KANTAR

Evaluation and comparison of the accuracy of 2024 hurricane forecasts

AccuWeather vs. The National Hurricane Center (NHC)

May 21, 2025

STUDY DETAILS

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KANTAR

AccuWeather engaged Kantar for the objectivity and credibility of its studies, especially when evaluating competing sources of information or products.

- Kantar is the world's leading marketing data and analytics business and an indispensable brand partner to the world's top companies, including 96 of the world's 100 biggest advertisers.
- We have a complete, unique and rounded understanding of people around the world: how they think, feel and act, globally and locally in over 90 markets.
- Kantar is known and respected for our objectivity, independent research, rigorous methodologies and data integrity.
- We don't just help clients understand what's happened, we tell them why and how they can shape the future.

Kantar Facts

2nd

We are the 2nd largest research company in the world and the first in all the BRICS markets

5 billion

Our Reputation Intelligence offer tracks and analyses over 5 billion articles and posts per year, across digital (online and social) and traditional media worldwide

1 billion

We track more than 1 billion digital ad exposures every day

500 million

Our AI marketing analytics engine analyses more than 500 million conversations a year

~70 million & 2 billion

We conducted around 70 million interviews in 70 countries last year, 68% online, uncovering 2 billion human insights

88 million

With more than 88 million members, we have the world's biggest permission-based, research-ready respondent network

45 million

Our Enhanced Profiles offer provides a deep understanding of 45 million consumers across 4,800 profiling attributes

92%

We conduct brand and communications research for 92 of the world's largest 100 advertisers

- AccuWeather’s mission is to save lives, protect property and help individuals and companies make the best weather-impacted decisions.
- More than 100 times every year, AccuWeather has been documented to provide more accurate, more advanced notification of significant and extreme weather events that impact businesses and threaten the health, welfare and lives of individuals.
- AccuWeather is the only publicly available source that issues its own individual forecasts of hurricane development, their tracks, intensity, and impact other than the National Hurricane Center (NHC), which is a branch of the National Weather Service.
- Other known public sources simply repurpose the National Hurricane Center forecasts while AccuWeather is the only public source delivering its own forecast as well as transmitting NHC forecasts.and discussing the reason for the differences.

Objective

To evaluate and verify the accuracy of AccuWeather's 2024 hurricane forecasts and the effectiveness of communications vs. the National Hurricane Center and all other known sources

2024 U.S. Hurricane Season Accuracy Study

Methodology

- Kantar analyzed the impactful and active 2024 Atlantic Hurricane Season to determine the most accurate and best communicated forecasts.
- Kantar carefully reviewed results of forecasts from AccuWeather, NHC and all other public sources for the 2024 hurricane season. This study determined which source provided the most advance notice, the most accurate track and intensity for all storms in the 2024 season, with particular attention to those that made U.S. landfall.
- Kantar also analyzed the effectiveness of communications for each of the 2024 U.S. landfall storms and examined which forecasts provided the most relevant and valuable parameters related to the forecast components (storm surge, wind speed, landfall location, etc.) that objectively measure the value of each forecast in order to save lives, minimize property damage, prevent injuries and help people best and most safely prepare for the onslaught of hurricanes.
- Kantar analyzed specific forecasts from AccuWeather and NHC for hurricane and tropical storm tracks and intensity. Kantar discerned that other than AccuWeather, other forecasts for hurricane movement, intensity and impact are based on forecasts that come from NHC.
- Kantar compared AccuWeather and NHC forecast data for each individual storm and provided a synopsis for the entire season and for all storms that made landfall.
- When comparing track and intensity forecasts, the forecast time steps analyzed were hours 12, 24, 36, 48, 60, 84 and 108 from the issued time. The AccuWeather and NHC forecast locations at those time steps, which are based on latitude and longitude of the storm center, and forecast maximum sustained wind speed was compared to the observed latitude and longitude and wind speed.

