



AIRCRAFT ACCIDENT REPORT

CAL/2008/07/14/F

Accident Investigation Bureau

Report on the accident involving a Boeing 737-282 Aircraft with nationality and registration marks 5N-BIG operated by Chanchangi Airlines Limited which occurred at Port-Harcourt International Airport on 14th July, 2008.

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This report was produced by the Accident Investigation Bureau (AIB), Murtala Muhammed Airport Ikeja, Lagos. The report was based upon the investigation carried out by AIB, in accordance with Annex 13 to the Convention on International Civil Aviation, Nigerian Civil Aviation Act 2006 and Civil Aviation (Investigation of Air Accidents and Incidents) Regulations 2019. In accordance with Annex 13 to the Convention on International Civil Aviation, it is not the purpose of aircraft accident/serious incident investigations to apportion blame or liability.

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Safety Recommendations in this report are addressed to the Regulatory Authority of the State, as well as other stakeholders, as appropriate. The Regulatory Authority is the authority that ensures implementation and enforcement.

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GLOSSARY OF ABBREVIATIONS USED IN THIS REPORT

AIB	Accident Investigation Bureau
APP	Approach Control
ARFFS	Aeroderome Rescue and Fire Fighting Service
ASL	Above Sea Level
ATC	Air Traffic Control
CLD BKN	Cloud Broken
CRM	Crew Resource Management
CVR	Cockpit Voice Recorder
DNMM	Murtala Muhammed International Airport, Ikeja
DNPO	Port Harcourt International Airport
FAAN	Federal Airports Authority of Nigeria
FDR	Flight Data Recorder
IFR	Instrument Flight Rules
IMC	Instrument Meteorological Condition
MAP	Missed Approach Point
MDA	Minimum Decision Altitude
NCAA	Nigerian Civil Aviation Authority
Nigeria CAR	Nigeria Civil Aviation Regulation 2006
NDB	Non-Directional Beacon

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NiMet	Nigerian Meteorological Agency
NOTAM	Notice to Air Men
PAPI	Precision Approach Path Indicator
PF	Pilot Flying
PIC	Pilot-in-Command
PIREP	Pilot Report
PM	Pilot Monitoring
QFE	Query Field Elevation
QNH	Query Navigation Height
RSA	Runway Safety Area
RWY	Runway
VOR	Very High Frequency Omni Direction Radio



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Aircraft accident report number:	CAL/2008/07/14/F
Registered owner and operator:	Chanchangi Airlines Limited
Manufacturer:	Boeing Aircraft Company, USA
Aircraft type and model:	Boeing 737-282
Nationality and registration marks:	5N-BIG
Location:	Port Harcourt International Airport
Date and Time:	14 th July, 2008 at 18:44 h <i>(All times in this report are local time (UTC +1) unless otherwise stated)</i>

SYNOPSIS

Accident Investigation Bureau (AIB) received notification of the accident on the 14th July, 2008 and investigation commenced on the 15th July, 2008.

On 14th July, 2008 at 16:49 h, a Boeing 737–282 aircraft with nationality and registration marks 5N-BIG, operated by Chanchangi Airlines Ltd, commenced a scheduled domestic flight from Murtala Muhammed International Airport, (DNMM) with call sign NCH138 for Port Harcourt International Airport (DNPO).

Instrument Flight Rules (IFR) flight plan was filed for the flight. There were 47 persons on board (41 passengers, 2 flight crew and 4 flight attendants) and 3 hours fuel endurance. The Captain was the Pilot Flying (PF) and the First Officer (FO) was the Pilot Monitoring (PM).

At 18:45 h, NCH138 reported five miles to touchdown. Approach Control acknowledged and instructed NCH138 to report field in sight and subsequently handed

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over to Tower on 119.2 MHz. When contacting the Tower, NCH138 was cleared to land on RWY 21, wind 010⁰/10 kt and was advised to exercise caution due to wet runway. NCH138 acknowledged the clearance.

NCH138 landed hard and bounced three times on the runway. According to the ATC controller, after touch down the aircraft rolled in an s-pattern before it overran the runway. NCH138 made a 180° turn with the right engine hitting the ground. The aircraft came to a final stop on the left side and 10 m beyond the stopway.

The accident occurred at night in Instrument Meteorological Conditions (IMC). The Aeroderome Rescue and Fire Fighting Service (ARFFS) arrived the scene and commenced rescue operations immediately.

All occupants on board were evacuated; one passenger sustaining a minor injury.

The investigation identified the following causal and contributory factors:

Causal factors

The decision to land following an unstabilized approach (high rate of descent and high approach speed). A go-around was not initiated.

Contributory factors

1. The deteriorating weather conditions with a line squall prevented a diversion to the alternates.
2. The runway was wet with significant patches of standing water.

In view of the issuance of the Nigeria CAR 2009 (Nigeria Civil Aviation Regulation) and the revision in 2015, which addressed the areas of shortcomings identified in this investigation, no safety recommendations are made.

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1.0 FACTUAL INFORMATION

1.1 History of the flight

On 14th July, 2008 at 16:49 h, a Boeing 737–282 aircraft with nationality and registration marks 5N-BIG, operated by Chanchangi Airlines Ltd, commenced a scheduled domestic flight from Murtala Muhammed International Airport, (DNMM) with call sign NCH138 for Port Harcourt International Airport (DNPO). Instrument Flight Rules (IFR) flight plan was filed for the flight. There were 47 persons on board (41 passengers, 2 flight crew and 4 flight attendants) and 3 hours fuel endurance. The Captain was the Pilot Flying (PF) and The First Officer (FO) was the Pilot Monitoring (PM).

The FO stated that NCH138 was initially scheduled to depart at 15:30 h, but the flight was delayed due to loading of passenger baggage.

The Captain stated that NCH138 was cleared to FL290 and the flight continued normally.

According to the DNPO Air Traffic Control (ATC) watch supervisor on duty, NCH138 contacted DNPO Approach Control (APP) at 17:05 h with flight information estimating POT at 17:50 h. NCH138 was issued an inbound clearance to POT¹ VOR² with the following weather information for 17:00 h as: Wind calm, Visibility 10 km, Broken clouds 270 m, Scattered clouds 600 m, Cumulonimbus clouds scattered, temperature 25/24°C, Thunderstorms, Temporarily Variable 8 kt, gusting 18 kt, Visibility 3000 m, Thunderstorms and rain, and expect runway (RWY) 21 for landing.

¹ POT – Port Harcourt

² POT VOR – Port Harcourt Very High Omni-directional Radio Range (VOR)

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According to the First Officer NCH138 requested descent into POT at about 100 NM. The Captain added that due to ATC delay, the descent commenced at about 80 NM.

The Control Tower Watch Supervisor stated that at 18:00 h, NCH138 requested to hold over POT at 3500 ft for weather improvement, because there was rain overhead the station with build-up closing in at the threshold of RWY 21. At about 15 NM, between radials 180° and 210°, NCH138 reported breaking out of weather.

At 18:19 h, NCH138 requested weather information from the Tower. Tower advised the flight crew that RWY 03 was better for landing. At this time, NCH138 requested RWY 03 for approach and Approach Control cleared NCH138 for the approach to RWY 03.

At 18:27 h, the flight crew reported established on approach to RWY 03, leaving 2000 ft. The Approach Control then transferred NCH138 to DNPO Tower for landing instructions.

At 18:28 h, the Tower instructed NCH138 to report field in sight. The flight crew acknowledged and reported RWY 03 in sight. Tower cleared NCH138 to land on RWY 03 and NCH138 was cautioned that the runway was wet.

At 18:34 h, NCH138 executed and reported a missed approach. NCH138 requested a climb to 3500 ft. NCH138 was cleared to climb and instructed to report overhead POT.

At 18:39 h, NCH138 requested a descent and clearance for an approach to RWY 21. Approach Control cleared NCH138 to descend to 2000 ft and report to Tower when established on the approach and also to report leaving 2000 ft.

At 18:42 h, NCH138 reported inbound maintaining 2000 ft. The Approach Control requested the distance from the runway and sought consent of NCH138 for Arik 514 at the holding point to take off. NCH138 declined, as they were about 10 miles to touchdown.

At 18:45 h, NCH138 reported five miles to touchdown. Approach Control acknowledged and instructed NCH138 to report field in sight and thereafter handed



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over to Tower on 119.2 MHz. When contacting the Tower, NCH138 was cleared to land on RWY 21, wind 010⁰/10 kt and was advised to exercise caution due to wet runway. NCH138 acknowledged the clearance.

NCH138 landed hard and bounced three times on the runway. According to the ATC controller, after touch down the aircraft rolled in an s-pattern before it overran the runway. NCH138 made a 180° turn with the right engine hitting the ground. The aircraft came to a final stop on the left side and 10 m beyond the stopway.

The accident occurred at night in Instrument Meteorological Conditions (IMC). The Aeroderome Rescue and Fire Fighting Service (ARFFS) arrived the scene and commenced rescue operations immediately.

All occupants on board were evacuated; one passenger sustaining a minor injury.

1.2 Injuries to persons

Injuries	Crew	Passengers	Total in the aircraft
Fatal	Nil	Nil	Nil
Serious	Nil	Nil	Nil
Minor	Nil	1	1
None	Nil	40	46
TOTAL	6	41	47

1.3 Damage to aircraft

The aircraft was substantially damaged.

