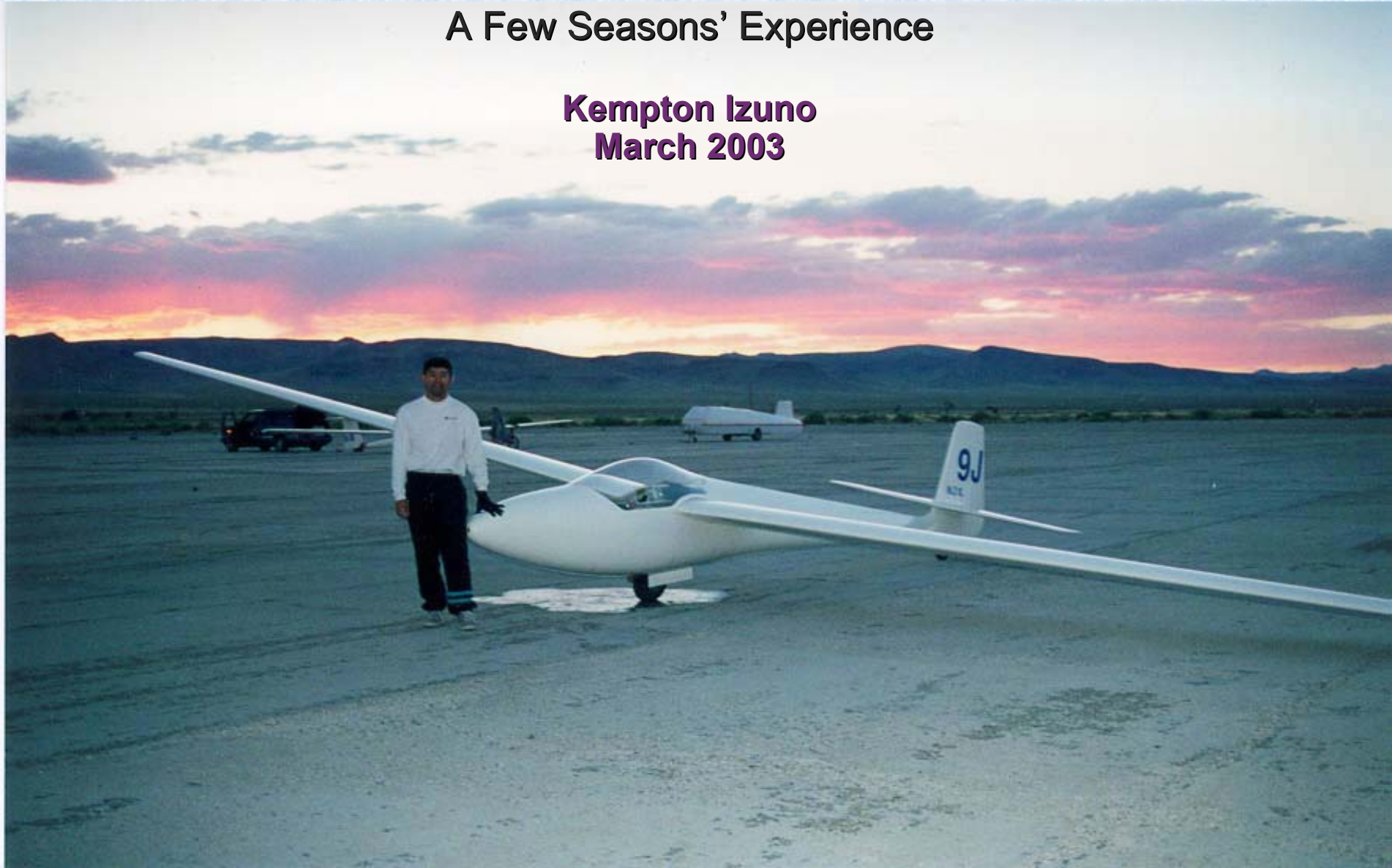


# Tonopah-based Task Planning

A Few Seasons' Experience

**Kempton Izuno**  
**March 2003**



# Eastern Sierra / Great Basin





# Kemp's Background

- Goal: Lots of long flights!
- Limited vacation blocks
- Credits



# First Thoughts...



**Be Safe, as it's difficult to fly if you are:**

- Too poor ('cause you're paying for the repair) and/or ...





# Next Thoughts...



**Be Safe, as it's difficult to fly if you are:**

- Too poor ('cause you're paying for the repair) and/or ...
- Are Scared of Flying





# More Thoughts...

- First XCs on a “nice” (low wind) weather day
- Finishing a task is much more fun than not
- “Get High, Stay High”



Image courtesy Hugues Beslier



# **“What the Hell am I Doing Here?”**

- **Desolate (Like soaring over the ocean)**
- **Buildings spaced 20 - 30 miles apart (but is anyone there?)**
- **Little to No Road Traffic**
- **Lots of places to land...**
- **...but will you be found in time?**



# Agenda

- **Tonopah Airport & the Great Basin**
- **Forecasting the Weather**
- **Task Planning & Where to Land**



# Tonopah the Town

- Hotels
- 5 Restaurants
- Basic services
- Very supportive town





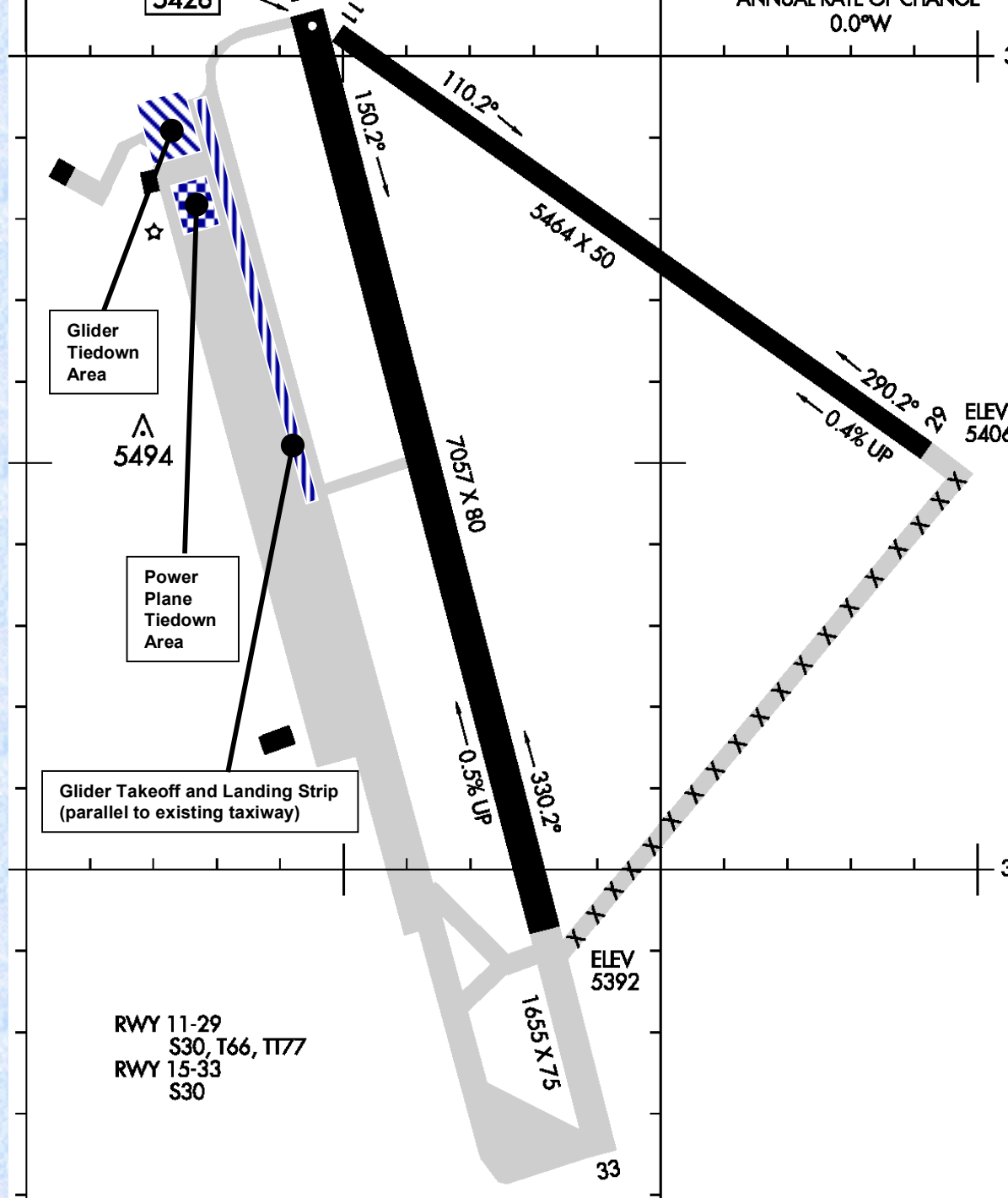
# Tonopah Airport

- Ex-WWII B-24 base E of town
- Medium quality concrete tarmac, but large
- Desert Flying Service: Gas & Ox
- Tough to see until you are close (Mud Lake as navaid)



# TPH Layout

- Tarmac
- Water
- FBO
- Operations





# The Great Basin Season

- Prime Time: early July – late August
- Often several super days in a row
- Day can start at 10am in hills, end past sunset
- Lift to 22,000 feet (even blue days to 18K+)
- *Small* Thunderstorms are good





# Eastern Sierra vs. Great Basin

- Multiple Ranges to Run
- Higher, Drier
- No Late Day Washout
- Very Sparsely Populated



# Agenda

- Tonopah Airport & the Great Basin
- Forecasting the Weather
- Task Planning & Where to Land?

