◀ **PARTICIPANTS** take the STMA's Student Challenge during Conference. Anecdotal evidence shows most 2013 graduates are finding jobs in the turf industry.

2013 job market for turf program graduates

Editor's note: *We asked those in charge of undergraduate turfgrass management programs at universities across the country for reports on whether their students had secured jobs in the industry. Here are the responses we received*:

DELAWARE VALLEY COLLEGE (PA)

Dr. Doug Linde reports: "The only senior that I have that is interested in sports fields is graduating in December 2013 because he took a full semester off to intern with the Philadelphia Eagles (something that is not too common but a great idea if it doesn't lead to any serious issues with finishing the degree in a reasonable time). All of these students have worked on multiple golf courses over three or four summers, which is the main reason they had no trouble landing a full time job after graduation. In fact, I had to advise a few of these students to work less so that they could take full advantage of their opportunity to get a degree.

"Since Del Val is located so close to many golf courses, it's common for students to hold a part-time job during the semester. I usually recommend they not work during the semester since they essentially have a full-time job in going to college. Many have also worked or volunteered at pro tournaments.

"Here are the May 2013 Del Val College turf management bachelor of science degree graduates, 100% of whom had jobs secured by January 2013 for starting work in May; (Kelly, Ridington, and Taylor are on our NCAA D III golf team that I coach. In fact, this year eight of the 10 players on the team are also my advisees since they are studying turf management.):"

- James Bryson, assistant-in-training, Merion GC
- Kevin Keezer, assistant supt., Bear Trap Dunes GC, MD
- Tim Kelly, assistant supt., Manasquan CC, NJ
- Jesse Ridington, graduate intern, Saucon Valley CC
- Kevin Taylor, graduate intern, Oak Hill CC, NY

OKLAHOMA STATE

Dr. Greg Bell reports: "We only have one student graduating this spring and I believe that he already has a position waiting for him. In the 15 years that I have been the turfgrass teaching professor here at Oklahoma State we have graduated 132 turf management students and all of those students who were actively pursing a turfgrass position during their last semester have had a position or an offer of a position waiting for them when they graduated.

RUTGERS UNIVERSITY

Dr. Bruce Clarke reported that Yuanshuo (Henry) Qu, a turf undergraduate student within the Department of Plant Biology and Pathology, received the "Plant Science Excellence Award" for 2013. This award is given to the undergraduate student in Plant Science with the highest GPA. Henry's GPA is 3.8.

Five Rutgers students will graduate in May or next fall. Erik Taylor, Jay Ewan starting an assistants position at Merion golf club in Philly after graduation), Tyler Astor, Henry Qu will be working the summer at Plainfield CC in NJ as an intern), and Kevin Rundstrom working at Hidden Creek golf club, near Atlantic City, as an assistant.

KIRKWOOD COMMUNITY COLLEGE (IA)

Troy McQuillen, turf instructor, reports: "Here are some statistics from my graduating class. I currently have 45 full-time students enrolled in the 2-year Golf Course and Athletic Turfgrass Management Program. These students will complete a total of 68 credit hours earning them an A.A.S degree (Associates of Applied Science)."

These students will be returning back for a 2nd year: Eight 1st year students pursuing both golf and sports turf local internships; 12 1st year students pursuing both golf and sports turf out-of-state internships; and four 1st year students taking full-time summer classes and will pursue an internship later.

Of the students receiving degrees, nine

have secured full-time employment; three are transferring to 4-year institutions; and six will be working seasonally or taking a second internship to gain experience.

And then there are 3-4 students who are still confused about what they want to do with their lives.

"When I meet with students about their careers there are so many factors that influence their future after graduation. Many of the students attend our college because most of them like to stay local. There are limited full-time job opportunities in Iowa and even more limited when students stay in Eastern Iowa. The good news is that graduated students that want to stay in our area are willing to be patient for the full-time jobs to open.

"Our students have had a lot of success with out-of-state job opportunities. Most of them develop a relationship during their internship and then are welcomed back for a 2nd internship or full-time employment.

"Students that are employed full-time are taking assistant, 2nd assistant or assistant in training positions. Most students feel prepared for the job, but would like additional assistant level training before jumping into a head position."

MT. SAN ANTONIO COLLEGE (CA)

Brian Scott, professor of horticulture, reports on his students' accomplishments, 2012-13:

Fleur Nooyen:

• Street Tree Seminar, Inc. Scholarship Award recipient, December 2012.

• MSAC Faculty Association Career Technical Education Scholarship recipient, Mt. San Antonio College, June 2012.

• Don Angelbeck Scholarship Award, Agricultural Sciences Department, Mt. San Antonio College, June 2012.

• 2012 Outstanding Academic Achievement Award, Agricultural Sciences Department, Mt. San Antonio College, June 2012.

• Sports Turf Managers Association Student Challenge bronze medal winner, Long Beach, January 2012.

Fleur has had many of her landscape design and installation projects receive awards and honors by a number of prestigious organizations.

Kevin Marsh was recently named an assistant superintendent at Arrowhead Country Club in San Bernardino, CA. He has shown an extremely high aptitude for turfgrass management. He is also one of those young men who are always willing to help out whenever there is a need. His future will be extremely bright in the golf industry, until he wises up and has even a brighter career in sports turf!

Kay Hoevel:

• Was recognized by the Mt. SAC Ag Sciences Department as the 2012 Outstanding Student in Irrigation and Landscape Construction

• Received Certificates of Achievement in Sports Turf Management and Landscape and Park Management.

