

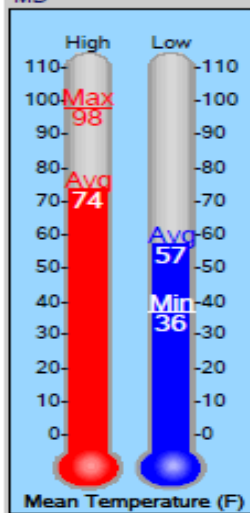
Station Name: **PATUXENT RIVER NAS, MD** Station ID: **ICAO KNHK**

Lat=38.286 Lon=-76.412 Elev=39 Ft Means POR=2001-2010 Extremes POR=1945-2013

PATUXENT RIVER NAS
ICAO KNHK
MD

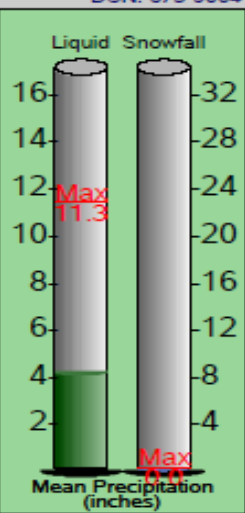
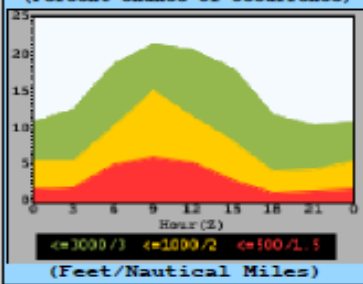
May

14th Weather Squadron
<https://www.afccc.af.mil>
DSN: 673-9004



Statistics (days)	Prevailing Wind
Rain: 13	N
Snow: 0.0	W 06 Knots E
Fz Rain: 0.0	S
Dust: 0.0	
Thunder: 4.6	
Fog: 14	
>= 90F: 1.0	
<= 32F: 0.0	
Max Mean RH: 88%	
Min Mean RH: 49%	

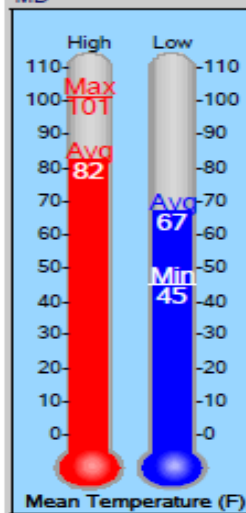
Ceiling/Visibility Stats
(Percent Chance of Occurrence)



PATUXENT RIVER NAS
ICAO KNHK
MD

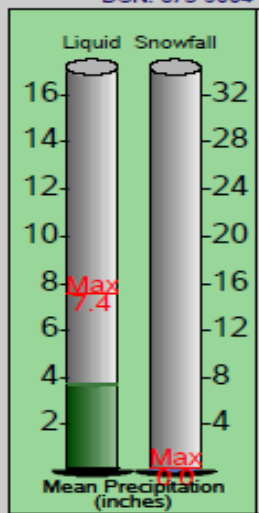
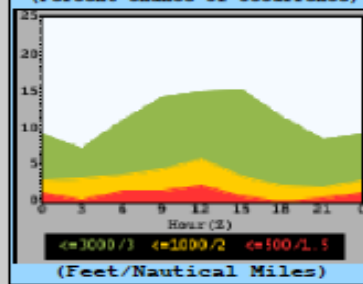
June

14th Weather Squadron
<https://www.afccc.af.mil>
DSN: 673-9004



Statistics (days)	Prevailing Wind
Rain: 14	N
Snow: 0.0	W 06 Knots E
Fz Rain: 0.0	S
Dust: 0.0	
Thunder: 8.4	
Fog: 17	
>= 90F: 6.0	
<= 32F: 0.0	
Max Mean RH: 90%	
Min Mean RH: 51%	

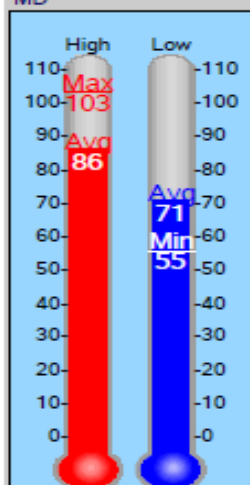
Ceiling/Visibility Stats
(Percent Chance of Occurrence)



