A Novice Pilot's Guide to Skew-T Diagrams for Preflight Planning

Slingology Blog, Jan 2026

http://slingology.blog

In collaboration with ChatGPT Deep Research

What Is a Skew-T Diagram?

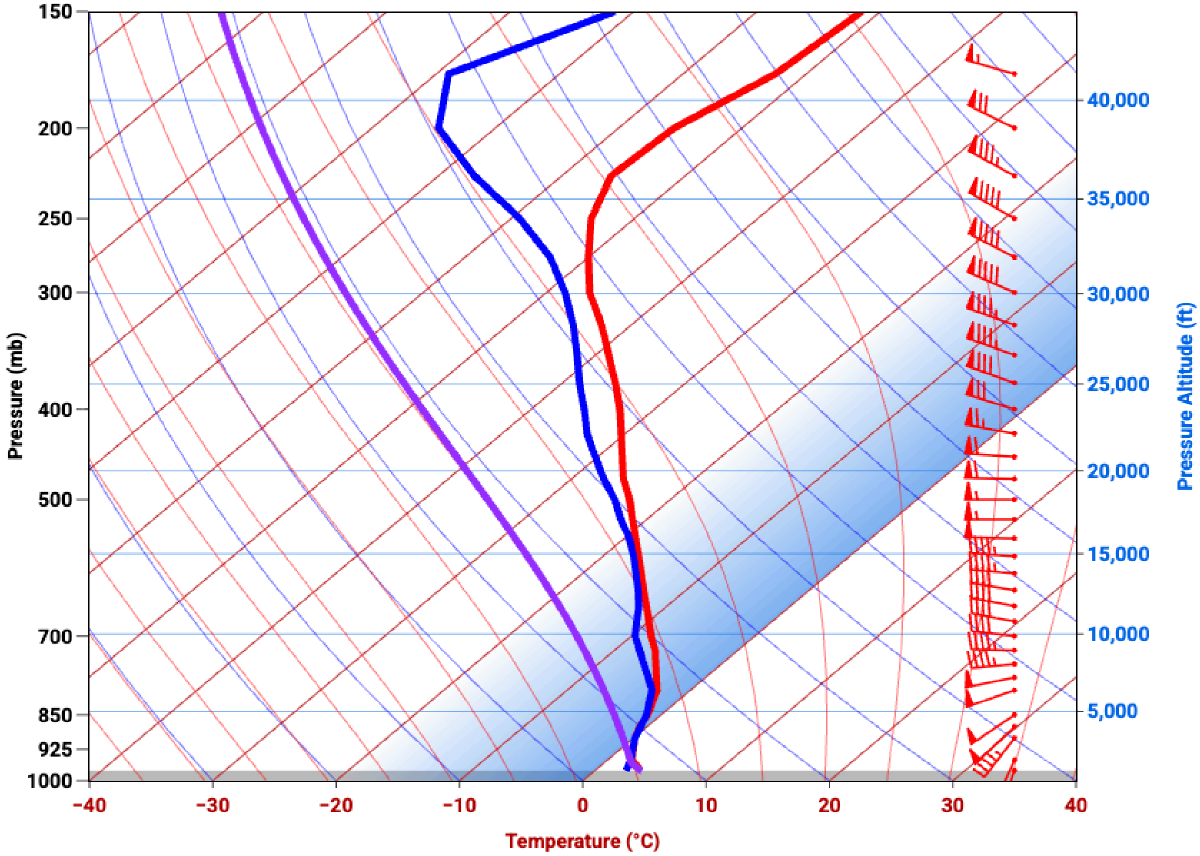
Imagine if you could look straight up through the atmosphere and see the entire vertical profile of temperature, moisture, and winds from the surface up to cruising altitudes. A Skew-T Log-P diagram (often just called a "Skew-T") does exactly that – it's essentially a vertical snapshot of the atmosphere above a location[1][2]. In simple terms, a Skew-T chart shows you how the air temperature and dew point change with height, and what the winds are doing at various altitudes. Meteorologists have used Skew-T diagrams for years, but only recently have they become easily available to pilots for weather briefing[3].