• Was hired as a consultant for a local Lawn Bowling association

Kay's world was literally revolutionized by becoming a member of the Mt. SAC Turf Team over the past 2 years. She has seen a part

Continued on page 20

BOOSTING YOUR CAREER:

strategies for success and significance in your work life

ACCORDING TO DR. TOM DENHAM, one of the pioneers on career stages, those in the workforce will usually move through five career stages, somewhat framed by age:

Growth - ages four to 13, when individuals first become aware of the future;

Exploration - ages mid-teens to mid-twenties, when various occupational options are explored though school, leisure, part-time work and volunteering;

Establishment - ages mid-twenties to mid-forties, typically a suitable field is selected and efforts are made to secure a long-term place in the chosen career;

Maintenance - ages mid-forties to mid-sixties, characterized by constancy, either by "holding on," which is stagnating or plateauing, or by "keeping up," which is updating or enriching; and

Disengagement - mid-sixties, typically marked by moving from formal employment to finding new roles with a view to retirement. However, Baby Boomers are changing this to a stage more appropriately named "Re-invent-ment." They are completely redesigning the idea of "retirement," preferring to work in some form while pursuing new or renewed outside interests.

What is critical to successful employment at any stage is career development, i.e., constantly improving yourself to add value in the workplace.

WHAT IS EMPLOYMENT SUCCESS?

During a gathering of sports turf managers at a women's forum held in conjunction with the Sports Turf Managers Association Annual Conference, the concept of employment success was discussed. Interestingly, the items high on the list were not about monetary compensation. Job satisfaction, making a difference and respect for the job that sports turf managers do were at the top. Also discussed were the ways to achieve success. These included having a passion for the work, doing a great job, and continually improving oneself. Also making the list were communicating well, projecting confidence in your leadership abilities, and asking for help.

At this year's Golf Industry Show, golf course superintendents shared some strategies that helped them to achieve career success; many are similar to and build on those discussed at the women's forum. These strategies have been redirected to sports field management, but can be applied to virtually any industry because they focus on self development.

TOP 10 TIPS TO CAREER SUCCESS

1) Volunteer. Become involved in your local chapter, community and national association. Taking on leadership roles in these organizations gives you visibility and positions you as someone who can be counted on to follow through. Volunteering adds another dimension to your work experience and can provide professional recognition, a clearer view of the industry, networking contacts, and speaking experience.

2) Continue with your Education. Be proactive in continuing your education and promote it. You must stay current in a broad range of disciplines including agronomics, business management, communication, financial management, environmental regulations, etc. View non-technical continuing education as equally important to the technical areas of your job. Make certain that your employer knows that you value professional development. Learning and knowing how to learn is the most important skill needed by employers according to a study conducted jointly by the US Department of Labor and the American Society for Training and Development.

3) Over-communicate. Continually communicate with your employer, your staff, facility management team, users of your fields, and fans. Communicating helps to build trust and confidence. Clear and continuous communicate ensures that expectations are verbalized, progress is discussed, and challenges are addressed.

4) Ask Questions. Asking questions lets your employer know that you are interested in learning "why." The more you know, the more you can add value and be valued.

5) Develop good relationships within your own organization. Being known as a responsive leader outside of your department adds to your credibility and possible mobility to the next step up your career ladder. Employers who have smart, solution-oriented employees are more apt to promote from within rather than hiring new talent.

6) Put yourself in the role. Determine what you want to do, where you want to be, and become that person. If you are in an assistant's role, ask to take on new projects and challenges that are typically the responsibility of the head position, so that you acquire skills beyond what is needed for your current position.

7) It's who you know. Vendors, architects, builders, coaches, colleagues…this is the network that can help to alert you to new job opportunities. Be sure to cultivate these relationships. One-half or more of all jobs come through informal channels—connections to friends, families, and colleagues—according to "Limited Network Connections and the Distribution of Wages," by Kenneth J. Arrow of Stanford University and Ron Borzekowski of the Federal Reserve Board. Networking is the only way to tap into "unpublished" jobs. When it is time to move from an assistant to a head position, your supervisor can be your greatest advocate. Although your employer is sorry to lose you, he/she takes great pride in helping you move to your next career stage. After all, your employer invested in you.

8) Your facility is your résumé. The work that you do in preparing your fields for play is visible to athletes, coaches, fans and potential employers. When ready to move to another position consider creating a pictorial résumé that showcases the projects that you have accomplished with links to your own web page where you have posted career highlights.

9) Remember who is hiring you. As you move up to a head position or change employers, remember that the person hiring you is most likely someone who is not intimately familiar with your job. Write your résumé to focus on solutions and achievements, and be prepared in your interview to talk comfortably about what you do.

10) Be a professional in everything that you do and say. Your image is constantly being changed, reshaped and reformed based on many things including the way you communicate, dress, manage your staff and do your job. Being aware of how you are perceived by others can help you shape their perceptions of you. Be sure to maintain high ethical standards. It takes just the hint of impropriety to derail a career that you have spent years building. ■

This article was supplied by the headquarters staff of the Sports Turf Managers Association, Lawrence, KS, www.stma.org.

What green building practices work best?

A look at the City of Bowie's P & R LEED silver certified maintenance facility

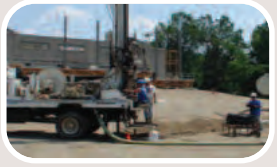
THE CITY OF BOWIE PARKS and Grounds Maintenance facility was dedicated in the spring of 2008. It was the Maryland city's first Leadership in Energy & Environmental Design (LEED) Silver certified building. The facility consists of two approximately 8,000 square foot buildings built on 2.5 acres. The main building consists of administration and equipment repair. The second building is used for vehicles, equipment, and hard-goods storage. The facility is a demonstration project for "Green Building Design" and cost $2.4 million to build; a portion of the funding was secured through grants from the Maryland Energy Administration and the Department of Natural Resources.

The facility supports a Parks Division that is responsible for maintaining more than 1,100 acres of parkland, eight playgrounds, 10 ball field complexes that consist of 65 fields, one skate park, and one dog park. The park staff consists of 39 full-time employees and a FY13 operating budget of $2.9 million.

