



Long Jump Weather

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March 2010



WIND

- TEMPERATURE DIFFERENCES CAUSE PRESSURE DIFFERENCES
- PRESSURE DIFFERENCES CAUSE AIR MOVEMENT - - WINDS
- WHY? BECAUSE THE ATMOSPHERE IS ALWAYS STRIVING TO REACH EQUILIBRIUM



PRESSURE GRADIENT FORCE

- FORCE CAUSED BY PRESSURE DIFFERENCE
- ISOBARS
 - LINE OF EQUAL PRESSURE ON WEATHER MAPS
- CLOSER LINES: STRONGER GRADIENT
STRONGER WINDS

WIND INDICATORS



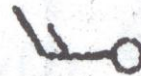
calm



5 knots (kts)



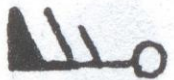
10 kts



15 kts



50 kts



65 kts

PRESSURE (mb) VS. ALTITUDE (ft)

- 839mb = 5314 SURFACE
- 750mb = 10,000 ft
- 600mb = 12,000 ft
- 500mb = 18,000 ft



WEATHER NECESSARY FOR A LONG JUMP FLIGHT

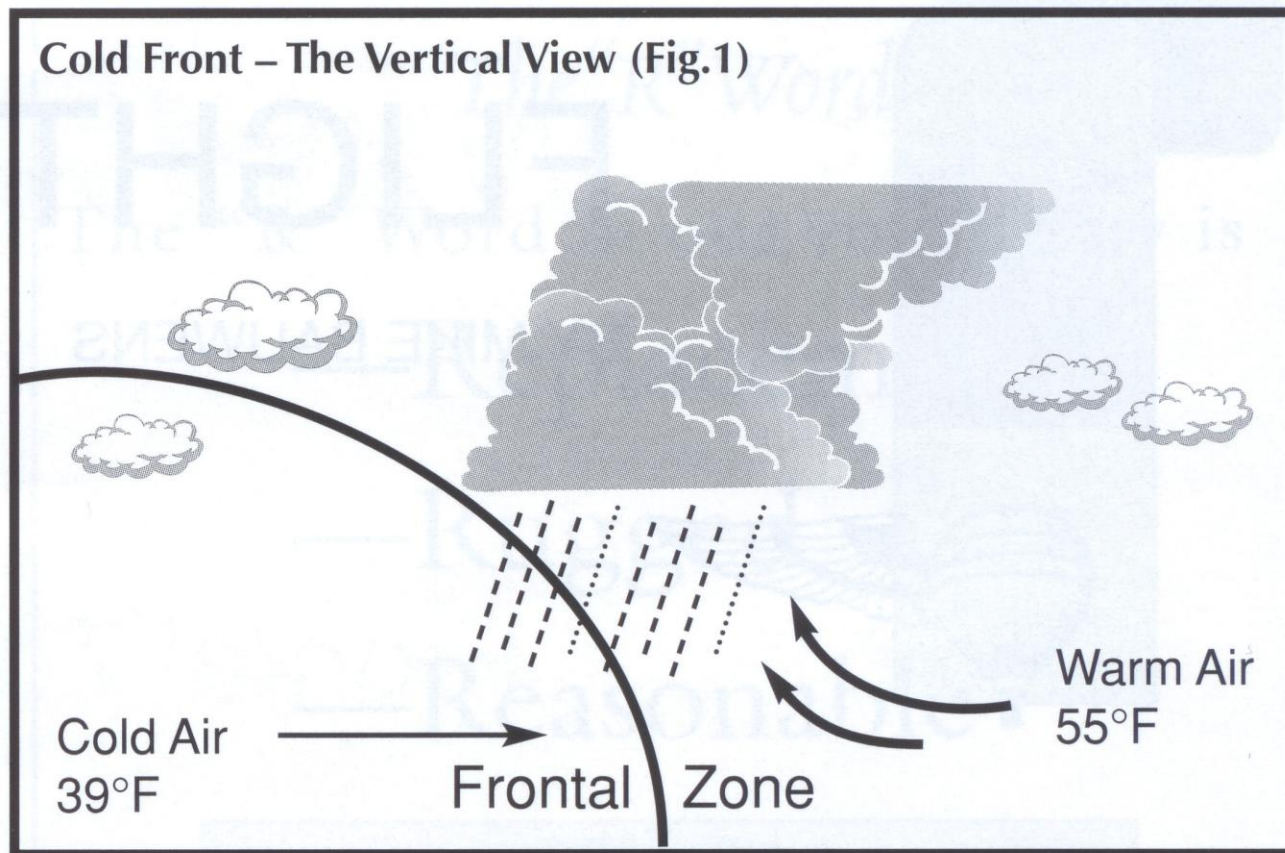
- DESIRED WEATHER SYSTEM
- LONG RANGE FORECASTING
- FLIGHT CONDITIONS FORECAST
 - GUTSY APPROACH
 - CONSERVATIVE APPROACH