On a Skew-T chart, the vertical axis represents **altitude** (actually atmospheric pressure, in millibars, which decreases with height) and the horizontal axis represents **temperature** (in °C). Unlike a normal graph, the temperature lines are drawn at a slant (skewed diagonally upward to the right) – that's where the "skew" in Skew-T comes from[4][5]. The curved or slanted background lines may look complex, but as pilots we only need to focus on a few key elements on the chart to get useful information[6][7]:

- **Temperature profile** – plotted as a line (often red) that shows the air temperature at various altitudes above the station.
- **Dew point profile** – plotted as a line (often blue or green) that shows the dew point (a measure of moisture) at those altitudes.
- **Wind barbs** – symbols on the right side of the chart indicating wind speed and direction at different altitudes.
- **Pressure/Altitude scale** – the left side has pressure in millibars (e.g. 1000 mb near sea level, 500 mb around 18,000 ft, 300 mb ~30,000

ft, etc.[8]) corresponding to approximate flight levels. This tells you the height for any point on the temperature/dew point lines.

Other background lines (dry and moist adiabats, mixing ratio lines) are used by meteorologists for detailed analysis, but you **don't need to be an expert** in those to get practical use from a Skew-T. We'll focus on the basics that any IFR-rated pilot can understand and use.



Source: FlyTheWeather.com

A sample Skew-T diagram annotated with key features. The red line is the temperature profile and the blue line is the dew point profile. The purple line is the Lifted Parcel Line (LPL), an indication of the stability of the atmosphere. Notice the wind barbs on the right side indicating winds aloft. Areas where the temperature and dew point lines come close together indicate likely cloud layers, and the point where the temperature line crosses 0°C (dashed line) shows the freezing level.

Why Should IFR Pilots Care?

For a pilot planning a flight in Instrument Meteorological Conditions (IMC), a Skew-T diagram is like **opening the hood of a car to see the engine**, whereas a typical METAR/TAF briefing is just the warning light on the dashboard[2]. In other words, the Skew-T reveals the *full three-dimensional weather picture* rather than a simplified report. By glancing at a Skew-T, you can answer important preflight questions that are hard to gauge from surface reports alone[9]:

- **Where are the cloud layers?** A Skew-T shows you the depth of saturated (cloudy) layers versus dry layers aloft, so you know if you'll be in the soup the whole climb or if there are clear layers in between[10].
- **What is the exact freezing level?** You can pinpoint the altitude where the temperature drops to 0°C, critical for assessing icing risk[11]. If there are multiple freeze/thaw layers (temperature crossing 0°C more than once), it could indicate sleet or freezing rain conditions[12][13].
- **How stable or unstable is the atmosphere?** Skew-Ts make it easier to see if an air mass is unstable (which could mean thunderstorms or convective turbulence) or stable (smooth air but potential stratus/fog). Colder air over warmer air (steep lapse rates) on the chart hints at instability and possible convection[14][9].
- **Any temperature inversions?** You can spot inversions (layers where temperature increases with height) at a glance – important because low-level inversions can trap moisture and cause fog or low stratus, and strong mid-level inversions can cap convection[15][16].
- **How are winds changing with altitude?** The wind barbs tell you wind speed and direction at various altitudes, helping you find a tailwind or avoid a headwind, and identify wind shear or potential turbulence layers[17][18].

In short, a Skew-T gives you in one chart what you'd otherwise piece together from multiple maps and reports – it's a one-stop visual for the vertical structure of the atmosphere[9]. Even if it looks unfamiliar at first, with a little practice you can glean critical information for your flight's safety and comfort.

