

WINTER 2022 | SKYWARN NEWSLETTER

THE KEYSTONE CROSSWIND

National Weather Service
State College, PA



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WINTER SAFETY CAMPAIGN

Building a Weather-Ready Nation



The winter safety campaign runs annually from December 1st to March 1st.

See below for outreach resources.

- Social Media Plans: <https://www.weather.gov/wrn/winter-campaign-sm-plan>
- Infographics: https://www.weather.gov/wrn/infographics_winter
- Videos: <https://www.weather.gov/wrn/Videos>
- Spanish-Language Content: <https://www.weather.gov/wrn/spanish>

SNOW SQUALL SAFETY CAMPAIGN GAINS MORE TRACTION IN YEAR TWO

by Meteorologist John Banghoff

The National Weather Service in State College, PA coordinated the second annual Snow Squall Awareness Week in Pennsylvania the week of November 14th-18th in collaboration with PennDOT, the Pennsylvania Turnpike Commission, Pennsylvania Emergency Management Agency (PEMA), and Pennsylvania State Police (PSP). Since the implementation of the Snow Squall Warning in 2018, it has become increasingly important to educate the public about the dangers associated with snow squalls to mitigate frequent major pileups on Pennsylvania highways. The PA campaign slogan captures the essence of the dangers of snow squalls: There is no safe place on a highway during a snow squall.

This year's safety campaign built off of an already-extensive repository of content focused on snow squall science, communication (Snow Squall Warnings), and safety developed in 2021.



Through conversations with partner agencies following the major pileup on I-81 in Schuylkill County on March 28th, 2022, NWS State College led discussions to add a few new items for this year's campaign. Michael Colbert designed new graphics to address [what to do if caught in a pileup](#) (based on guidance from PA State Police) and [how to identify a distant snow squall](#). John Banghoff developed a graphic to describe the new [Impact-Based Warning \(IBW\) tags](#) for Snow Squall Warnings. Perhaps the most notable new piece of content was a collaborated safety message that includes recorded video segments from all 4 partner agencies answering each of the questions outlined on this [Snow Squall FAQ document](#). This [4.5 minute video](#) edited and compiled by Michael Colbert perfectly encapsulates the spirit of the Pathfinder program and the value of interagency collaboration!



Greg DeVoir speaks at a press conference at a PennDOT facility in Harrisburg

Snow Squall Awareness Week was a busy and fulfilling week with many hands on deck. Forecaster Rachel Buvala played an important role in scheduling posts on Facebook, Instagram, and Twitter. Warning Coordination Meteorologist Jonathan Guseman and Lead Forecaster Greg DeVoir (pictured, above) participated in a joint press conference on Monday at a PennDOT facility in Harrisburg with the PEMA Director, PA Turnpike Commission COO, PA State Police PIO, and PennDOT Acting Deputy Secretary for the Highway Administration to kick off the Second Annual Awareness week. The press conference (footage/photos [here](#)) highlighted the inter-agency collaboration present in Pennsylvania and provided the public with a clear understanding of the dangers of snow squalls and how to stay safe.



THERE IS NO SAFE PLACE ON A HIGHWAY DURING A SNOW SQUALL



What is a snow squall?

- A brief but intense period of heavy snow, strong winds, and whiteout conditions.
- Can cause roads to become icy.

What is a snow squall warning?

- Issued for areas that will be impacted by snow squalls.
- Will trigger an alert on your cell phone.

ADDITIONAL LINKS

➔ penndot.gov/winterweather.gov/ctp/snowsquall

If a snow squall warning is issued, what should I do?

Avoid or delay motor travel until the squall passes through your location.



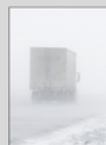
What if I am already traveling?

Safely exit the road at the next opportunity.



What if I cannot exit the road in time?

- Slow down gradually.
- Turn on your headlights and hazard lights.
- Stay in your lane.
- Increase your following distance.
- **Avoid** slamming on your brakes.



