

Bob Leighton / On-site Meteorologist /
and Tony Baldwin / Project Manager /
Bureau of Meteorology / Melbourne, Australia

2008 Australian Tennis Open

*An on-site Vaisala
weather station proved
a valuable resource at
Melbourne Park, which
has its own distinct
micro-climate.*



The Australian Open is one of the four Grand Slam tennis tournaments held each year. It is held each January at Melbourne Park. The tournament was held for the first time in 1905 and was contested on grass through until 1987. Since 1988, the tournament has been held on hard courts.

The two main courts used in the tournament are Rod Laver Arena and Hisense Arena and feature retractable roofs, which can be shut in case

of rain or extreme heat. Held in the middle of the Australian summer, the Australian Open is famous for its notoriously hot days. An extreme-heat policy is put into play when temperatures (and humidity) reach dangerous levels.

The Special Services Unit (SSU) of the Australian Bureau of Meteorology was commissioned to provide specific meteorological services for the 2008 Australian Tennis Open for the period 9 -12 and 14 -27 January

2008. The meteorological services included the provision of an on-site meteorologist, dedicated Tennis Australia weather website, and an on-site Vaisala Automatic Weather Station MAWS.

Forecast services

A daily forecast was provided to the tournament referee by 10:00 a.m. each day. On occasions when rain or showers were forecast, a

weather watch was maintained by the onsite meteorologist, mainly through the use of weather radar imagery. As timing is critical in forecasting weather events, imagery was continually monitored during a likely rain or shower event and became crucial in estimating the time of return to fine conditions. The on-site meteorologist's expert knowledge of predicting the speed, direction, duration and intensity of weather events and the use of sophisticated forecasting tools was critical in this respect.

Weather conditions during tournament

The average maximum temperature for the period of the Australian Open at the site at Melbourne Park as measured by the on-site Vaisala Automatic Weather Station was 25.8° C. Average minimum temperature was 16.5° C. During the four days of the Qualifiers (9 to 12 January), the average maximum at Melbourne Park was 32.1° C.

In previous years the Bureau of Meteorology's official Melbourne site at the corner of La Trobe and

Victoria Streets was used as the source of observational data for the Tournament. In 2008, the on-site Vaisala Automatic Weather Station was introduced and temperature differences between the Melbourne Park and Melbourne City sites were evident. On days when a southerly airflow was observed or a sea breeze developed the maximum temperature at Melbourne Park averaged 1.2 degrees Celsius lower than the maximum temperature at the Melbourne City site. On the occasions when the airstream had a northerly component and temperatures were high, the maximum temperature at Melbourne Park averaged 0.8 degrees above the reading at the Melbourne City site. The central business district of Melbourne lies between the Melbourne City site and Melbourne Park and the heat island of the city

could affect the readings at both sites.

Wet Bulb Global Temperature

The wet bulb global temperature (WBGT) is a heat-stress index whose value is dependant on air temperature and humidity. The WBGT formulation was developed in the late 1950s in South Carolina for the US Marines who had to exercise under full-sun conditions. Eventually, WBGT became of value in the sporting world.

The critical WBGT value for the tennis world is 32 and at this value the tournament referee considers postponing ongoing matches. At no time did the WBGT reach 32 at Melbourne Park. On 10 January 2008 when the temperature registered 41.9° C at Melbourne Park, the WBGT reached 30.9.

Automatic Weather Station

The operation of the Vaisala Automatic Weather Station was invaluable in providing up-to-the-minute information regarding the ambient air conditions at Melbourne Park. Data supplied included air temperature, humidity, dew point, WBGT, wind speed and direction. The station was an immediate asset to the on-site meteorologist in nowcasting for the event.

Dedicated Tennis Australia weather website

The dedicated weather website provided to Tennis Australia performed seamlessly over the lead-up and duration of the tournament. Added to the site from 2007 was incorporation of weather observations from Melbourne Park. At the request of the tournament referee, a table of previous day(s) observations was provided. This data was also used by management and medical personnel operating at Melbourne Park.

Key benefits of the on-site weather service

The presence of the on-site meteorologist and the Vaisala Automatic Weather Station, together with the dedicated Tennis Australia weather website contributed to the successful provision of meteorological services to Tennis Australia for the 2008 Australian Tennis Open.

Tennis Australia's organizers had immediate access to a knowledgeable and personable on-site meteorologist, and one-minute weather data from the on-site Automatic Weather Station was immediately accessible. This was particularly useful, as it became clear that Melbourne Park has its own distinct micro-climate.

Further information:
www.vaisala.com/weather/

“The Vaisala Automatic Weather Station was invaluable in providing up-to-the-minute information”