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1.4 Other damage

A Non-Directional Beacon (NDB) installation cable along the edge of the runway was damaged.



Figure 1: Aircraft position beyond the stopway.

1.5 Personnel information

1.5.1 Pilot (Pilot flying)

Nationality:	Nigerian
Age:	48 years
License:	Airline Transport Pilot License (A)
License validity:	30 th September, 2008
Medical validity:	28 th September, 2008
Aircraft ratings:	Cessna C172, Cessna C310, Shorts SD-360, McDonnell DC-9, Boeing 727, Boeing 737-200



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Total flying time:	8688:50 h
On type:	452:10 h
Last 90 days:	274:45 h
Last 28 days:	96:20 h
Last 24 hours:	5:00 h

The pilot had the Annual Line Check on the 25th February, 2008. After the Line Check, the pilot acquired 452:10 h including 200 h on type as PIC. The pilot resumed duty at 07:30 h on the day of the occurrence and had a preceding rest period of 12 h.

The pilot reported that the ATC only reports the hourly weather even when there was significant change in weather over the field, and the ATC only reports runway wet even when there was significant patches of water.

1.5.2 Co-Pilot (Pilot monitoring)

Nationality:	Beninese
Age:	51 years
License:	Commercial Pilot License
License validity:	31 st October, 2008
Medical validity:	31 st October, 2008
Aircraft ratings:	Cessna C172, de Havilland DHC-6 (Twin Otter), Shorts SD360, Dornier DO228, Boeing 737-200
Total flying time:	7500 h
On type:	2500 h
Last 90 days:	170:00 h

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Last 28 days: 60:00 h

Last 24 hours: 08:25 h

1.5.3 Lead cabin crew

Nationality: Nigerian

Age: 44 years

Type: B 727, B 737-200

Emergency Drills

Type	Date	Date Due	Aircraft
Evacuation	9 December, 2006	8 December, 2008	B 737-200
Fire drill	11 November, 2006	10 November, 2007	-
Ditching	24 October, 2006	23 October, 2007	B 727
Evacuation	11 November, 2006	10 November, 2007	B 727-200
Evacuation	11 November, 2007	10 November, 2008	-
Fire drill	11 November, 2007	10 November, 2008	-
Ditching	23 October, 2007	22 October, 2008	-
Evacuation	8 March, 2008	7 March, 2010	B737-200

1.6 Aircraft information

1.6.1 General information

Type: Boeing 737-282

Serial number: 23044

Operator: Chanchangi Airlines

Manufacturer: Boeing Aircraft Company, USA

Year of Manufacture: 30th June, 1983

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Airframe time:	55,508 h
Cycles since new:	36,263
Certificate of Airworthiness validity:	26 th April, 2009
Certificate of Registration:	30 th December, 2005
Certificate of Insurance:	28 th February, 2009

On 3rd July, 2008, the weather radar indicator with serial number 2804 was replaced with another indicator with serial number 2175 that has the same Part number MI-585162-2.

1.6.2 Power Plant

Engine	Number 1	Number 2
Manufacturer	Pratt & Whitney USA	Pratt & Whitney USA
Type	JT 8 D – 17	JT 8 D – 17
Serial No.	700823	688780
TSN/CSN	46704 h/27117 cycles	47835 h/35819 cycles

Fuel type: Jet A1

1.7 Meteorological information

The trends in meteorological conditions obtained from the Nigerian Meteorological Agency (NiMet) for DNPO on the day of the occurrence were as follows:

At 16:30 UTC	SPECI
Wind:	Calm
Visibility:	10 km
Clouds:	Broken at 300 m, scattered at 600 m, cumulonimbus in several directions.



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Weather: Thunderstorms

QFE: 1007 hPa

QNH: 1010 hPa

At 17:00 UTC

Wind: Calm

Visibility: 10 km

Clouds: Broken at 270 m, scattered at 600 m, cumulonimbus in several directions.

Temperature/Dew point: 25/24° C

Weather: Thunderstorms

Trend: Temporarily variable at 8 kt, gusting 18 kt, visibility 3000 m, thunderstorm and rain.

QFE: 1007 hPa

QNH: 1010 hPa

At 18:00 UTC

Wind: 010⁰/10 kt

Visibility: 6 km

Clouds: Broken at 180 m, scattered at 600 m, cumulonimbus in several directions.

Temperature/Dew point: 22/20°C

Weather: Thunderstorm with rain



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Trend:	Temporarily visibility 3000 m in thunderstorms and rain.
QFE:	1009 hPa
QNH:	1012 hPa

The natural light conditions at the time was twilight in rain.

The Satellite Weather Imagery obtained from NiMet depicting DNPO area on the day of the occurrence is attached as Appendix 2.

There was no record available to the Bureau indicating that the flight crew received weather update prior to the departure.

1.8 Aids to navigation

The status of navigational aids on the day of the occurrence was as follows:

ILS Glide Slope Freq. 335.0 MHz - Unserviceable NOTAM REF NTM A0065/08 from 0804281600 to 0807281600 EST. ILS GLIDE Slope Freq.335.0 MHz ILS RWY21 unserviceable.

'POT' VOR/DME Freq. 113.5 MHz - Serviceable

Locator Beacon - Serviceable

1.9 Communications

There was effective communication between the Tower and the aircraft.

The communication facilities and their status on the day of the occurrence were as follows:

VHF 124.9 MHz (MAINS) - Serviceable

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VHF 122.3 MHz (ATIS)

-

Unserviceable

1.10 Aerodrome information

Port Harcourt International Airport is owned and operated by Federal Airports Authority of Nigeria (FAAN). It is located 32 km west of the city and has a runway with an orientation of 03/21 which is 3000 m long and 60 m wide, located at coordinates latitude 05° 00' 56" N and longitude 006° 56' 58" E, and at an elevation of 87 ft (ASL).

The runway is equipped with Precision Approach Path Indicator PAPI, approach and edge lighting systems. See Appendix 3 for airport layout plan. The airport hours of operation were limited from sunrise to sunset as per NOTAM Referenced: NTM A0082/0632 dated 8th July, 2008.

The pilot mentioned that all the lights were "NIL" (not ON) at the time of the occurrence.

1.11 Flight recorders

The aircraft was equipped with a Flight Data Recorder and Cockpit Voice Recorder.

1.11.1 Flight Data Recorder (FDR)

Manufacturer	Lockheed Model 209F
Model	209DFDR
Part No.	10077A500
Serial No.	4315
Recording Medium	Magnetic Tape
Duration of Recording	25 hour continuous

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1.11.2 Cockpit Voice Recorder (CVR)

Manufacturer	Fairchild
Model	A100A
Part No.	93-A100-80
Serial No.	60949
Recording Medium	Magnetic Tape
Duration of Recording	30 minutes

1.12 Wreckage and impact information

The aircraft touched down at 1700 m into runway 21, bounced several times, skidded left off the extended centre line, back to the centre and continued to the right at 2100 m. The broken pieces of the nose wheel rim and the damaged tyre were found at 2100 m and 2200 m, respectively.

The aircraft overran the runway, cut an NDB cable, made a 180° turn with the right engine hitting the ground. The aircraft came to a final stop on the left side, 10 m beyond the stopway. Upon observation, the following damage was noticed:

1. Nose wheel sheared off leaving the bolt behind.
2. No. 2 and 4 Main wheel assemblies were damaged.
3. No. 2 and 4 Main wheel tyres were burst.
4. Both engines ingested gravels/sand and debris.
5. No. 2 Engine tail cone and thrust reverser were damaged.

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6. The fuselage nose area buckled.



Figure 2: The number 2 engine thrust reverser damage.



Figure 3: Damaged nose wheel gear

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Figure 4: Final position of the aircraft relative to the runway



Figure 5: Final position of the aircraft

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Figure 6: A broken piece of the nose wheel rim