PATUXENT RIVER NAS
ICAO KNHK
MD

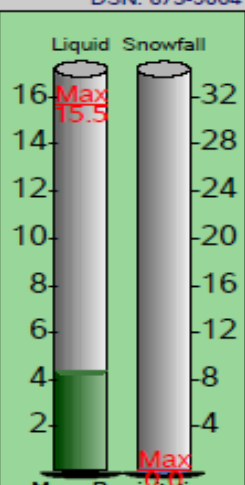
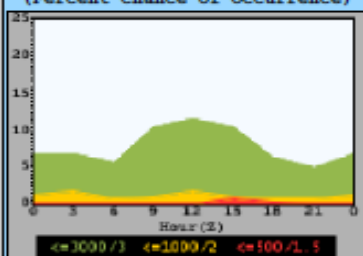
July

14th Weather Squadron
<https://www.afccc.af.mil>
DSN: 673-9004



Statistics (days)	Prevailing Wind
Rain: 12	N
Snow: 0.0	W 07 Knots E
Fz Rain: 0.0	S
Dust: 0.0	
Thunder: 7.8	
Fog: 19	
>= 90F: 10	
<= 32F: 0.0	
Max Mean RH: 90%	
Min Mean RH: 50%	

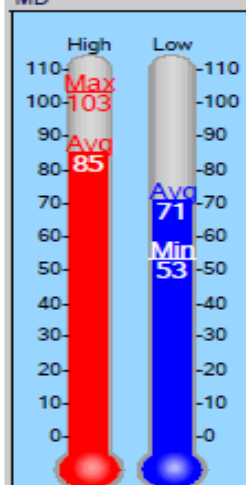
Ceiling/Visibility Stats
(Percent Chance of Occurrence)



PATUXENT RIVER NAS
ICAO KNHK
MD

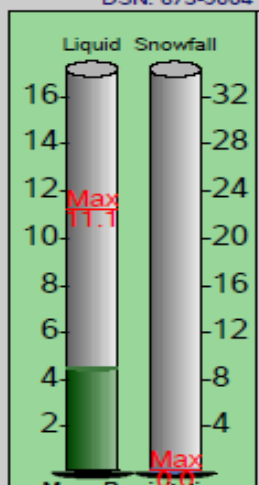
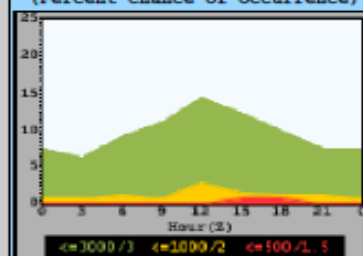
August

14th Weather Squadron
<https://www.afccc.af.mil>
DSN: 673-9004



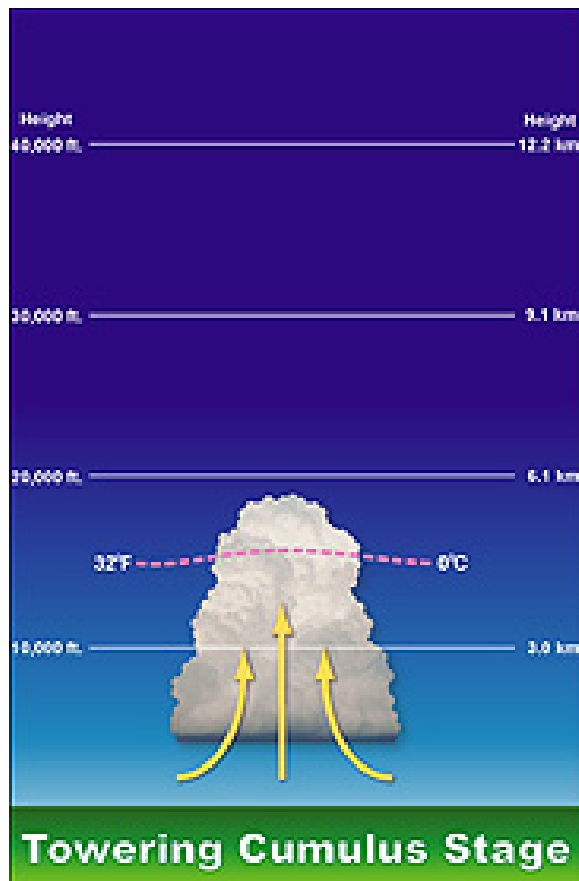
Statistics (days)	Prevailing Wind
Rain: 11	N
Snow: 0.0	W 06 Knots E
Fz Rain: 0.0	S
Dust: 0.0	
Thunder: 6.8	
Fog: 19	
>= 90F: 8.0	
<= 32F: 0.0	
Max Mean RH: 91%	
Min Mean RH: 54%	

