



# The National Cooperative Observer

The National Cooperative Observer is an online newsletter.

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## The Central Park Weather Record: A Look at New York City's Oldest Cooperative Weather Station



*The recently renovated Belvedere Castle played a major role in New York City's weather record. Photo: March 2016*

*Chris Stachelski, Acting NWS National Cooperative Program Manager*

This year, New York City's Central Park Conservancy is expecting to wrap up an extensive renovation of the historic Belvedere Castle, which dates to 1869.

The renovation project, which started in February 2018, will mark the most extensive restoration of the castle in 35 years. The renovation's completion is occurring near two landmark anniversaries in the history of the city's weather records: 1869 and 1920.

A recorded history of weather in New York City exists back to the 1700s. More formal stations were established in various parts of the city in the 1790s continuing into the early to mid-1800s. By 1866, the Annual Report of the Board of Commissioners of

Central Park discusses the intent to maintain a system of meteorological observations in order to obtain facts that will be of general scientific interest.

Starting in January 1867, the Central Park Meteorological Department was taking a system of regular daily meteorological observations consisting of the barometric pressure, temperature, humidity, precipitation, wind speed and direction and other meteorological phenomena.

The data was recorded on handwritten observation forms and published in the Annual Report of the Board of Commissioners of Central Park. The report referred to these data as the "Central Park Observatory."

In 1868, the observatory acquired self-registering barometers, the first piece of equipment fully capable of recording extremes

The establishment of a weather station in Central Park pre-dates the official arrival of what would be the National Weather Service today in New York City.

The original weekly weather observation log from September 1-7, 1867 for Central Park.

at the site. That fall, under the advice of Andrew H. Green, Comptroller and Treasurer of Central Park, the Board of Commissioners applied to the Legislature of the State of New York for permanent establishment of a Meteorological Observatory.

On December 28, Dr. Daniel Draper was appointed as the Observatory's director to oversee the design of new meteorological observing equipment. Additional self-registering equipment, consisting of a photographic register of the barometer height and the degree of the thermometers, along with pencil register of the quantity of precipitation, wind speed and direction, were not installed until 1869.

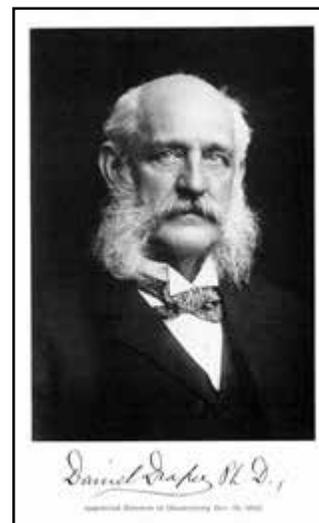
Because the site lacked self-recording equipment and the ability to log maximum and minimum temperature, the Central Park record used for daily values officially starts in 1869. On May 5, 1869, the legislation passed as an Act, Chapter 595, to authorize the erection and maintenance of an Observatory.

Older latitude and longitude values are significantly off from reality when plotted in today's higher technological mapping interfaces.

The original location of the observing equipment at Central Park in 1867 is not colloquially stated, however, the values listed on observing forms show a minor move took place in late January 1868. That location was the top floor of the Arsenal Building, on Fifth Avenue between 63<sup>rd</sup> and 64<sup>th</sup> Streets; the building still stands today.

The establishment of a weather station in Central Park pre-dates the official arrival of what would be the National Weather Service today in New York City. On October 25, 1870, the U.S. Signal Service, as it was then known, was established at 49 Wall Street.

When the Signal Service was established in New York, it took observations and kept a record at its office, referring to these records as the official New York City (NYC) weather observation. This practice continued in 1871 when the Signal Service moved to 120 Broadway. The office became the U.S. Weather Bureau in 1895 and moved to 66 Broadway. In 1898, the office moved to 100 Broadway and finally on May 1, 1911, moved to the Whitehall Building at 17 Battery Place.



Dr. Daniel Draper, the first and only director of the New York Meteorological Observatory served from 1868 through 1911 as the director of it.

During this time, the NYC office oversaw the operation and data collection of the Central Park weather station. The New York Meteorological Observatory published the hourly, monthly and annual data collected in its own stand-alone publication, which was presented yearly to the Park Commissioners.

On July 1, 1911, Dr. Draper retired from the New York Meteorological Observatory. The Observatory next operated under the direction of James H. Scarr, a District Forecaster.

