (3 respondents).
- \$50 000 profit, \$20 000 loss.
- Nil/zero/came out even (5).
- Impossible to tell, more client enquiry equals greater exposure to our business and therefore more turnover (agribusiness).
- Can't measure profit. Mainly provides explanations for lost revenue in drought (agribusiness).
- No idea. It takes some of the emotion out of decisions, particularly in deciding to reduce cattle numbers drastically – probably through experience and SOI information, have saved \$5000 on purchased feed since the 1991 drought.
- Due to the uncertainty of the SOI readings it is hard to determine if any profit has been made using this information.
- Unknown, however better understanding of risk management with weather.
- Not much – perhaps saved additional losses by seeking agistment.
- Nil because of drought but watched the SOI and SST in hope of a change, which has occurred.
- Bloody good question.
- During the drought it has helped to reduce the losses. Hard to quantify but worthwhile.
- N/a (4).
- There are too many variables; for example, one reason I use the service is to be able to say to my government advisors – 'I do climate planning', which keeps them happy regardless of outcomes for my business.
- Nil loss.
- Lesser loss – enough to survive a bit longer.
- Probably not much different because selling during winter months when there had been little rain during the previous autumn-summer had always been a management practice anyway.
- Have only just purchased property in last few months.
- Loss - \$10,000 in additional water charges (even though everything pointed to a dry season) it was still dryer than anticipated with little follow-up rain to assist our irrigation.
- Minimised a loss – the information would have had some part in that result.
- Myself – nil. Rural friends – unknown but great guidance during drought.
- No change as yet. Should increase profit in the future.
- Difficult to estimate, my primary production activity is small. \$2 000.
- There certainly has been no loss from using the information, but it is hard to estimate how much we have profited. It is hard to say if we've benefited financially from using the information, the weather being so dry. But it certainly has helped us to develop an understanding of the likely weather patterns in relation to the SOI.

**7. How many people, who make weather-related decisions, do you share the information with?**

Individual responses from those respondents who answered the question were:

- 0 (9 respondents);
- The Met. Bureau has a lousy reputation – to share information is to invite ridicule;
- Not shared as such (agribusiness);
- 1 (5 respondents);
- 2 (7 respondents);

- 3;
- 3 or 4 if they ask me (people know that I have an interest in the SOI);
- 4 (2 respondents);
- Staff – four or five;
- 5 (3 respondents);
- 6 or more – as far as sharing the information with others, I always try to, but find many people ignorantly sceptical and happy to remain so, wanting only to be told when it will rain.
- Up to 8;
- Varies – 2 to 10;
- 8 or 10 maybe;
- 10 (5 respondents);
- Office staff and clients (QDPI);
- 20 (DPI Research Station);
- 20;
- Many (agribusiness);
- Lots who come into the agricultural business shop;
- 200;
- ? toll-free line callers – farming families some 10% of 1600 calls a week;
- About 1500 through newsletter and PMP workshops;
- Perhaps 50 in school and 10 000+ via the media;

## 8. How could the service be improved?

- Relate information to Victoria – information products are too Queensland orientated.
- The SOI Fax Hotline is excellent.
- I think it's fine.
- Additional information on cloud activity...reading too much on SOI for predicting...but thank you for a great service.
- Keep up the good work. No cutbacks...It should be available. Most of the time we don't have time to think about accessing some of the more background-orientated material you have available. Also information timeliness not very critical to us as individuals.
- Make more relative to NSW (NSW needs to provide a similar service).
- Maybe the existence of these services could be publicised more and content.
- List the four weekly averages since the end of the last monthly average, to see the trend.
- More accurate rain (seasonal) forecast please!! (Tasmania).
- Packages to make regular subscribing by agribusiness more attractive and perhaps more economical. More relevant SOI, rainfall outlook for southern Australia (obviously NSW from our point of view). Could not predictions for Queensland be extrapolated for other eastern states.
- Sometimes material not available on specific dates. Overall an excellent service. Interpretation skills will no doubt develop as a better understanding is obtained (agribusiness).
- Service could be improved by combining the sea-surface temperature maps with the SOI reading. Other than this I find this a very helpful aid in understanding the uncertainty of the weather.
- We need north American weather information and middle east weather information in about March/June to give us better market management information more so than local information. For example, I video tape NBC today twice weekly just to get basic weather report for that we have 300ha. of wheat in for 95-96 season first time in four years.
- I have only recently started using the service on fax as previously (one year ago) did not work on my machine (NSW telephone). I will probably use it more in future. Keep up the good work.
- Perhaps patterns of previous years SOI and the years in particular could be mentioned, for example 'Pattern similar at this stage to 1965'. Perhaps the service could be more comprehensive in NSW. Many services in Question 5 above not available for this area. Thank you for providing these services.
- In my case, by supplying SOI and SST on the one fax as they are the only ones I use. Could be free!!
- Make it automatic to subscribers.

