



# NEWSLETTER

**National Weather  
Association**

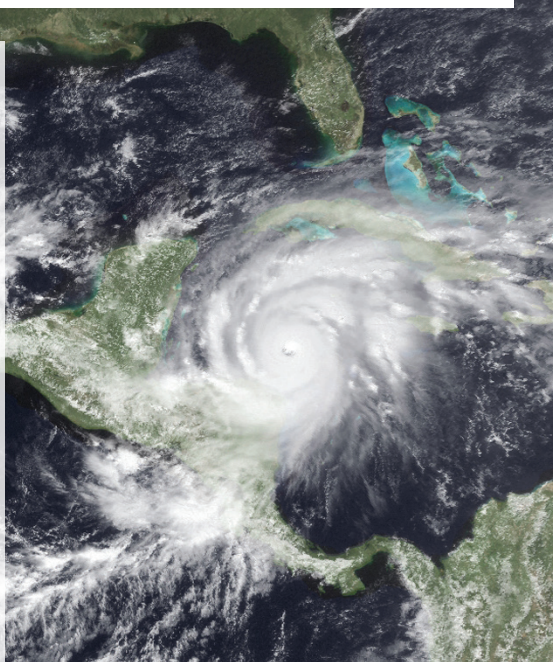
NO. 09 – 12      DECEMBER 2009

## GOES-10 Deactivated

On Dec. 2, National Oceanic and Atmospheric Administration (NOAA) officially deactivated GOES-10 after 12 years of service. GOES-10 tracked some of the most memorable tropical cyclones in history, including Hurricane Mitch, which devastated parts of Central America in 1998; and Hurricane Katrina, which ravaged the Gulf Coast in 2005.

Launched in April 1997, GOES-10 was originally planned for a five-year mission. It was positioned as NOAA's GOES-West satellite, more than 22,000 miles above the Earth's surface. In 2006, a newer satellite, GOES-11, replaced GOES-10. NOAA then repositioned GOES-10 to support hurricane forecasting efforts in South America. NOAA anticipates moving GOES-12 to provide coverage for South America by May 2010.

"GOES-10 has served America – and other nations – admirably and well beyond its expected lifespan," said Mary Kicza, Assistant Administrator for NOAA's Satellite and Information Service. "The success of GOES-10, built by Space Systems/Loral, was a credit to a large team of NOAA staff and contractors, who acquired and



*GOES-10 image of Hurricane Mitch, Oct. 26, 1998, courtesy of NOAA.*

managed the spacecraft and processed and distributed the data to users."

Currently, NOAA has four GOES in space: GOES-11 and GOES-12, which are in operation; GOES-13, in orbital storage and slated to replace GOES-12 when it is repositioned; and GOES-14, which launched this spring and is undergoing post-launch tests.

## President's Message: Thanks for a Grand Year!

As we come to the close of another year, it's a good time to reflect upon the many things for which to be thankful. I am extremely grateful for my family who were quite understanding of the extra work involved in serving as President of the NWA this year. I am appreciative for having such an excellent council and executive committee to work with in 2009. This group of dedicated professionals tackled some difficult issues throughout the year, always with the membership and long-term health of the organization

in mind. The cohesiveness of this group was impressive and as a result, we were able to accomplish our primary objectives by developing a new strategic road map, a members-only portal on the NWA Web site and an electronic membership at a reduced rate.

Our NWA meeting in Norfolk, Va., was quite successful in spite of these hard economic times, with almost 500 attendees. We held our first ever evening session, and it was well attended. The NWA

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**Happy Holidays from  
the NWA!**



## In Memoriam . . .

**Freeman R. Smith, CWO-4 USAF (Ret.) (1918-2009)** passed away at age 90 on Tuesday, Oct. 20, 2009, at a Sacramento area hospital. Interment was at the Sacramento Valley National Cemetery in Dixon, Calif., on Oct. 26. Freeman was one of the few remaining retired Chief Warrant Officer-4s in the U.S. Air Force. He retired in 1970 after 28 years of active service as a military meteorologist.

His post-retirement employment was as a meteorologist with the California Air Resources Board. He was a charter member of the Air Weather Association (AWA) and the NWA; and a long-term member of the American Meteorological Society (AMS) and active with many military/veteran's associations. He will be remembered for his longtime service as the first locator/database maintainer for the AWA. The scope of his efforts as the editor of the AWA world-wide roster is still seen today.

Freeman is survived by his wife, Teruko/Terry, two sons, a daughter, several grandchildren and great-grandchildren.

**Gary Leon Sickler, Lt. Col. USAF (Ret.) (1945-2009)** passed away Monday, Oct. 26, 2009, at his residence in Weatherford, Texas. Gary was a NWA member from 1997-2007. He enlisted in the U.S. Air Force at the age of eighteen. His incredible rise through the enlisted ranks then through the officer ranks culminated in his command of the Air Force Combat Weather Center, Hurlburt Field, Fla.

Gary retired in the rank of Lieutenant Colonel after 33 years of faithful and stalwart service to his country. Having earned his PhD in Meteorology, he then embarked on his second career: research scientist and lecturer at his Alma mater, Texas A&M University in College Station.

