Aviation Meteorological Forecaster Competency 2

Forecast Aeronautical Meteorological Phenomena and Parameters

TREND Forecast
(AMF AC 1.2, 2.1.2, 2.1.4, 2.1.5, 2.1.6, 2.1.7 and 2.2)

Jannie Stander
RTC
Pretoria

South African Weather Service

AIM OF THIS PRESENTATION

Before reviewing this presentation ensure to first consult the following theory presentation to enable better understanding:

RTC-PRE-010_AMF AC 2.1.1_2.1.2_2.1.4_2.1.5_2.1.6_2.2_1.2_1.3_Forecast Weather Parameters and Phenomena_TREND and TAF

At the end of this presentation, you will be able to:

- Compile a TREND forecast and use it to demonstrate competency in **AMF AC 1.2, 2.1.2, 2.1.4, 2.1.5, 2.1.6, 2.1.7 and 2.2**

- Enable you to complete weekly quizzes related to TREND forecast using this presentation as an example.

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TREND Forecast
(AMF AC 1.2, 2.1.2, 2.1.4, 2.1.5, 2.1.6, 2.1.7 and 2.2)

Example Task for Case Study 20 Oct 2018: Compile **TREND forecasts,** valid for the next 2 hours, for each of the hourly METARs (FAOR, FAKN and FALE) from 09Z to 12Z.

Answer From AMF Competency 1:

- You have analysed and diagnosed the weather situation in AMF Competency 1, you now have a good idea of what is happening in the weather and why it is happening when considering the low cloud and convection?
- low cloud poor visibility over eastern escarpment (FAKN) and along the KwaZulu-Natal coast (FALE).
- Possible thunderstorms over Gauteng (FAOR)

- You now need to monitor (AMF AC 1.2) the real time weather and consider what are impacts of low cloud and convection on your TREND forecast. We will consider this in the next 2 slides.

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TREND Forecast
Stable low BKN/OCV cloud (layered cloud and poor visibility)

Forecasting concern is: low broken/overcast cloud < 1500 ft a.g.l (specifically < 1000 ft) and reduced visibility less than 5000m due to mist, fog, drizzle, rain…

- **Step 1:** Evaluate current low cloud amount and base height by studying the latest METAR/SPECI, satellite and Radar imagery (From AMF Competency 1).

- **Step 2:** Based on the METAR/SPECI and Sat imagery, are there any significant weather changes expected in the next 2 hours as per your documented SPECI criteria? If the answer is No, the TREND will be **NOSIG** (No significant change expected in next 2 hours)

- **Step 3:** Are the changes in wind (AMF AC 2.1.2), cloud amount, height (AMF AC 2.1.4), visibility and weather (AMF AC 2.1.5/6/7) a **significant deterioration** or a **significant improvement** when considering current satellite/RADAR animation and changes in weather system? (significant cloud movement – increasing or dissipating.), then TREND will be **BECMG** (permanent significant changes in wind, cloud amount, base height, weather and visibility) or **TEMPO** (temporary significant changes in wind, cloud amount, base height, visibility due to weather mist, fog, drizzle, rain…)

- **Step 4:** Follow the significant weather change SPECI criteria with regards to wind (AMF AC 2.1.2), cloud amount, height (AMF AC 2.1.4), weather and visibility (AMF AC 2.1.5/6/7) to obtain the correct detail thresholds of the changes in the body of the TREND.

- **Step 5:** Check format is according to WMO/ICAO criteria (AMF AC 2.2)

TREND Forecast
Unstable convective cloud (vertical cloud growth and poor visibility)

Forecasting concern is: TCU and/or CB and reduced visibility <5000m due to TSRA, SHRA

- **Step 1**: Evaluate current thunderstorm activity on satellite/Radar to see if TSRA are already occurring or expected.

- **Step 2:** Based on the latest observations are there any significant weather changes expected in the next 2 hours as per your documented SPECI criteria? If No the TREND will be NOSIG (No significant change expected in next 2 hours) Consider if there is TCU or CB developing or possibility of reduced vis due to TSRA or if TCU or CB is dissipating (improving or deteriorating).