Use the 511PA App!



iPhone



Android

Download this **FREE** app to get:

- Traffic conditions
- Traffic speeds
- Live traffic camera images
- Highway construction updates
- **Weather conditions and alerts**



#SnowSquallSafetyPA

Throughout the week, NWS State College meteorologists participated in a variety of interviews including with [Fox Weather](#), [The Weather Channel](#), [AccuWeather](#), [CNN](#), [Penn State's Weather World](#), and a variety of local stations to help further spread the word about this dangerous weather phenomena. Partner agencies and other NWS offices serving PA joined in posting snow squall related content using [#SnowSquallSafetyPA](#). A [Facebook Live broadcast](#) hosted by NWS State College on Thursday helped to further educate the public..

As if right on cue, the week concluded with a line of snow squalls moving across Pennsylvania during the afternoon and evening of Friday November 18th. By Friday evening, 19 Snow Squall Warnings were issued in PA. It was an incredible week of teamwork and partnership building, and we look forward to building on its success for many years to come!

All campaign materials are also posted/available for use online at www.weather.gov/ctp/snowsquall.

SNOW SQUALLS

WHAT ARE THEY?

- Intense short-lived moderate to heavy snowfall bursts
- Quick reduction in visibility and whiteout conditions from gusty winds
- Associated with strong cold fronts which bring Arctic air during winter



WHAT ARE THE IMPACTS?

- Rapidly deteriorating conditions can cause roads to become icy and slick in a matter of minutes; "Flash Freeze"
- Often lead to chain-reaction accidents and treacherous travel

SAFETY:

- **There is no safe place on a highway during a snow squall event**
- **Consider an alternate route or delaying travel, reduce speed and turn on headlights**
- **STAY ALERT AND WEATHER AWARE!**



#SnowSquallSafetyPA

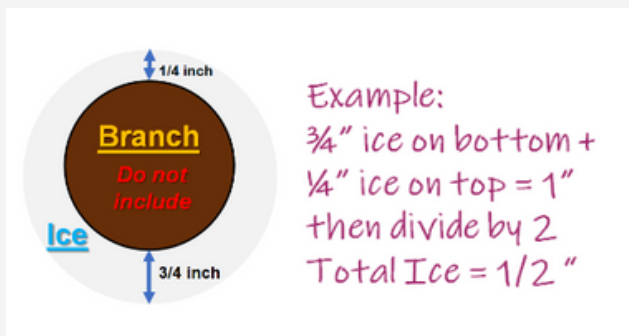
WINTER WEATHER REPORTING

by **Warning Coordination Meteorologist Jonathan Guseman**

Winter or cold season SKYWARN reporting criteria is a bit different than that of the warmer seasons when we experience thunderstorms. The National Weather Service greatly appreciates any and all reports of snow and ice accumulations. The below graphic gives some general guidelines for measuring snow.



If ice accumulates on a radial surface, such as a tree branch, we ask that you please measure the ice on each side of the branch, average the two measurements, then send that average measurement into us.



If we are in a weather setup where we may be experiencing multiple precipitation types (rain, snow, sleet, freezing rain), we ask that you please let us know what precipitation type you are experiencing! This is very helpful in keeping our forecast and warning information as up-to-date and accurate as possible.

Of course, we always want to know about any flooding concerns, which in the winter may include flooding due to snow melt or ice jams. Wind damage is still solicited as well, even though it would likely be from non-thunderstorm winds in the winter months.

For additional information on the NWS State College Spotter Program, please visit <https://www.weather.gov/ctp/SkyWarn>.

A REVIEW OF THE SUMMER AND EARLY FALL SEASONS OF 2022

by **Meteorologist Dave Martin**

June featured near normal temperatures and rainfall close to normal overall. The northwest mountains had a tendency to have temperatures 1 to 2 degrees above normal. Rainfall across the upper Susquehanna Valley was around an inch below normal.

July and August featured warm temperatures and drier than normal conditions for the most part. Temperatures averaged 1 to 4 degrees above normal. August was one of the warmest on record for the southeast part of the Keystone state. Rainfall in many locations was upwards of 2 to 3 inches below normal each month. The Laurel Highlands were a bit wetter in August than normal, coming in just over a half inch above normal.