Figure 7: Another broken piece of the nose wheel rim

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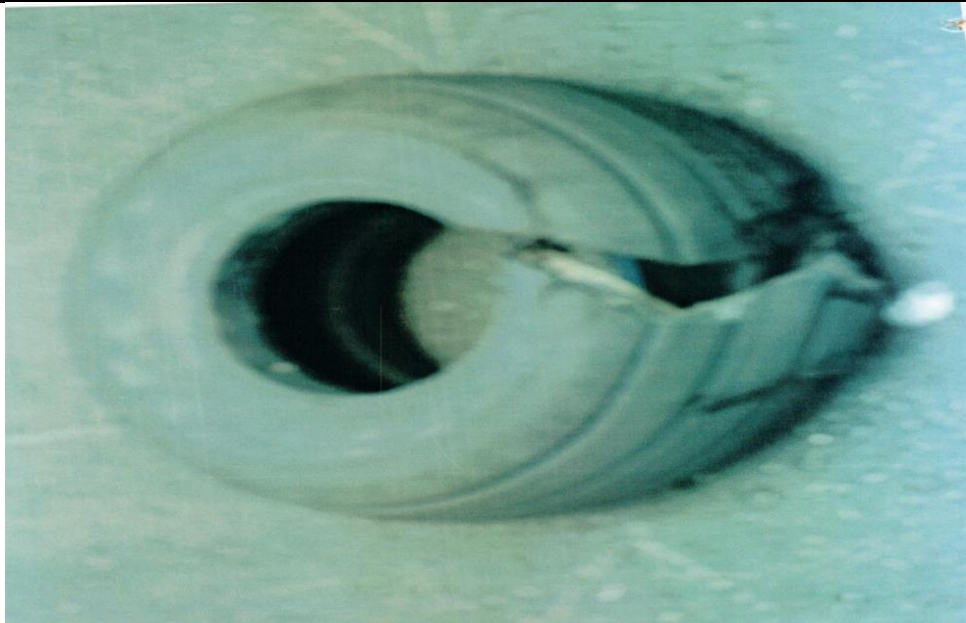
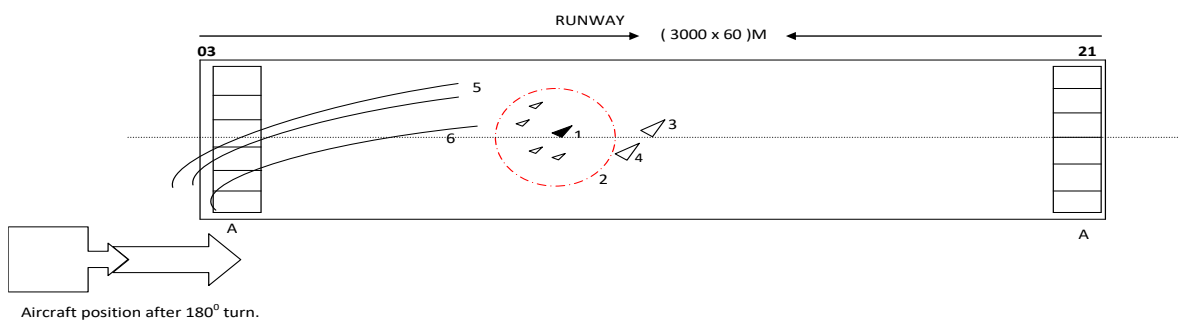


Figure 8: Damaged nose wheel tyre

KEY

- 1 – Impact shown at 1700 meters from end of runway 21
- 2 – Scattered debris of nose wheel and nose wheel scratches at (1600 – 1700) meters from end of runway 03
- 3 – Tyre at 1500 meters from end of runway 03
- 4 – Position of side strip at 1400 meters from end of runway 03
- 5 – Tyre markings of main landing gear on runway
- 6 – Strut marks of nosewheel on runway
- A – Threshold point



Impact and wreckage trail sketch diagram

Diagram of the impact and wreckage trail

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1.13 Medical and pathological information

No medical examinations were carried out.

1.14 Fire

There was no evidence of pre or post occurrence fire.

1.15 Survival aspects

When the aircraft came to a complete stop, there was no command for an evacuation, and the flight attendants initiated the evacuation. The forward left evacuation slide separated from the container and could not be deployed during the evacuation. The remaining slides were deployed and used for the evacuation. The evacuation lasted for about 45 s. The 41 passengers and six crew were evacuated.

The fire and rescue team were notified by the Control Tower at 18:44 h, and arrived at the scene at 18:46 h.

The aircraft was largely intact to the extent that liveable volume was available to all occupants. The seat restraints were effective.

1.16 Test and research

Nil

1.17 Organizational and management information

Chanchangi Airlines Ltd was incorporated in January 1994 and started operations in April 1997 on a wet lease agreement with Aviogenex of Yugoslavia as a domestic

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carrier in Nigeria with one aircraft, a Boeing 737-200. Its administrative headquarters was located in Kaduna while Lagos served as the operational base.

At the time of the accident, the airline operated schedule domestic services to several destinations in the country using a fleet of Boeing 727-200 and 737-200 aircraft.

1.18 Additional information

Nil

1.19 Useful or effective investigation techniques

Nil

2.0 ANALYSIS

2.1 General

The flight crew members were properly licensed and qualified for the flight, medically fit, and adequately rested to operate the flight in accordance with the existing regulations. There was no evidence of flight crew fatigue.

The aircraft was properly certificated, equipped, and maintained in accordance with the regulations in force at that time and was structurally intact prior to the flight.

2.2 Conduct of the flight

NCH138 departed DNMM at 16:49 h enroute to DNPO maintaining FL 290. The aircraft established contact with DNPO Approach Control at 17:05 h and reported estimate POT VOR at 17:50 h. The ATC acknowledged and issued an inbound clearance for a POT VOR approach to runway 21. Weather information for 16:00z was relayed to the flight crew. The weather information indicated thunderstorm activity over the station.

As the flight progressed, the flight crew requested actual weather from Tower observation. The Tower advised that runway 03 was better for landing, as the thunderstorm activity was moving towards runway 21.

At 18:19 h, the flight crew requested approach for runway 03. At 18:25 h, the Approach Control granted the approval. On reaching minimum decision altitude (MDA), the flight crew lost the runway in view, which prompted them to execute a missed approach.

At 18:39 h, NCH138 requested a descent for an approach to runway 21. APP Control cleared NCH138 to descend to 2000 ft on QNH 1012hPa and transferred the aircraft to Tower.

On contact with Tower, NCH138 was cleared to land on runway 21. The aircraft landed hard at about 1700 m into the runway, bounced about 3 times as a result of

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which the flight crew lost directional control of the aircraft and subsequently overran the runway.

2.3 Weather and environmental conditions

NCH 138 was initially scheduled to depart Lagos (DNMM) to Port Harcourt (DNPO) at 15:30 h, but the flight was delayed until 16:49 h (a one hour 19 minute delay).

The pilots received METAR information of 15:00 and 16:00 for Port Harcourt International Airport as observed: Surface wind direction was 180°, speed 8 kt, visibility 10 km in nil weather, broken cloud at height of 360 m, A few cumulonimbus clouds in several directions at 660 m, temperature 28°C, dew point 24°C and prevailing mean sea level air pressure (MSL) 1011 hPa; the surface wind was from 220° at 6 kt, visibility 5km in thunderstorm and rain showers, broken cloud base 300 m, few cumulonimbus clouds in several directions at 600 m, temperature 28°C, dew point 24°C and prevailing mean sea level air pressure (MSL) of 1010 hPa.

A special meteorological report was issued at DNPO at 16:30 prior to the departure of NCH138 from DNMM. The recorded weather information showed a calm surface wind, visibility 10 km in thunderstorm, broken cloud base 300 m, scattered 600 m cumulonimbus in several directions, and prevailing mean sea level air pressure (MSL) of 1010 hPa.

Furthermore, the 17:00 and 18:00 meteorological reports issued at DNPO prior to the arrival of NCH138 showed calm surface wind, visibility 10 km in thunderstorm, broken cloud base 270 m, scattered 600 m cumulonimbus in several directions, temperature 25°C, dew point 24°C, and prevailing mean sea level air pressure (MSL) of 1010 hPa. The trend forecast was temporary with variable wind 8 kt, gusting 18 kt, visibility 3000 m in thunderstorm with rain. And the surface wind from 010° at 10 kt, visibility 6 km in thunderstorm with rain, broken cloud base 180 m, scattered 600 m cumulonimbus in several directions, temperature 22°C, dew point 20°C, and prevailing mean sea

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level air pressure (MSL) of 1012 hPa. The trend forecast was temporary visibility expected to be 3000 m in thunderstorm with rain.

It is evident from the above weather deductions that there was adverse weather activity prior to and after the arrival of NCH138 at DNPO on the day of the occurrence. In addition, the satellite weather imagery obtained from NiMeT indicated a line squall over Port Harcourt area from 17:00 to 21:00.

It is the practice of the flight crew to request and receive briefing on updated weather information for the departure, enroute and destination. There were no records available to the Bureau indicating that the flight crew received such weather updates prior to the departure.

2.4 Operational considerations

NCH138 was delayed on the ground in Lagos for over an hour. During that time, a SPECI for 16:30 h was issued indicating deteriorating weather at Port Harcourt airport. Additionally, satellite imagery received from NiMeT corroborated the deteriorating conditions. An updated weather report would have assisted the flight crew in evaluating several options in arriving at a decision well ahead of time which would have enhanced their situation awareness.

The Flight Plan for NCH138 showed an endurance of 3 hours and a 50 minutes flight time, however, the actual flight time lasted 1 hour 55 minutes.

NCH138 departed Lagos at 16:49 h and estimated POT VOR at 17:50 h indicating a flight time of about an hour.

On reaching the station and due to weather conditions, NCH138 decided to hold in the vicinity of the airport, considered diverting to the alternates or to Owerri, but were unable to due to line squall. NCH138 carried out a missed approach and then made a second approach to land. This lasted for about 54 minutes.

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The aircraft had about an hour endurance left and a few minutes remaining before the closure of Port Harcourt airport at sunset.

The delay on the ground in Lagos for over an hour, the time in holding and considered diversions, the missed approach, the limitations on airport operational hours, unavailable runway lighting system and the diminishing fuel endurance remaining were factors that could have pressured the flight crew into landing the aircraft.

