Tropical Cyclone Nicole (AAL172022)

Wind and Storm Surge

Final Event Briefing

The Bahamas North West

20 November 2022

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1 SUMMARY

Tropical Cyclone Nicole was the fourteenth named storm and the eighth hurricane of the 2022 Atlantic Hurricane Season. On 9 November at 1800 UTC, the centre of Nicole made landfall on Great Abaco Island, The Bahamas, as a tropical storm. During the next three hours, it further strengthened, reaching the Category 1 hurricane intensity and at 2300 UTC it made landfall on Grand Bahama, The Bahamas. Tropical-storm-force winds affected northwestern Bahamasfrom 9 November at 0600UTC to 10 November at 0600UTC. Afterward, Nicole moved towards the United States and made landfall on 10 November along the Florida coast. On 11 November, it dissipated over Georgia, United States.

The final runs of the CCRIF loss model for wind and storm surge produced government losses for The Bahamas - North West[1], which were below the attachment point of the Bahamas' Tropical Cyclone policy for the North-West . Therefore, no payout under the policy is due.

The Aggregated Deductible Cover (ADC) feature for the Tropical Cyclone policy for the Bahamas - North West was not activated. The modelled losses were below 10 per cent of the Minimum Payment of this policy. Therefore, no payment under the ADC feature is due.

This event briefing is designed to review the modelled losses due to wind and storm surge calculated by CCRIF's models for affected CCRIF member countries, to be analyzed with respect to members' Tropical Cyclone policies. The Bahamas was the only CCRIF member country for which the CCRIF loss model for wind and storm surge produced government losses due to Tropical Cyclone Nicole. A separate report on rainfall impacts on affected CCRIF member countries will be issued if applicable.