Where to Find Skew-T Diagrams (U.S. Locale)

Luckily, you don't have to launch your own weather balloon to get a Skew-T. In the U.S., there are a number of **free online resources** and tools that provide Skew-T soundings, both from observed data (weather balloon launches) and forecast models:

- **NOAA Sounding Data (Observed):** The National Weather Service releases weather balloons at 81 stations across the U.S. twice daily (00Z and 12Z). You can view the actual observed Skew-T soundings from these launches on the University of Wyoming website[19] or the Storm Prediction Center (SPC) site[19]. These show the real measured profiles at those stations.
- **Forecast Model Soundings:** Several websites let you click on a map and get a *forecast* Skew-T for any point and time. For example, **Pivotal Weather** (home.pivotalweather.com) allows you to generate forecast Skew-Ts (using the GFS model, etc.) up to 16 days ahead[20]. **Tropical Tidbits** (tropicaltidbits.com) and **TwisterData** (twisterdata.com) offer similar model sounding tools[20]. These are great for getting a vertical forecast at your departure, destination, or en route points for the time of your flight.
- **RUC Soundings (NOAA):** NOAA's RUC Sounding page (rucsoundings.noaa.gov) provides an interactive tool where you can enter a location (airport ICAO or lat/long) and time to get a model-predicted Skew-T. Many pilots find this useful for quick custom soundings along a route.
- **Mobile Apps:** There's even a mobile app called **SkewTLogPro** that lets you view current and future Skew-Ts along your route of flight on a tablet or phone[21]. Apps like this use model data to give you a vertical weather profile on the go.
- **College of DuPage (COD) Weather:** The COD weather site (weather.cod.edu) under "Upper Air Soundings" allows selection of stations and model soundings, and is another pilot-friendly source[22].

Tip: If you're using a forecast Skew-T, try pulling charts for the time of your departure **and** a few hours before/after, to see trends (e.g., lowering cloud bases or warming temperatures). Also remember that the chart's vertical scale is in pressure (mb). Many charts will mark common pressure levels with approximate altitudes (e.g. 850 mb ~ 5,000 ft, 700 mb ~ 10,000 ft, 500 mb ~ 18,000 ft)[8] – keep those in mind, or use a reference table if needed, since we pilots think in feet!

Decoding the Skew-T: Basics of Reading the Chart

When you first look at a Skew-T diagram, it may appear cluttered with crisscrossing lines. Let's break it down into the essential parts step-by-step:

- **Altitude (Pressure) Scale:** Along the left you'll see labels like 1000, 850, 700… up to 100 (mb). These are pressure levels corresponding to altitudes. Pressure decreases as you go up, and the spacing is not linear (pressure is plotted logarithmically). Near the surface (1000–900 mb) the lines are closer together, and they spread out aloft – this reflects how air pressure drops off with height[23]. As a quick guide, 850 mb is roughly 5,000 ft, 700 mb ~10,000 ft, 500 mb ~18,000 ft, 300 mb ~30,000 ft, and 200 mb ~39,000 ft[8]. Many Skew-T charts might mark these with a secondary scale in feet or FLs on the side to help out.
- **Temperature Scale:** Along the bottom (and slanting upward across the chart) you'll see temperatures in °C. Vertical lines are skewed diagonally – for instance, the 0°C line runs diagonally upward to the right through the chart. The ambient air temperature at a given altitude is read by seeing where the temperature profile line lies in relation to these skewed temperature lines.
- **Temperature Profile (Environmental Temperature):** This is typically plotted as a solid line (often red or black) that moves across the chart as you go up in altitude. You can trace this line upward to see how the outside air temperature changes with height above the station. Does it get colder steadily? Are there bumps where it gets warmer with height (inversions)? The slope of this line is basically the lapse rate of the atmosphere at that location.
- **Dew Point Profile:** Usually a second line (often dashed or a different color like green/blue) runs roughly parallel to the temperature line, usually to its left (since dew point is usually below or equal to temperature). This line shows the dew point temperature at each level, which indicates the moisture content of the air.
- **Spacing Between Temp and Dew Point:** The gap between the temperature line and dew point line is **really important**. When these two lines are very close together, it means the air is nearly saturated at that altitude – **clouds are likely**. When they overlap or touch, the relative humidity is 100% (cloud or fog present). When the lines are far apart, the air is dry at that level (clear conditions)[24]. A useful rule of thumb: if the temperature and dew point are within about 3 °C, expect clouds or at least high humidity at that altitude[24]. If they are separated by more than 5 °C, the air is fairly dry (clear skies)[25].
- **Wind Barbs:** Along the right-hand side of the chart, you'll see standard wind barb symbols at various heights. Each barb shows the wind at that altitude (pointing in the direction the wind is *coming from*). Wind barbs follow the usual convention: a short barb = 5 knots, long barb = 10 knots, and a triangular flag = 50 knots[17]. So for example, a barb with one long and one short would be 15 knots. You

