# 3d Combat Weather Squadron

*Integrity - Service - Excellence*


# Air Traffic Control Weather Certification

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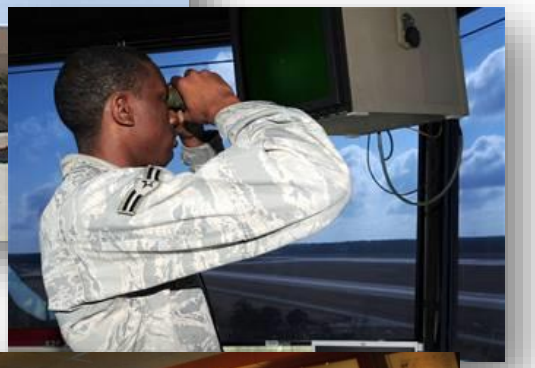
*Weather Forecaster*

**Current as of: 10 January 2021**

# Overview

- Training Objectives
- Requirements
- RGAAF (KGRK) Observations
- HAHP (KHLR) Observations
- Cooperative Weather Watch
- Visibility
- Significant Weather
- Dissemination of Weather Information
- METAR Observation Code & SPECI Criteria
- PIREP Code
- Terminal Aerodrome Forecast
- Weather Watches/Warnings/Advisories (WWAs)



# Training Objectives

- Ensure ATC personnel can take limited surface weather observations
- Ensure ATC personnel understand the Cooperative Weather Watch (CWW) Program
- Educate ATC personnel on weather observations and other weather products produced/disseminated in support of Fort Hood aviation/ground operations

# Requirements

TC 3-04.15 - *Air Traffic Services Facility Operations, Training, Maintenance, and Standardization (Oct 19)*

- All controllers shall complete initial qualification (Q) weather training before starting PQ training
- Weather training is valid for a 12-month period and must be renewed by or prior to the anniversary month of their previous training
- The results of initial (Q) and annual training (P) will be entered on DA Form 3479 in Section II

# Requirements

TC 3-04.15 - *Air Traffic Services Facility Operations, Training, Maintenance, and Standardization (Oct19)*

- The ATC chief/facility chief will ensure comprehensive training is given to tower controllers by weather personnel on tower (prevailing) visibility and will include:
  - Definitions
  - Visibility and sector determination criteria and procedures
  - Reporting procedures
  - METARs training, to include
    - Reading aviation weather reports
    - Abbreviations
- Local weather service authorities will provide a practical training program to allow air traffic controllers to take and disseminate supplemental weather observations per AR 115-10

# Requirements

AR115-10 (AFI15-157) - *Weather Support for the U.S. Army (17Dec18)*

- The AF trains Army Personnel to take and disseminate supplemental weather observations in support of Army operations
- This training includes, but is not limited to:
  - air traffic controllers
  - military intelligence
  - aviation support
  - Special Operations Forces personnel assigned supplemental observing duties

# Requirements

AFMAN 15-111 – Surface Weather Observations (12Mar19)

- Weather personnel task-certify ATC personnel to evaluate tower visibility values from the control tower
- Weather personnel will also ensure ATC personnel can operate the applicable weather equipment located inside ATC facilities

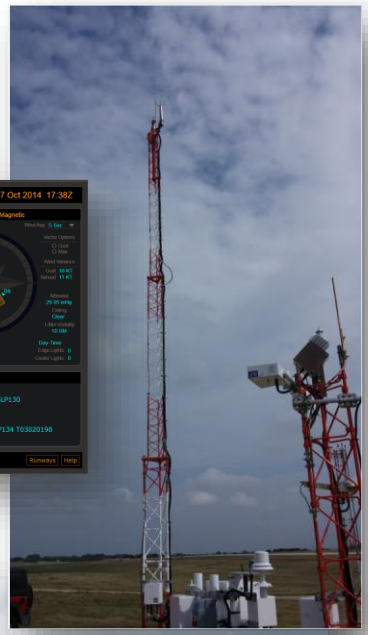
# Requirements

## FH Reg 115-1 Weather Support to III Corps and Fort Hood

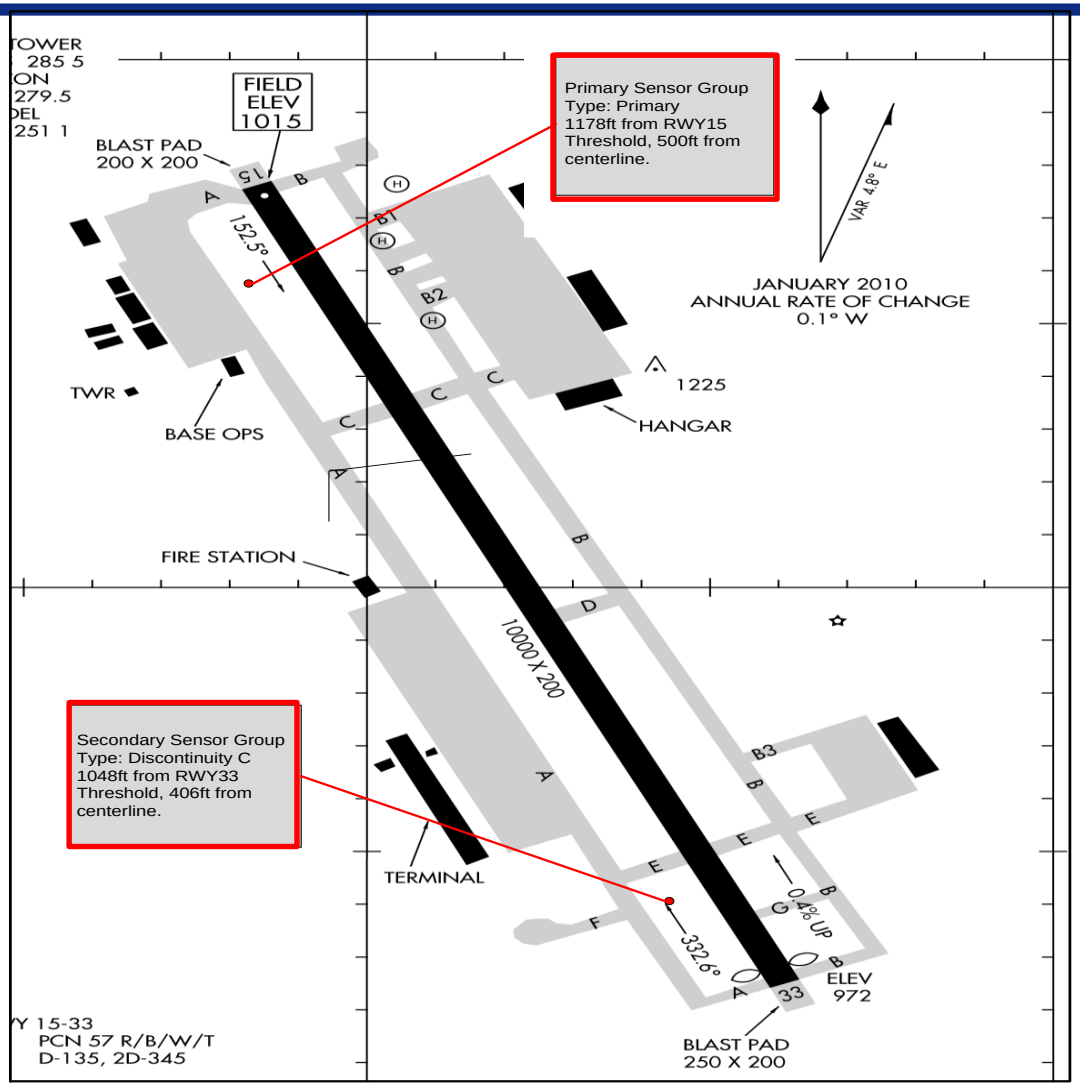
- **FH Reg 115-1** *Weather Support to III Corps and Fort Hood*
  - Defines responsibilities of:
    - 3 CWS - RGAAF Weather Station
    - Directorate of Aviation Operations (DAO)
  - Defines the Cooperative Weather Watch (CWW) Program

# RGAAF (KGRK) Observations

- RGAAF FMQ-23 Fixed Base Weather Observing System (FBWOS) provides automated weather observations for **KGRK** IAW AFMAN15-111
  - Observations are automatically encoded/disseminated continuously
  - Position qualified weather personnel are available 24/7 to augment (supplement/back-up)
  - SPECI criteria can be found in III Corps & Fort Hood Regulation 115-1, Appendix C