- 14-day and daily SOI should be available for those who want it. Mobile phone – five minutes or more to receive therefore may be a better form. National Climate Centre information for this area (east Darling Downs) last five years has been far too optimistic therefore tends to degrade credibility of all information.
- Did you know that transmission of the SST chart takes 5minutes 25 seconds? This is too long and expensive. Perhaps on the SST chart, an additional comment on the Indian Ocean SSTs, could be welcome. In future copies of ‘Will it Rain?’ could a simpler explanation of the Indian Ocean dipole effect, and its connection with seasonal rainfall be given. A better explanation could also accompany the (excellent) colour charts. I personally, would appreciate the publication by fax, of a monthly technical explanation of the SOI/SST indices, partially along the lines included in the BoM Climate Monitoring Bulletin, but specifically related to/pointed towards the making of agricultural decisions in the Qld/NSW area. This would be more detailed than existing sources including a number of different climatic scenarios.
- Give as a ‘scenarios’ forecast, run out three separate models that are based on the climate models done in Melbourne.
- Use old SST format – much cheaper and better highlights.
- Include north and north-west of WA in your forecasts.
- Extrapolation of climatic forecasts to crop modelling forecasts for those of us who do not have Wheatman or suitable summer crop program.
- I would have used all of the services but I didn’t know about them. I feel that updating the sea-surface temperature chart say every week would be interesting. Almost all my clients are regular users of your service so I don’t share much information. Congratulations on an excellent service and keep up the good work.
- We need more information for southern NSW.
- By reflecting the difference in opinion between climate researchers on the meaning of ocean temperature changes.
- By telling us what the SOI IS GOING TO DO instead of telling us what the SOI HAS DONE.
- I don’t know. Except as more data and information become available the service becomes a better predictor.
- Is it on Internet?
- Greater accuracy in the mid- and long-term. Greater site specificity.
- This is an excellent service – possibly takes 80% of the ‘guess-work’ out of rural management. 019 725 301 and 019 725 308 could be made available on subscription to all subscribers or broadcast as soon as prepared weekly, and others on monthly compilation.
- Current SOI graphs (last 12 months – running) with analogy graphs. Weekly SST anomaly maps (monthly is far too historic for decision-making). Also I find it very difficult to relate your SST maps with BoM weekly anomaly maps (which I also get). You might like to explain how they are compiled. A similar drought map for NSW would be excellent (seeing no one is doing it here).
- OK to me.
- Hatching areas rather than shading would make interpretation of maps much better – this applies to Met. Bureau services as well.
- By giving more scientific data.
- Good as is.
- No suggestions – it is an excellent service. DPI offices should be encouraged to supply copies of SOI faxes over the counter, on display etc.
- Leave as is.
- Make more of the information and maps available to those without a fax, by subscription or with some fee to cover post and handling. I would be interested in knowing how other people have applied the information provided. Have a glossary to define terms and references in the messages.
- 019 725 307 comes through very slowly now. The slow feed in the artic and Antarctic regions appear of no use except to increase the profit of the sender.

