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Issue 2: April 2009

Safeguarding Our Advanced Technologies and National Security: The Space Weather Prediction Center

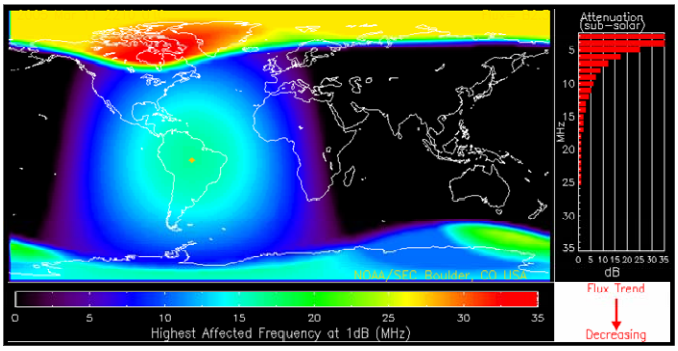
The Space Weather Prediction Center traces its origins to the Interservice Radio Propagation Laboratory that advised Allied Forces on radio blackouts during World War II. Today, the Space Weather Prediction Center (SWPC) is the nation's official source for space weather alerts, watches and warnings to protect life and property in space, in the air, at sea, and on the land. SWPC serves a large customer base that covers a broad spectrum from the private sector to other government agencies. Industries and activities impacted by space weather include aviation, satellite operations, electric power grids, radio communications, navigation (including GPS users), and manned space flight. Operating 24x7, it is designated a National Critical System by the U.S. Department of Homeland Security (one of four within the National Weather Service). Located in Boulder, Colorado, SWPC has an annual budget of $6.4M and employs 50 civil servants and 20 contractors.

SWPC works closely with the Air Force Weather Agency (AFWA) to ensure forecast coordination and product compatibility between the civil and military sectors. It is the flagship Regional Warning Center of the International Space Environment Service (ISES) that promotes cooperation and information exchange between 12 Regional Warning Centers around the globe.

It is SWPC's mission to provide the next generation of space weather products and services to meet the evolving needs of the nation. To accomplish this goal, SWPC hosts an annual event, The Space Weather Workshop in Boulder, and plays a vital role in another annual event, The Space Weather Enterprise Forum, in Washington, D.C., to gather customer needs and requirements.

SWPC leverages the extensive pure and applied space science research and development supported by the National Science Foundation, the National Aeronautics and Space Administration and the U.S. Department of Defense. Transitioning research models and data streams into operations is a cornerstone of SWPC's program. NOAA is exploring an initiative to develop a Space Weather Developmental Testbed Center that would work closely with the Community Coordinated Modeling Center, the Center for Integrated Space Weather Modeling, and the Air Force Research Laboratory to ensure the timely transfer of products and services from research into operations.

Products and services are delivered in real time to customers around the world by an email subscription service and through the internet. SWPC has over 7,000 subscribing customers and serves 122 nations and counting. SWPC receives an average of 50 million web hits per month and produces over 10,000 products every year. For more information on the SWPC, please visit **www.spaceweather.gov**.



Diverse Spring Activities

As the days grow longer and temperatures warm, NOAA Central Region employees are quickly ramping up to take on new challenges and seasonal activities.

SEVERE WEATHER

Springtime across NOAA Central Region means the onset of the severe weather season across the region. The midsection of the U.S. is the bulls-eye for the highest number of tornadoes worldwide. National Weather Service Weather Forecast Offices are busily preparing for this seasonal threat. In addition to internally-focused training, many evenings are spent conducting thousands of spotter and outreach talks in towns and cities across the region.