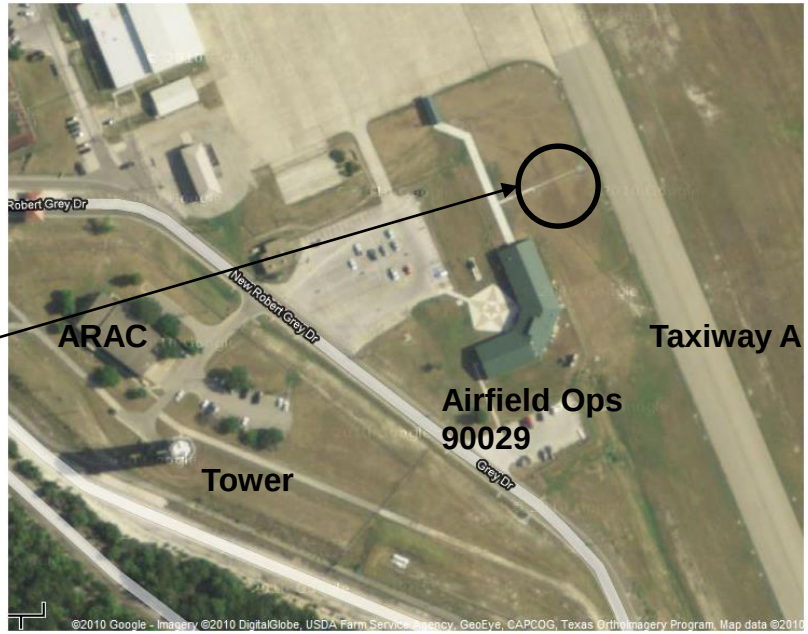



# RGAAF (KGRK) FMQ-23 Sensor Locations



# RGAAF (KGRK) Augmentation

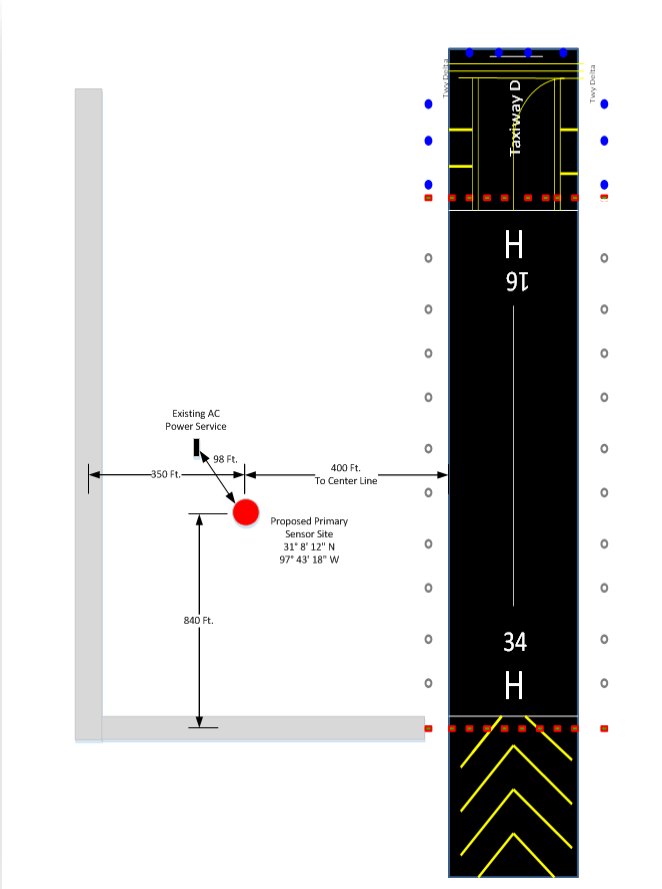
- During augmentation operations, the official observation point is north of Bldg 90029 (Airfield Ops) midpoint of sidewalk (vicinity of rain gauge)




  - This location has a 360-degree view of the airfield complex, but hills, airfield buildings, and slope of the runway to the south through northwest restrict view of the sky and/or horizon and horizontal visibility in those directions
  - Glare from medium/high intensity lights may limit ability to make accurate reports of sky conditions at night

# HAHP (KHLR) Observations

- HAHP (**KHLR**) observations also fully automated via FMQ-23 FBWOS
- Augmentation only for Back-up of sensors/system
- Weather personnel must travel from RGAAF to HAHP to augment
- Official observation point for augmentation is from the HLR ATC Tower



# Automated Observations Limitations / Disadvantages

- Inherit limitations especially during rapidly changing weather conditions when some delay in reporting cloud ceilings/visibilities may occur
- Limited area representation (~3-5 km around the sensor)
- Clouds only detected over sensor(s); not representative of entire sky from horizon to horizon as seen by humans
- Visibility determination limited by small sampling volume; does not account for all sectors

# Automated Observations Advantages

- Sensor location at the touchdown zone of the runway
- Consistency of observations—eliminates human subjectivity
- Real-time continuous measuring of parameters 24/7 *(forecasters conduct basic weather watch…)*
- Generally more accurate/reliable
- Generally free of  reading errors
- Automatic QC applied during collection and reporting
- Automatic message generation and transmission

# What is Augmentation?

- The process of having position-qualified weather personnel edit or add additional data to an observation generated by an FBWOS
- Two augmentation processes: **supplement** & **back-up**
  - **Supplementing** is a method of manually adding meteorological information to an automated observation that is beyond the capabilities of the FBWOS to detect and/or report (i.e. tornadoes, funnel clouds, hail)
  - **Back-up** is the process of manually editing/adding data or dissemination capability when the primary method is not operational, unavailable or suspected to be providing erroneous data (i.e. sensor/comm failure, dew point higher than temperature)

# Mandatory Supplement Weather Conditions

**Table 5.1. Mandatory Supplementation Conditions.**

| |
|---|
| Tornado (**+FC**) (**Notes** 1 & 2) |
| Waterspout (**+FC**) (**Notes** 1 & 2) |
| Funnel Cloud (**FC**) (**Notes** 1 & 2) |
| Freezing Precipitation (**FZDZ/FZRA**) |
| Ice Pellets (**PL**) |
| Hail (**GR**) |
| Sandstorm (**SS**)/Dust Storm (**DS**) (Note 3) |
| Volcanic Ash (**VA**) |
| Tower Visibility remark (Note 4) |
| |
| |
| |

**Notes:**
1. The immediate reporting of tornadic activity takes precedence over all other phenomena.
2. Be prepared to supplement whenever a tornado watch is valid or warning has been issued; regardless of airfield clousure status.
3. Based on local weather warning criteria; if no warning criteria exists, this is not required.
4. Only required during controlled airfield hours.

# Mandatory Supplement

## Tower Visibility – Cooperative Weather Watch

- Weather Personnel will:
  - Evaluate prevailing visibility as soon as practicable upon receipt of tower visibility report that differs from the latest reported surface visibility
  - Use tower visibility values as a guide in determining the surface visibility when portions of the horizon are obstructed by buildings, aircraft, etc. (NOTE: The presence of a surface-based obscuration, uniformly distributed to heights above the level of the tower, is sufficient reason to consider the prevailing visibility the same as at the control tower level)
  - Include a tower visibility remark in the next METAR or SPECI when either the surface prevailing visibility or the control tower visibility is less than **4SM** and the control tower visibility differs from the surface prevailing visibility by a reportable value

# Local ORM-based Augmentation Procedures

- Weather personnel will augment:
  - KGRK FBWOS visibility/ceiling report using the threshold of 3SM and/or cloud ceiling of 3,000 FT
    - Unless the KGRK automated report or actual visibility is **less than 3SM**, OR the automated report or actual cloud ceiling is less than **3,000 feet**, weather personnel will not augment the automated observation report
      - For example, if the automated system is reporting visibility 10SM, but manual observing procedures indicate visibility is 4SM, weather personnel will not augment
      - On the other hand, if the sensor is reporting visibility 1/2SM, but manual observing procedures indicate visibility is 7SM, weather personnel will augment

# Local ORM-based Augmentation Procedures

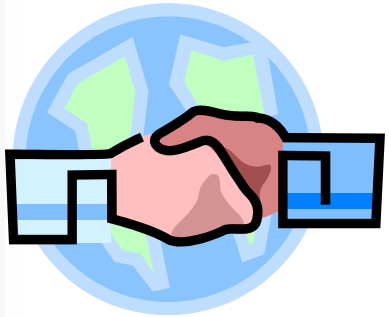
- Weather personnel will augment:
  - Anytime the KGRK FBWOS reports **“UP” (Unknown Precipitation)** and will encode the actual present weather occurring
  - Anytime the KGRK FBWOS does not accurately encode **the occurrence (beginning/ending) of thunderstorms**
  - Anytime RGAAF ATC personnel believe the AUTO observation does not accurately reflect current conditions **and believe flight safety is at risk**

# HAHP (KHLR) FBWOS Back-up Procedures

- Weather personnel will proceed to KHLR Tower to back-up the FBWOS during airfield operating hours (Mon-Fri, 0800-2400, except federal holidays) when:
  - KHLR FBWOS ceiling and/or visibility sensor are inoperative AND weather conditions are/or forecast (within 2 hours) to be **IFR (ceiling <1000FT or visibility <3SM)**
  - The KHLR FBWOS **system is fully inoperative** or a **communication failure**
- Anytime HAHP ATC personnel believe the AUTO observation does not accurately reflect current conditions **and believe flight safety is at risk**