SCOPE OF ANALYSIS

Data	Track, maximum sustained wind speed forecasts and effectiveness of communications on the storm from AccuWeather, NHC, and all other known sources for hurricanes and tropical storms through their life cycle. Storm landfall location and intensity.
Timeframe	2024 Atlantic hurricane season, Storm data from June 19 - Nov. 18, 2024
Metrics	✔ Time of first forecast issued and who first predicted the development of a tropical storm and its future track ✔ Landfall forecast accuracy: Predicting where the storm's center comes ashore versus the forecast (in miles): ✔ Average number of hours forecasts extend into the future: Providing more advance notice of the storm's track and impact ✔ Forecast track accuracy (in miles): Predicting where center goes vs. forecast ✔ Forecast maximum sustained wind speed accuracy ✔ Coastal and inland impacts including, but not limited to, storm surge, wind damage and flooding from rain and the number of hours of advance notice of those important impacts
Storms	All storms during the 2024 season, including a detailed analysis of U.S. landfalling storms: Beryl, Debby, Francine, Helene, Milton, and one unnamed Atlantic tropical storm

Definitions; Key Tropical Storm/Hurricane Metrics and Why They Matter

First Forecast Issued

Kantar examined when the first forecast for track and maximum sustained wind speeds for each storm was issued.

Significance: Earlier notice that a storm may impact an area provides individuals, communities and businesses with more time to prepare.

Landfall Forecast Accuracy

Kantar examined the forecasts of specific landfall locations and maximum sustained wind speed and compared them to the actual location of landfall and the storm's maximum sustained wind speed at time of landfall.

Significance: People are generally most vulnerable, and the damage is greatest near where the center of the storm crossed the coast.

Definitions; Key Tropical Storm/Hurricane Metrics and Why They Matter

Average Number of Hours Forecast Extend into Future

Kantar examined the forecast length from each source. For example, AccuWeather typically provides a forecast 7-days into the future while the NHC normally provides only a 5-day storm track.

Significance: Forecasts provided further into the future offer more advance notice of when a storm is expected to hit land, enabling people in the area to be impacted to have more advance notice to prepare.

Track Accuracy

Kantar examined the forecast track of each storm, calculating the difference between forecast points and actual location of the storm at those times.

Significance: Accurate track forecasts are critical to forecasting the resulting potentially dangerous impacts from a storm such as storm surge, wind and rain.

Maximum Sustained Wind Speed Accuracy

Kantar examined the forecast maximum sustained wind speeds for each storm at each forecast point, calculating the difference between forecast and actual wind speed.

Significance: Accurate wind speed forecasts provide important information about the risk of damage from wind and storm surge as well as the threat to life and property.

2024 Tropical Storm/Hurricane Performance

Overall Conclusion

Kantar's analysis of forecast accuracy of all storms during the 2024 hurricane season found that, on average, AccuWeather's forecasts were more accurate across all categories studied. AccuWeather provided greater advance notice, was more accurate at predicting the track, the intensity, the wind speed and the impact than the NHC. And AccuWeather's predicted details were more clearly communicated than those from the NHC and other sources readily available.

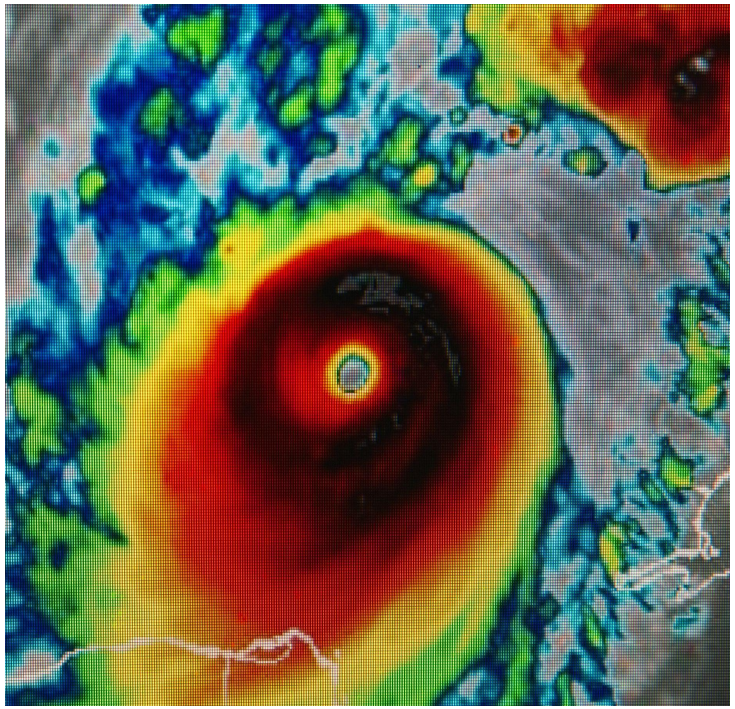
AccuWeather on average provided:

- Track forecasts that were 6.2% more accurate than the NHC and other sources for all 2024 storms and 8.9% more accurate for those that made U.S. landfall.
- Forecasts of landfall location were 8.6% more accurate than the NHC and other sources for all landfalling 2024 storms and 37.8% more accurate for the landfall intensity forecasts of those storms.
- Earlier first forecasts of the storm's track and intensity, issuing these first forecasts an average of 19 hours further in advance than NHC and all other sources for all 2024 storms, including those that made U.S. landfall.
- Maximum wind intensity forecasts that were 4.0% more accurate than the NHC and other sources for all 2024 storms and 4.4% more accurate for those that made U.S. landfall.
- The most effective communications to keep people better prepared, safer, and helped them make the best decisions to protect lives and property.
- Storm track and intensity forecasts that extended 25 hours further into the future than the NHC and all other sources for all 2024 storms and 31 hours further into the future for those that made U.S. landfall.

Our analysis confirmed AccuWeather's forecasts were on average more detailed and more actionable vs. other weather sources during the 2024 hurricane season

Kantar validated that AccuWeather's proprietary impact scale, the AccuWeather RealImpact™ Scale For Hurricanes, was more effective in communicating the broad range of impacts from tropical storms and hurricanes vs. the Saffir-Simpson Scale (standard which only includes wind speed and is used by NHC and all other sources), allowing people to better prepare.

Kantar validated that AccuWeather's RealImpact™ Scale, with six ratings of less-than-one and from 1 to 5, is a better measure and more comprehensive representation of a storm's potential impacts. The AccuWeather RealImpact™ Scale includes wind in addition to storm surge, inland flooding, and total damage and economic loss. Often, storm winds lose intensity as they approach and cross coastlines and wind is not the best measure alone of the damage and loss of life during hurricanes. Most deaths and damage from storms are due to storm surge and inland flooding, not wind.



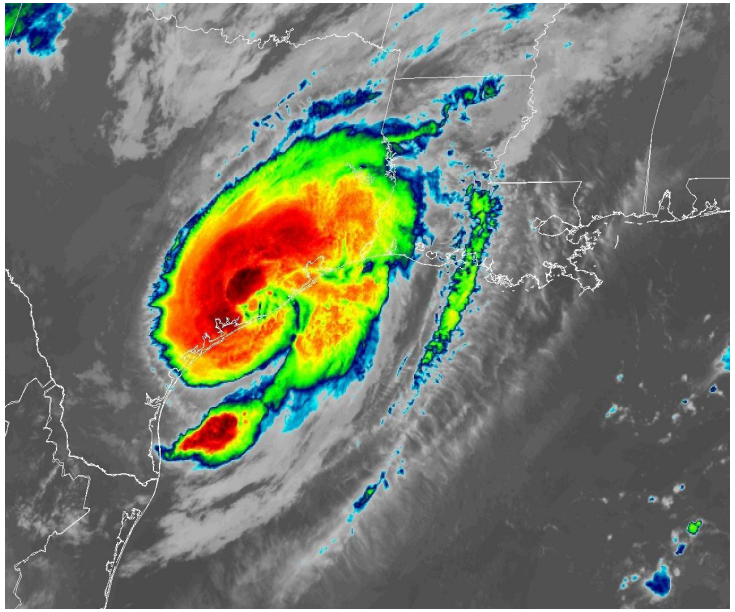
Storm-Specific Analysis

Beryl, Debby, Francine, Helene, Milton, and Unnamed September Tropical Storm

Hurricane Beryl

AccuWeather was first to predict Beryl's Texas landfall 30 hours before any other known source - giving people more time to prepare