Upon retirement, he taught at Embry Riddle University and Weatherford College. Gary's professional life was forged by hard work, discipline and integrity. It was marked by success, the respect of his peers, and a reputation for dedication to excellence.

He is survived by his wife, Kellie Ann Sickler, three sons, one daughter and seven grandchildren.

## December 2009 Record Weather Events

Many new weather records were set as winter storms moved across the U.S. during the first part of December. Most of the records were set during events that occurred along the Gulf Coast and from the Rockies to the Great Lakes. All of the records included in this article are considered preliminary and were collected from National Weather Service (NWS) reports ([www.weather.gov](http://www.weather.gov)).

On Dec. 4, along the Gulf Coast region of Texas, southern Louisiana and southern Mississippi, many stations set new records for the earliest snowfall of the season and the first measurable snowfall for the date. The highest snowfall amounts reach 4-5 inches in some portions of Texas and Mississippi. The NOAA Cooperative Institute for Meteorological Satellite Studies (CIMSS) Blog provides a summary of this event (<http://cimss.ssec.wisc.edu/goes/blog/archives/4072>).

Below are some of the new records established for the date:

Record Snowfall for Dec. 4, 2009			Additional Information
Site	New Record	Old Record	
Lake Charles, La.	0.2"	0.0"	Also, the earliest measureable snowfall. Previous record 0.4" Dec. 11, 2008
Jackson, Miss.	0.7"	0.0"	
Houston, Texas Intercontinental Airport	1.0"	0.0"	Earliest snowfall of the season since the 1880s when official records began in downtown Houston. Previous record Dec. 10 in 2008 and 1944. Houston Hobby also broke a record for the date with snowfall of 1".

A major storm system began moving out of the Rockies on Dec. 7 and proceeded to move northeast to the Great Lakes over the next two days (see table below). This storm produced blizzard conditions along its path, along with severe weather in the South and East, and many reports of peak wind gusts above 50 miles per hour in the Ohio Valley.

Site	Date	New Record	Old Record
Des Moines, Iowa	Dec. 8	10.6"	6.0" in 1995
Hastings, Neb.	Dec. 8	10.5"	2.5" in 1948
Green Bay, Wis.	Dec. 9	11.2"	3.6' in 2008

On Dec. 9, the barometric pressure at Grand Rapids, Mich., fell to 28.86" setting a new record low pressure for December. The old record was 28.92" on Dec. 13, 1965. The lowest barometric pressure ever in Grand Rapids was 28.72" on March 1, 1955.

To show the extent of this powerful storm, maps produced by the National Operational Hydrologic Remote Sensing Center (NOHRSC) are included with this article. The figures show the "Modeled Snow Depth Departure from Normal" for Dec. 6 (Fig. 1, p. 3) and Dec. 10 (Fig. 2). Notice that on Dec. 6, many areas from Nebraska to Maine were more than two inches below their normal snow depth for the date. That quickly changed over the next few days. On Dec. 10, many of those same areas had modeled snow depths that were eight inches or more above normal. The darker blue region on Figure 2, from northern Kansas to western Michigan, represents areas 8-16 inches above normal. (See [www.nohrsc.nws.gov](http://www.nohrsc.nws.gov) for more.)

*Volunteer observer precipitation data maps and individual station reports are at [www.cocorahs.org](http://www.cocorahs.org).*

*Visit [www.nohrsc.noaa.gov/technology/pdf/WSC\\_2006.pdf](http://www.nohrsc.noaa.gov/technology/pdf/WSC_2006.pdf) to learn how NOHRSC produces the modeled data.*

## Cooperative Program for Operational Meteorology, Education and Training: COMET News

The COMET published new modules in five different topic areas, continuing to explore different methodologies for delivering our training materials. We're also testing out Meteorology Education and Training (MetEd) Mobile (See the possibilities by visiting: <http://meted.ucar.edu/m/>). The modules listed below are located on the Mobile MetEd site. We're also on Facebook at <http://www.facebook.com/group.php?gid=111485157256&ref=nf> — yet another option for you to stay in touch with our program and publications!

- Introduction to The North American Ensemble Forecast System (NAEFS) <http://www.meted.ucar.edu/nwp/NAEFS/>
- Blocking Patterns [http://www.meted.ucar.edu/norlat/sat\\_features/blocking\\_patterns/](http://www.meted.ucar.edu/norlat/sat_features/blocking_patterns/)
- JASON-2: Using Satellite Altimetry to Monitor the Ocean <http://www.meted.ucar.edu/EUMETSAT/jason/>
- Distance Learning Aviation Course-2 Module 4: Writing Terminal Aerodrome Forecasts (TAFs) for Winter Weather <http://www.meted.ucar.edu/dlac2/mod4/>
- S-290: Intermediate Wildland Fire Behavior Unit 3: Fuels <http://www.meted.ucar.edu/fire/s290/unit3/>
- Distributed Hydrologic Models for Flow Forecasts, Part 1: <http://www.meted.ucar.edu/hydro/DHM/dhm2/part1/>
- NWS Hydrologic Ensemble Forecast System [http://www.meted.ucar.edu/hydro/ESP/nws\\_hefs/](http://www.meted.ucar.edu/hydro/ESP/nws_hefs/)

As always, these materials are free courtesy of our sponsors: NWS, National Environmental Satellite, Data and Information Service (NESDIS) GOES and National Polar-orbiting Operational Environmental Satellite System (NPOESS) programs, Naval Meteorology and Oceanography Command, the Air Force Weather Agency and the Meteorological Service of Canada; however, you'll need to register to access the modules - but it's free in both English and Spanish. We welcome any comments, suggestions or feedback you have on these or any other training offerings available through the MetEd Web site.