# Strange weather...

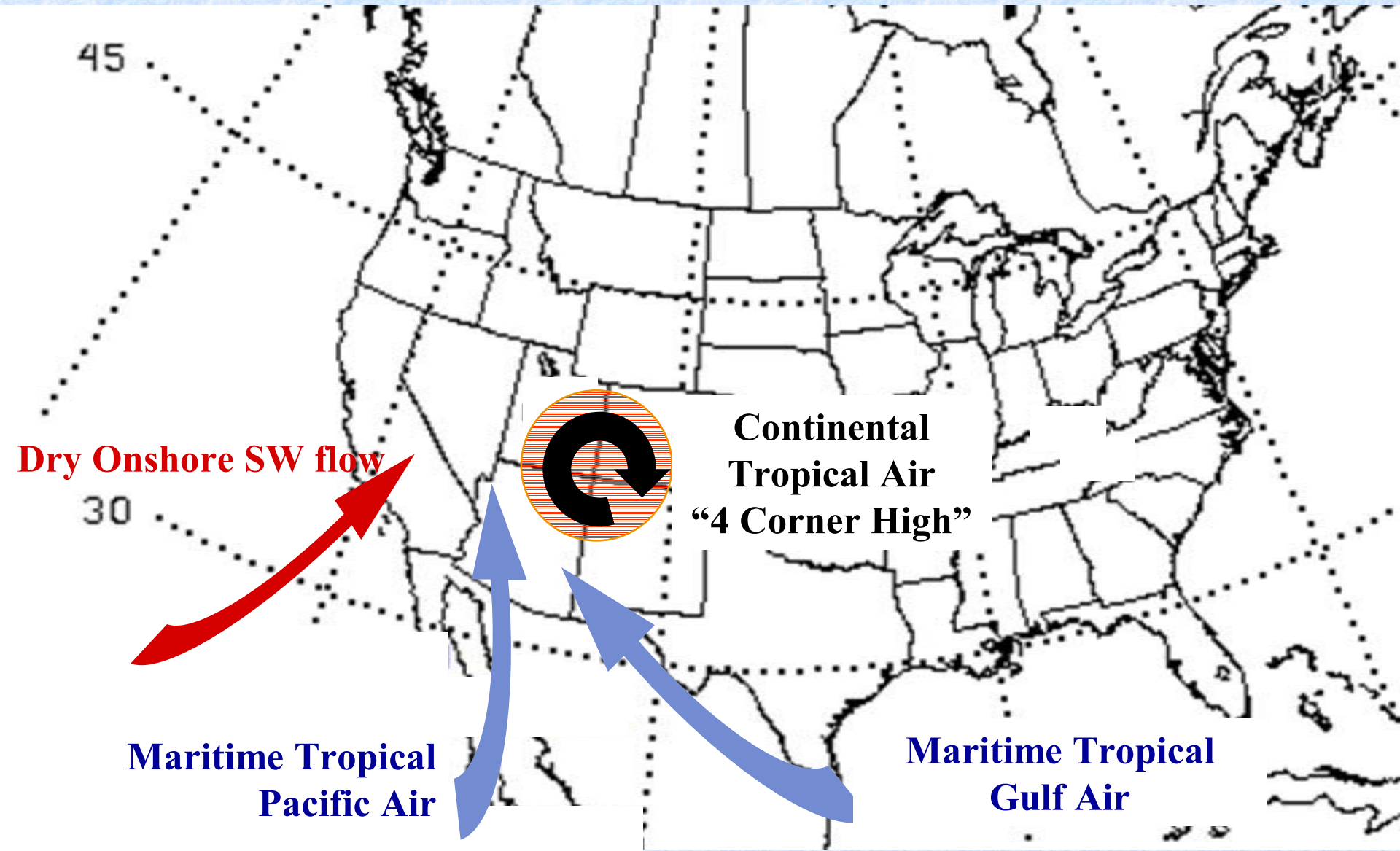




**... brings out the UFOs**



# Summer Pattern



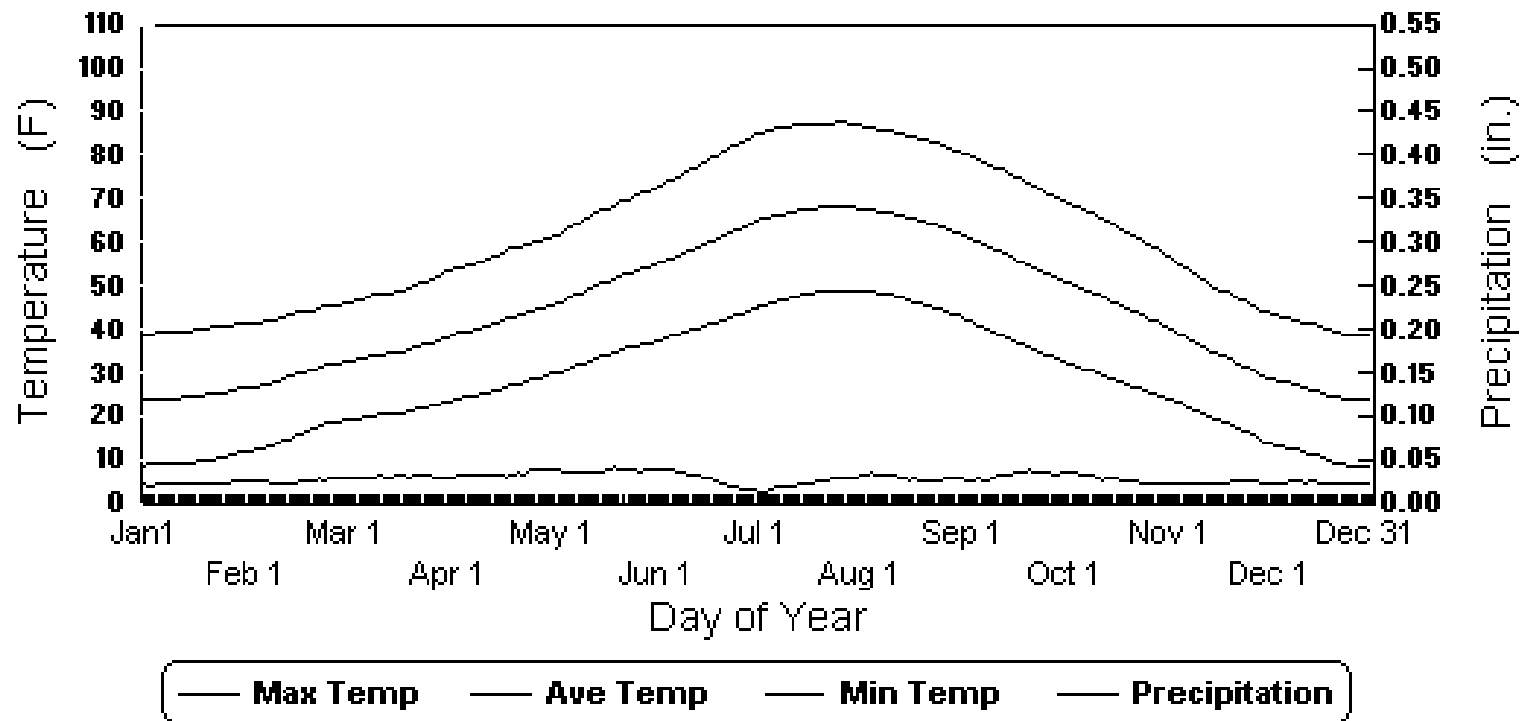


# Great Basin Heating



## Ely, Nevada

1961-1990 30 Year Average



# Forecasting Strategy

- 10 days out: Watch for the pattern
- 3-6 days out: Gain confidence
- <3 days: Go/No Go day by day





# Unisys Weather: MRF Model Forecasts - Netscape 6

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http://weather.unisys.com/mrf/index.html

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- Click on Rel Hum/Show Index Plots
- MRF & AVN updated 2x daily

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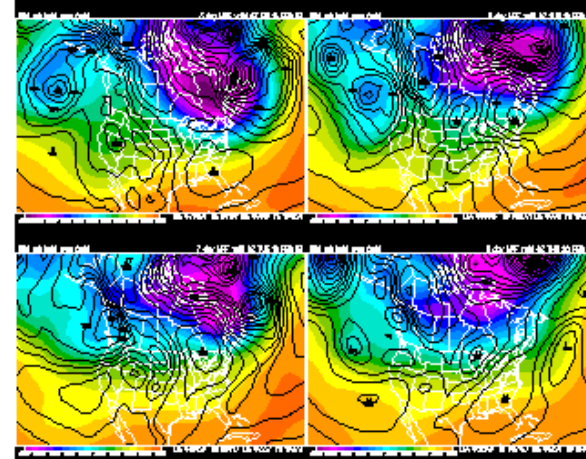
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Enter a zip code or city name  
to get forecast:



## MRF Model Forecasts



Current MRF SL Pressure/500 mb Hght Forecast

This directory contains contour plots from the Medium Range Forecast (MRF) model. The model output runs from observed data, every 12 hours to 10 days. These plots are updated once a day at around 10 AM EST based on the 00Z model run.

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# Unisys Weather: MRF Rel Humidity/Showalter Index Plots

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- Up to 10 days out
- Click on 9 Panel (48hr-10day)

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## MRF Rel Humidity/Showalter Index Plots

The Relative Humidity/Showalter Index chart depicts two fields: integrated relative humidity from 850 to 500 mb (in color contours) and Showalter index (in white line contours). Negative index values are shaded black.

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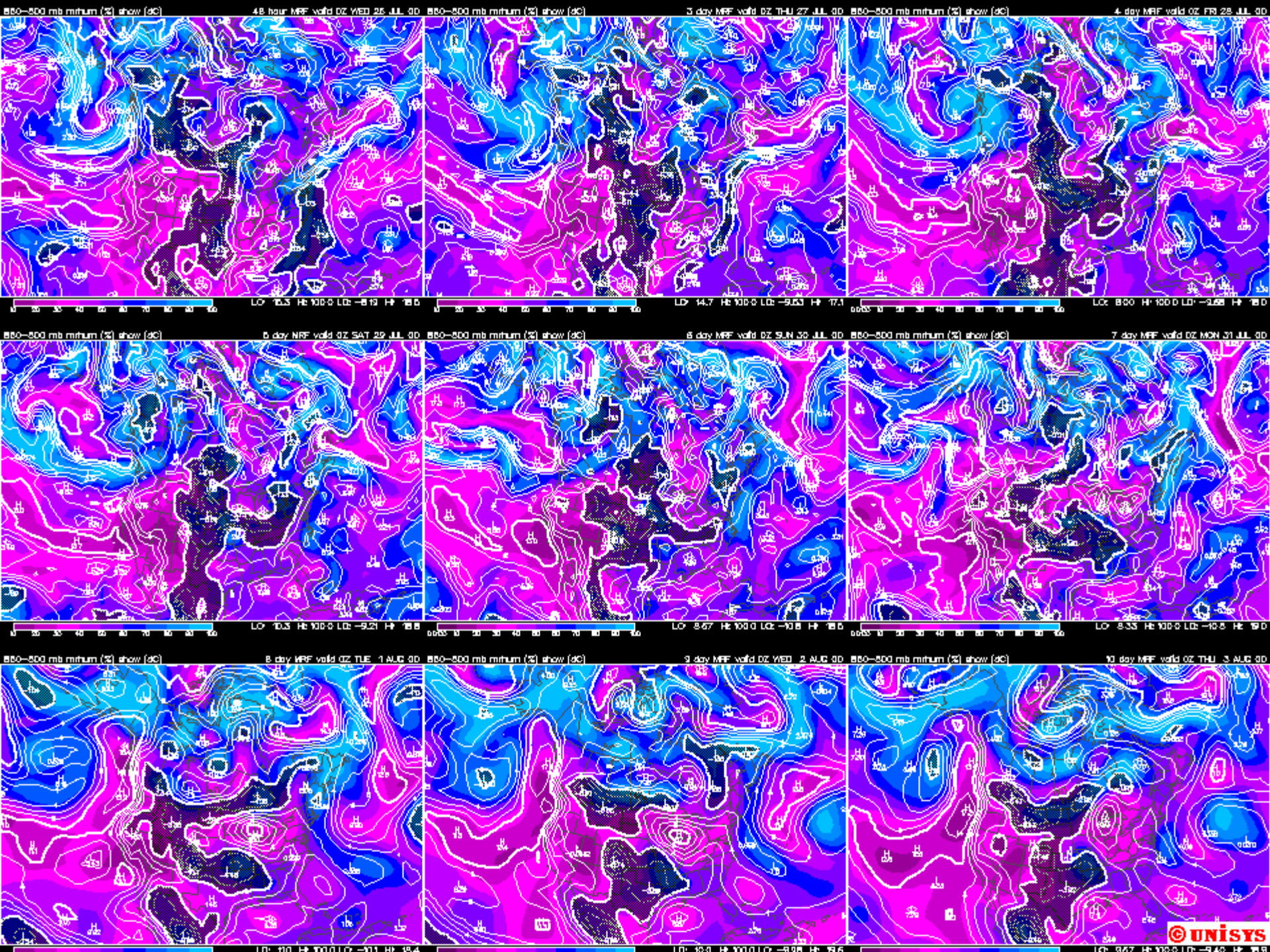
[850 mb Plots](#)

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## Click on 4 Panel Plots

**UNISYS Weather: MRF Rel Humidity/Showalter Index Plots**

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**MRF Rel Humidity/Showalter Index Plots**

The Relative Humidity/Showalter Index chart depicts two fields: integrated relative humidity from 850 to 500 mb (in color contours) and Showalter index (in white line contours). Negative index values are shaded black.

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## MRF 4 Panel Plots

These plots contain 4 subplots/panels. The four plots include the 850 plot in the upper left, the 400 mb plot in the upper right, the SL Pressure/Precipitation plot in the lower left and the Relative Humidity and Showalter Index plot in the lower right. There is a plot for each time period from analysis to 10 days in 12 hour increments

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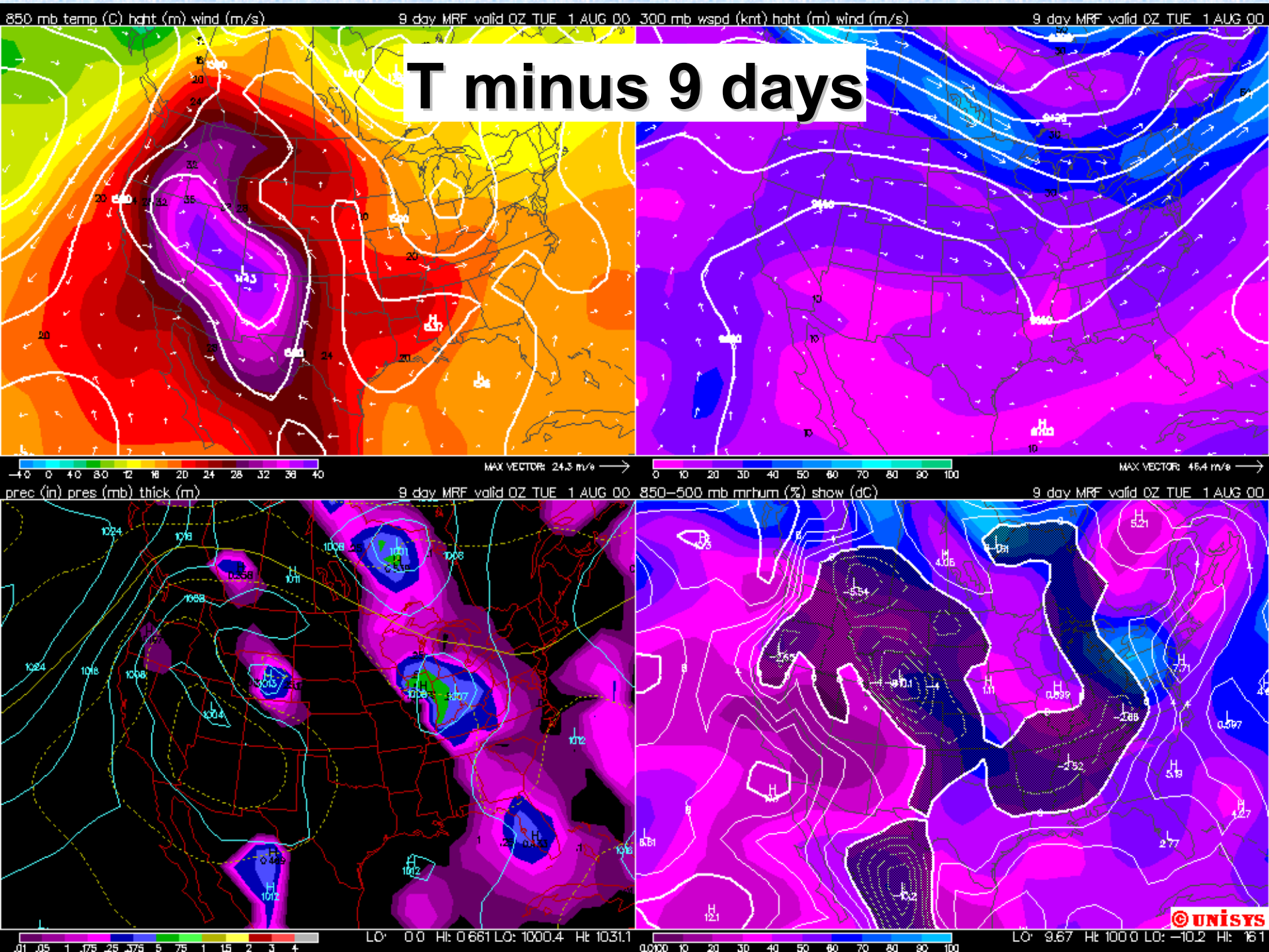
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Click on day of  
interest

Look for:

- 850mb: >38°C
- 300mb: <30knots
- No precip
- RH/Show: 30%
- RH/Show: Isolated  
overdevelopment





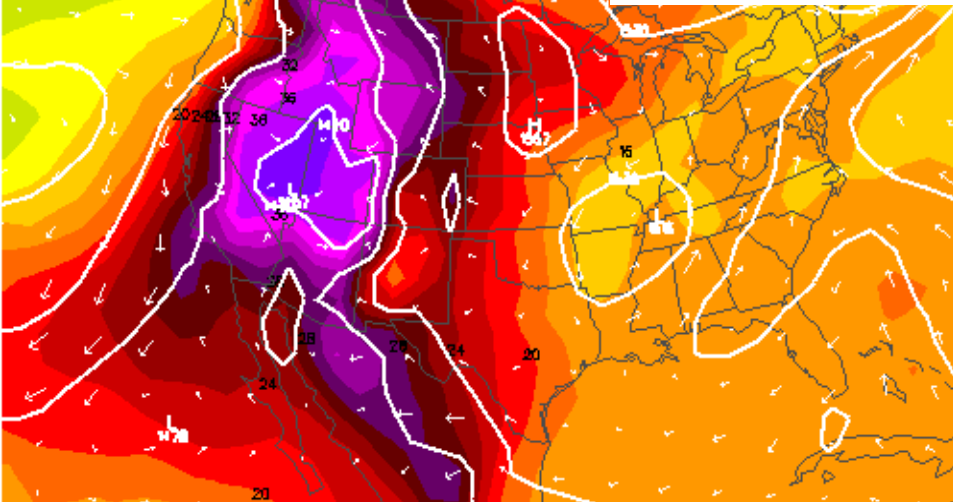
850 mb temp (C) hght (m) wind (m/s)