Ceiling/Visibility Stats
(Percent Chance of Occurrence)



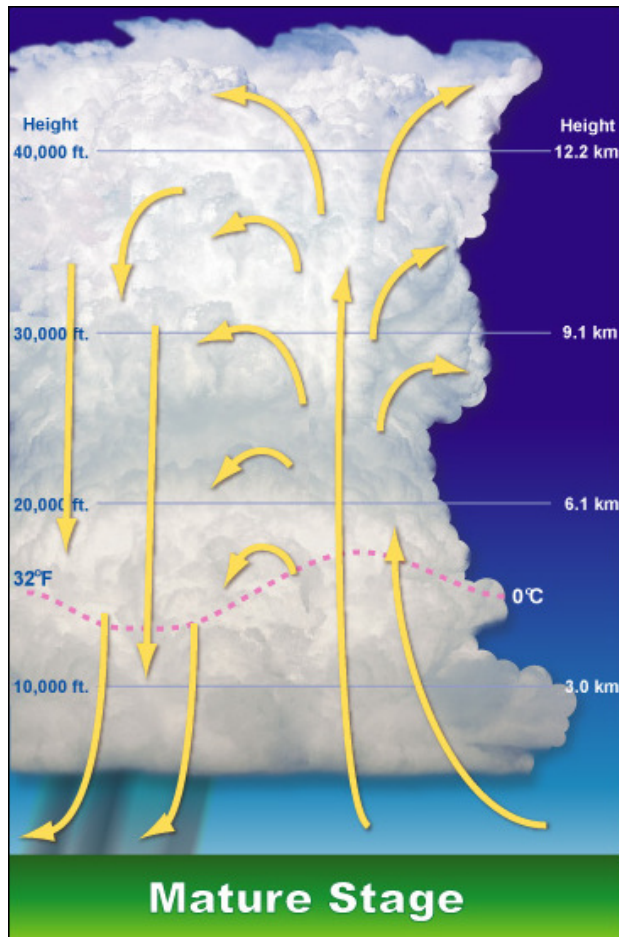


Cumulus Stage

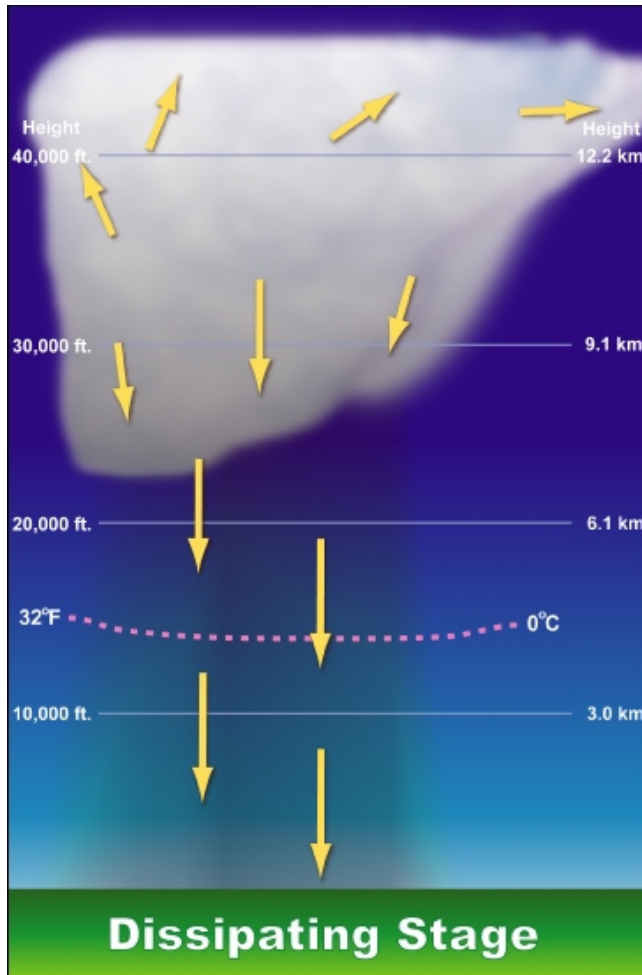


- The cumulus stage is dominated by updrafts. The development requires a continuous supply of moist air. Each new surge of warm air rises higher than the last, adding to the height of the cloud.
- Once the cloud passes beyond the freezing level, the precipitation production begins.
- The falling precipitation causes drag on the air and initiates a downdraft.
- The creation of the downdraft is further aided by the influx of cool, dry air surrounding the cloud, a process called entrainment.