## **DISCUSSION**

### **The Respondents**

Respondents were located mainly in the coastal and cropping districts of central Queensland, southern Queensland and the northern half of NSW. A total of 45% of respondents was in Queensland, and 42% in NSW.

The main businesses of respondents were primary production (78% of respondents), agribusiness (16%), government (14%), education (5%) and media (2%).

### **Accessing Products**

Almost all respondents (that is, 97%) had the use of a facsimile machine. Thus the feedback was virtually from users of the SOI Fax Hotlines, with very little feedback from users of the SOI Phone Hotline. However, some people with the use of a facsimile machine also made some use of the SOI Phone Hotline.

While only 3% of respondents did not have the use of a facsimile machine, 36% of respondents indicated that the SOI Phone Hotline was fairly useful to very useful.

### **Preferred Products**

The most popular products were SOI Message on facsimile (fairly useful to very useful - 92%), sea-surface temperature maps (78%) and SOI data page (66%). This was probably because they were perceived as relevant, and being of value, by clients outside Queensland (that is, 55% of respondents). In contrast, the least popular product was the drought situation in Queensland; however, 32% of respondents considered this product fairly useful to very useful.

Indicated frequencies of use of the most popular products was: SOI Message (used by 76% of respondents, averaging 2.6 calls per month), sea-surface temperature maps (60%, 1.4 calls/month), and SOI data page (35%, 2.1 calls/month). Some products that were only updated monthly were accessed more frequently than once per month, for example the average number of calls to the rainfall outlook-median were 1.8 per month. Possible reasons for this include producing copies of the information for a friend or client, and checking on whether updating of the information had been carried out.

### **Use of Information in Decision-making**

#### ***Types of Decisions***

The respondents had used the SOI-related information from the Hotlines in business decisions in the following ways/areas:

- Management decisions/rainfall outlook/climate risk management/planning inputs (20 respondents);
- Educating/informing/discussion with other people (14);
- Personal interest/personal use/recreation (9);
- General background information (7);
- Buying/selling livestock (5);
- Planting crops/pastures (4);
- Crop management/crop selection (4);
- Advising clients (3);
- Pest and disease management/timing spraying (2);
- Construction risks and costs;
- Forecasting production (2);
- Market prediction/strategies (2);
- Managing feed supplies (2);

- Water management;
- Frost prediction;
- Livestock management/weaning;
- Mass media outputs;
- Employment of staff;
- Equipment sales and purchases; and
- Policy inputs.

### ***Examples of Management Decisions***

The main specific management decisions referred to by respondents were:

#### **Enterprise Selection**

- Whether to plant annual crops or pasture (spring 1993);
- Whether to lease additional land for dryland crops (April-May); and
- Decided on appropriate cropping options and inputs.

#### **Crops**

- Whether to risk planting a late crop (May-June 1995);
- Selected strategies for avoiding or minimising the impacts of late frosts on crops and pastures;
- Whether to plant a crop on marginal moisture (May 1995); and
- Decisions regarding sowing of winter or summer crops.

#### **Crop Inputs**

- Determine fertiliser rates (July-August);
- Reduced area treated with expensive pre-emergent herbicide (March and April); and
- Whether to spray with Roundup or cultivate.

#### **Pastures**

- Decided how much pasture to plant.

#### **Livestock Numbers**

- Reduced stock numbers;
- Sold cattle (December);
- Retained cattle (January and May 1995);
- Sold off non-producing livestock (dry cows) when feed prospects were poor;
- Whether to purchase stock or not (March 1995);
- Sold cattle on agistment rather than bring them home (July 1991); and
- Whether to buy extra cattle before spring-summer.

#### **Water supplies**

- Changed to short-season crops when water (including that for irrigation) was likely to be limited (November-December).

#### **Cash-flow Management**

- Changed budget to allow for full drought feeding August –December); and
- Expansion or contraction of equipment sales and purchases depending on the seasonal climate outlook.

## Marketing

- Predicting cattle prices.

## Staff

- Expansion and contraction of staff numbers depending on the seasonal climate outlook; and
- Decided to increase staff numbers in call centre between October 1994 and December 1994.