- **Step 3:** If there are active TS/TSRA, CB, TCU, the RADAR image tracks can be used to determine the arrival time of the storm. Are the changes in wind (AMF AC 2.1.2), cloud amount, height (AMF AC 2.1.4) visibility and weather (AMF AC 2.1.5/6/7) a **significant deterioration** or a **significant improvement** in weather considering current satellite/RADAR animation and changes in weather system? (significant cloud movement – increasing or dissipating.) then TREND will be BECMG (permanent significant changes in cloud amount, type (TCU/CB), height and visibility) or TEMPO (temporary significant changes in cloud amount, type, base height and visibility due to TS, TSRA, SHRA…)

- **Step 4:** Follow the significant weather change SPECI criteria with regards to wind (AMF AC 2.1.2), cloud type TCU/CB, amount, height (AMF AC 2.1.4), weather and visibility (AMF AC 2.1.5/6/7) to obtain the correct detail thresholds in the body of the TREND.

- **Step 5:** Check format is according to WMO/ICAO criteria. (AMF AC 2.2)

- **Step 6:** Consider the need to issue an aerodrome warning based on this

Compile the 09Z TREND

The following METARs are provided to you at 09Z during your forecast. You are required to add the TREND forecast at the end of the METAR.

Consult the real time data and animate Sat imagery and RADAR to see the movement of significant cloud/storms

At **FAOR**, you are expecting a significant deterioration in weather due to thunderstorms only later, therefore NOSIG might be appropriate, or TCU and CB might develop (BECMG)

METAR **FAOR** 200900Z 36010KT 9999 SCT044 24/11 Q1025 **NOSIG or BECMG FEW044TCU or BECMG FEW044CB**=

At **FAKN**, you are expecting low cloud all day, but it should stay that way (NOSIG) or significantly improve during the day as temperatures increase (BECMG).