The LEED facility has 35 green building practices incorporated into its design from ground source heating to green roofs planted with perennials (sedum cultivars). After 5 years, the facility has performed remarkably well considering many of these practices were new in the building trades at the time and untested in our region.

A few of the unique green components are straw-bale construction used as an insulator, and the rainwater collection system that is heated by solar panels that we use to wash equipment. The original purpose and design for these buildings were to provide for a safe, secure and efficient work facility and adding the green building techniques has not only saved valuable resources over

City of Bowie Parks and Grounds Facility - Bowie's First Green Building - Located at 3106 Mitchellville Road



▲ Heating and air conditioning are provided by a ground source heat pump system. A treated water solution circulates through a series of 21 underground wells under the back parking lot. The liquid is heated or cooled as it circulates through the wells by the constant temperatures of the ground to provide heat or air conditioning to the building.

▼ Since the liquid moves through the wells at a constant temperature of about 50 degrees, the heat pump has to do less work than a traditional heat pump which uses outside air. Because it's beginning at a temperature of 50 degrees, it requires less energy to maintain a comfortable room temperature.

▶ Sections of the roof have green plants growing on them. These "living" roofs will provide natural insulation, increase the amount of "landscaping" on the property and will retain rainwater to keep them healthy.

▶ Materials were reused on the project wherever possible. Here existing asphalt, removed from one location on site, was ground up and used as fill material in another location on the site.

▼ Natural light from windows and skylights illuminates rooms and hallways and cuts down on electricity costs.

the last five years but has had a very positive effect on how our division performs its daily work assignments.

It is not an easy comparison to gauge what the overall savings of a building with green components compared to traditional construction as the facility we came from was considerably smaller, although the utilities are significantly less for a facility of this size. The buildings are a demonstration project, and we give tours to any interested party. One of the questions that is usually asked is, "What green practices work the best?" We have found that the ground source heating system, the photovoltaic panels, sun tunnels and the rainwater reuse system work the best.

In the past 5 years, this facility has experienced two blizzards, a hurricane, two tropical storms, a derecho (a widespread, long-lived, straight-line windstorm that is associated with a fast-moving band of severe thunderstorms), an earthquake, and a direct lightning strike to the building. The Parks and Grounds Maintenance Facility provides our division with a first-rate platform to work from under normal conditions and in times of emergencies that should last many years to come. ■

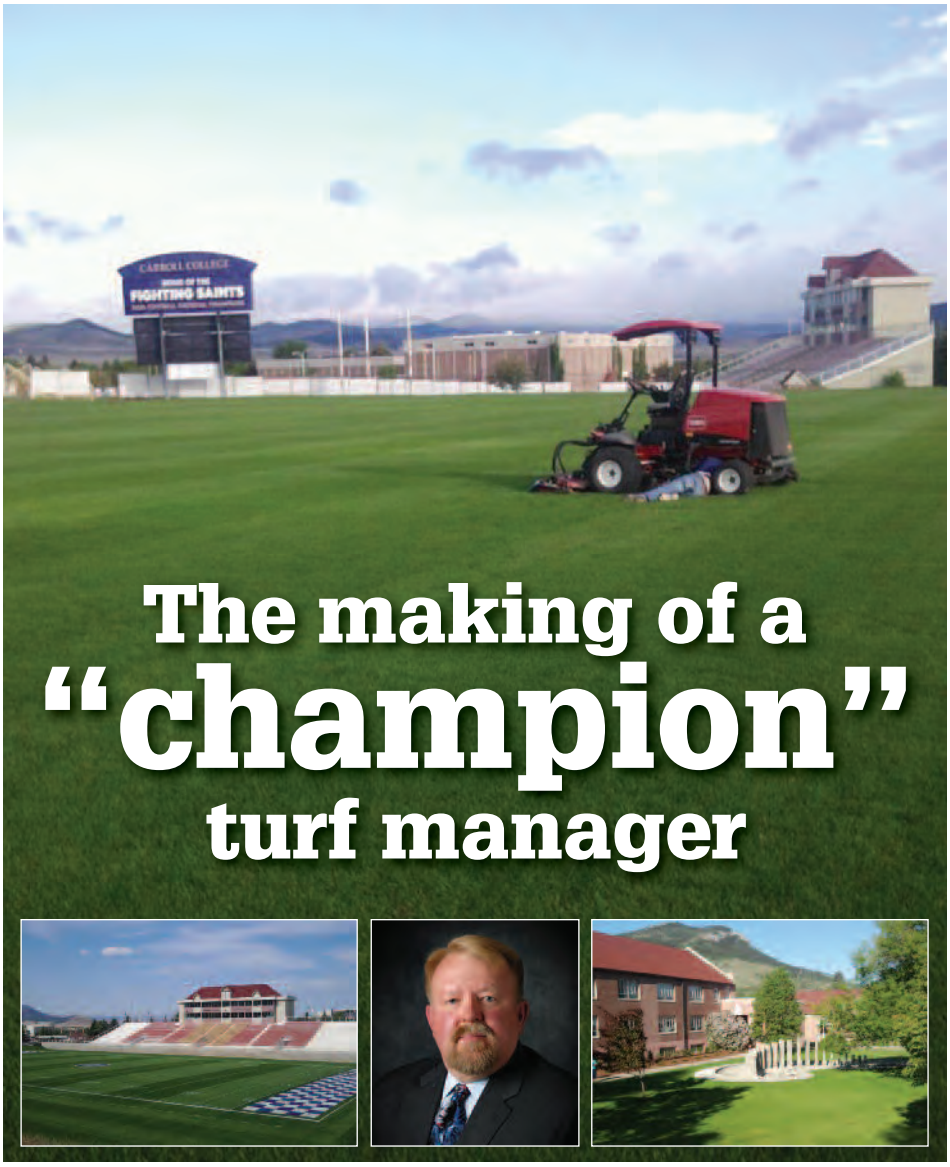
Ed Hall is parks supervisor for the City of Bowie, MD Parks and Recreation Department.