## Miscellaneous

- Likely delays in construction/best use of plant and personnel; and
- Deciding whether drought conditions are likely (autumn).

## Benefits from Using Information

### *Economic Benefits*

Summary of quantitative responses:

<b>Profit</b>	<b>Loss</b>
<b>0</b> (9 respondents)	
Came out even (not included in averages)	
<b>\$2000</b> (2 respondents)	
<b>\$5000</b> (1 respondent)	
<b>\$50 000</b> (1 respondent)	<b>\$20 000</b>
	<b>\$10 000</b> (1 respondent)
Average profit \$4214	Average Loss: \$2143
<b>Average Net Outcome: Profit of \$1933</b> (15 respondents)	

The following points should be noted:

- Five respondents used SOI information in decisions that resulted in a significant profit (up to \$50 000) or a significant loss (up to \$20 000). This emphasises the ‘duty of care’ involved in releasing climate-forecast information.
- Only 15 respondents gave quantitative estimates of additional profit or loss due to the use of SOI information. Most of them found it too difficult to give quantitative estimates.
- Out of those 15 respondents, four made a net profit, 10 made neither a profit nor a loss, and one made a net loss.
- In all the decisions involved, it is not known what weighting was given to the SOI information in the decision-making process (that is, whether the information was responsible for changing the usual decision). Presumably, in many decisions the SOI information was only one factor influencing a change in the usual management decision. It is suspected that in some cases the products were only used as ‘background information’, and had little influence on the decision made.
- Respondents were not asked to indicate the profit or loss from individual decisions. However, two indicated that they had incurred both profits and losses from particular decisions. Theoretically, if a perceived forecast (expressed as a probability) is ‘correct’ 70% of the time, it will also be ‘wrong’ 30% of the time. The loss from a forecast, that proves to be ‘wrong’, needs to be regarded as part of the cost of climate risk management.

### *Other Benefits*

The following additional benefits were mentioned by respondents:

- Increase in enquiries from clients resulting in more turn-over (agribusiness).
- Explanation for lost revenue during drought (agribusiness).



- Takes some of the emotions out of decisions (that is, greater confidence in decision-making).
- Develops a better understanding of climate/weather risk management.
- Helps to reduce losses.
- Am able to say to government advisors 'I do climate planning', which keeps them happy.

## Sharing the Information

Answers of respondents who gave quantitative estimates are summarised in the following table:

<b>Number of people with whom information is shared</b>	<b>Number of respondents</b>	<b>Percentage of respondents</b>	<b>Average number of people per respondent</b>
Zero	<b>11</b>	24	0
1 - 5	<b>20</b>	43	2.7
6 - 10	<b>9</b>	20	9.3
11 - 20	<b>2</b>	4	20.0
21 - 50	<b>0</b>	0	0
51 - 200	<b>1</b>	2	200
>200	<b>3</b>	7	4,063

The following points should be noted:

- Sharing of the SOI information by the respondents results in many more clients being exposed to the products.
- The most exposure from sharing information is obtained through the media. The other methods indicated by respondents, in order of importance, were newsletters, training/education, agribusiness, sharing with employees and personal interaction.
- Sharing of SOI information has considerable potential for helping to market the products, providing users of the SOI Hotlines regard the information as potentially valuable.

## Improving the Service

The main points covered by respondents were:

- Many positive comments were received, indicating that users valued the services.
- Make the products more relevant to people outside Queensland (particularly New South Wales).
- Provide additional information on topics such as cloud activity, climate indicators other than the SOI, weekly sea-surface temperature maps and crop modelling forecasts.
- Provide more-detailed interpretive comments on a monthly basis.
- Reduce the cost of accessing the information by overcoming slow transmission times for some products (for example, the sea-surface temperature map); provide an information package to agribusiness; and send it automatically to subscribers.
- Improve the accuracy of SOI-based forecasts.
- Make forecasts more timely by increasing the lead-time.
- Make products more relevant to specific locations.
- Provide a glossary of the technical terms used in the products.