METAR **FAKN** 200900Z 14008KT 9999 -DZ BKN008 OVC015 16/13 Q1027 **NOSIG or BECMG BKN010**=

At **FALE**, the front has passed, you are not expecting any significant changes to weather – therefore NOSIG.
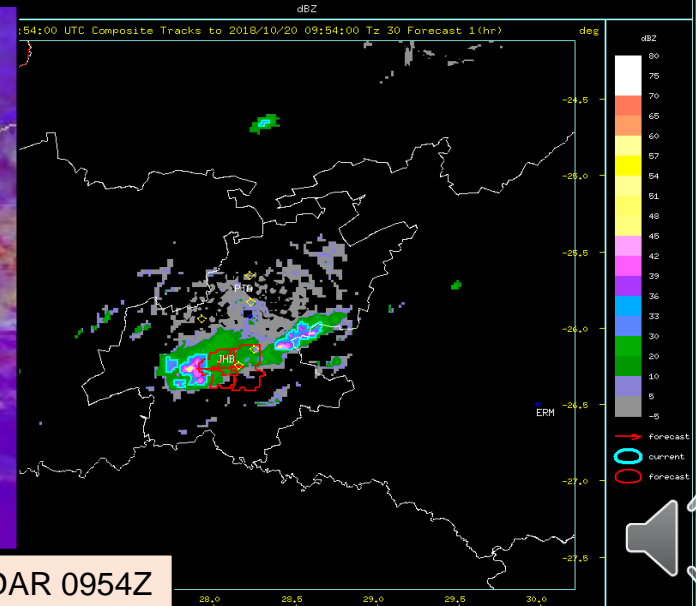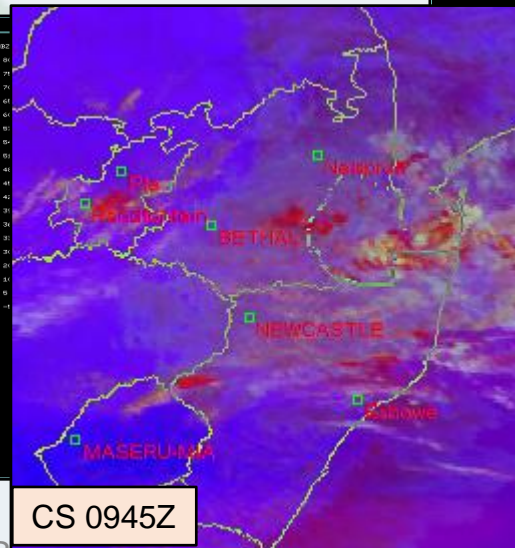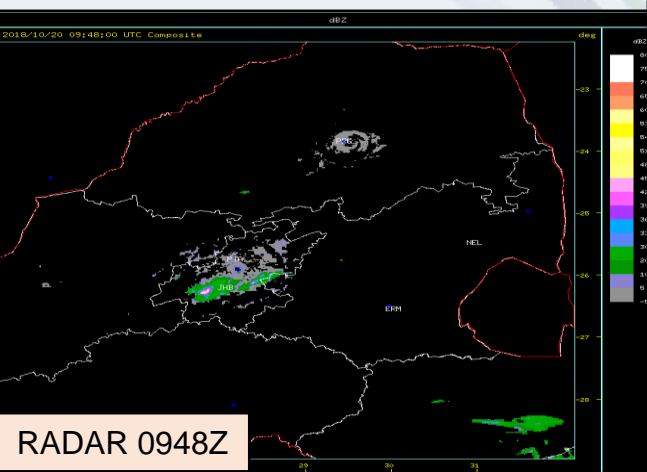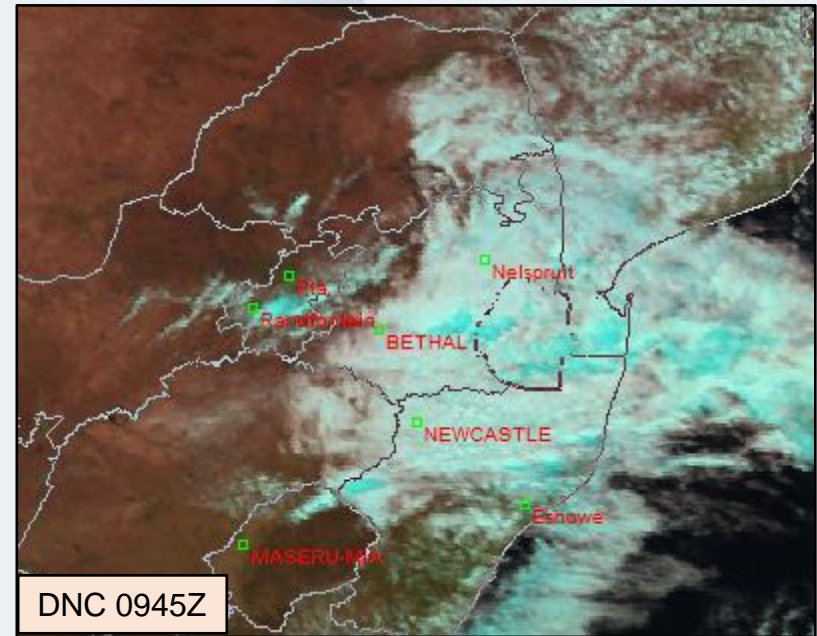
METAR **FALE** 200900Z 17018KT 130V190 9999 SCT020 20/14 Q1027 **NOSIG**=