Although the Weather Bureau oversaw the Observatory, no formal cooperative agreement existed for the Bureau to publish the Observatory's data with its own observer data. During the subsequent years, the Bureau continued to oversee the Observatory's operations but began to point out to city officials a number of issues that had developed



*Belvedere Castle and the instrument shelter plot in February 1922.*



*Weather station in March 2016 at nearly the identical spot to the photo at left of the instrument enclosure in Central Park with the turret of Belvedere Castle visible in the back right.*

with the program. An increase in the height of buildings near the Arsenal had started to create concerns over the ability of the equipment to obtain high quality readings and the facility began to fall into disrepair. An aging roof resulted in discomfort for the observer's quartered there and increased the risk of water damage to the records. During this time, the Bureau continued to publish the New York Meteorological Observatory's data and reports in its stand-alone publication format.

By 1913, the Bureau recommended the observatory move to a more suitable location near the center of the park to locate it away from the obstructions of nearby higher buildings. Specifically, it recommended Belvedere Castle as a desirable location.

By the late 1910s, the Arsenal Building was largely abandoned except for the Meteorological Observatory. The Bureau took a series of comparison observations from the castle as well as the arsenal in 1918 but issues with gas connections for the heating system became an issue, delaying the ability to move to the castle until after 1919.

In the summer of 1919, selection of a site for the temperature shelter was finalized. A decision was made to locate the shelter on the top of an exposed rocky hill just south of the castle in an area boarded by grass and low shrubbery with trees well in the distance.

To mitigate the impact of the exposed rock on temperatures, the Bureau built a low retaining wall filled with dirt and topped with sod. The shelter was then placed on top of this wall and enclosed by a gated fence. Wind equipment was placed on the roof of the castle

with precipitation gauges closer to the ground. The castle itself was enclosed with doors and windows to accommodate the workers of the Weather Bureau.

On January 1, 1920, the official observing site in Central Park was moved to the castle, where it remains to this day. The Bureau furnished the meteorological equipment, cable and staff and the city furnished the space in the castle where the staff took observations.

Finally on June 13, 1941, the Central Park station was added by the Bureau as part of the cooperative weather network. During the 40s and 50s, staffed hours at the castle was gradually reduced and a continuous observation became dependent on recording devices with a supplement provided by the Bureau office at The Battery. The Central Park record was still published as a specially formatted publication until 1945.

On December 29, 1960, the Bureau moved from its longtime home at The Battery in Lower Manhattan to 30 Rockefeller Center in Midtown Manhattan. This move marked the most significant change in operations in NYC observing of this era.

The move to 30 Rockefeller Center, a.k.a. 30 Rock, resulted in the closure of a longtime stand-alone observation and climate station operated by the Bureau in Lower Manhattan that was never replaced. In addition, the

*On January 1, 1920, the official observing site in Central Park was moved to the castle, where it remains to this day.*

*Despite threats to completely eliminate the station due to the national push to automate primary surface observations at airports and similar sites altogether, local and regional support for the site's long-term climate record and usage in reference for weather observations kept the site open.*



*The instrument readout display at 30 Rock for the Central Park observation in the 1960s.*

30 Rock location presented even less ability for an observing station to be co-located with the Bureau office due to the heavy development in the area.

As a result, the official NYC weather observation was moved on January 1, 1961, to Central Park from The Battery. The observation equipment at Belvedere Castle was largely automated and transmitted to a readout display at 30 Rock at the Weather Bureau office. Onsite staff no longer stayed at Belvedere Castle full-time and the site was eventually boarded up for closure.

The Bureau only sent staff to read the Central Park equipment when the need to measure snow arose, which was typically done in certain open areas of the park.

During the 1970s into the early 1980s, NYC was at the height of a state of urban decay. Many areas of the city were blighted and crime ridden; Belvedere Castle was not spared. Because the castle was vacant and boarded up, it became a magnet for vandalism and graffiti. In addition, natural decay took a toll on the structure.

Under the Central Park Conservancy, Belvedere Castle underwent an extensive renovation and structural modification between 1982 and 1983, with the most notable repair updating the turret from a flat surface to a peaked roof.

The wind equipment was briefly removed from service from 1982 to 1983 to accommodate the roof construction. The most recent significant change at the site took place in the mid-1990s when the NWS NYC office relocated from 30 Rock on October 25, 1993, to the Brookhaven National Laboratory on Long Island.

Although a skeleton staff remained at 30 Rock through December 1995 to take observations and continue the climate record, the eventual plan to fully close Weather Service operations at 30 Rock meant that human interaction with the Central Park observation would be significantly limited.

Despite threats to completely eliminate the station due to the push to automate primary surface observations at airports and similar sites, support for the site's long-term climate record and usage in reference for weather observations kept the site open.

