SOUTH AUSTRALIAN
STATE EMERGENCY SERVICE

EXTREME HEAT ARRANGEMENTS

ANNEX A TO
EXTREME WEATHER HAZARD PLAN

OCTOBER 2010
# South Australian State Emergency Service Extreme Heat Arrangements

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1.0 BACKGROUND

This Extreme Heat Arrangements document is developed as ANNEX A to the Extreme Weather Hazard Plan, for the purpose of clarifying extreme heat events within South Australia, defining triggers for actions for Government agencies, and outlining the associated communication and management strategies. The months of particular concern where extreme heat events are most likely to occur within the state are from October through to March. Forecast of temperatures within this plan relates specifically to the Adelaide metropolitan area in line with the Bureau of Meteorology (BoM) current products of temperature forecasts.

1.1 Heatwaves in South Australia

March 2008

Adelaide experienced a heatwave lasting 11 days in March 2008 when the record at the time for the longest number of days reaching 35 degrees Celsius was broken on Thursday 13th March when the city’s temperature reached 35.1°C at 10:30am.


The Bureau of Meteorology issued a summary of the March 2008 heatwave with key data consisting of:

- 15 consecutive days with a maximum temperature in excess of 35°C, which was the longest heat wave recorded at the South Australian Regional Office.
- 13 consecutive days with a maximum temperature in excess of 37.8°C at the South Australian Regional Office. This surpassed the heat wave of January 1939.
- Adelaide recorded its warmest minimum temperature for March of 30.2°C.
- March 2008 average monthly temperature of 24.4°C was the 3rd warmest recorded at the South Australian Regional Office.
- The average maximum temperatures, recorded in the metropolitan area, were about 4.5°C above the long-term average for the month, whilst the average minimum temperatures were between 2°C and 3°C above the long-term average.
- The Adelaide metropolitan area recorded below average rainfall for March.


Jan/Feb 2009

A severe heat wave across south-eastern Australia in late January 2009 may have contributed to the sudden deaths of more than 20 people in South Australia. This precipitated a breakdown of electricity distribution and public transport systems in the states of Victoria and South Australia. SA was officially in the grip of a heatwave, having on 12 January, experienced its fifth consecutive day of more than 35°C. In Adelaide, residents endured six straight days of temperatures over 40 degrees Celsius (maximum of 45.7°C reached on Jan 28), with the level remaining above 35°C for a further 7 days. Ambulance paramedics were inundated with an unusually high number of heat-related call-outs, treating more than double the summer daily average. Several sporting fixtures, including lawn bowls, junior cricket and surf lifesaving were cancelled. Several revellers at the annual Schützenfest collapsed from heat exhaustion.


On 30 January 2009, the SA Ambulance Service (SAAS) recorded its highest number of callouts for the third consecutive day, responding to more than 1400 calls. The calls led to 920 people receiving medical attention, with around 600 needing emergency care.


The Metropolitan Fire Service (MFS) responded to hundreds of calls from residents reporting small grass fires and fire alarms. The extreme conditions continue to put pressure on emergency services, public transport and power supplies with transport officials warning commuters using train and tram services to expect delays, with the heat buckling lines in various areas.
After several routes were closed on Wednesday 28 January, maintenance crews worked through the night to ensure all services were running again for the morning peak hour. Free bottled water was handed out to travellers using the Adelaide Railway station to help them cope with the delays and heat. Adelaide residents in about 50 suburbs faced rolling blackouts on Thursday 29th Jan and into Friday after an electricity inter-connector between Victoria and Tasmania went down.

South Australia’s highest temperature during the event was 48.2°C at Kyancutta (Eyre Peninsula) on 28 January, as well as a reading of 48.0°C at Pallamana (near Murray Bridge) on the 28th. The Pallamana temperature was also the highest recorded in South Australia outside the pastoral districts or the Eyre Peninsula at that time. Overnight minimum temperatures were also very high in many places during the event. Adelaide experienced its warmest night on record when the temperature only fell to 33.9°C in the early hours of 29 January. On the morning of 29 January, an exceptional event also occurred in the northern suburbs of Adelaide around 3 a.m. when strong north-westerly winds mixed hot air aloft to the surface. At RAAF Edinburgh, the temperature rose to 41.7°C at 3.04 a.m. Such an event appears to be without known precedent in southern Australia.