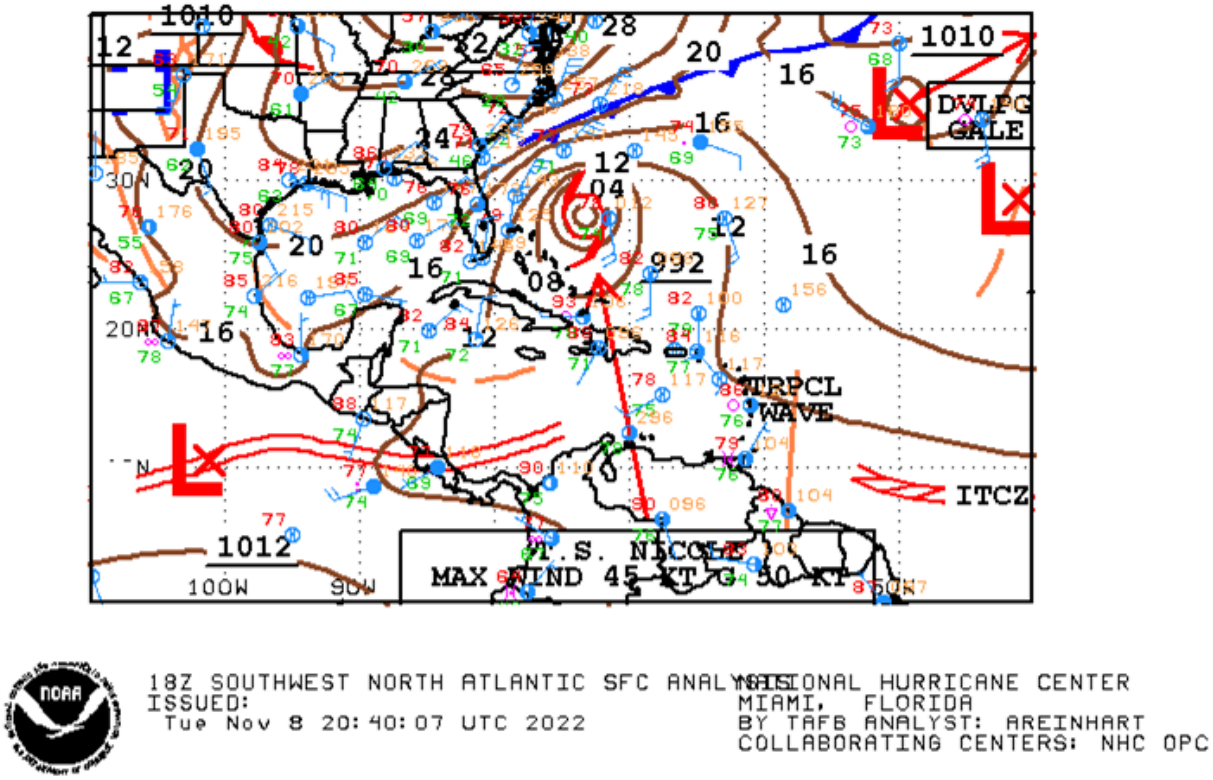
2 INTRODUCTION

On 7 November at 0900UTC, the US National Hurricane Center (NHC) indicated that a subtropical storm formed northeast of The Bahamas, and it was named Nicole. Its centre was approximately sited near latitude 25.5° North, longitude 68.5° West, about 555 mi (895 km) E of the northwestern Bahamas. The system proceeded with estimated forward velocity of 14 mph (22 km/h) towards the north-northwest, as it moved around the northeastern portion of a decaying upper-level low pressure system. The minimum central pressure was 1004 mb and the maximum sustained winds were estimated at 45 mph (75 km/h).

During the next 24 hours, Nicole continued to move northwestward, towards the warm waters close to The Bahamas. It was a very broad subtropical system, with the strongest winds well removed from the centre and limited deep convective activity near the centre.

[1] The Government of Bahamas has three Tropical Cyclone policies: one for The Bahamas South East, one for The Bahamas Central and one for The Bahamas North West, Tropical Cyclone Nicole, did not affect the Central and South East areas.

On 8 November at 0900UTC, Nicole began its transition towards a tropical storm, with the embedding of the low-level centre beneath a relatively small but persistent burst of deep convection and the reduction of the maximum wind radius. At 1500UTC, the NHC reported that Nicole became a tropical storm, with maximum sustained winds estimated at 50 mph (85 km/h) and minimum central pressure of 994 mb. At this time, its centre was approximately sited near latitude 27.8° North, longitude 72.7° West, about 350 mi (560 km) NE of the northwestern Bahamas, and it proceeded westward at 9 mph (15 km/h), Figure 1. From this time, the system strengthened gradually but steadily, on one side favoured by the warm sea surface temperature (about 27-28°C) and on the other side hindered by the intrusion of dry air into the circulation.



8 November at 1800UTC

Figure 1 Surface analysis over the Caribbean area on 8 November 2022 at 1800UTC. Source: US National Hurricane Center[2]

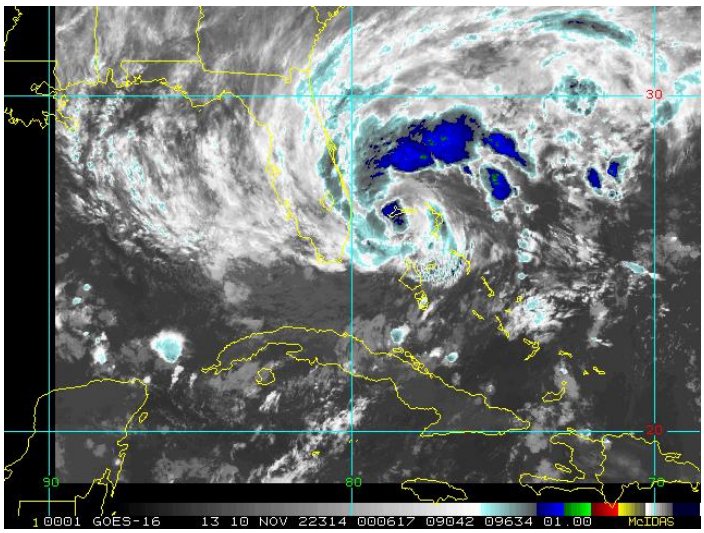
On 9 November at 0600UTC, tropical storm conditions spread across the northwestern Bahamas (Figure 3a). Nicole's centre was located near latitude 26.9° North, longitude 75.4° West, about 110 mi (180 km) ENE of Great Abaco Island, The Bahamas. The minimum central pressure was 985 mb and the maximum sustained winds were estimated at 70 mph (110 km/h). Tropical-storm-force winds extended outward up to 380 miles (610 km) from the centre, with the highest winds in the northern quadrant of the system. Nicole steered west-southwestward due to a deep-layer ridge over

[2]National Oceanic and Atmospheric Administration - FTP, National Hurricane Center, review date: 8 November 2022, available at: *https://www.nhc.noaa.gov/tafb/CAR_18Z.gif*

the southeastern United States, thus heading for the northwestern Bahamas.