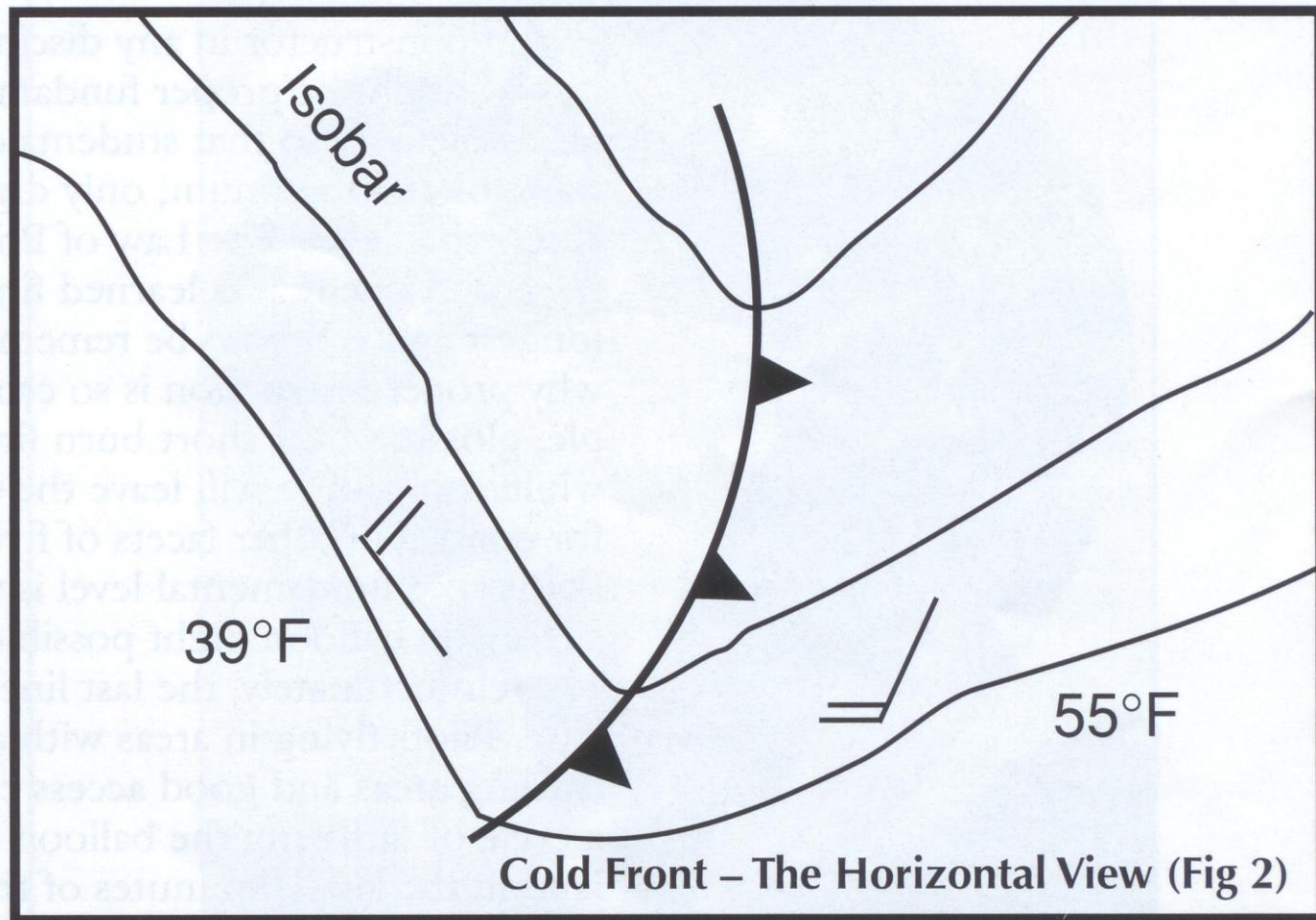
DESIRED WEATHER SYSTEMS

- FAST MOVING ARCTIC COLD FRONT
- STEEP FRONTAL SURFACE

COLD FRONT-VERTICALLY



COLD FRONT-HORIZONTALLY



LONG RANGE FORECASTING

- THE GREATER THE FORECAST TIME PERIOD, THE LESS THE ACCURACY
- 60 HOUR PROG CHART
 - POSSIBLE FORMATION OF A FAST MOVING ARCTIC COLD FRONT
- 48 HOUR PROG CHART
 - ARCTIC COLD FRONT HAS FORMED
 - START PLOTTING POTENTIAL LAUNCH SITES
- 36 HOUR PROG CHART
 - CONFIRM SPEED AND DIRECTION OF ARCTIC COLD FRONT
 - CONSIDER WHEN TO START TRAVELING



LONG RANGE FORECASTING

- 24 HOUR PROG CHART
 - MAKE GO/NO GO DECISION
- 12 HOUR PROG CHART
 - REFINE EXACT LAUNCH SITES
 - CONSULT HOUR BY HOUR BALLOON WEATHER SITES FOR WINDS

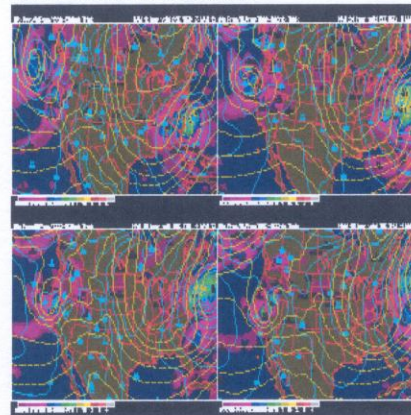
LONG RANGE FORECASTING RESOURCES

- UNISYS WEATHER
 - NAM MODEL FORECASTS
 - SURFACE PLOTS
 - 300 MB PLOTS
 - 500 MB PLOTS
 - 700 MB PLOTS
 - 850 MB PLOTS
- RUC MODEL-LAST 12 HOURS
 - SAME PRESSURE PLOTS
- USE LOOPS

Enter a zip code or city name
to get forecast:



NAM Model Forecasts



Current NAM SL Pressure/Precipitation Forecast

Other Pages

[SL Pressure/Precip Plots](#)

[Surface Plots](#)

[1000 mb Plots](#)

[850 mb Plots](#)

[700 mb Plots](#)

[500 mb Plots](#)

[300 mb Plots](#)

[Rel Hum/Lift Index Plots](#)

[4 Panel Plots](#)

[Winter Plots](#)

[Miscellaneous Plots](#)

Information

[Update Status](#)

This is a set of contour plots using data from the NAM model. The output fields are consistent with other models so the models can be compared. This model gives forecast information out to 48 hours and plots are sorted 48 hour 4 panel plots where each plot has a panel for the 12, 24, 36 and 48 hour forecast and individual forecast times from initialization to 60 hours in 6 hour increments. These plots are updated once every 12 hours at roughly 11:15 EST.