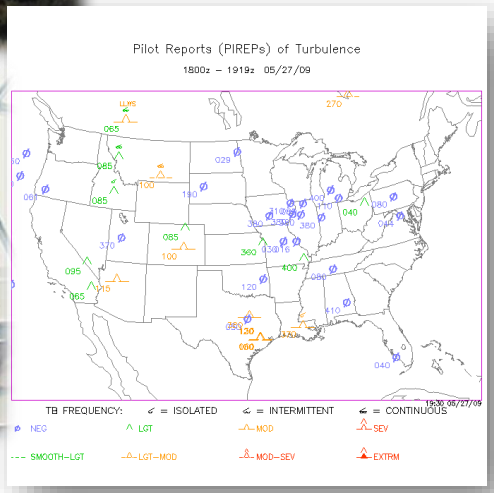
# Cooperative Weather Watch

- AFMAN15-111 requires weather units to establish a cooperative weather watch agreement with Air Traffic Control (ATC) and other appropriate agencies and document in local procedures as well as the base/host unit weather support plan



# Cooperative Weather Watch

- Encompasses:
  - The report of tower visibility
  - Local pilot reports (PIREPs)
  - Any occurrence of previously unreported conditions from ATC that are critical to the safety or efficiency of local operations and resources



# Cooperative Weather Watch

- At a minimum, the cooperative weather watch documents:
  - Procedures for task certified ATC personnel to report changes in tower visibility when it is less than 4SM and differs from the prevailing visibility by at least one reportable value
  - Procedures for ATC personnel to relay PIREPs as soon as practical, within ATC established duty priorities

# ATC Personnel Responsibilities

- ATC directives require task certified ATC personnel to take tower visibility observations when the prevailing visibility at the point of observation or at the tower level, is less than 4SM
- Control tower personnel task certified to take visibility observations also notify the weather technician when the observed tower prevailing visibility decreases to less than 4SM or increases to or exceeds 4SM

# Weather Personnel Responsibilities

- Evaluate prevailing visibility as soon as practicable upon receipt of tower visibility report that differs from the latest reported surface visibility
- Use tower visibility values as a guide in determining the surface visibility when portions of the horizon are obstructed by buildings, aircraft, etc.

NOTE: The presence of a surface-based obscuration, uniformly distributed to heights above the level of the tower, is sufficient reason to consider the prevailing visibility the same as at the control tower level

- Include a tower visibility remark in the next METAR or SPECI when either the surface prevailing visibility or the control tower visibility is less than 4SM and the control tower visibility differs from the surface prevailing visibility by a reportable value

# Weather Personnel Specific Responsibilities

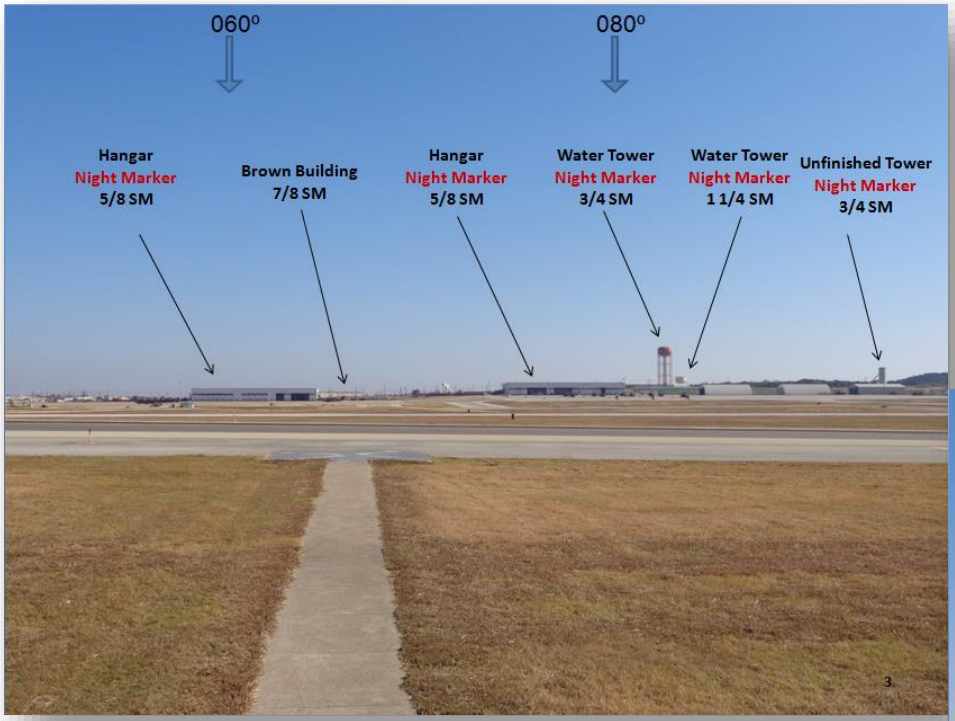
- Weather Personnel will:
  - Augment KGRK and KHLR (only during HAHP operating hours) automated observation as applicable to include a tower visibility remark in the next METAR or SPECI when either the surface prevailing visibility or the control tower visibility is less than 4SM and the control tower visibility differs from the surface prevailing visibility by a reportable value
  - Disseminate a SPECI observation with the tower visibility remark when notified by the control tower that tower visibility has decreased to less than or, if below, increased to equal or exceed 1, 2, or 3SM (per FAA JO 7110.65V Air Traffic Organization Policy) and the control tower visibility differs from the prevailing visibility (KGRK only).

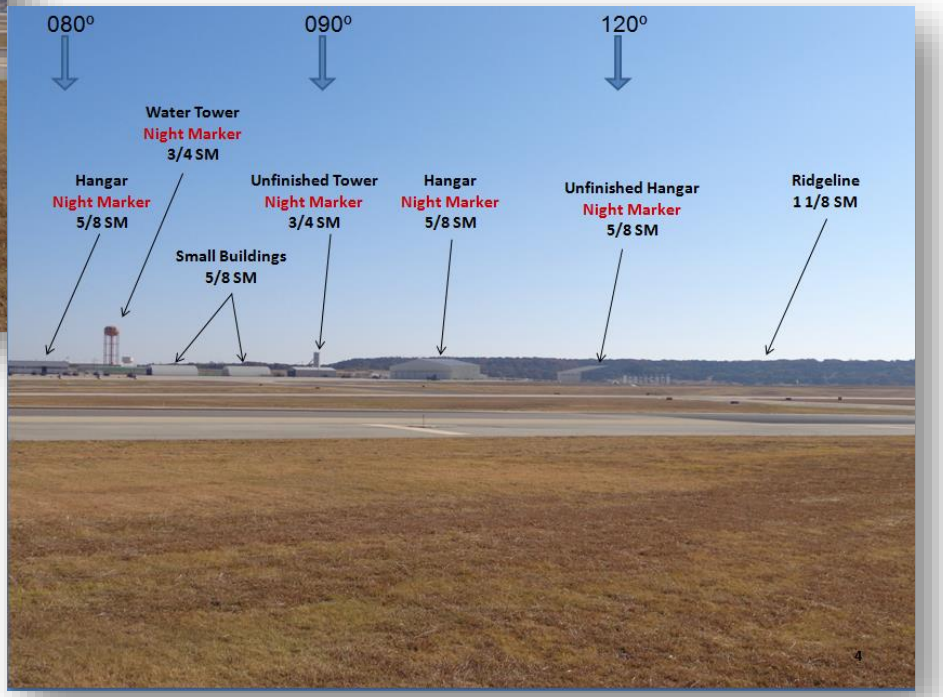
# Visibility Checkpoint Charts (VCC)

- VCC are a means of accurately making tower visibility observations by identifying prominent lights or objects located near the tower
- All control tower facility chiefs will prepare VCCs
- These charts will be used to report tower visibility and observe changes in the reported visibility
- Upon request, weather units will provide assistance to help prepare VCCs for determining tower visibility

# Visibility Photos

*KGRK Weather Station Visibility Photos*



# Visibility Definitions

- **Visibility**: Greatest horizontal distance at which selected objects can be seen and identified
- **Prevailing Visibility**: The visibility considered to be representative of the visibility conditions at the official observing point. It is the **greatest** visibility equaled or exceeded throughout at least half the horizon circle, not necessarily continuous (e.g., it may be composed of sectors distributed anywhere around the horizon circle)
- **Sector Visibility**: Visibility in a specified direction that represents at least a 45 degree arc (portion) of the horizon circle
- **Surface Visibility**: Prevailing visibility determined from the designated point(s); normally represents a value observed at a height of 6 feet above the ground level
- **Tower Visibility**: Prevailing visibility determined from the control tower

# Visibility Determination

- IAW AFMAN15-111 Tower Visibility will be reported in remarks of observations when surface or tower visibility is **< 4 miles** and differs by a reportable value from surface visibility
  - Example: TWR VIS 1 ½
- Mandatory augmentation (supplement criteria)