NWS placed an Automated Surface Observing System (ASOS) in the long standing enclosure just south of Belvedere Castle with the exception of the wind equipment. The ASOS was commissioned on November 1, 1995, and became the primary observing system at Central Park.

One shortfall of ASOS is that it cannot measure snowfall. To remedy this shortfall, following the full closure of the 30 Rock office, staff traveled from the former NWS Office at Newark Airport, NJ, as well as from the new Brookhaven Lab office to Central Park to take readings when needed.

Additionally, the Central Park Zoo also was equipped with snow measuring equipment and measured snow as needed in a designated area. In the late 1990s, the Zoo became the primary snow measurement site for Central Park until December 2015 when the Central Park Conservancy again took on the task.

The Central Park station has been designated a Historic Climate Network station in the Cooperative Observing Network. This special designation is only given to select sites based that show data completeness, longevity of record and site continuity.

The conservancy is the only such cooperative weather station within the nation's largest city to hold this title.

## John Campanius Holm Awards

**Martin Davis** of Livingston, MT, was given the Holm Award for outstanding service in the Cooperative Observing Program.

Martin has taken more than 11,000 daily observations and rarely misses an observation. His parents started the station in 1964. In reality, he has been part of the Cooperative Observing Network his entire life. This station opened on this ranch in 1951, where it still resides. Weather data from this station is vital to the area and is part of the Historical Climate Network with over a 65 years of observations at approximately the same location.

This area experiences extreme temperatures ranging from a record low of -36°F in January of 1983 to a high of 99°F in July of 2005. Annual average precipitation since 1951 is 14.62", making it a very dry region of the country. Precipitation extremes include a record daily rainfall of 2.90" in June 2001 and a record daily snowfall of 24" in April 1973.



From left, Meteorologist-in-Charge (MIC) **Keith Meier**, of NWS Billings, MT, and Holm Awardee **Martin Davis**. Photo by NWS Observation Program leader (OPL) **Larry Dooley**.



**Gene Pacia** of Youngstown, NY, was presented with the John Campanius Holm Award. Gene, a retired math teacher of 34 years, has been diligently taking weather observations for the past 22 years. Youngstown is in Niagara County and Gene's site is near Lake Ontario and just a few miles east of Ontario, Canada.

Observations from this location are extremely important because they can be completely different from what is happening just a few miles away. On numerous occasions, Buffalo, just 23 miles away, would be receiving several inches or even feet of snow while Gene was enjoying a dry winter day!

Gene also is active in his church. As a devout Catholic, he attends church at least 3 times per week, reads scripture at the Fatima Shrine in nearby Lewiston another day, and is a volunteer for Meals on Wheels.

The Holm Award was presented to Gene following a walk with several of his friends in nearby Fort Niagara State Park. Gene and his friends, many of whom are also retired teachers, were quite interested in the history of John Campanius Holm.

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## John Campanius Holm Award



From left, Central Region Chief Program Officer **Scott Tessmer**; Awardees **Sandy and Stan Darmofal**, NWS Gaylord, MI, MIC **Jim Keysor**; OPL **Keith Berger**; Awardees **Esther, John and Glenda Wallis**; and Cooperative Program Manager (CPM) **Scott Rozanski**.

Photo by NWS Forecaster **Jeffrey Lutzore**.

The meteorological community in northern Michigan gathered to honor **John, Glenda and Esther Wallis** of Sault Ste. Marie and **Stan and Sandy Darmofal** of Harrisville, MI, both whom won prestigious Holm awards. Attendees included staff from NWS Gaylord, MI; Central Region Chief Program Officer **Scott Tessmer** and Chief Meteorologist **Tom O'Hare** from the local CBS affiliate.

John is not only a distinguished observer but also the local weather and climate expert for one of Michigan's most historic cities and the retired MIC of the former Weather Service Office in Sault Ste. Marie. When he retired in the 1990s, he carried on his love for meteorology by volunteering to be the local observer.

His daughter Esther is right at his side, ensuring impeccable climatological data lives on in "The Sault" by serving as the area's Snow Paid observer. The two are a great team and have backed each other up as observers when each of them has faced life-threatening illness. The father-daughter team has never missed an observation. And of course, they couldn't do it without the support of the family matriarch, Glenda. This is truly a great American family that puts service to their community and country above self.

Stan is a virtual extension of the NWS in Alcona County. Not only does he provide spot-on weather observations for the shore side village of Harrisville but he also coordinates all of the NWS Gaylord outreach and training classes in the county. Stan works side by side with emergency management as the communications coordinator, an organizer of the Alcona county fair and spearheaded a Red Cross program to distribute free smoke detectors throughout the area.

