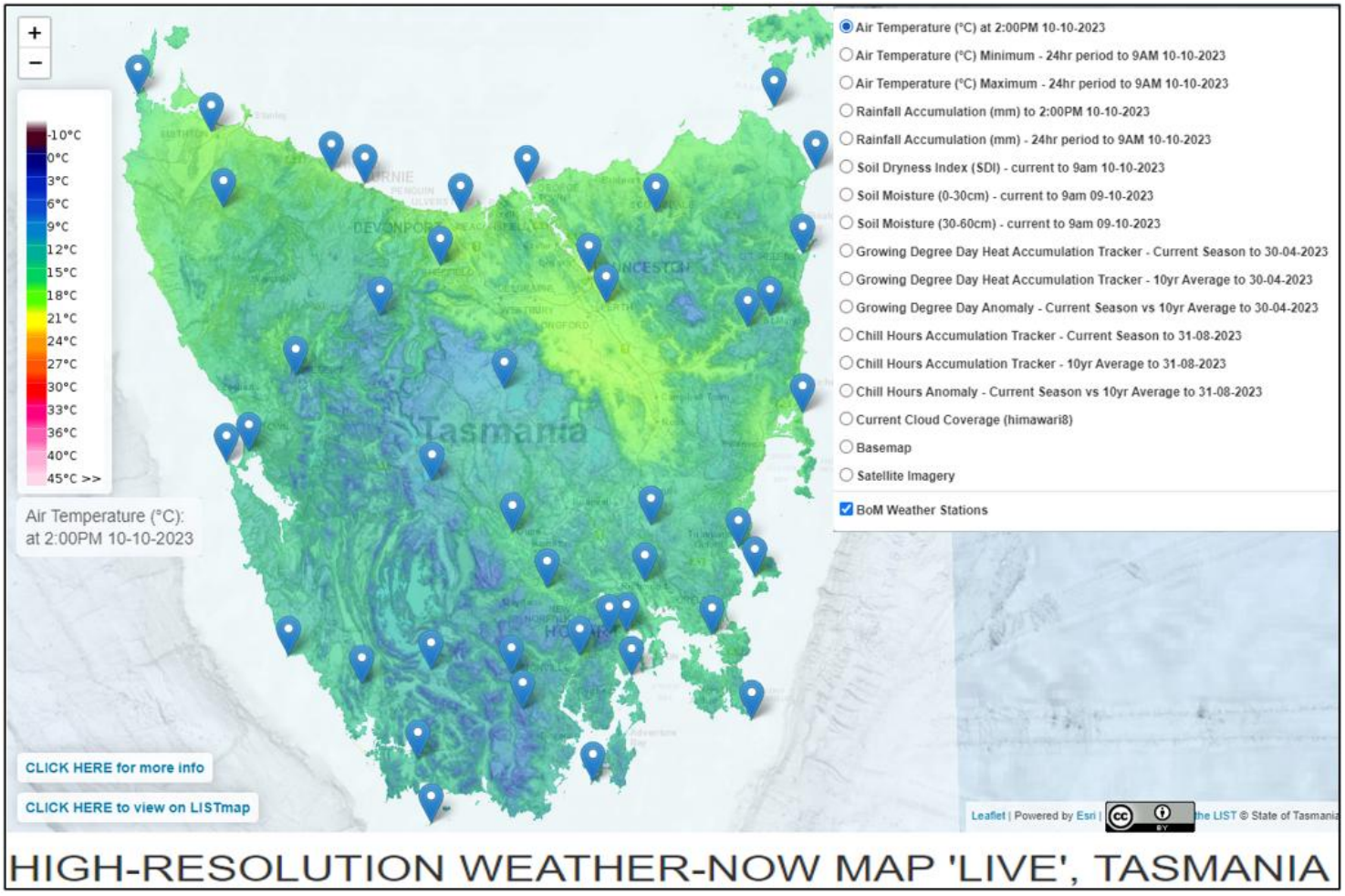
Department of Natural Resources and Environment