**Greg Byrd**  
*Professional Development Committee*

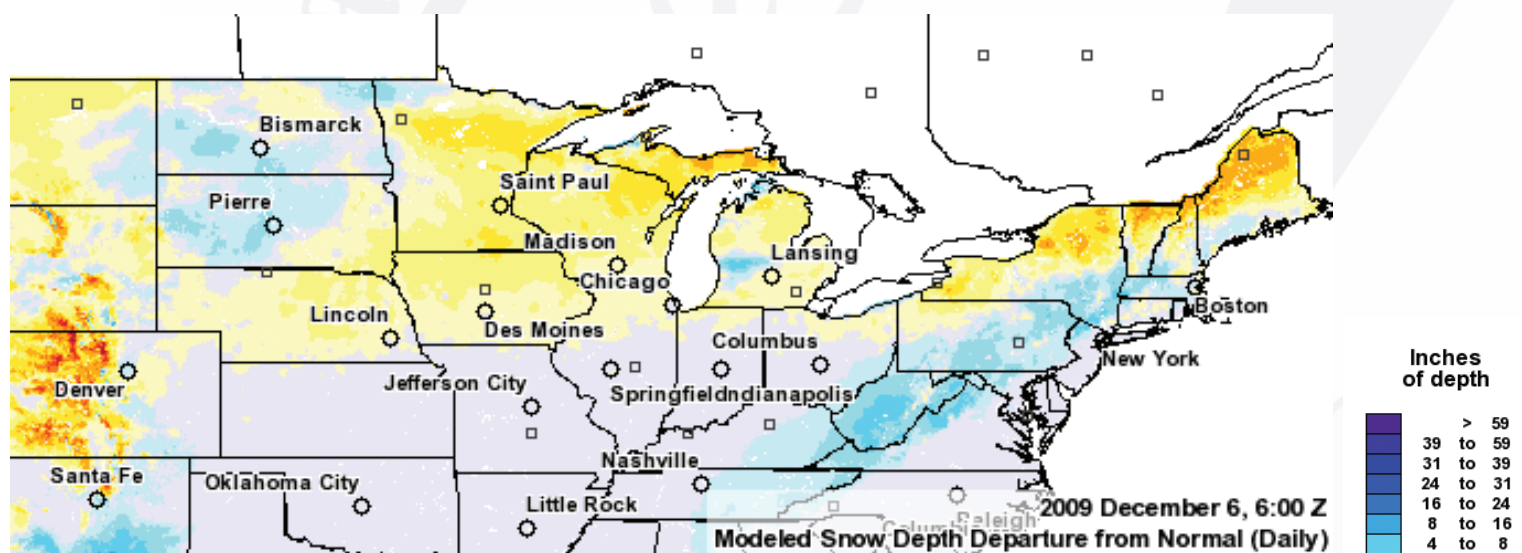


Fig. 1: NOHRSC Modeled Snow Depth Departure from Normal for Dec. 6, 2009.

