

PRIVATE PILOT GROUND SCHOOL

MODULE 3-4 — WEATHER SERVICES AT CHECKRIDE DEPTH

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FACTS TO REMEMBER

KNOW THESE COLD

- The Aviation Weather Center is the product source; Leidos Flight Service is the briefing and consultation service; EFB apps aggregate both.

Source: AC 91-92; AIM* 7-1-5 TC

- A regulatory-compliant briefing does not require calling Flight Service — a documented self-briefing can comply.

Source: AIM* 7-1-5a; AC 91-92 TC

- Flight Watch and HIWAS no longer exist; today's inflight sources are FSS on 122.2, FIS-B, and ARTCC hazardous-weather broadcasts.

Source: AIM* 7-1-5f, 7-1-8 TC

- ARTCC broadcasts hazardous weather advisories on center frequencies; ask the controller for details.

Source: AIM* 7-1-8 TC

- A PIREP is the only direct observation of conditions aloft; UA marks routine, UUA marks urgent.

Source: AWH 24.5 TC

- PIREP decode runs on slash codes: /OV location, /TM time, /FL altitude, /TP type, /SK sky, /TA temperature, /WV wind, /TB turbulence, /IC icing.

Source: AWH 24.5 TC

- Pilots are expected to volunteer PIREPs — reporting unforecast conditions helps the NWS verify and fix forecasts.

Source: AWH 24.5.1; AIM* 7-1-18b TC

- AIRMETs advise of widespread conditions hazardous especially to VFR pilots and operators of sensitive aircraft.

Source: AWH ch. 26 TC

- AIRMET Sierra: IFR conditions and mountain obscuration.

Source: AWH ch. 26 TC

- AIRMET Tango: moderate turbulence and strong surface winds.

Source: AWH ch. 26 TC

- AIRMET Zulu: moderate icing and freezing level.

Source: AWH ch. 26 TC

- A SIGMET warns of non-convective conditions severe for all aircraft: severe icing, severe or extreme turbulence, dust or sandstorms, volcanic ash.

Source: AWH ch. 26 TC

- A Convective SIGMET covers severe thunderstorms, embedded thunderstorms, and lines of storms.

Source: AWH ch. 26 TC

- Any Convective SIGMET implies severe or greater turbulence, severe icing, and low-level wind shear.

Source: AWH (verbatim rule) TC

- The Graphical Forecasts for Aviation (GFA) is the interactive replacement for the old text Area Forecast over the CONUS.

Source: AWH TC

- The Surface Analysis Chart shows observed pressure systems and front positions — what is, not what will be.

Source: AWH 25.2.3 TC

- Prog charts show forecast front and pressure positions at future times.

Source: AWH ch. 25 TC

- Winds and Temperatures Aloft (FB): direction in tens of degrees TRUE, speed in knots, temperature in Celsius.

Source: AWH 27.2.1 TC

- FB blanks: no wind forecast within 1,500 feet of station elevation; no temperature within 2,500 feet.

Source: AWH 27.2.1 TC

- FB code 9900 means light and variable.

Source: AWH 27.2.1 TC

- The SPC Convective Outlook grades storm risk: TSTM, MRGL, SLGT, ENH, MDT, HIGH.

Source: SPC/NWS TC

- Scheduled TAFs are issued four times daily, every six hours.

Source: AWH TC

- An amended TAF (TAF AMD) supersedes and cancels the previous TAF — always check for the amendment.

Source: AWH (verbatim) TC

- Weather radar (NEXRAD) shows precipitation, not clouds — an empty radar picture is not proof of VMC.

Source: AWH 22.8.2 TC

- Satellite imagery shows clouds; radar shows precipitation — two different questions.

Source: AWH TC

- Datalink radar is always at least 7 to 8 minutes older than its time stamp.

Source: AC 00-63B (verbatim) TC

- Datalink weather is for broad strategic avoidance only — never for tactical storm penetration.

Source: AC 00-63B TC

- FIS-B is free over 978 UAT ADS-B In: METARs, TAFs, NEXRAD, AIRMETs, SIGMETs, NOTAMs, and more.

Source: AIM 7-1-9; AC 00-63B App A TC*

- FIS-B does not replace a preflight briefing.

