

TALK TURF

Official publication of the Wisconsin Sports Turf Managers Association

VOLUME 17 ISSUE 1 | SPRING 2016

Weather Edition:

Forecasting, dewpoints, and planning for a "chance" of rain

In my years of forecasting, I have found that agriculturally minded people tend to have that similar sixth sense that meteorologists do about the weather.

As turf managers, you are tuned into the weather on a whole other level than most people and you develop an instinctiveness about weather elements specific to your area of work as you do your best to manage weather risk. Getting a deeper understanding behind that instinct can help you do an even better job of assessing the risks, especially when it comes to dealing with forecasts that can't tell you how 100% of the weather details will turn out in reality. As the spring season arrives we wanted to talk a little bit about a couple of items from a weather standpoint in the hopes that it can be helpful for your planning as you manage your turf

this year so we will briefly cover two topics in this article. Relative Humidity and the relationship to Dewpoint and how to translate "chances" for rain/storms in the forecast.

DEWPOINTS, RELATIVE HUMIDITY AND FORECASTING FOG

By definition the dewpoint temperature is the temperature at which saturation will occur and dew will form at that level. In our case we'll focus on the "surface" dewpoint but, understand that meteorologists look at dewpoint changes throughout the entire height of the atmosphere in order to come up with forecasts as well. Relative humidity is a fractional relationship between the partial pressure of water vapor to the equilibrium vapor pressure of water at the same temperature. You might say it as the observed water vapor pressure at that temperature divided by the maximum water vapor possible for that temperature.

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**Wisconsin
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PRESIDENT'S MESSAGE



As the days grow longer and the snow slowly disappears into the soil below, we welcome the sweet smell of spring in the air. Another season is on the horizon and as turf managers, we get to showcase our skills once again! As we wrap up our "off-season" many of you will get the opportunity to implement new techniques or try new equipment and products acquired this off season.

The annual STMA National Conference held in San Diego in January, demonstrated cutting edge research, implementation of new techniques and the development of products that will benefit turf managers at every level of the game.

The WSTMA board wanted to build off that so we provided a Winter Conference that focused on communication. Many of you have heard this word mentioned when referring to work environments, both in a positive and negative capacity. As I listened to the different speakers on February 17, the overpowering message was that frequent, consistent and efficient communication, whether it be good or bad, made those companies successful. This in turn allowed for growth and advancement of their playing surfaces!

I encourage all of you to look at the communication lines with your staff and how it impacts your daily management and therefore the quality of the surfaces you oversee. Your current strategy/methods may be preventing you from growing your staff or acquiring new equipment. The potential of your turf lies greatly in your hands!

I am happy to serve as your President again in 2016 and hope that the WSTMA board continues to aid in the growth of turf managers in an industry that experiences constant scrutiny and high expectations from all those involved. Good luck to you to all this upcoming season!

Sincerely,

Michael Boettcher



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CHAPTER MANAGER'S REPORT

What a pleasant surprise the milder winter weather we experienced in 2015-16. After several colder than average winters our recent milder weather was welcomed by many. I enjoy all of our Wisconsin seasons but having a shorter and warmer winter is certainly easier on our beloved turfgrass and fields as well. y all accounts we should be off to a great start on this year's growing season. Warmer days and the stronger spring sun have melted all or most of our snow pack so the baseball, softball, soccer and other sports teams will soon be at the gates of your sports fields ready to play.

The day to day operations of YOUR STMA are running fairly smoothly. The board of directors once again put on a fine Winter Conference in Appleton. Good travel weather and a great line up speakers, vendor displays made for an enjoyable day for the attendees. I am happy to report that attendance was again strong with over 75 people enjoying the great day. The majority of you have been able to renew your 2016 membership either by returning the hard copy form or renewing online. The membership is

now approaching 140. This number is reaching the high point prior to the recession. I really hope that the membership continues to grow and with good leadership at the board level and the continued support of the vendor membership the future looks very bright for the WSTMA in 2016.

I hope that the momentum continues as the board is finalizing plans for our summer and fall meetings. Be on the lookout for more information as the dates, locations, and topics are completed. In the meantime please have a great start to the season and make sure to keep asking your peers to join us. If you need assistance in recruiting a member please let me know I am always happy to assist!

Also follow us on Twitter (@WisconsinSTMA) and Like Us on Facebook (Wisconsin Sports Turf Managers Association).