The Wallis and Darmofals are the epitome of President Kennedy's famous call to action, "Ask not what your country can do for you...ask what YOU can do for your country." Both families live this credo 365 days a year.

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## John Campanius Holm Award



**Mark Smith**, right, was presented with the John Campanius Holm Award for outstanding service as an observer for Webster, NY. Mark has been keeping records at his home since 1978 before joining the observer program in 1996.

Mark developed quite a climatology of his Webster station, computing his own normals and growing degree days! He is always eager to add new observing elements and was more than happy to add frost depth and thaw readings to his long list of observations, as well as snow water equivalent. Both elements are vital to NWS Buffalo when forecasting spring snowmelt and flooding.

Mark is also a talented photographer, who takes amazing pictures of beautiful ice formations along Lake Ontario. Photo by Mark Smith.

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## 125 Year Family Heritage Award, 45 Year Dick Hagemeyer Service Award



**Malcolm Gregory** at Santuck, SC, was presented a 125 Year Family Heritage Award and a 45 Year Length of Service Award and by South Carolina Assistant State Climatologist **Melissa Griffin**. Malcolm was a Jefferson Award recipient in 2010.

The Jeter-Gregory family has taken observations at Santuck since 1893! Photo by OPL **Chris Horne**, NWS Greenville-Spartanburg, SC.

## 125, 100 Year Honored Institution Awards

NWS Blacksburg, VA, OPL Nick Filo presented observers at the **Omni Homestead Resort** in Hot Springs, VA, with the Honored Institution Award for 125 years of continuous weather observations. The Homestead station was established in 1893, one of many resorts built around the natural mineral springs in the town.

Through various changes in ownership and upgrades to the resort area over the years, observers employed by the Homestead have provided a nearly continuous record of weather observations and will hopefully continue to do so for years to come.



From left are Observers **Robin Saunders** and **Roy Pritt**.  
Photo by NWS Blacksburg, VA, OPL **Nick Fillo**.



**Floyd Johnson**, the Chief Lock Operator at the **New York State Canal Corporation Lock 28B** on the Erie Canal in Newark, NY, accepts the 100 Year Honored Institution Award for the lock. Observations have been taken at Lock 28B since just after the opening of the present day Erie Canal in 1918. To the left of Floyd is a 100 year old, 7 horsepower DC motor used to open and close the lock gates. The award was presented by NWS Buffalo OPL **Dan Kelly**.

## 100, 75 Year Honored Institution Awards



**Jeff Slowik**, the Chief Lock Operator at **New York State Canal Corporation Lock 30** in Macedon, NY, on the Erie Canal, accepts the 100 Year Honored Institution Award. Erie Canal staff members have been taking precipitation readings at Lock 30 since just after the present day Erie Canal opened in 1918. Behind Jeff is a collection of tools used to maintain the lock. The award was presented by NWS Buffalo OPL **Dan Kelly**.

**Walhalla State Fish Hatchery** was presented with a 75 Year Honored Institution Award from NWS Columbia, SC.



NWS officials presented the **U.S. Army Corps of Engineers** (USACE) staff at the **Mill Creek Dam** and **Bennington Lake** project with an Honored Institution Award for 75 years of service. From left, NWS Pendleton MIC **Mike Vescio**; NWS Western Region Director **Dr. Grant Cooper**; USACE Park Ranger **Jeremy Nguyen**; retired Lead Maintenance Worker **Dave Parker**; Lead Maintenance Worker **Lonnie Croft**; Operations Project Manager **Justin Stegall**, and Park Ranger **Cady Tyron**. Not pictured is Maintenance Worker **Troy Hein**.

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## 55 Year Benjamin Franklin Award



NWS Midland, TX, gathered in Seminole to congratulate **Jean Moffatt** for receiving the 55 Year Benjamin Franklin Award for the **Moffatt Family**.

The picture was taken at Seminole Printing, which also serves as The John E. Moffatt Memorial Museum. Antique printing equipment is seen in the background.

From left are NWS Midland, TX, Information Technology Officer **Greg Jackson**; Administrative Support Assistant **Beverly Martin**; MIC **Pat Vesper**; OPL **Colleen Rhea**; Awardee **Jean Moffatt**; and Electronic Systems Analyst **Charles Yaws**.

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## Edward R. Stoll 50 Year Awards

**Robert (Bob) Hoppe**, right, was presented with a 50 Year Edward R. Stoll Award. Bob takes care of the official COOP weather station near Townsend, MT. Bob has actually been involved with recording the weather for more than 50 years. The Hoppe family has been submitting official weather observations to the NWS since December 1939. Presenting the award at left is MIC **Don Britton**, NWS Great Falls, MT. Photo by OPL **Matt Moorman**.