3.0 CONCLUSIONS

3.1 Findings

1. The flight crew members were properly licensed and qualified under the Nigeria Civil Aviation Regulations in force at that time to conduct the flight.
2. The pilots were medically fit and adequately rested to operate the flight. There was no evidence of flight crew fatigue.
3. The aircraft was properly certificated, equipped, maintained and was structurally intact prior to the flight.
4. NCH138 was initially scheduled to depart at 15:30 h, but the flight was delayed on the ground in Lagos for over an hour (one hour 19 min).
5. The meteorological reports and trends received for 15:00 h and 16:00 h indicated adverse weather in the Port Harcourt area.
6. During the delay, a SPECI for 16:30 h was issued indicating deteriorating weather at Port Harcourt airport.
7. There was no evidence available to the Bureau to indicate the flight crew received updated weather information during the delay or prior to departure to Port Harcourt.
8. NCH138 departed Lagos at 16:49 h, contacted DNPO APP Control and estimated POT VOR at 17:50 h with a fuel endurance of 3 hours.
9. The satellite imagery on the day of the occurrence indicated an adverse weather activity overhead the Port Harcourt area.
10. On reaching the station, NCH138 had to hold at the vicinity of the airport, considered diverting to an alternate or to Owerri but was unable due to a line squall.
11. At 18:34 h, NCH138 carried out a missed approach on runway 03.

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12. There was a pilot report (PIREP) from Arik flight 514, at the holding point to runway 21, to NCH138 that runway QDM 2110 and visibility was quite good.
 13. The crew opted to land on runway 21 on sighting it during the missed approach.
 14. A NOTAM issued on 1st May, 2008 stated that the ILS for runway 21 was unserviceable and the airport operational hours were for day light operations only.
 15. During approach on the final landing, the PM advised a high rate of descent and approach speed of about 160 kt to the PF. There was also aural warning from the aircraft of an excessive descent rate.
 16. The aircraft landed hard at about 1700 m, bounced about 3 times, damaged the nose wheel assembly, overshot the runway, and turned 180° with the right engine hitting the ground. The aircraft came to a stop 10 m beyond the stopway.
 17. The ATC activated the Crash Alarm Bell and the information was subsequently passed to all relevant units at 18:44 h.
 18. When the aircraft came to a complete stop, there was no command for an evacuation. The flight attendants initiated the evacuation.
 19. The Airport Fire and Rescue team arrived the scene at 18:46 h.
 20. The forward left evacuation slide separated from the container and could not be deployed during the evacuation.
 21. The remaining slides were deployed and used in the evacuation.
 22. All the passengers on board were evacuated safely with one passenger sustaining minor injury.
 23. The accident occurred at coordinates 05°00'56"N and 006°56'58"E, elevation of 87 ft. The natural light condition at the time was twilight in rain.

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3.2 Causal factors

The decision to land following an unstabilized approach (high rate of descent and high approach speed). A go-around was not initiated.

3.3 Contributory factors

1. The deteriorating weather conditions with a line squall prevented a diversion to the alternates.
2. The runway was wet with significant patches of standing water.

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4.0 SAFETY RECOMMENDATIONS

In view of the issuance of the Nigeria CAR 2009 and the revision in 2015, which addressed the areas of shortcomings identified in this investigation, no safety recommendations are made.



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APPENDICES

Appendix I: DNPO NOTAM on Operational hours and unserviceable Instrument Landing System (ILS) runway 21.

PHONE: 01 4931140 9 EXT: 1063, 1068 D/L: 017403409 TELEGRAPHIC ADDRESS AFTN: DNLLYNY COMM: AIRCIVIL, LAGOS E MAIL: ainsnf@namahqtr.net		FEDERAL REPUBLIC OF NIGERIA NIGERIAN AIRSPACE MANAGEMENT AGENCY DIRECTORATE OF AERONAUTICAL INFORMATION SERVICES INTERNATIONAL NOTAM OFFICE (NOF) <u>MURTALA MUHAMMED AIRPORT</u> P.M.B. 21084 IKEJA-LAGOS.		NOTAM LIST Series A 1ST MAY 2008. ALL TIMES ARE IN UTC
THE FOLLOWING NOTAM SERIES A WERE STILL VALID ON 1 ST MAY, 2008. NOTAM NOT INCLUDED HAVE BEEN CANCELLED, TIME EXPIRED, SUPERSEDED BY AIP SUPPLEMENT OR INCORPORATED IN THE AIP.				
SERIES A				
AD ABUJA				
A0039/08	From 0802101030 to 0805101030 EST. Precision Approach Path indicator (PAPI) unserviceable	PAPI		
A0036/08	From 0802271130 to 0805271130 EST. ATIS new Freq.127.05Mhz operational. (AIP SUPP.S7/2002 refers)	ATIS		
A0040/08	From 0803040840 to 0806040840 EST. Fire cover upgraded to category 8. Fire cover available as follows: 1. One Mac 12 with 12,000 litres of water and 1,200 litres of foam. 2. 3E.06 titan vehicles each with capacity of 11,000 litres of water and 1,200 litres of foam. 3. One RIV vehicle with 1,000 litres of water and 125 litres of foam 4. Two fully equipped Ambulances.	Fire cover		
A0042/08	From 0803181300 to 0806181300 EST. Approach light intensity control RWY 22 not available. Pilots to exercise caution on approach.	Approach Light		
A0043/08	From 0805201240 to 0806201240 EST. Non-Directional Beacon (NDB) Ident 'AG' Freq.321Khz unserviceable.	NDB		
A0054/08	From 0804091000 to 0807091000 EST. DME CH 30X RWY 22 unserviceable.	DME		
A0063/08	From 0804261400 to 0807261400 EST. Terminal approach Radar services hours of operation now 24 hours.	Radar		
KANO				
A0041/08	From 0803070700 to 0806070700 EST. Between 1800-0700 UTC daily RWY 05/23 closed to night operations.	Runway		
A0044/08	From 0803251000 to 0806251000 EST. All aircraft on Freq.124.1Mhz unable to receive Kano control centre to call Kano on Freq.8903 Khz	VHF		



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DESIGNATOR	COORDINATES	IDENT	RADIAL	DIST(NM)from POT VOR
ZONE NORTH	05° 22' 04" N 006° 55' 59" E	ZONE	R-360	20 NM
AHOADA	05° 05' 14" N 006° 37' 52" E	AHOAZ	R-284	20 NM
ABUA-IN	04° 51' 31" N 006° 40' 35" E	ABUAZ	R-243	20 NM
ABONNEMA-OUT	04° 44' 42" N 006° 47' 31" E	ABONZ	R-215	20 NM
SAMKI-IN	04° 42' 31" N 006° 55' 32" E	SAMKI	R-190	20 NM
ALAKIRI-OUT	04° 42' 54" N 007° 03' 47" E	ALAKZ	R-167	20 NM
ZONE EAST-IN	04° 58' 38" N 007° 17' 19" E	ZONE E	R-104	20 NM

A0065/08 From 0804281600 to 0807281600 EST. ILS GLIDE Slope Freq.335.0Mhz ILS
RWY 21 unserviceable

CURRENT VALID NOTAM CHECKLIST

7:
A0197.

2008:
A0027, A0028, A0029, A0032, A0036, A0037, A0038, A0040, A0041, A0042, A0043, A0044, A0046,
A0047, A0048, A0054, A0055, A0057, A0058, A0059, A0061, A0062, A0063, A0064, A0065, A0066,
A0067 AND A0069.

LATEST PUBLICATIONS

AIP Amendment

AIP Amendment No. 04/ 2007 Dated 25th October 2007.

