UHGPGA'S ECC PRESENTS
WITH LISA VERZELLA

WEATHER TO FLY

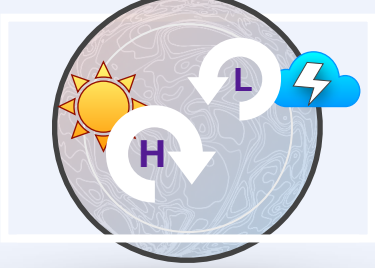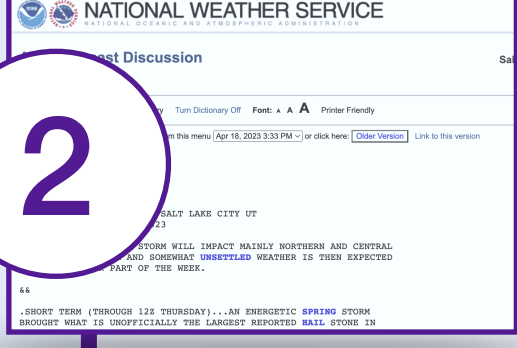**LISA'S TOP-DOWN WX APPROACH**

Click **underlined** text!

BIG PICTURE

1 UPPER LEVELS

- Data Timeline: Days ago - days from now
- **WHAT: UPPER LEVEL AIR PRESSURE**
  1. Click "Ensemble," then "EPS" or "GEFS"
  2. Big Picture: Use 500mb (18,000ft MSL)
  3. Utah summer: subtract 6hr from Zulu time
  4. Highs are orange, lows are blue
  5. You want: to aim for area between H & L systems
  6. The lines (isobars) indicate pressure. Wind moves along the lines
  7. Where lines are close together, it's windy (avoid for XC)
  8. Note: 700mb = 10,000ft MSL (roughly = top of Wasatch)

Use these 👆 tools several days ahead & on the day 👇 of
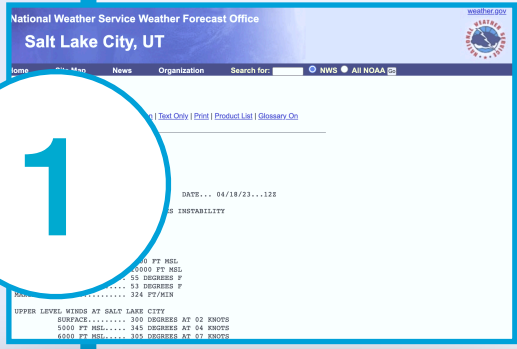
2 AREA FORECAST DISCUSSION

- Data Timeline: For upcoming few days
- **WHAT: FORECAST FOR UTAH, IN WORDS**
  1. Read: Synopsis, Aviation Notes, Advisories
  2. Notice the direction systems are moving
  3. Look for agreement with your expectations
  4. Click "**Dictionary**" to mouse-over terms
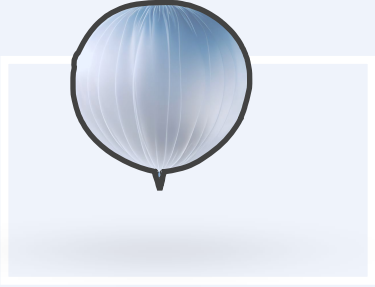 5. H5 = 500mb = 18,000ft, H7 = 10,000ft

OBSERVATIONS

1 SOARING FORECAST

- Data Timeline: Current day (verify date)
- **WHAT: DATA FROM WX BALLOON**
  1. Read: thermal strength, top-of-lift, OD, etc
  2. Release @ KSLC - Interpolate for mountains
  3. Check "Remarks"
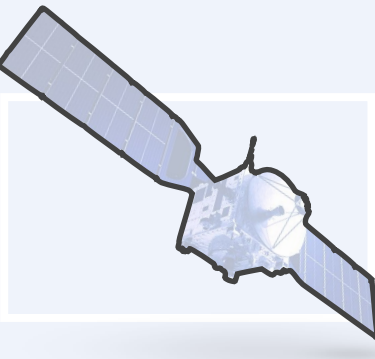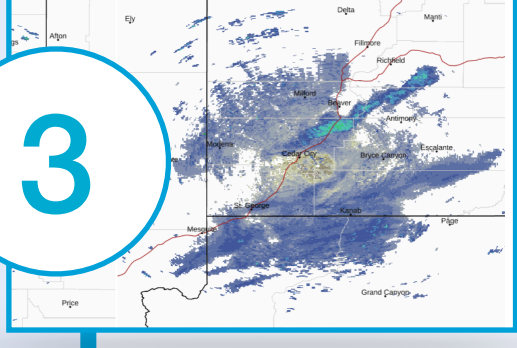 4. Note: Boulder office is repairing S.F. for us

