



# Satellite Weather Information Services

By Mark Kienert

How many times have you sent the crew home on a rainy day only to see the sun come out half an hour later? Have you ever had a play committee delay the start of a shotgun tournament due to a brief rain event? Then, once they decided to "play away," turn around and bring the entire field back in from the course due to heavy rain that made the greens now unputtable?

Have you ever made a decision to spray only to see the product "washed away" by another band of rain that moved in later? Have you ever made an fertilizer application or put down a wetting agent due to a weather prediction of 80% chance of rain only to see it rain a couple of drops or not at all?

How many minutes have you spent in the clubhouse with your eyes glued to the Weather Channel only to see radar update focus on another section of the country, feeling helpless as they go to yet another commercial break? I'll bet that this list could go on and on. To use a weather term, I think you get my drift.

Our jobs depend on the bounty of Mother Nature. With or without her help, we are called on constantly to adequately predict the weather. For many of us, we gain a feel for the weather and can get pretty good at predicting its patterns only after a number of years of being out on the job. Sometimes our decisions are basically nothing better than our best guess, simply "flying by the seat of our pants." The "old trick" knee told me that I should make that wetting agent application or to put down that "non-burning" fertilizer just doesn't cut it anymore. For me, I needed something better. That's what brought me to subscribe to what I personally consider one of the best management tools I have had the privilege of using in the golf course industry.

What I am referring to is the satellite downlink to ground station weather subscription service. This service gives me a twenty-four hour per day, seven day per week instant look at the weather. No phone calls to make. No logging on. No being placed on hold while the long distant phone charges ring up.

It is a huge understatement to suggest that our jobs are so very weather dependant. Weather dictates to us what we can and cannot complete in scheduled golf course maintenance daily. It affects our crews, the billions of living organisms we care over, as well as the customers that we are grooming those plants for.

My search began after I had to make an emergency spray to a number of fairways on the lower end of the course. A quick peek toward the skies revealed the blue heaven I was hoping to see. My observation was also complete with the weather report that suggested that the intermittent rain would end by mid-morning. So I set out to spray

one tankful on the worst areas of the course. My application was made and it was off to church.

While listening to the sermon, I also heard the patter of raindrops striking the roof of the church. Louder and louder it grew until you knew that it was a full blown gully washer. I thought of the money wasted and the impact on my budget. If I could have seen the back lash of the storm's wrap around coming, you can bet I wouldn't have even taken the product off the shelf. That is all it took for me to start looking at all the weather options available to me.

I started looking into the weather systems that the pilots use. These systems are usually located in some distant location like Salt Lake City or in Pennsylvania somewhere. They are easy to use if you have a speedy modem in your PC. Most of these services charge you for a monthly subscription fee based on the number of times you figure on using them. It takes time to log on and to download a weather file. It takes additional time then to unpack it and to view it.

I also looked into a hookup with a local TV station that would provide me with twenty-four hour per day Doppler radar. This service was not cheap, but was still cheaper than the chemical wasted on the course that day.

I wasn't able to attend last year's WTA Winter Turfgrass and Greenspace Exposition, but I did hear about a weather system that might possibly fill the bill. My first hands-on experience came with a demo of the unit in my office. I was impressed, but not sold, yet. I wanted to check out the competition first.

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Advertisements in our trade publications alerted me to yet another company. Both would be demonstrating their products in San Francisco at GCSAA's International Turfgrass Conference and Show. While there, I looked over both systems and chose the one that offered the features that I wanted the most.

The unit resembles a small computer complete with a monitor. The only key pad is on the face of the units CPU. It is simple to use. After a couple of times of using it, you know exactly what buttons to push next without having to rely on any aids. A two-foot diameter dish is positioned on the roof of your shop and is aimed at the southern skies where it picks up the signal from the satellite. Setup is fairly easy, yet will take a couple of hours as you have to drill holes to secure the dish on the roof and route the communication cable.