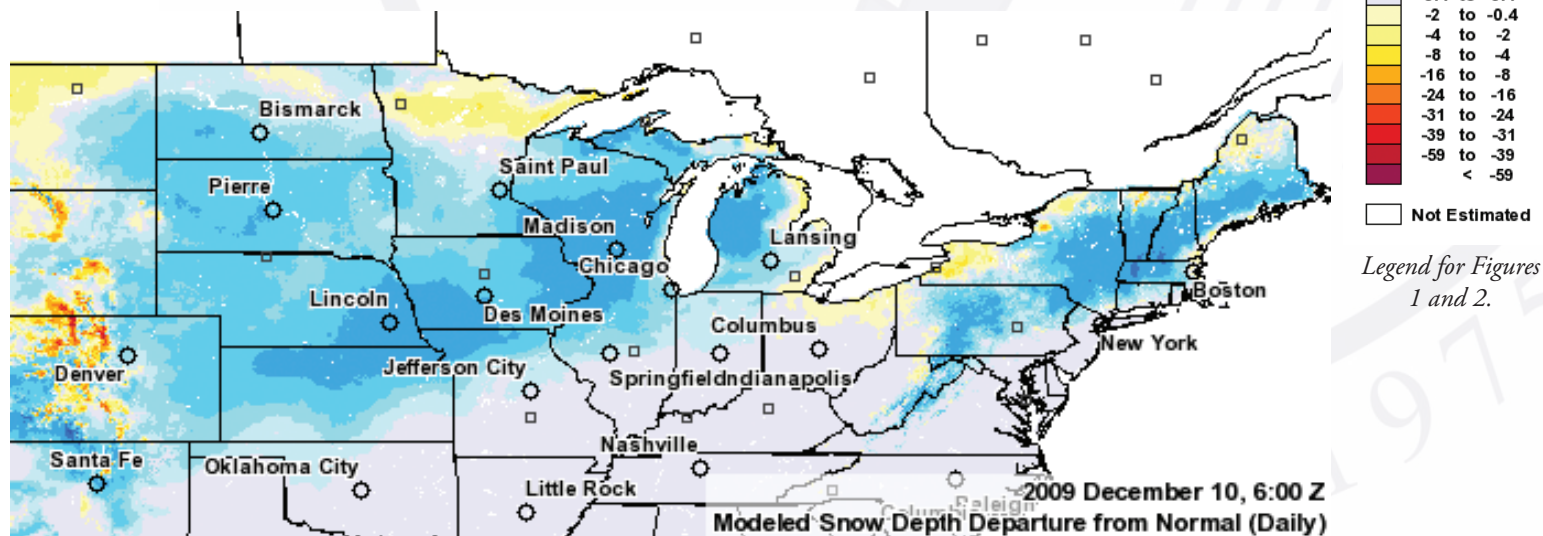


Fig. 2: NOHRSC Modeled Snow Depth Departure from Normal for Dec. 10, 2009.



Launched April 28, 2006, CloudSat — a NASA earth observation satellite that uses radar to measure the altitude and properties of clouds — is part of the “A Train Constellation”, flying in formation with several other satellites (Aqua, Aura, CALIPSO and the French PARASOL). Their orbits occur in the same path, one behind the other allowing measurements to compliment each other. CloudSat’s main sensor is the Cloud Profiling Radar (CPR), a 94-GHz nadir-looking instrument that measures both the returned backscattered energy by clouds as well as cloud location and altitude. Thus, it is possible to derive accurate cloud heights and vertical profiles. While CloudSat is not an operational instrument, the Naval Research Laboratory in Monterey, Calif., (NRL-MRY) has placed CloudSat products on its NexSat Web site in near real-time to demonstrate potential forecaster applications.

The A Train Constellation (Fig. 1) has several other instruments that are potentially useful to operations, especially hindcasting. The Aqua satellite has the Advanced Microwave Scanning Radiometer-EOS (AMSR-E) instrument, which can provide 2-D images of precipitation rate. While CloudSat cannot measure precipitation rate in all situations, it can be used to examine cloud processes that underlie AMSR-E retrievals. Aqua also contains the MODIS instrument, which has become famous for spectacular high-resolution true color images. The A-Train Calipso instrument is a cloud lidar which can give important information about cloud height, cloud phase and aerosol characteristics. The remarkable thing about the constellation concept is that although the satellite instruments are orbiting separately, together they comprise a “virtual satellite” for which observations coincide in time and space.

CloudSat can be used along with visible and infrared products to give us insight into frontal systems, especially over the large radar oceanic data void basins. While CloudSat’s radar is designed to sense clouds rather than precipitation, it can still characterize precipitation in terms of stability and structure. For example, in Fig. 2,

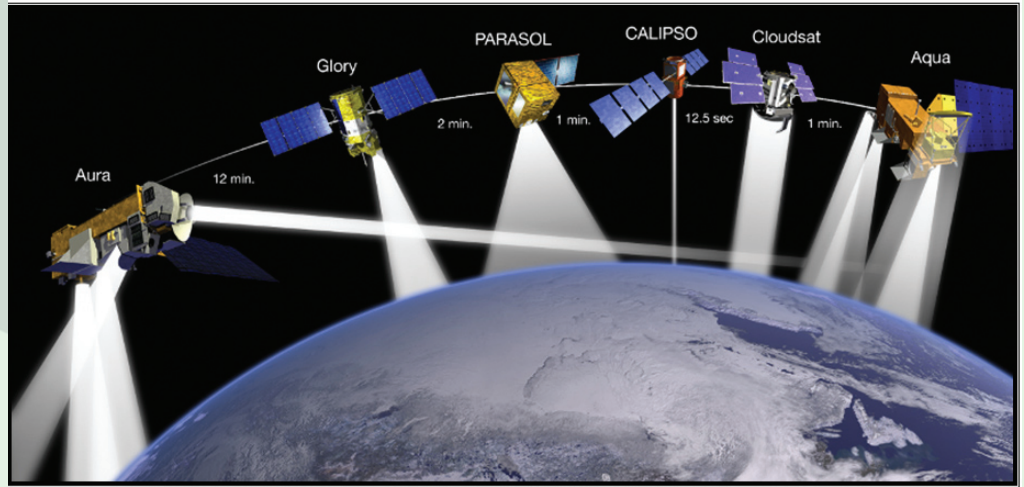


Fig. 1 (Above) A Train Constellation. Credit: NASA.