6 day MRF valid OZ TUE 1 AUG 00

300 mb wspd (knt) hght (m) wind (m/s)

6 day MRF valid OZ TUE 1 AUG 00

# T minus 6 days

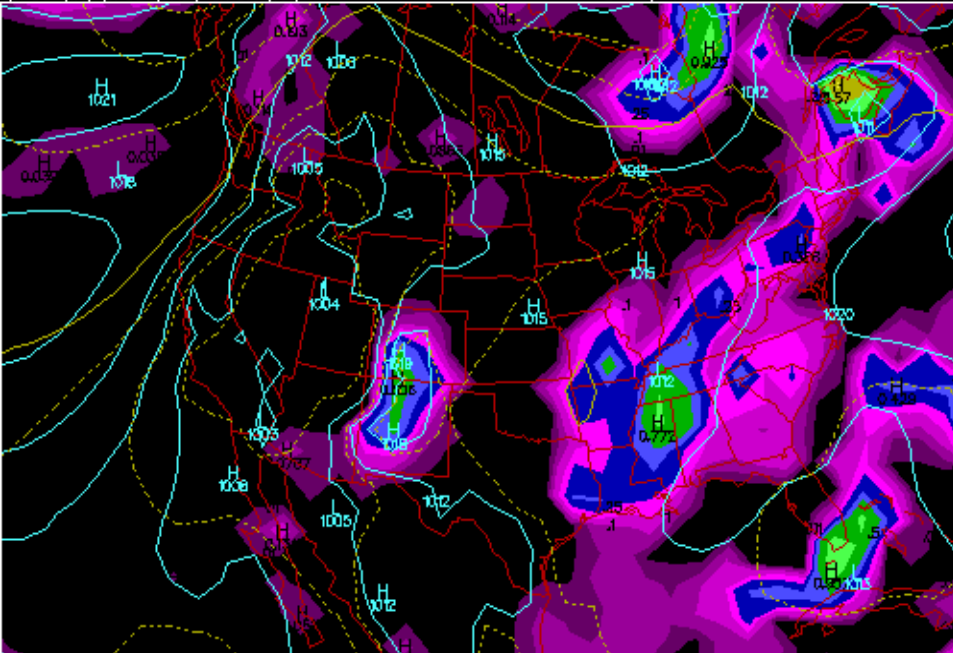


-4 0 4 8 12 16 20 24 28 32 36 40

MAX VECTOR: 26.0 m/s

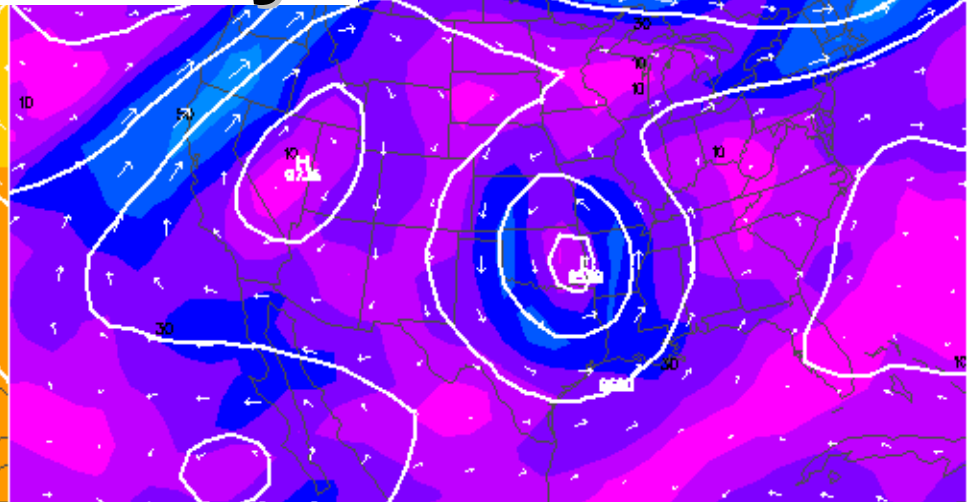
prec (in) pres (mb) thick (m)

6 day MRF valid OZ TUE 1 AUG 00



01 05 1 1.75 2.5 3.75 5 7.5 1 15 2 3 4

LO: 0.0 H: 157 LO: 996.7 H: 1030.1

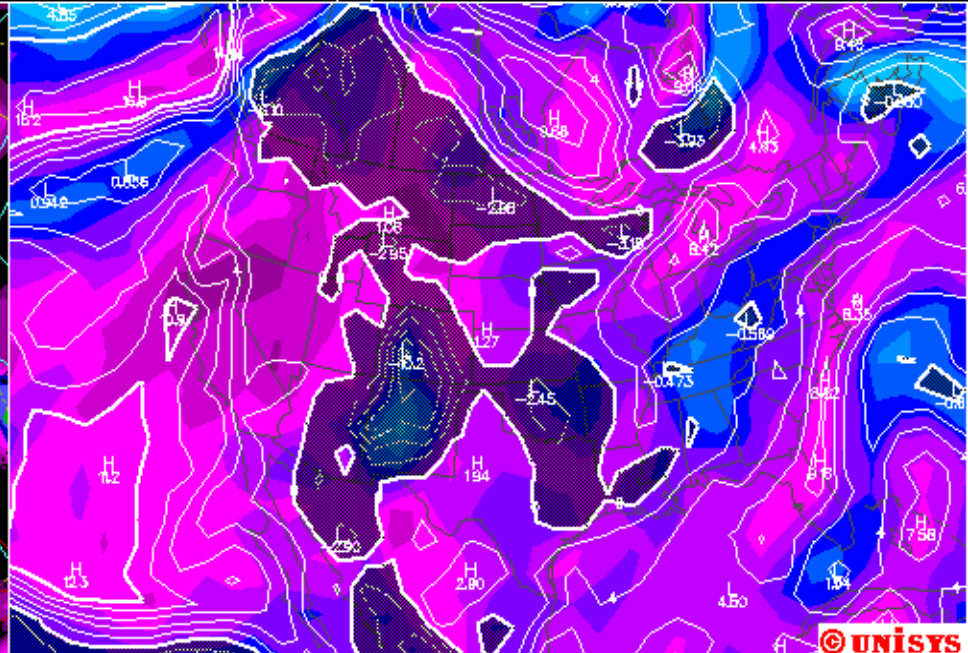


0 10 20 30 40 50 60 70 80 90 100

MAX VECTOR: 50.4 m/s

850-500 mb mrhum (%) show (dC)

6 day MRF valid OZ TUE 1 AUG 00



0 10 20 30 40 50 60 70 80 90 100

LO: 14.3 H: 100.0 LO: -10.2 H: 16.9

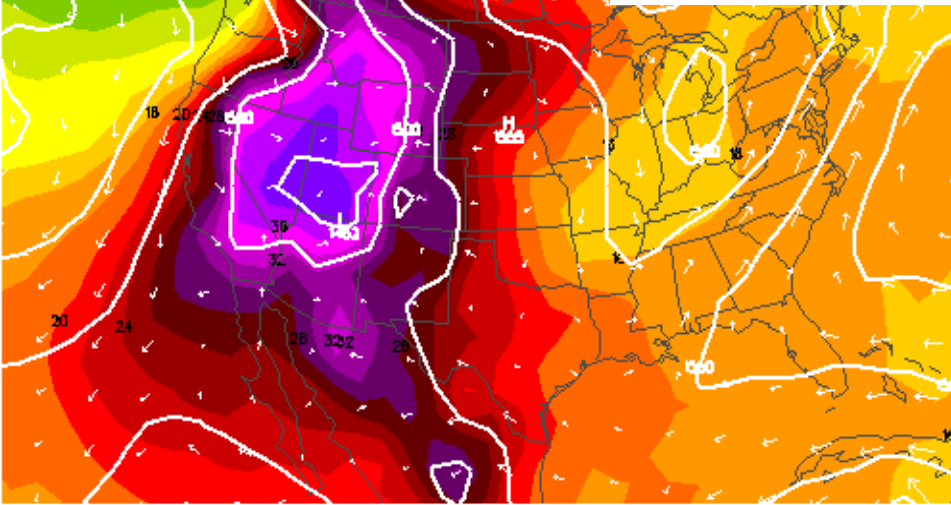
850 mb temp (C) hght (m) wind (m/s)

3 day MRF valid OZ TUE 1 AUG 00

500 mb wspd (knt) hght (m) wind (m/s)

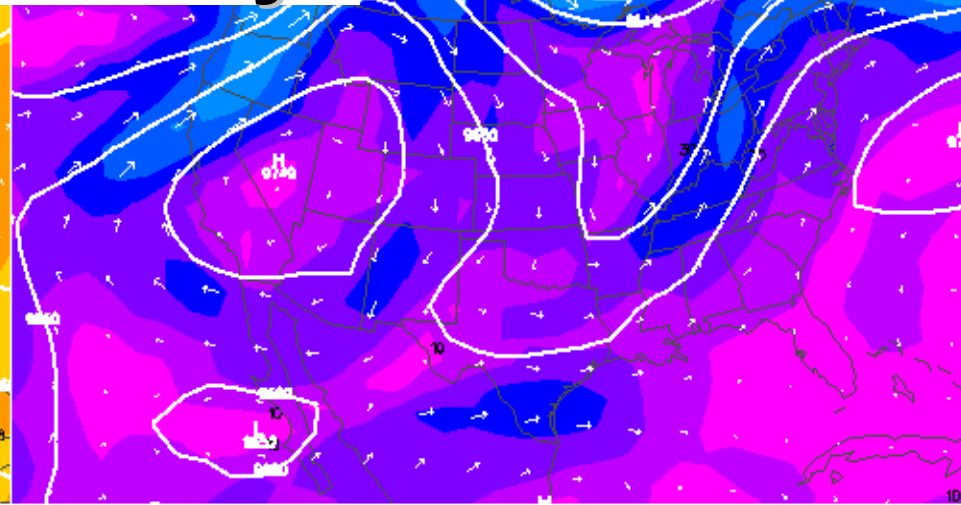
3 day MRF valid OZ TUE 1 AUG 00

# T minus 3 days



-4 0 4 8 12 16 20 24 28 32 36 40

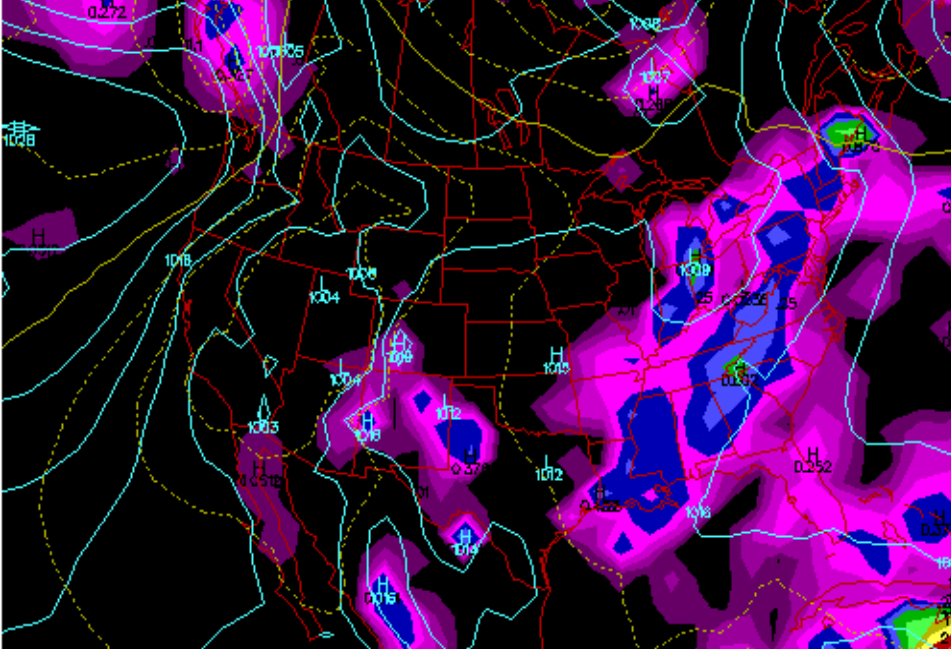
MAX VECTOR: 28.4 m/s



0 10 20 30 40 50 60 70 80 90 100

MAX VECTOR: 48.7 m/s

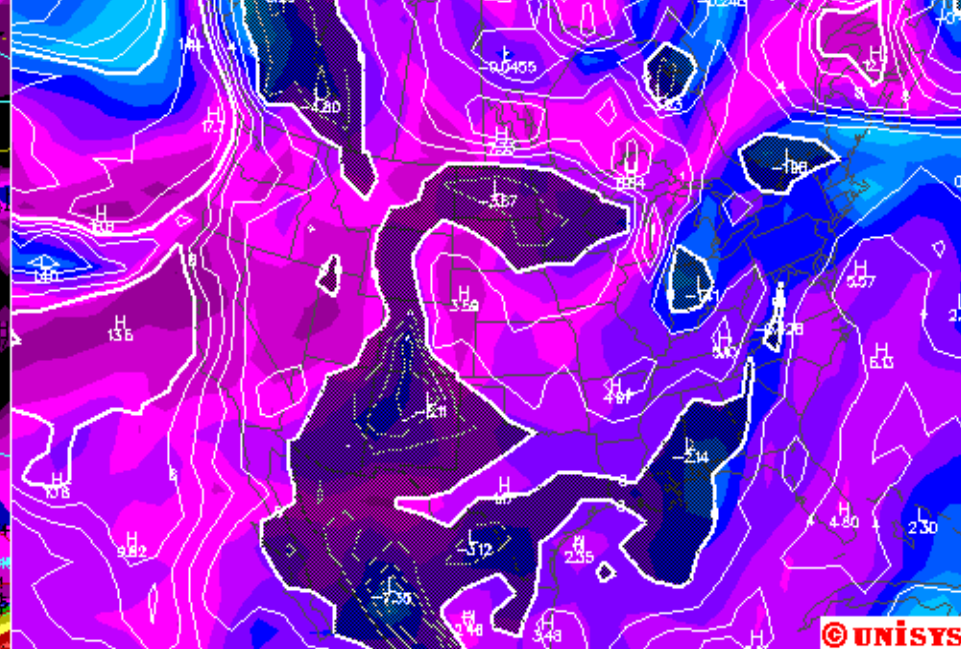
prec (in) pres (mb) thick (m) 3 day MRF valid OZ TUE 1 AUG 00



0.01 0.05 0.1 0.25 0.5 0.75 1 1.5 2 3 4

LO: 0.0 Ht: 3.77 LO: 982.4 Ht: 1033.9

850-500 mb mrhum (%) show (dC) 3 day MRF valid OZ TUE 1 AUG 00



0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0

LO: 9.33 Ht: 100.0 LO: -8.11 Ht: 19.0



- Up to 5 days out
- Click on 4 Panel Plots

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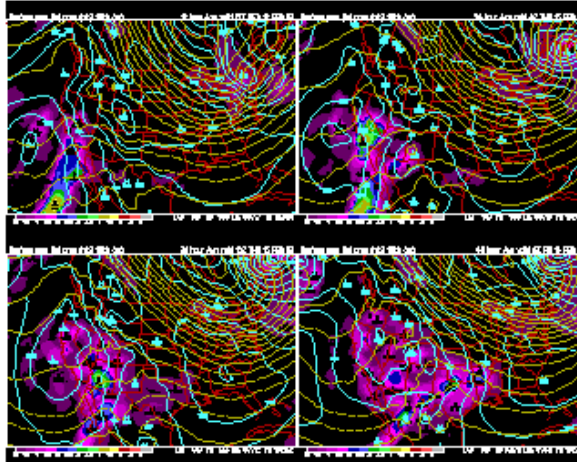
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*Current Aviation SL Pressure/500 mb Hght Forecast*

This is a set of contour plots using data from the Aviation model. The output fields are consistent with other models so the models can be compared. This model gives forecast information out to 72 hours and plots are 72 hour 6 panel plots where each plot has a panel for the 12, 24, 36, 48, 60 and 72 hour forecast and individual forecast times from initialization to 72 hours in 12 hour increments. These plots are updated once every 12 hours at roughly 2:00 EST.