Source: AC 00-63B TC

- An outlook briefing is for planning only — get a standard briefing closer to departure.

Source: AIM 7-1-5d; AC 91-92 8.1 TC*

- "VFR flight not recommended" is advisory — the final decision rests solely with the pilot, which is why it must be taken seriously, not outsourced.

Source: AIM 7-1-5b TC*

- A clean current METAR does not override a worsening TAF — the trend outranks the snapshot.

Source: TC (misconception #5; ratified trend element)

- Read improving versus deteriorating from the METAR sequence, the TAF's BECMG/TEMPO groups, front movement, and the closing spread.

Source: TC (ratified trend element)

- Every weather product has a valid time and an issue time — reading one without the other is reading fiction.

Source: AWH ch. 24–27 TC

GOING DEEPER

- The current weather book is the Aviation Weather Handbook (FAA-H-8083-28B); the classic weather ACs (00-6B, 00-45H, 00-24C, 00-30C, 00-54) were all cancelled in 2022.

Source: AWH (verified current 2026-08-18); cancellation notices TC

- Every PIREP includes aircraft type because turbulence and icing intensity are relative to the aircraft.

Source: AWH 19.1, 24.5.1.5 TC

- ATC solicits PIREPs when ceilings or visibility drop and near hazards like icing and wind shear.

Source: AIM* 7-1-18a TC

- The absence of PIREPs is not the absence of hazard — few pilots file.

Source: AIM* 7-1-18b TC

- G-AIRMETs are graphical snapshots at 3-hour steps out to 12 hours.

Source: AWH TC

- A SIGMET is valid for up to 4 hours.

Source: AWH TC

- Convective SIGMETs are issued hourly at 55 past and are valid up to 2 hours.

Source: AWH TC

- A Center Weather Advisory is a nowcast aid for aircraft already en route — not a flight planning product.

Source: AWH TC

- Text Area Forecasts still exist for Alaska and the Gulf/Caribbean.

Source: AWH Table 3-11 TC

- The ceiling-and-visibility picture the ACS calls "CVA" is today a gridded real-time analysis on aviationweather.gov — an analysis of now, not a forecast.

Source: AWH; AWC (product-name drift) TC

- FB direction digits 51–86 mean 100+ knots: subtract 50 from the direction, add 100 to the speed.

Source: AWH 27.2.1 TC

- FB temperatures above 24,000 feet print without a sign because they are always negative.

Source: AWH 27.2.1 TC

- Outlook categories are probabilities of severe weather within 25 miles of a point — a MRGL day is not a zero day.

Source: SPC/NWS TC

- A METAR is a point observation: it describes the sensor's spot at one moment, and the edge of the field can differ.

Source: AWH; WPR11FA316 (paraphrase-level) TC

- Coded winds (METAR, TAF, FB) are TRUE north; voice winds (ATIS, tower, AWOS) and runway numbers are MAGNETIC.

Source: AWH Table 3-5 TC

- Military TAFs read differently: visibility in meters, QNH altimeter groups, turbulence "5" groups and icing "6" groups.

Source: AFPAM 11-238; NWS TC

- The 5/6 trap: a 5- or 6-group is turbulence/icing in a military TAF but pressure tendency/precipitation in METAR remarks.

Source: TC (rev2 pass)

- The NWS Area Forecast Discussion, read beside the TAF, names hazards the TAF left out for low confidence — and says how confident the forecaster is.

Source: NWS AFD guidance TC

- The mosaic can be 15 to 20 minutes older than even the age it displays — it shows where the weather was.

Source: AWH 22.8.2 TC

- Pilots have died maneuvering around a mosaic they believed was live; the NTSB wrote the latency alert after such accidents.

Source: NTSB SA-017 TC

- NEXRAD coverage has real gaps in the western mountain states.

Source: AC 00-63B TC

- Refresh with an abbreviated briefing when the last briefing is more than an hour old or the weather is questionable.

Source: AC 91-92 8.1 TC

- Onboard weather tempts continuation into deteriorating weather — pick the divert point before launch, while nobody is invested.

Source: AC 00-63B; NA doctrine TC