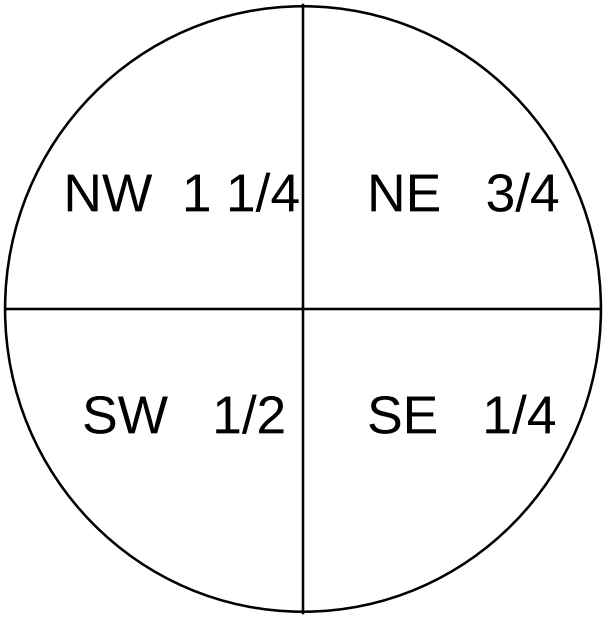
# Visibility Determination

- Use all available markers to determine greatest visibility in each direction around the horizon circle
- Before taking visibility observations at night, spend as much time as practicable in the darkness to allow your eyes to become accustomed to limited light
- Evaluate visibility as frequently as practical; using all available visibility markers, determine the greatest distances that can be seen in all directions around the horizon circle

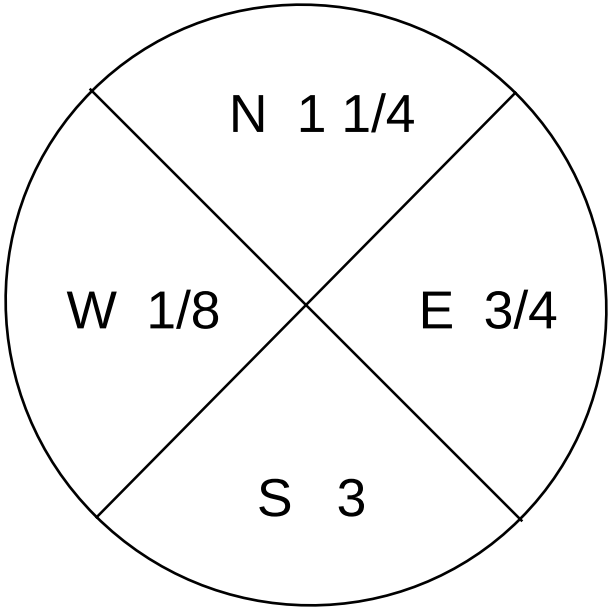
# Visibility Determination

- Estimate farthest distance seen in each direction when visibility is greater than the farthest marker(s)
  - Base this estimate on appearance of all visibility markers
    - If they are visible with sharp outlines and little blurring of color, the visibility is much greater than the distance to them
    - If a marker can barely be seen and identified, the visibility is about the same as the distance to the marker
  - The silhouette of mountains and hills against the sky and the brilliance of stars near the horizon may provide a useful guide to the general clarity of the atmosphere

# Visibility Determination




PREVAILING VIS IS: 3/4
SECTOR VIS IS:
SE 1/4 SW 1/2 NW 1 1/4




PREVAILING VIS IS: 11/4
SECTOR VIS IS:
E 3/4 S 3 W 1/8

# Visibility Determination

– **VIS reportable values**

- 0 -- 3/8 in 1/16 mile increments
- 1/2 -- 2 in 1/8 mile increments
- 2 -- 3 in 1/4 mile increments
- 3 -- 7 in 1 mile increments

# Significant Weather

- Tornado – A violent, rotating column of air **touching the ground**; it forms a pendant, usually from a cumulonimbus cloud
- Funnel Cloud – A violent rotating column of air that ***<u>does not</u>*** **touch the ground**

# Significant Weather

# Dissemination of Weather Information

- Weather observations for RGAAF and HAHP, and all Fort Hood weather watches / warnings / advisories are disseminated to ATC via the AF weather system called JET (Joint Environmental Toolkit)
- JET is connected to IDS5—an ATC communication system
  - Displays weather data (and other ATC information) in RGAAF Tower, ARAC, HLR Tower, and Airfield Ops (RGAAF)
  - The IDS5 display is customizable by the local system manager (DAO-ATC)

***JET***


***IDS5***

# Types of Observations

- METAR
  - A routine scheduled observation--contains a complete report of wind, visibility, runway visual range, present weather and obscurations, sky condition, temperature, dew point, and altimeter
  - Reported between 55 and 59 past each hour
- SPECI
  - An unscheduled observation completed/disseminated as soon as possible when special criteria has been observed
  - Contain all data elements found in a METAR plus additional remarks that elaborate on data in the body of the report
  - Decode just like a METAR

# Observations

**Let's look at an example:**

KGRK METAR 1858Z AUTO 15012G18KT 3SM -TSRA BR SCT003 OVC015 25/21 ALSTG 30.02 RMK AO2 PA +888 DA +2388

# Observations

**Let's look at an example:**

**KGRK METAR** 1858Z AUTO 15012G18KT 3SM -TSRA BR SCT003 OVC015 25/21 ALSTG 30.02 RMK AO2 PA +888 DA +2388

**This is an hourly (METAR) report for RGAAF (KGRK)**

# Observations

**Let's look at an example:**

KGRK METAR **1858Z** AUTO 15012G18KT 3SM -TSRA BR SCT003 OVC015 25/21 ALSTG 30.02 RMK AO2 PA +888 DA +2388

**Time of this observation is 1858Z**

# Observations

**Let's look at an example:**

KGRK METAR 1858Z **AUTO** 15012G18KT 3SM -TSRA BR SCT003 OVC015 25/21 ALSTG 30.02 RMK **AO2** PA +888 DA +2388

**(AUTO) and (AO2) indicate the observation is generated from an automated system with no human intervention (AO2A would indicate the observation is being augmented by a weather technician)**

**$ = Maintenance indicator—maintenance required on the system (*does not necessarily mean any data is bad*)**

# Observations

**Let's look at an example:**

KGRK METAR 1858Z AUTO **15012G18KT** 3SM -TSRA BR SCT003 OVC015 25/21 ALSTG 30.02 RMK AO2 PA +888 DA +2388

**Wind is from the southeast (150 deg) magnetic at 12 knots with gusts (G) to 18 knots**

# Observations

**Let's look at an example:**

KGRK METAR 1858Z AUTO 15012G18KT **3SM** -TSRA BR SCT003 OVC015 25/21 ALSTG 30.02 RMK AO2 PA +888 DA +2388

**Prevailing Visibility is 3 statue miles (SM)**

# Observations

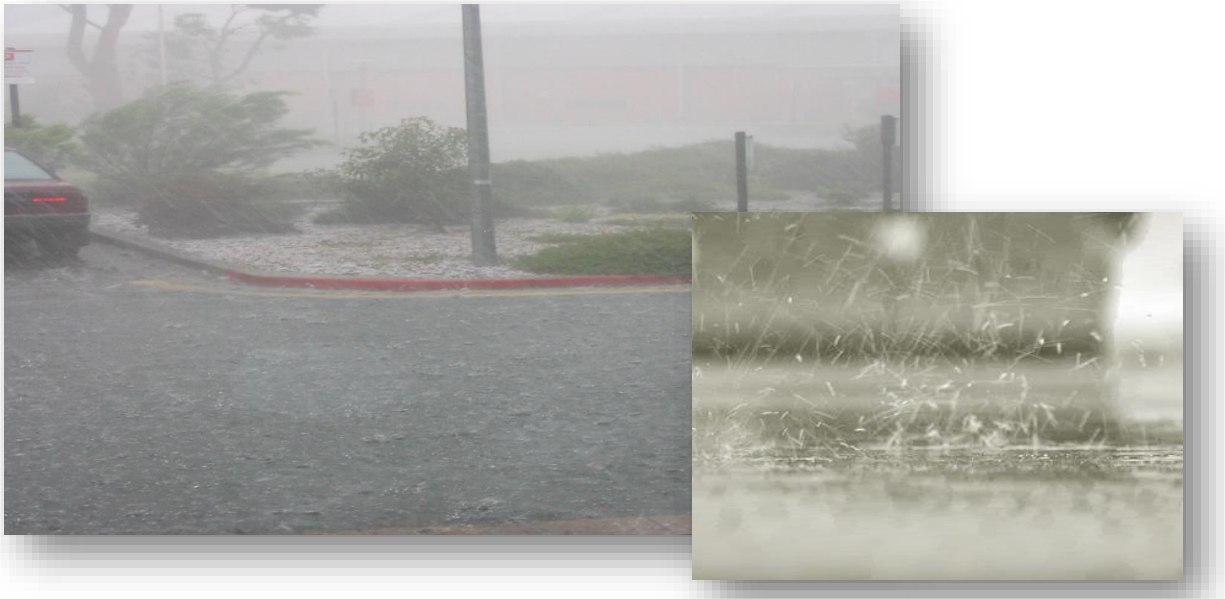
**Let's look at an example:**

KGRK METAR 1858Z AUTO 15012G18KT 3SM **-TSRA BR** SCT003 OVC015 25/21 ALSTG 30.02 RMK AO2 PA +888 DA +2388

**Present weather is thunderstorm with light rain (-) and mist (BR).**

# Decoding Observations
# Present Weather

- ***Intensity of Precipitation***
  - (**-**) = Light
  - (**no symbol**) = Moderate
  - (**+**) = Heavy
  - (**VC**) = In the Vicinity (within 5-10SM of KGRK)