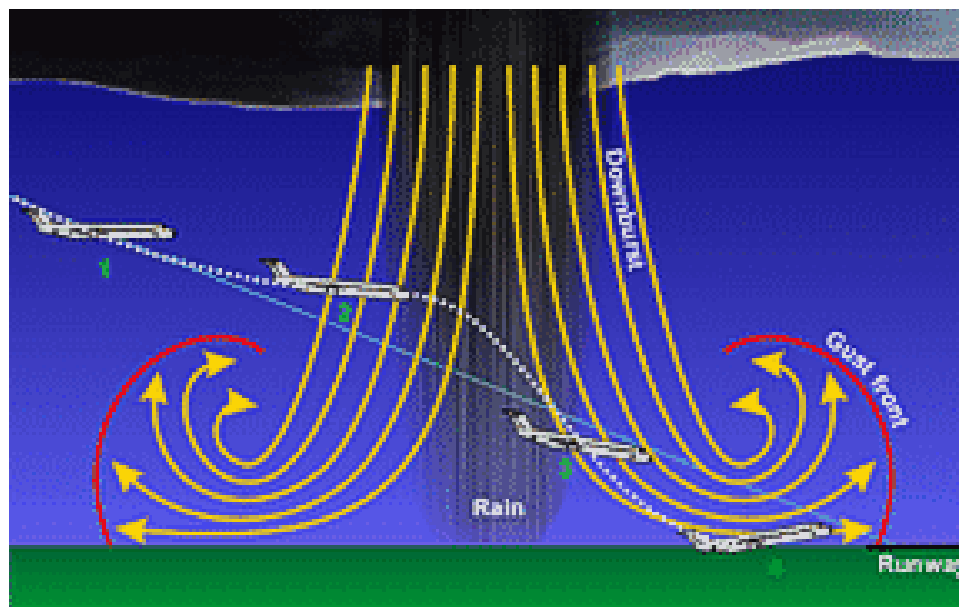
Mature Stage



- As the downdraft leaves the base of the cloud, precipitation is released, marking the beginning of the cloud's mature stage.
- During the mature stage, updrafts exist side by side with downdrafts and continue to enlarge the cloud.
- When the cloud grows to the top of the unstable region often located at the base of the warmer stratosphere, the updrafts spread laterally and produce the characteristic anvil top.
- This cloud is now called a cumulonimbus (CB) cloud. Lightning and thunder start to occur. The cumulonimbus is now a thunderstorm.

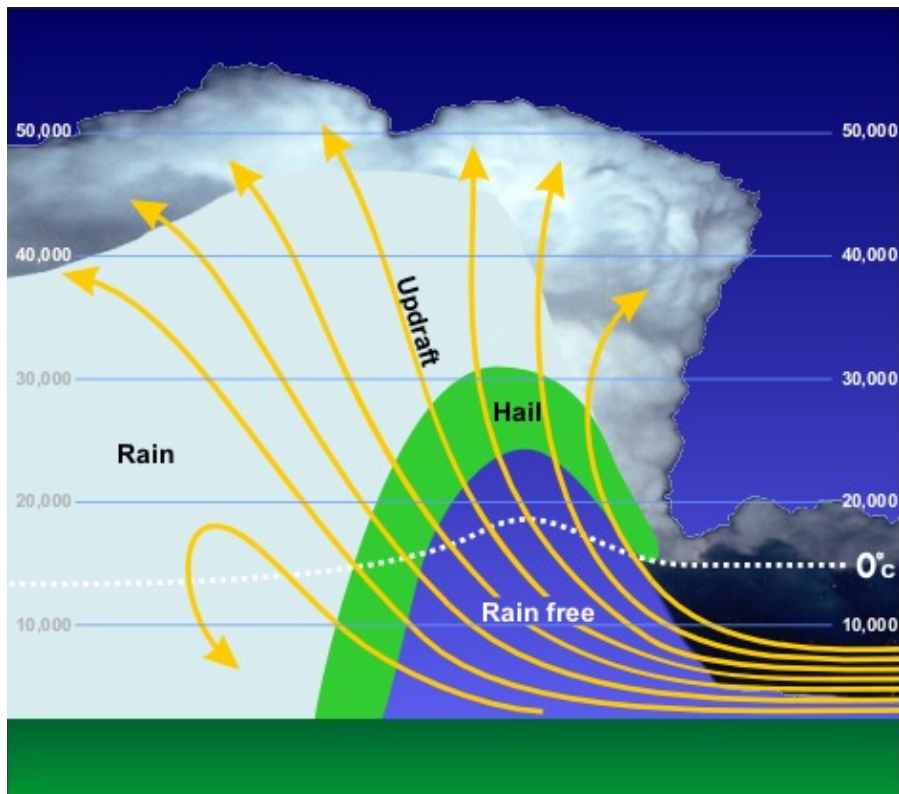


- Once a downdraft begins, the vacating air encourages more entrainment of the cool, dry air surrounding the cell.
- Eventually, the downdrafts dominate throughout the cloud and initiate the dissipating stage.
- The average life span of a thunderstorm is one hour



