



Monitoring the weather

Reliable weather forecasting is a fundamental part of every greenkeeper's day-to-day operations. The ability to determine with accuracy the expected weather over the coming hours and days has increased greatly in importance due to the growing number of weather-critical tasks being carried out on the golf course.

Fortunately, there is now plenty of help at hand. The launch of a series of earth-orbiting and stationary weather satellites over the past 10 years has removed the need to guess what the weather will be doing the day after tomorrow or having to stick one's finger in the air to determine if rain is on the way. Beaming information continuously to ground stations, these advanced satellites track weather conditions day and night, giving forecasters the ability to provide a clear and instant picture of what is in store for different parts of the country for a week ahead, and sometimes even longer.

This long-range information is freely available to anyone able to watch BBC 1's weather forecast for farmers at noon on Sundays. It is also provided in regularly-updated text format on the BBC's Ceefax service, where maximum and minimum temperatures and weather conditions for five days ahead are given for 12 principal cities around the UK.

Similarly, ITV's Teletext provides a concise 48 hour regional weather forecast and also offers viewers the opportunity to call a premium rate number - Tel: 0981 333123 - at any time to obtain a detailed seven-day forecast for different parts of the country. The cost is 50p per minute.

Most of the weather information broadcast by national and local TV and radio is provided either by the Meteorological Office or another specialist commercial operator such as Oceanroutes.



The Environmental Monitoring Station provides reliable and cost-effective methods for recording meteorological and environment data

In common with Oceanroutes, the Met Office offers customers a detailed regional weather forecast costing 50p/min. Known as MetCALL and MetFAX, the service provides a constantly updated five-day forecast available by phone or fax, the latter also delivering surface pressure charts and satellite images. Further information on the range of services available, together with free index cards, can be obtained by telephoning the Met Office's Helpline - Tel: 01344 854435 or Fax 01344 854018.

Additional Met Office services include MORECS which produces a calculation of soil moisture and evaporation for all parts of the United Kingdom, essential for anyone wishing to gauge their irrigation requirements. Costing from £10 a week, this service includes a record of past and pre-

sent soil moisture status highlighting both averages and extremes.

A personal telephone consultancy is also available from the Met Office, enabling callers to speak directly to a weather forecaster local to their area. Prices will vary according to the level of information required and the frequency of the calls. Further information on the data available and the likely cost can be obtained by calling your local weather centre - the number will be found under Meteorological Office in the phone book.

Visit any number of North American golf courses and it is not unusual to see a computer screen on the Course Superintendent's desk displaying moving satellite images cabled or beamed in from the local weather station.

Although the majority of British

courses are some way from achieving this level of sophistication, it is now possible to access up-to-the-minute weather information using a desktop computer connected to the Internet via a modem and standard telephone line - all for the cost of a local phone call. The Meteorological Office, for example, has its own Web site which can be reached at the following address: <http://www.met-office.gov.uk>.

Having accessed this address, computer users will find an additional charged-for service available to commercial users who require more information than is provided by a free public service. Known as MetWEB, the service presents a host of information including weather records, current weather reports, satellite images, rainfall radar pictures, surface pressure charts and detailed five day forecasts.

Access to MetWEB can be achieved by buying a "book" of tickets by credit card from the Met Office's Web site. £10 buys 20 tickets which allows the user to access various services costing between 50p and £1.50 according to their complexity and the depth of information supplied.

Although not dedicated totally to the weather, Farming On-line's Internet site is also able to provide highly detailed, localised weather data from 96 sites nationwide run by Oceanroutes. Updated twice daily, the service offers both hour by hour, daily and 6 day forecasts. The operators plan to improve accuracy in the near future with the introduction of site-specific information, covering the immediate area of the subscriber.

For an annual fee of £234, Farming On-line gives subscribers worldwide access both to farming information and the Internet, the ability to send Email to other computers and to place classified ads, as well as access to detailed weather forecasts.



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Anyone with an Internet computer connection and an interest in the weather can keep an eye on developments using one of the recognised Internet "search engines" such as Yahoo, Infoseek or Alta Vista. Simply tap in the key word "weather" and you'll be presented with a host of web sites featuring this topic which can then be explored.

There will, of course, be managers, greenkeepers and assistants who have sufficient interest in the subject to undertake their own forecasting using specialist instruments installed in a suitable position on the course.

Dorset-based firm, Sutronics - Tel: 01929 426400 - offers a selection of weather forecasting equipment ranging from a simple desktop digital weather station costing less than £100 up to the WM918 professional weather station at £445.50.

Incorporating a thermometer, hygrometer, barometer, wind speed and wind chill meters, rainfall counter and dew point meter, this collection of instruments is claimed sufficient to provide advance notice of the predicted weather conditions over the coming 12 to 24 hours.

Symbols are presented on the WM918's main digital display panel to provide the weather outlook "at a glance". The unit also has a built-in memory and manual alarm settings to warn of the approach or occurrence of severe

conditions. There is also an optional PC connection enabling weather data to be recorded and stored on a desk-top computer.

Environmental monitoring specialist, ELE International - Tel 01442 218355 - produces a range of professional instruments able to record and display a full range of meteorological and associated data.

Of specific interest to golf clubs will be ELE's standard weather station which has sensors for wind speed, wind direction, air temperature, relative humidity, rainfall and barometric pressure, all linked to a battery-powered four channel data logger which records and displays the information transmitted by the sensors. Complete with support frame and data logger, this unit costs a little under £4,000.

Alternatively, customers can choose to design their own weather station, selecting from a "library" of high quality sensors capable of monitoring wind, air, solar radiation, rainfall, soil, water and gas.

Add-on options include a portable computer for downloading data, a modem and a remote collection device.

All ELE environmental monitoring stations come with computer software designed to guide the user through all of the operations required to operate a monitoring station and the processing of the collected data.

Anyone with an Internet computer connection and an interest in the weather can keep an eye on developments. This is from Farming on-line



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