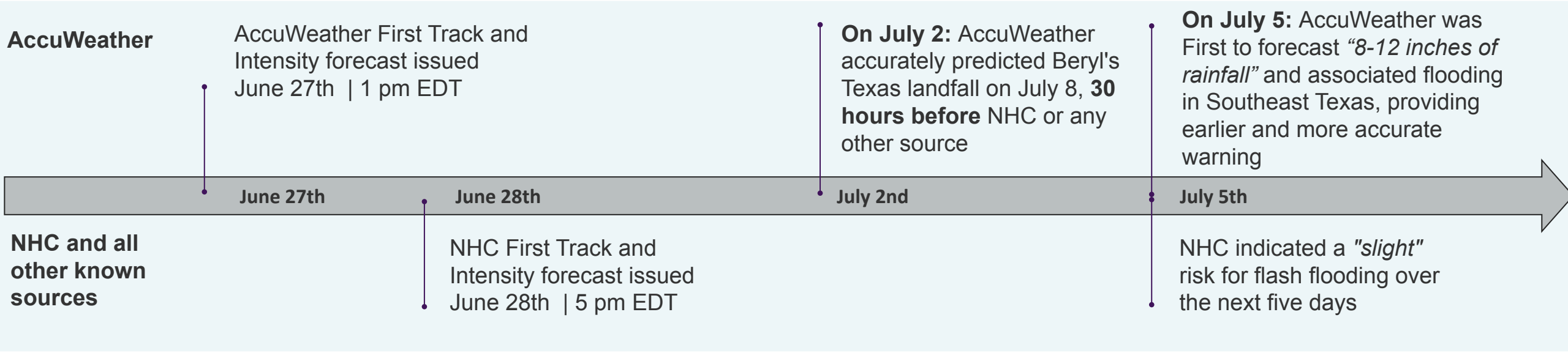
- AccuWeather's overall landfall forecast location was 6.9% more accurate than NHC and all other known sources.
- On July 2, 30 hours before the NHC: AccuWeather more accurately predicted Beryl's Texas landfall on July 8.
- On July 5: AccuWeather was the first to forecast 8-12" inches of rain across southeast Texas with resultant flooding, thereby providing earlier and more accurate warning than the NHC. They only indicated a "slight" risk for flash flooding.
- In addition, AccuWeather provided 7-day track and intensity forecasts, providing on average an extra 41 hours (nearly 2 full days) of advanced notice than the NHC and all other known sources.



Hurricane Beryl

Hurricane Beryl

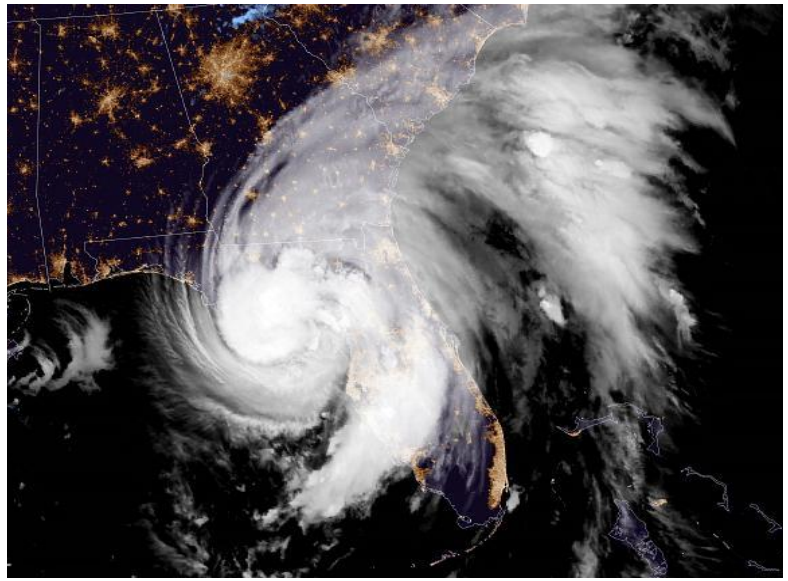
AccuWeather provided more advance notice with a forecast track for Beryl Thursday, June 27, 28 hours before NHC and all other known sources issued their first track



Hurricane Debby

AccuWeather forecasted that Debby would make landfall as a Category 1 hurricane 13 hours before the NHC and other known sources