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Diverse Spring Activities

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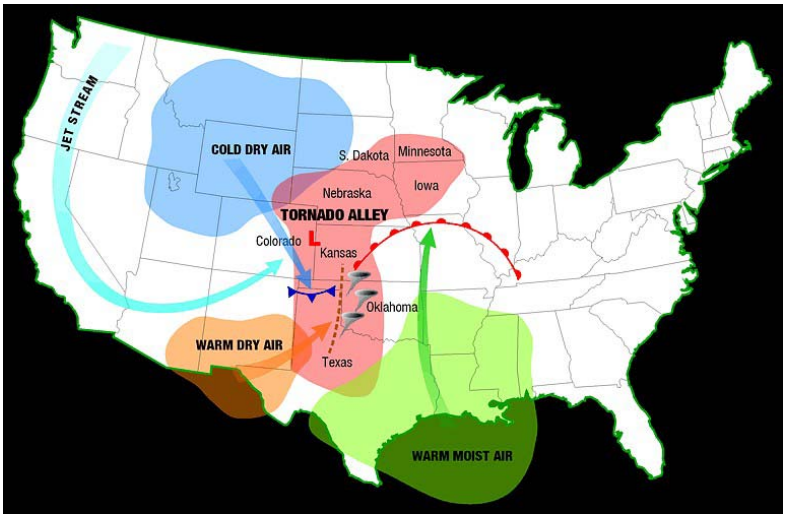
To find the schedule of talks in your area, go to **http://weather.gov** and click on the center map to get to your local area. On these local NWS pages, you'll find the talk schedule at the top of the page under "Top News."



(Picture source: Wikipedia **http://en.wikipedia.org/wiki/File:Tor_alley.jpg**)

FLOODING

NOAA Central Region is home to some of the nation's worst inland flooding. The spring snowmelt flood season looks to be significant across the northern Plains. The epicenter will be in the Red River Valley of the North, where the extent and magnitude of flood crests may rival those seen in the Flood of 1997.

NOAA hydrologists, meteorologists and technicians have begun the process of predicting and responding to a flood of this magnitude. Extensive outreach and partnering activities with key local, state and Federal groups is being conducted to ensure the consistency of the message regarding the flood and its potential impacts.

SOCIAL SCIENCE

Approximately 90 emergency managers, members of the broadcast media, and NWS meteorologists gathered in January at the NWS Training Center for a three-day workshop titled, "Integrated Warning Team (IWT) workshop: Using the Weather and Society * Integrated Studies (WAS*IS) Approach."

The goal of this IWT workshop was to bring together key players from emergency management, the media, and the NWS, to discuss ways to work together towards a common goal of improved communications and improved collaboration. Details on the presentations and material discussed at the workshop can be found at **http://www.marc.org/emergency/iwt-presentations.htm**. The NOAA Central Region team plans to work with the Pleasant Hill office to offer similar workshop across the region this summer.

EMPLOYEE SPOTLIGHT: *Ross Mackay*

How do you describe your job to laypeople?

My title is State Geodetic Advisor, and I'm in a kind of liason-type position promoting the National Spatial Reference System (NSRS) to the State. For a layperson, that's the fundamental coordinate system upon which all mapping and engineering is built upon. This has been a NOAA responsibility for over 200 years.

What is geodesy?

Geodesy is surveying when you can't pretend the world is flat. If you have to accurately map things that go to and beyond the horizon, you have to negotiate the curve.

What brought you to your field and made you stay for thirty years?

Early in my life, my career motto was, "Go for the weird." I went for the jobs that seemed interesting but I might not understand exactly what they were about. I went from land surveying to astronomy, then to headquarters. Twenty years, a wife and two kids later, I thought, Wow, better move to Kentucky!

Tell us about some of your achievements.

I've provided leadership on the KY Height Modernization Project. NGS figured out how to measure elevation using GPS technology, measuring an ellipsoid height from the center of the earth and combining it with a Geoid Model. We then set up a network of Continuously Operating Reference Stations (CORS) so that engineers and surveyors could quickly access NSRS and get incredibly accurate and quick elevation, latitudes and longitudes.

I also created the first website in NOAA in 1993. That's a bold statement – I've made this claim and nobody's refuted it yet! Because the geodetic lab was cooperating with NASA, I had very early access to the internet. My supervisor said, "The internet will never amount to anything, stop wasting your time," so I did it over my lunch hour.