# Decoding Observations
# Present Weather

- ***Descriptors***

| | |
|---|---|
| MI | Shallow |
| PR | Partial |
| BC | Patches |
| DR | Drifting |
| BL | Blowing |

| | |
|---|---|
| SH | Showers |
| TS | Thunderstorm |
| +FC | Tornado or Waterspout |
| FC | Funnel Cloud |
| FZ | Freezing |

# Decoding Observations
# Present Weather

- ***Types of Present Weather:***

**Table 10.3. Automated Present Weather Reporting.**

| Type | Reporting Notation |
|---|---|
| Vicinity | VC<br>(used with TS only) |
| Thunderstorm | TS |
| Freezing | FZ |
| Unknown Precipitation | UP (not reported by TMQ-53) |
| Drizzle | -DZ, DZ, +DZ |
| Freezing Drizzle | -FZDZ, FZDZ, +FZDZ |
| Rain | -RA, RA, +RA |
| Freezing Rain | -FZRA, FZRA, +FZRA |
| Snow | -SN, SN, +SN |
| Mist | BR |
| Fog | FG |
| Freezing Fog | FZFG |
| Haze | HZ |
| Squall | SQ |

# Observations

**Let's look at an example:**

KGRK METAR 1858Z AUTO 15012G18KT 3SM -TSRA BR **SCT003** **OVC015** 25/21 ALSTG 30.02 RMK AO2 PA +888 DA +2388

**The sky condition is scattered clouds at 300 feet AGL (SCT003) and overcast at 1,500 feet AGL (OVC015); the ceiling is 1,500 feet**

# Decoding Observations
# Sky Condition

- ***Sky Condition:***

| | |
|---|---|
| SKC | Sky Clear |
| FEW | Trace to 2/8 coverage |
| SCT | 3/8 to 4/8 coverage |
| BKN | 5/8 to 7/8 coverage |
| OVC | 8/8 coverage |

Cloud Ceiling

# Ceiling Definition

The lowest layer reported as broken or overcast indicates a ceiling layer; or if the sky is totally obscured, the vertical visibility is the ceiling.

# Observations

**Let's look at an example:**

KGRK METAR 1858Z AUTO 15012G18KT 3SM -TSRA BR SCT003 OVC015 **25/21** ALSTG 30.02 RMK AO2 PA +888 DA +2388

**The temperature is 25 degrees Celsius and the dew point is 21 degrees Celsius**

# Observations

**Let's look at an example:**

KGRK METAR 1858Z AUTO 15012G18KT 3SM -TSRA BR SCT003 OVC015 25/21 **ALSTG 30.02** RMK AO2 PA +888 DA +2388

**The altimeter is 30.02 inches**

# Observations

**Let's look at an example:**

KGRK METAR 1858Z AUTO 15012G18KT 3SM -TSRA BR SCT003 OVC015 25/21 ALSTG 30.02 RMK AO2 **PA +888 DA +2388**

**Pressure Altitude is +888 feet and Density Altitude is +2388 feet**

# SPECI Criteria

- ***A SPECI observation is required when:***
  - **VISIBILITY:** Surface visibility (statue miles) as reported in the body of the report decreases to less than or if below, increases to equal or exceed:

| RGAAF (GRK) | | HAAF (HLR) | |
|---|---|---|---|
| **3 miles** | AFMAN 15-111 | **3 miles** | AFMAN 15-111 |
| **2 1/2 miles** | FLIP | **2 miles** | AFMAN 15-111 |
| **2 miles** | AFMAN 15-111, FLIP | **1 mile** | AFMAN 15-111 |
| **1 1/2 miles** | FLIP | **3/4 mile** | FLIP |
| **1 3/8 miles** | FLIP | **1/2 mile** | FLIP (**Airfield Minimum**) |
| **1 1/4 miles** | FLIP | **1/4 mile** | AR95-1 |
| **1 mile** | AFMAN 15-111, FLIP | | |
| **3/4 mile** | FLIP | | |
| **5/8 mile** | FLIP | | |
| **1/2 mile** | FLIP (**Airfield Minimum**) | | |
| **1/4 mile** | AR95-1, FLIP | | |

# SPECI Criteria

- ***A SPECI observation is required when:***
  - **CEILING:** The ceiling (rounded off to reportable values) forms or dissipates below, decrease to less than or if below, increases to equal or exceed:

| RGAAF (GRK) | | HAAF (HLR) | |
|---|---|---|---|
| **3000 feet** | AFMAN 15-111 | **3000 feet** | AFMAN 15-111 |
| **2000 feet** | AFI11-202Vol3 | **1500 feet** | AFMAN15-111 |
| **1500 feet** | AFMAN 15-111 | **1000 feet** | AFMAN15-111 |
| **1000 feet** | AFMAN 15-111 | **700 feet** | AFMAN15-111, FLIP |
| **800 feet** | AFMAN 15-111, FLIP | **500 feet** | AFMAN15-111, FLIP **(Airfield Minimum)** |
| **700 feet** | AFMAN 15-111, FLIP | **100 feet** | AFMAN 15-111, AR95-1 |
| **600 feet** | FLIP | | |
| **500 feet** | AFMAN 15-111, FLIP | | |
| **400 feet** | FLIP | | |
| **200 feet** | AFMAN 15-111, FLIP **(Airfield Minimum)** | | |
| **100 feet** | AFMAN 15-111, AR95-1 | | |

# SPECI Criteria

- ***A SPECI observation is required when:***
  - **SKY CONDITION:** A layer of clouds or obscuring phenomena aloft is observed below **800 feet AGL** (700 feet AGL for HLR), and no layer aloft was reported below **800 feet AGL** (700 feet AGL for HLR) in the previous METAR or SPECI

# SPECI Criteria

- ***A SPECI observation is required when:***
  - **WIND SHIFT:** Wind direction change by 45 degrees or more in less than 15 minutes and the wind speed is 10 knots or more throughout the wind shift
  - **SQUALL:** When squalls occur--A strong wind characterized by a sudden onset, a duration on the order of minutes, then a rather sudden decrease in speed in which the wind speed increases at least 16 knots and is sustained at 22 knots or more for at least one minute
  - **VOLCANIC ERUPTION**: Eruption or volcanic ash cloud first noted

# SPECI Criteria

- ***A SPECI observation is required when:***
  - **THUNDERSTORM** (Occurring at the station): A SPECI is not required to report the beginning of a new thunderstorm if one is currently reported
    - Begins
    - Ends

# SPECI Criteria

- ***A SPECI observation is required when:***
  - **PRECIPITATION**: Except for freezing rain, freezing drizzle, hail, and ice pellets, a SPECI is not required for changes in type (i.e., drizzle changing to snow grains) or the beginning or ending of one type while another is in progress (i.e., snow changing to rain and snow)
    - Hail begins or ends *(Mandatory Supplementary Criteria)*
    - Freezing precipitation begins, ends, or changes in intensity
    - Ice Pellets begin, end, or change in intensity *(Mandatory Supplementary Criteria)*
    - Any other type of precipitation begins or ends

# SPECI Criteria

- ***A SPECI observation is required when:***
  - **TORNADO, FUNNEL CLOUD, OR WATER SPOUT** *(Mandatory Supplementary Criteria)*: If a Tornado, Funnel Cloud, or Water Spout:
    - Is observed
    - Disappears from sight or ends

# SPECI Criteria

- ***A SPECI observation is required when:***
  - **RUNWAY VISUAL RANGE (RVR) - KGRK Only.** Highest value during the preceding 10 minutes from the designated RVR runway decreases to less than, or if below, increases to equal or exceed
    - Prevailing visibility first observed < 1SM, again when prevailing visibility goes above 1SM
    - RVR for active runway decrease to less than or, if below, increase to equal or exceed:

| RGAAF (GRK) | | HAAF (HLR) |
|---|---|---|
| 6000 feet | AFMAN 15-111, FLIP | No RVR capability and no published RVR minima |
| 5500 feet | FLIP | |
| 5000 feet | AFMAN 15-111, FLIP | |
| 3500 feet | FLIP | |
| 2400 feet | AFMAN 15-111, FLIP, AR95-1 (5-3. c.(1)) | |
| 2000 feet | AFMAN 15-111 | |
| 1200 feet | AR95-1 (5-3. c.(2)) | |

    - RVR is first determined as unavailable (RVRNO) for the runway is use, and when it is first determined that the RVRNO report is no longer applicable, provided conditions for reporting RVR exist

# SPECI Criteria

- ***A SPECI observation is required when:***
  - **Tower Visibility (KGRK and KHLR)** *(Mandatory Supplementary Criteria)***.** Transmit a SPECI with the tower visibility as a remark:
    - When notified by the control tower that tower visibility has decreased to less than or, if below, increased to equal or exceed **1, 2, or 3 statute miles**
    - Per FAA JO 7110.65V *Air Traffic Organization Policy*) and the control tower visibility differs from the prevailing visibility

# SPECI Criteria

- ***A SPECI observation is required when:***
  - **UPON RESUMPTION OF OBSERVING FUNCTIONS:** A special (SPECI) observation will be taken within 15-minutes after the weather technician returns to duty following a break in observing coverage at the observing location unless a METAR is filed during that 15-minute period
  - **AIRCRAFT MISHAP:** *(Only required if AMOS is in Augment or Back-up mode).* Take an aircraft mishap SPECI immediately following notification or sighting of an aircraft mishap **at or near** the observing location unless there has been an intervening observation.
  - **MISCELLANEOUS:** Any other meteorological situation that in the weather technician's opinion is critical.