The weather pattern took a turn toward cooler and wetter conditions after Labor Day. Areas north of Williamsport saw upwards of 3 to 5 inches of rain by Tuesday morning after Labor Day. Dushore in Sullivan County received 5.46 inches of rain, while nearby Laporte got 4.36 inches of rainfall. The next day the middle and lower Susquehanna Valley received several inches of rainfall. Much of mid-September featured cool and wet conditions before temperatures moderated to the mild side. Overall, temperatures and rainfall for the month of September were close to normal.

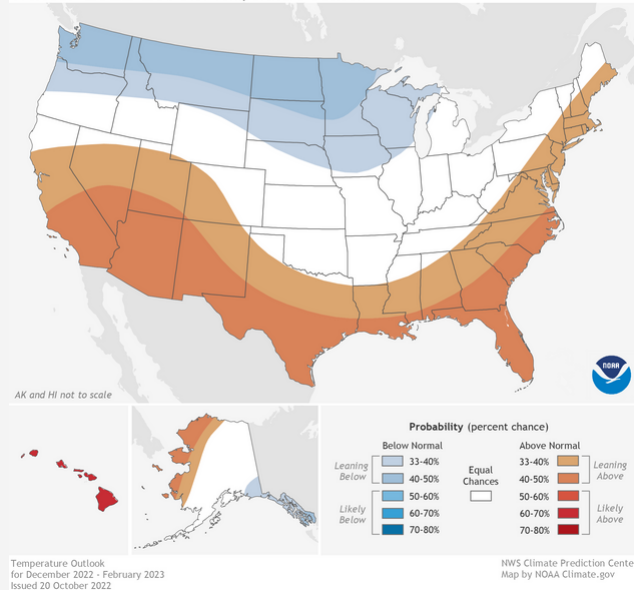
October took a turn toward below normal temperatures and below normal rainfall. This was the first October that had below normal temperatures in several years. Temperatures were below normal by 1 to 3 degrees. Rainfall was upwards of 1 to 2 inches below normal, especially across the west.

The first third of November featured temperatures well above normal, upwards of 10 to 20 degrees above normal. Little rainfall fell during this period. This all changed during the second weekend of November, when the remnants of Nicole combined with a cold front which resulted in a widespread heavy rainfall event across much of central Pennsylvania. While the lower Susquehanna Valley received less than an inch of rain, most of the area had 2 to 3 inches of rain.

There was not a lot of severe weather across central Pennsylvania this summer. This was after an active late March for severe storms. However, there were a lot of days with thunder this summer.

Overall the weather pattern has featured a tendency to change some every 4 weeks or so. I have included the climate prediction outlook for the next 90 days. With it being a La Nina pattern this winter, above normal temperatures are favored along the East Coast, with equal chances for above or below normal temperatures over the Great Lakes and Ohio Valley, as well as across much of Pennsylvania.

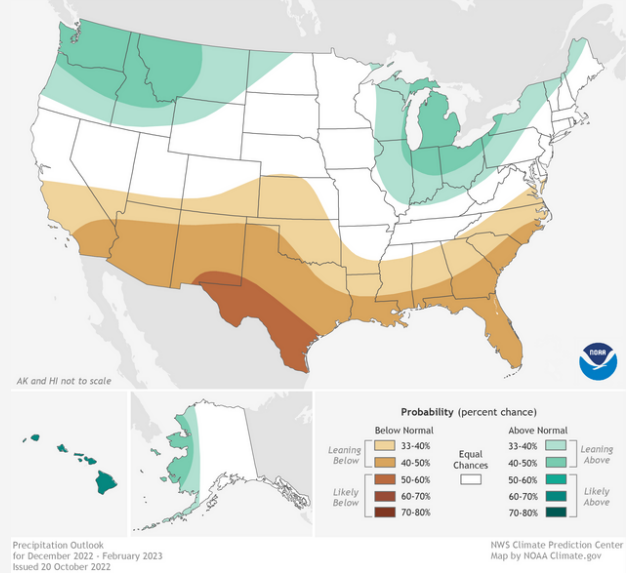
Winter 2022-23: U.S. Temperature Outlook



As far as precipitation is concerned, odds favor above normal precipitation over the Great Lakes and western Pennsylvania, with equal chances over eastern Pennsylvania.

