Weather Resources For the Glider Pilot

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What You Need to Know

- VFR conditions
- Surface winds at home airport
- Winds aloft at 3000’ and 6000’
- Soaring conditions

Official Weather Briefing

- § 91.103 Preflight action for a flight not in the vicinity of an airport must include obtaining weather reports and forecasts
- Only two ways to get an ***official*** briefing:
  - 1-800-WX-BRIEF
  - DUAT (requires current Medical)

Gotcha!

- FAA has no specific fixed definition of “in the vicinity of an airport.”
- Meaning is interpreted on a case-by-case basis.
- Don’t count on a favorable interpretation.
- Example: “congested area…” in 91.119

Non-official Briefing

- The *Aviation Weather Center* has links to all the information provided in an official briefing:
  - http://aviationweather.gov/stdbrief/
- With one exception (TI), every type of weather info to be discussed here can be accessed from the AWC.

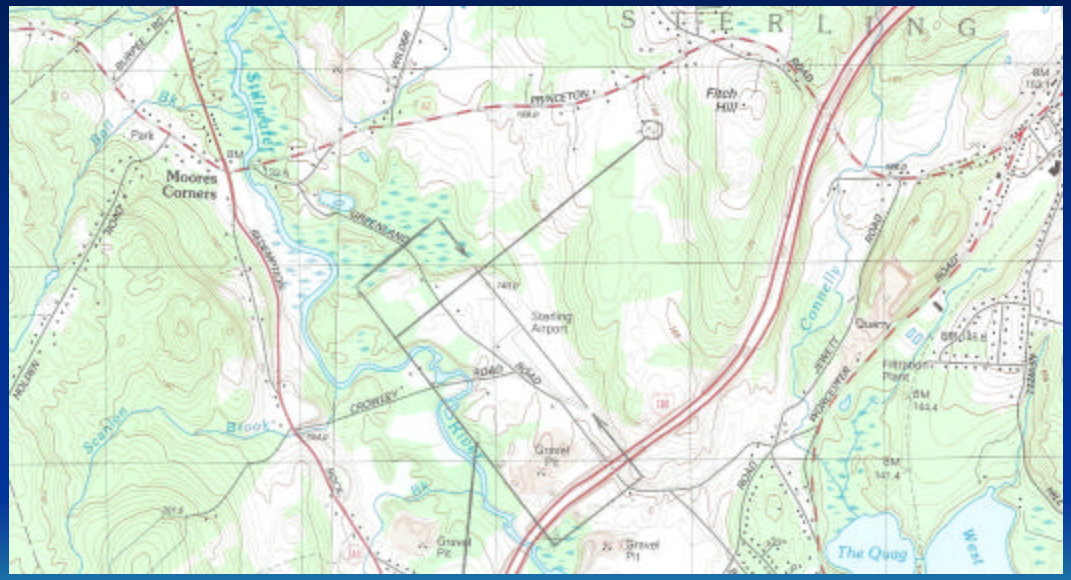
Thought Question

- Why can’t you *legally* fly a glider in IMC?
- …even if you have this:

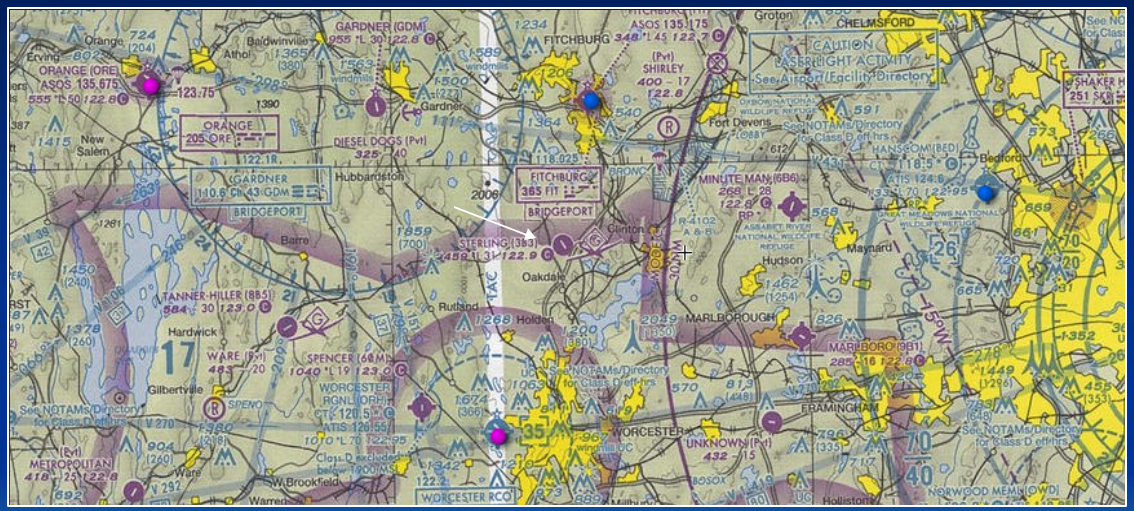
VFR Requirements

- *Altitude:* over a “congested” area,1000’ above highest obstacle within a horizontal radius of 2000’ of the aircraft (91.119)
- *Weather minimums:* Visibility = 3 statute miles; Distance from clouds = 500’ below (91.155, Class E)

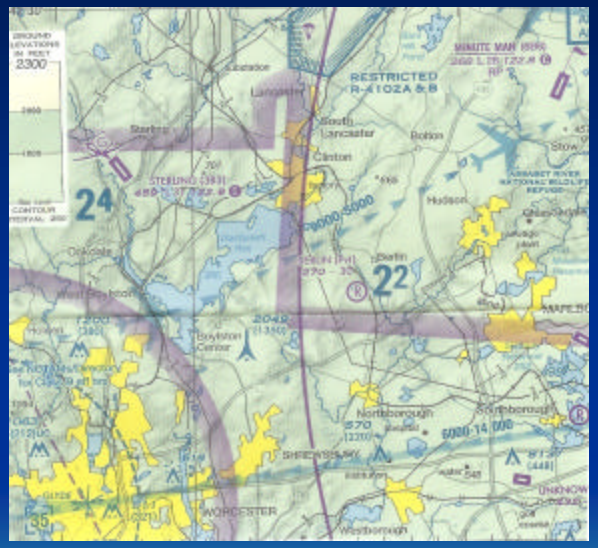
Obstacles at 3B3



Weather Minimums at 3B3



A Closer Look



Do the Math

- *Minimum altitude* except for takeoff and landing = 750’ + 1000’ = 1750’ MSL
- *Minimum ceiling:* 1750’ + 500’ = 2250’ MSL
- *Visibility:* If you can see *all* of Mt. Wachusett (including the tower) you’ve got enough.

Prepare for a Quiz

- 24-hour forecast
- 48-hour forecast
- We'll do this "live", so there's no guarantee of flyable weather. We get what we get.

Graphical Forecasts

- General weather information, but with some aviation-relevant information:
  - http://graphical.weather.gov/sectors/box.php

METARs and TAFs

- METAR*: ***Current*** weather at a specific airport (ICAO)
- TAF*: ***Forecast*** weather for a specific airport (ICAO)
- http://www.aviationweather.gov/adds/metars/

MÉTéorologique ***A***viation ***R***égulière
Terminal ***A***erodrome ***F***orecast

Additional Local WX Info

- Worcester Airport (KORH) ATIS
  - 126.55
  - (508) 757-0962
- Fitchburg Airport (KFIT) ASOS:
  - 135.175
  - (978) 343-9121

Winds Aloft

- Altitudes up to 12,000’ are MSL
- Winds and Temperatures Aloft forecast is displayed as: **DD ss +/- TT**:
  - DD = Two-digit wind direction (True)
  - ss = Two-digit wind speed, knots
  - TT = Two-digit temperature, Celsius
- Forecast made four times a day: 0000Z,0600Z,1200Z and 1800Z
- http://aviationweather.gov/products/nws/winds
- http://www.usairnet.com/cgi-bin/Winds/Aloft.cgi

Winds Aloft Special Cases

- Wind speeds over 99 knots are decoded by subtracting 50 from the direction and adding 100 to the speed
- Light and variable winds are coded as 9900.

Progs

- Analysis and forecast of surface weather conditions: a prog shows pressure centers and frontal positions. Yellow dashed lines indicate troughs of low pressure.
- Use progs to estimate flying conditions in the near future (up to 48 hours)
- http://www.aviationweather.gov/adds/progs

Prog Details

- Analysis data for the "latest analysis" chart is provided every 3 hours.
- 12 and 24-hour forecast data are produced four times per day at approximately 0300Z, 0900Z, 1500Z, 2100Z.
- 36 and 48-hour forecast data are produced twice daily at approximately 0600Z and 1800Z.