[▶ More Information](#)

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- For questions and information on this server, NOAAPORT and WXP, contact [Dan Vietor at devo@ks.unisys.com](mailto:Dan.Vietor@devo@ks.unisys.com)

- For sales information on Unisys weather solutions, contact [Robert Benedict at robert.benedict@unisys.com](mailto:Robert.Benedict@unisys.com)

- Last modified January 5, 2010



LONG RANGE FORECASTING RESOURCES

- RAP REAL TIME WEATHER
 - SAME BASIC TIME AND PRESSURE PLOTS
 - LOOK AT ETA MODEL

[Eta](#) model plots or switch to [RUC](#) or [GFS](#) .

- Forecast Time(s):**
- 00 hr 36 hr
 - 06 hr 42 hr
 - 12 hr 48 hr
 - 18 hr 60 hr
 - 24 hr 72 hr
 - 30 hr 84 hr
- loop all times

- Surface plots:**
- [Temperature](#)
 - [Dewpoint](#)
 - [MSLP/Winds](#)
 - [Theta-E](#)
 - [Precipitation](#)
 - [Precip type](#)
- Severe indices:**
- [CAPE/CIN](#)
 - [P_Water/LI](#)
 - [Helicity](#)

- Aloft plots:**
- [200 mb Winds](#)
 - [250 mb Winds](#)
 - [300 mb Winds](#)
 - [500 mb Temps](#)
 - [500 mb Winds](#)
 - [500 mb Vorticity](#)
 - [700 mb Temps](#)
 - [700 mb Winds](#)
 - [850 mb Temps](#)
 - [850 mb Winds](#)
 - [925 mb Temps](#)
 - [925 mb Winds](#)

- Composites:**
- [925/850 Mixing ratio](#)
 - [+ 700/500 Vert motion](#)
- Clouds: all levels**
- [Clouds: below 6,000 ft](#)
 - [Clouds: 6,000 - 12,000 ft](#)
 - [Clouds: 12,000 - 18,000 ft](#)
 - [Clouds: above 18,000 ft](#)

Numerical model plots from other internet sources


- | | | | |
|--|--|--|---|
| <p>Research</p> <ul style="list-style-type: none"> - MMS/WRF - NCAR (MMM) - MMS - Washington - MMS - NSSL - WRF - Univ of Utah - MMS - JSU - MMS - OSU - COAMPS - NRL - WRF - PSU - MMS - PSU - ARPS - OU | <p>RUC model</p> <ul style="list-style-type: none"> - NOAA-FSL - Univ of Utah - Unisys | <p>Eta model</p> <ul style="list-style-type: none"> - Univ of Utah - Unisys - IGES | <p>Global model</p> <ul style="list-style-type: none"> - Navy-FNMOC - Univ of Utah - IGES - Unisys - NOAA-CDC |
|--|--|--|---|

NWS Local Forecast


Enter Zip Code or City, ST:

Quick-look charts

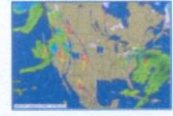
Current analysis




12-hr forecast




24-hr forecast



36-hr forecast



48-hr forecast



LOOK NORTH!

- ANCHORAGE ALASKA ENJOYS A RELATIVELY MODERATE WINTER BECAUSE OF GEOGRAPHIC LOCATION. TEMPERATURES IN TEEN AND TWENTIES.
- MOST ARCTIC COLD FRONTS CLIP ANCHORAGE. TEMPERATURES WILL DROP FIFTEEN TO TWENTY DEGREES FOR A DAY OR TWO. THEN REBOUND.
- THIS WILL GIVE FOUR TO FIVE DAYS BEFORE SYSTEM ARRIVES IN UPPER MIDWEST.