In general, La Nina years lead to below normal snowfall across central Pennsylvania.

Winter 2022-23: U.S. Precipitation Outlook



In review, a large change from recent years like 2018 and 2021 which featured many heavy rainfall events and ended up being quite wet.

MUSINGS ON THE MONARCH BUTTERFLY

by Meteorologist Dave Martin

I did not see many Monarch Butterflies this summer or fall. However I did see some in State College during the mild spell we had back during the first weekend of November. I can't recall seeing butterflies this late in the season.

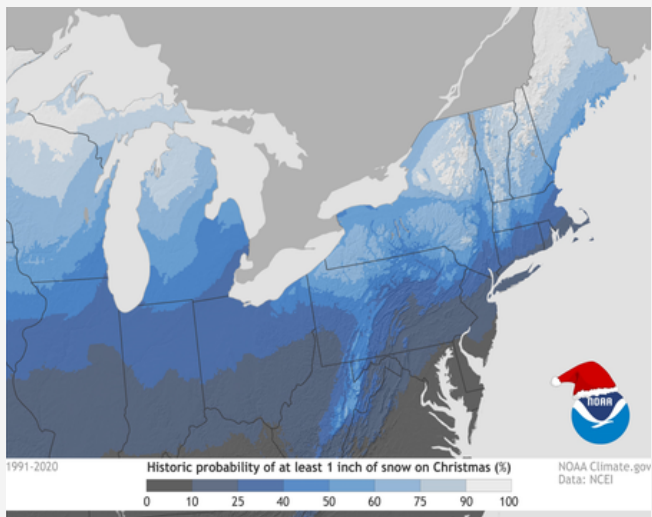
There is concern that logging and land development along the monarch's migratory routes and in the reserve area are threats to the butterflies. Also loss of milkweed plants due to the use of genetically modified herbicide-resistant crops in the United States, along with recurring drought in parts of the western states are believed to be factors as well. Extreme weather and large fires can kill migrating butterflies before they have completed their life cycles.

To help out, folks should remember to preserve and plant native milk weed. Monarch Butterflies need this plant to survive and breed.

HISTORICAL ODDS OF A WHITE CHRISTMAS

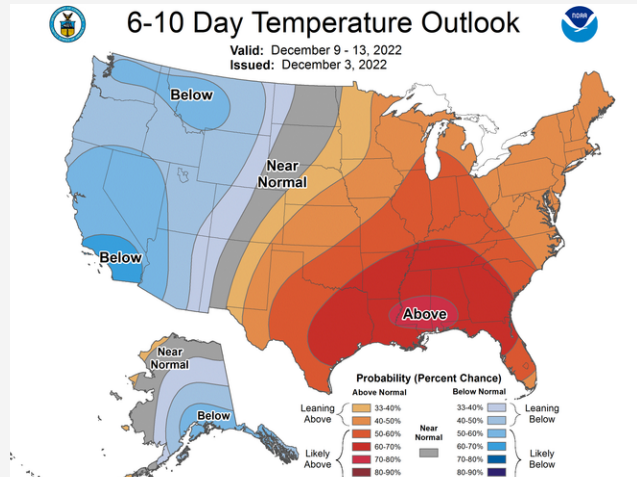
by Meteorologist Steve Travis

Are you dreaming of a white Christmas? If so, either head to northwestern Pennsylvania or the Laurel highlands for the best opportunity to experience a white Christmas in any given year. A white Christmas is defined as at least having a snow depth of 1 inch on December 25th. Last year, [Climate.gov released the map below](#) calculated from the new 1991-2020 climate normals showing the odds of at least one inch of snow on the ground on Christmas.