2.0 EXTREME HEAT DEFINITION

Extreme Heat is defined as an extended period of very high temperatures, which is related but not confined to heatwave conditions. It has the potential to adversely affect urban and rural communities, infrastructure and the natural environment. It can also cause significant health issues, extensive stock and crop losses, damage roads, railway lines, bridges, disrupt power supplies and contribute to an elevated fire hazard. High minimum temperatures overnight are likely to have a greater impact where communities, infrastructure and the environment are unable to recover from protracted heat stress. High temperatures can be exacerbated by high humidity.

When temperatures spike for three or more consecutive days without an adequate drop in night-time temperature to cool the outdoor and indoor environments, there is a significant increase in the risk to vulnerable populations. Therefore the definition of excessive heat events will consider both day-time maximum temperatures and night-time minimum temperatures.


2.1 Heatwave

There is no universal definition of a heatwave although in a general sense it can be defined as a prolonged period of excessive heat. The difficulty in defining a heat wave in Australia has been in establishing an appropriate heat index with an acceptable event threshold and duration, and relating it to the climatology of the area under investigation.

The BoM SA Regional Office defines a heatwave for Adelaide as:
- 5 (five) consecutive days where dry bulb temperature is 35°C or greater; or
- 3 (three) consecutive days where dry bulb temperature is 40°C or greater

It should be noted that this definition refers specifically to Adelaide City and that the associated risks for extreme heat will vary depending upon the locality in the State, in that far north regions experience and acclimatise to higher temperatures better than regions in the South East. As the BoM provides 7 day forecast temperatures for Adelaide City, the SASES will assess potential impact to the Regions and distribute advice/watch/warning communication as required. Daily contact with the BoM by the SASES State Duty Officer or nominated delegate may be conducted to ascertain confidence in the forecast temperatures for days 5-7.
2.2 The Heatwave Threat

In Australia during the 20th century, heatwaves caused more deaths than any other natural hazard. In 1939 alone, a heatwave in southern Australia caused 438 deaths and seriously affected many thousands. Following the extreme heat events in March 2008 and Jan/Feb 2009, key areas of impact as a result of extreme heat conditions could include, but not be limited to:

- increased morbidity (rate of human illness);
- increased mortalities and potential requirement for temporary mortuaries;
- deceased livestock and native fauna;
- transport closures/diversions (buckled railway lines, bridge closures etc);
- increased risk of fires;
- stress on power networks because of high electricity demand;
- power failures or load shedding impact upon the availability of electricity resulting in further potential for heat stress, especially for vulnerable persons;
- trees/branches falling from dryness;
- supply chain disruptions;
- economic cost to the state, local business, recovery etc;
- public events with increased risk of heat related illness;
- school closures or mass gathering event cancellations;
- crop damage and food loss.

In assessing heatwaves as a natural hazard, consideration should also be given to the interaction of high temperatures and population vulnerability, which is a result of both the social and physiological systems. The distribution of heat-deaths is complex, with the most vulnerable being the elderly, those with underlying health issues reliant upon medication and infants living in low socio-economic urban areas during early summer heatwaves. The ageing population in SA and anticipated effects of climate change (particularly in relation to SE Australia) mean that planning for worse than historically based events is warranted. Climate change could be expected to result in increasing incidence of heatwaves, prolonging of individual heatwave events, and extension of the time of the year where extreme heat events are possible.

2.3 Heat Related Health Risks

Any individual, regardless of age, sex or health status can develop heat stress if engaged in intense physical activity and/or exposed to environmental heat. The level of heat discomfort is determined by a combination of factors:

- meteorological - air temperature, humidity, wind and direct sunshine;
- cultural - clothing, occupation and accommodation; and
- physiological - health, fitness, age and the level of acclimatisation.

Further information on heat health is contained within the ‘Heat Health Guide’ that is produced by SA Health [http://www.health.sa.gov.au](http://www.health.sa.gov.au) or for medical advice contact Health Direct Australia on 1800 022 222.