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- Click on day of interest
- Look for:
  - 850mb: >38°C
  - 300mb: <30knots
  - No precip
  - RH/Show: 30%
  - RH/Show: Isolated overdevelopment

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Enter a zip code or city name to get forecast:

## Aviation 4 Panel Plots

The 4 panel chart includes 850 mb temperature, height and wind vectors in the upper left. The 300 mb wind speed, height and vectors are in the upper right. The 12 hour precipitation, sea level pressure and 1000-500 mb thickness is in the lower left. The mean relative humidity and lift index are in the lower right.

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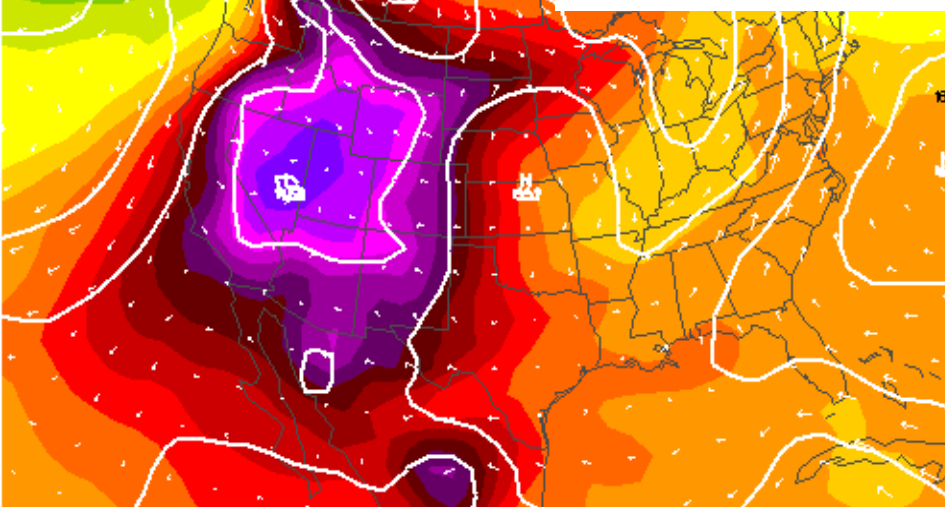
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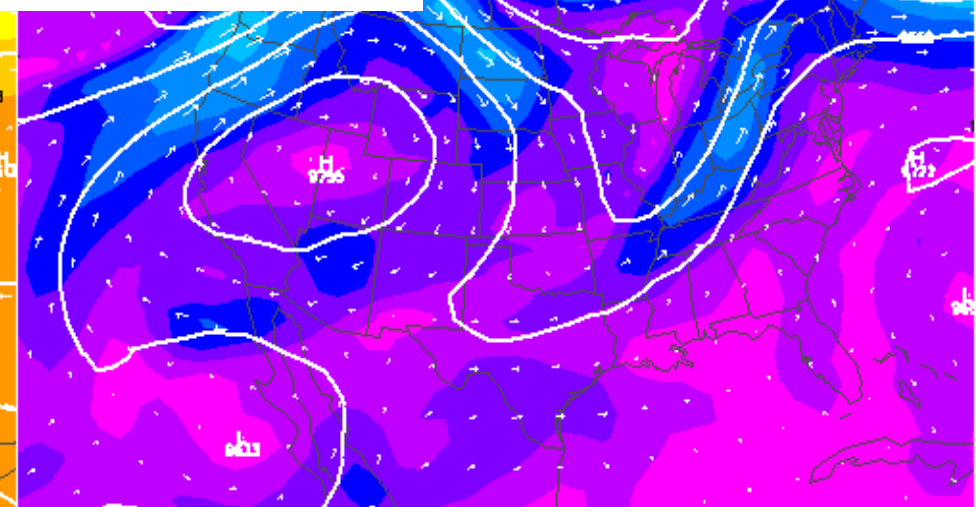


# T minus 48 hours



-46 -42 -38 -30 -24 -18 -12 -6 0 6 12 18 24 30 36 40

MAX VECTOR: 38.1 m/s



0 20 40 60 80 100 120 140 150

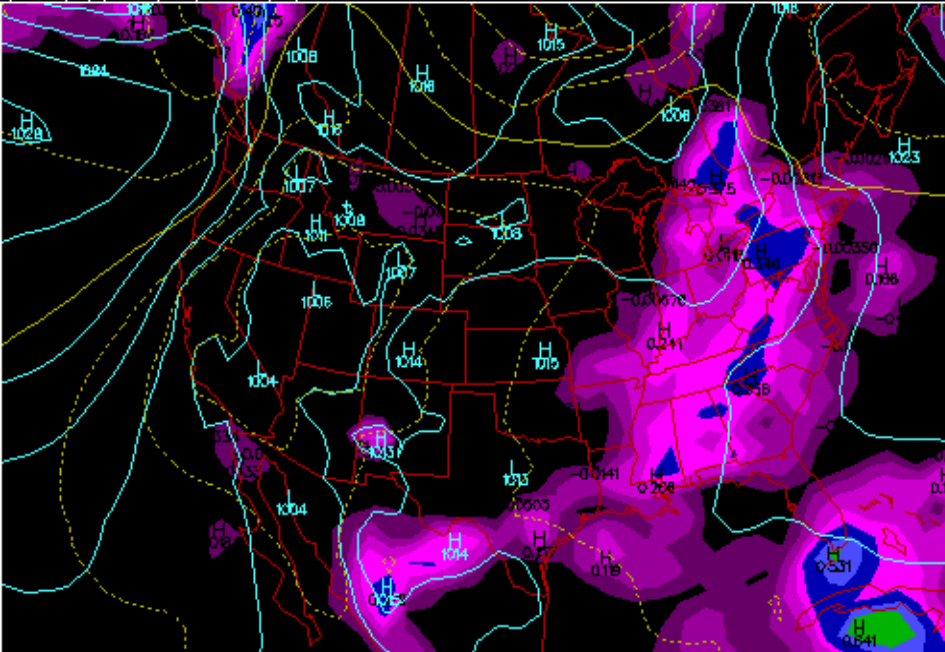
MAX VECTOR: 75.9 m/s

prec (in) pres (mb) thick (m)

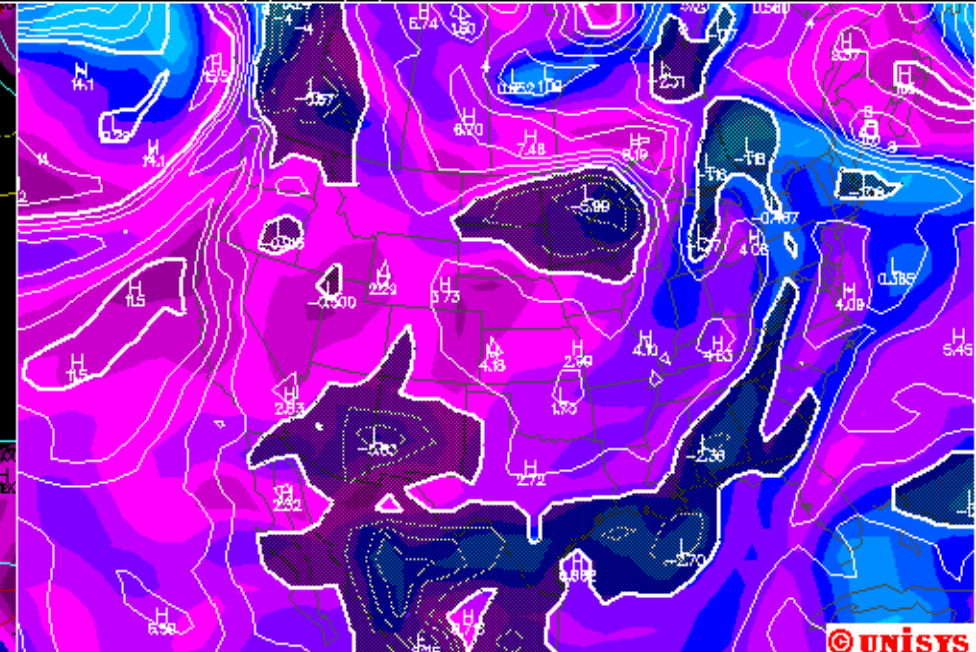
48 hour AVN valid 0Z TUE 1 AUG 00

850-500 mb mrlhum (%) show (dC)

48 hour AVN valid 0Z TUE 1 AUG 00



LO: -0.0481 HI: 2.77 LO: 952.4 HI: 1042.9



LO: 3.70 HI: 100.0 LO: -11.1 HI: 411

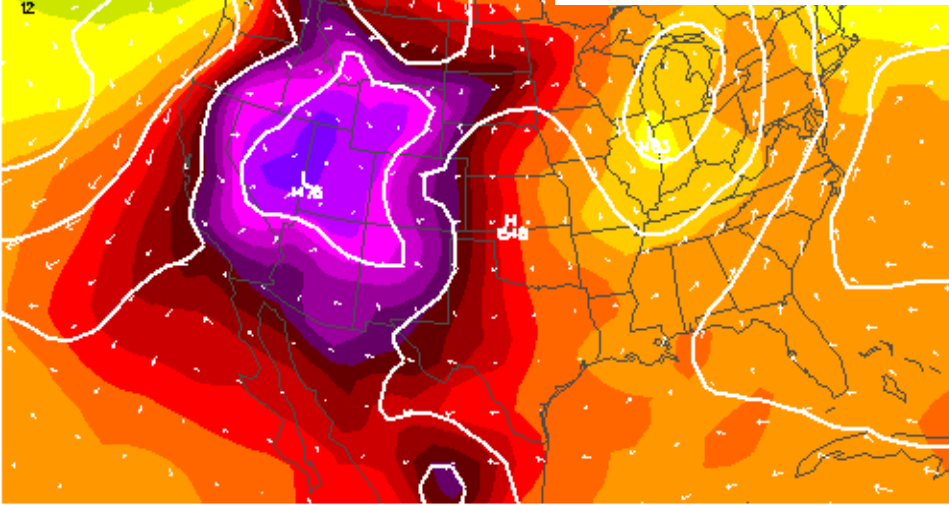
850 mb temp (C) hght (m) wind (m/s)

24 hour AVN valid OZ TUE 1 AUG 00

300 mb wspd (knt) hght (m) wind (m/s)

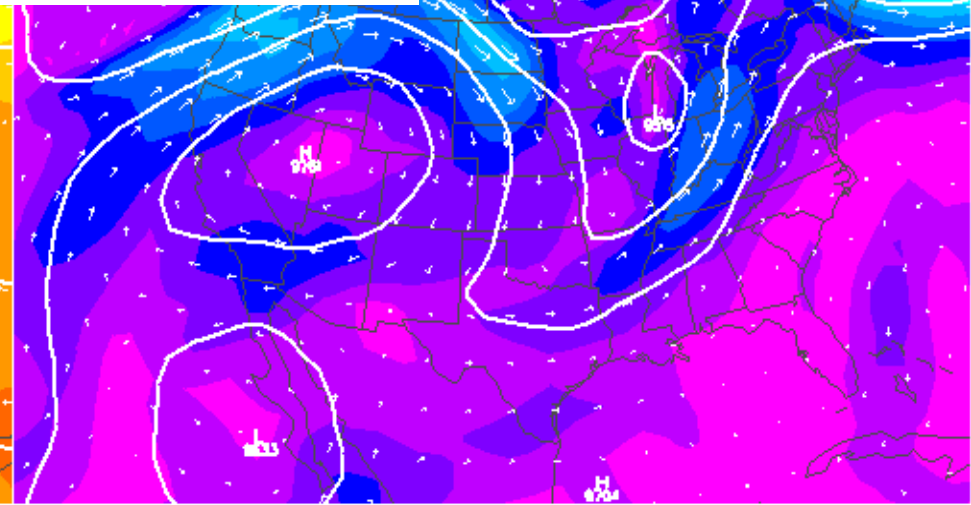
24 hour AVN valid OZ TUE 1 AUG 00

# T minus 24 hours



-46 -42 -38 -30 -24 -18 -12 -6 0 6 12 18 24 30 36 40

MAX VECTOR: 36.6 m/s



0 20 40 60 80 100 120 140 150

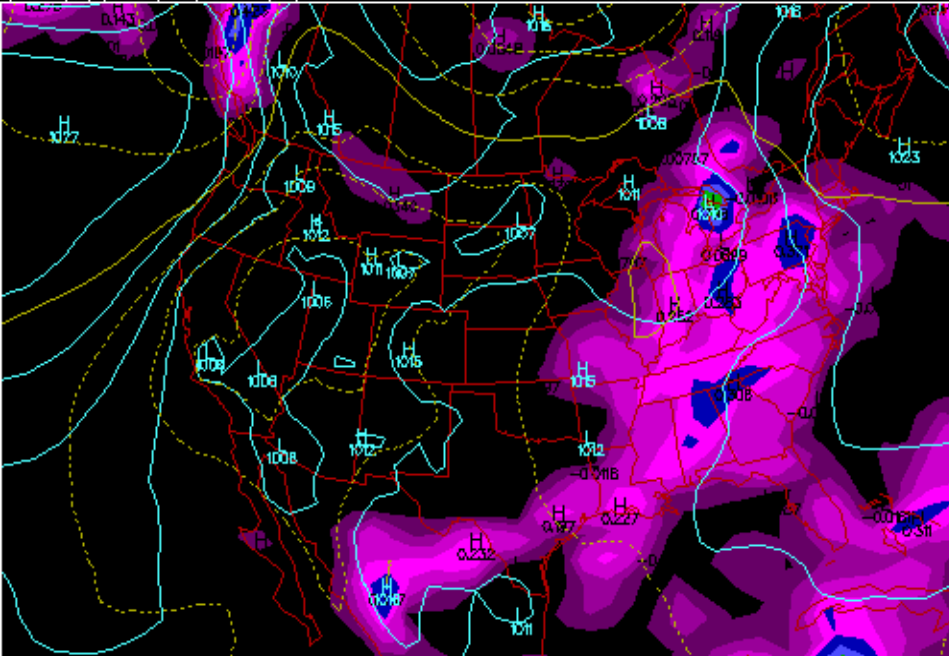
MAX VECTOR: 74.0 m/s

prec (in) pres (mb) thick (m)