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## 50 Year Honored Institution Award



The **Maysville, KY, Utility Commission** was honored recently for 50 years of weather observations. Thank You Maysville Utility Commission for your dedication and service!

Pictured from left are NWS Wilmington, OH, Meteorologist **Ashley Novak** and **Luke Huron** of the Utility Commission. Photo by OPL **James Gibson**. Also present was Service Hydrologist **Julie Dian-Reed**.

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## 45 Year Dick Hagemeyer Service Award

A 45 Year Dick Hagemeyer Award was presented to **Mike and Sherryl Whittle** of Oakley, ID. Mike and Sherryl have maintained accurate and meticulous observations during their period of record. Taking NWS observations has been a family tradition for the Whittles. Mike's father was the observer from 1893 through 1973.

Keeping the family tradition going, Mike and Sherryl's daughter became southeast Idaho's newest observer in Inkom. Mike's helps his community in many ways. In 2017, Mike volunteered his personal equipment and time to help save Oakley from flooding.

Rain on top of near record snow led to rapid snowmelt and flash flooding, As a result, numerous creeks and canals in the area were overwhelmed. As upstream water began to threaten Oakley, Mike worked with local officials to build temporary levees to contain and redirect the water's flow. As a result of these joint efforts, Oakley was spared from potentially destructive flooding.



**Mike and Sherryl Whittle** of Oakley, ID, are presented a 45 Dick Hagemeyer Award by Meteorologist **Alex DeSmet** (center). Photo by **Alex DeSmet**.

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## 40 Year Length of Service Award

**Roger Rhonemus** of West Union, OH, has been providing precipitation data and river readings to NWS Wilmington, OH, for more than 40 years. Prior to taking over the observations from his father, Roger would help take the weather observations. Thank you Roger for your dedication and service!

From left, Observer **Roger Rhonemus** and NWS Wilmington, OH, Meteorologist **Ashley Novak**. Photo by Service Hydrologist **Julie Dian-Reed**. Also present was OPL **James Gibson**.



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## 30 Year Length of Service Award; 25 Year Honored Institution Award



**David Duboy**, Observer near Warsaw NY, shows his 30 Year Award presented by NWS Buffalo OPL **Dan Kelly**. David has measured a total of 1,434.95" of precipitation as well as a total of 4,721.8" of snow! His observations are critical to the operation of the Mt. Morris Dam on the Genesee River. David also is a prize-winning pumpkin farmer; he won 6<sup>th</sup> place at the Great Pumpkin Farm in 2018 in Clarence, NY, with a pumpkin that weighed 1,047 pounds!



**Apple City Broadcasting**, which operates **WACB** and **WTLK Radio** stations in Taylorsville, NC, received an Honored Institution Award for 25 years of service. Accepting this award was **Roger Brown**, co-owner of Apple City Broadcasting, and **Rick Gilbert**, WACB newscaster and reporter. The award was presented by OPL **Chris Horne**, center, NWS Greenville-Spartanburg, SC.

## 25, 15 Year Length of Service Awards

Western Region Program Support Assistant **John Eldridge** presented a 25 Year Length of Service to **Jim Goodwin** of the **Ashland Ranger Station** in Bozeman, MT.

Western Region Program Support Assistant **John Eldridge** presented a 25 Year Length of Service Award to **Elsie Shellenberger** of Reed Point, MT.



**David Clavert**, right, accepts a 15 Year Length of Service Award from retired NWS Louisville, KY, CPM **Rick Lasher**. David, Rick and OPL **Mike Crow** had just installed a Fisher-Porter rain gauge at David's home.



A 15 Year Length of Service Award was presented to **Chris Knoetgen**, observer at Loveland, CO. The presentation was made by OPL **James Kalina**, NWS Boulder, CO.



**Scott Warren**, right, of Glencoe, KY, has been providing precipitation data to NWS Wilmington, OH, for 15 years. Thank you Scott for your dedication and service! Presenting the award is Hydrologist **Link Crawford**, Ohio River Forecast Center. Photo by OPL **James Gibson**, NWS Wilmington, OH.

**The National  
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National  
Cooperative Program  
Thomas.Trunk  
@noaa.gov

Managing Editor  
Melody.Magnus  
@noaa.gov

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National  
Weather Service  
Silver Spring, MD

# May, June, July Temperature and Precipitation Outlooks From the Climate Prediction Center