AIP Supplement

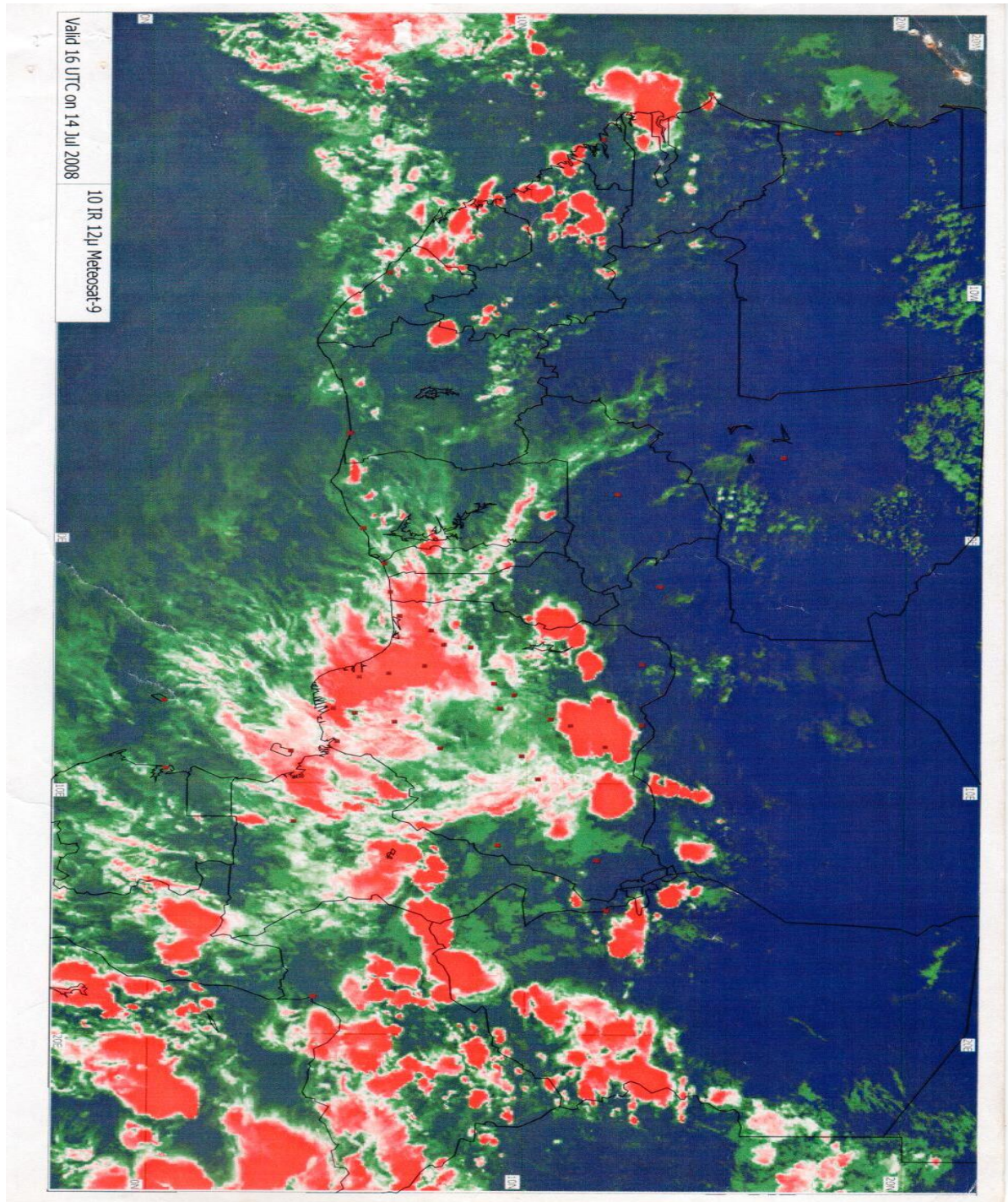
1. S15, 20, 24, 31 and 33 /98
2. S4, 5, 12 and 32/99
3. S8,12, 13 and 21 /2000
4. S15, 36 and 54 /2001
5. S8,13,31,38,40,41,47,50, and 62/2002
6. S23-27,36,37,39 and 49/2003
7. S14,31 and 38/2004
8. S7,14-16,39,44,51 and 52/2006
9. S01-13/2007
10. S14-16/2007
11. S1A/2008

AIC in Force

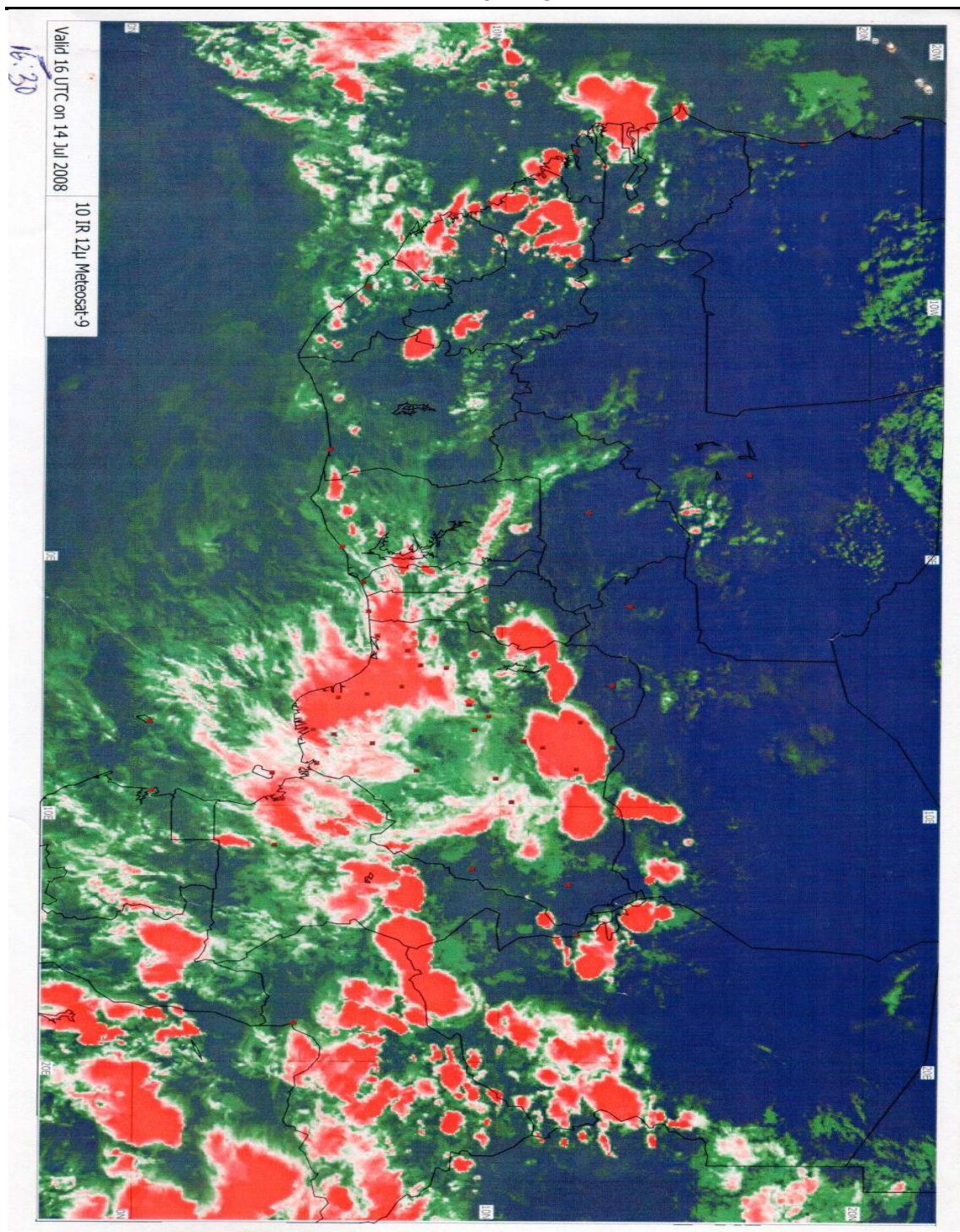
1. 14/92
2. 4/93
3. 1 and 6/94
4. 1/95
5. 2/97

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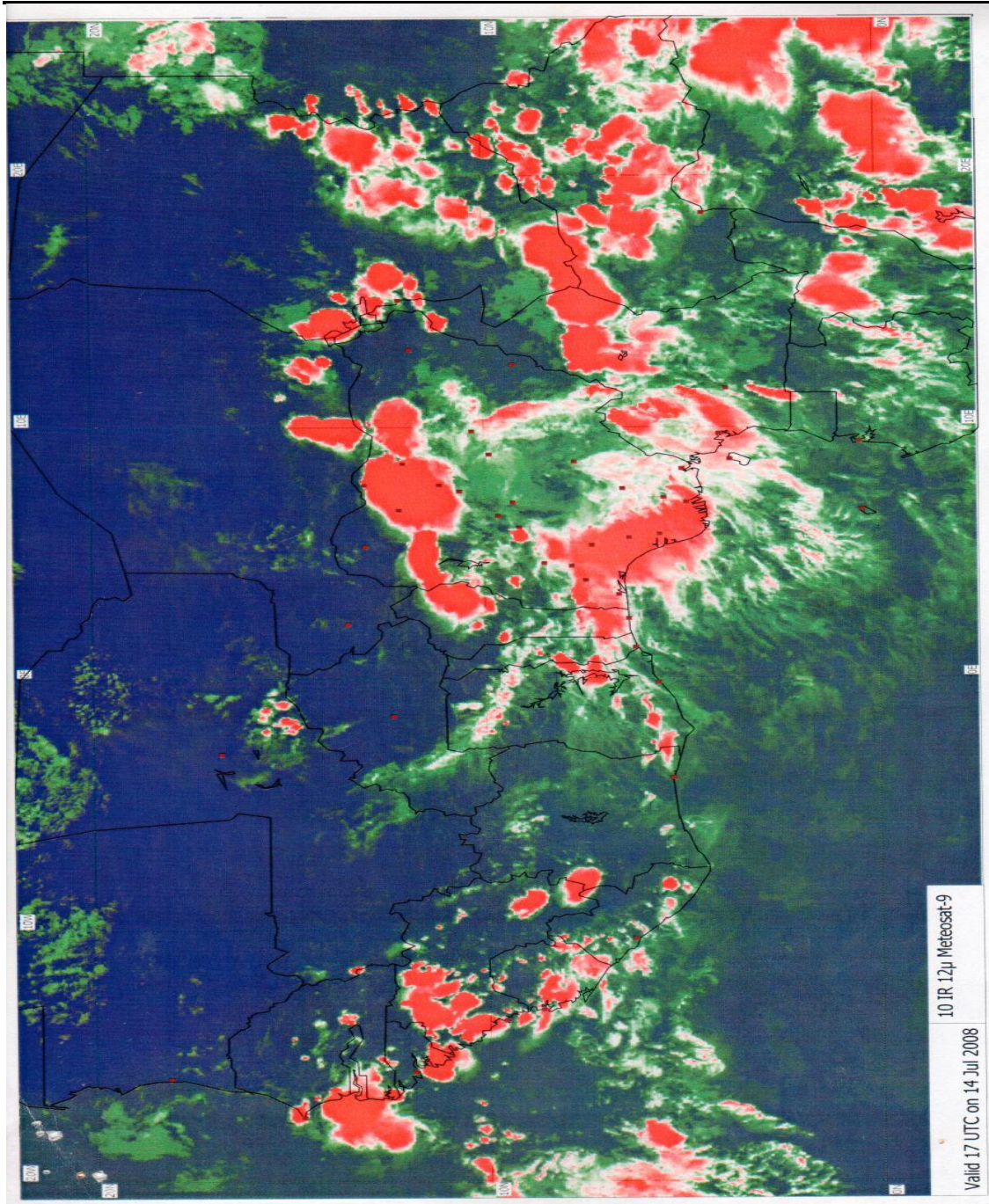
Appendix II: Satellite weather imagery on 14/7/2008 at DNPO