Tasmanian Government

# HIGH RESOLUTION WEATHER-NOW MAP – USER NOTES:




**Summary:**
The Weather-Now Map application, developed by the Natural Assets Spatial Intelligence Team at the Department of Natural Resources and Environment Tasmania, delivers near real-time, high-resolution weather monitoring across Tasmania. Designed to support land managers, researchers, and the public, the platform provides dynamic spatial mapping of key weather variables and is freely accessible online: https://sdi.tas-hires-weather.cloud.edu.au/shiny/

**Key Features –**

- **Near Real-Time Updates:** Maps are refreshed hourly, offering up-to-date spatial coverage of air temperature, rainfall accumulation, and soil moisture/dryness.
- **High-Resolution Mapping:** All weather variables are visualized at an 80m spatial resolution, enabling detailed analysis down to the property scale.
- **Comprehensive Data Integration:** The application synthesizes data from the Bureau of Meteorology (BoM), NRE Tasmania's sensor and rain gauge networks, third-party weather stations, and soil moisture probes. Advanced machine learning interpolation ensures accurate, localized mapping.
- **Satellite and Radar Imagery:** Recent cloud cover is displayed using Himawari-8/9 geostationary satellite imagery, while rainfall maps are further refined with BoM radar and satellite data.
- **Intuitive User Interaction:** Users can zoom in to any location across Tasmania and click to access a pop-up with the latest weather observations for that specific site.
- **Freely Available Data:** Both the interactive maps and underlying BoM data feeds are open and accessible to all users.

**Outputs Provided –**

**Air Temperature Maps**

- Half-Hourly Air Temperature (°C)
  - High-resolution (80m) statewide maps showing near real-time air temperature across Tasmania.
  - Updated every 30 minutes using data from Bureau of Meteorology and third-party weather stations.
  - More info
- Daily Minimum Air Temperature (°C)
  - As above, but maps represent the daily minimum temperature, updated once per day.
- Daily Maximum Air Temperature (°C)
  - As above, but maps represent the daily maximum temperature, updated once per day.

**Rainfall Maps**

- Hourly Rainfall Accumulation
  - Statewide 80m grid maps showing rainfall totals (mm since 9am), updated hourly.
  - Data sourced from Bureau of Meteorology and third-party stations.
  - More info
- 24-Hour Rainfall Accumulation (to 9AM)
  - As above, but maps show 24-hour rainfall totals up to 9am, updated daily.

**Climate Monitoring Indicators**

- Site Indicators
  - Interactive climate trend information at key locations statewide.
  - Users can access timeseries plots for rainfall anomalies, degree day heat accumulation, soil moisture, and dryness/wetness indicators.
  - Visualized using a 3-month rainfall anomaly rating.
- Catchment Indicators
  - Same metrics as site indicators but aggregated by catchment for a broader overview.
  - Visualized using a Standardised Precipitation-Evapotranspiration Index (SPEI).

**Rainforest Flammability**

- Rainforest Flammability Risk:
  - Daily statewide 80m grid maps showing flammability risk of rainforest areas based on the rule that less than 50 millimetres of rainfall in the previous month predicts fire in Tasmanian rainforest.
  - More info

**Soil Moisture and Dryness**

- Soil Dryness Index (SDI)
  - Daily statewide 80m grid maps showing SDI, a key measure for fire danger and soil dryness.
  - Indicates the amount of rainfall needed to saturate the soil; higher SDI means drier soil and increased fire risk.
  - More info
- Soil Dryness Index Anomaly
  - Daily maps comparing current SDI to the 10-year average.
  - Negative values: wetter than average; positive values: drier than average.
- Soil Moisture (0–30cm)
  - Daily 80m grid maps estimating soil moisture in the top 30cm of soil, using AI models trained on statewide monitoring stations.
  - More info
- Soil Moisture (30–60cm)
  - As above, but for the 30–60cm soil depth.

**Growing Degree Days (GDD)**

- Current Season Tracker
  - Daily 80m grid maps showing degree day heat accumulation for the Tasmanian growing season (October–April).
  - More info
- 10-Year Average Tracker
  - Daily maps showing the 10-year average GDD for comparison.
- GDD Anomaly
  - Daily maps showing the difference between current season and 10-year average.
  - Negative values: cooler than average; positive values: warmer than average.