24 hour AVN valid OZ TUE 1 AUG 00

850-500 mb mtrhum (%) show (dC)

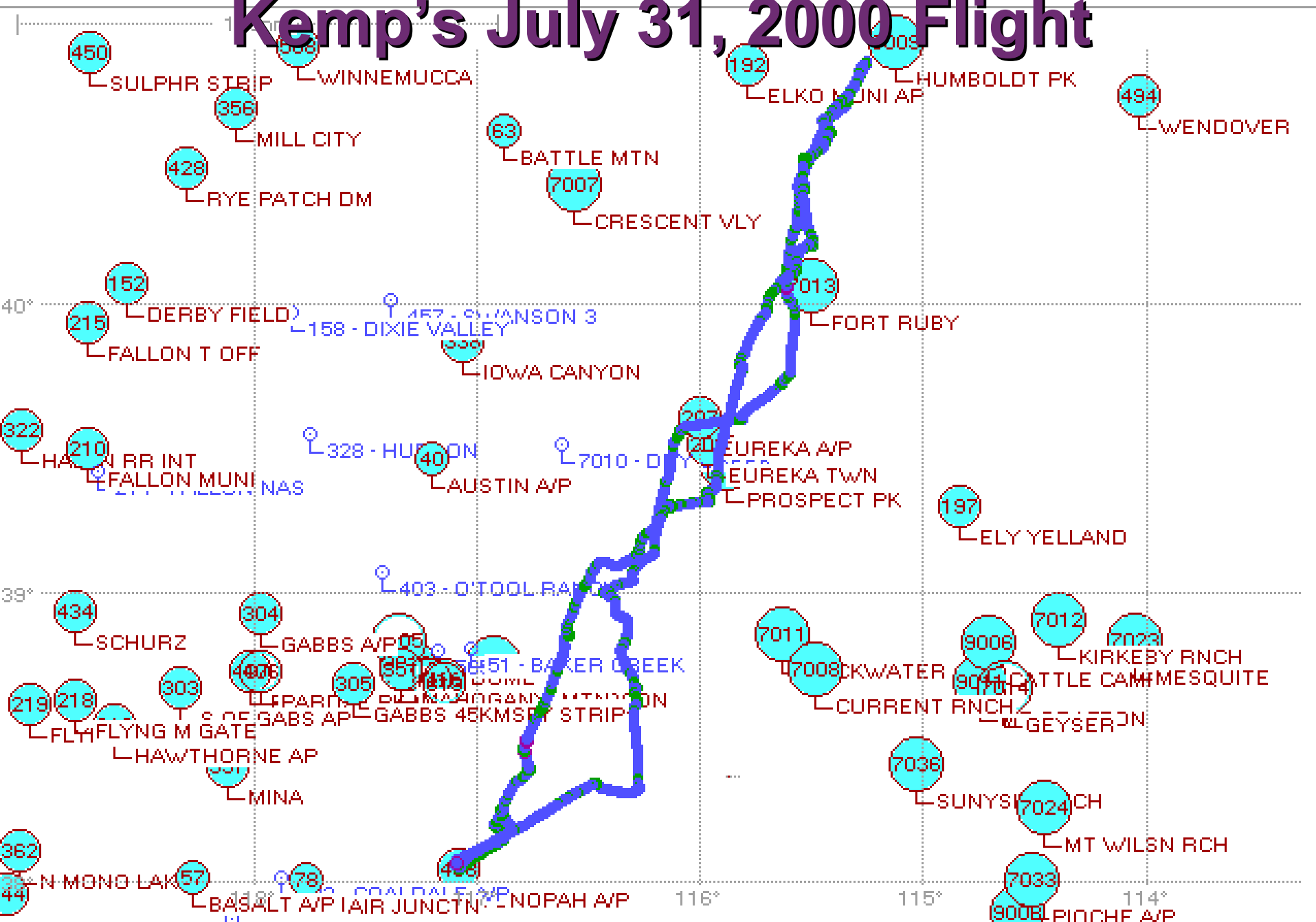
24 hour AVN valid OZ TUE 1 AUG 00



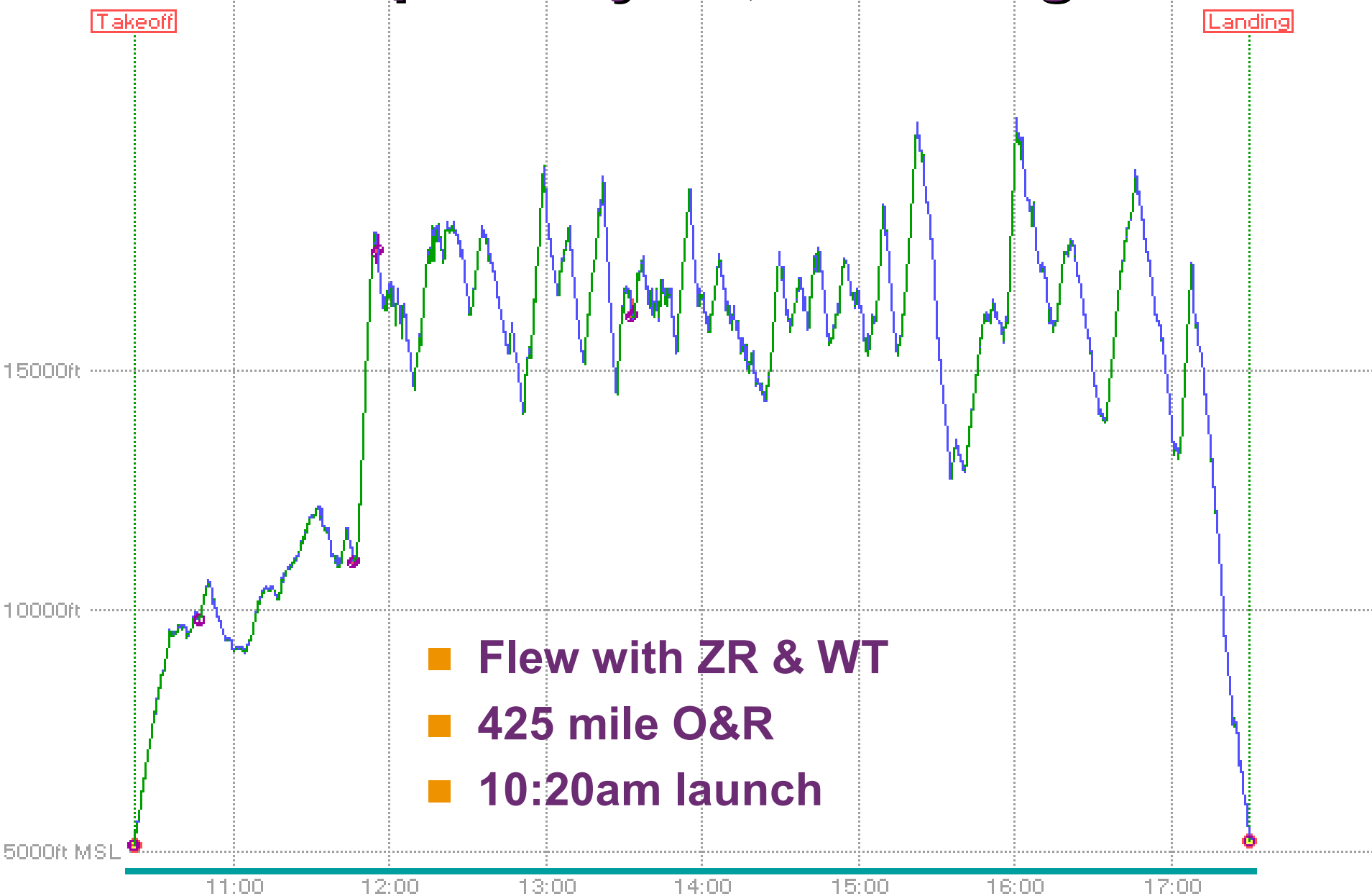
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# Kemp's July 31, 2000 Flight



# Kemp's July 31, 2000 Flight

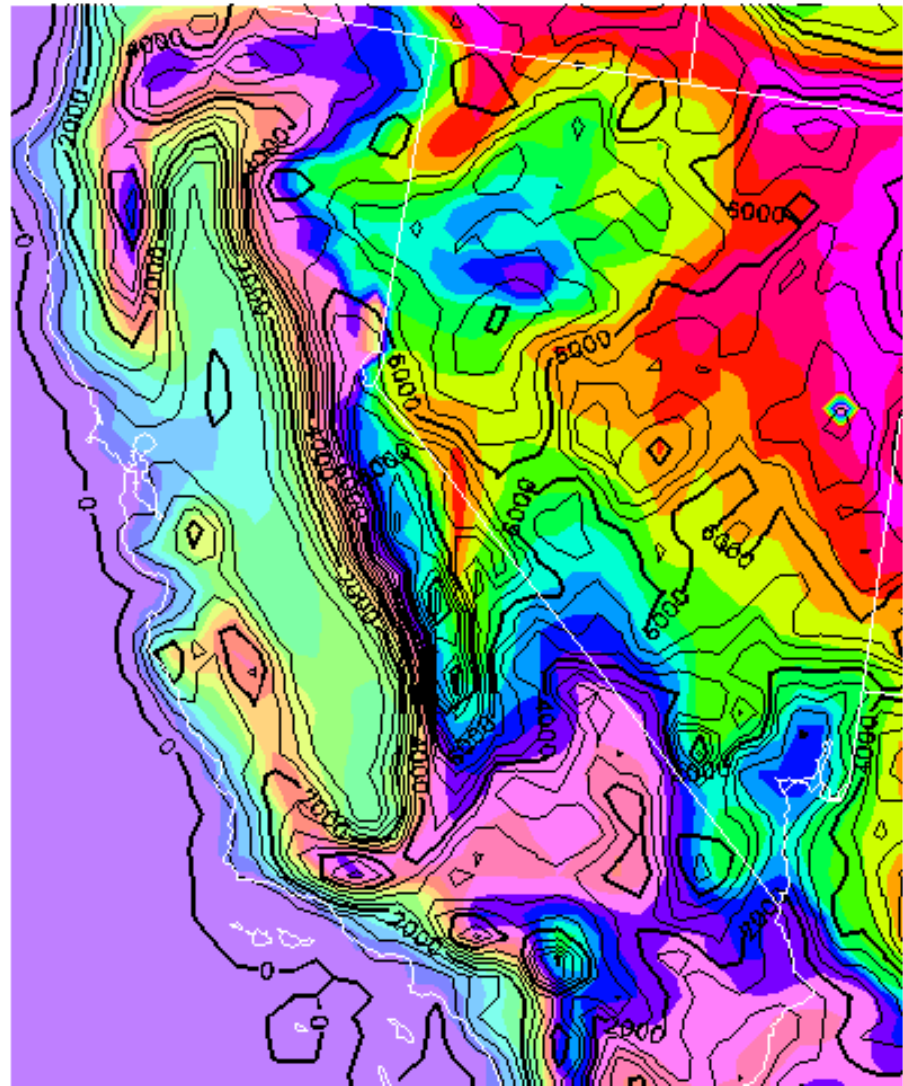
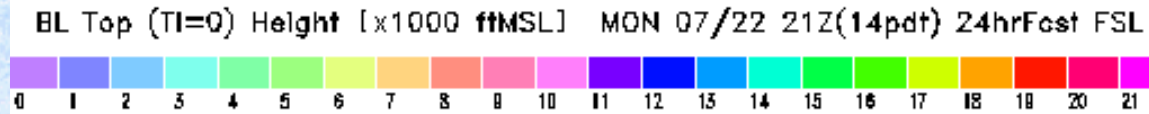