Table 2.3.1 below is an extract from the SA Health Extreme Heat Health Guide that identifies the illnesses, symptoms and treatment options.
### 2.3.1 Heat Related Illnesses

<table>
<thead>
<tr>
<th>Illness</th>
<th>Symptoms</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dehydration</td>
<td>• Profuse sweating</td>
<td>• On feeling unwell, cease activity and go to a cool shaded place</td>
</tr>
<tr>
<td></td>
<td>• Increase in body temperature</td>
<td>• Drink plenty of fluids (avoid caffeine and alcohol)</td>
</tr>
<tr>
<td></td>
<td>• Lethargy and tiredness</td>
<td>• Try to keep cool by:</td>
</tr>
<tr>
<td></td>
<td>• Loss of appetite</td>
<td>- turning on a fan or air-conditioner</td>
</tr>
<tr>
<td></td>
<td>• Being thirsty</td>
<td>- using a spray bottle of water on the face and body</td>
</tr>
<tr>
<td></td>
<td>• Irritability</td>
<td>- having a cool shower or bath</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• If remaining unwell, seek medical advice as soon as possible</td>
</tr>
<tr>
<td>Heat Cramps</td>
<td>• Muscle spasms</td>
<td>• On feeling unwell, cease activity and go to a cool shaded place</td>
</tr>
<tr>
<td></td>
<td>• Painful muscle cramps in the limbs or abdomen Twitching</td>
<td>• Drink plenty of fluids (avoid caffeine and alcohol)</td>
</tr>
<tr>
<td></td>
<td>• Moist cool skin</td>
<td>• Try to keep cool by:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- turning on a fan or air-conditioner</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- using a spray bottle of water on the face and body</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- having a cool shower or bath</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Lie in a cool place with legs supported and slightly elevated</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Massage limbs gently to ease the spasms, or firmly if cramped, then apply ice packs</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• If remaining unwell, seek medical advice as soon as possible</td>
</tr>
<tr>
<td>Heat Syncope</td>
<td>• Dizziness and Fainting</td>
<td>• May be aggravated by cardiovascular disease, and certain medications</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• On feeling unwell, cease activity and go to a cool shaded place</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Drink plenty of fluids (avoid caffeine and alcohol)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Try to keep cool by:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- turning on a fan or air-conditioner</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- using a spray bottle of water on the face and body</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- having a cool shower or bath</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Lie in a cool place with legs supported and slightly elevated</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• If heat cramps present, massage limbs gently to ease the spasms, or firmly if cramped, then apply ice packs</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• If remaining unwell, seek medical advice as soon as possible</td>
</tr>
</tbody>
</table>
## Heat Exhaustion

- Headaches
- High temperature
- Profuse sweating
- Cold, clammy pale skin
- Fatigue, weakness and restlessness
- Nausea and vomiting
- Weak but rapid pulse
- Poor coordination
- Circulatory collapse

## Heatstroke

- Confusion, headaches, dizziness and nausea
- Skin flushed, hot and unusually dry
- Intense thirst
- Dry, swollen tongue
- Sudden rise in high body temperature (40°C+)
- Disorientation, delirium
- Slurred speech
- Aggressive or bizarre behavior
- Sleepiness
- Convulsions
- Unconsciousness may develop rapidly
- Seizures or coma

May be aggravated by cardiovascular disease, and certain medications

On feeling unwell, cease activity and go to a cool shaded place

Drink plenty of fluids (avoid caffeine and alcohol).

Try to keep cool by:
- turning on a fan or air-conditioner
- using a spray bottle of water on the face and body to cool down, or use a wet towel
- having a cool shower or bath

Put cool packs under the armpits, in the groin or on the back of the neck (or all three places) to reduce body heat

Lie in a cool place with legs supported and slightly elevated

If heat cramps present, massage limbs gently to ease the spasms, or firmly if cramped, then apply ice packs

If remaining unwell, seek medical advice as soon as possible

If vomiting continues, seek medical assistance immediately by calling 000 for an ambulance

This is an extreme medical emergency. Ring 000 immediately for an ambulance!

May be aggravated by cardiovascular disease, and certain medications

On feeling unwell, cease activity and go to a cool shaded place

Drink plenty of fluids (avoid caffeine and alcohol)

Try to keep cool by:
- turning on a fan or air-conditioner
- using a spray bottle of water on the face and body to cool down, or use a wet towel
- having a cool shower or bath

Put cool packs under the armpits, in the groin or on the back of the neck (or all three places) to reduce body heat

Lie in a cool place with legs supported and slightly elevated

If heat cramps present, massage limbs gently to ease the spasms, or firmly if cramped, then apply ice packs

If conscious – try to keep the person calm and stay with them until ambulance arrives

If unconscious – check airway for breathing and monitor pulse rate until ambulance arrives

Do not give aspirin or paracetamol to a person affected by the heat
2.4 Heat Triggers

One of the factors used to determine if a heat emergency exists is the forecast temperatures from the BoM. Due to South Australia’s diverse geography, weather conditions often vary greatly from one region to another. People are acclimatised to the usual weather conditions in the climate zone in which they reside, meaning those in a desert climate tolerate heat differently than those in a coastal climate. Because of these differences, there is no ‘one size fits all’ tool for the entire State to define what constitutes an extreme heat event.