# Pilot Report (PIREP)

- Required information to properly encode and disseminate a PIREP include:
  - Message Type (Routine-UA or Urgent-UUA)
  - Location
  - Time
  - Flight Level
  - Aircraft Type
  - One other element such as (Sky Cover, Weather, Temperature, Wind, Hazards (i.e., Turbulence, Icing, Low-Level Wind Shear)

# Pilot Report (PIREP)

- A PIREP is defined as a report of meteorological phenomena encountered by aircraft in flight
- All PIREPS received by ATC should be passed to the RGAAF weather station within **5 minutes** of receipt
- Required information to properly encode/disseminate:
  - Message Type (Routine-UA or Urgent-UUA)
  - Location
  - Time
  - Flight Level
  - Aircraft Type
  - One other element such as (Sky Cover, Weather, Temp, Wind, Hazards (i.e., Turb, Icing, LLWS)

# Pilot Report (PIREP)

- **EXAMPLE:**

KGRK UUA OV/KGRK360005/TM 1510/FL015/TP UH60/WX FV02SM BR/TA 15/WV 18050KT/RM LLWS -15KT SFC-015 DURC HLR

# Pilot Report (PIREP)

- **EXAMPLE:**

**KGRK UUA** OV/KGRK360005/TM 1510/FL015/TP UH60/WX FV02SM BR/TA 15/WV 18050KT/RM LLWS -15KT SFC-015 DURC HLR

**Severe PIREP disseminated by RGAAF (KGRK)**

# Pilot Report (PIREP)

- **EXAMPLE:**

KGRK UUA **OV/KGRK360005**/TM 1510/FL015/TP UH60/WX FV02SM BR/TA 15/WV 18050KT/RM LLWS -15KT SFC-015 DURC HLR

**The PIREP was reported by an aircraft located 5 miles north of KGRK**

# Pilot Report (PIREP)

- **EXAMPLE:**

KGRK UUA OV/KGRK360005/**TM 1510**/FL015/TP
UH60/WX FV02SM BR/TA 15/WV 18050KT/RM LLWS -
15KT SFC-015 DURC HLR

**The time of the PIREP is 1510Z**

# Pilot Report (PIREP)

- **EXAMPLE:**

KGRK UUA OV/KGRK360005/TM 1510/**FL015**/TP UH60/WX FV02SM BR/TA 15/WV 18050KT/RM LLWS -15KT SFC-015 DURC HLR

**The flight level of the aircraft was 1,500 feet MSL**

# Pilot Report (PIREP)

- **EXAMPLE:**

KGRK UUA OV/KGRK360005/TM 1510/FL015/**TP UH60**/WX FV02SM BR/TA 15/WV 18050KT/RM LLWS -15KT SFC-015 DURC HLR

**The type of aircraft was a UH-60**

# Pilot Report (PIREP)

- **EXAMPLE:**

KGRK UUA OV/KGRK360005/TM 1510/FL015/TP UH60/**WX FV02SM BR**/TA 15/WV 18050KT/RM LLWS - 15KT SFC-015 DURC HLR

**The flight level visibility was 2 statue miles in mist (fog)**

# Pilot Report (PIREP)

- **EXAMPLE:**

KGRK UUA OV/KGRK360005/TM 1510/FL015/TP UH60/WX FV02SM BR/**TA 15**/WV 18050KT/RM LLWS -15KT SFC-015 DURC HLR

**The temperature is 15 degrees Celsius**

# Pilot Report (PIREP)

- **EXAMPLE:**

KGRK UUA OV/KGRK360005/TM 1510/FL015/TP UH60/WX FV02SM BR/TA 15/**WV 18050KT**/RM LLWS -15KT SFC-015 DURC HLR

**The wind is from the south (180 deg) at 50 knots**

# Pilot Report (PIREP)

- **EXAMPLE:**

KGRK UUA OV/KGRK360005/TM 1510/FL015/TP UH60/WX FV02SM BR/TA 15/WV 18050KT/**RM LLWS -15KT SFC-015 DURC HLR**

**Remarks can include anything else the pilot added. In this example, the pilot reported low-level wind shear between the surface and 1,500 feet MSL with a loss in airspeed of 15 knots during climb from Hood AAF**

# PIREP

- **Further information concerning the PIREP code can be found in AFMAN15-124 *Meteorological Codes*, (Chapter 2)**

# Terminal Aerodrome Forecast (TAF) CODE

**KGRK FCST 0916/1022 16015KT 9999 FEW030 SCT250 QNH3010INS**
**BECMG 0921/0922 16015G25KT 8000 -SHRA BKN030 OVC250 510003 QNH3005INS**
**TEMPO 1000/1003 VRB25G35KT 1600 +TSRA BKN015CB OVC030**
**BECMG 1003/1004 17006KT 9999 NSW SCT050 QNH3008INS**
**T24/22Z T16/12Z**

- **KGRK**: Location identifier for RGAAF
- **FCST**: 30-hour forecast
- **1316-1416**: Forecast valid 9th 1600Z to the10th 2200Z (UTC)
- **16015KT**: Forecast wind direction (from) and speed (knots)
- **9999**: Forecast prevailing visibility (unrestricted in meters = 7+ statue miles)
- **FEW030**: Clouds less than 3/8th total cloud cover at 3,000 feet AGL
- **SCT250**: Clouds 3/8 to 4/8ths total cloud cover at 25,000 feet AGL
- **QNH3010INS**: Forecast minimum altimeter setting (inches of mercury)
- **BECMG 0921/0922** : Forecast gradual change between 2100 and 2200Z
- **16015G25KT**: Forecast wind direction/speed/gusts (knots)
- **8000 -SHRA**: Prevailing visibility (meters = 5 statue miles) in light rain showers
- **BKN030**: Clouds 5/8 to 7/8ths total cloud cover at 3,000 feet AGL

# Terminal Aerodrome Forecast (TAF) CODE

**KGRK FCST 0916/1022 16015KT 9999 FEW030 SCT250 QNH3010INS**
**BECMG 0921/0922 16015G25KT 8000 -SHRA BKN030 OVC250 510003 QNH3005INS**
**TEMPO 1000/1003 VRB25G35KT 1600 +TSRA BKN015CB OVC030**
**BECMG 1003/1004 17006KT 9999 NSW SCT050 QNH3008INS**
**T24/22Z T16/12Z**

- **OVC250**: Clouds 8/8 total cloud cover at 25,000 feet AGL
- **510003**: Turbulence code (Light Turbulence Surface-3,000 feet AGL)
- **QNH3005INS**: Forecast minimum altimeter setting (inches of mercury)
- **TEMPO 1000/1003** : Forecast temporary condition between 0000Z and 0300Z
- **VRB25G35KT**: Forecast wind direction/speed/gusts (knots)
- **1600 +TSRA**: Prevailing visibility (meters = 1 statue mile) in thunderstorm with heavy rain
- **BKN015CB**: Clouds 5/8 to 7/8ths total cloud cover at 1,500 feet AGL with cumulonimbus cloud (thunderstorm)
- **OVC030**: Clouds 8/8 total cloud cover at 3,000 feet AGL

# Terminal Aerodrome Forecast (TAF) CODE

**KGRK FCST 0916/1022 16015KT 9999 FEW030 SCT250 QNH3010INS**
**BECMG 0921/0922 16015G25KT 8000 -SHRA BKN030 OVC250 510003 QNH3005INS**
**TEMPO 1000/1003 VRB25G35KT 1600 +TSRA BKN015CB OVC030**
**BECMG 1003/1004 17006KT 9999 NSW SCT050 QNH3008INS**
**T24/22Z T16/12Z**

- **BECMG 1003/1004**: Forecast gradual change between 0300Z and 0400Z
- **17006KT**: Forecast wind direction/speed/gusts (knots)
- **9999**: Forecast prevailing visibility (unrestricted in meters = 7+ statue miles)
- **NSW**: No significant weather (indicates significant weather no longer expected)
- **SCT050**: Clouds 3/8 to 4/8ths total cloud cover at 5,000 feet AGL
- **QNH3008INS**: Forecast minimum altimeter setting (inches of mercury)
- **T24/22Z**: Forecast maximum temperature and time
- **T16/12Z**: Forecast minimum temperature and time

# Terminal Aerodrome Forecast (TAF) CODE

- **Further information concerning the TAF code can be found in AFMAN15-124 *Meteorological Codes*, (Chapter 1)**

# Weather Watch

WEATHER WATCH 09-006 FOR FORT HOOD (KGRK)
VALID 02/1500Z (02/1000L) TO 02/2300Z (02/1800L)
POTENTIAL EXISTS FOR SEVERE THUNDERSTORMS WITH DAMAGING WINDS GREATER THAN OR EQUAL TO 45 KTS. FORECAST VALUE 45 KTS. AND/OR DAMAGING HAIL GREATER THAN OR EQUAL TO 1/2 IN. FORECAST VALUE 1/2 IN. ON THE FORT HOOD RESERVATION.