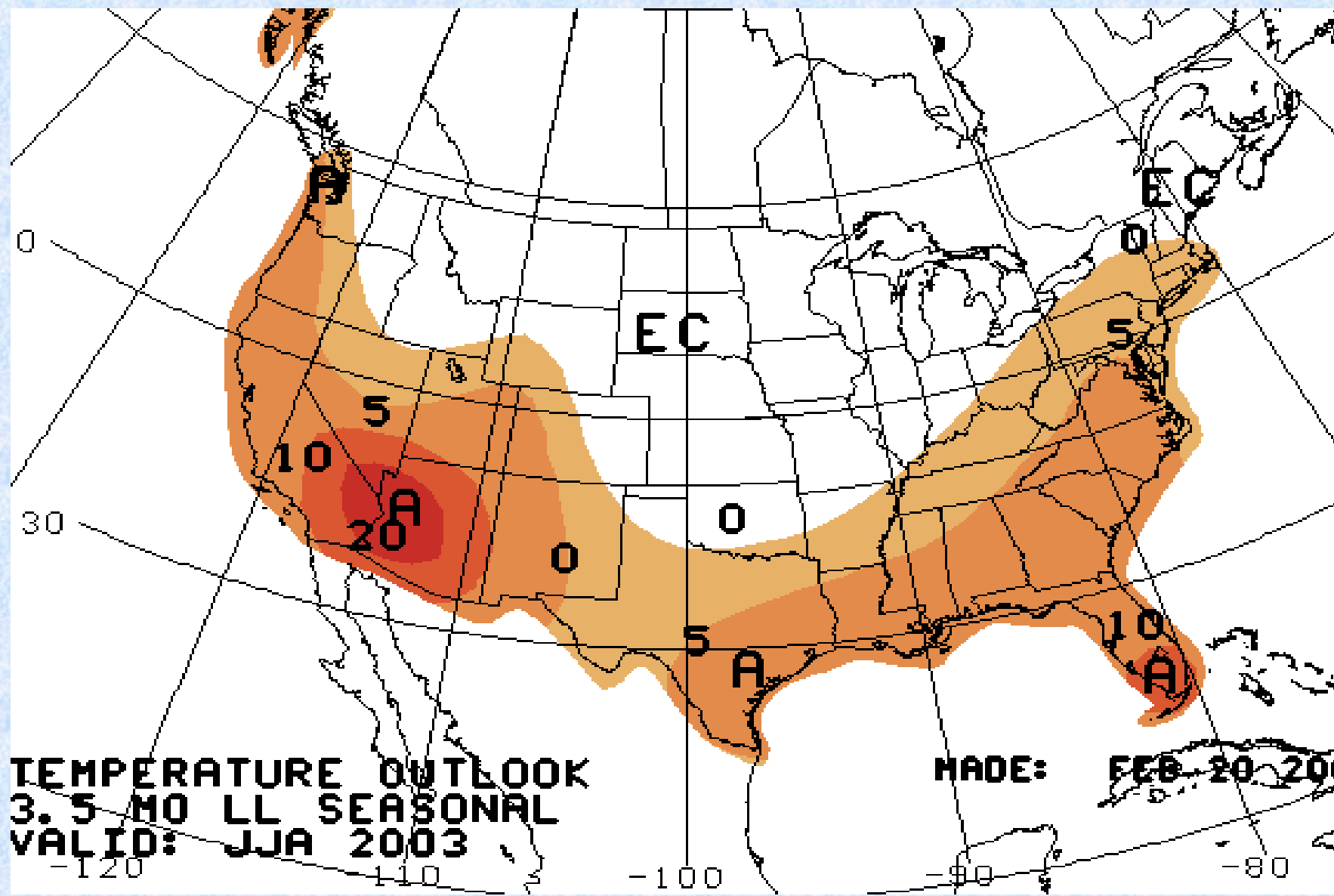
# Blipmap for Thermal Height, etc.

- **New Tool:**  
<http://www.drjack.net/BLIPMAP/>
- Thermal height, strength, cu dev., CAPE, etc.
- Accurate for height  
(I don't have much experience with the other parameters)
- Good for verifying task area WX
- 24h forecast only

Note: The day shown is not the same as previous images



# Outlook for this season?





# Agenda

- Tonopah Airport & the Great Basin
- Forecasting the Weather
- Task Planning & Where to Land?

# Task Planning

- **Follow the Lift!**
- **Moisture Trumps High Ground (mostly)**
- **Lessons Learned**
  - Land at an airport (unless you know otherwise)
  - Pair Fly
  - Abort Plan
  - Fly on the good days to keep a healthy margin





# Task Planning

- Core area is N to NE
- Departure, return considerations
  - What is local sunset time?  
(smoke cuts this by >30 min.)
  - Landing areas
- Early departures: go into mountains
- After 11:30, you can stay up locally



# Incremental Increase in Task Size

■ If you did 300K, then try 500K

■ Plan a task schedule

■ 11am Launch

■ 11:30 Start

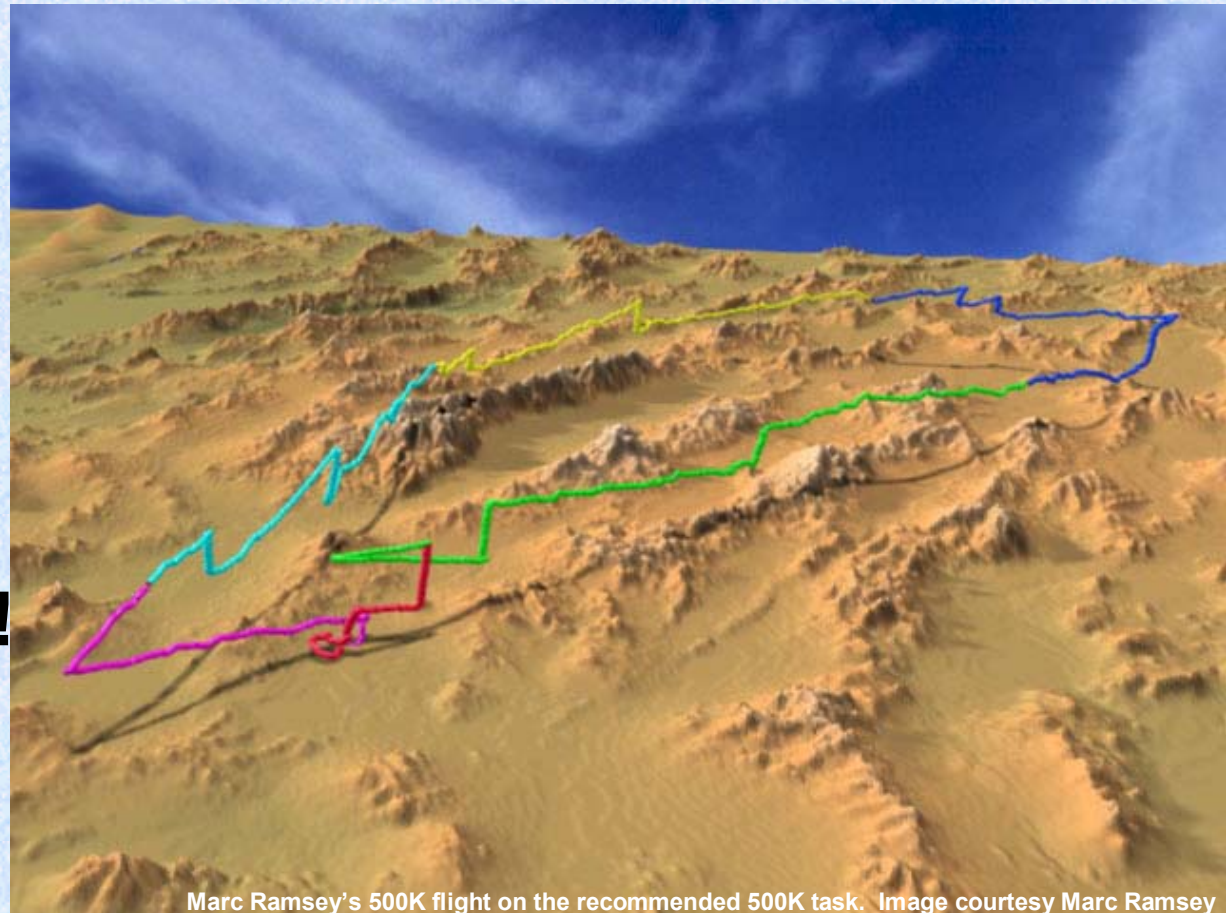
■ 1:30 Eureka

■ 2:30 Austin

■ 4:15 Goldfield

■ 4:30 TPH

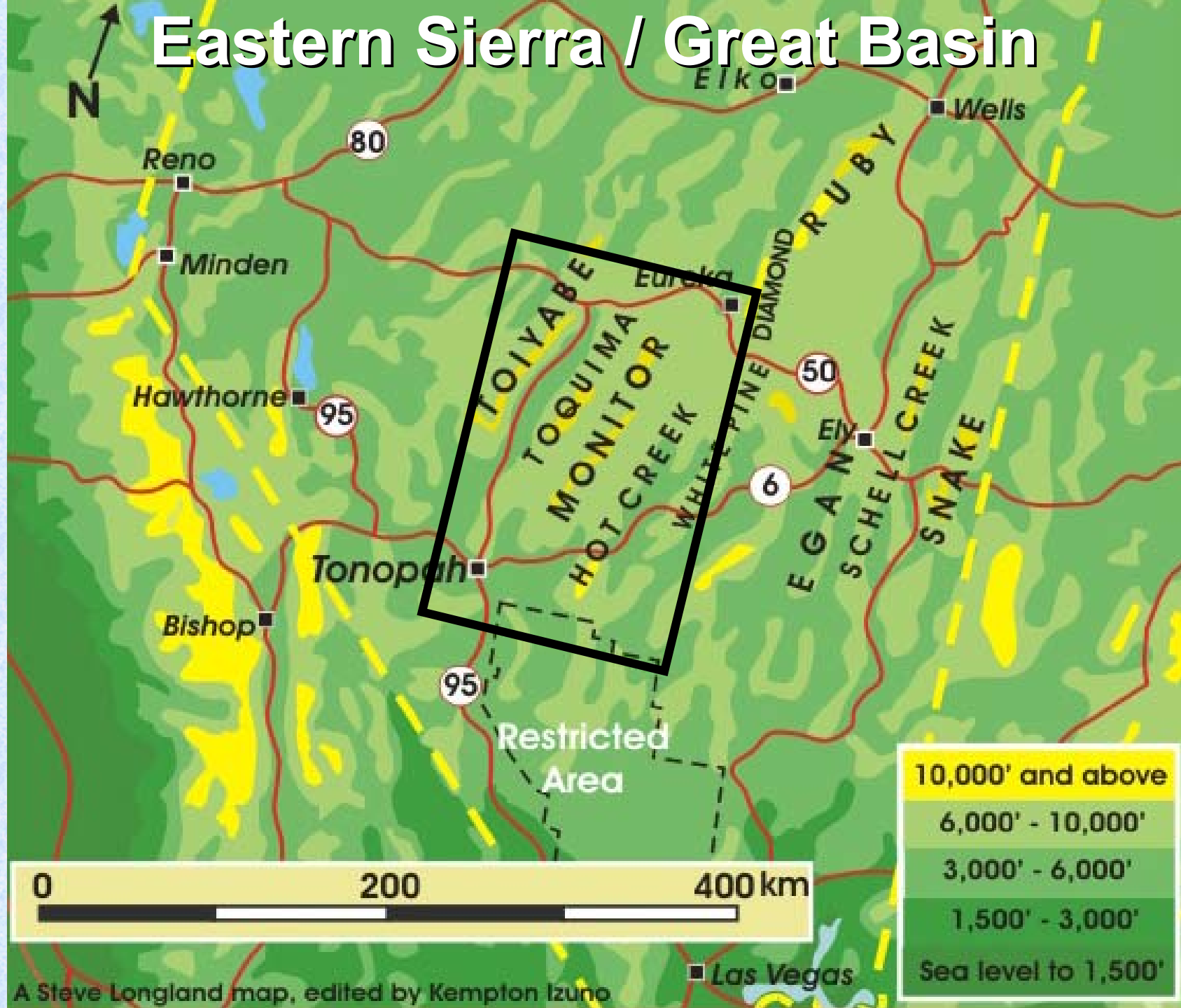
■ **Early Launch!**



Marc Ramsey's 500K flight on the recommended 500K task. Image courtesy Marc Ramsey