DNC 0845Z

RADAR 0854Z
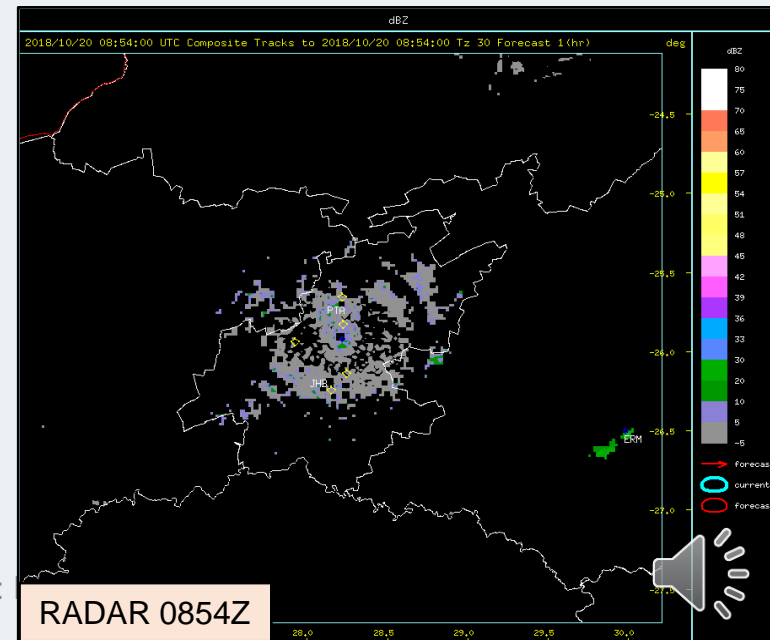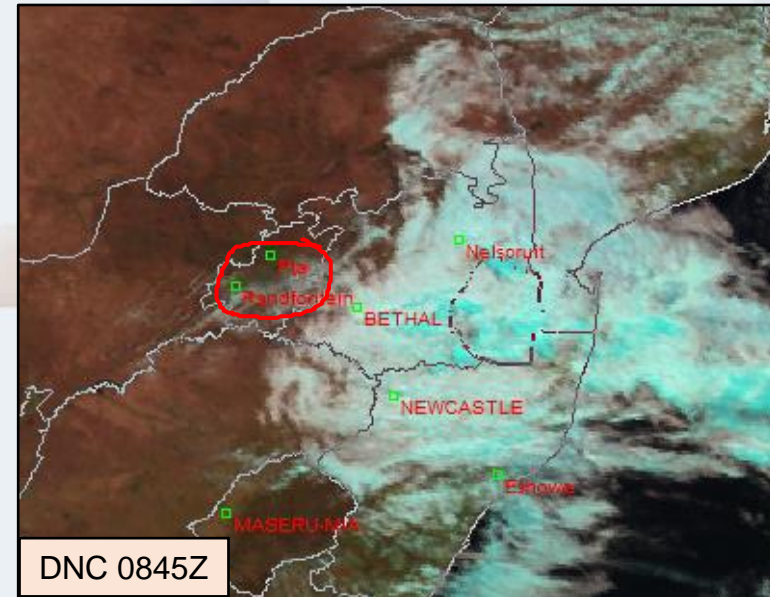
Compile the 10Z TREND

The following METARs are provided to you at 10Z during your forecast. You are required to add the TREND forecast at the end of the METAR.

- METAR **FAOR** 201000Z 02006KT 290V090 9999 FEW040CB SCT044 SCT048TCU 22/10 Q1025 **TEMPO 5000 TSRA**=

- METAR **FAKN** 201000Z 15007KT 9999 BKN009 OVC015 16/13 Q1027 **NOSIG or BECMG BKN010**=

- METAR **FALE** 201000Z 16019KT 9999 SCT019TCU 21/14 Q1026 **NOSIG**=

DNC 0945Z

RADAR 0948Z

CS 0945Z

RADAR 0954Z

2022/02/25

Templ ref: CRS–CC-PRES-TEMP-003.2_D
030.2_TREND Forecas

Compile the 11Z TREND

The following METARs are provided to you at 11Z during your forecast. You are required to add the TREND forecast at the end of the METAR.
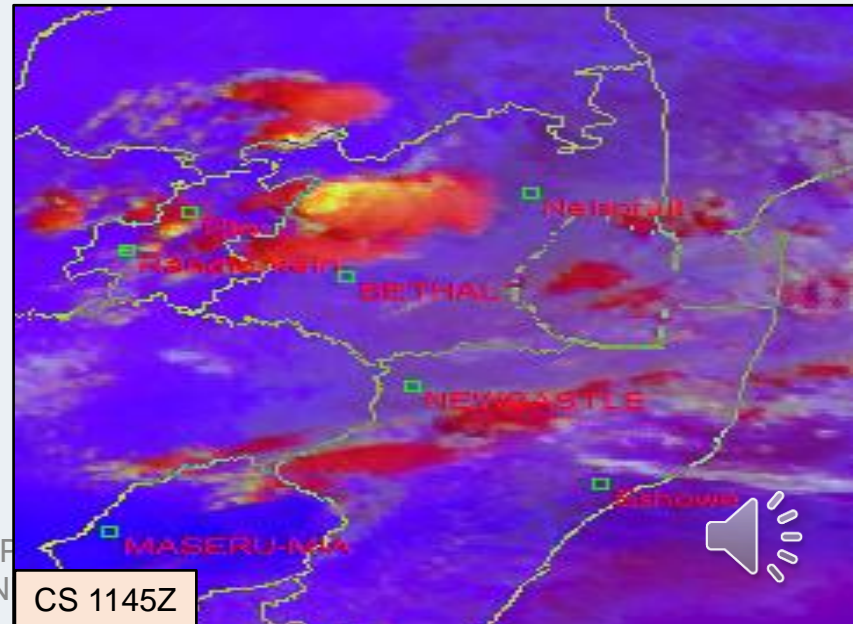
- METAR **FAOR** 201100Z 29009KT 210V340 9999 TS SCT038CB SCT044 SCT048TCU 23/05 Q1024 **TEMPO 5000 TSRA**=