Fig. 2. (page 5, top left) Top Panel: GOES infrared “GeoColor” image of the East Pacific. Middle Panel: CloudSat profile along northern segment of red trace (top panel). Isotherms are black dashed lines except for the 0°C level, annotated in solid black for legibility. Bottom Panel: CloudSat profile along southern portion of red trace.

Fig. 3 (page 5, bottom left). Author’s rendition of the Norwegian Cyclone Model.

CloudSat has passed over two major cloud systems within a Pacific frontal system (orbit represented by the red line). Below the image, these two cloud systems are profiled. The northern cloud system shows a broad area of stable precipitation indicated by a melting layer. This feature is a horizontal reddish feature just below the 0°C level (black horizontal line bolded for emphasis). This suggests steady rain at the surface. The southern cloud system has a much different precipitation regime, characterized by numerous convective elements with no clearly defined melting layer. High reflectivities extend much higher into this cloud system, suggesting pronounced vertical motion and heavy convective showers at the surface. To analysts viewing model output and satellite images in a normal forecasting environment, such radical differences in precipitation structure might not be apparent.

The precipitation profiles shown in the two cloud regimes are consistent with the Norwegian Cyclone Model (Bjerknes and Solberg, 1922) in Fig. 3. In the northern hemisphere the north and east quadrants of mid-latitude cyclones are marked by the overrunning of warm

air streaming northward and producing stable precipitation regimes. In the south and west quadrants cold air advection destabilizes the atmosphere, bringing convective precipitation. While this pattern is well known, CloudSat shows it more vividly and directly than any other observing system. For this reason CloudSat profiles are now being included in meteorological textbooks and other training materials. Even if the CloudSat concept has few strictly operational applications due to its low temporal/spatial refresh, it should have a unique place in case studies to enable forecasters to understand cloud and precipitation processes.

## Reference

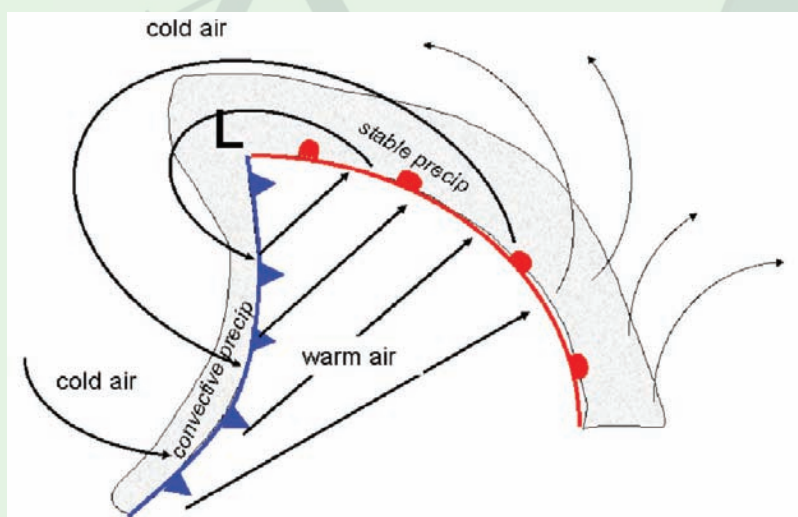
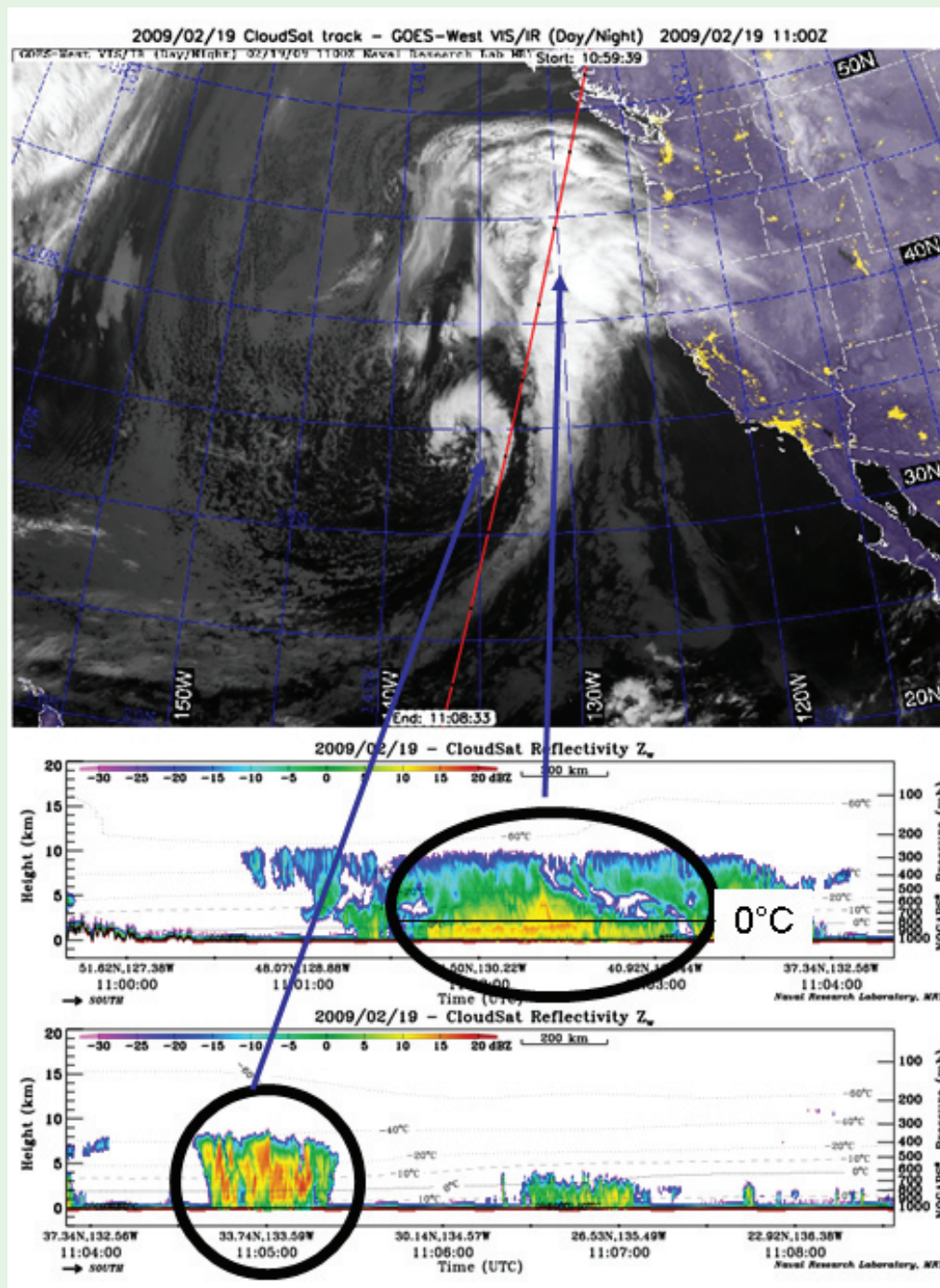
Bjerknes, J. and H. Solberg 1922. Life cycle of cyclones and the polar front theory of atmospheric circulation. Geophys. Publ. 3, 1-18.