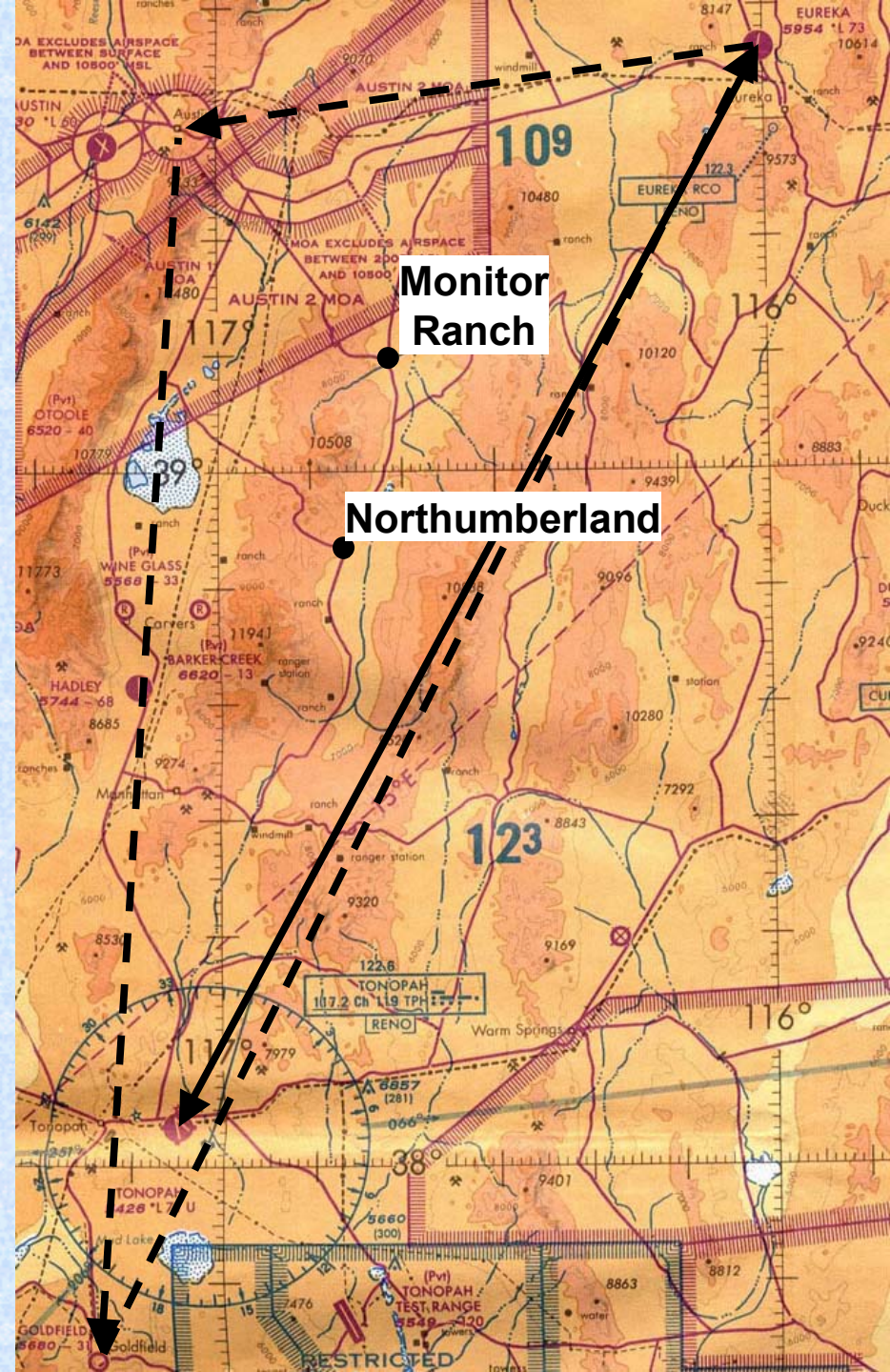
# Eastern Sierra / Great Basin





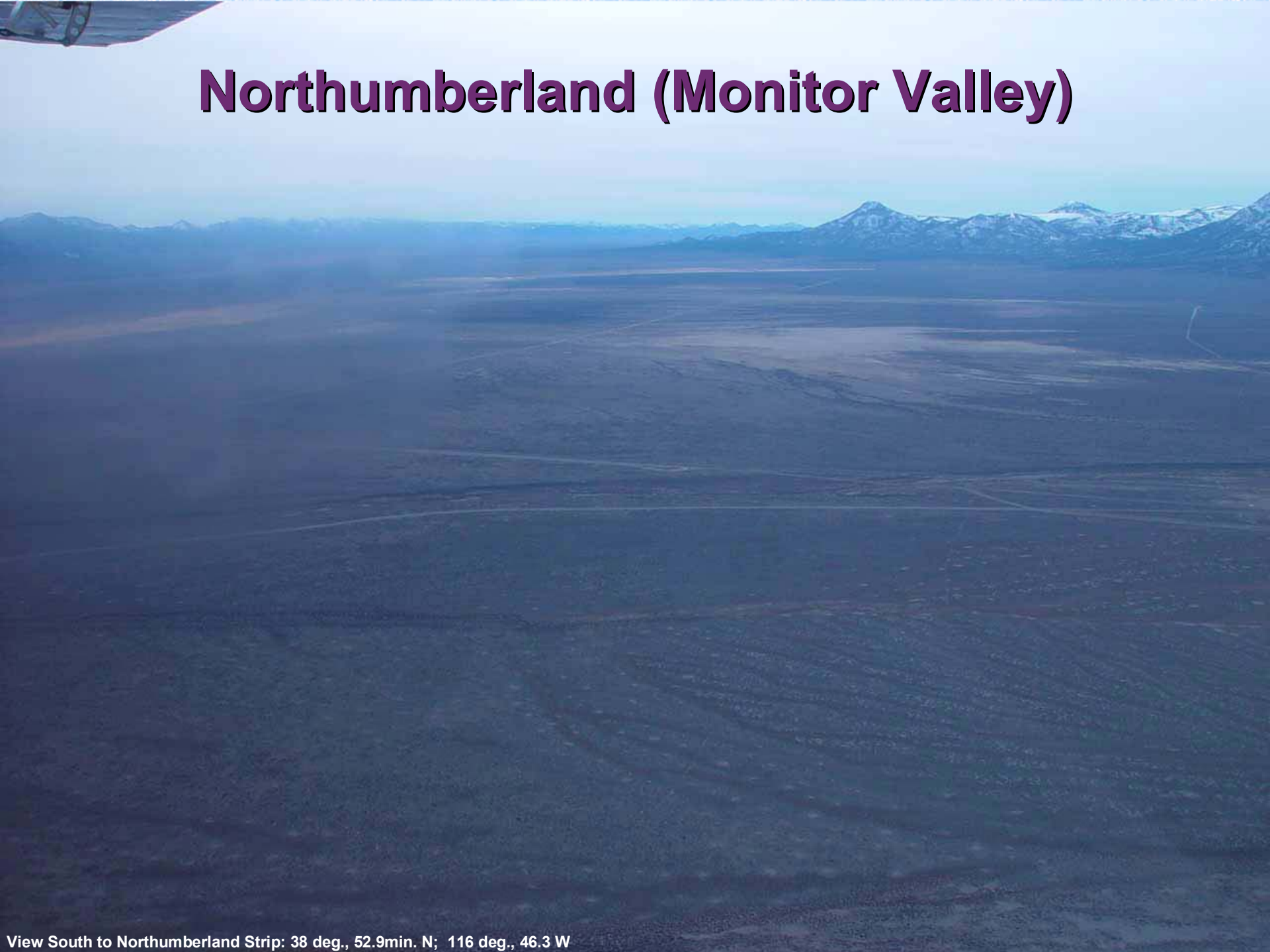
# Starter Tasks

- 1st 300K: O&R to Eureka (243 sm)
- 1st 500K: Triangle from TPH to Eureka, Austin, Goldfield and return (327 sm)
- No more than 20nm distance to any landing site (except for first leg)
- But where to land on the way?





# Northumberland (Monitor Valley)



View South to Northumberland Strip: 38 deg., 52.9min. N; 116 deg., 46.3 W

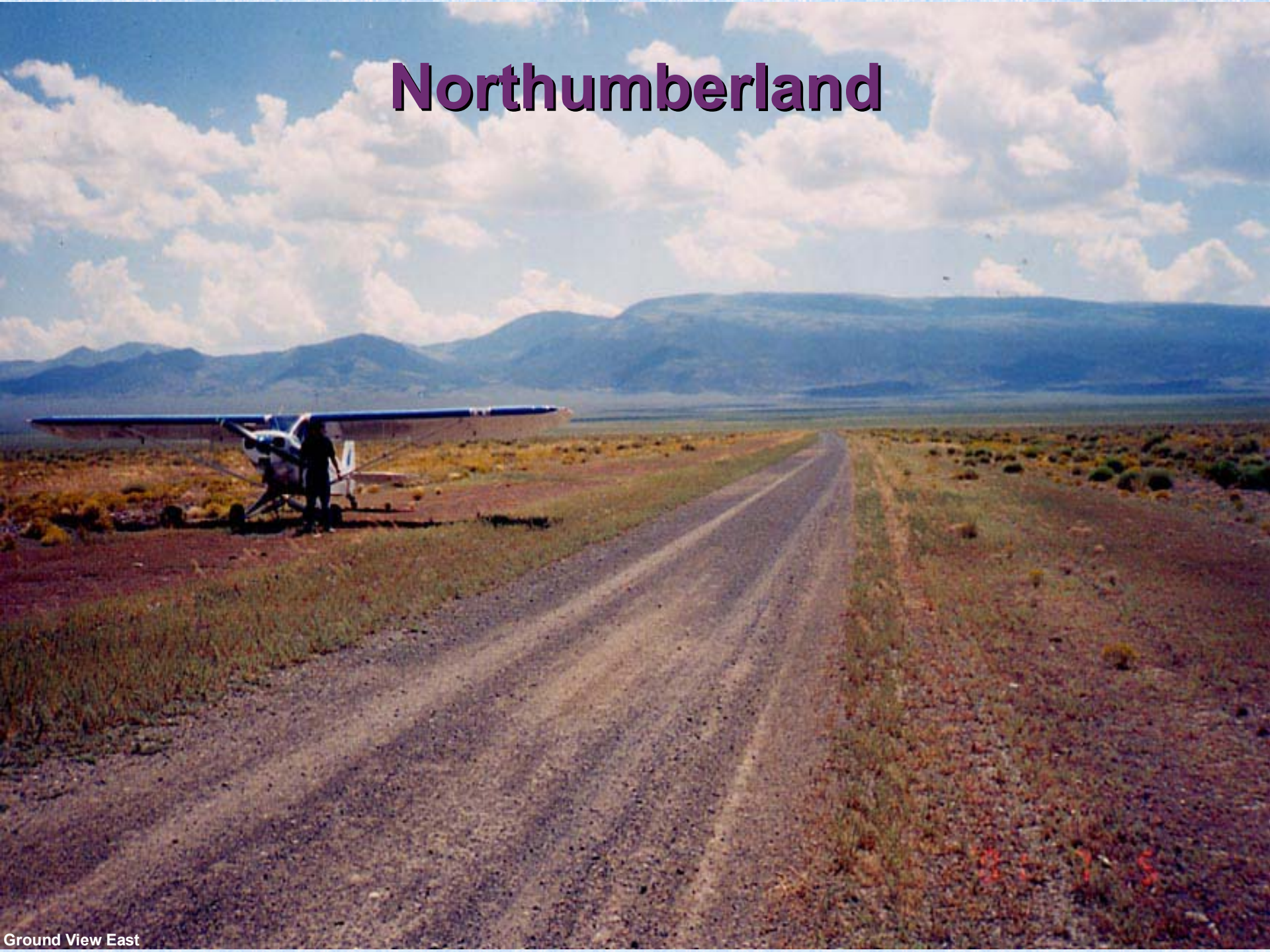
# Northumberland (Monitor Valley)