At 1800UTC, the centre of tropical storm Nicole made landfall on Great Abaco Island, The Bahamas, with almost unchanged intensity. At this time, a private weather station on Elbow Cay, just east of Great Abaco Island, reported sustained winds of 43 mph (69 km/h) and a wind gust of 59 mph (95 km/h). Tropical-storm-force winds persisted over northwestern Bahamas, with highest intensity on the northern portion of Great Abaco and Grand Bahama Islands (Figure 3c). Storm surge raised water levels above normal tide levels along the immediate coast of the northwestern Bahamas in areas of onshore winds. The deepest water occurred along the immediate coast near and to the north of the location of landfall, where the surge was accompanied by large and destructive waves. The Bahamas Department of Meteorology reported a nearly 4-foot (1.2 meter) storm surge north of the town of Treasure Cay on Great Abaco Island.

Five hours later, at 2300UTC, Nicole made landfall on Grand Bahama, The Bahamas. The large oceanic heat content in the vicinity of the Bahamas islands favoured the internsification of the system and the NHC reported that Nicole was upgraded to a Category 1 hurricane. The estimated maximum sustained winds increased to almost 75 mph (120 km/h) with higher gusts, with the most intense winds in the northern semicircle (Figure 3d). Nicole showed a large eye of 57 mi (92 km) in diameter, with curved bands of convection wrapped around much of the circulation (Figure 2). While passing over the northwestern Bahamas, Nicole moved towards the north-northwest, as it moved along the southwestern periphery of the high pressure system located over the southern United States.

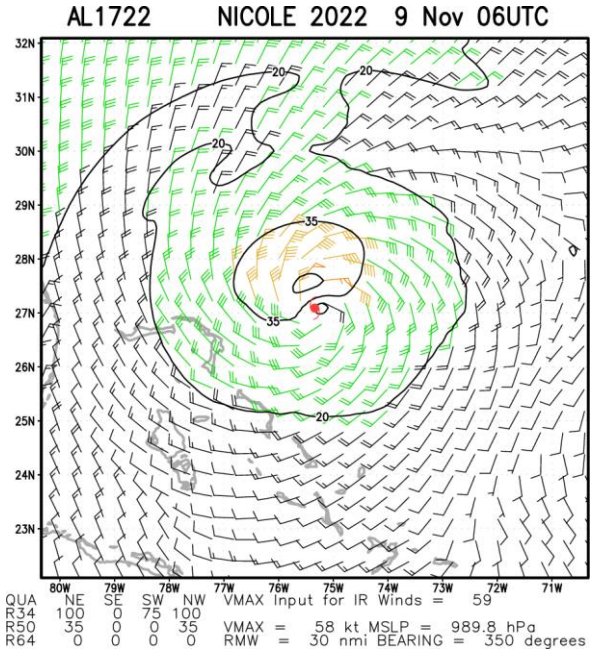


10 November at 0000UTC

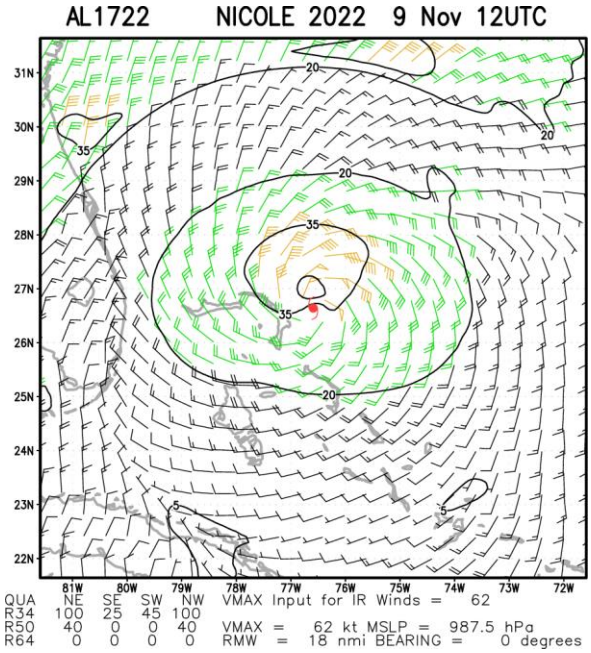
Figure 2 Satellite imagery on 10 November 2022 at 0000UTC from thermal infrared channel enhanced with colour. Blue/green colours represent high altitude clouds (top cloud temperature between -50°C and -70°C), while the red/yellow

colours represent very high altitude clouds (top cloud lower than -70°C). High altitude clouds indicate strong convection associated with intense precipitation. Source: NOAA, National Environmental Satellite, Data and Information Service3.

During the next hours, Nicole moved away from The Bahamas and headed for the Florida coast, United States, making landfall on 10 November at 0800UTC. From this time, tropical-storm-force winds gradually ceased over The Bahamas (Figure 3e). Afterwards, Nicole lost intensity while crossing Florida, and dissipated on 11 November over Georgia, United States.