- SOURCE: Mr. Lou Billones



FLIGHT CONDITIONS

- LIGHT WINDS FOR LAUNCH AND LANDING
- HIGH WINDS ALOFT
- LANDING SITE PREDICTION

- TWO APPROACHES FOR DESIRED FLIGHT CONDITIONS
 - GUTSY APPROACH
 - CONSERVATIVE APPROACH

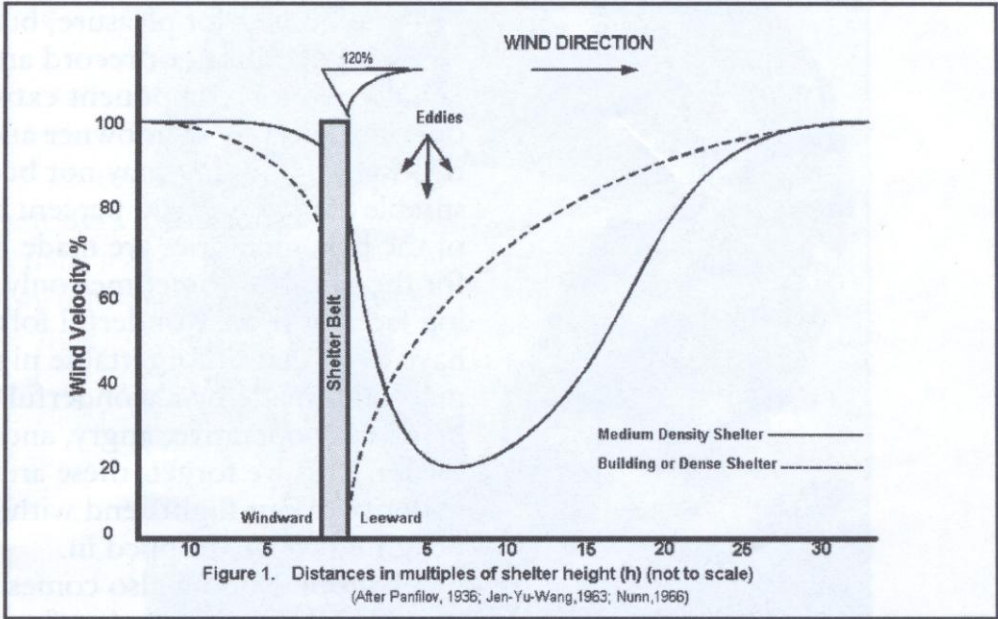
GUTSY APPROACH

- FAST MOVING ARCTIC COLD FRONT (25 KTS)
- STEEP FRONTAL SURFACE
- POSITION LAUNCH SITE ON “BACKSIDE” OF SUBSIDING HIGH PRESSURE
- 150-200 MILES IN FRONT OF APPROACHING FRONTAL BOUNDARY
- LAUNCH IN LIGHT TO BREEZY SURFACE WINDS AND CLIMB TO LOWER LEVEL OF CONTROLLING JET STREAM
- FLIGHT PATH WILL VEER TO RIGHT WITH ALTITUDE AND PARALLEL ISOBARS
- LANDING WILL BE IN SAME LIGHT TO BREEZY SURFACE WINDS ON “BACKSIDE” OF HIGH PRESSURE
- YOU WILL HAVE 2-3 HOURS TO PACK UP BEFORE COLD FRONT AND ASSOCIATED STORM ARRIVES

WINDBREAK



- LONG UNDERSTOOD IN AGRICULTURE
- MOST COMMON AND EFFECTIVE SYSTEM
 - MEDIUM DENSITY TREE LINE
 - TREES 70-80 FEET HIGH
 - EACH ROW ABOUT 700 FEET LONG
 - DECREASE OPEN FIELD WIND SPEED
 - 80% DECREASE
 - 6 TIME HEIGHT OF WINDBREAK
- BUILDING ONLY EFFECTIVE RIGHT NEXT TO STRUCTURE

Open Field Wind Speed	Leeward Wind Speed in Knots		
Knots	6h	10h	15h
18	4	6	12
20	5	8	16
25	6	10	20



CONSERVATIVE APPROACH

- ALLOW FAST MOVING ARTIC COLD FRONT TO PASS LAUNCH SITE
- WITHIN 12-16 HOURS SURFACE AREA WILL BE STABLE AND HAVE LIGHT WINDS FOR LAUNCH
- STRONG WINDS ALOFT BECAUSE OF PRESSURE DIFFERENCE WITH INCOMING HIGH PRESSURE
- LANDING SHOULD BE IN LIGHT WINDS BETWEEN TWO PRESSURE SYSTEMS
- DELAYED LAUNCH WILL DECREASE DISTANCE FLOWN IF HIGH PRESSURE TAKES CONTROL



FLY SAFE