Thanks for being a valued member of the WSTMA!

Brett Grams



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WSTMA Fall Event
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Details to follow

WSTMA WINTER HIGHLIGHTS CO

By Jake Hannes

The WSTMA and the Wisconsin Timber Rattlers hosted the 2016 winter conference on Wednesday February 17. This is the third year in a row the winter conference was held at Fox Cities Stadium. We had a great turnout with 16 vendors and 85 attendees!

The conference theme was COMMUNICATION. We know this is vital to our daily operations. The day started off with Josh Viet (Midwest Athletic Fields) and myself, Jake Hannes (Head Groundskeeper, Wisconsin Timber Rattlers) speaking about the use of communication before and during a field renovation. Before the renovation there were some major obstacles to get through. Some of which included getting the approval from the Timber Rattlers & Sports Authority board (who financed the renovation), setting a budget, getting it approved, and working around two weddings and a kids 5k run.

Once the renovation started, Josh and I were in daily communication to make sure we were on the right track. We also had detailed conversations with the companies involved to make sure projects were getting done right and on time. I would like to thank all that helped with the renovation especially my staff Drew Eastman and Aaron Pingel as well as Midwest Athletic Fields!

Second we had an interesting panel discussion about communication between Athletic Directors (AD) and turf managers with Ryan McGinnis - Kimberly AD, Mark Zahn - Seymour AD, Jim Langkamp - Baraboo AD. This reinforced how important communication is even at the K-12 level. Some interesting questions were asked about how AD's look at athletic fields. They view the playing fields the same way grounds managers do, which makes safety the number one priority and everything else second.

They also shared their thought process in regards to choosing artificial for their playing fields. This is becoming a very popular decision among school districts particularly because a lot of schools have issues scheduling sporting events on a limited schedule and budget leaving few fields to go around.

Our last presenter of the day was Chris Zugel, Golf Course Superintendent at Whistling Straights. He spoke about the PGA Championship they hosted this past year. Chris had a fascinating take on communication. A major event like that takes months of planning, preparation, and communication with staff and the PGA.



Left to right: Timber Rattlers Groundskeeper Jake Hannes and Midwest Athletic Fields Partner and Field Consultant Josh Viet

He provided great details on how they kept everyone on the same page, even how he kept his staff motivated with food! We usually do not see the golf course side of the turf family, but there are a lot of similarities with Sports Turf.

It was another great conference. The presentations and discussions had some very valuable information for us. These conferences are a great learning tool for grounds managers from schools and parks to grounds managers at Miller Park and Lambeau Field. I would like to thank our vendors for contributing to this event and the WSTMA. We greatly appreciate the support from all of you!

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Whistling Straights Golf Course
Superintendent Chris Zugel



Left to right: Baraboo Athletic Director Jim Langkamp, Seymour Athletic Director Mark Zahn, Kimberly Athletic Director Ryan McGinnis and Milwaukee Brewers Grounds Director and WSTMA Board President Michael Boettcher




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In short, the closer the dewpoint temperature is to the actual air temperature, the higher the relative humidity.

When it comes to the formation of dew, we need to have more water vapor than the air can hold so that it condenses into the air and onto the ground surfaces and one of the best ways to do that is to cool the atmosphere. This is why most of the dew forms at night and in the early morning hours when the air temperatures are at their coldest. During the day an air mass may exist with dewpoints around 65 degrees while air temperatures are at 85 giving us a relative humidity of 51%, no dew can form with this level of separation. As the temperatures cool to around 75 during the evening hours the humidity rises to 71% (closer to saturation) and by the time the temperatures cool to 65, we are at 100% and dew has already begun to form. As the air temperatures turn cooler the atmosphere is not capable of holding as much water vapor and if nothing changes and the temperatures continue to fall, dew will form as the temperature reaches the dewpoint and Relative Humidity reaches 100%.

This is true for all times throughout the year, winter, summer, spring and fall. You will get dew (or frost) when the dewpoint and the actual temperature converge regardless of the time of year. Relative humidity is a

great weather variable for people pay close attention to in agriculture since the potential for dew formation has ramifications for field work. The dewpoint is better for meteorologists because it is a better measure of the actual moisture available to systems that cause clouds and rain as well as human comfort. In the winter time, relative humidity in the house that is less than 50% in WI makes it feel very dry and can lead to respiratory problems. Relative humidity in the summer time of 50% can still feel very uncomfortable and too humid when temperatures are at 90 and dewpoints are in the upper 60s.