Consideration must also be given to the variance of the overnight temperatures and the daytime temperatures during extreme heat conditions. This variance will contribute to the level of relief as well as the ability of the community to acclimatise to the weather conditions. High overnight temperatures have an impact on electrical transformers which are designed to give off excess heat energy when cooler temperatures occur overnight.

As there is no current National standard on heat alert triggers, table 2.4.2 has been developed by SASES as a guide to activate extreme heat plans and associated actions by Government agencies and stakeholders. It is important to note that the triggers are based on the Adelaide metropolitan area and SASES will monitor regional forecast temperatures to disseminate communication as appropriate. SASES has developed a model to track forecast temperatures for Adelaide, which the State Duty Officer will monitor and update on a daily basis to assist in the recognition of triggers being reached.

The triggers are established by the maximum daily temperature and minimum overnight temperature for 3 consecutive days to form the basis of the thresholds. SASES in conjunction with the BoM, will also trial the use of an ‘Average Daily Temperature’ (ADT) system that is the average of the maximum and minimum temperature. To facilitate the decision making process, the BoM will provide the forecast ADT routinely to SASES, in addition to the maximum and minimum.

- Extreme Heat Watch issued at:
  \[ \text{ADT} \geq 29 \text{C} \] (example of average of 36C maximum and 22C minimum) for three or more consecutive days
- Extreme Heat Warning issued at:
  \[ \text{ADT} \geq 32 \text{C} \] (example of average of 40C maximum and 24C minimum) for three or more consecutive days

The SASES heat triggers and actions are underpinned by current local evidence. This knowledge needs to be improved by understanding the cause-and-effect relationships between local parameters and health.

A study conducted by the University of Adelaide and supported by SA Health is currently examining the health risks during heatwaves in relation to various weather parameters, including the extraordinary conditions of recent heatwaves, in order to provide better evidence for health based thresholds of risk for the ‘Extreme Heat Arrangements’. The Heat Triggers will be reviewed and, if necessary, modified to reflect the outcomes of the current scientific research into this topic.
2.4.1 Communications Triggers for Extreme Heat

The table below depicts the guideline timeframes when SASES will endeavour to issue communications prior to a likely heat event. This table

<table>
<thead>
<tr>
<th>Days</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hours</td>
<td>12</td>
<td>24</td>
<td>36</td>
<td>48</td>
<td>60</td>
<td>72</td>
<td>84</td>
</tr>
<tr>
<td></td>
<td>96</td>
<td>108</td>
<td>120</td>
<td>132</td>
<td>144</td>
<td>156</td>
<td>168</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Continual monitoring of weather forecast</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Watch</strong></td>
<td>48 - 72 Hours</td>
</tr>
<tr>
<td><strong>Warning</strong></td>
<td>0 - 48 Hours</td>
</tr>
</tbody>
</table>

An *Extreme Heat Watch* is issued 48 - 72 hours in advance of an event to give advance notice of the possibility of excessively hot conditions.

An *Extreme Heat Warning* is issued 0-48 hours in advance of an Extreme heat event that is expected to last 3 days or more.

Days 6 & 7 of the weekly forecast provided by the BoM are subject to forecasting estimates and therefore are not to be used as actual temperatures until confirmation of complete confidence of forecast is obtained from the BoM.
## 2.4.2 Temperature Triggers and Actions