Prog Symbology

- **Surface front codes**
  - http://www.hpc.ncep.noaa.gov/html/fntcodes2.shtml
- **Precipitation symbols**
  - http://www.hpc.ncep.noaa.gov/html/pcpnsymbs2.shtml

SIGWX Charts

- Graphical forecast of aviation weather hazards
- Use for go/no-go decisions
  - http://www.aviationweather.gov/products/swl/
- Help for interpreting SIGWX charts
  - http://aviationweather.gov/products/swl/info.php

Weather On Your Smartphone

- Weather apps:
  - https://market.android.com/apps/WEATHER
- Also check out the December 2011 issue of ***Soaring*** for more aviation apps

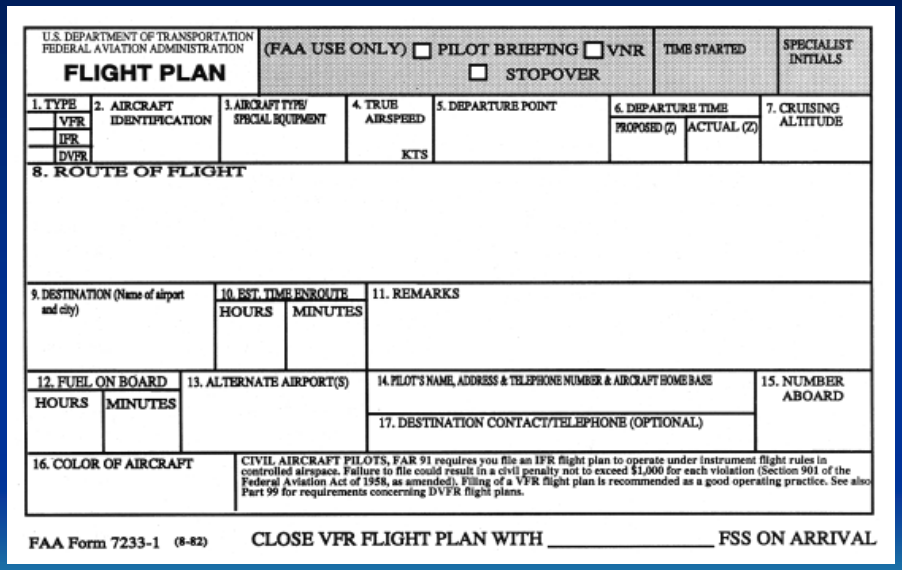
Jetstream Online School for Weather

- Learn all about weather and weather information sources.
  - http://www.srh.noaa.gov/jetstream/

Quiz

- 24-hour forecast?
- 48-hour forecast?

What are you going to put in Box 12?



U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

FLIGHT PLAN

(FAA USE ONLY) ☐ PILOT BRIEFING ☐ VNR ☐ STOPOVER | TIME STARTED | SPECIALIST INITIALS

1. TYPE	2. AIRCRAFT IDENTIFICATION	3. AIRCRAFT TYPE/ SPECIAL EQUIPMENT	4. TRUE AIRSPEED	5. DEPARTURE POINT	6. DEPARTURE TIME		7. CRUISING ALTITUDE
☐ VFR ☐ IFR ☐ DVFR			KTS		PROPOSED (Z)	ACTUAL (Z)	

8. ROUTE OF FLIGHT

9. DESTINATION (Name of airport and city)	10. EST. TIME ENROUTE HOURS	MINUTES	11. REMARKS

12. FUEL ON BOARD HOURS	MINUTES	13. ALTERNATE AIRPORT(S)	14. PILOT'S NAME, ADDRESS & TELEPHONE NUMBER & AIRCRAFT HOME BASE	15. NUMBER ABOARD
			17. DESTINATION CONTACT/TELEPHONE (OPTIONAL)	

16. COLOR OF AIRCRAFT

CIVIL AIRCRAFT PILOTS, FAR 91 requires you file an IFR flight plan to operate under instrument flight rules in controlled airspace. Failure to file could result in a civil penalty not to exceed $1,000 for each violation (Section 901 of the Federal Aviation Act of 1958, as amended). Filing of a VFR flight plan is recommended as a good operating practice. See also Part 99 for requirements concerning DVFR flight plans.

FAA Form 7233-1 (8-82) CLOSE VFR FLIGHT PLAN WITH _____ FSS ON ARRIVAL

Answer to Thought Question

- A glider cannot meet the fuel requirements of 91.167.
- No exemption for uncontrolled airspace: flight visibility and cloud clearance rules are still in effect (91.155)
- Operating in IMC without an instrument rating is “careless or reckless” operation under 91.13.


Soaring Conditions

Thermal Index

- TI is a measure of atmospheric instability
- Subtract the temperature of a rising parcel of air from the temperature of the surrounding air at the same altitude.
- ***Negative*** result means the rising air is warmer and will continue to rise.