◀ A bio-retention pond is constructed on site to capture water runoff and naturally filter it before it is released into the ground.

▼ Solar heated hot water panels on the roof of the vehicle storage building use the energy of the sun to heat water used for washing vehicles and equipment. Water comes from rainwater collected on site.

▼ Photovoltaic (PV) panels produce electricity and constantly pump it back into the grid, reducing the amount of power that must be purchased.

▶ Two of the walls here (one on the side and one on the back of the structure)are constructed out of bales of straw, covered in plaster. The highly compressed straw is fireproof and provides an outstanding level of insulation, using a renewable material.



The making of a "champion" turf manager

WHAT DOES IT MEAN for an organization to recognize people with honors and awards? How does one get noticed or worthy of such attention? I look at the honors and awards I have received and ask a similar question. What did I do to deserve such attention and be recognized as among the best in the industry? I don't see myself as any more special than another person just as deserving.

When I take the time to look at my colleagues who have been recognized and honored I realize there is often a story to share. All stories are varied but it may be a story of humbleness, personal struggle, possibly even the story of a champion. Likely, several factors are involved. Usually it is a story of someone that stands out by not standing alone. Champions aren't ahead of others because of personal achievements. It is others that help them become champions, much like an athletic team.

People that help champions might be an association you belong to, a community, a church, a family, a college or university, business, a place of employment. People are there to help nurture and encourage those willing to make the commitment. These champions are noticed by organizations and associations as leaders whom their members can appreciate and strive to be more like.

Being a champion is nothing about being better than the next person, nor even necessarily the best or most knowledgeable person in the industry. A champion is compassionate not only about one's self in what they do in life, family, community, and career but also compassionate about others and their lives. Such a person likely would have strong values, see and appreciate education and training, and have a good sense of humor. Champions may be certified in the many programs seen in organizations but not necessarily; certification programs are a good idea regardless. Champions may or may not have a post-high school degree. They often believe helping others will improve the industry for everyone. Champions are looked to as mentors and often serve as mentors to people in the industry of all ages. I see champions in the numerous associations in which I am involved. Many of you are champions and good leaders.

MY STORY

I wasn't an exceptional student. I had average grades but did well in things that I had developed an interest or passion for. I had to learn as I went along in life and career; today I continue to learn. I had my personal struggles like many others. I do have a challenge that has been part of me all my life, severe bilateral hearing loss, but I don't see that making me different or more obligated than others. The hearing loss challenges me in ordinary conditions and much more in abnormal situations but the disability has never dampened my desire to learn or help others in the green industry profession.

I am from in a small town in northwest Minnesota called Crookston and stayed close to my roots in attending the University of Minnesota-Crookston. After 2 years, I received my associate degree in landscape, turf, and grounds. I followed my dream and moved my family to the Big Sky Country of Montana. I attended Montana State University in Bozeman, earning my bachelor's degree in landscape management. Before I moved to Bozeman, I was hired sight unseen by the grounds crew supervisor. It was my first opportunity to work for a large grounds keeping operation. I worked there for several years; eventually I was employed full time working all aspects of grounds operations.

Upon approaching my graduation date, I seriously considered a master's degree. I had a professor actively pursuing me and want-

ing to sponsor. I went through the testing process for graduate school. But I decided not to go, a decision that has stayed with me for a lifetime. I also decided should I become successful in my chosen career path, I would eventually participate in an association and give back to the industry.

I worked various positions over the years: university grounds technician, park supervisor, golf course superintendent, landscape and nursery foreman, municipal arborist, and grounds manager. Fifteen years after I graduated from Montana State, I sought to fulfill the commitment I made to serve. I was elected on a board of directors for the Association of Montana Turf, Ornamental, and Pest Professionals (AMTOPP). I have served on the board ever since, including two stints as president. I didn't stop there. I serve on an advisory board for the state forester on an association called Montana Urban and Community Forestry Association, including a 2-year term as chair. This group assists with urban and community forestry issues in Montana.

I am involved with both organizations because I believe in the members and what we stand for. I have learned what it takes to serve an association membership; to work with a board of individuals, all with different interests, desires, and ideas. In this capacity, I worked on education, state and federal legislation in industry matters, networking with other organizations, budgets, community volunteer efforts, industry promotion, committees, speaking engagements, writing articles, anywhere where I am needed.

Five times during the 2000's, I went to Washington, DC on behalf of AMTOPP to participate in Professional Landcare Network (PLANET) Legislative Day on the Hill and volunteer at "Renewal and Remembrance" on the grounds of Arlington National Cemetery. A few years ago, a good friend of mine, Dr. Robert Gough, associate dean of the College of Agriculture at Montana State, asked me to be a committee member on the College of Agriculture Academic Advisory Committee to discuss ways to enhance the agriculture industry which includes horticulture and the green industry. I am in my fourth year on this committee. Dr. Bob, as he was affectionately known, passed away of cancer not too long ago. Being in a leadership capacity drives one to do better and be a better example of our industry, as he was. Compassion for my work in the green industry has carried over to me in my employment.

DEDICATION TO THE JOB

In the late 90's, I was hired to be a grounds manager for Carroll College in Helena, MT. The college didn't have a full time grounds manager or a crew to work on grounds. Facilities personnel worked on the grounds with other duties besides grounds work. A nursery and landscape company served as a consultant for grounds operations. Student employees were frequently used with minimal direction and experience on day-to-day operations.