<table>
<thead>
<tr>
<th>LEVEL</th>
<th>TRIGGER (threshold)</th>
<th>COMMUNICATION</th>
<th>REQUIRED ACTIONS BY AGENCIES</th>
</tr>
</thead>
</table>
| Seasonal Preparation | Actions are taken by SASES in September in preparation for the lead up the hotter months (October - March) to prepare for and maintain a state of increased readiness | Heat Advice to community and Agencies on mitigating actions to reduce impact of potential heat risks identified disseminated in October. | • Develop/review of Departmental Extreme Heat plan to align to arrangements in this plan  
• Review organisational BCP procedures and resource allocation during Extreme Heat events.  
• Identify vulnerable groups within community and conduct appropriate risk assessments.  
• Updating / validating notification processes for key stakeholders/ vulnerable groups.  
• Conduct training of plans and procedures. |
| HIGH (Watch) | Adelaide forecast temperatures next 5 days  
Max ≥36°C for 3+ consecutive days  
AND  
Min ≥22°C for 3+ consecutive nights  
(ADT 29°C)                                                                 | Heat Watch to community and/or agencies for Heatwave conditions.  
SEC Briefing (as appropriate)  
The Control Agency will issue a Heat Watch 2-3 days in advance of event where practicable | • Identify key personnel for potential attendance to SEC if required for briefings.  
• Develop Duty of Care (OHS&IM) arrangements for employees exposed to extreme heat conditions.  
• Confirmation of roles and responsibilities to be disseminated amongst staff.  
• Confirm staffing rosters as applicable.  
• Activate Departmental Extreme Heat plan  
• Confirm key personnel to attend brief at SEC or teleconference as required.  
• Development of staff roster for activation of the SEC or internal control centres as appropriate.  
• Prioritise vulnerable groups and responding actions.  
• Functional Services to provide SITREP to SASES every 24 hours not later than 1000hrs each day. |
| EXTREME (Warning) | Adelaide forecast temperatures next 5 days  
Max ≥40°C for 3+ consecutive days  
AND  
Min ≥24°C for 3+ consecutive nights  
(ADT 32°C)                                                                 | Heat Warning to community and/or agencies  
SEC briefing or teleconference (as applicable)  
The Control Agency will issue a Heat Warning 48 hours in advance of event where practicable | • Activate Departmental Extreme Heat plan  
• Confirm key personnel to attend brief at SEC or teleconference as required.  
• Development of staff roster for activation of the SEC or internal control centres as appropriate.  
• Prioritise vulnerable groups and responding actions.  
• Formulate communication process to monitor vulnerable groups. |
| Event Closure (Recovery) | Nominally April as autumn season commences                                                                 | Event closure communication forwarded by SASES                                  | • Review and prepare summary of actions undertaken during extreme heat events.  
• Internal debriefs to occur for respective agencies.  
• Identify personnel to attend SEC debriefing. |
2.5 Government Agency/ Stakeholder Actions

The actions that SASES and SA Health recommend to be undertaken as a minimum by Government agencies are depicted in the “Required Actions” column of table 2.4.1. Departmental Extreme Heat plans should be developed by Government Agencies/ stakeholders to specify their relevant activities undertaken to assist vulnerable groups/clients etc during extreme heat. The terminology ‘vulnerable groups’ may differ between agencies, so the context of this plan must be considered where demographics within the community of minimal resilience to extreme heat conditions are identified.

It is also vital that Business Continuity Plans be reviewed or developed to ensure contingencies in the event of power failure, and duty of care arrangements to ensure staff/volunteers/clients etc are adequately managed during periods of extreme heat, are all in one place.

Agencies should also ensure vulnerable groups under their jurisdictions are identified and that appropriate mechanisms are in place to conduct risk assessments and implement treatment options for providing refuge, respite and/or alternative arrangements.

It is also advantageous that any mechanisms for capturing data on vulnerable groups are maintained to implement a collaborative sharing of information, without encroaching on privacy issues. This is to minimise inconvenience to the vulnerable groups by duplication of contact by multiple agencies that have registered groups under their responsibility.

2.6 Activation Phases

It is reiterated that the triggers established in table 2.4.1 will be used by SASES as a guide to when the State Duty Officer (SDO) will contact BoM to ascertain confidence of temperature forecasts and, in consultation with SA Health, disseminate appropriate communications to the community and/or Government.

2.7 Bureau of Meteorology Temperature Forecasts

When the forecast of temperatures identifies 35°C+ degrees for 3 consecutive days, daily contact by the SASES State Duty Officer with the BoM is to occur to confirm the confidence in the forecast. Media Releases and Alerts are developed through the SAFECOM Public Affairs Unit via the SASES Senior Public Affairs Officer.

The SASES will monitor and assess the event and will make the decision based on conditions, as to whether a briefing is to be conducted at the State Emergency Centre or as an alternative, whether a teleconference is to be convened between agencies and key stakeholders.

3.0 COMMUNICATIONS PLAN

To increase our preparedness for extreme heat events and to ensure the South Australian Government is able to effectively respond to future extreme heat events, the whole of SA Government Extreme Heat Communications Plan has been developed.