can quickly scan up the side to see how wind speed and direction change with height. Clusters of strong winds indicate jet stream levels, and any sudden changes in direction or speed with height imply wind shear.
- **Key Reference Lines:** You'll notice other faint lines on the chart: gently curving lines sloping up to the left (these are **moist adiabats**), straight dashed lines sloping up to the right (dry adiabats), and dashed lines running parallel to the temperature lines (mixing ratio lines). For a basic pilot's use, you can largely ignore these details – they're used to estimate things like cloud base (LCL), stability indices, etc. However, one reference line to note is the 0°C **freezing line**, which is usually a bold or labeled isotherm. Where the temperature profile crosses 0°C is the freezing level, a critical point for icing considerations[26].

Now that we know what we're looking at, let's talk about how to interpret this data for practical flight planning.

Interpreting Key Weather Information on a Skew-T

Cloud Bases, Tops, and Layers

One of the most useful features of a Skew-T for IFR pilots is the ability to **identify cloud layers** at a glance. As mentioned, wherever the temperature and dew point lines converge (within a few degrees), the air is saturated and clouds or fog are present[24]. By noting the pressure/altitude of those "close-together" segments, you can estimate cloud bases and tops: - **Cloud Base:** The lowest altitude where the temp/dewpoint gap narrows to a few degrees marks the cloud base. For example, if near the surface the temp and dew point lines are far apart (dry at ground), but they meet at 900 mb, that might indicate a cloud deck starting around 3,000 ft MSL. - **Cloud Tops:** Follow the same saturated layer until the temp and dew point lines separate again. That pressure level is the approximate cloud top. E.g., if they stay together up to 700 mb (~10,000 ft) then diverge, the cloud layer tops out around 10k. - **Multiple Layers:** You might see one saturated layer near the surface (stratus or fog), a dry gap, then another moist layer aloft (perhaps another deck of clouds at a higher altitude). Skew-Ts are great at revealing **multiple cloud layers** that a single METAR (which only reports the lowest few layers) might not fully describe[27]. This helps you plan for climbing or descending through layers and knowing roughly how thick each layer is. - **Example:** Suppose the Skew-T shows temperature and dew point lines hugging each other from the surface up to 600 mb (~14,000 ft). That suggests a deep layer of cloud (likely IMC all the way up to 14k)[10]. If above 600 mb the lines separate, you can expect clear air above that (perhaps on top of the cloud deck). This can tell you whether you'll break out on top during climb or stay in the soup. On the other hand, a wide temp/dewpoint separation at low levels with convergence only at high altitude could mean clear weather down low and clouds only high up (useful for VFR-on-top or for knowing if an overcast is thin enough to break through).

Also note that if the temp and dew point lines nearly merge at the surface on a morning Skew-T, **fog** or very low stratus is likely at ground level (since 100% humidity at the surface means fog)[25]. Pilots can use that as a clue for potential visibility issues after calm, cool nights.