2 CLOUDS

- Data Timeline: From the last few hours
- **WHAT: CLOUDS - ACTUAL & POTENTIAL**
  1. Watch direction cloud trends are moving
  2. Avoid white fronts, storms, OD
  3. ➔ Cloud Potential (Water Vapor)
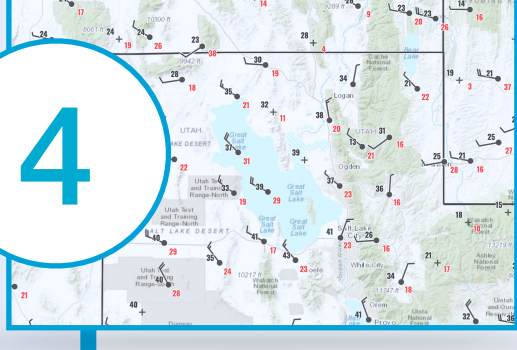 4. ➔ Current Clouds (Visible from Space)

3 RADAR

- Data Timeline: From the last hour
- **WHAT: LOCAL CLOUDS ON RADAR**
  1. See if you are on the *edge* of wx or in it
  2. Avoid: areas of activity (green, yellow, red)
  3. App: MyRadar (free)
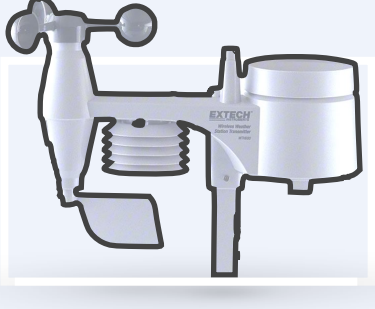
4 SURFACE WINDS

NW

- Data Timeline: Current
- **WHAT: SURFACE WIND READINGS**
  1. Read: wind barbs & gusts
  2. Barbs are like arrows with feathers
  3. Notice what's *UPWIND* from you!
  4. App: WindAlert (free)
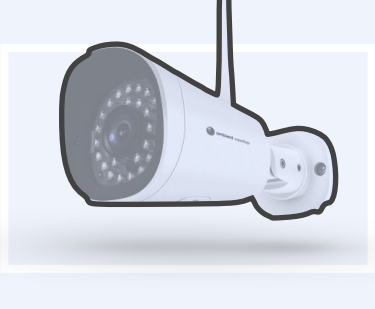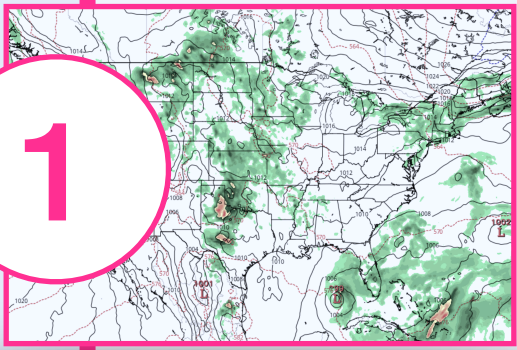
5 CAMERAS

- Data Timeline: Real time
- **WHAT: VISUALS OF LOCAL CLOUDS**
  1. See local skies to confirm predictions
  2. Click "All Cameras" to leave SLC

FORECAST
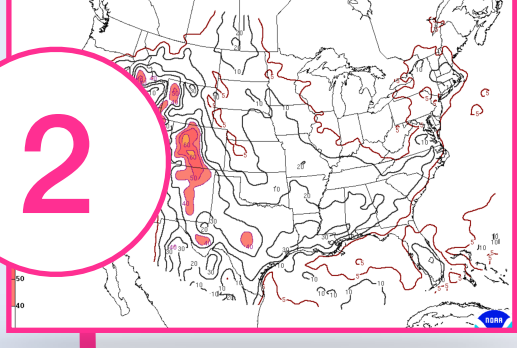
1 UPPER LEVELS

- Data Timeline: Days ago - days from now
- **WHAT: SURFACE PRESSURE & PRECIP.**
  1. Use default GFS model
  2. Notice where precipitation is
  3. Then Click "Global" and "GFS"
  4. Notice winds at 700mb (top of Wasatch)
  5. Zulu time ➔ 18z = noon in Utah, same day
  6. Zulu time ➔ 00z = 6pm in Utah, day before