As the Hazard Leader and Control Agency for extreme weather in South Australia, the SASES has led the development of this Communications Plan and the SASES component is the most critical part of this Plan.
Success however, depends on a strategic, consistent and coordinated approach across Government. As such, the critical Functional Services provided under the framework of the SEMP have each developed a communications plan for their Functional Service.

Particular emphasis has been placed on developing strong and consistent key messages and ensuring the key messages across all Functional Services do not contradict one another.

Each Functional Service has nominated a communications representative. These representatives are all employees of key SA Government departments/agencies. Each department/agency will still be performing their own media and communications activities and liaising with their specific stakeholders in accordance with their usual operations.

Each Functional Service is to provide a situational report (SITREP) to the SASES Duty Officer every 24 hours, No later than 1000hrs, advising of the impact and action taken regarding the extreme heat. Should No change in operations occur by the Functional Service then the SITREP may well be as simple as “No Change”

However, the SASES will be responsible for the dissemination of the broad overarching public information strategy, in consultation with SA Health.

3.1 Communications Objectives

The broad communications objectives are to:

- communicate that extreme heat can have a detrimental affect on health, safety and wellbeing but there are precautions that can be taken to reduce these effects;
- ensure that public communication is relevant, timely and accurate with information and advice on how the South Australian community can keep themselves and their family, friends, neighbours and pets/livestock safe and well before, during and after extreme heat events;
- To ensure the South Australian community receives a consistent message from across government concerning the many areas impacted by heat; and
- prepare and educate the South Australian community to become self-reliant and better able to respond to and recover from extreme heat events.

3.2 Communications Strategies

- ensure the SASES meets its obligations as the Hazard Leader and Control Agency for extreme weather;
- proactively use the media to deliver important community safety information and advice; and
- harness the cooperation and support of the key stakeholders to disseminate communications materials to their own networks, both internally and externally, to ensure the key messages are as far reaching as possible.

3.3 Communication Stages

For the purposes of the SA Government Extreme Heat Communications Plan, four stages have been identified with each stage having a specific objective and key message. A colour has also been assigned to the first three stages for SASES internal reference only.
3.3.2 Communication stages

<table>
<thead>
<tr>
<th>STAGE</th>
<th>OBJECTIVE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Preparedness/Mitigation</strong></td>
<td>To encourage the general public to prepare for extreme heat conditions before summer and take precautions that will eliminate or reduce the severity of extreme heat, when it arises.</td>
</tr>
<tr>
<td><strong>Current specific risks</strong> (Extreme Heat Watch)</td>
<td>To encourage the general public to take precautions in advance of an imminent threat that will eliminate or reduce the severity of extreme heat when it arises.</td>
</tr>
<tr>
<td><strong>Extreme Heat Warning</strong></td>
<td>To encourage the general public to respond appropriately to the current extreme heat by taking all precautions that will ensure the effects of the extreme heat are minimised.</td>
</tr>
<tr>
<td><strong>Event closure</strong></td>
<td>Key stakeholders (Functional Services) that have a significant role in recovery efforts may like to employ appropriate internal and external communications strategies to convey to the community what they are doing.</td>
</tr>
</tbody>
</table>

3.4 Extreme Heat Vs Bushfire Warnings

It is noted that an extreme heat event may coincide with the risk of bushfire events due to weather conditions. SASES will liaise with the Country Fire Service (CFS) and the SA Metropolitan Fire Service (SAMFS) in relation to the issuing of alert/watch/warning communications. SASES communications may include a recommendation for people to seek refuge by remaining in their homes if suitable conditions are present, or may advise refuge at other facilities during periods of extreme heat.

It is imperative that communications are consistent and do not contradict one another. A CFS message to leave home early to avoid a fire threat must take precedence over a SASES message to stay at home for refuge from an extreme heat event.
4.0 EXTREME HEAT MANAGEMENT CONSIDERATIONS

4.1 Personnel Duty of Care

The health and safety of personnel is paramount during any tasking and operations. The duty of care by all agencies/departments is to be highlighted during extreme weather conditions where the risks of fatigue and heat-related illness such as heat exhaustion and heat stroke are evident. All Departments should conduct appropriate risk assessments to ensure the safety of their personnel. It is to be anticipated that risk assessments for operational requirements must ensure that heat risk is managed to best mitigate the impact of heat.