- METAR **FAKN** 201100Z 16008KT 9999 BKN009 OVC015 16/12 Q1027 **NOSIG or BECMG BKN010**=

- METAR **FALE** 201100Z 17019G29KT 9999 FEW015 BKN017TCU BKN043 19/13 Q1027 **NOSIG**=

DNC 1045Z

RADAR 1048Z

CS 1045Z
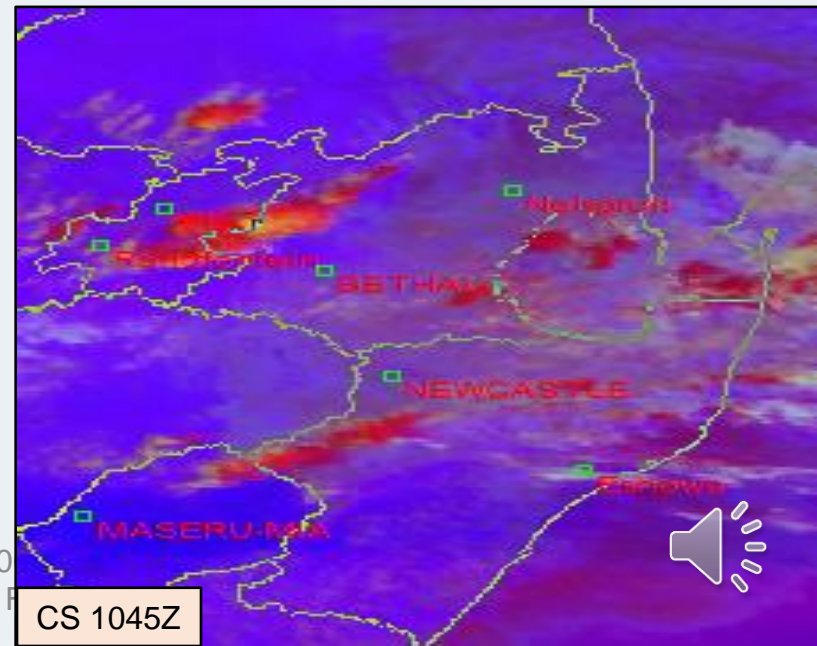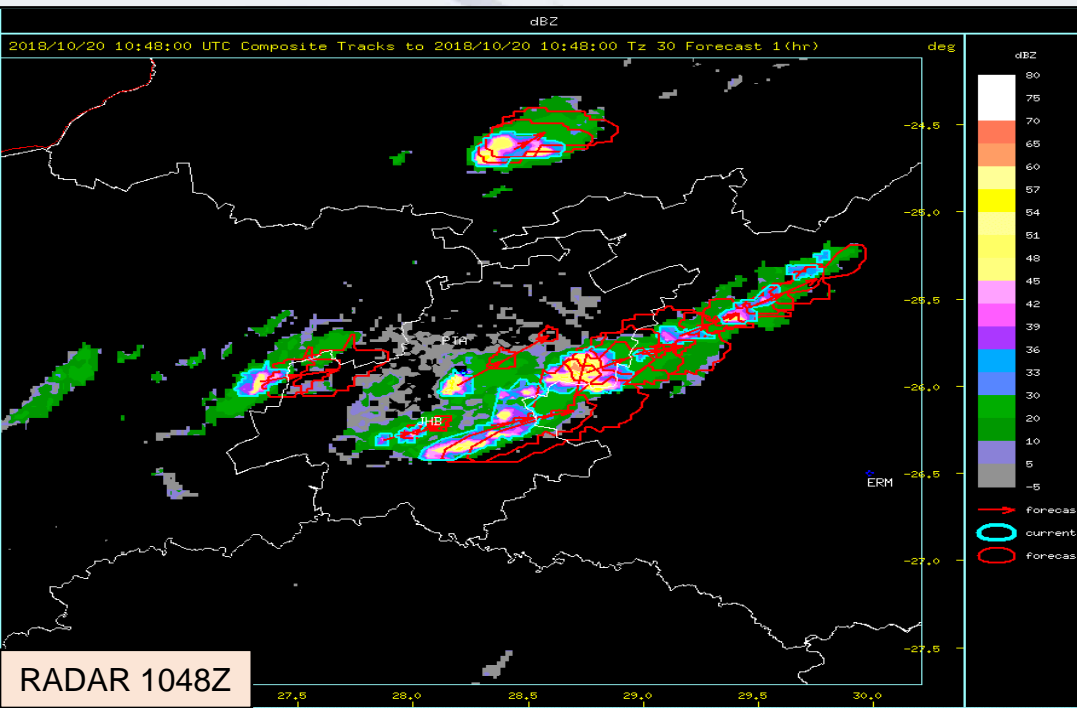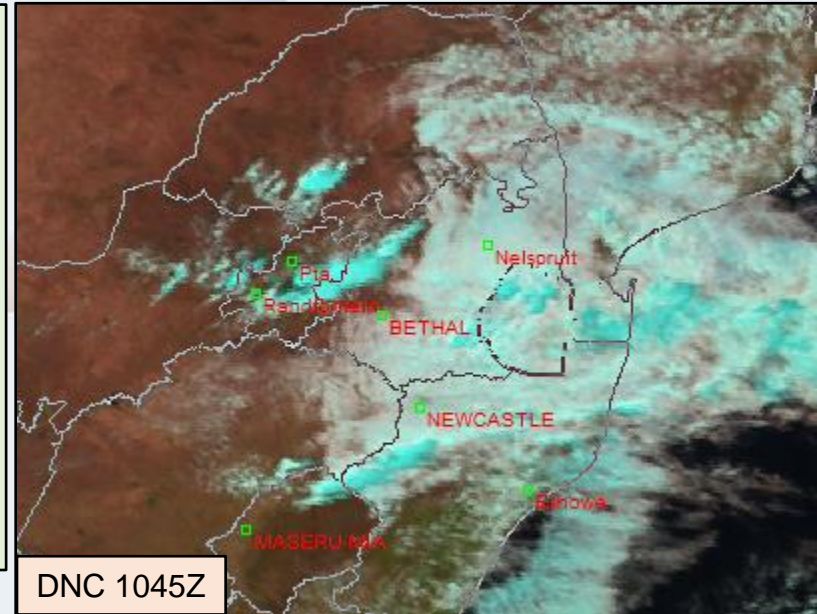
Compile the 12Z TREND