## CONCLUSIONS

The following conclusions can be made from the feedback obtained:

- The main clients for SOI information were located mainly in the coastal and cropping districts of central Queensland, southern Queensland and the northern half of NSW. Their main

businesses were concerned with primary production, agribusiness, government, education and media.

- Generally, at that time, obtaining such information by facsimile machine appeared to be quite acceptable. However, some of the problems identified indicated that the system had disadvantages (for example, some products had a slow transmission speed and a relatively high cost to the client).
- The most popular products were SOI Message on facsimile, sea-surface temperature maps and SOI data page. However, all products were useful to a significant number of clients, emphasizing that the information needs of individual clients varied considerably.
- Clients had used the SOI-related information from the Hotlines in business decisions in the following ways/areas:
  - Climate-risk-management planning/decisions;
  - Educating/informing/discussion with other people;
  - Personal interest/personal use/recreation;
  - General background information;
  - Adjusting livestock numbers;
  - Planting crops/pastures;
  - Enterprise selection and management;
  - Adjusting production inputs;
  - Advising clients;
  - Pest and disease management;
  - Construction risks, costs, and best use of plant and personnel;
  - Forecasting production;
  - Marketing - price predictions/strategies;
  - Managing feed supplies;
  - Water supplies and management;
  - Frost prediction and avoidance;
  - Cash-flow management;
  - Mass media outputs;
  - Employment of staff;
  - Equipment sales and purchases; and
  - Policy inputs.
- Some clients have used SOI information in making major business decisions. This emphasises the 'duty of care' involved in releasing climate-forecast information.
- It is difficult for clients to make quantitative estimates of additional profit or loss due to the use of SOI information. In many decisions the SOI information is only one factor influencing a change in the usual management decision. In addition, it is often difficult to decide what weighting was given to the SOI information in the decision-making process (that is, whether the information was responsible for changing the usual decision).
- When using probabilities, the outcome of a particular decision may be a profit, a loss, or neither a profit nor a loss. The loss from a forecast, that proves to be 'wrong', needs to be regarded as part of the cost of climate risk management.
- Some clients also receive non-economic benefits from using SOI information; for example, greater confidence in decision-making, and a better understanding of climate/weather risk management.
- Sharing of SOI information has considerable potential for helping to market the products, providing users of the SOI Hotlines regard the information as potentially valuable.
- The SOI Hotlines are valued by clients but can be improved by making the products, providing additional information and more-detailed interpretive comments, reducing the cost of accessing products, improving the accuracy and lead-time of forecasts, and making products more relevant to specific locations.

## **OUTCOMES OF PROJECT**

The survey gave us better knowledge and understanding of our clients, how they were using the products, the benefits received, problems in using the SOI Hotlines, and how the information system could be improved to better satisfy their needs.

At the time, it was difficult to respond positively to most of the feedback because:

- Most available resources were being concentrated on developing a more-comprehensive climate information system on our Internet site called 'The Long Paddock'; and
- Further research and development were required to provide climate-forecast products that were more accurate and customised for specific locations.

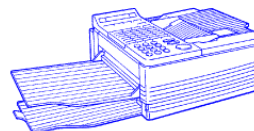
In December 2000, responsibility for managing and maintaining the SOI Fax Hotlines and the SOI Phone Hotline was transferred within QCCA from Brisbane to Toowoomba. Some of the products on the SOI Fax Hotlines were discontinued, and the remaining products (or modified products) were made available on the DPI FarmFax Information Service. Subsequently DPI management decided to terminate the FarmFax Service, and to concentrate on providing such information on their Internet site.