- **WEATHER WATCH 09-006 FOR FORT HOOD (KGRK):** Sixth weather watch for month of September
- **VALID 02/1500Z (02/1000L) TO 02/2300Z (02/1800L):** Forecast valid time of the watch conditions
- **POTENTIAL EXISTS FOR SEVERE THUNDERSTORMS WITH DAMAGING WINDS GREATER THAN OR EQUAL TO 45 KTS. FORECAST VALUE 45 KTS. AND/OR DAMAGING HAIL GREATER THAN OR EQUAL TO 1/2 IN. FORECAST VALUE 1/2 IN. ON THE FORT HOOD RESERVATION.:** Specific Watch criteria.

# Weather Warning

WEATHER WARNING 04-005 FOR FORT HOOD (KGRK)
VALID 09/1500Z (09/0900L) TO 09/2300Z (09/1700L)
SEVERE THUNDERSTORMS WITH DAMAGING WINDS GREATER THAN OR EQUAL TO 45 KTS. FORECAST VALUE 45 KTS. AND/OR DAMAGING HAIL GREATER THAN OR EQUAL TO 1/2 IN. FORECAST VALUE 1/2 IN. ON THE FORT HOOD RESERVATION. WEATHER WATCH 09-006 REMAIN IN EFFECT

- **WEATHER WARNING 04-005 FOR FORT HOOD (KGRK):** Fifth weather warning issued for month of April
- **VALID 09/1500Z (09/1000L) TO 09/2300Z (09/1800L):** Forecast valid time of warning conditions
- **SEVERE THUNDERSTORMS WITH DAMAGING WINDS GREATER THAN OR EQUAL TO 45 KTS. FORECAST VALUE 45 KTS. AND/OR DAMAGING HAIL GREATER THAN OR EQUAL TO 1/2 IN. FORECAST VALUE 1/2 IN. ON THE FORT HOOD RESERVATION. WEATHER WATCH 09-006 REMAIN IN EFFECT:** Specific warning criteria to include maximum forecast.

# Weather Warning

WEATHER WARNING 07-010 FOR FORT HOOD (KGRK)
VALID 25/1500Z (09/0900L) TO UFN (UFN)
A LIGHTNING WARNING IS ISSUED FOR THE ENTIRE FORT HOOD RESERVATION. (THIS INCLUDES LIGHTNING WITHIN 5N/M OF HOOD AND GRAY AAF). LIGHTNING HAS BEEN OBSERVED IN THIS AREA.

- **WEATHER WARNING 07-010 FOR FORT HOOD (KGRK) #07-010**: Tenth weather warning issued for month of July
- **VALID 25/1500Z (25/1000L) TO UFN (UFN):** Warning valid until further notice (observed condition)
- **A LIGHTNING WARNING IS ISSUED FOR THE ENTIRE FORT HOOD RESERVATION. (THIS INCLUDES LIGHTNING WITHIN 5N/M OF HOOD AND GRAY AAFS). LIGHTNING HAS BEEN OBSERVED IN THIS AREA.:** Specific warning criteria

# Weather Advisory

WEATHER ADVISORY 03-003 FOR FORT HOOD (KGRK)
VALID 20/1830Z (20/1330L) TO UFN (UFN)
SURFACE WIND GREATER THAN OR EQUAL TO 25 KNOTS AT FORT HOOD.

- **WEATHER ADVISORY 03-003 FOR FORT HOOD (KGRK):** Third weather advisory issued for month of March
- **VALID 20/1830Z (20/1330L) TO UFN (UFN):** Advisory valid until further notice (observed condition)
- **SURFACE WIND GREATER THAN OR EQUAL TO 25 KNOTS AT FORT HOOD:** Specific advisory criteria

# 3 CWS Webpage

https://home.army.mil/hood/index.php/fort-hood-weather

**Links to current airfield observations and weather watches, warnings, and advisories**


**Scroll down…**

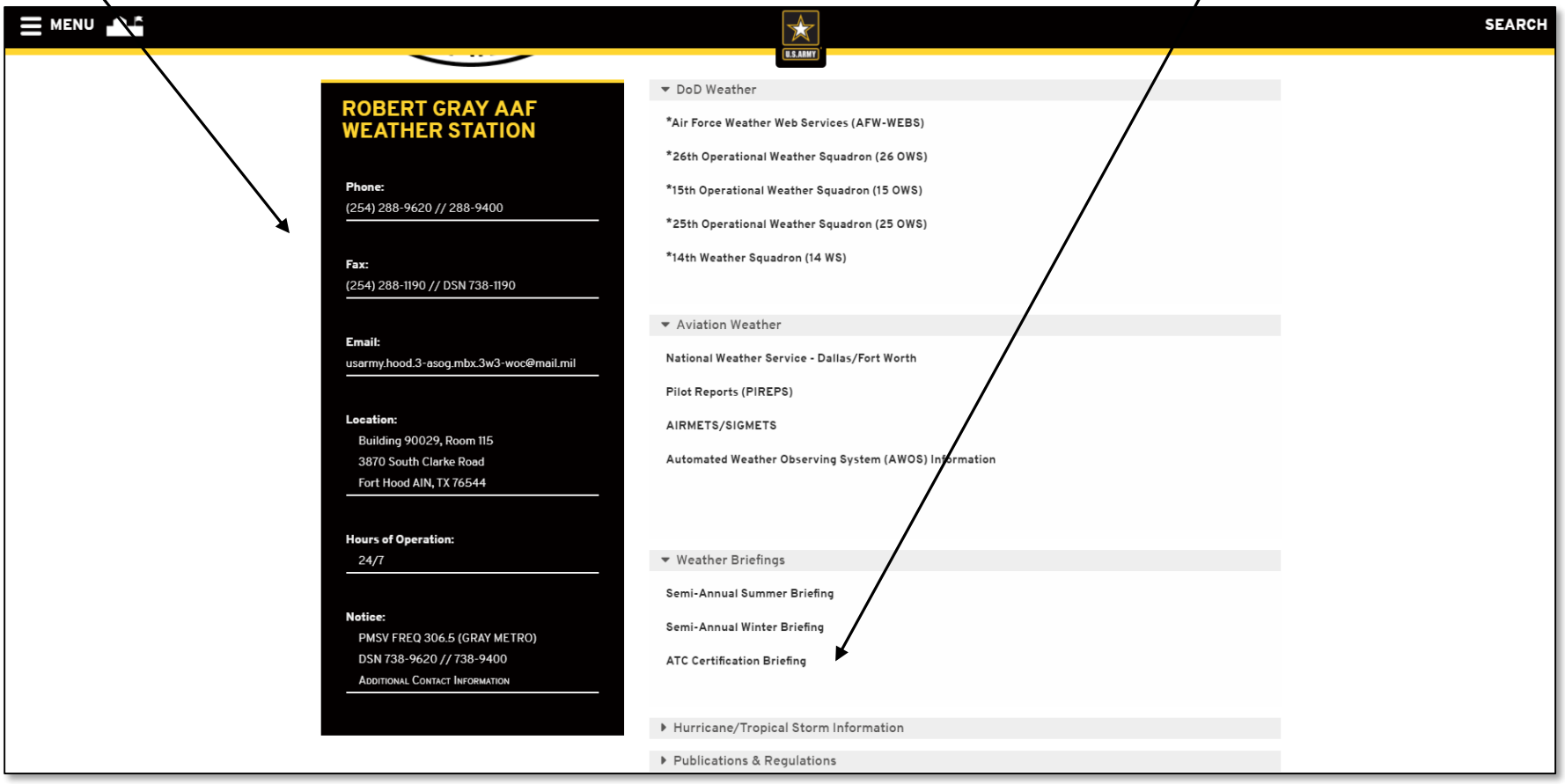
**Links to current weather forecast products**