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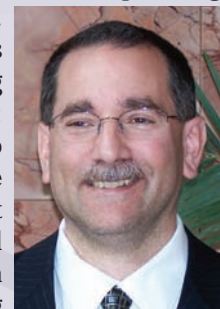
To view NRL CloudSat products go to <http://www.nrlmry.navy.mil/NEXSAT.html> and choose “CloudSat > radar\_prof” from the Products frame on the left.





PRESIDENT from page 1

leadership is aware of the increasing demands on our limited agenda space at our annual meetings and will be exploring ways to free up additional time in future meetings such as incorporating parallel sessions. Our annual meetings are becoming increasingly popular: a great problem to have! I would be remiss if I did not recognize the hard work of the program committee in putting the annual meeting together. Although I have been program chair several times, the stakes are much higher now with the increased number of abstracts — the planning process is a full year. The executive committee worked at a feverish pace to prepare for the meeting and also worked long hours during the conference to ensure that everything went smoothly.



Before closing, I offer you an invitation to volunteer in our organization. One of the many great things about the NWA is the opportunities to help in so many ways. If you are interested in a particular area, let the leadership know so we can get you more involved. I started out as a councilor, then became Vice President. I never thought that I would be NWA President — so admittedly when asked to run, I was a little apprehensive. However, this has been a unique and very satisfying experience.

Although my term as president is coming to a close, I can assure you that the NWA is positioned to make further great progress in the years ahead. We have already made decisions to help market the NWA and improve our name recognition. Under the leadership of incoming President Steve Zubrick, we will look at ways to improve our financial health and increase member services.

As I sign off on my last President's message, I want to thank all of you for your support and confidence throughout the year. My goal was to make progress this year for our members. I hope you can agree that the NWA leadership was able to accomplish that goal.

**Mike Vescio**  
President



## California University of Pennsylvania

The California University of Pennsylvania Meteorology Three Rivers Chapter of the NWA ([www.cup.edu/weather](http://www.cup.edu/weather)) elected all new officers at the end of last semester. The officers took their positions in July. Matt Owens was named President, Emily Sheer as Vice President, Lindsay Rice as Secretary, Dustin Snare as Treasurer, Beth Repasi as Historian and Jason Fouchard as Webmaster.

September was a busy month for the club with many different organized activities. The club held a movie night, attended a Pittsburgh Pirate game and went white water rafting at Ohioptyle. Each activity was a major success, providing members a great opportunity to meet the freshmen and bond with the entire chapter.

The club has also been busy with fundraising. Members have been encouraged to sell Yankee Candles to friends and family. The club gets 40 percent of what they sell, making Yankee Candle sales their biggest fundraiser. The club is also selling leftover t-shirts from a few years ago, window clings for vehicles, mugs and shot glasses as part of their fundraiser.