Freezing Level and Icing Risk

The Skew-T diagram is an invaluable tool for assessing **icing conditions**. First, identify the **freezing level** – the altitude where the temperature profile crosses 0°C. This is where precipitation or clouds will start containing supercooled water droplets (below freezing) instead of liquid. Any cloud layer existing at temperatures colder than 0°C means a risk of airframe icing if you fly through it.

- **Freezing Level:** On the chart, find the 0°C isotherm (often a bold diagonal line). Trace it upward until it intersects the temperature profile line. That pressure/height is the freezing level[26]. For instance, if 0°C intersects the temp line at 750 mb, that's roughly ~8,000 ft – so below 8k it's above freezing, above 8k it's sub-freezing (assuming standard atmosphere).
- **Cloud + Subfreezing = Icing:** Now look at the dew point line. Where the temperature is below 0°C *and* close to the dew point (cloud present), there is likely icing conditions in those clouds[27]. If your route or altitude goes through that zone, you should plan for the possibility of ice or ensure you can mitigate it (either by flying below the clouds in warmer air or above them in colder ice-crystal clouds, or having onboard de-ice/anti-ice if available).
- **Multiple Freezing Layers:** Skew-Ts shine in complex winter scenarios like inversions aloft. For example, in a classic warm-front situation, you might see a **temperature inversion** above a cold surface layer – the temperature line dips below 0°C near the ground (cold surface air), then bends back to the right above 0°C at some mid-level (a warm nose), then eventually goes below freezing again higher up[12][13]. This tells you there are *multiple* freeze levels. Precipitation falling through that profile could melt in the mid-level warm layer and refreeze lower down, leading to sleet or freezing rain. A Skew-T showing the temperature line crossing 0°C twice (down-and-up) is a big **red flag for freezing rain or ice pellets**. For instance, one

profile might show snow aloft > falls into a warm layer (above 0°C) -> melts to rain -> then hits a subfreezing shallow layer near the surface and becomes freezing rain on contact[28]. As a pilot, if you see this signature, you know to be extremely cautious – it's something standard freezing-level charts (which only show the lowest freezing altitude) might not fully reveal[29].

- **Icing Escape Strategies:** By seeing the vertical temperature structure, you may identify an altitude to escape icing. For example, perhaps above a certain height the temperature is *too cold* (colder than -20°C) for serious icing because clouds at that level are likely ice crystals instead of supercooled water. Or you might see a layer of warmer air sandwiched in – maybe you can climb into that layer if it's clear, to get out of icing. The Skew-T gives you these clues, which you can use along with PIREPs and icing forecasts to make safer decisions[12][29].

Always combine what the Skew-T shows with other icing forecast tools (like graphical icing products and PIREPs), but having this chart can validate those forecasts and help you pinpoint problem altitudes more precisely.

Winds Aloft and Turbulence

The depiction of **winds aloft** on the Skew-T is straightforward but extremely handy. Instead of flipping through winds-aloft forecast tables, you can see an at-a-glance vertical wind profile: - Each wind barb along the side gives the wind at that level. For example, a barb pointing from the west with two long feathers and one short feather means a west wind about 25 knots at that altitude (10 + 10 + 5 knots)[17]. - You can quickly locate jet stream level winds or strong flow: if you see multiple 50-knot pennants on the barbs at, say, 300 mb, there's a strong jet around FL300. - **Wind Shear:** Look for how the wind direction and speed change with height. A dramatic change (e.g., south winds at 3,000 ft turning to west winds at 10,000 ft and doubling in speed) indicates significant wind shear. Skew-T wind profiles make it easy to spot **low-level wind shear** or changes that could produce turbulence[30][18]. For instance, a sharp increase in wind speed with height at one layer could signal potential clear-air turbulence. - **Optimizing Cruise Altitude:** The wind "profile" line (some Skew-T plots also draw a smooth line through the wind barbs to illustrate wind speed vs altitude) helps you find the altitude of maximum wind or calm spots. If you're flying eastbound and see a howling 50 kt headwind at 18,000 ft but only 20 kt at 12,000 ft, you might choose a lower cruise altitude to avoid the stronger headwind. Conversely, for a tailwind, you can identify the altitude that gives the best push[17][18]. - **Example:** Suppose you see at 6,000 ft the wind barb is 020° at 20 kts, and at 12,000 ft it's 040° at 50 kts. That's a big jump in speed and a turn in direction – likely moderate turbulence in that layer. Or imagine you see a continuous increase up to a peak around 30,000 ft then a decrease above – that peak is the jet core. Pilots of light aircraft might avoid that level if possible due to potential turbulence near the jet core, whereas a jet may seek to ride it for a speed boost (depending on direction).