SASES operational requirements may be prioritised to enable any non-urgent tasks to be conducted during early morning or evening when the temperature is cooler, and following consultation with the SASES Chief Officer and/or Duty Officer, that some jobs may be delayed until the extreme heat temperature subsides.

4.2 Cooling Centres

The SASES does not recommend the establishment of temporary cooling centres. A more feasible and effective option may be to utilise existing facilities such as shopping centres, public swimming pools, movie theatres, libraries, and art galleries etc where the public can seek refuge from extreme heat during the day. Discussions may need to occur with facility owners/operators to ascertain risk assessments for the potential increased number of the general public seeking refuge within the facilities.

Where Local Government wishes to establish temporary cooling centre facilities in their jurisdictions this will be conducted under their own responsibility and financial accountability. It should be noted that they may be held both legally and financially responsible for this initiative. The SASES welcomes involvement in the consultation process to discuss associated risks and potential logistical issues associated with cooling centres. There are various operational and logistical issues concerned with temporary cooling centres, such as, but not limited to:

- availability and sourcing of multiple suitable temporary facilities;
- accountability of associated expenditure for running the facilities;
- identification of appropriate locations to maximise efficiency for the community;
- access to and from facilities by public transport (if operational);
- logistics associated with management of the facilities such as staffing, security, medical assistance, public liability, infrastructure such as misting, air-conditioning hire, maintenance, cleaning, catering, amenities, hygiene etc; and
- the duration of operation and increased load on electricity requirements;

4.3 Government Operated Transport Services

During extreme heat conditions it is the responsibility of private transport providers to liaise with the Transport Functional Service (DTEI) as their role is to coordinate risk assessment and treatment options during this time. The SASES may provide advice on transport-related community safety following consultation with the Transport Functional Service.
4.4 Outdoor Mass Gathering Events

The SASES will seek collaboration with other Government agencies and stakeholders to conduct discussion and assess the risk of safety and health of the community when mass gatherings are organised during Extreme Heat events. The collective recommendation, where applicable, would be to strongly encourage organisers to cancel the event when public safety due to extreme heat is a concern. Where cancellation of an event will not occur, the SASES does would advise event organisers to be aware of any heat health advice, watch or warnings in place and also to ensure appropriate heat management risk assessments and duty of care are conducted as part of the event planning. This should incorporate, but not be limited to:

- provision of appropriate quantity of water stations for replenishment of drinking water;
- suitable provision of shade;
- misting tents where appropriate;
- increased first aid facilities;
- sunscreen stations; and
- heat related health warnings on promotional advertising.

Government agencies that are involved with organising mass gathering events must ensure appropriate risk assessments are conducted and, where possible, seek advice from the SASES as to the potential implications if the event were to proceed.

4.5 Stakeholder & Community Business Continuity Planning

As Hazard Leader and Control Agency for Extreme Weather, which encompasses Extreme Heat, it is prudent for SASES to advise Government agencies to ensure they have appropriate business continuity plans in place which have been tested to incorporate potential power failures as a result of transformer overload or load shedding.

It is not the role of SASES to provide details of how and what is required for BCP’s so the intent of this information is to raise awareness amongst Agencies to be prepared. This preparation should also incorporate planning from their vendors to minimise potential disruption to normal service delivery. In partnership with SA Health, a variety of general communication mechanisms, such as global e-mail, community forums, radio and website may be provided as soon as practicable leading up to the change to warmer seasons to advise businesses of the potential increase in risk of health related aspects of extreme heat.

Where the use of existing facilities for communities to seek refuge from extreme heat conditions is identified, appropriate continuity planning including the provision of back up generators is essential so as to not exacerbate the extreme heat conditions if a power failure occurs. Provision of back up generators may need to be considered at designated heat refuge centres to ensure that air conditioners continue to operate when mains power is interrupted.

4.6 Public Awareness for Extreme Heat Management Measures

SASES will liaise with, but not be limited to, the key stakeholders consisting of the Bureau of Meteorology, SA Health, Department for Families and Communities and Australian Red Cross, to ensure appropriate community health warnings are developed and communicated. These may consist of, but not be limited to, the following key points that should be implemented as early as possible prior to the commencement of summer:

Before the Heat Event

- Air conditioning is the number-one protection against heat-related illness and death. Ensure Air-conditioners (where fitted) are maintained and in good working order and set to ‘cooling’.
• Make sure your home is properly insulated with weather-strip doors and windowsills fitted to keep cool air inside. Insulate spaces around air conditioners for a tighter fit.
• Protect windows by hanging shades, draperies, awnings, or louvers on windows that receive morning or afternoon sun. Outdoor awnings or louvers can reduce the heat entering the house by as much as 80 percent.