One of my first "WOW" reactions to this impressive technology came as I was logging on to the service. Your machine has to know what data it is entitled to use in the digital decoding process before it will fill the screen with weather magic. As I was speaking to a service technician on the telephone, she informed me that she would send a page of information. The information she sent changed on the screen right before my eyes as she completed her sentence.

That is impressive when you consider that she sent the information into space and that the data was downloaded, decoded and interpreted into the base station from a satellite 23,500 miles above the face of the Earth. Einstein and nanoseconds, it was just fantastic!

At present there are two companies that are selling their services in this area. As I drive around town I can see other dishes popping up on schools, highway departments, farmers homes and construction companies. I have even seen them at large public events where weather information is needed for public safety.

Some of the features that I use daily are supplied as both pictures and text-based information. The information I use is a twenty-four hour Wisconsin forecast map and a recap map for the past 24 hours for selected cities around the area. If you want to become more specific, you can have zone forecasts for the county that you live in. One to five day forecasts are also given in both text and picture forms.

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A jet stream map alerts you to the track that any potential storm might use and a four day map tells you what kinds of precipitation you can expect in the upcoming days.

Radar maps are snapshots of both the state and of the nation and are updated every fifteen minutes. Both radar maps can be put into motion so you are able to get a feel for the direction that the heaviest precipitation band is heading. This system also provides me with forecast maps that make many of my irrigation decisions easier. How many times have you set up your system before heading home only to return to make changes after having watched the six o'clock news weather report? More than a just a few I'll bet.

There are many forecast maps, but the one that I like the best at this time of year is the low temperature frost zone map. It gives me enough lead time early in the day to alert the starter at the public course to put out the course closed sign the night before. The golf pro also appreciates the lead time so he can mentally brace himself for the onslaught of impatient golfers in the morning. It also gives me the opportunity to decide if the crew should be brought in for a later start time. They always seem to enjoy the extra hour of sleep.

The traditional satellite infrared map gives you an idea if you will see any sun during the day. This always seems to matter most on scheduled aerification dates for some reason. A lightning map, which is not good enough to alert golfers to exit the course, does provide you with a feel for the location of the heaviest storm cells and allows you time to shut down irrigation system components in advance.

One of the text screens that I use constantly for information comes right from the two University of Wisconsin

Agricultural Experimental Stations that my course is sandwiched between, located in Marshfield and Hancock, Wisconsin. Both supply me with information like reference ET, the amount of solar radiation reaching the ground, temperature and dew points, relative humidities (min./max/ave.), soil temperatures at a 2" depth (min./max/ave) and wind speeds. The downside of this information is the fact that it is twenty-four hours old. It does, however, supply you with a week at a glance to determine patterns and to explain some of the frustrating problems that we encountered this past summer. You might ask, "what benefit is it to me to know not only the intensity and amount solar radiation that reaches the ground?" I saw the answer the day after the day many of us call "Black Monday."

This was the day that many of us experienced wet wilt for the first times in our careers. The amount of solar radiation that reached the ground was unusually high for that period. Coupled with a low relative humidity, wind speeds set up conditions that were ripe for wet wilt. The information was also of benefit to me that on the day after our USGA visit when the temperature tied an all time high of 108 degrees, the soil temperatures, as measured in the sandy soils of the Hancock experimentation station, reached 106 degrees and this was at two inch depth! I do not know if these readings are under field conditions of bare soil, but all I know is that the turfgrass root system starts to protect itself by moving toward a state of dormancy when soil temperatures move above 85 degrees.

There is more to this system than this column allows me to talk about, features I'm sure that you could put to good use. Having used my system for nine months, I can't imagine myself being without it. It is as valuable to me in my office as is the trusty jack knife I carry in my back pocket. The system is not cheap, but it is cheaper than a case or two of some of our most popular brands of fungicides. I can tell you that in the first month of using the system, I was able to forecast instantly that the rains were going to be hanging around for a while so I sent the men home. I know that we are not going to have wet springs like the one we had this past year every year. But having the gang hang around for a couple of hours until it became very apparent that projects would not be finished is now a thing of the past. Now that management decision can be reached earlier,...but only after the shop has been thoroughly cleaned! ♣

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