In summary, use the Skew-T wind data to complement the standard Winds Aloft forecast: it's more visual and immediately shows you wind shear layers that might not be obvious from tabular data.

Stability, Inversions, and Storm Potential

Another feature of Skew-T diagrams is revealing atmospheric **stability**. While you don't need to calculate convective indices yourself (many Skew-T plots list CAPE, Lifted Index, etc., in a side box), you can still get a qualitative sense of stability which is useful for anticipating turbulence or thunderstorms: - **Lapse Rate Visualization:** If the temperature profile (red line) slopes sharply to the left (meaning temperature decreases very quickly with height), the atmosphere is "steep" lapse rate and potentially unstable. If the temperature line is more vertical (temperature not dropping much with height or even warming), the atmosphere is stable. - **Temperature Inversions:** When the temperature line bends rightward as you go up (indicating a layer where temp increases with height), that's an inversion[15]. Inversions often act like a lid on rising air. A strong low-level inversion in the morning can mean fog or low stratus below it (since it traps moisture and cooler air underneath)[16]. A mid-level inversion (sometimes called a "cap") can suppress thunderstorms even if it's hot below – until that cap is broken. For flying, an inversion often means smooth air above, but possibly poor visibility below (haze/fog trapped). It's also common to find wind shear at the top of an inversion. - **Convective Potential:** If you see a large separation between the environmental temperature and a hypothetical rising parcel (some Skew-T depictions include a dashed **"parcel curve"** showing how a bubble of air would rise if lifted), you might be dealing with convective instability. In practical pilot terms: a hot, humid surface with very cold air aloft is a recipe for thunderstorms. The Skew-T can confirm if thunderstorms are likely by showing that a warm parcel at the surface would stay warmer than the surrounding air aloft (indicating it can keep rising freely)[9]. You may not want to do the parcel lifting exercise yourself, but a quick look for any *huge* temperature difference between surface and, say, 500 mb (18,000 ft) can tip you off. If it's, for example, 30°C at ground and -20°C at 18k ft, that's a 50°C difference – quite unstable, and you'd already be expecting convective SIGMETs in that scenario. - **Moisture and Storms:** Another thing to check is whether there's moisture in the layer that's unstable. A dry hot day (temp and dew point far apart) might have a steep lapse rate but no storms because of lack of moisture (and you'd see that on the Skew-T: temperature line far right, dew point way left). If both temp and dew point are relatively close (humid) near the surface and there's cold air aloft, the sounding will show that and you know thunderstorms or at least towering cumulus are more likely. Some Skew-Ts will explicitly list **CAPE** (Convective Available Potential Energy) – if you see a large CAPE value (e.g. hundreds or thousands of J/kg), that's a sign of significant storm potential, something a pilot should be aware of (though you likely got that from the weather brief as well).

In summary, use the Skew-T to **augment your thunderstorm awareness**: it can show you if there's a strong cap (which might delay storm initiation but could lead to explosive storms later if it breaks), if storms might be low-topped or high-topped (from the equilibrium level or tropopause height it reaches), and if there's significant wind shear (for storm organization). For most IFR pilots, the takeaway is simply: steep lapse rates + sufficient moisture = be on the lookout for thunderstorms or convective turbulence, even if current conditions look benign.