I basically started the operations from scratch. My budget was small with no money to purchase equipment. I had a utility vehicle, a multi-purpose mowing unit, a Jeep with a plow, and a sanding truck. The college was undergoing construction on a

new stadium. This project was largely volunteers and donations. The campus center expansion project was just completed. There were new plans for an expansion to the science center and add a new residence hall.

I came into this job with a strong belief that I was hired to be more than just a grounds maintenance employee. I believe I was to be more than someone that made sure the grounds looked tended. I believe I was hired to fulfill a need; a part of a strategic plan of the college. I started using the words, "Department of First and Lasting Impressions." My mission was to help the college attract new students and parents, donors, and friends to the interests of the campus. I wanted them to be impressed with a community of a well landscaped and maintained campus. I wanted them to participate, to be drawn to the place with pride, and a sense of community belonging. I want the impressions to last a lifetime, a place where the alumni will always call home. A place the donor will believe their investments are well invested in future generations to assure the lasting integrity of the college community. Is that possible? I believe it then and I still do. Eventually, the department was supported with full-time employees and equipment to do the work.

When I submitted the application for STMA Field of the Year in 2006, I didn't know what to expect. I applied with reservation as I was nominating myself. I thought however, how anyone would know about our facility in the middle of Montana if I didn't share? I wanted to bring national attention to Carroll College. Carroll College had been enjoying success from its NAIA National Championship football team. They had won four straight national championships. My crew and I helped support the team through long seasons into December by assuring a quality field for them to play. The woman's soccer team used the facility too. They also enjoyed successful seasons going well into November.

Every year, I came to the athletic department asking for money to maintain the field that was getting much use well after growing season was finished. My plan focused on basic agronomy with no frills as I knew funds were tight. Carroll College is only 15 miles from the Continental Divide at an elevation of nearly 4,000 feet above sea level. The stadium field is a native soil field with an 8.3 pH. The annual precipitation rate is 12.25 inches. I have an automatic irrigation system designed to my specifications so I can irrigate with a balance program. My plan consisted of aeration, aeration, and aeration along with overseeding with sport field bluegrass blends, topdress with as close to USGA sand as I could afford blended with Dakota Soil Enhancer 90/10, and fertilizer. On the stadium field, I remove weeds by hand.

In 2007, I had budget issues. I was not able to hire students for the summer. My full time crew and I came up with a summer plan. They would maintain the irrigation system, take care of events, do the maintenance, we prioritized daily. I hired an outside mowing contractor to mow 2/3 of the campus once a week. I would maintain the athletic fields including the mowing. That summer, I worked 7 days a week as much as 16 hours a day. I didn't allow much time for myself. It was record heat for Helena. The month of July saw 28 days in the 90's and 5 of those days in the 100's. August and September weren't much better. We watched forest fires on the mountainsides around the valley. The valley often filled with smoke from those fires. It was a tough summer to work but the athletic fields were ready for the coming season. The woman's soccer team went 17-2-2 that season. They went to the national tournament only to lose during the final four. The football team won their 5th NAIA national championship. The field held up.

I was awarded the 2007 STMA College and University Soccer Field of the Year, and I went on to receive the Professional Grounds Management Society (PGMS) Grand Award in the Athletic Field Category, and was recognized by Pioneer Athletics "Field of Excellence" award. I was called upon to speak in Montana and nationally. In 2008, I was nominated to be on the PGMS board of directors and now am serving my second 3-year term. I continue my involvement with STMA on the Chapter Relations committee for 3 years and now serve on the Membership committee.

I am a believer in networking. I believe green industry associations are often working on common ground. Communication is key to promoting the green industry and working on promoting and using sustainable practices in a consciously aware society. Our industry is often viewed with objective scrutiny. It is important to realize our industry has been the environmental stewards long before today's challenges. I believe we need to share the message with the public. I often notice, when I am working on one thing I find I am usually doing something for many.

Last spring, I received notice from my alma mater, the University of Minnesota-Crookston that I had been nominated to receive Outstanding Alumni of the Year. The outstanding Alumni Award is the highest honor bestowed on UMC alumni by the faculty, staff, administration and alumni at UMC. This award recognizes alumni who have displayed exemplary commitment and service to community, church, education, family or in their occupational field.

A month later I attended the PGMS School of Grounds Management & GIE+EXPO in Louisville, where I was honored with one of the Society's prestigious awards, the PGMS President's Award. The PGMS President's Award is awarded by the PGMS President to a member or members they feel has shown outstanding service and contributions to the Society.

As you can see, I didn't get where I am at, alone. Sure I put in much hard work, long hours, made sacrifices, and had to overcome personal challenges that may come easy for some. I can reflect on many experiences involving my parents, family, spouse, educators, friends, supportive supervisors, co-workers and associations. There have been people that helped motivate me and encourage me along; mentors each of you. I think you can see my life has been rather simple. Do you have an interest to participate and serve in improving our way of life and the industry what we believe in, the American Dream? I hope sharing a part of my life story with you; one might see making achievements is doable. Becoming a champion is just beyond the achievements. I have been deeply blessed with family, friends, close colleagues, and national recognition beyond expectation. All I wanted to do was give back. ■

Gerald Landby is Director of Grounds, Carroll College, Helena MT.

Prepare for cooler temperatures? Another opinion

LAST SUMMER I had the privilege of speaking to attendees at an STMA Meeting in Cincinnati and I imagine that some were caught off guard by the predictions I shared in my presentation discussing turf management in a changing climate, especially with regard to drought potential and our cooling planet…yes, I said "cooling."

You've certainly heard the non-stop stories about warming, record heat, melting ice, polar bears moving to the south pole, etc. but the fact is that we're not seeing anything that we haven't seen before on our planet…and even much worse.

