

‘METARS AND TAFS’

WEATHER WIZARDS

MASTERING METARS AND TAFS



Objective

- Students will analyze and decode the basic elements of METAR and TAF reports, as well as create and present their own reports based on hypothetical weather scenarios.

Materials Needed

- **Sample METAR and TAF reports**
- **Decoding guides for METAR and TAF**
- **Computers or tablets with internet access**
- **Worksheets for creating METAR and TAF reports**
- **Projector or Smartboard for presentations**
- **Visual aids for weather conditions (charts, maps)**
- **Notebooks and pens**

Resources:

- 1: [How to Decode METARs and TAFs \(Presentation\)](#)
- 2: Sample METARs and TAFs (Pages 2-4)
- 3: Common Abbreviations Guide (Page 5)
- 4: Weather Wizards Worksheet (Pages 6-7)

Lesson Steps:

1. Use Resource 1: “How to Decode METARs and TAFs” lesson (Go through this as a class, in groups, or individually)
2. Review Resource 2 as a class.
3. The students will complete the Weather Wizards worksheet where they will test their skills of decoding METARs and TAFs as well as creating their own METARs and TAFs with a given weather situation.
4. Each student will create and present a METAR or TAF for the class to decode together.

45 MIN
LESSON

45 MIN
LESSON

RESOURCE 2 (SAMPLE METARS AND TAFS)

02

Here's a couple of examples and their decoding to practice as a class:

**METAR KLAX 121530Z 27015KT 10SM FEW025 SCT050 20/10
A3010 RMK AO2 SLP200 T02000100**

Decoding:

- Location: KLAX (Los Angeles International Airport)
- Date and Time: 12th of the month, at 1530 UTC
- Wind: 270 degrees at 15 knots
- Visibility: 10 statute miles
- Clouds: Few clouds at 2,500 feet, scattered clouds at 5,000 feet
- Temperature/Dew Point: 20°C/10°C
- Altimeter: 30.10 inches of Hg
- Remarks: Sea-level pressure (SLP) is 200

**TAF KLAX 121130Z 1212/1318 27010KT P6SM SKC FM121600
27015G25KT P6SM SCT035 FM130000 24008KT P6SM BKN020
OVC080 FM130600 VRB03KT 4SM BR BKN008 OVC012**

Decoding:

- Location: KLAX (Los Angeles International Airport)
- Date and Time of Issue: 12th of the month, at 1130 UTC
- Valid Period: From the 12th at 1200 UTC to the 13th at 1800 UTC
- Forecast:
 - From 1212/1318: Wind from 270 degrees at 10 knots, visibility more than 6 statute miles, clear skies.
 - From 121600: Wind from 270 degrees at 15 knots, gusting to 25 knots, visibility more than 6 statute miles, scattered clouds at 3,500 feet.
 - From 130000: Wind from 240 degrees at 8 knots, visibility more than 6 statute miles, broken clouds at 2,000 feet, overcast at 8,000 feet.
 - From 130600: Variable winds at 3 knots, visibility 4 statute miles, mist, broken clouds at 800 feet, overcast at 1,200 feet.

**METAR KJFK 211530Z 32012G18KT 10SM FEW020
SCT050 BKN100 08/02 A3012 RMK AO2 SLP200**

Decoding:

- Location: KJFK (John F. Kennedy International Airport)
- Date and Time of Issue: 21st of the month at 1530 UTC.
- Wind: From the northwest (320 degrees) at a speed of 12 knots, with gusts up to 18 knots.
- Visibility: The visibility is 10 statute miles, indicating clear conditions.
- Clouds:
 - Few clouds at 2,000 feet above ground level.
 - Scattered clouds at 5,000 feet.
 - Broken clouds at 10,000 feet.
- Temperature/Dew Point: 8°C/2°C.
- Altimeter Setting: 30.12 inches of Hg.
- Remarks: Sea level pressure is 1020.0

TAF KATL 211130Z 2112/2218 27006KT P6SM FEW040 SCT100
FM211500 28012G22KT P6SM SCT040 BKN080
TEMPO 2116/2120 4SM -TSRA BKN030CB
FM220000 30008KT P6SM FEW035 SCT250
FM221200 32005KT P6SM SKC

Decoding:

- Station Identifier: KATL - This TAF report is for Hartsfield-Jackson Atlanta International Airport.
- Date and Time of Issue: 211130Z - Issued on the 21st of the month at 1130 UTC.
- Valid Period: 2112/2218 - Valid from the 21st at 1200 UTC to the 22nd at 1800 UTC.
- Initial Forecast (2112/2218):
 - 27006KT - Wind from 270 degrees at 6 knots.
 - P6SM - Visibility greater than 6 statute miles.
 - FEW040 SCT100 - Few clouds at 4,000 feet, scattered clouds at 10,000 feet.
- From 211500 UTC:
 - 28012G22KT - Wind from 280 degrees at 12 knots, gusting to 22 knots.
 - P6SM SCT040 BKN080 - Visibility greater than 6 statute miles, scattered clouds at 4,000 feet, broken clouds at 8,000 feet.
- Temporary Conditions between 2116 and 2120 UTC:
 - 4SM -TSRA BKN030CB - Visibility 4 statute miles in light thunderstorms and rain, broken clouds at 3,000 feet with cumulonimbus clouds.
- From 220000 UTC:
 - 30008KT - Wind from 300 degrees at 8 knots.
 - P6SM FEW035 SCT250 - Visibility greater than 6 statute miles, few clouds at 3,500 feet, scattered clouds at 25,000 feet.
- From 221200 UTC:
 - 32005KT - Wind from 320 degrees at 5 knots.
 - P6SM SKC - Visibility greater than 6 statute miles, sky clear.

WEATHER PHENOMENA

- RA: RAIN
- SN: SNOW
- BR: MIST
- FG: FOG
- TS: THUNDERSTORM
- SH: SHOWERS
- HZ: HAZE
- DU: DUST
- SA: SAND
- SQ: SQUALLS
- FZ: FREEZING (E.G., FZRA FOR FREEZING RAIN)
- VA: VOLCANIC ASH
- FU: SMOKE
- GR: HAIL
- GS: SMALL HAIL/ SNOW PELLETS
- IC: ICE CRYSTALS
- PL: ICE PELLETS
- FC: FUNNEL CLOUD
- G- GUSTS
- KT-KNOTS

SKY CONDITION

- SKC/CLR: CLEAR SKIES (NO CLOUDS)
- FEW: FEW CLOUDS
- SCT: SCATTERED CLOUDS
- BKN: BROKEN CLOUDS
- OVC: OVERCAST

INTENSITY OR PROXIMITY OF WEATHER

- -: LIGHT
- +: HEAVY
- P: GREATER THAN THE HIGHEST REPORTABLE VALUE
- VC: IN THE VICINITY (USED WITH WEATHER PHENOMENA, E.G., VCTS FOR THUNDERSTORMS IN THE VICINITY)

FORECAST CHANGE INDICATORS

- BECMG: BECOMING (USED FOR EXPECTED GRADUAL WEATHER CHANGES)
- TEMPO: TEMPORARY (USED FOR SHORT-TERM FLUCTUATIONS LASTING LESS THAN AN HOUR)
- PROB: PROBABILITY (FOLLOWED BY A PERCENTAGE, E.G., PROB30)

Weather Wizards: Mastering METARs and TAFs

Name: _____ Date: _____

Part 1: Understanding METAR and TAF

1. What is a METAR report? Write a brief explanation:

2. What is a TAF report? Write a brief explanation:

Part 2: Decoding Practice

Decode the following sample METAR report:

METAR KJFK 121753Z 18015G25KT 10SM FEW020 SCT300 30/22 A2992 RMK AO2 SLP134 T03000217 10200 20161 58014

Translation:

- Wind: _____
- Visibility: _____
- Clouds: _____
- Temperature and Dew Point: _____
- Altimeter: _____

Decode the following sample TAF report:

TAF AMD KJFK 121740Z 1218/1324 18015G25KT P6SM FEW020 BKN300 FM130200 19010KT P6SM SCT020 BKN250 FM131500 21015G25KT P6SM BKN035

Translation:

- Wind: _____
- Visibility: _____
- Clouds: _____
- Significant Weather Changes: _____

Part 3: Create Your Own METAR and TAF

Weather Scenario for Your Report:

- Time and Date: _____
- Location: _____
- Weather Conditions: Sunny morning, increasing clouds by afternoon, chance of thunderstorms in the evening.

Create a METAR report for your scenario:

Create a TAF report for your scenario:

Part 4: Reflection

1. What challenges did you face in creating these reports?

2. How do you think pilots and meteorologists use these reports in real-world scenarios?