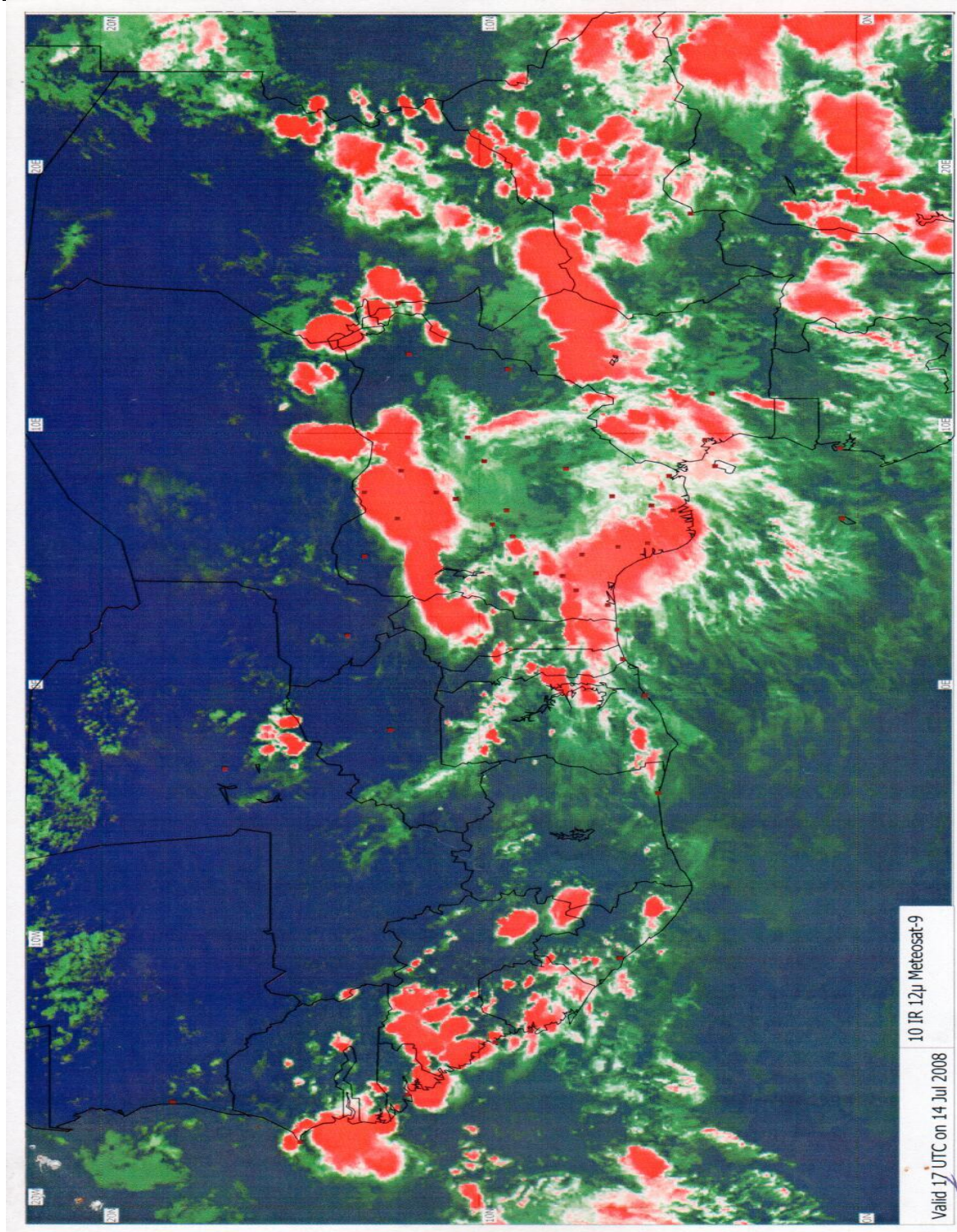
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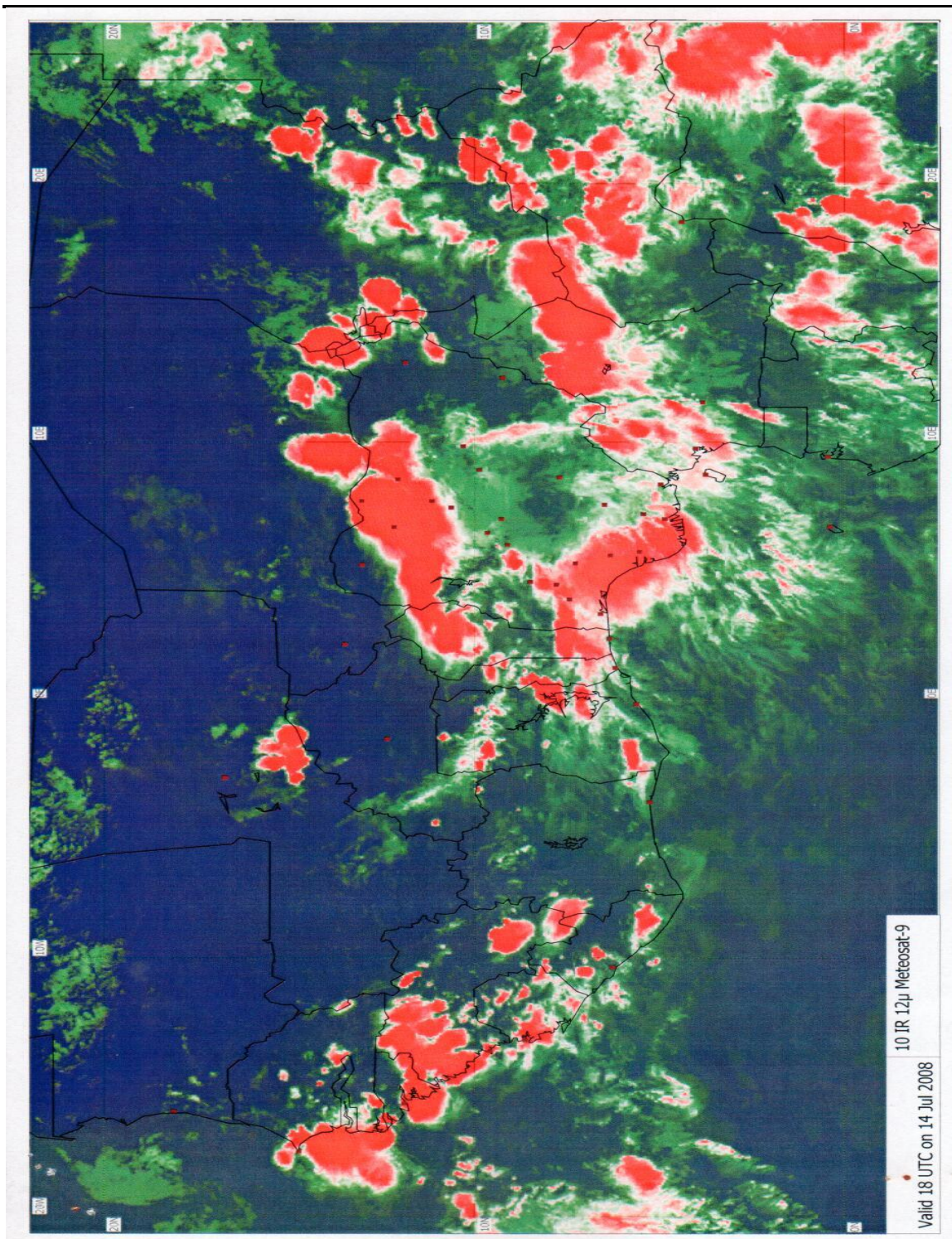
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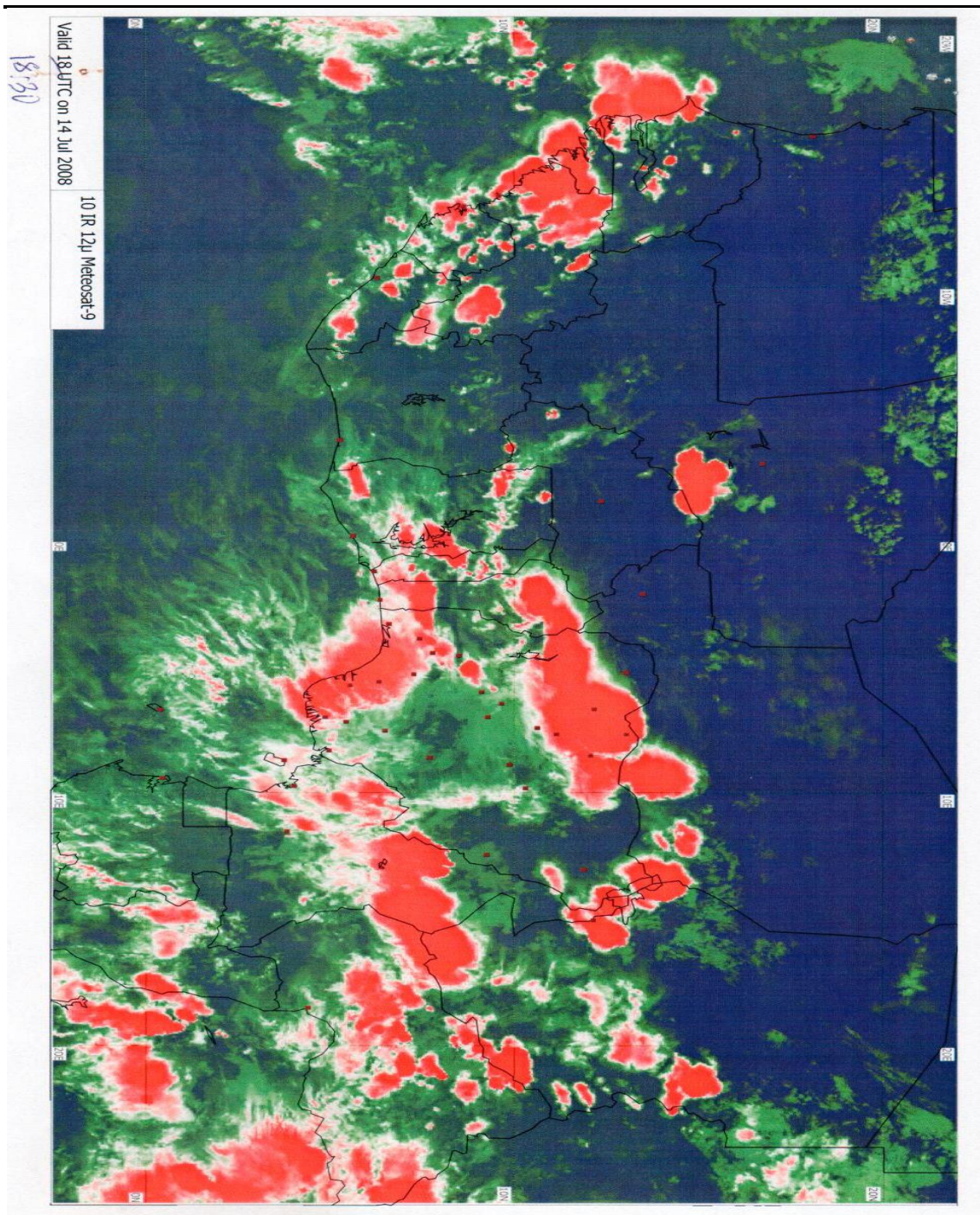
5N-BIG