2 THUNDERSTORMS

20% or more is no good

- Data Timeline: Current & upcoming days
- **WHAT: THUNDERSTORM PROBABILITY**
  1. Click on "SPC Guidance" tab
  2. Select "3-hr Calibrated Thunderstorm"
  3. Check date/time in upper left (-6hrs)
  4. Click on Step > for next frame

AFTER you've forecasted good weather for your flight day(s) using the top-down approach; open <u>XCSKIES</u> for a detailed soaring forecast. Note: good flying days (and bad flying days) tend to occur consecutively.

FEET: (almost) always MSL, not AGL

LEFT SIDEBAR

MSL

THERMAL STRENGTH ALONG ROUTE

LISA'S TOP 5 XCSKIES PARAMETERS

XC Skies

Base map

Natural

Thermal / Lift / Instability
1. Top of usable lift **(WINDS)**
   Conservative lift height
   Lift above ground
   Boundary layer tops
   Thermal top uncertainty
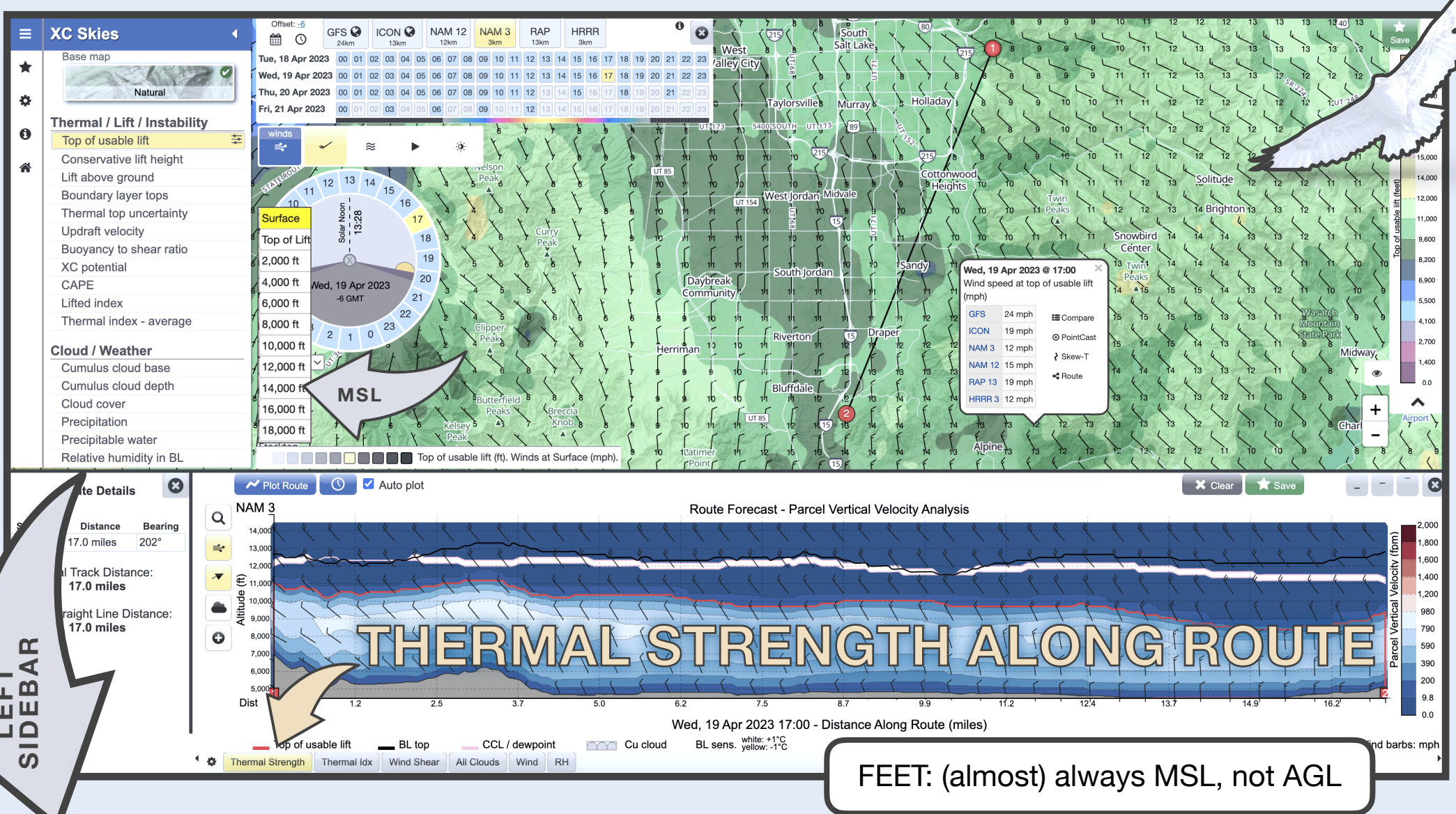   Updraft velocity
   Buoyancy to shear ratio
   XC potential
2. CAPE
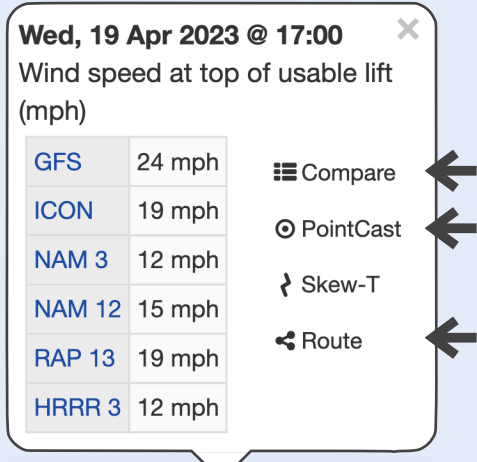3. Lifted index
   Thermal index - average