Practical Tips for Using Skew-T in Preflight

In practice, how would a pilot incorporate Skew-T diagrams into an IFR preflight briefing? Here are a few simple use cases and tips:

- **Choosing an Altitude:** Before a cross-country, check a forecast Skew-T for roughly the midpoint of your route or multiple points along it. Look at the wind profile to choose a cruise altitude with a favorable wind. At the same time, see if that altitude keeps you above most clouds or below any significant turbulence layers. For example, if the Skew-T at your departure time shows clouds tops at 8,000 ft, you might plan to fly at 10,000 ft to be on top in VMC (provided you can get up there safely). Or if it shows a nasty wind shear at 12k-14k, you might stay below that.
- **Identifying Icing Zones:** If icing conditions are a concern (perhaps it's autumn or winter and IFR), use the Skew-T to map out where the danger zone is. See what altitudes have clouds and subfreezing temps. During preflight you might say, "Looks like between 6,000 and 9,000 feet the air is saturated and below freezing – that's where icing is likely[27]. Below 5,000 it's above freezing, and above 10,000 the clouds end." This could guide your strategy: maybe request 5,000 ft if you can stay in rain (above freezing) rather than 7,000 ft in icing clouds, or climb to 11,000 ft to get on top (ensuring engine performance and oxygen considerations are met, of course). Without a Skew-T, you might only know the freezing level at the surface and not realize there's a second warm layer above or a particular band of cloud. It's a confidence-booster to *see* the vertical picture.

- **Alternate Planning:** Checking the Skew-T for your destination around your ETA can help you anticipate if an approach will be through a thin stratus layer versus a thick cloud deck, and if there's any chance of breaking out or needing alternate. It might show, for instance, an inversion and low cloud at the destination (signaling potential fog that could persist), or it might show that conditions improve just above a shallow layer.
- **Weather Situational Awareness:** Even if you're not making pinpoint measurements, viewing a Skew-T can make you a more weather-savvy pilot. Over time, you'll start correlating those visual profiles with actual conditions you encounter. For example, you'll recognize the signature of a "quiet, if IMC, situation" (lots of low cloud, stable air, no convective risk) vs. a volatile thunderstorm day[10][9]. This deeper understanding helps you make better go/no-go decisions and in-flight adjustments.

Remember, Skew-T diagrams don't replace official forecasts or reports – they *enhance* them. Use them in conjunction with METARs, TAFs, Area Forecast Discussions, AIRMETs/SIGMETs, etc., for a more complete picture. And if you're new to Skew-Ts, start by looking at the chart while reading a decoded discussion (many weather offices or forums discuss significant soundings). With a bit of practice, you'll quickly spot the key features without getting lost in the weeds.

Skew-T Quick Reference Cheat Sheet

For easy reference during your weather brief, here's a simple cheat sheet for interpreting Skew-T diagrams. Keep this guide handy until reading Skew-Ts becomes second nature:

- **Cloud Indication:** Temperature & dew point lines **close together (≤ ~3°C apart)** – expect clouds/IMC at that altitude[24]. **Far apart (> ~5°C)** – air is dry/clear[25]. Partial separation (~3–5°C) often means hazy or thin cloud conditions[31]. Use this to find cloud **bases** (where lines converge going up) and **tops** (where they diverge).
- **Fog/Low Stratus:** Temp and dew point touching right at the surface level = likely fog or very low cloud ceiling.
- **Freezing Level:** Altitude where the temperature profile crosses **0°C**. Flying above this level (in visible moisture) means you're in sub-freezing air – be alert for icing[26]. If temp line crosses 0°C multiple times (up-down-up), there are multiple freezing layers – beware of possible sleet/freezing rain scenarios[12][13].
- **Icing Risk:** Look for a **cloud layer in sub-freezing temps**. A saturated (or nearly saturated) layer where the temp is below 0°C

indicates potential icing conditions[27]. No clouds, no icing – if the temp is below freezing but dew point line is far away (dry air), then it's clear (ice needs moisture).