The warming, such as it was over the past 200 years, correlates well with solar and ocean cycles but very poorly with carbon dioxide. CO^2 has been increasing steadily (also normal and expected), but temperatures have been up, flat, and down during that time and since 1998 we have observed no warming…there have actually been periods of global cooling in the past decade.

However, the real surprise (for some) is coming in the next 5 to 10 years and we need to prepare for the changes now.

Let me lay out my case and then you can decide. I have been observing weather and climate for nearly 30 years as a professional meteorologist, and before that for an additional 10+ years as a young weather lover who would rather be out in a powerful storm than hiding from it (though hiding is the smart thing to do!). In the past 20 years I have taken a special interest in climate patterns and climate change since it started making headlines (as "Global Warming"), and in that time I not only learned that the entire movement was politically motivated, but that throughout history our planet has survived extremes that we can only imagine, and those extremes will return in good time. I won't go through all of the science here since that would take many pages of text and graphics (otherwise known as a book) and honestly, you didn't pay for a class in meteorology so let's keep it simple.

Figure 1.

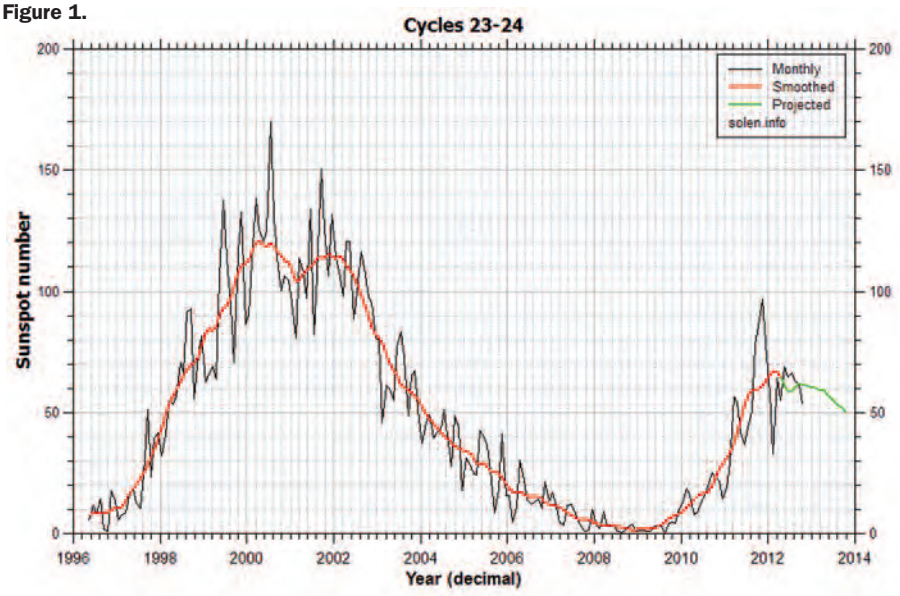


Figure 3.

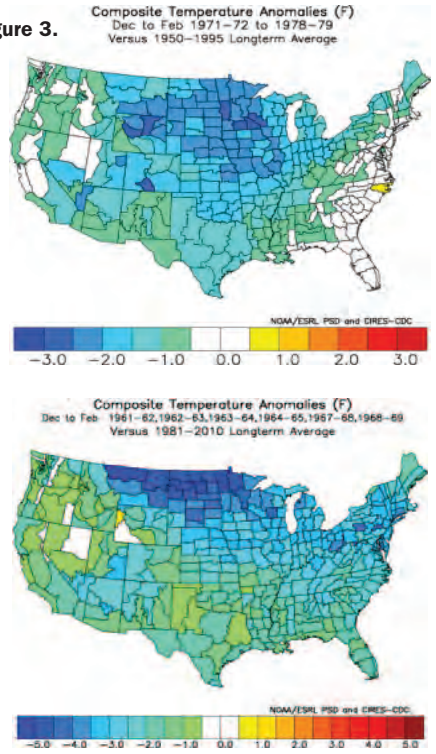
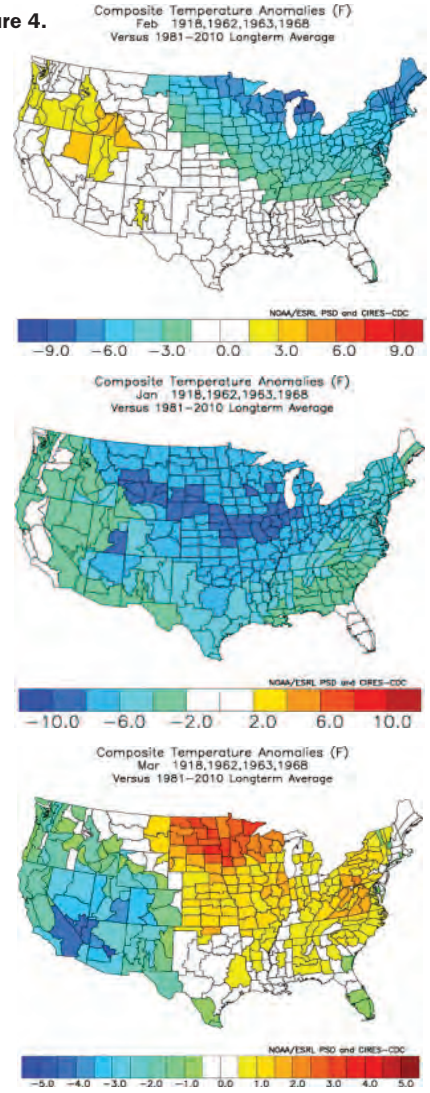


Figure 4.



WHAT DRIVES CLIMATE?

The two biggest drivers of climate are the sun and the oceans, with numerous smaller influences (geography, land use, volcanoes, cloud cover, ice and snow, etc.) and if you can predict trends for those two elements you can make a pretty solid forecast for months and years ahead…but you won't find those forecasts on TV or online. Like any specialized skill it takes years of analysis and research along with an abstract, unquantifiable "feel" for weather and climate cycles. That's where my passion for weather from a very young age helps. So what am I seeing?