*Email **noaa.centralregion@noaa.gov** and share your ideas on the next employee to feature.*

Getting to Know NOAA's Central Team

The first publication of the E-Central News > NOAA in the Heartland included an introductory story on NOAA Central Region, which provided background on NOAA's Regional Collaboration effort and details on the Central Region team's activities. To refer to that article, visit: **http://www.ppi.noaa.gov/Regional_Collaboration/Central_Region/Jan-09_NOAA_Nwsltr.pdf**.

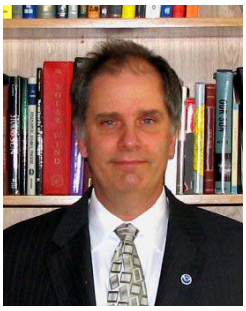
The next two issues will highlight the team members, introducing you to those who comprise NOAA's Central Region collaboration team.

Lynn Maximuk has been the team lead for the NOAA Central Region collaboration team since its inception and has seen advancements in collaborative activities involving multiple NOAA line offices. He believes the NOAA collaboration effort offers great promise to more effectively meet our mission through more coordinated interaction with our constituents. Most importantly, he has a new found respect and admiration for the dedicated NOAA team members who are dealing with environmental challenges. "The NOAA Central Region team clearly demonstrates a spirit of public service and stewardship of our environmental resources."

Jeff Kimpel is a member of the NOAA Central Region team from Oceanic and Atmospheric Research. He leads the joint effort with the Gulf of Mexico team to connect runoff from the Mississippi River system with ecosystem models in the coastal regions of the southern U.S. For example, the so called "dead zone" in the Gulf of Mexico is directly related to excess nutrients carried in river discharge. He leads a second project to educate NOAA customers on potential applications of upgrading the NEXRAD Doppler radar network with dual polarization capability.

Bethany Hale joined the Central Team as its coordinator in February 2008. As a native of Missouri, she was eager to get back to the Midwest after three years working in Silver Spring, MD and Washington, DC for both NOAA's Workforce Management Office and NOAA's Satellite Operations and Information Service (NESDIS). She is excited about the opportunities to better integrate NOAA's work in the Central Region, and help make connections that will improve products and services, as well as share NOAA's mission and vision with constituents who may not have had much opportunity to explore all NOAA has to offer. As the team coordinator, any questions, concerns, or suggestions regarding NOAA's Central Region can be directed to Bethany at **Bethany.A.Hale@noaa.gov**.

Pam Fromhertz is the Colorado State Geodetic Advisor, represents NOAA's National Ocean Service and is the Central Region (CR) team lead on the Outreach and Communication (O&C) Priority Area Task Team. As the O&C team lead she has been instrumental in the regions first stakeholder meeting held in Boulder, CO and developing the CR newsletter, "E-Central News > NOAA in the Heartland." The CR has very few NOS employees (approximately 10) and Pam has been involved in many aspects of NOAA over her career which led to her role on the CR team. She feels that there are many resources that can be better connected and finds the regional program an effective way to bridge gaps in NOAA and communicate better messages to our employees and stakeholders. Many within the team have learned of various aspects of NOAA unknown previously. "Now we need to capitalize on the new knowledge, continue discovering meaningful linkages and develop improved messages."



Tom Bogdan is the 'space weather guy' on the Central Region team. His role is to get the message about severe space weather out to NOAA and our stakeholders in the nation's heartland. Space weather comes from the sun, but its effects can be felt by each and every one of us who depends on advanced technologies – like GPS enabled positioning and navigation, satellite delivered telecommunication and financial services, and dependable access to power. With significant help from the entire Central Region team, we have developed a "Space Weather 101" articulate-based training module that can be used across NOAA to let our employees and contractors know what space weather is, and why NOAA is the nation's official source for space weather alerts, watches and warnings.