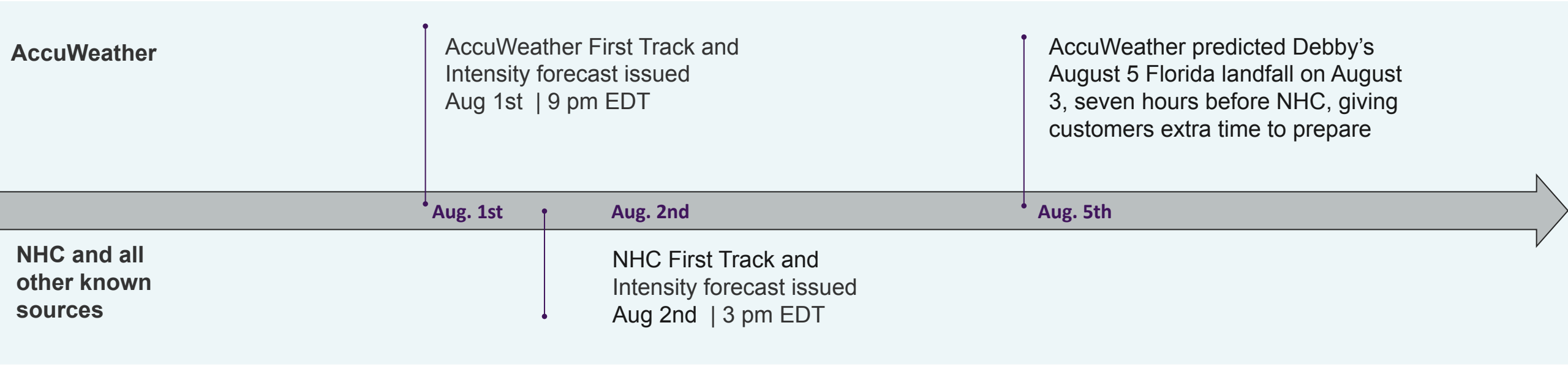
- AccuWeather forecasts for landfall location and wind intensity were 6.2% and 14.3% more accurate than the NHC and other sources, respectively.
- AccuWeather's first forecast of the track and storm intensity were issued 18 hours before the NHC and all other known sources.
- AccuWeather predicted Debby's August 5 Florida landfall on August 3, seven hours before the NHC, giving extra time to prepare.
- With its exclusive 7-day forecast track and intensity forecasts, AccuWeather provided a forecast that was, on average, 45 hours further into the future for Debby than the NHC and all other known sources.



Hurricane Debby

Hurricane Debby

AccuWeather provided more advance notice with a forecast track for Debby Thursday, August 1, 18 hours before NHC and all other known sources issued their first track



AccuWeather consistently predicted Debby would be a 1 on the AccuWeather RealImpact™ Scale for Hurricanes, providing clear communication that Debby would cause a significant impact to Florida. The NHC did not predict Debby would be a 1 on the Saffir-Simpson Scale at landfall until a day later.

Hurricane Francine

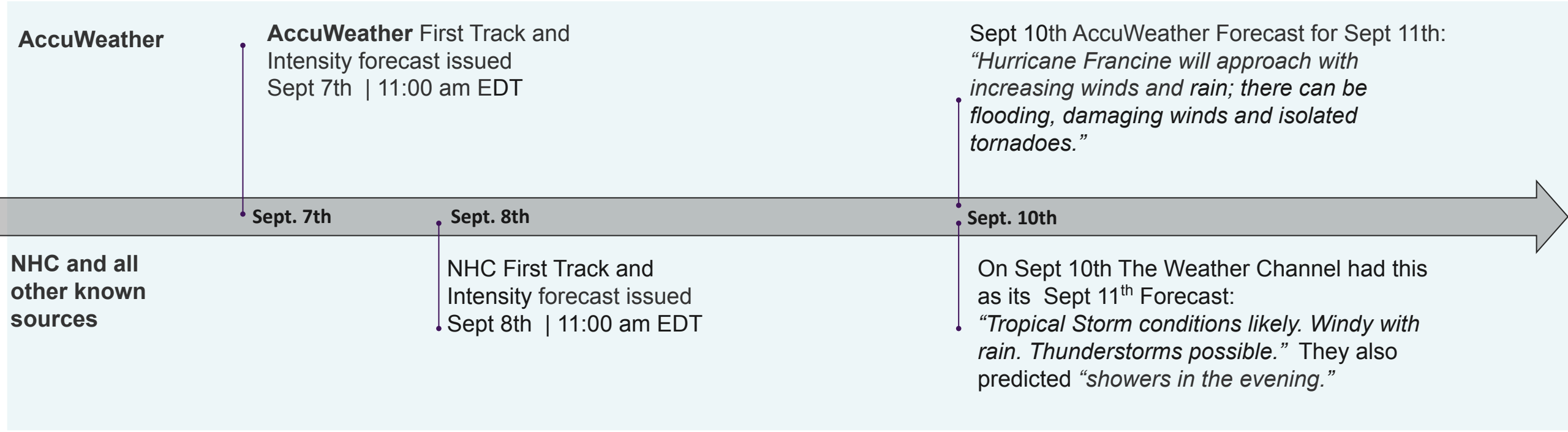
AccuWeather was the only known source to consistently and correctly predict Francine's landfall as a Category 2 hurricane while other sources frequently changed their forecasts

- AccuWeather forecasts for landfall location and wind intensity were 12.6% and 100% more accurate than the NHC and all other known sources, respectively.
- AccuWeather was the ONLY source that consistently and most accurately predicted Francine would be a Category 2 hurricane on the Saffir-Simpson Scale at landfall.
    - The NHC and other sources revised their predictions multiple times, initially forecasting a Category 2, but later incorrectly downgrading to a Category 1.
- With its exclusive 7-day forecast track and intensity forecasts, AccuWeather provided a forecast that was, on average, 21 hours further into the future for Francine than the NHC and all other known sources.