Cloud / Weather
4. Cumulus cloud base
   Cumulus cloud depth
5. Cloud cover
   Cloud cover without high
   Precipitation
   Precipitable water
   Relative humidity in BL

1) WINDS
Select "Top of usable lift" from Sidebar on left. Note: the "Top of useable lift" parameter is useful for determining the potential height a glider might climb, in MSL, in thermals; even if "Lifted index" shows stability (positive numbers). Now, we evaluate winds, In the area you'll be flying. Are winds at top of lift below 15 mph? OK. Go to the map, find your launch, click on it. A pop-up will appear (see image, below). ↓

A. **LAUNCH** Evaluate winds **during launch window** at "Surface" & launch elevation (which is often 6k-8k ft in Wasatch). Are the winds reasonable for mountain launching? **10 mph or less?**

B. **FLIGHT** Select "**Route**" from pop-up and click on next point or LZ on the map. Evaluate the route at both "Top of Lift" & 12,000 ft, throughout the day & across multiple models. **Use Bill Belcourt's 12x12 Rule: If winds are above 12mph, below 12,000 ft → Caution!** Explore the other powerful tools in the pop-up (to the right): "Compare" and "PointCast."

C. **LANDING** Evaluate wind speed and wind shear in your landing areas at the time of day you expect to be landing.

Wed, 19 Apr 2023 @ 17:00 ×
Wind speed at top of usable lift (mph)

|		
GFS	24 mph	⊞ Compare
ICON	19 mph	⊙ PointCast
NAM 3	12 mph	⌇ Skew-T
NAM 12	15 mph	↵ Route
RAP 13	19 mph	
HRRR 3	12 mph	

2) CAPE
Basically, the amount of buoyancy that can result in **overdevelopment**. Used to determine instability. Quick check: in American West, anything above 300-600; there's likely to be some isolated development → use caution. Above 600 → OD, AVOID.

3) LIFTED INDEX
What to look for: YELLOW (0 to -1) at 15:00 hours is the sweet spot. Not too little or too much instability. Note: this is not required for xc; Big flights can and do happen with "stable" air (positive lifted index).

4) CLOUD BASE & DEPTH
This tool is accurate in the Wasatch for predicting cloud base and, on the day of your flight, use NAM3 for real-time cloud base, MSL. Cloud Depth is another indicator of **overdevelopment**, OD. Note: a cloud depth of 5,000 ft or more has greater OD potential.

5) CLOUD COVER
Yet another good indicator of **overdevelopment** or shutting down. Tip: select GFS to have the option (in the lefthand sidebar) to look at cloud cover without high clouds.

These "Route" plots show **Thermal Strength, Wind Shear, & Thermal Index** from Grandeur to the NS.