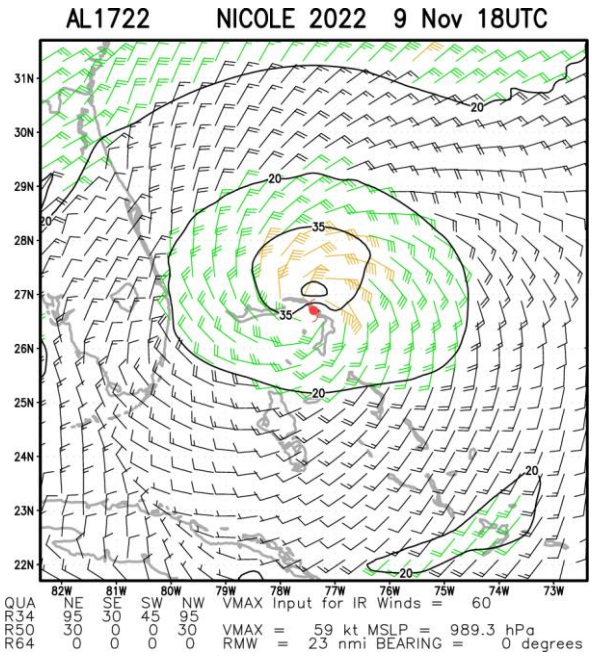


a) 9 November at 0600UTC

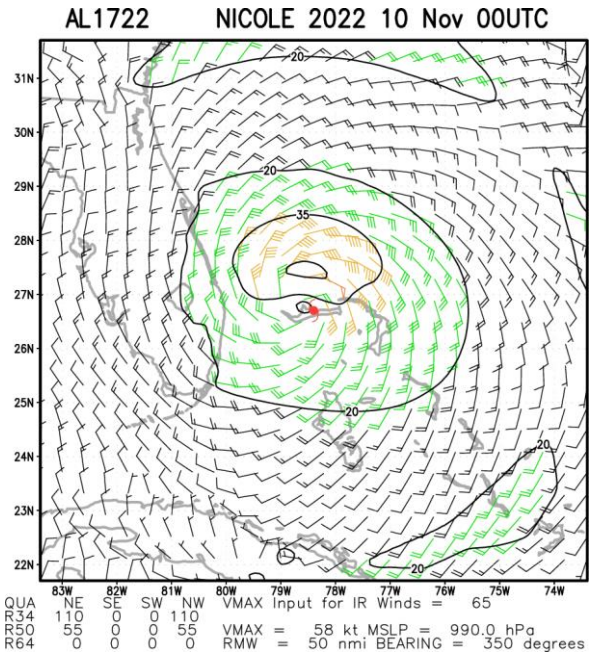


b) 9 November at 1200UTC

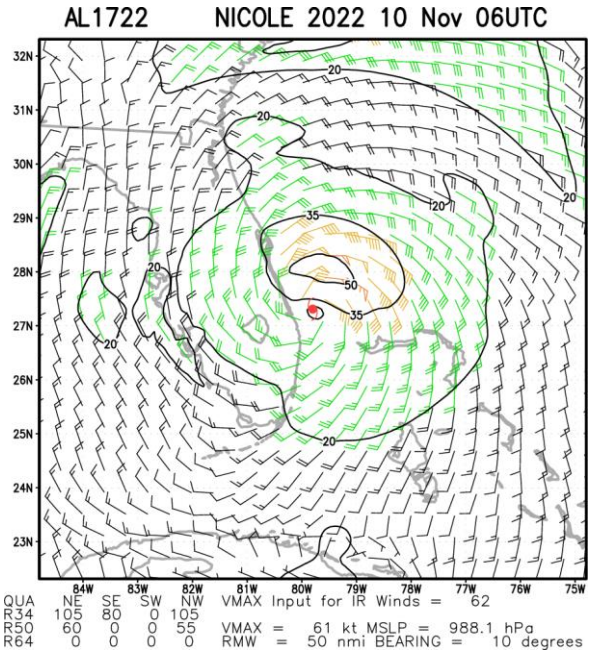
[3]RAMSDIS Online Archive, NOAA Satellite and Information Service, available at: https://rammb-data.cira.colostate.edu/tc_realtime/storm.asp?storm_identifier=al172022



c) 9 November at 1800UTC



d) 10 November at 0000UTC



e) 10 November at 0600UTC

Figure 3 Multi-platform satellite based tropical cyclone surface wind analysis estimated on 9 and 10 November 2022 at different times as indicated by the labels. Contouring indicates wind intensity at 20 kn (23 mph, 37 km/h), at 35 kn (40mph, 65km/h) and 50kn (56mph, 92km/h). Source: NOAA, National Environmental Satellite, Data and Information Service[4]