They are preparing for the 2010 Stormfest event at the Carnegie Science Center. Elementary and middle schools students from around the area visit; the club has tables and booths set up with arts and crafts to help kids learn about the weather and weather related topics. Stormfest will be held on Feb. 27 and 28. In the past, this event has been a huge success, and it is continuing to grow every year.

## High Plains

The High Plains AMS/NWA Chapter met at Attitude's Restaurant in Norton, Kan., on Nov. 4. They enjoyed lunch prior to their business meeting. Dave Floyd/Warning and Coordination Meteorologist at the NOAA/NWS office in Goodland (GLD) gave a stirring presentation entitled "Brace For Impact." He highlighted the aftermath and interviews involving the crew of U.S. Airways Flight 1549, which had to make an emergency landing in the Hudson River on Jan. 17 after hitting a flock of birds shortly after takeoff. This was an exercise in leadership skills, concentrating on how we each react to high stress operational situations. The presentation was well received by the 15 members present and three guests.

The business meeting included a financial report from the HP13 conference held in August in North Platte. President Mike Umscheid-NOAA/NWS Dodge City (DDC) and Christina Henderson-GLD are working on a Chapter poster. Treasurer Matt Masek-NOAA/NWS North Platte (LBF) gave a summary of the recent conference, as well as some lessons learned/tips for future conferences. One noticeable distraction at the North Platte conference was the use of laptops 'during' a presentation; this will be discouraged during future conferences. The chapter

Over the summer, Ryan LaQuay participated in an internship with NASA in California. On Sept. 17, his coordinator visited California University of Pennsylvania and gave a presentation on the internships offered with NASA. Afterwards, Ryan gave



his presentation on his experience this summer. After the two presentations, Ryan, his coordinator and some students enjoyed lunch and got to make some contacts for a possible upcoming internship.

This October, 20 students in the club participated in the NWA Annual Meeting in Norfolk, Va. (see photo). Students were required to submit a cover letter and resume to a professor in order to be eligible to attend.

**Lindsay Rice, Secretary**

voted to allocate up to \$800 toward student scholarships at each conference, but to allow the judging panel to decide how to distribute those funds.

The Wichita AMS/NWA Chapter President Rob Cox contacted the High Plains President via a letter, stating that the Wichita Chapter was interested in joining their rotation in hosting an annual conference with each office hosting a conference once each five years, versus the current four. The chapter voted and passed this unanimously. The Wichita Chapter will host the conference in 2011, and this chapter will offer as much support as possible. The one area identified as needed coordination was the financial aspect of the conference -- the two treasuries will need to continue being independent.

Tim Burke-DDC gave an update on the 2010 conference plans. The chapter plans for Aug. 12-13, with an all day Thursday and half-day Friday format. The conference will be at the Dodge City Community College. More details will follow, including possibly a Wednesday afternoon workshop prior to the conference. Their next meeting will be early in 2010.

**Mike Umscheid, President**  
**Tim Burke, Secretary**

## Proenza Receives IAEM Career Excellence Award

NWS Southern Region Director Bill Proenza has received the International Association of Emergency Managers' (IAEM) prestigious Career Excellence Award. The award was presented early in November at an awards ceremony at the 2009 IAEM Conference in Orlando, Fla.

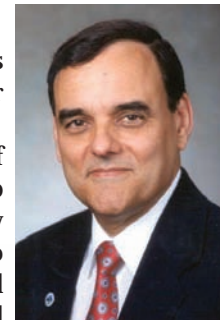
During his last 10 years as Regional Director of the NWS Southern Region, Proenza has made one of his top priorities developing and strengthening relationships and improving service to local, state, national and international emergency managers.

IAEM-USA Region IV President Dan Maher says, "For years, Bill has been a tremendous ally to the emergency management community by cultivating a positive working relationship coupled with his progressive mindedness. Bill

always has a "can-do" attitude and his professionalism sets an example for everyone."

Due largely to the national leadership of Regional Director Proenza, the relationship of the NWS and the nation's emergency management community has expanded to become a partnership that sets the "standard of excellence" between federal, local and state governments. According to Proenza, "This partnership epitomizes the concept that government closest to the people – serves best!"

*NWS Southern Region Public Affairs*



## NWA sponsored Annual Meetings, Conferences and Special Events in 2010

### March 4–6: 2010 National Severe Weather Workshop

This 10<sup>th</sup> annual workshop — sponsored by the Central Oklahoma Chapter of the AMS and NWA along with many other units in Norman — will be in Norman, Okla. ([www.norman.noaa.gov/nsww/](http://www.norman.noaa.gov/nsww/))

### March 5–7: 35<sup>th</sup> Annual Northeastern Storm Conference

Sponsored by the Lyndon State College AMS & NWA Chapter, it will be at the Saratoga Hotel, Saratoga Springs, N.Y. (<http://apollo.lsc.vsc.edu/ams/index.php?page=nesc>)

### March 25–27: 14<sup>th</sup> Annual Severe Storms and Doppler Radar Conference

Sponsored by the Central Iowa NWA Chapter, it will be at the Sheraton Hotel and Convention Center in Des Moines, Iowa. (<http://www.iowa-nwa.com/conference/>)

### Oct. 2–7: 35<sup>th</sup> Annual Meeting of the National Weather Association

It will be held at the Marriott University Park Hotel in Tucson, Ariz. Abstracts due by June 1; the call for Abstracts will be posted at [www.nwas.org](http://www.nwas.org) in January.