The following METARs are provided to you at 12Z during your forecast. You are required to add the TREND forecast at the end of the METAR.
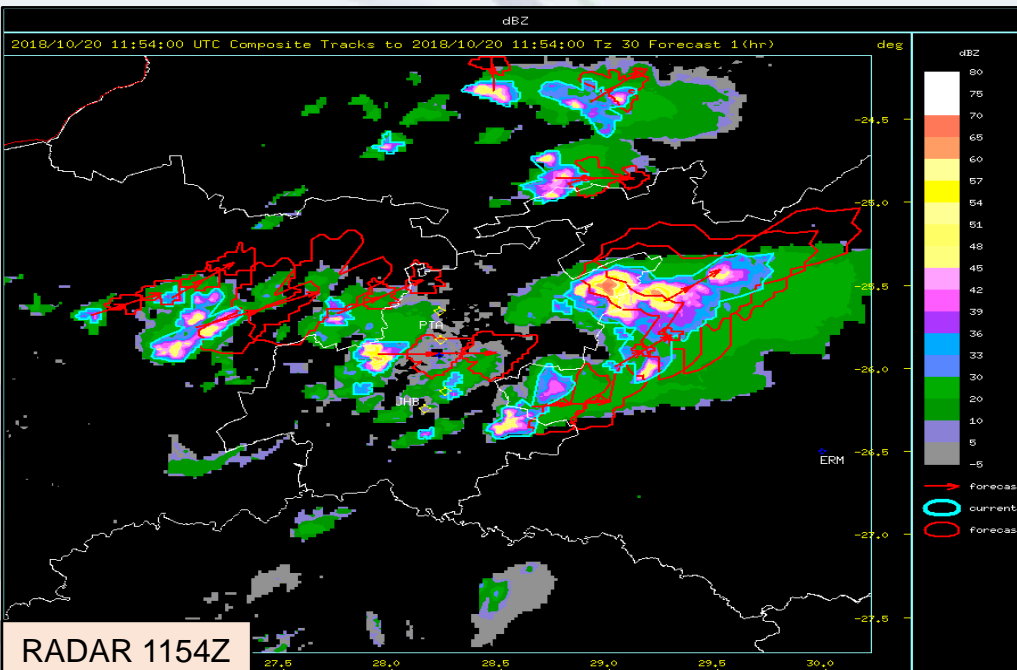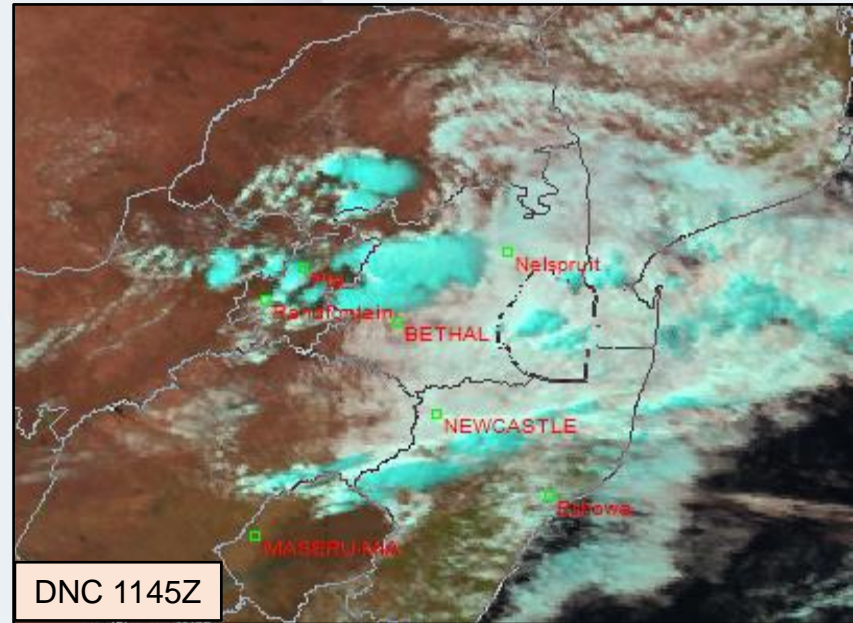
- METAR **FAOR** 201200Z 14011KT 110V190 9999 -TSRA SCT025CB FEW040CB 20/13 Q1024 **NOSIG**=

- METAR **FAKN** 201200Z 16006KT 9000 -DZ BKN008 OVC015 15/12 Q1026 **NOSIG**=

- METAR **FALE** 201200Z 17020G30KT 9999 FEW018 BKN021 BKN035TCU 19/13 Q1027 **NOSIG**=

DNC 1145Z

2018/10/20 11:54:00 UTC Composite Tracks to 2018/10/20 11:54:00 Tz 30 Forecast 1(hr)

dBZ
deg

dBZ
80
75
70
65
60
57
54
51
48
45
42
39
36
33
30
20
10
5
-5

forecast
current
forecast

RADAR 1154Z

CS 1145Z

References

- Latest edition of RTC-CN-020_Aviation Practical Course Notes

- RTC-PRE-010_AMF AC 2.1.1_2.1.2_2.1.4_2.1.5_2.1.6_2.2_1.2_1.3_Forecast Weather Parameters and Phenomena_TREND and TAF