Presentation on

- Heatwave climate and trend
- Heatwave service
- Warning decision support
- Seamless forecasts
- Climate change attribution & Climate projection

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Heatwave service

• Maps showing colour-coded heatwave severity for the previous two three-day periods, and the next five three-day periods

• Heatwave evaluation is based on:
  – Intensity as a function of long and short term daily temperature anomaly
  – Severity categories as a function of the 85th percentile of heatwave intensity climate distribution

• Gridded data via FTP / WMS
• Public display available on BOM website

Heatwave Service
## HEATWAVE SUMMARY PER DISTRICT, SA

### Issued at 17:00 Monday, 15 January 2018

<table>
<thead>
<tr>
<th>Assessed Heatwave Severity</th>
<th>District</th>
<th>Forecast Heatwave Severity</th>
</tr>
</thead>
<tbody>
<tr>
<td>13-Jan-18</td>
<td></td>
<td>15-Jan-18</td>
</tr>
<tr>
<td>Day -2</td>
<td></td>
<td>16-Jan-18</td>
</tr>
<tr>
<td>Day -1</td>
<td></td>
<td>17-Jan-18</td>
</tr>
<tr>
<td>Day 0</td>
<td></td>
<td>18-Jan-18</td>
</tr>
<tr>
<td>Day 1</td>
<td></td>
<td>19-Jan-18</td>
</tr>
<tr>
<td></td>
<td>North West Pastoral</td>
<td>Low Intensity</td>
</tr>
<tr>
<td></td>
<td>North East Pastoral</td>
<td>Low Intensity</td>
</tr>
<tr>
<td></td>
<td>West Coast</td>
<td>Low Intensity</td>
</tr>
<tr>
<td></td>
<td>Eastern Eyre Peninsula</td>
<td>Low Intensity</td>
</tr>
<tr>
<td></td>
<td>Lower Eyre Peninsula</td>
<td>Low Intensity</td>
</tr>
<tr>
<td></td>
<td>Flinders</td>
<td>Low Intensity</td>
</tr>
<tr>
<td></td>
<td>Mid North</td>
<td>Low Intensity</td>
</tr>
<tr>
<td></td>
<td>Mount Lofty Ranges</td>
<td>Low Intensity</td>
</tr>
<tr>
<td></td>
<td>Adelaide Metropolitan</td>
<td>Low Intensity</td>
</tr>
<tr>
<td></td>
<td>Yorke Peninsula</td>
<td>Low Intensity</td>
</tr>
<tr>
<td></td>
<td>Kangaroo Island</td>
<td>Low Intensity</td>
</tr>
<tr>
<td></td>
<td>Riverland</td>
<td>Low Intensity</td>
</tr>
<tr>
<td></td>
<td>Murraylands</td>
<td>Low Intensity</td>
</tr>
<tr>
<td></td>
<td>Upper South East</td>
<td>Low Intensity</td>
</tr>
<tr>
<td></td>
<td>Lower South East</td>
<td>Low Intensity</td>
</tr>
</tbody>
</table>
The role of seasonal, multi-week and daily forecasts

Probability of severe heatwave
Can we attribute the health impacts of heatwaves to climate change?

Mitchell et al. 2016 attempted this for the 2003 European heatwave.

Event was attributed to climate change over Paris and London, and was fitted to the respective excess mortalities.

Useful and cutting edge, but idea needs to be examined further.

Workshop held at UNSW Sydney October 2018, bringing together experts in heatwaves, detection and attribution of climate extremes, and human health.

Planning a commentary/perspective discussing:
- various ways heatwave impacts might be attributed to climate change
- challenges in bringing disparate research communities together
- Future directions of appropriate methods to attribute any impacts of extremes to climate change

A special issue on attributing the health impacts of heatwaves to climate is planned for 2020/2021.

Contact Sarah Perkins-Kirkpatrick (sarah.Kirkpatrick@unsw.edu.au) for more information.
What is GLORIOUS?

The aim is to ensure user uptake of relevant (and high-impact) climate information from the C3S Climate Data Store, addressing sectors such as health, agriculture and food security, transport, tourism, biodiversity, health and natural hazards.
Summer (DJF) heat wave SEVERITY – future change

Scenario = RCP85 (high); Compare HIST (1976-2005) and RCP85 (2071-2100)

Key messages:
- Spatial distribution of severity in OBS
- CMIP5 models do a fairly good job (HIST mean)
- Future Change in severity:
- Coastal impacts
- Seasonal extension (not shown here)
- Model range shows much higher values are possible in future
- Urban: large increase in heat wave days either side of summer season

0-1 = LOW heat wave
1-3 = SEVERE heat waves
>3 = EXTREME heat wave
GLORIOUS products

- http://climateservice-global.eu/climate-impacts/
- http://climateservice-global.eu/showcases/