Hurricane Francine

Hurricane Francine

AccuWeather provided more advance notice with a forecast track Friday, September 6th <u>24 hours before the NHC</u> and all other known sources issued their first track



AccuWeather was the ONLY source that consistently and most accurately predicted Francine would be a Category 2 hurricane on the Saffir-Simpson wind scale at landfall. The National Hurricane Center and all other known sources revised their predictions multiple times, initially forecasting a Category 2, but later downgrading to a Category 1. AccuWeather was also clearer and more accurate on the impacts and locations of those impacts.

Hurricane Helene

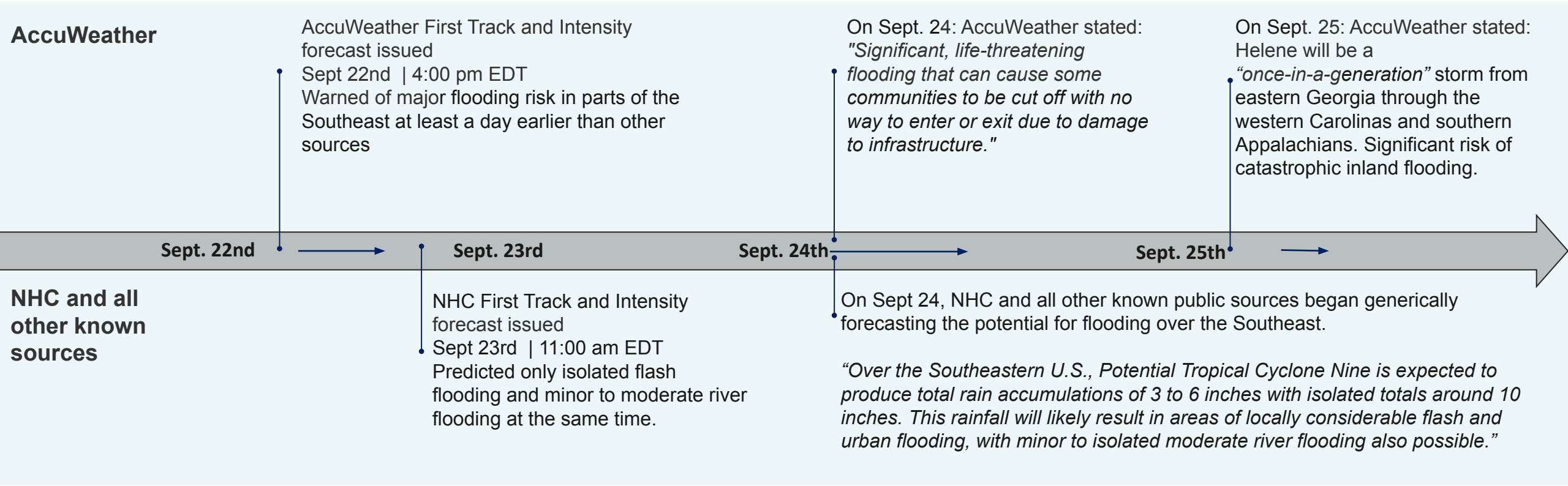
AccuWeather was the only known source to accurately predict that Helene "could cause a flooding disaster" and be "a once-in-a-generation storm" for parts of the southern Appalachians

- AccuWeather provided more advance notice on the first forecast track and intensity of Helene, issuing its forecast 19 hours before NHC and all other known sources.
- AccuWeather forecasts for landfall location and wind intensity were 21.9% and 52.4% more accurate than NHC and all other known sources, respectively.