One more thing for you to consider with respect to dew formation and relative humidity is that wind, type of airmass and cloud cover all play major roles in the potential for dew to form. As we mentioned before, temperatures need to be able to cool to the dewpoint level or the dewpoints must increase toward the actual temperature. For cooling temperatures down, it works best when we have light winds and clear skies in the evening through the overnight hours. This will give us the best potential for temperatures to cool efficiently to the actual dewpoint allowing dew to form. When there are clouds, it cuts down on the earth's ability to release heat into space.

Clouds generally trap heat in and prevent the temperatures

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from falling and will therefore prevent dew from forming. Winds also have the effect of bringing drier air from higher elevations down to the ground level, which also has the impact of preventing surface temperatures from cooling off as far and, as a result, preventing dew from forming. Lastly, the quality of the airmass is an important indicator as well since dry airmasses have less moisture and lower dewpoints, while moist airmasses have more moisture and higher dewpoints, increasing the potential for dew to form.

A basic take away for you is that it's important to note the dewpoint temperature and the predicted dewpoint values overnight to understand what your risk is of higher relative humidity and the potential for dew. The next thing to note will be the cloud and wind conditions expected overnight as the clearer skies and lighter the winds offer greater potential you will have for dew and frost.

PROBABILITY OF PRECIPITATION

HOW TO MAKE SENSE OF PERCENTAGE BASED RAIN CHANCES

Probability of precipitation is called "POPS" in meteorology circles and there are generally two ways to talk about precipitation chances for the average person. Media outlets often will use words to try and help people understand the potential for rainfall, while the National Weather Service and many online forecasting websites like to use percentage possibilities of rainfall for a location. In order to get the best understanding of the forecast, it is important for you to consider who the forecast is for. One



of the greatest sources of frustration for individuals and people tending small geographic plots of land is that they don't understand how to make sense of the verbiage of the precipitation forecast while meteorologists often fail to remember who they are talking to within the limited time they have to talk about the weather.

So here are two ways for you to consider PERCENTAGE based precipitation forecasts. The first question to ask is whether the forecast is a "point" forecast or if it is an "area" forecast. Point forecasts are honestly something of a myth made by the marketing gurus of broadcasting. The truth of the matter is we can't really forecast rain down to the street level 2 days out, the scale is just too small and the error



percentages too great for this to be consistently accurate and meaningful. However, it is important for you to understand what the risk is for your exact location, whether it's a softball field, a plot of soybeans or an outdoor picnic at a park.

The best way to understand a percentage based precipitation forecast from a very small point is to consider this idea. "If we had the same weather 10 days in a row, we would receive rain AT MY LOCATION X number of days". So if we forecasted a 30% chance for rain today, the best way to make that personal is to consider it this way. "If we had the same weather 10 days in a row, we would see rain at our location 3 of those days." It gives you a better sense of what is possible locally within this atmospheric environment.

We also use percentages to talk about the forecast from an areal forecast, but it is important to understand the "coverage area" that a meteorologist or forecast is referring to. Often times we think about the idea of 40% chance of rain meaning that 40% of the viewing/listening area will see some kind of precipitation, while the other 60% of the area will not. While this is another good way to communicate the weather forecast, there is often a problem with understanding the coverage area. If you don't understand the location the forecast is talking about, they will tend to lead to assumption, confusion and ultimately frustration.

AREA forecasts are really what most meteorologists have to make due to the reality of scales, lack of observational data and model error. Because broadcasting has such an extensive reach it's important for you to understand that the meteorologist is responsible for communicating weather information to a wide range of people in the viewing/listening area that must be reasonably accurate for all people. And they have to do it in 30 seconds to 3 minutes, not a lot of time to give you true LOCAL information. While percentages are used in broadcasting, more times than not words are used to help convey the potential for the area. Words like "isolated," "scattered," "widespread," and "a few," are used to talk about the coverage of the precipitation chances. We then use words like "sprinkles," "showers," "rain," and "thunderstorms," to convey rainfall type and intensity. Lastly words like "light," "heavy," and "moderate," really hit on the amount of rain.