# 3 CWS Webpage

https://home.army.mil/hood/index.php/fort-hood-weather

**Our Contact info and E-mail**

**ATC Certification Briefing**

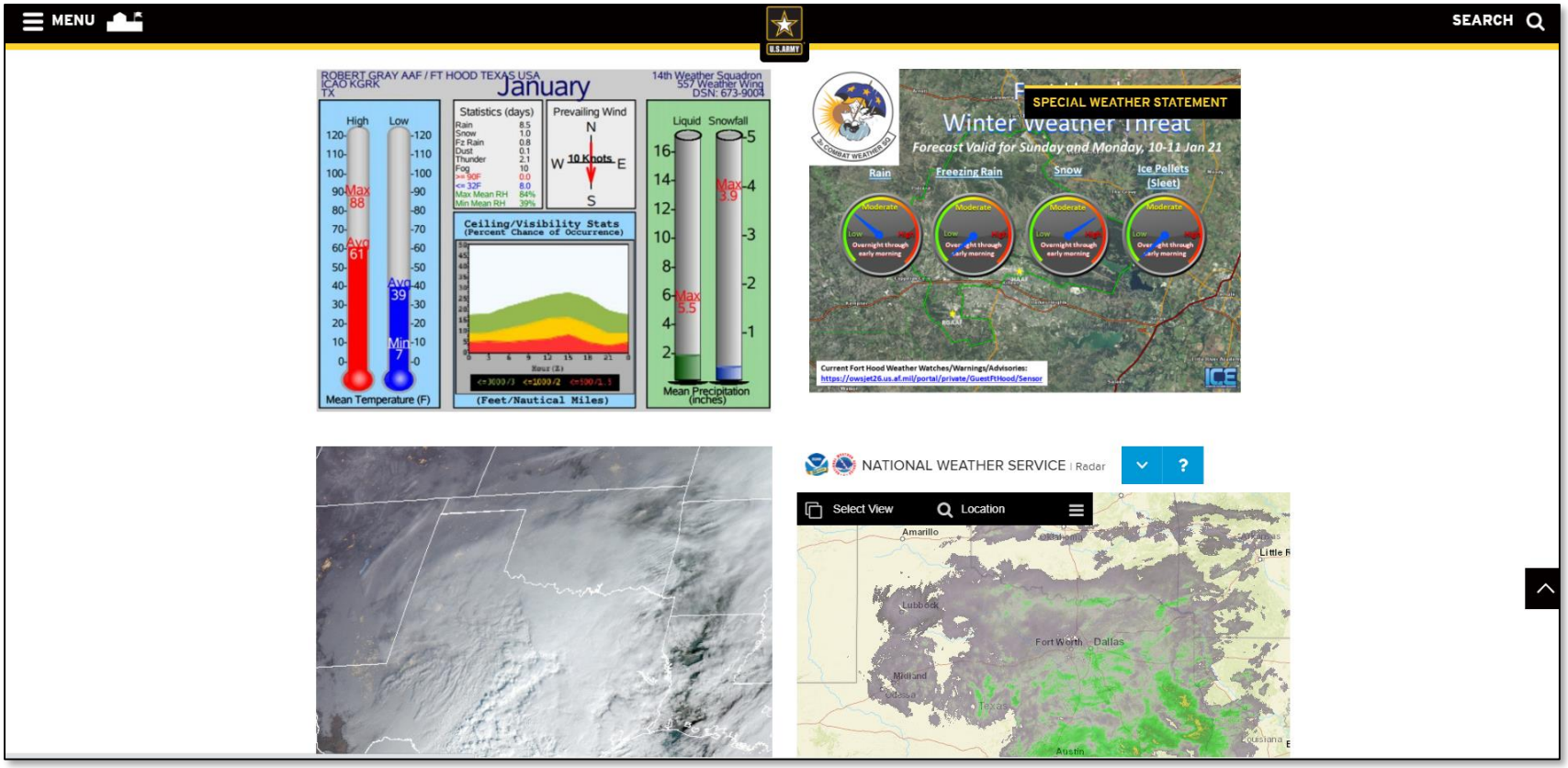



**Scroll down…**

# 3 CWS Webpage

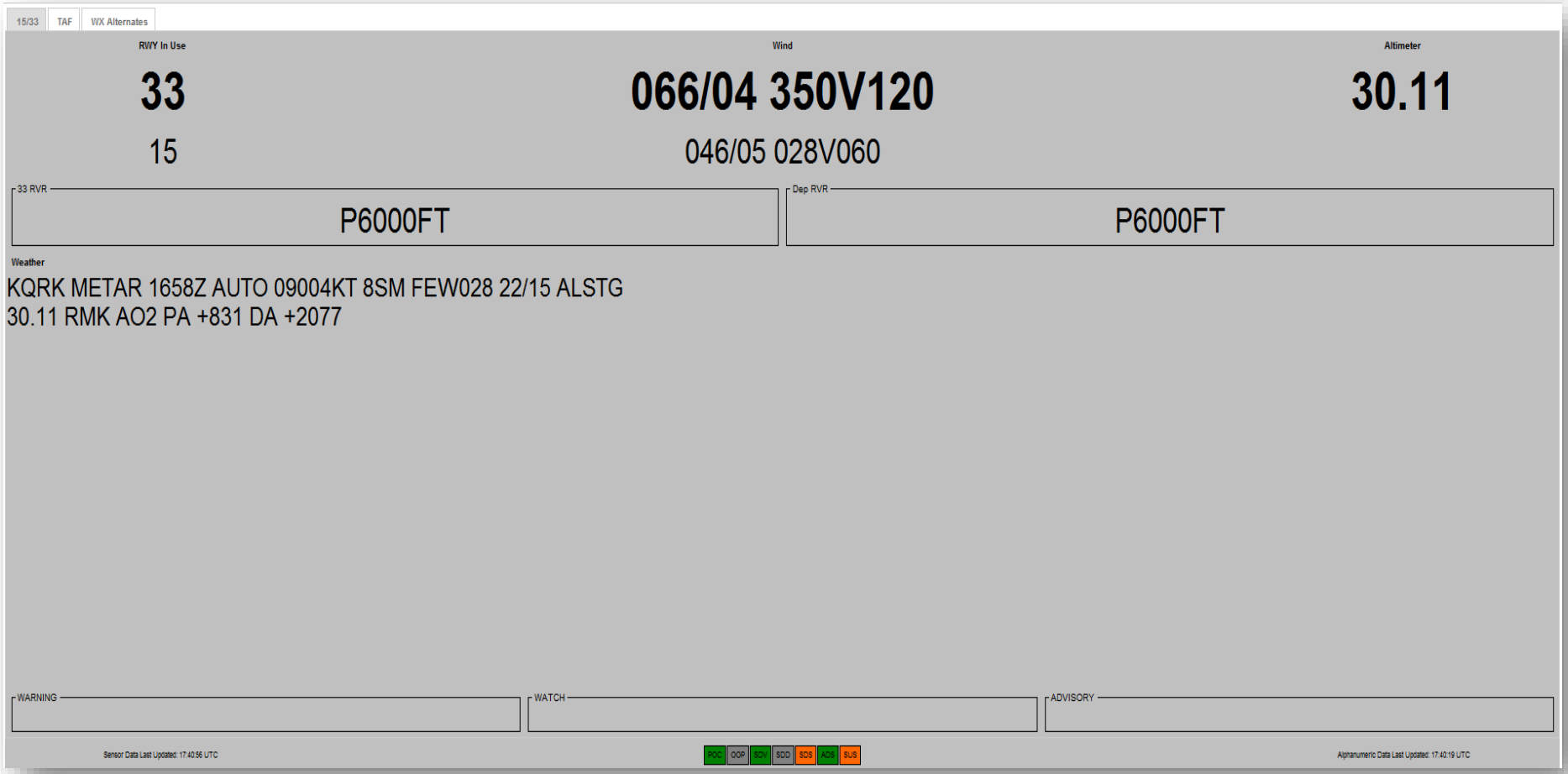
https://home.army.mil/hood/index.php/fort-hood-weather

**Much more…**



# JET ATC Webpage

https://afwxhooda0-101.nasw.ds.army.mil/atc



# Summary

- **Today you have learned:**
  - RGAAF & HLR Weather Observation Procedures
  - Cooperative Weather Watch
  - Visibility
    - Definitions
    - Determination methods
  - Significant Weather
  - Dissemination of Weather Information
  - How to read…
    - Observations
    - PIREPs
    - TAFs
    - Weather Watches/Warnings/Advisories

# Questions?


PILOTS
WEATHER FORECASTING STONE
Condition
Forecast
Stone is Wet
Rain
Stone is Dry
Not Raining
Shadow on Ground
Sunny
White on Top
Snowing
Can't See Stone
Foggy
Swinging Stone
Windy
Stone Jumping Up & Down
Earthquake
Stone Gone
Tornado

# Feedback

- Any feedback you can provide will be greatly appreciated and will help us improve your training

  **usarmy.hood.3-asog.mbx.3w3-woc@mail.mil**