- **Temperature Inversion:** Temperature line bending to the right with height means an **inversion** (air warmer above). Expect smooth air above, but possibly poor visibility or stratified clouds below. Low-level inversion = watch for fog; strong inversion aloft = cap that can suppress thunderstorms (or trap haze).
- **Stability: Steep lapse rate** (temp line sharply left, big drop with height) + adequate moisture = unstable (could produce cumulus, turbulence, maybe storms). **Shallow lapse rate** or inversion (temp line more vertical or sloping right) = stable air (smooth, stratiform clouds possible).
- **Winds Aloft:** Read wind barbs for direction (where the arrow barb points *from*) and speed (each long tick 10 kt, short tick 5 kt, flag 50 kt)[17]. Use this to find jet streams and wind shear:
- **Tailwind/Headwind:** Compare wind barbs at your possible cruise altitudes – pick the altitude with a tailwind or lesser headwind[18].
- **Wind Shear:** Check for big changes in wind between adjacent levels (e.g., a 40 kt difference or a 90° direction change) – could mean turbulence in that layer[30].
- **Convective Potential:** If provided, glance at CAPE or Lifted Index values on the chart (large CAPE or very negative LI = strong thunderstorm potential). Lacking those, note if surface is much warmer than above – a sign of instability. Also, significant **directional wind shear with height** (veering winds) can indicate organized storm potential (wind turning clockwise with height can aid rotation)[32], but that's an advanced clue. In general, if the Skew-T shows a "loaded gun" (warm humid near surface, cold aloft, cap inversion present), be prepared for thunderstorms if that cap breaks.

Use these notes to decode a Skew-T at a glance. With practice, this cheat sheet will live in your head and you'll be able to quickly pull rich information from those once-mystifying lines and curves. Safe flying, and happy weather sleuthing!

Sources

Assembled from FAA/NWS weather training materials and pilot-oriented articles[10][19][24][27][17][12], to ensure accuracy and relevance for IFR pilots seeking practical Skew-T usage.

---

[1] [4] [9] [10] [11] [14] [19] [20] [21] [28] Skew -T school - AOPA

https://www.aopa.org/news-and-media/all-news/2021/october/pilot/skew-t-school

[2] [15] [22] [30] Skew-T Simplified - IFR Magazine

https://ifr-magazine.com/weather/skew-t-simplified/

[3] [5] [6] [7] [8] [12] [13] [17] [18] [23] [24] [25] [27] [29] [31] front_feb04.p65

https://www.weather.gov/media/publications/front/04feb-front.pdf

[16] [26] [32] How to use a Skew-T Log-P diagram : Air Facts Journal

https://airfactsjournal.com/2018/08/how-to-use-a-skew-t-log-p-diagram/

ChatGPT Prompt

Write a paper about **Skew-T diagrams** and how pilots can use them during **preflight planning**, especially for **instrument flights**.

The paper should assume **no prior familiarity** with Skew-T diagrams or meteorology. It should be written for a **novice IFR pilot**, assuming no additional background knowledge beyond holding an instrument rating.

The paper must:

- Explain **what a Skew-T diagram is** and what kind of information it contains, using **simple, plain language**
- Describe **where pilots can obtain Skew-T diagrams**, with a focus on **U.S.-based sources**
- Explain **how the information in a Skew-T diagram can be practically interpreted** and used as part of the **IFR preflight procedure**
- Emphasize **simple, practical guidance** rather than technical or meteorological theory
- Avoid expert-level meteorology or academic explanations

The tone should be **instructional but casual**, not overly technical, and accessible to any IFR-rated pilot.

The paper should include a **cheat sheet** that pilots can refer to when using Skew-T diagrams.