Hurricane Helene

Hurricane Helene

AccuWeather provided more advance notice with a forecast track Sunday, September 22nd, 19 hours before the NHC and all other known sources issued their first track

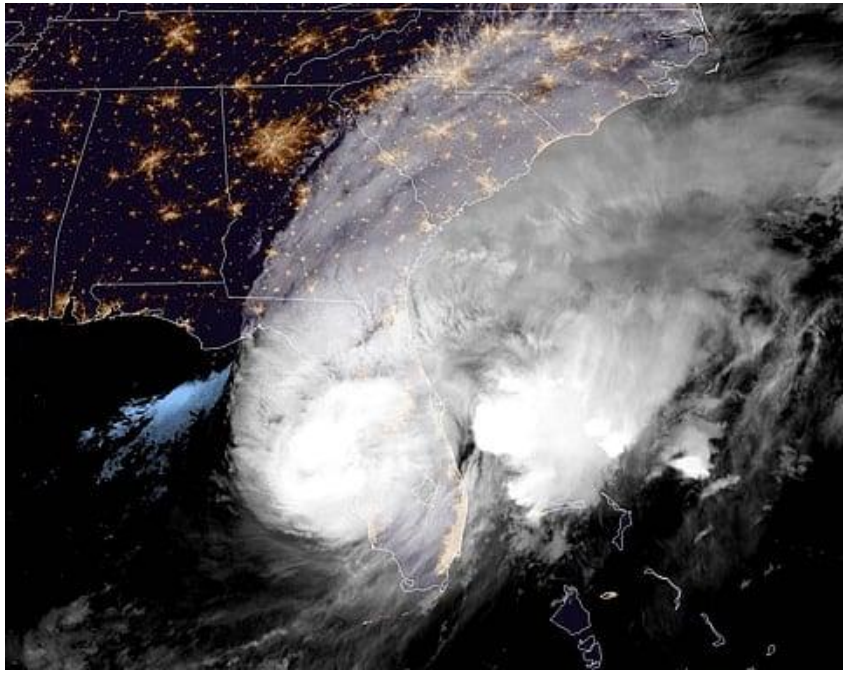


In addition, AccuWeather provided a forecast that was on average 3 hours further into the future for Helene than NHC and all other known sources.

Hurricane Milton

AccuWeather was the first known source to predict that Milton would develop into a hurricane and also the first to state that it would track toward Florida with “damaging winds and flooding”

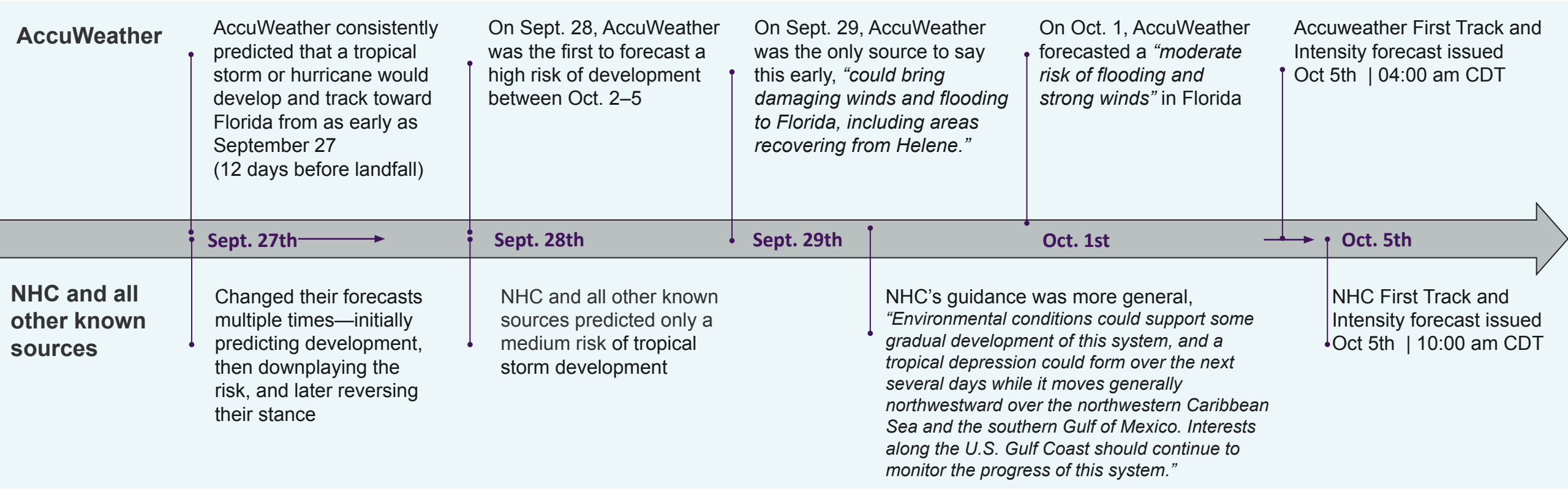
- On Sep. 27, 12 days before Milton developed, AccuWeather was the first known source to predict that a tropical storm or hurricane would track toward Florida.
- AccuWeather was the first known source to predict that Milton “could bring damaging winds and flooding to Florida, including areas recovering from Helene.” In addition, AccuWeather was the first known source to say “rapid intensification is possible.”
- With its exclusive 7-day forecast track and intensity forecasts, and earlier issuance, AccuWeather provided a forecast that was, on average, 22 hours further into the future about the impacts of Milton than the NHC and all other known sources.