During the Heat Event
• Check on family, friends, and neighbours who do not have air conditioning or who spend much of their time alone – particularly elderly persons.
• If your home does not have adequate air conditioning/cooling, choose other places you can go to get relief from the heat during the warmest part of the day.
• For homes without air-conditioning, fans are a good alternative.
• Plan changes in your daily activities to avoid strenuous work during the warmest part of the day.
• Drink plenty of water regularly. Limit intake of alcoholic and caffeinated beverages.
• Dress in loose-fitting, lightweight, and light-coloured clothing that reflects heat and sunlight and helps maintain normal body temperature.
• Avoid getting sunburn because it will slow the skin's ability to cool itself.
• Slow down and reduce, eliminate, or reschedule strenuous activities.
• Take frequent breaks if you must work outdoors.
• NEVER leave children or pets alone in closed vehicles. Temperatures inside a closed vehicle can reach over 40 degrees within minutes. Exposure to such high temperatures can kill in minutes.
• Learn about and be prepared to treat extreme heat-related disorders

5.0 RECOVERY
As extreme weather conditions fall below designated heatwave triggers, it is possible that vulnerable members of the community will continue to experience health related problems as a direct impact from heat. SASES will maintain a working relationship with SA Health, Families SA (Community Services Functional Service) and the State Recovery Office for planning and coordination of assistance. It is also apparent that SASES may continue with a larger workload due to the effects of heat on trees, and other heat related incidents.

5.1 Multi-Agency Debrief
As with any significant event, a multi-agency debrief will be convened at the State Emergency Centre with all agencies that had involvement in the extreme heat event to be present. It is vital to capture all lessons learnt and acknowledge what worked well for the purpose of reviewing current plans and procedures and developing continuous improvement strategies. The SASES will liaise with Functional Service Liaison Officers and key personnel from each agency and advise of the date and time for the debrief.

6.0 RESEARCH INTO NATIONAL HEATWAVE EMERGENCY PLAN
The University of Adelaide will lead a two-year project to develop a national emergency plan for heatwaves in Australia. A spokesperson from the University's Discipline of Public Health stated rising temperatures in Australia and an increase in the ageing population were expected to result
in greater demand on ambulance services, more hospital admissions and emergency department visits in summer.

"Due to climate change, Australia is experiencing a warming trend, with more hot days and heatwaves. Extreme temperatures are increasingly being recognised as a public health problem and can result in many serious illnesses and even death," he said. A recent national study forecast that within the next 40 years, Australia would face major temperature changes and a spike in heat-related deaths, with 25% of residents aged over 65 years by 2050.

"The threat of heatwaves in Australia in the 21st century is particularly critical due to Australia's ageing population". "Indigenous Australians, non English-speaking people and those with a low socio-economic status or chronic disease will also be at great risk." Despite the projections, there is currently no systematic national heatwave response plan. The University of Adelaide and SA Health will identify the most vulnerable groups, coordinate a strategy involving relevant government departments, emergency personnel and community groups, and refine early-warning mechanisms for heatwaves in Australia.

"We will be looking at the factors that influence effective emergency assistance, measures to prevent heat-induced illness and which community groups are most (and least) likely to heed heatwave warnings. "The different responses within urban, regional and rural populations will also be examined."

SA Health in collaboration with the University of Adelaide has assessed local evidence of the acute health effects of heatwaves in metropolitan Adelaide. The research compares daily ambulance, hospital admission and mortality data between heatwave and non-heatwave periods during 13 recent summers (ref 1, 2, 3). Results show that during heat waves there are increased strains on the health system reflected by increases in ambulance call-outs, hospital admissions and emergency presentations and highlight mental and renal health issues. The heatwave definition in this study was 3 days and more of ≥35°C indicating significant health effects occurring in metropolitan Adelaide when using this definition.

This plan has been developed to provide coverage for the 2009/10 summer period initially and shall be monitored by SASES to ascertain amendments as required. With the extensive research on extreme heat events being conducted by the Bureau of Meteorology, SA Health and the University of Adelaide, it is anticipated that the triggers contained within this plan will be modified for future summers in line with scientific findings.

Source: December 2008 University of Adelaide Article
7.0 REFERENCES