- Small-scale intense downdrafts up 6,000'/min
- Horizontal winds nears surface up 45knots/ 90 shear
- Small in diameter (less than 1 mile)
- Short in Duration (15-20 minutes). Maximum intensity lasting approx. 2-4 min
- Multiple microburst are not uncommon

- Rapid Airspeed Changes
- Erratic Vertical Speed
- Change in Pitch Attitude
- Glide slope Deviation
- Unusual Throttle Position



Hail is precipitation that is formed when updrafts in thunderstorms carry raindrops upward into extremely cold areas of the atmosphere



- Lightning reaches 50,000° F
- Lightning Is Only 1 Inch In Diameter
- Lightning Over 100 Miles Long Has Been Observed
- Average Lightning Flash has Energy of 1-Kiloton Explosion
- Lightning Voltage reaches 1 Billion Volts
- Lightning Current Averages 30,000 Amps, But Ranges From 10,000 to 200,000 Amps
 - 100-1000 Times As Strong As Steel Welder



Thunderstorm Watch = Thunderstorm Condition T2

Severe Thunderstorm Watch= Severe Thunderstorm Condition T2

Thunderstorm Warning = Thunderstorm Condition T1

Severe Thunderstorm Warning = Severe Thunderstorm Condition T1

Only change is terminology!

**WW's issued by Storm Prediction Center are treated like T1 or Severe T1
IAW OPNAV Instruction 3710.7 para 4.8.4.5**

**NWS WWs are weather watches! Meaning POTENTIAL exists for the
formation of severe weather.**

Thunderstorm Watch = Thunderstorm Condition T2

**Severe Thunderstorm Watch = Severe Thunderstorm Condition T2
(POTENTIAL)**

Issue 2 hours prior to lightning within 25SM and or issue 6 hours prior to expected onset.

(Severe criteria are wind gusts ≥ 50 kts, hail greater than or equal to 1" in diameter and/or tornadoes)

Thunderstorm Warning = Thunderstorm Condition T1

Severe Thunderstorm Warning = Severe Thunderstorm Condition T1

Issue 1 hour prior to expected onset or expected lightning within 10SM.

(Severe criteria are wind gusts ≥ 50 kts, hail greater than or equal to 1" in diameter and/or tornadoes)

**Only change between T Conditions and WW's is terminology!
Weather Vision will depict both i.e. TSTM WATCH (T2)**

A SIGMET (SIGNificant METeorological Information) advises of weather potentially hazardous to all aircraft other than convective activity.

SIGMETs are issued (for the lower 48 states and adjacent coastal waters) for the following weather-impacted reasons:

- Severe Icing
- Severe or Extreme Turbulence
- Duststorms and sandstorms lowering visibilities to less than three (3) miles
- Volcanic Ash

These SIGMET items are considered to be *widespread* because they must be affecting or be forecast to affect an area of at least 3000 square miles at any one time. **However, if the total area to be affected during the forecast period is very large, it could be that only a small portion of this total area would be affected at any one time.**

SIGMETs are issued for 6 hour periods for conditions associated with hurricanes and 4 hours for all other events. If conditions persist beyond the forecast period, the SIGMET is updated and reissued. Convective SIGMETs are issued hourly for thunderstorm-related aviation hazards.

CONVECTIVE SIGMETs are issued in the conterminous U.S. for:

Severe surface weather including:

Surface winds greater than or equal to 50 knots

Hail at the surface greater than or equal to 3/4 inches in diameter

Tornadoes

Embedded thunderstorms

Line of thunderstorms

Thunderstorms moderate intensity or greater affecting 40% or more of an area at least 3000 square miles

Any Convective SIGMET implies severe or greater turbulence, severe icing, and low level wind shear. A Convective SIGMET may be issued for any convective situation which the forecaster feels is hazardous to all categories of aircraft. Bulletins are issued hourly at Hour+55. The text of the bulletin consists of either an observation and a forecast or just a forecast. The forecast is valid for up to 2 hours.



QUESTIONS?