Hurricane Milton

Hurricane Milton

AccuWeather provided more advance notice with a forecast track for Milton Saturday, October 5, 6 hours before NHC and all other known sources issued their first track



Unnamed September Tropical Storm

AccuWeather provided more advance notice with a forecast track on Saturday, September 14, 26 hours before the NHC and all other known sources issued their first track

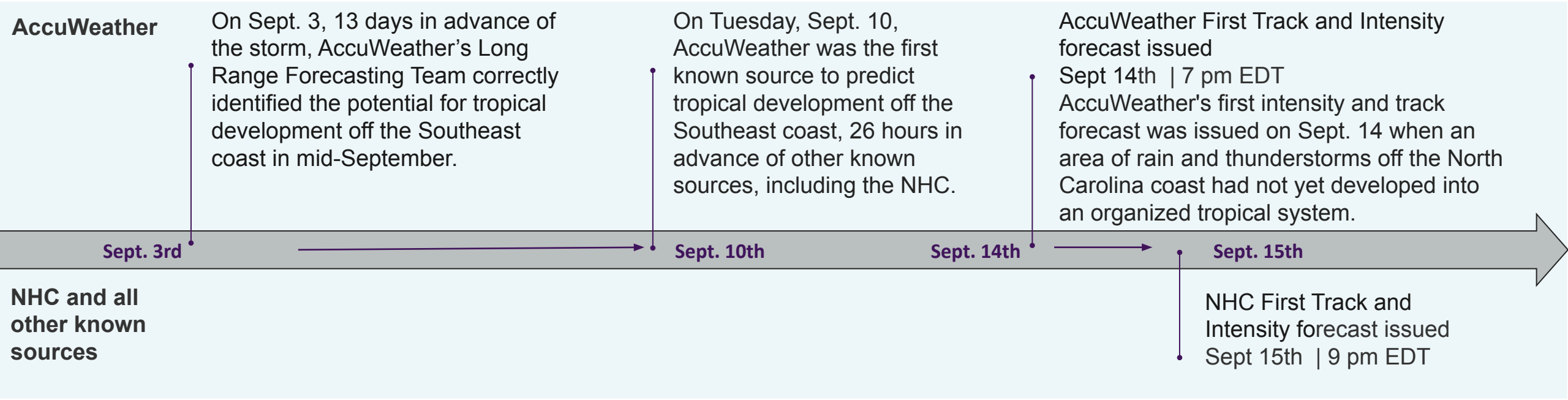
- The storm was never named by the NHC despite causing significant flooding in North Carolina. AccuWeather best conveyed this risk by rating the storm as a 1 on the AccuWeather RealImpact™ Scale for Hurricanes, providing the most accurate, holistic view of the storm's dangerous impact.
- There was historical flooding with $8 billion in total damage and economic loss according to AccuWeather, whose meteorologists were indicating this was producing the impacts of a tropical storm despite no name designation by the NHC and therefore no ranking on the Saffir-Simpson scale.

Unnamed Tropical Storm

On September 3, 13 days in advance of the storm, AccuWeather correctly identified the potential for tropical development off the U.S. Southeast coast in mid-September and warned AccuWeather For Business clients.

Unnamed Tropical Storm

AccuWeather provided advance notice with a forecast track for the unnamed storm on Saturday, September 14, 26 hours before NHC and all other known sources issued their first track



AccuWeather rated this unnamed storm as 1 on the AccuWeather RealImpact™ Scale for Hurricanes, the second level designation on the scale providing the most accurate, holistic view of the storm's dangerous impacts, enabling people to understand the threat and be better prepared.

Study Recap

As demonstrated throughout this analysis, Kantar found that AccuWeather's forecasts are, on average, the most accurate, the best communicated, and overall the most useful for people to make the best decisions to protect life and property.

Thank you