East end

West end &  
turnaround



# Northumberland





# Northumberland



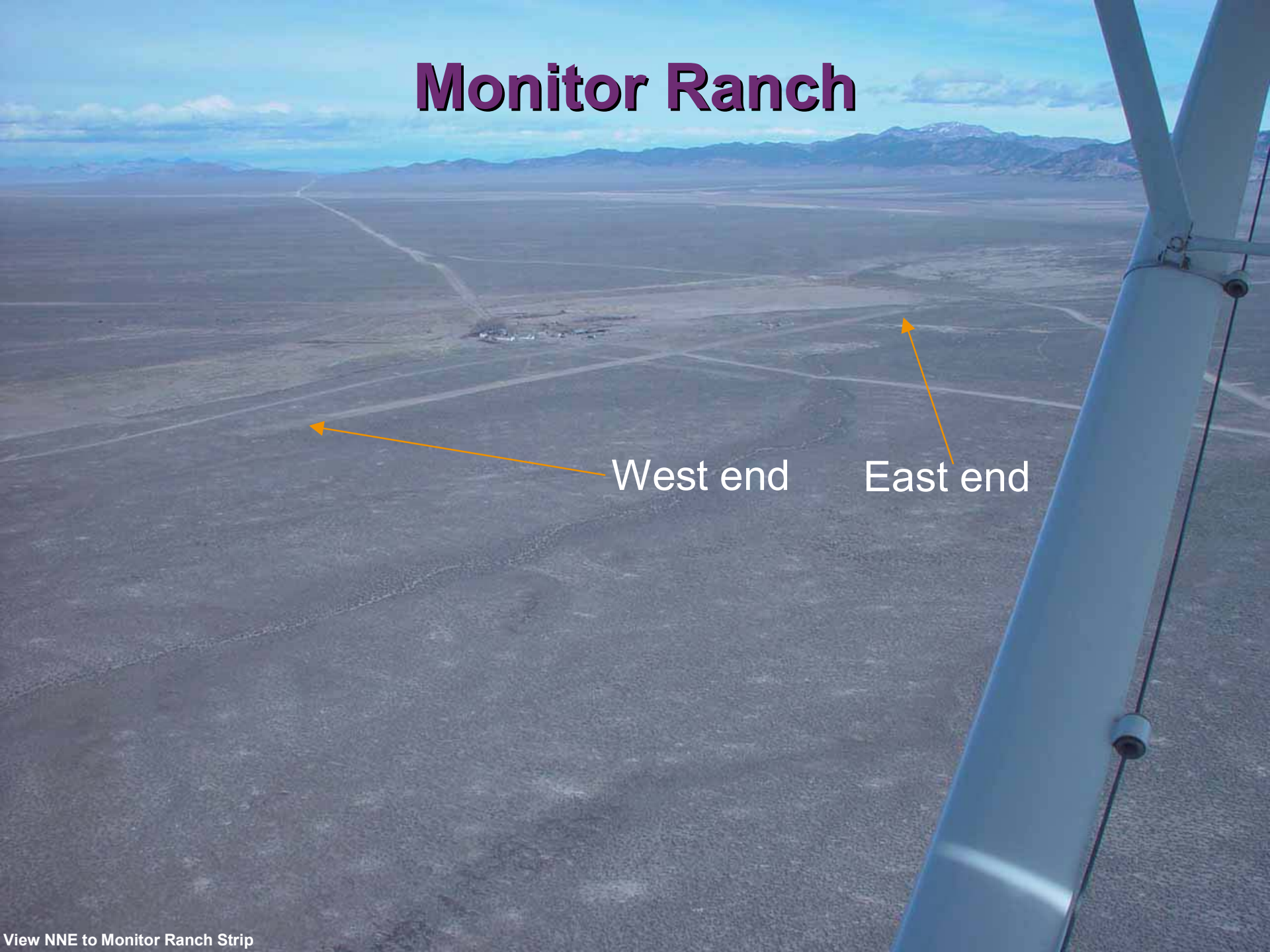


# Monitor Ranch



View NNW to Monitor Ranch Strip: 39 deg., 09.0min. N; 116 deg., 41.4 W

# Monitor Ranch



West end

East end



# Monitor Ranch

On final approach to the West, Monitor Ranch Strip



# Monitor Ranch





# Find the Stakes

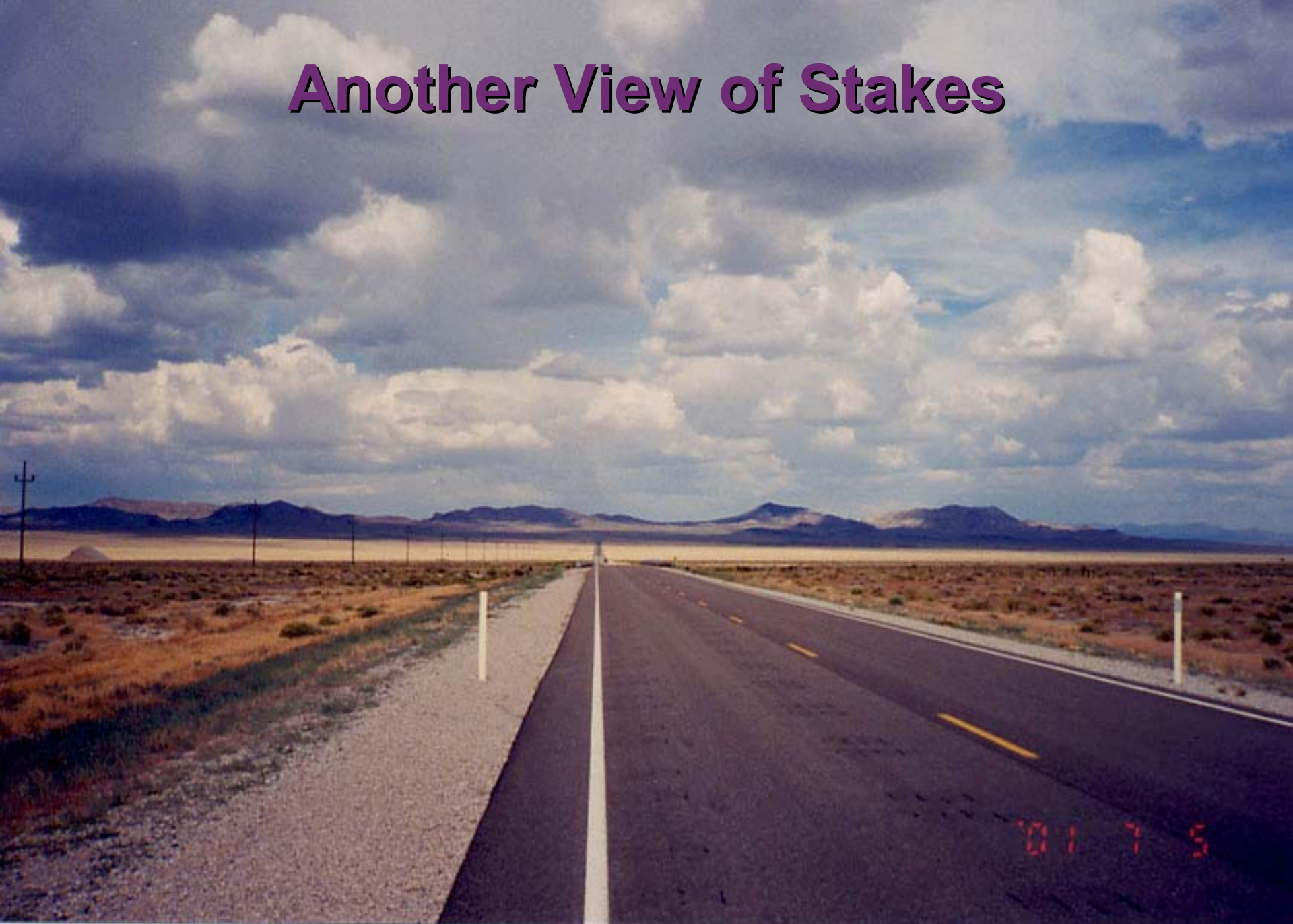


# Find the Stakes





# Another View of Stakes



# Hadley





# Hadley



# Goldfield

■ Dirt

■ In a ravine

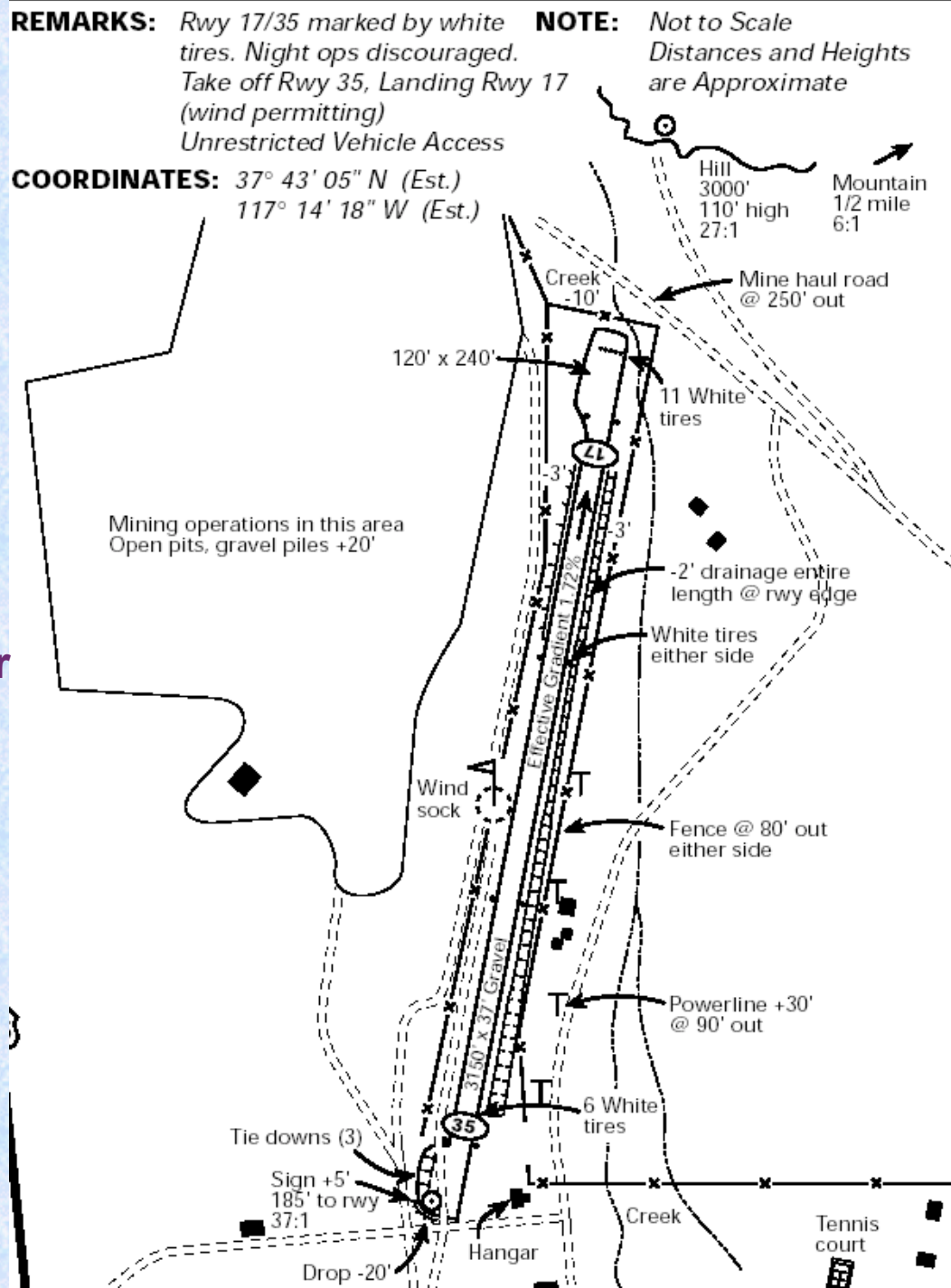
■ Take care!

■ From Nevada DOT site:  
<http://www.nevadadot.com/traveler/aviation/diagrams/>

**REMARKS:** Rwy 17/35 marked by white tires. Night ops discouraged. Take off Rwy 35, Landing Rwy 17 (wind permitting) Unrestricted Vehicle Access

**NOTE:** Not to Scale Distances and Heights are Approximate

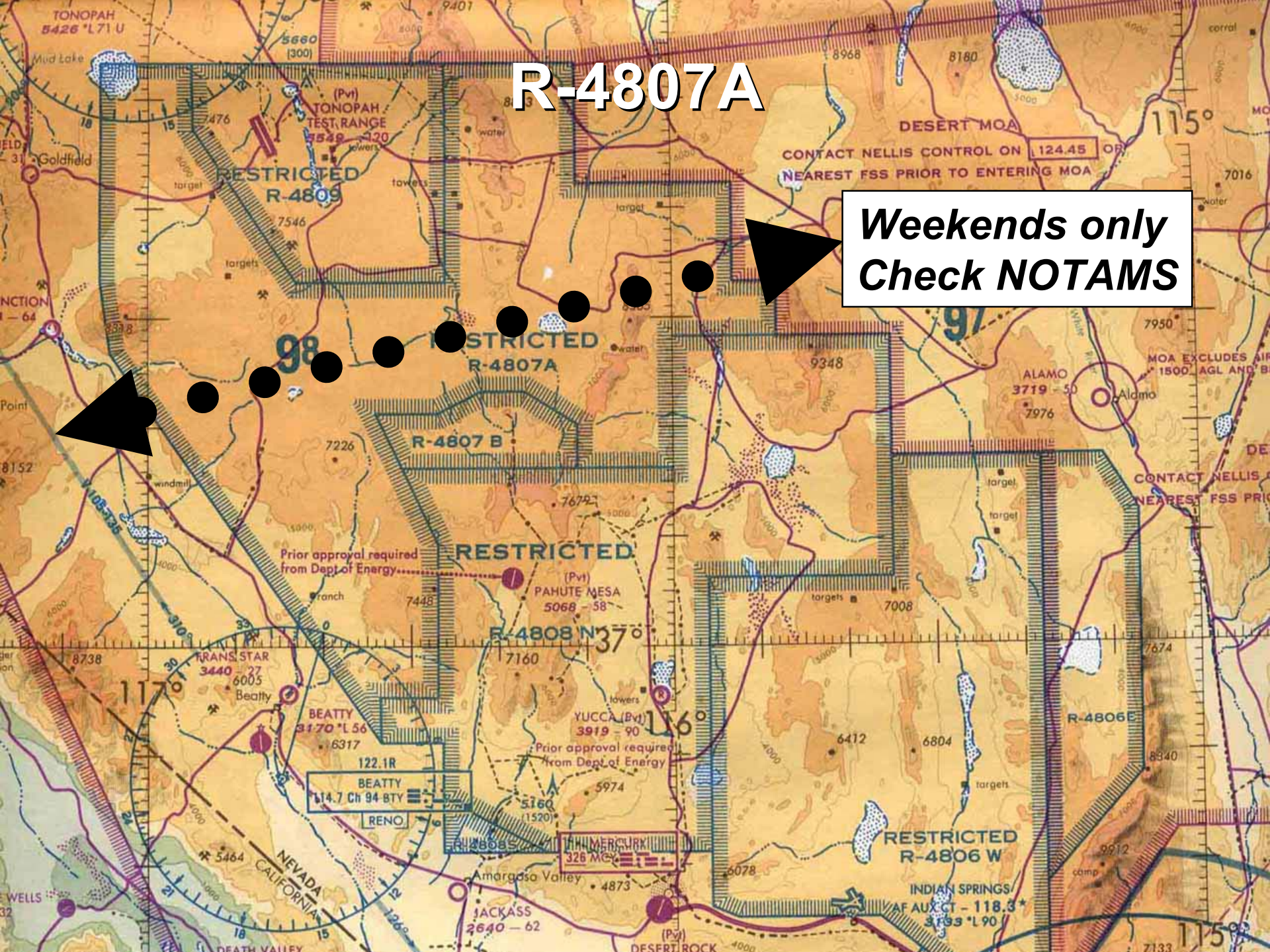
**COORDINATES:** 37° 43' 05" N (Est.)  
117° 14' 18" W (Est.)





**R-4807A**

***Weekends only  
Check NOTAMS***





# More Thoughts...

- When sinking, move to ridge
- Thermals off south faces of ridges
- Little hills in middle of plain also good
- Stay in gliding range of landing areas!



# Final Thoughts...

- What's the best XC performance mod you can make?
- A Pilot Relief System!



# Tonopah Events

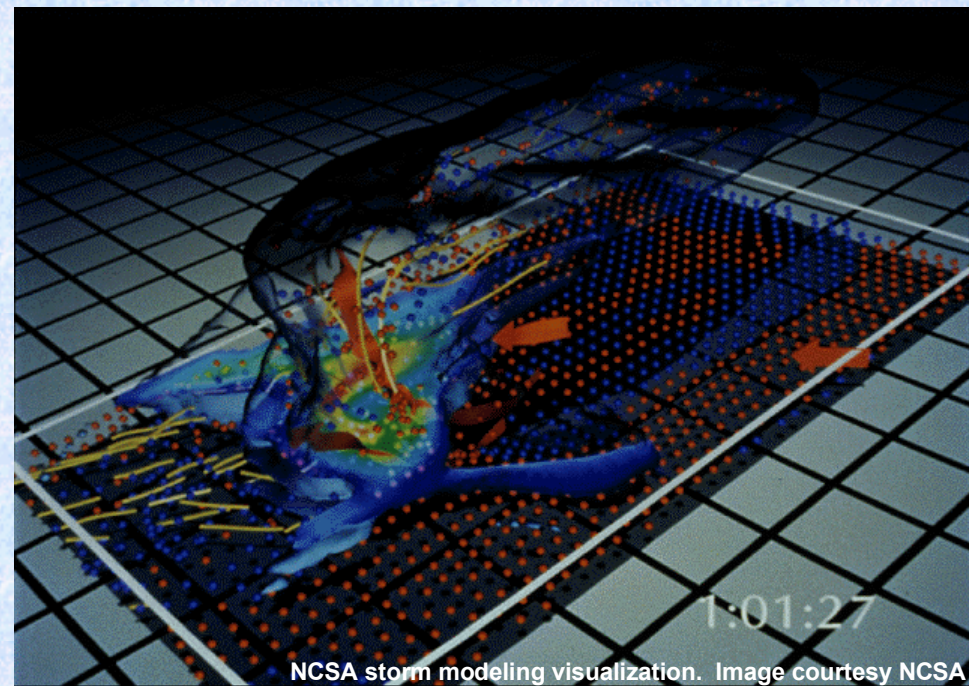
- Towplane available July 13-19
- Contact Gary Boggs ([gary.boggs@charter.net](mailto:gary.boggs@charter.net)) or Jerry Marshall (702 874 1010)





# Videos

- NCSA Storm Modeling
- Wing Dynamics
- French Alps (CNVV)
- 1974 Worlds



# Video Information

## ■ Grenz Schicht

Akafliegs and their glider research program.

PAL format from Adventure Productions, Reno, NV, 702 849 9672

[www.adventurep.com](http://www.adventurep.com)

\$40

## ■ Destination Saint Auban

Promo video about the CNVV

SECAM from the CNVV

[www.cnvv.net](http://www.cnvv.net)

## ■ Zulu Romeo, Good Start

1974 World Championships at Waikerie

PAL format from the GFA (Gliding Federation of Australia)

<http://www.gfa.org.au/>

\$38.50 Australian dollars



# The New Frontier

View East from the Diamond Range