[4]RAMSDIS Online Archive, NOAA Satellite and Information Service, available at: https://rammb-data.cira.colostate.edu/tc_realtime/storm.asp?storm_identifier=al172022

3 CCRIF SPC MODEL OUTPUTS

Under CCRIF's loss calculation protocol, a CCRIF System for Probabilistic Hazard Evaluation and Risk Assessment (SPHERA) report is required for any tropical cyclone affecting at least one member country with winds greater than 39 mph (62.7 km/h). The Bahamas - North West was affected by Tropical Cyclone Nicole, which qualified as a Loss Event[5]. Figure 4 shows the wind footprint for the regions affected by Tropical Cyclone Nicole around The Bahamas North West.

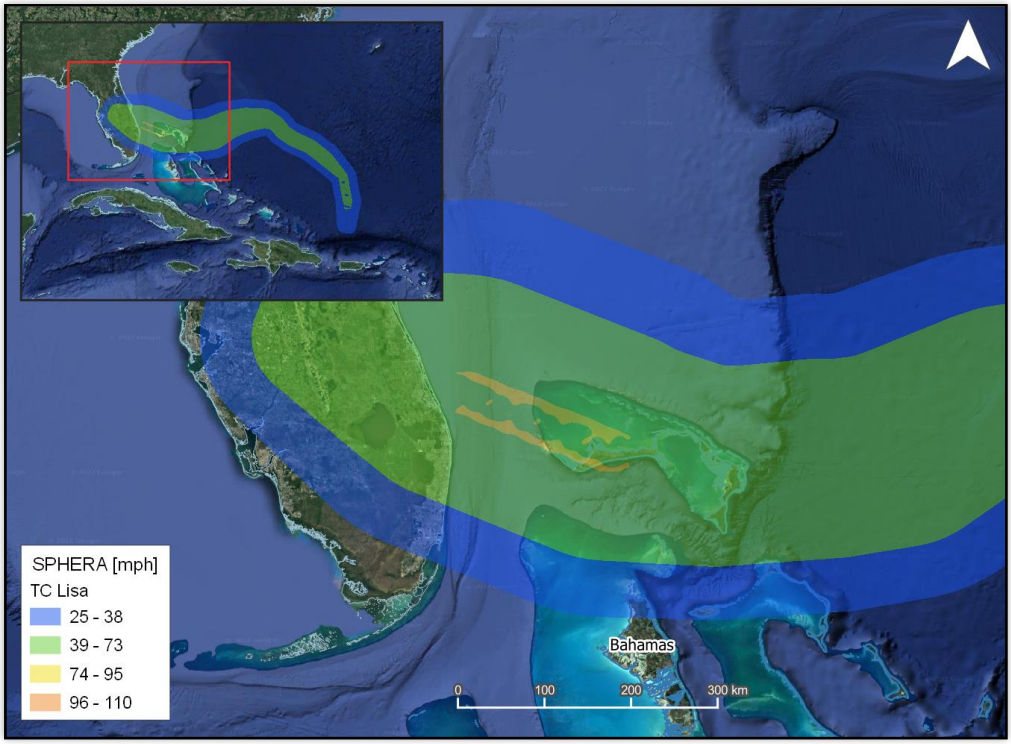


Figure 4 Map showing the wind field associated with Tropical Cyclone Nicole around the northwestern part of The Bahamas (TC policy: The Bahamas – North West).
Source: NHC & CCRIF/SPHERA

4 IMPACTS

At the time of writing this report, officials in The Bahamas reported that more than 860 people were in shelters. Extensive flooding, downed trees, power outages and disruptions to water services were reported in the archipelago's northwest region[6].

[5] Any Tropical Cyclone event which produces a modelled loss greater than zero in one or more policyholder countries.
[6] Hurricane Nicole forces hundreds to flee homes in Bahamas, heads toward Florida | CBC News

5 CCRIF LOSS MODEL

The final runs of the CCRIF loss model for wind and storm surge produced government losses for The Bahamas - North West, which were below the attachment point of The Bahamas' Tropical Cyclone policy for the north west region (The Bahamas – North West). Therefore, no payout under the policy is due.

The Aggregated Deductible Cover (ADC) feature for the Tropical Cyclone policy for The Bahamas – North West was not activated. The modelled losses were below 10 per cent of the Minimum Payment of the tropical cyclone policy for the Bahamas – North West . Therefore, no payment under the ADC feature is due.

For additional information, please contact CCRIF SPC at: pr@ccrif.org