Central Region Resources

E-Central News intends to highlight resources in specific locations to foster awareness, as well as provide you with links to NOAA information that could prove useful in your daily work. To see your state featured in the next quarterly newsletter, or if you have a website that you think others might find interesting or important, email us at **noaa.centralregion@noaa.gov**.

NORTH DAKOTA

Eastern North Dakota NWS Weather Forecast Office
4797 Technology Cir, Grand Forks, ND 58203
http://www.crh.noaa.gov/fgf/

Bismarck NWS Weather Forecast Office
2301 University Dr., Bldg 27, Bismarck, ND 58504
http://www.crh.noaa.gov/bis/

North Dakota State Geodetic Coordinator
Mark Aughtman, State Coordinator
99 23rd Ave, West, Suite B, Dickinson, ND 58601
http://www.ngs.noaa.gov/ADVISORS/AdvisorsIndex.shtml

SOUTH DAKOTA

Aberdeen NWS Weather Forecast Office
824 Brown County 14 South, Aberdeen, SD 57401
http://www.crh.noaa.gov/abr/

Sioux Falls NWS Weather Forecast Office
26 Weather Lane, Sioux Falls, SD 57104
http://www.crh.noaa.gov/fsd/

Rapid City NWS Weather Forecast Office
300 East Signal Drive, Rapid City, SD 57701
http://www.crh.noaa.gov/unr/

NEBRASKA

Omaha NWS Weather Forecast Office
6707 North 288th Street, Valley, NE 68064
http://www.crh.noaa.gov/oax/

Nebraska State Geodetic Survey Advisor
Jim Richardson, State Advisor
PO Box 21962, Lincoln, NE 68502
http://www.ngs.noaa.gov/ADVISORS/AdvisorsIndex.shtml

Hastings NWS Weather Forecast Office
6365 North Osborne Drive West, Hastings, NE 68901
http://www.crh.noaa.gov/gid/

North Platte NWS Weather Forecast Office
5250 E. Lee Bird Drive, North Platte, NE 69101
http://www.crh.noaa.gov/lbf/

EARTH SYSTEM RESEARCH LABORATORY (ESRL) NEWSLETTER

http://www.esrl.noaa.gov/news/quarterly/

The ESRL quarterly newsletter provides highlights of ESRL's diverse research programs and explains how these are integrated to form a more complete understanding of our earth system.

NOAA LEADERSHIP PRESENTATIONS

http://www.pco.noaa.gov/presentation.htm

An archive of all presentations delivered by senior NOAA leadership is available at this site. A great resource for images, facts, and figures.

NOAA ECONOMICS: The Economics and Social Benefits of NOAA Data & Products

http://www.economics.noaa.gov/

A central source of information on the economic value and use of NOAA's data and products, in both industry and society. The site is very easy to navigate and NOAA employees are encouraged to submit questions or additional content from their projects or publications.

Corn & Climate: Update

As we shared in the first issue of E-Central News, NOAA Central Region was a sponsor of the "Corn and Climate" workshop at the 2008 Iowa State University's Biobased Industry Outlook Conference, which brought NOAA's expertise to a group working towards alternative fuels and the green economy.

The final report is now available thanks to our partners, The Great Plains Institute, Iowa State University, and the North Central Bioeconomy Consortium. You can download the Executive Summary, full report, and supplemental materials at **http://www.gpisd.net/**.

The "Corn and Climate" workshop was the beginning of a large-scale effort, and future plans call for a drought early warning workshop and an exploration of the impact of corn on climate and water quantity. For example, NOAA CR helped sponsor another workshop, "Scoping Workshop on Climate and Weather Information Services and Needs for Flood Emergency Management and Flood Mitigation Planning," held February 17-18, 2009, in Iowa City, Iowa, to discuss gaps in climate and water information that occurred during the severe flooding in Iowa in 2008. A wide range of participants from community leaders, state and local governments, universities and extension services, and other federal agencies participated in a robust dialogue which identified several needs that will help better communicate the dangers of flooding to the public.