### Oct. 26–28: The National Flood Workshop

Sponsored by many agencies including the NWA, it will be in Houston, Texas. Abstracts due April 28. E-mail the Weather Research Center in Houston at [wrc@wxresearch.org](mailto:wrc@wxresearch.org) for details.

## Other Meetings, Conferences and Special Events in 2010

### Jan. 17–21: 90<sup>th</sup> Annual Meeting of the American Meteorological Society

"Weather, Climate, and Society: New Demands on Science and Services" is the theme for this meeting which will be in Atlanta, Ga. (<http://www.ametsoc.org/MEET/annual/>)

### Feb. 7: 2010 Minnesota Storm Chasing Convention

Sponsored by the SCSU Storm Chase Club, it will be at the Atwood Memorial Center at Saint Cloud State University, Saint Cloud, Minn. (<http://studentorg.stcloudstate.edu/stormchase/MNSCC10.htm>)

### Feb. 17–19: 2010 Lubbock Severe Weather Conference

This conference will be held at the Overton Hotel and Conference Center in Lubbock, Texas. It will emphasize advancements in observation and analysis of severe hazardous weather.

### March 9–10: The 2010 Alaska Weather Symposium (AWS '10)

This Symposium at the University of Alaska - Fairbanks provides a forum for the exchange of operational and research information related to weather in the Alaska environment. Participation from academic, research, government, military and private sectors is encouraged. Abstracts due Jan. 19. (<http://weather.arsc.edu/Events/AWS10/>)

### March 23: World Meteorological Day

World Meteorological Organization (WMO) and the National Meteorological and Hydrological Services of its 188 Members celebrate World Meteorological Day on 23 March to commemorate the 1950 entry into force of the convention that created WMO, which became a Specialized Agency of the United Nations a year later.

### March 29–April 2: 2010 National Hurricane Conference

The 32<sup>nd</sup> annual conference will be held at the Orlando Hilton, Orlando, Fla. ([www.hurricanemeeting.com/](http://www.hurricanemeeting.com/))

### April 19–20: 21<sup>st</sup> International Lightning Detection Conference

### April 21–22: 3<sup>rd</sup> International Lightning Meteorological Conference

Both conferences will be held at the Buena Vista Palace in Orlando, Fla. ([www.vaisala.com/newsandmedia/events/ildcilmc.html](http://www.vaisala.com/newsandmedia/events/ildcilmc.html) and <http://lubsvrconf.org/>)



## NWA Member Serves Double Time with Merit

NWA member Rear Adm. David W. Titley began serving as the Oceanographer and Navigator of the Navy in Washington, D.C. in April, while still serving as commander of the Naval Meteorology and Oceanography Command (NMOC). He was the commander of NMOC from December 2007 until Nov. 13.

Titley was awarded a Legion of Merit at a ceremony on Nov. 13 where he turned over duties to the new NMOC Commander Rear Admiral (Lower Half) Jonathan White.

It should be noted that traditionally a line officer — not a professional oceanographer/meteorologist — has served as the Oceanographer and Navigator of the Navy. This assignment for Adm. Titley demonstrates the Navy's great confidence in his abilities.

Adm. Titley, a NWA member in good standing since 1987, gave a most interesting and informative presentation on the NMOC during his keynote address at the 2009 NWA Annual Meeting in Norfolk, Va.



## Dates 2 Remember

**Dec. 31:** 2010 Dues Renewal; Officer and Council voting deadline

**Jan. 17 – 21, 2010:** 90<sup>th</sup> AMS Annual Meeting. Atlanta, Ga.

**Feb. 17 – 19, 2010:** 2010 Lubbock Severe Weather Conference, Lubbock, Texas

**March 4 – 6, 2010:** 2010 National Severe Weather Workshop, Norman, Okla.

**March 5 – 7, 2010:** 35<sup>th</sup> Northeast Storm Conference, Saratoga Springs, N.Y.

**March 9 – 10, 2010:** 2010 Alaska Weather Symposium (AWS '10), Fairbanks, Alaska

See page 7 or [www.nwas.org/events.php](http://www.nwas.org/events.php) for further details!

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Submit newsletter items directly to the NWA office or to [nwanewsletter@nwas.org](mailto:nwanewsletter@nwas.org). Material received by the 25<sup>th</sup> will be considered for the next month's issue.

Members receive the Newsletter and *National Weather Digest* as part of their regular, student or corporate membership privileges. Printed Newsletter subscriptions are available for \$25 per year plus extra shipping costs outside U.S. Single copies are \$3. **Address, phone number, email and affiliation changes can now be made online at the member portal.**

*Supporting and promoting excellence in operational meteorology and related activities since 1975.*

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