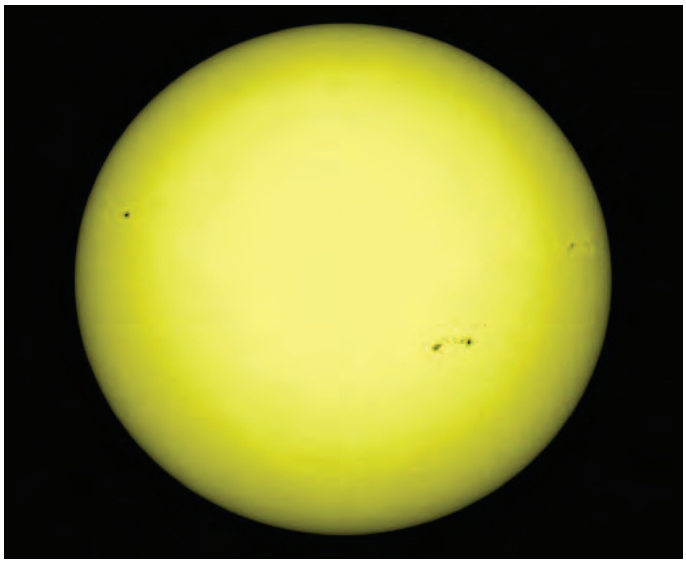
The sun is currently at the peak of Solar Cycle 24. The average person has no idea that the sun has cycles, but it does. It has an 11-year cycle (on average) that features an energy peak in the middle with two periods (valleys) of lower energy output on either side of the peak (see Fig. 1).

Experts in astronomy and solar physics have been tracking solar cycles since the 1700s, and like everything else in nature they have observed a significant range in the strength of each cycle. The sun's output is anything but stable or consistent and forecasting the strength of future solar cycles is difficult at best, but much has been learned about the sun in recent years and forecasts are getting slowly better.

The current cycle, Solar Cycle 24, is the weakest in the past 100 years and likely one of the weakest in the past 200 years based on the number of sunspots showing up on the earth-facing side of the sun. While there are numerous ways to measure solar output, the only way to compare solar activity now with solar cycles since the 1700s is to count sunspots, and based on that…and knowing that we are able to see more spots now because of high-resolution satellites and telescopes…we're in a rather weak cycle comparable to what we saw in the late 1700s leading into the early 1800s…the latter part of the Little Ice Age. Cycle 25 (starting after 2020) is forecast to be even weaker. Figure 2 is a recent image of the sun with a few sunspots from the Solar Dynamics Observatory.

Since the sun is the primary driver of climate, even small changes in solar output impact our weather and climate cycles. A weaker sun

Figure 2.



means less energy reaching our planet (less heating), but studies show that a weaker sun also encourages more cloud development (which enhances cooling). That process is complicated and it's more than I am going to cover here, but numerous studies have confirmed the effect.

Here on earth the Pacific Ocean basin is currently colder than normal and the Atlantic Ocean milder but is slowly trending colder. The oceans warm and cool during broad cycles (oscillations) lasting 15 to 30 years and the last time we had both oceans cooler than normal was the 1960s through about 1976. Do you recall the cold, snowy winters and cool summers from that time? If not, Figure 3 is a few maps showing winter temperature departures. The greens and blues are below normal temperatures

Combine a weaker sun with colder oceans and we get the ideal setup for long-term cooling (10+ years), and if, as experts suggest, future solar cycles continue to be weak (which is what we saw during the Little Ice Age), planetary cooling can last (with brief interruptions) for centuries. That doesn't mean non-stop ice and snow, but it does lead to shorter growing seasons, later frosts and freezes in the spring and earlier cold in the autumn and the potential for some brutal winters.

2013 and 2014 will be transition years with signs of the cooling, but a fair number of warmer periods as well. After 2015 we'll see a more dramatic shift to colder patterns. I also expect a decrease in hurricane activity overall, but more intense, east-coast favored storms for the next decade. We'll still have the occasional Gulf Coast hurricane, but the east may be the target more often. Did you know that it has been a record-shattering 7 years since a major hurricane (Category 3 or stronger) hit the United States? I try not to use this often abused phrase, but "we're overdue" for some big hurricanes hitting the nation.

Check out the Figure 4 temperature departure maps. They show past years with similar patterns to today, so you're looking at what those years were like and what I expected from January through March 2013.

For the Midwest I predicted above normal snowfall and a periods of bitter cold in January and February. There was also an increased potential for Midwestern blizzards. The rough winter may be followed by an unusually active tornado season in the spring, something we witnessed a number of times in the 1960s and 1970s (the 1965 Palm Sunday Outbreak and the Super Outbreak of 1974)…the last time we saw similar solar and ocean cycles. If you think we have had some wild weather in recent years, buckle-up…the bumpy ride has just begun.

Keep your eyes on the sky and enjoy the changing weather! ■

Rich Apuzzo is chief meteorologist for Skyeye Weather LLC, www.skyeyeweather.com.

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of the industry she never realized existed and is now very passionate about sports turf management and plans on working it into her consulting business.

David Plascencia:

• EcoTech Services, Inc. Glendora Project Manager/Water Conservation Specialist/ Landscape Designer

• Manages water conservation programs for public water agencies. Projects include: irrigation audits, weather/ET-based central control system irrigation retrofits; high efficiency nozzle retrofits; drip conversions; and native/drought tolerant landscape designs and installations.

• Showcase projects have been integrating ET Water Central Control system at Mountain View School District in El Monte, Designing the landscape for Walnut Valley Water Districts Pump Station, and he is currently designing a 5,000 sq. ft. conservation garden at Ledesma HS in El Monte.