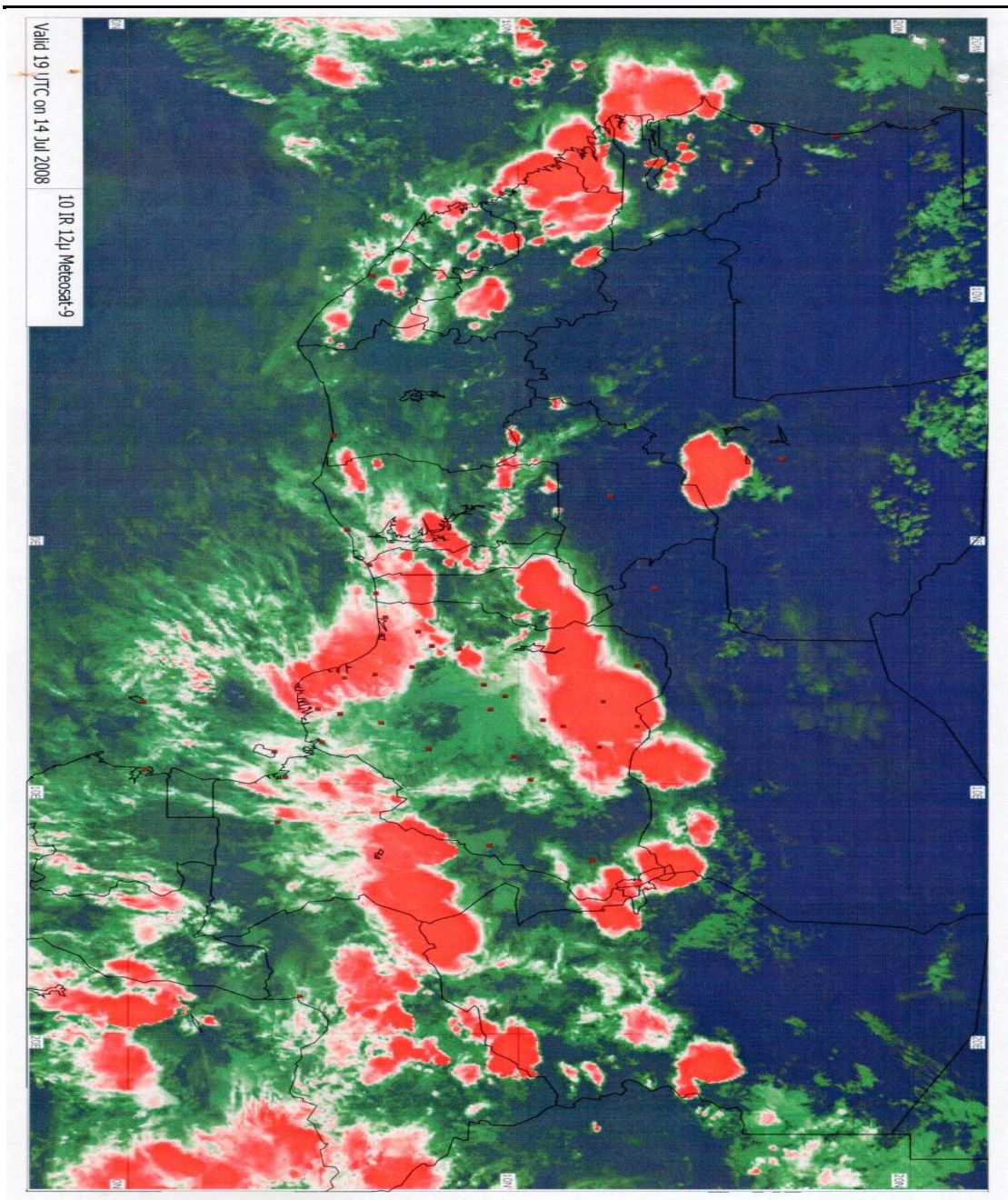
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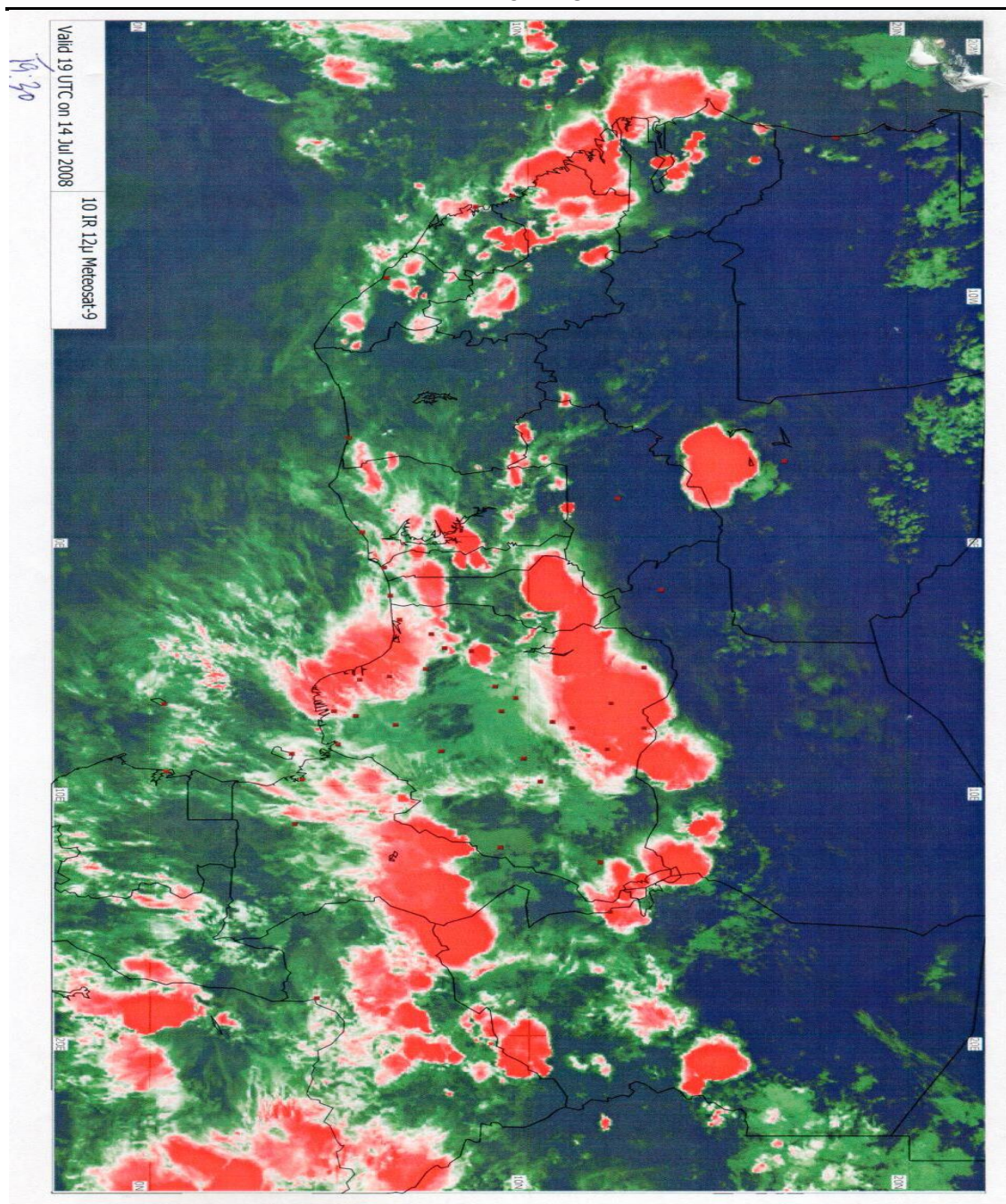
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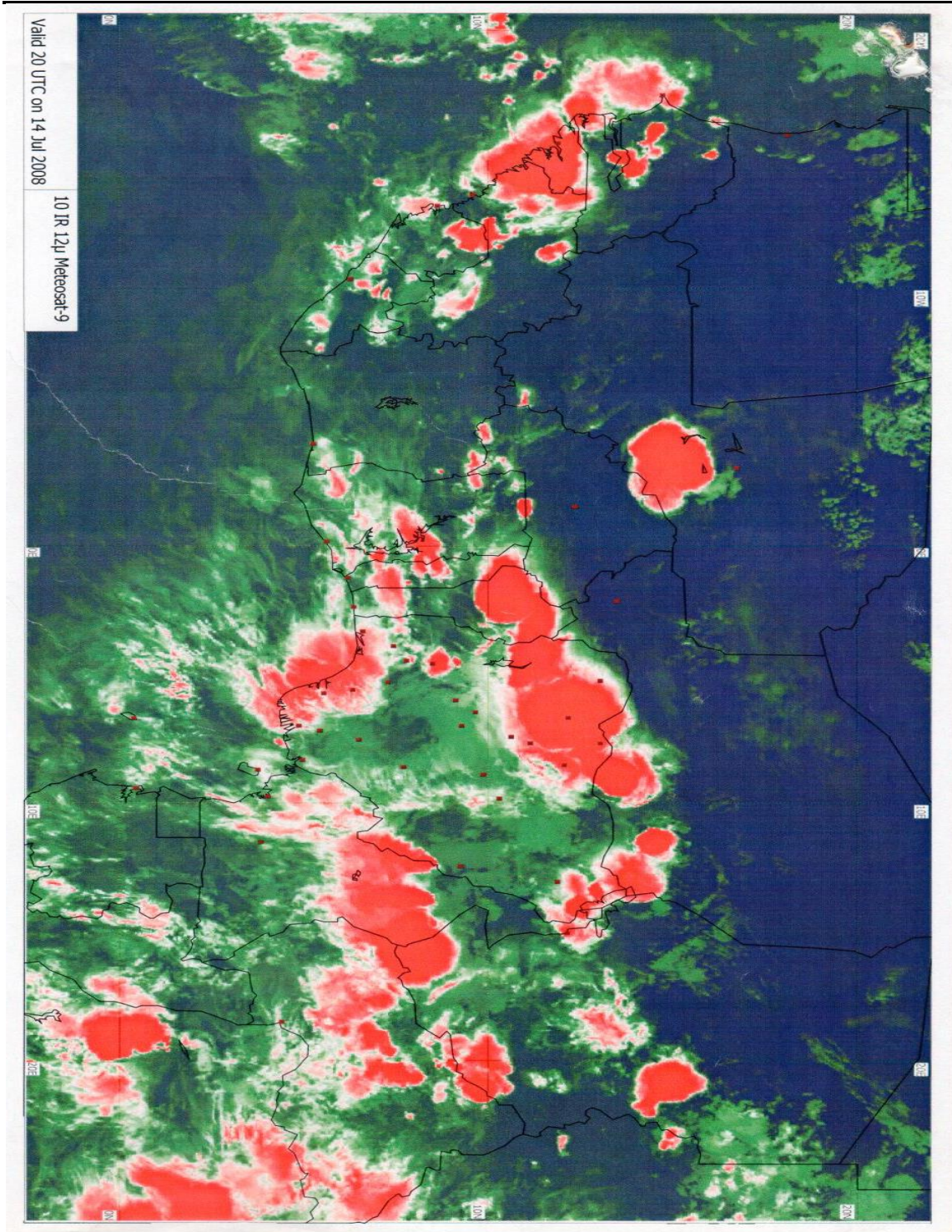
