

= Hurricane Debbie ( 1969 ) =

Hurricane Debbie was an intense and long @-@ lived hurricane that formed during August 1969 . The fifth tropical cyclone , fourth named storm , third hurricane and second major hurricane of the 1969 Atlantic hurricane season , Debbie formed on August 14 in the southern Atlantic Ocean and took a general northwesterly path until turning northward into the central Atlantic . The storm was characterized by numerous fluctuations in intensity , and it reached winds corresponding to Category 3 status on the Saffir ? Simpson Hurricane Scale on four separate occasions . The hurricane bypassed the island of Bermuda to the southeast on August 22 , before ultimately brushing southeastern Newfoundland with strong winds . It dissipated over the cold waters east of Greenland . Although Debbie had little effect on land , it was extensively researched and was subject to a weather modification experiment by Project Stormfury , in which it was seeded with silver iodide .

= = Meteorological history = =

A disturbance associated with a tropical wave strengthened into a tropical depression on August 14 . The system had significantly organized by August 15 , and it intensified into a tropical storm at 1200 UTC that day . Upon its designation , Debbie was moving west @-@ northwestward at approximately 15 mph ( 24 km / h ) and it was predicted to gradually gain power . It attained Category 1 hurricane strength on August 16 as it turned toward the northwest . It continued to mature , and at around 1200 UTC the next day , it achieved winds corresponding to Category 2 on the Saffir @-@ Simpson Hurricane Scale . On August 18 , Debbie further intensified to Category 3 status , making it a major hurricane .

However , the storm quickly downgraded , and by August 19 it was once again at minimal hurricane force . At roughly the same time , it turned more to the west , although it maintained a general northwesterly path . The abrupt weakening may have been the result of a seeding experiment carried out on the storm in an attempt to deteriorate it . By later in the day , Debbie had begun to restrengthen . It resumed Category 3 intensity on August 20 , despite a minor oscillation in magnitude during the day . At this point , the cyclone acquired peak winds of 120 mph ( 195 km / h ) ; shortly thereafter , its lowest recorded barometric pressure fell to 951 millibars .

The storm turned northward on August 21 , and eventually curved northeastward . Debbie weakened to Category 2 strength but , for the fourth time , restrengthened to major hurricane intensity . The hurricane then passed well to the southeast of Bermuda , although it is believed that if not for the presence of nearby Hurricane Camille which emerged into the Atlantic from the United States on August 20 , Debbie would have likely ended up further west , closer to the island . It maintained its severity through August 22 as it continued generally toward the northeast .

On August 23 , the storm began a weakening trend and it turned towards the north . The next day , the storm ? having weakened to Category 1 status ? skirted the southeastern tip of Newfoundland . Debbie began to lose its tropical characteristics as it accelerated towards the northeast , and it weakened into a tropical storm early on August 25 . As it moved over increasingly cold waters , it dissipated east of Greenland .

= = Impact and Project Stormfury = =

Debbie was subject to an experiment called Project Stormfury , which attempted to weaken tropical cyclones by seeding them with silver iodide . The storm provided an excellent opportunity to test the underpinnings of Project Stormfury . In many ways it was the perfect storm for seeding : it did not threaten any land ; it passed within range of seeding aircraft ; and was intense with a distinct eye . On August 18 and again on August 20 , thirteen planes flew out to the storm to monitor and seed it . On the first day , windspeeds fell by 31 % . On the second day , windspeeds fell by 18 % . Both changes were consistent with Stormfury 's working hypothesis . The results were so encouraging that " a greatly expanded research program was planned . " Among other conclusions was the need

for frequent seeding at close to hourly intervals .

Debbie remained predominately at sea throughout its 3 @, @ 000 mi ( 4 @, @ 800 km ) path , and as a result , it caused little damage . The storm had little or no impact on the island of Bermuda as it passed to the south . Later , winds of 50 to 65 mph ( 80 to 105 km / h ) were recorded over eastern Newfoundland .