Danielle Booth received the CANER Scholarship and the Street Tree Seminar Scholarship and was accepted by Cal Poly Pomona to begin fall 2013. At her current place of employment, she was promoted from recreation supervisor to recreation specialist.

Joel Balsiger was offered a position as a sports turf manager at a local private high school. Unfortunately, he had to end up declining the position due to the possibility of transferring to Oregon State University. Joel has been an outstanding student here at Mt. SAC. He has been taking care of the turf plots and Dr. Kent Kurtz Memorial Stadium for the past year now, and doing an excellent job. His attitude is positive and he has a tremendous work ethic.

Kelly De La Peza has been involved with the design and installation of several landscape projects with Fleur Nooyen. Kelly is a full time mom and a part time student who has sacrificed an incredible amount of time to explore turf management as a career.

UNIVERSITY OF CONNECTICUT

Dr. Jason Henderson, assistant professor, reports on UConn's graduating turfgrass and soil sciences students in 2013:

Baccalaureate Degree Students (4-yr): Ryan Carey, Burning Tree CC, Greenwich, CT; Brian Conlon, Greenwich CC, CT; Ryan Gauvain, owner/operator Oak Hills Landscape and Design, Litchfield, CT; David Gunn, second assistant superintendent, Seawane Club, Hewlett Harbor, NY; Nicholas Jennings, undecided.

Jeremy LaClair, graduate school; Wayne Lagasse, assistant superintendent, Fox Hopyard GC, East Haddam, CT; Elliot Linstrum, grounds crew, Boston Red Sox; Thomas Martel, undecided; Anthony Minniti, The Creek (private golf course), Locust Valley, NY.

Raymond Platt, Hampshire CC, NY; Jordan Wells, undecided; Gregory Zlotnick, construction and landscaping, CT.

Associate of Applied Science Degree Students (2-yr): Billy Hamilton, employed in the Green Industry (employer unknown); Jake Provencher, employed in the Green Industry (employer unknown); Eli Desrochers, undecided.

MINERAL AREA COLLEGE (MO)

Chad Follis, horticulture instructor: "I actually don't have any students heading from our community college to the workforce. The graduates are all transferring on to 4-year schools. Over the summer they will be working on internships and none of them had a problem finding internships in turf."

PURDUE UNIVERSITY

Across both semesters (students get out of sequence or need an extra semester), we have averaged 11 per year for the past 10 or so years. That is different than our "enrollment" which has been as high as about 90 10 years ago.

May 2012 graduates in the Purdue University College of Agriculture were fortunate to experience greater success in the employment market. Ninety percent of the May graduates had gained employment or were continuing their education as of February 15, 2013. This

represents a 4% point increase. Our May graduates acquired post-graduation internships; these positions were sought by 3% of all graduates of the College. Of the May graduates, 25% continued in programs of education, an increase of 2%. Of these, 77 enrolled in graduate schools and 26 in professional schools.

There was a decrease of 4% in the number of students still seeking employment. Sixty percent of our May graduates are employed or continuing their education here in Indiana.- Cale A. Bigelow PhD, associate professor agronomy-turfgrass science

PENN STATE

Dr. Andy McNitt, professor of soil science-turfgrass, and coordinator for the turfgrass science undergraduate program: "Below is a partial list of our graduates. We had 38 BS students in turfgrass management this year and another 14 from our 2-year program. This is only our resident students and doesn't include our online certificate or degree programs. I have found that there is a strong market for entry level positions. On average, our graduates have had three job offers each. Of course they must be willing to relocate. What is apparent however is that while entry level jobs seem plentiful, compared to a decade ago, and upward mobility is much slower."

George Peters, Pittsburgh Pirates; Phillip Manglitz, Rolling Rock Club, Ligonier, PA; Marcus Von Hertsenberg, Penn State Beaver Stadium Grounds Crew; Andrew Swigart, West Shore CC, Camp Hill, PA; Nick Marini, Butler CC, Butler, PA.

Eric Michael Sosnowski, Toftrees Golf Resort, State College, PA; Jake Leadbetter, Gilliland Landscape, Clearfield, PA; David Krizauskas, C/Maj, Air Force Reserve Officer Training Corps; Colton Spaid, Fox Chapel GC, Pittsburgh; Chris Pelczar, Sebonack GC, Southampton, NY.

Mike Urich, Lancaster (PA) Barnstormers; Mike Scheyd, National Golf Links of America, Southampton, NY; Jeff Cuthbertson, Windview Athletic Fields, Middletown, DE; and Zack Longenecker, Oakland Raiders.

Two-year graduates:

Craig Acton, Coppinwood GC, Uxbridge, Canada; Aaron Archambault, Quaker Ridge CC; Benjamin Burrill, Merion GC; Gregory Coughlin, Hong Kong GC; Franklin Dodd, New Castle CC. Matthew Fisher, Century CC; Mitchell Guy, Trump International GC, Scotland; Nicholas Huttie, research technician in the Department of Entomology at Penn State; Joseph Kohut, Saucon County CC; Christopher Konow, Black Hall CC, Old Lyme, CT. Justin Lantz, Kennett Square G&CC; Keenan Lilyquist, Sebonack GC; Logan Murphy, Pinehurst Resort; and Ben Spencer, Priddis Greens G&CC, Priddis, Canada.

WASHINGTON STATE

Washington State University during the 2012-2013 academic year will have a total of seven turf majors graduate. In the fall we had one student with a turf job; this spring we have three students, two with turf jobs and another doing an internship at a golf course near home. And finishing up in August there are three students, two already have turf jobs and the other is not sure though he did an internship last year with the Washington Nationals. Graduation is not until August so he has some time.- Bill Johnston, professor of turfgrass science. ■