The biggest challenge for meteorologists is communicating effectively to a wide variety of users at the same time. That's why forecast services add value to people and industries impacted by weather because they speak directly to a specific audience about very defined parameters. If you are a numbers kind of person, percentage based forecasting is helpful if you think about the 10 day concept for the local area. I have found it's the best way to understand

percentage based forecasting at the local level. If you are more of a picture/words person, pay close attention to the quality of the words that a meteorologist uses to tell the story of the forecast. You will get more out of it if you understand the coverage area and the meaning of those words.

Mike Westendorf is the Director of Operations for Innovative Weather at the University of Wisconsin Milwaukee. A paid internship program for students in the meteorology program of UWM that provides customized forecasting for partners of the program. If you would like to learn more visit www.innovativeweather.com.

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SAY HELLO...

We're highlighting WSTMA Board Member Scott Johnson, Director of Buildings and Grounds at West Salem School District

What first got your interest in turf management?

I first got involved when I started working at the West Salem School District as a maintenance tech. We take care of all our athletic fields and lawns. From there, we have tried to make our complex more presentable. In 2007, we designed a logo on our football field that looks like the logo on our helmet. We made our own template and have used it ever since. For special events like military appreciation, we have made a stars and stripes logo at mid field.

What is the biggest challenge in maintaining West Salem Schools?

Budget. First and foremost is money. I have an overall budget for the entire buildings and grounds complex. I manage about \$80 million dollars in buildings and grounds property overall. We have three buildings with an Elementary, Middle and High School, so I have to prioritize how I spend the money allotted.

What do you like best about your job?

What I like best about my job is that I have an opportunity to serve the students, staff and community members of our district. With my Field Management hat, I get to enjoy the enthusiasm of the kids when we do something special with the fields.

What has been the most memorable moment of our career?

Back a couple of years ago, we were prepping the Varsity football field for a game. This night, one of our seniors was doing her senior exit project. This senior was honoring our military vets and we decided to do something special for her on the field. Instead of the traditional panther logo at midfield, we designed a star with a flag inside of it. We painted the logo and when she saw what we had done right before the game, her expression was priceless!

What do you wish other people knew about the turf industry?

I think the biggest wish I have, would be those to understand the science and hard work put into a field. Whether it is a baseball, softball, soccer or football field, there is a ton of work done that most take for granted especially at a school district where the budget is very tight.

Who has been your biggest influences/ mentors?

Dave Minner from Iowa State University. Back in 2009 or 2010, we had a horrible experience with Japanese beetle larva. We had an infestation of the beetle that summer in our community and found out how destructive they can be. We had probably the best looking football



and soccer fields here at WS to date. It was a dry and warm summer but our practices kept our game fields in prime condition. The night of our football scrimmage, we played a game on our game field and the sod came up in large chunks. By the end of the scrimmage, the field went from a nice green patch of grass to a brown destroyed field. It looked as if we had just thatched the entire field after a dry, unirrigated summer. Dave came up and investigated this issue. He found that the larva had destroyed the entire root system to the field. Since the lawns and fields surrounding our school had gone dormant and dry, our irrigated field was a prime spot. Dave spent time helping us draw up a game plan to fix this and also included us in a story in the national sport turf magazine.

When you are not working, what do you like to do?

I have many interests in my life. I coach varsity football here at West Salem. I also coach middle school track and have recently coached an Odyssey of the Mind team. I am also on the local fire department as a certified fire fighter and certified fire inspector. I am married and have two daughters and one step-daughter. All three girls have a number of their own interests so we spend a lot of time following them with their sports, arts and entertainment activities.

My family is also very active in the local Relay for Life of West Salem. My wife and I are on the leadership committee.

If you were not in the turf industry, what would you want to do?

Work with an NFL team. I love football. I love coaching high school football players and would like to be a part of an NFL franchise.



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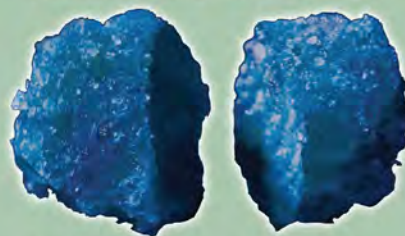
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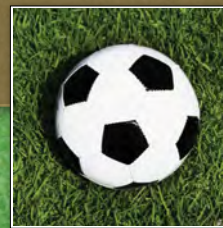


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