

= December 1960 nor'easter =

The December 1960 nor'easter was a significant early @-@ season winter storm that impacted the Mid @-@ Atlantic and New England regions of the United States . Moderate to heavy snowfall fell from West Virginia to eastern Maine , amounting to 10 in (25 cm) or more in parts of 13 states and peaking at 21 @. @ 4 in (54 @. @ 4 cm) at Newark , New Jersey . The storm was accompanied by strong winds , gusting to over 90 mph (145 km / h) in coastal New England , and left in its wake a dangerously cold air mass . The storm originated in a weak low pressure area which formed over the western Gulf of Mexico on December 10 . A secondary low developed over South Carolina on the next day , supported by the merger of two troughs aloft . Sliding southeast of New England , the new storm explosively deepened to become a full @-@ fledged nor'easter , with a minimum central air pressure of 966 mbar . It began to weaken over the Canadian Maritimes .

Widespread blizzard conditions wrought havoc on transportation ; streets and highways throughout the hardest @-@ hit areas were clogged with stalled and abandoned vehicles , and multiple major airports were forced to close . Many schools and businesses were closed , some for days after the storm departed . The New York Stock Exchange opened an hour late on December 12 , marking its first delayed opening in over 25 years . Extensive drifting of snow left communities isolated and unable to receive deliveries of food and heating fuel . Overall , the storm and subsequent cold snap were blamed for at least 286 deaths across a wide area , but primarily in Pennsylvania , New Jersey , New York , and the New England states . The fatalities resulted from a multitude of tragedies , including automobile and maritime accidents , storm @-@ related fires , carbon monoxide poisoning , over @-@ exertion , and exposure to cold .

= Meteorological history =

The nor'easter occurred during a positive phase of the North Atlantic oscillation (NAO) , though negative NAO values are typically considered optimal for snowstorms in the northeastern United States . It was the first of three severe storms during the 1960 ? 1961 winter season .

It originated in an area of low pressure that developed over the western Gulf of Mexico on December 10 , downstream from an upper @-@ level cyclone . The surface low tracked northward to Oklahoma before turning eastward as it gradually intensified . Simultaneously , a shortwave trough swung southeastward around the periphery of a large vortex over central and eastern Canada . As the upper low opened up into a negatively tilted trough and began to interact with the northern wave , a secondary surface cyclone developed along a frontal boundary over South Carolina late on December 11 . Almost immediately thereafter , the original low dissipated over West Virginia . Heading toward the northeast , the incipient storm emerged into the Atlantic Ocean near Cape Hatteras , North Carolina , at 00 : 00 UTC on December 12 .

With strong upper @-@ level support ? including extensive positive vorticity advection and dual divergent jet streak regions ? the storm explosively intensified into a powerful nor'easter . From 00 : 00 to 12 : 00 UTC on December 12 , the system deepened by 27 mbar while moving to a point south of Nantucket . By contrast , the widely accepted criterion for " bombogenesis " is a 24 @-@ mbar central pressure drop in 24 hours . Its core pressure ultimately fell to 966 mbar by 00 : 00 UTC the next day , while located off the coast of southwestern Nova Scotia . A rapidly tightening pressure gradient north of the cyclone generated strong winds throughout coastal New England . The storm started to slowly weaken as it moved over the Canadian Maritimes on December 13 and 14 .

= Impact =

The initial low pressure system yielded minor snow accumulations in a wide swath of the Great Plains and Midwest . The nor'easter itself dropped much more significant snowfall over the Mid @-@ Atlantic and New England , with 10 in (25 cm) or greater amounts reported in 13 states from West Virginia to Maine . As much as 20 in (50 cm) of snow fell in small areas of northern New Jersey and eastern Massachusetts . The greatest snowfall total associated with the storm was 21

@. @ 4 in (54 @. @ 4 cm) at Newark , New Jersey , within a southwest ? northeast oriented corridor of especially heavy snow . In some locations in New Jersey , the storm set new daily snowfall records . Other notable totals include 8 @. @ 5 in (22 cm) at Washington , D.C. ; 14 @. @ 1 in (36 cm) at Baltimore , Maryland ; 14 @. @ 6 in (37 cm) at Philadelphia , Pennsylvania ; 17 in (44 cm) at New York City ; 13 @. @ 4 in (34 cm) at Hartford , Connecticut ; 13 in (33 cm) at Boston , Massachusetts ; and 14 @. @ 9 in (38 cm) at Portland , Maine . The storm was rated a " major " Category 3 on the Northeast Snowfall Impact Scale (NESIS) , and a " significant " Category 2 on the Regional Snowfall Index (RSI) , an updated counterpart to the NESIS . In parts of southern and eastern Virginia , the snow mixed with sleet and freezing rain , creating particularly treacherous road conditions . Seven deaths and numerous injuries resulted from traffic accidents in the state , primarily in the Richmond and Lynchburg areas .