**Chill Hours**

- Current Season Chill Hours
  - Daily 80m grid maps tracking chill hour accumulation (hours between 0–7°C) for winter (May 1 – August 31).
  - More info
- 10-Year Average Chill Hours
  - Daily maps showing the 10-year average chill hour accumulation.
- Chill Hours Anomaly
  - Daily maps showing the difference between current season and 10-year average.
  - Positive values: cooler than average; negative values: warmer than average.

**Grape Downy Mildew and Botrytis Weather Risk**

- Grape Downy Mildew Weather Risk
  - Daily 80m grid forecast maps showing weather-condition risk for the next three days, displayed as 'possible' or 'likely'. Risk is based on the 10:10:24 rule (>10 mm rain, >10 °C air temp, 24 hours duration) for the 'Likely' category. 'Possible' risk is calculated using the 5:8:24 rule (>5 mm rain, >8 °C, 24 hours duration).
- Grape Botrytis Weather Risk
  - Daily 80m grid forecast maps showing weather-condition risk for the next three days, displayed as 'possible' or 'likely'. Risk is estimated using a Bacchus index and is an adaptation of the methodology described in a paper by Kathy Evans and Andrew Pirie: https://onlinelibrary.wiley.com/doi/10.1155/2024/6630039.

**Other**

- Regular air temperature and rainfall recordings for individual BoM weather station sites (locations are defined by the symbology and can be clicked to access real-time data streams).
- Current cloud coverage from the Himawari-8/9 geostationary weather satellite. Refer here for more information.
- Topographic and satellite imagery base maps.