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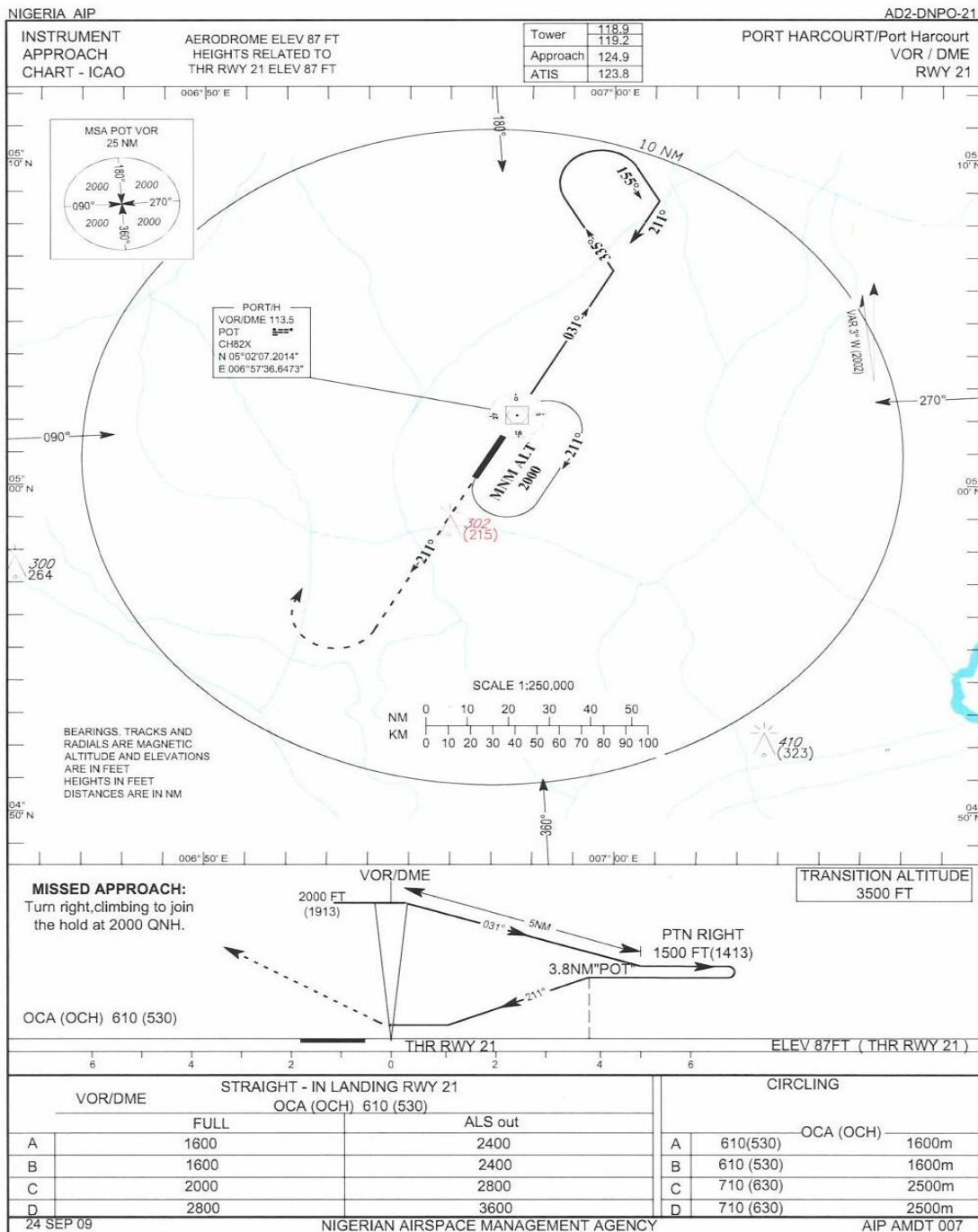


Appendix III: DNPO Airfield layout.



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Appendix IV: POT VOR approach plate for runway 21



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