The heavy snow combined with strong winds to create widespread and dangerous blizzard conditions , worsened by very cold temperatures left in the wake of a prior cold front . Wind gusts reached 94 mph (151 km / h) on Block Island and 85 mph (137 km / h) on Nantucket . As it pulled away , the large storm system reinforced the Arctic air mass over the eastern United States , with below @-@ normal temperatures persisting for several days ; in northwestern Pennsylvania , nighttime temperatures were as cold as ? 28 ° F (? 33 ° C) . Both during and after the storm , persistent gale @-@ force wind gusts produced extensive blowing and drifting of snow . Rough seas and high tides buffeted large sections of shoreline , inflicting damage to boats and coastal installations . A fishing vessel 42 ft (13 m) in length capsized off the coast of Maryland , killing two men , and one fatality was attributed to a maritime incident in New York waters . The U.S. Coast Guard rescued six fishermen whose vessel had run aground at a jetty near the entrance to the Nantucket Harbor .

The storm prompted the closures of public and private schools , businesses , offices , and factories throughout the Northeast . In some areas ? such as the city of Boston and parts of New Jersey ? classes were canceled for the entire week following the snowstorm . In New York City , student attendance remained extremely low in the days after schools reopened . The New York Public Library was forced to close its main location and all of its 80 branches . Non @-@ essential government offices in Washington , D.C. were also closed because of the storm . Air and ground transportation came to a halt , with multiple major airports closed and rail service suspended . At La Guardia and Idlewild (now John F. Kennedy International) airports alone , over 100 flights were canceled . Railroads reported tens of millions of dollars in lost revenue and storm @-@ related expenses .

Snow drifts reaching 10 ft (3 @. @ 0 m) in height and abandoned vehicles rendered many roadways impassable . With some communities effectively isolated , supplies of food and heating fuel began to run short . The National Guard arrived in New York City to clear obstructions from streets and allow snow removal work to get underway . In total , 19 @, @ 000 workers were tasked with clearing snow in New York City , restoring " near normal " conditions after several days . The northbound Jersey Turnpike became choked with miles of stalled vehicles , and a large stretch of the Maine Turnpike was closed after " an unestimated number of motorists were marooned " . At the latter , dozens of state troopers and turnpike employees helped stranded drivers find shelter amid the dangerously cold conditions ; at a restaurant in Kennebunk , police ordered 180 motorists to remain inside until the highway could be cleared . In Boston , vehicles stranded in city streets blocked emergency responders from reaching fire situations ; such delays were likely responsible for several additional fatalities . A large fire in Mystic , Connecticut , claimed 10 buildings at the height of the storm , with damages estimated at over \$ 1 million .

By December 15 , newspapers had attributed 286 deaths to the blizzard , including 54 in New York , 51 in New Jersey (later confirmed as 52) , 26 in Pennsylvania , and 71 in the New England states . Fatalities related to the storm and associated cold snap were far @-@ reaching , involving 23 states . A wide variety of factors contributed to the high death toll , including over @-@ exertion , exposure to cold , transportation accidents , structural fires , and carbon monoxide poisoning . The storm caused some isolated power failures along its path . In north @-@ central Virginia , telephone and electricity lines were damaged . The blizzard cut electricity to all of Newtown , Connecticut , though it was mostly restored within hours . In Rhode Island , Block Island and some inland towns

were without power . Short @-@ lived power outages affected southern New Hampshire .

Occurring at an important time for Christmas shopping , the storm had a significant economic impact . In the week after the blizzard , national sales fell as much as seven percent relative to the corresponding week in 1959 . The New York Stock Exchange opened an hour late on December 12 in its first delayed opening since 1934 .