"Route" Feature

THERMAL STRENGTH } P2

THERMAL INDEX } P2

WIND SHEAR } P2
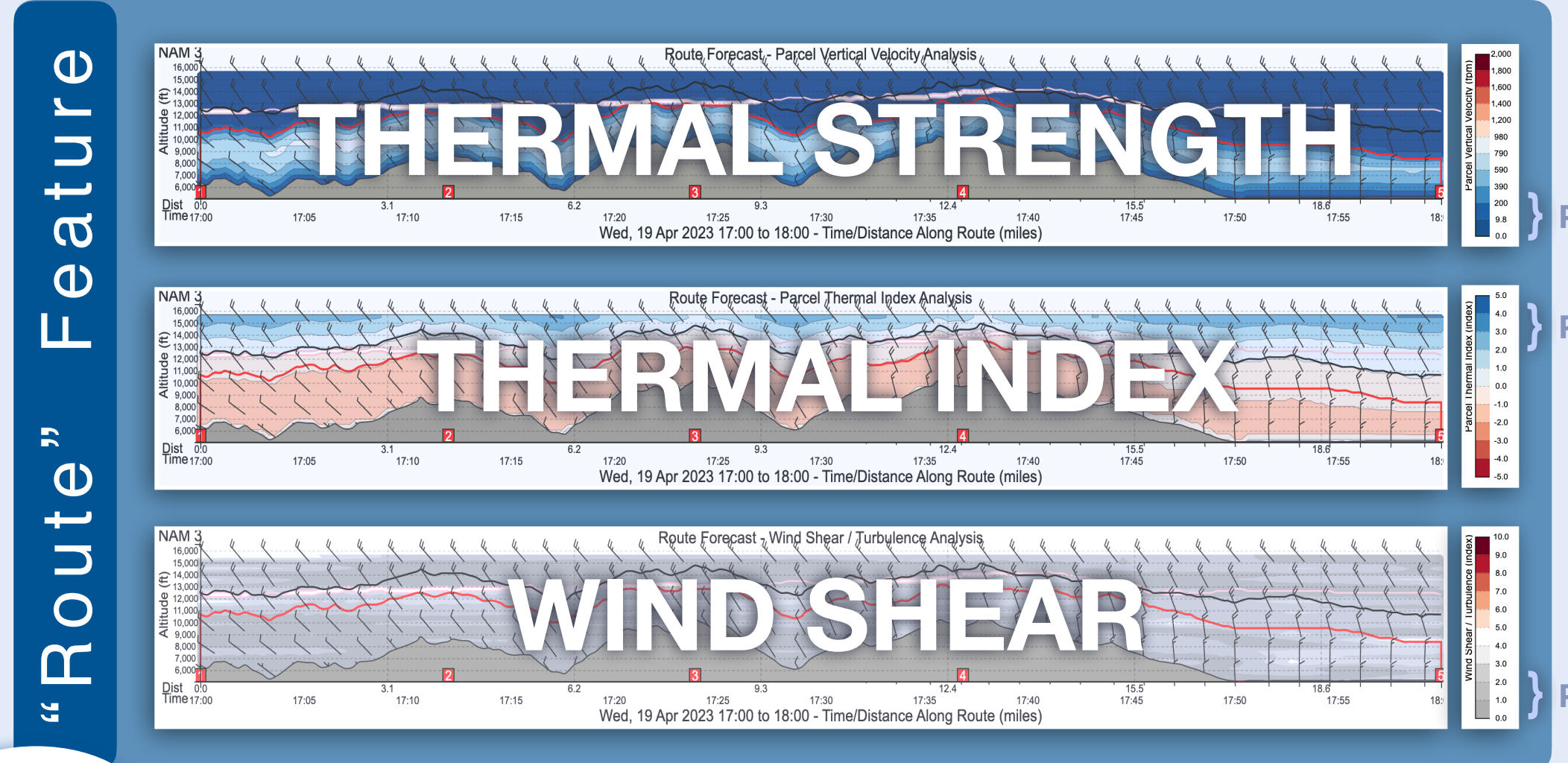
FORECAST MODELS

1. **GFS →** 24km res. Updated every 6 hours. (4-5 days out)
2. **ICON →** 13 km res. Updated every 6 hours.
3. **RAP →** 13 km res. Updated hourly.
4. **NAM12 →** 12 km res. Updated every 6 hours. (3 days out)
5. **NAM3 →** 3km res. Updated hourly. (0-2 days out)
6. **HRRR →** 3km res. Updated hourly. (0-2 days out)