## APPENDICES

### APPENDIX 1: A Sample SOI Message



SEASONAL CLIMATE INFORMATION SERVICE  
**SOI FAX HOTLINES**  
 (Southern Oscillation Index)  
 menu page = 019 725 300  
 this page = 019 725 301



### SOI MESSAGE - 13 SEPTEMBER 1995

SOI AVERAGES / PHASE	
June 95	- 1.7
July 95	+ 4.0
August 95	+1.1
-----	
Last 30 days	+ 3.3
Last 90 days ▲	+ 0.1
-----	
SOI Phase 5 (near zero) on 30 Aug 95	
All values subject to revision by Bureau of Meteorology	

▲ See AUSTRALIAN RAINMAN for effects of SOI on rainfall at your location.

#### REVIEW OF CLIMATIC FORECASTS AND INFORMATION

Established climate forecast systems show the probability of receiving ABOVE MEDIAN rainfall for the next three months is about 30% to 50% over most of Queensland and New South Wales. There are some isolated patches on the Darling Downs where the probability reaches about 60% to 70%. However, much of this rainfall would be due to thunderstorm activity, which tends to be patchy. By comparison, at this time last year the probability of exceeding median rainfall was about 15% to 20%.

To sum up, when we have experienced a similar SOI pattern to the current one, over the last 130 years, rainfall in the following three months has been above median in about 1-in-3 to 1-in-2 years (depending on location).

There is a high probability of receiving late-season frosts this year.

Recent passages of the 30- to 50-day Oscillation have not been associated with significant rainfall over Queensland. In addition, the timing of the oscillation has been very erratic. The next passage of the 30- to 50-day Oscillation is expected during the first or second week of October.

Sea-surface temperatures are mostly near normal along the equator in the Pacific Ocean. However, temperatures are cooling to the north, south and west of Australia, and also in the Tasman Sea, which may indicate an unfavourable trend influencing the long-term outlook.

*The average SOI over the last 30 days was +3.3 . The probability of exceeding median rainfall over the next three months is about 50% for most of Queensland and New South Wales.*

#### THE BOTTOM LINE

We continue to recommend caution when making property management decisions.

To obtain more information for your location, we recommend combined use of the AUSTRALIAN RAINMAN package and the Bureau of Meteorology's Seasonal Climate Outlook.

The next SOI HOTLINE update will be on the 20th of September.

#### Drought Management Group- Department of Primary Industries

If you would like any further information, please contact Col Paull on (07) 389 69587, or one of the Risk Management Co-Ordinators located at Cloncurry (077) 421 311, Charters Towers (077) 872 155, Emerald (079) 828 801, Kingaroy (071) 621 355 and Roma (076) 229 999

If you prefer to receive this message verbally, you can access a recorded message service on (07) 389 69602

## APPENDIX 2: Survey Questionnaire



# FEEDBACK FROM SOI HOTLINE USERS

*Please take a few minutes to complete this feedback form. The information you supply will help us to improve this service.*

1. (a) What State do you live in? (please name)  
.....  
  
(b) What is your district or centre?  
.....
2. (a) Do you have the use of a fax machine? ☐ Yes ☐ No  
  
(b) If yes, what switch/procedure is used when requesting information from other facsimile machines? ☐ Poll-receive ☐ Manual-receive  
☐ Not sure
3. What is your main business? (please tick appropriate box)  
☐ Primary producer (please name main industries):  
.....  
☐ Agribusiness ☐ Media  
☐ Government (other than QDPI) ☐ QDPI  
☐ Bank/Financial ☐ Other (please specify)  
.....
4. To what extent is each information product useful to you? (Please tick the appropriate square)

	Very little use	Some use	Fairly useful	Quite useful	Very useful
Phone Hotline (07) 877 9602					
SOI message 019 725 301					
SOI graphs 019 725 302					
Recent rainfall maps 019 725 303					
Drought situation 019 725 305					
Sea temperature maps 019 725 307					
SOI data page 019 725 308					
Rainfall outlook-median 019 725 309					
Rainfall outlook-specific amounts 019 725 324					

**5. About how often do you use each SOI Hotline service?**

(Please show number of calls/month to each service e.g.  )