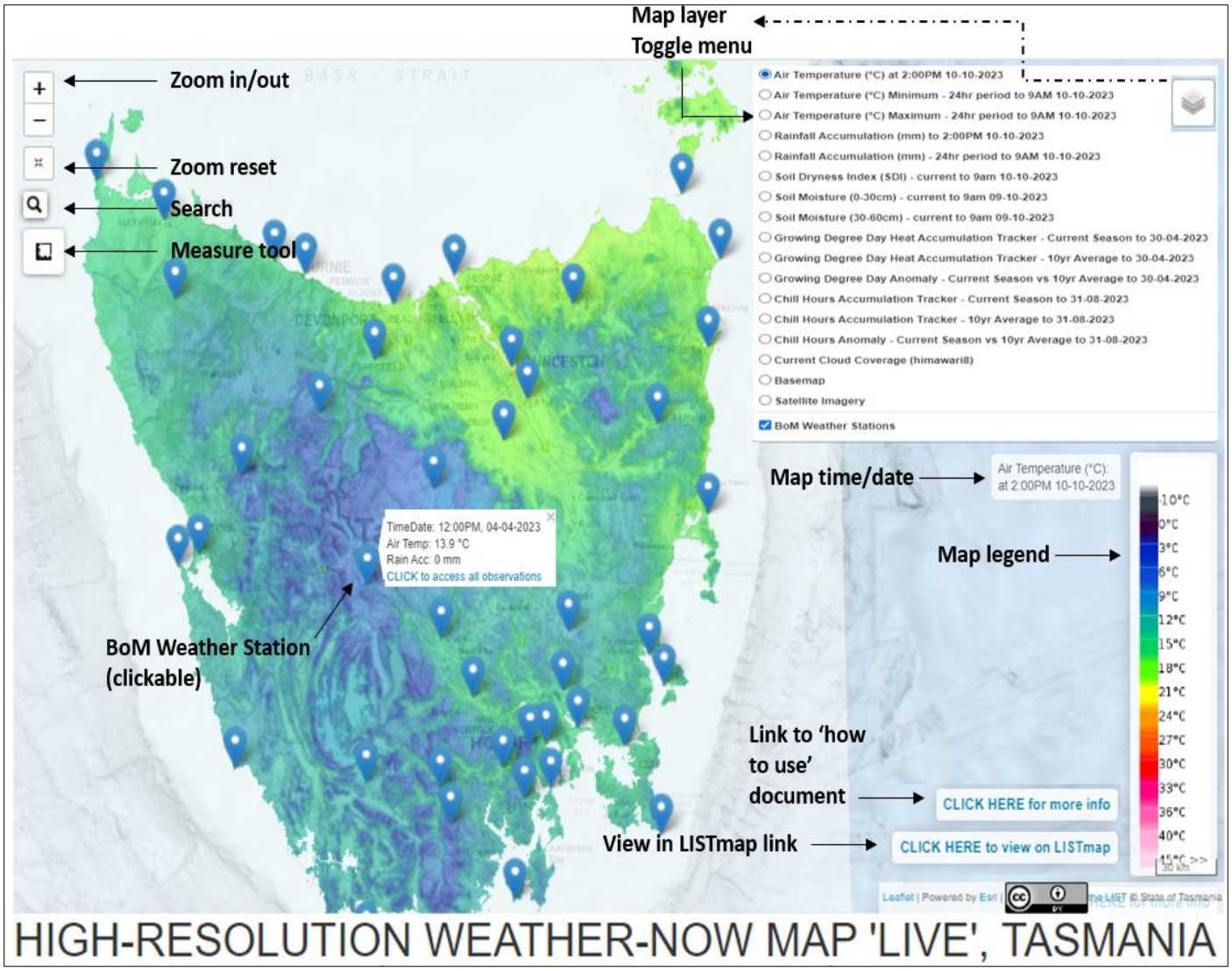
**Web Map Features:**

The web map is a simple to use application providing the ability to interrogate any location within Tasmania (including Flinders and King Island). In its simplest form the web map has the following features:

- Zoom in/out functionality.
- Toggle-able weather map layers.
- Point and click (to reveal weather data for a specific site location)
- Locations of 'live' BoM recording sites (locations are defined by the symbology and can be clicked to access real-time data streams).

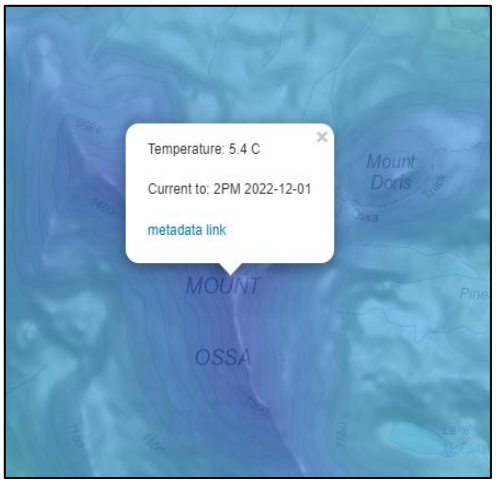
The following diagram provides an overview:

https://sdi.tas-hires-weather.cloud.edu.au/shiny/




**Map query functionality:**

Any map layer can be manually queried within the web map application to reveal weather related information for any site location in Tasmania. To query a site simply zoom into your area of interest and right click with your mouse any location in the web map to initiate a popup window. The window will display information relating to the corresponding map layer currently active in the toggle menu. As an example, the following popup (inset right) display the current air temperature for the top of Mt Ossa when manually queried (via mouse click at 2pm, December 1st, 2022):




**For more information contact:**

Natural Assets Spatial Intelligence Section
171 Westbury Road
PROSPECT TAS 7250
Phone: 03 6165 8851
Email: nasis@nre.tas.gov.au

**Caution and Disclaimer**

*The information and material on https://sdi.tas-hires-weather.cloud.edu.au/shiny/ is based on computer modelling and, as such, there are inherent uncertainties in the results. While every effort has been made to ensure the material is accurate, the Crown in Right of Tasmania ("Crown") provide no warranty, guarantee or representation that the material is accurate, complete, up to date, non-infringing or fit for a particular purpose. Furthermore, the Crown expressly disclaim all and any legal liability and responsibility whatsoever arising from or connected with: (a) the accuracy, reliability, validity, currency or completeness of the material; (b) the consequences of anything done or omitted to be done by any person, either in whole or in part, in reliance of the material. The material does not take into account personal circumstances. The material is made available on the understanding that the Crown are not providing professional advice and that users of this material should undertake site-specific investigations and research and obtain appropriate professional advice relevant to their particular circumstances. These maps consider air temperature and rainfall only and do not take into account other parameters or any legislative, regulatory and/or policy requirements of Federal, State or Local Governments that apply to the land in question and/or which could affect the proposed land use or enterprise.*