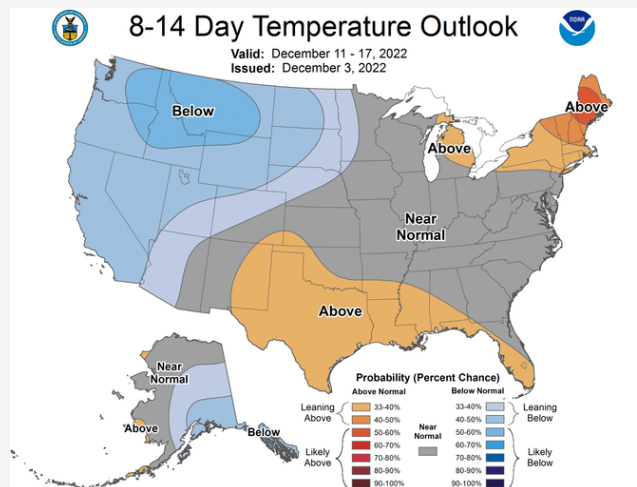


The favored regions in Pennsylvania, with over a 50 percent chance of a white Christmas, are the northwest where lake-effect snow frequently leads to snow on the ground leading up to Christmas, and the Laurel Highlands where upslope snow is common. Over the Lower Susquehanna Valley there is a much lower probability, under 25 percent of experiencing a white Christmas.

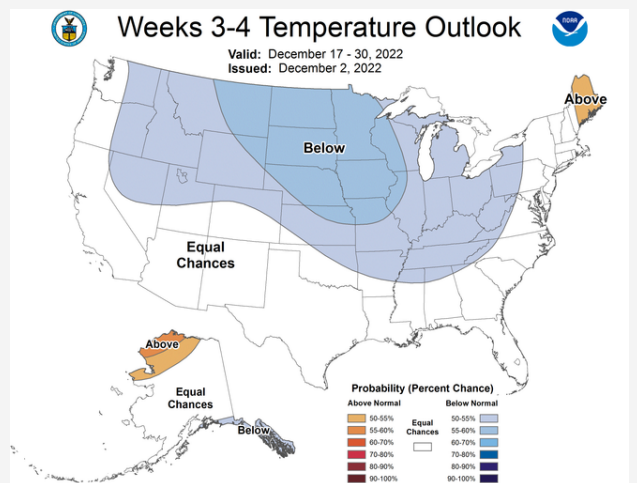
It's all well and good to look at the climatology, but how about this year? Well in the short term the outlooks from the period of December 9-13 favors above normal temperatures with a ridge over the southeastern United States and trough over the west. See the image on the top right of this page for the corresponding temperature outlook from the [Climate Prediction Center](#).



The period from December 11-17 has near equal chances for above or below normal temperatures, and slightly leans toward above normal precipitation. This would probably not yield great chances for a white Christmas for much of central Pennsylvania.



There may be some hope yet, just in time for Christmas as the outlook from December 17-30 favors below normal temperatures over the north central United States and over the Great Lakes, extending into western Pennsylvania, though this doesn't directly correlate to the probability of snow.



NEAR EARTH ASTEROIDS

by Meteorologist Barry Lambert

Comets and Asteroids often strike great fascination (and sometimes fear) within individuals that is equal to, or exceeding that of the most violent weather events. Why wouldn't they? After all, most severe weather events (i.e. Tornadoes, Hail, Lightning and Microburst Winds) are often limited to localized areas or occasionally impact a larger region. However, large Near Earth Objects could have a devastating impact on a national, hemispheric or global scale.

Rest assured though, we have some brilliant people and awesome equipment on our side when it comes to discovering, tracking and planning for these objects collectively known as Near-Earth Objects or NEOs. The Near-Earth Object Surveyor space telescope (NEO Surveyor) is designed to help advance NASA's planetary defense efforts to discover and characterize most of the potentially hazardous asteroids and comets that come within 30 million miles of Earth's orbit.



This image above was taken from the Pittsburgh [video](#) (courtesy of Jared Rackley) of a meteorite that passed through the earth's atmosphere and broke up across western PA on Thursday - Dec 1, 2022 around 7:33 PM EST. The fireball was reported in more than a dozen states as well as in Canada, and was visible for a whopping seven seconds.