- |  |  |
|--|--|
| <input type="text"/> Phone Hotline (07) 877 9602                   | <input type="text"/> SOI message 019 725 301             |
| <input type="text"/> SOI graphs 019 725 302                        | <input type="text"/> Recent rainfall maps 019 725 303    |
| <input type="text"/> Drought situation 019 725 305                 | <input type="text"/> Sea temp. maps 019 725 307          |
| <input type="text"/> SOI data page 019 725 308                     | <input type="text"/> Rainfall outlook-median 019 725 309 |
| <input type="text"/> Rainfall outlook-specific amounts 019 725 324 |  |

**6. (a) How do you use the information?**

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**(b) If used for management decisions, please give examples including the month decisions were made (attach extra page if necessary).**

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- (c) During the last 12 months, roughly how much additional profit or loss did you make from using the information?

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7. How many people, who make weather-related decisions, do you share the information with? ☐

8. How could the service be improved? (attach extra page if necessary)

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*Thank you for the feedback you have provided. Please return these pages by facsimile or mail to:*

*Col Paull  
Climate Impacts & Spatial Systems  
PO Box 631  
Facsimile: (07) 877 9606  
INDOORROOPILLY QLD 4068*

## Appendix III: Index Page on SOI Fax Hotlines



DNR/DPI SEASONAL CLIMATE INFORMATION SERVICE

# SOI FAX HOTLINES

(Southern Oscillation Index)

this page = 1902 935 300

**PLEASE NOTE THE NEW FAX NUMBERS !!**

**WELCOME TO THE SOI FAX HOTLINE**



## INDEX TO SERVICES

### 1902 935 300

[1 page]

The page you are reading.

### 1902 935 301

[1 page, updates weekly, approx time 1' 30"]

Latest **SOI message**, recent Southern Oscillation Index Values and information on possible trends. (This information can be obtained verbally via your Telephone on (07) 3896 9602)

### 1902 935 302

[4 pages, updates monthly, approx time 4' 17"]

**Graphs** showing SOI values for a series of recent months and data from 1890 to the 1990's

### 1902 935 303

[1 pages, updates monthly, approx time 5' 45"]

maps **Recent rainfall** of Queensland showing total rainfall and rainfall compared with the long-term average.

### 1902 935 304

[3 pages, approx time 3' 53"]

**Explanation** of the Southern Oscillation and El Niño phenomenon with text and diagrams.

### 1902 935 305

[2 pages, current status approx time 2' 45"]

Queensland **drought-declared Shires**, map & listing.

### 1902 935 306

[2 pages, approx time 4' 26"]

**AUSTRALIAN RAINMAN** details and order form for the DPI computer software package (for IBM PC's).

**WILL IT RAIN ?** details and order form for the DPI book about the effects of the Southern Oscillation and EL Niño on Australia.

### 1902 935 307

[1page, updates monthly, approx time 3' 45"]

World **sea surface temperature** anomalies, map.

### 1902 935 308

[1page, updates weekly, approx time 1'30"]

**SOI data**, daily / 30 / 90-day average SOI values for the past 31days with Darwin / Tahiti pressure readings.

### 1902 935 309

[1page, updates monthly, approx time 5'30"]

Map showing **rainfall outlook** - > median for Qld.

### 1902 935 324

[1page, updates monthly, approx time 5'45"]

Maps showing **rainfall outlooks** - specific amounts for Qld.

### 1800 808 096

[Multiple pages, **free call**]

Full **service directory** for INFOFAX, including the Index page to services offered by the **BUREAU OF METEOROLOGY**.

#### Operating instructions :

Telecom INFOFAX is an easy-to-use, fax-based information bank that most fax machines can use. To access information consult your fax machine's handbook it will not collect in normal mode:

- Follow your fax machine instructions for Polling Receive/Manual-Receive mode;
- Call the number advertised for the information you want; and
- Listen to instructions - start fax machine manually when told.

#### Charging and Problems ? :

Infifax charges **60 cents / minute** (Australia wide) for this service

Telecom INFOFAX is supported by the FAXSTREAM support centre. If you experience difficulty, call for help toll-free on :

**1800 636 183**

13/01/98