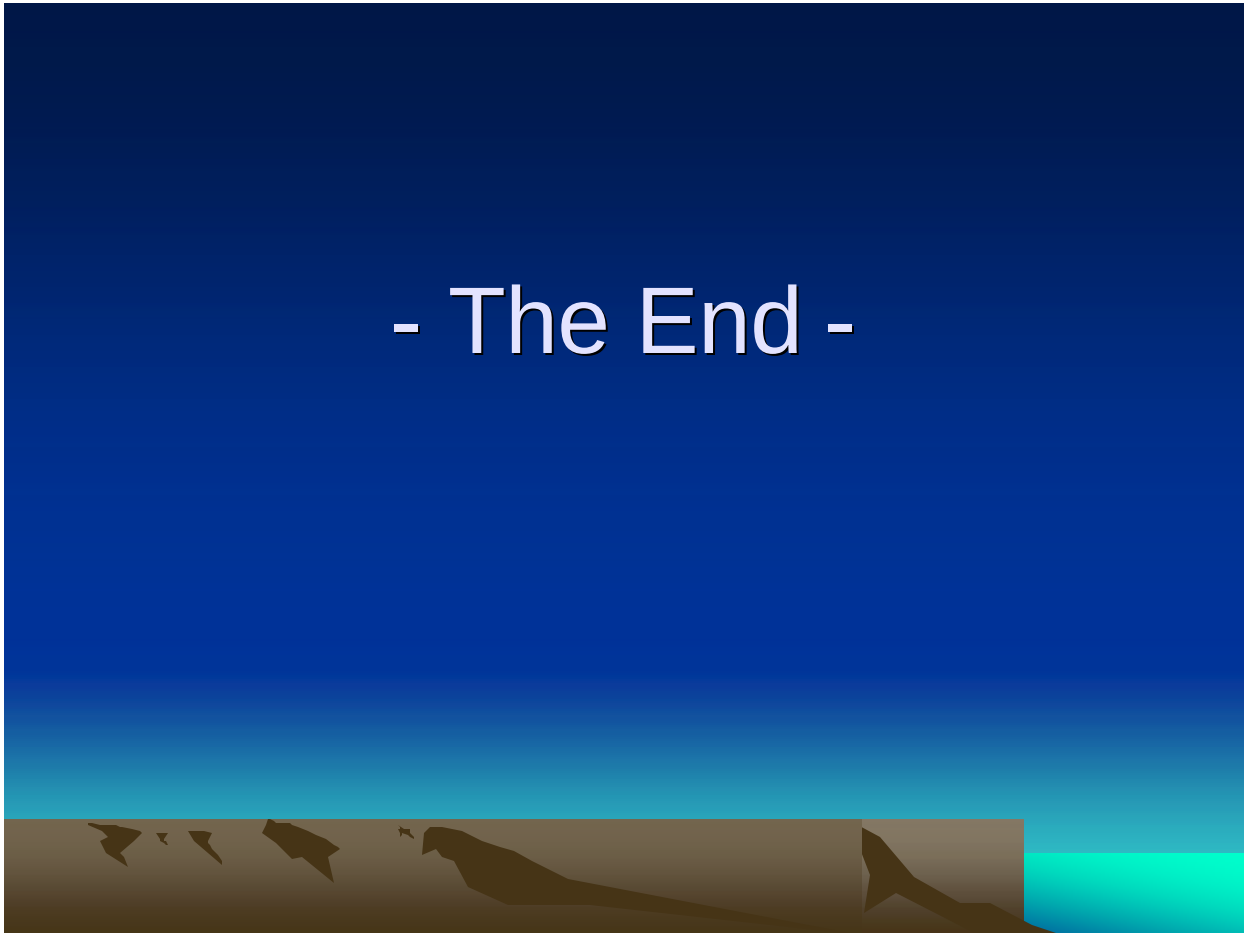
Interpreting TI's

- -1 to -2 produce barely soaring conditions
- -3 produces minimal soaring conditions
- -5 to -9 produce the best soaring conditions
- < -9 leads to overdevelopment and thunderstorms

TI Reports

- GBSC website provides TI reports for Sterling and Franconia
- Direct links for Sterling:
  - http://world.std.com/~gh/ti/ti.html
  - http://www.soarforecast.com/ti.cgi?SUBJECT=TI&Upperstation=ALB&Surfacestation=ORH&Forecasthigh=&MaxAltitude=12000

More on soaring in our next session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