Fireballs are unusually bright meteors that can be seen over a very wide area. According to the AMS, fireballs are reported every day. A fireball event is described as "Major" by the AMS when it garners more than 30 reports.

It is believed that this Bolide Meteor weighed about 1,000 pounds, measured a yard in diameter and shot through the atmosphere at 45,000 mph, according to NASA Scientists. A meteor of that size is not all that unusual in that a similar meteor plunges into Earth's atmosphere every three or four days.



Recently, a time-lapse photograph (see above) was taken by astronomer Robert Weryk from near his home in London, Ontario, Canada, after NASA's Scout system forewarned him about the entry of 2022 WJ1 on Nov. 19, 2022. A video of the event over Toronto can be viewed [here](#).

Over the coming year, there are several asteroids whose orbital path possibly places it within 1 Lunar Distance. In fact, the potentially closest approach of a Near Earth Object occurs late this month (Dec 28, 2022). NEO 2021 AE (I.E., discovered in 2021) is estimated to measure between 17-39 meters in diameter and could come as close as 0.014 LD or 3227 Miles from earth and well within the orbit of our Geostationary Satellites of 22,236 mi. Refer to the following [link](#) for a listing of all known and tracked NEOs. The listing can be configured in various ways for your viewing or research purposes.

As far as remaining meteor showers are concerned, for 2022 the Geminids will peak Dec 13-14 and the Ursids will be from Dec 21-22. The Geminids are typically a more impressive show with up to 75 meteors per hour expected this year.

We hope this gives you some background information (and comfort) in knowing that the vast majority of potentially hazardous, Near-Earth Objects are well documented and tracked. So sit back, look up and enjoy the night sky and occasionally, the spectacular celestial light show provided to us.

WELCOME OUR NEW METEOROLOGIST IN CHARGE - ASHLEY EVANS

Ashley previously worked 3.5 years for the National Weather Service in the Pacific Region located on the University of Hawaii; Manoa campus as both the Weather Forecast Office Honolulu Director of Operations and the Central Pacific Hurricane Center Deputy Director.

He is a 31 plus year veteran of the United States Navy and retired as a Captain. He spent the first eight years of his Navy career as a submarine officer. The final 23 plus years of his career he spent as a meteorologist and oceanographer serving both ashore and afloat on every ocean and on every continent except Antarctica. He joined the United States Navy in 1987 and retired in 2018.

He was an Officer in Charge of Mobile Environmental Teams Europe in Rota Spain for three years as a Lieutenant Commander (1997-2000). He commanded the Fleet Weather Center in San Diego for two years as a Commander (2007-2009) and commanded the Joint Typhoon Warning Center on Oahu for two years as a Captain (2012-2014).

He spent 2.5 years working in the Pentagon and during that tour of duty was also the Navy Deputy Liaison to NOAA (2010-2012) under Dr. Lubchenco.

He graduated from The Pennsylvania State University with a B.S. in Aerospace Engineering and also participated in the Honors program there. He was certified as a professional Nuclear Engineer in 1993 while serving in the Submarine Fleet. He received a dual Master's of Science in Meteorology and Oceanography from the Naval Postgraduate School in 2002.

He holds an executive Masters in Foreign Politics, International Relations and National Interests as a Seminar XXI Fellow from The Massachusetts Institute of Technology. He studied Asia Pacific Security and Maritime Policy as a fellow at the Asia Pacific Center for Security Studies in Honolulu, Hawaii.



He has been married for 31 years to a professional mechanical engineer and program manager who works for Commander Pacific Fleet in Honolulu, HI.

He has two daughters; one a graduate of Penn State with a B.S in Aerospace Engineering who is currently pursuing a PhD in Aerospace Engineering at the University of Colorado as the Smead Scholar and the second is finishing up a dual B.S in Biomedical Engineering and Mechanical Engineering at Colorado State University.

He enjoys skiing, scuba diving, sailing, stamp collecting, hitting golf balls, hunting, fishing, barber shop quartet and the mountains. The family has a dog, three cats and three Muscovy ducks.



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*Watched a recorded training session?
Let us know and we'll get you
registered to be a spotter!*

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