



IMET Support for Bridge Day

Fayetteville, WV

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NWS Charleston, WV

Bridge Day: Background

- Annual Event
- Celebrated since 1980 to commemorate the completion of the New River Gorge Bridge
- Parachute, rappell, or zip line from bridge into the gorge.
- Always on the 3rd weekend in October (peak fall colors)
- 200 vendors/150,000 - 200,000 visitors each year (75,000 in 2009).
- West Virginia's largest public event (requires a lot of planning/security), and world's largest BASE jumping event



Bridge Day: Background

- Main attraction: BASE jumping (B = Building, A = Antenna, S = Span (bridge), E = Earth (cliff))
- 2009: 369 jumpers (single and multi person jumps), 871 jumps in a 6 hour window.
- Rappellers: 355, 803 rappells, 45 rappellers ascended the bridge.
- 123 high line riders, 700ft “zip” down bridge.
- People from all over world, and all ages (14-80’s participate)



Bridge Day: Background

- Steel arch bridge
- Length: 3,030 feet
- Arch: 1,700 feet
- Height: 876 feet
- It is the highest vehicular bridge in the Americas and the second highest in the world (Highest until the 2004 opening of the Millau Viaduct in France)



Bridge Day: Background

- Drop is 876 feet
- aim for freefall is about 8 seconds... most jumpers fall 3-4 secs, then deploy chute and coast for 20-30 secs to landing zone (“Fayette Station”)
- Parachutes are more square like and larger for better steering (throw out a piece of fabric to deploy chute)
- Gear is inspected twice by professionals before jumping (always find bad gear!)

Bridge Day: Concerns

- Designated as a National Security Event; Uses NIMS and several agencies
- Always at least a handful of injuries from BASE jumping. One windy day had 22 major traumas (where NWS comes in).
- Most are broken legs, twisted ankles, and fractured shoulders
- 3 fatalities (1 drowning, 1 deploy too late, 1 chute failure)

**Twisted chute lines;
can lead to injury**



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Lew Whitener
Beckley
Register-
Herald via AP

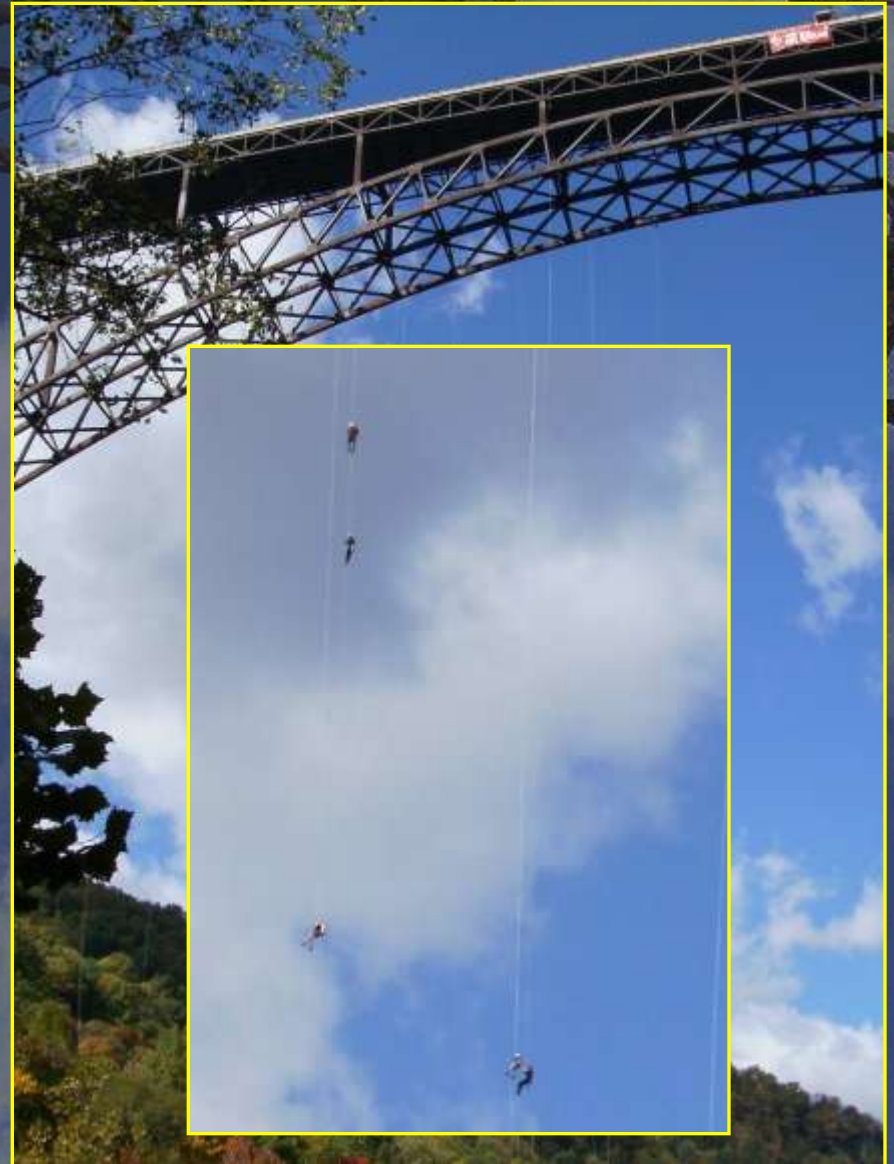


**2006 fatal
fall, chute
did not
fully open**

Register-Herald / Lew Whitener via AP

Bridge Day: Concerns

- 4 Main Hazards to jumpers:
 - 1. Entanglement in rappellers lines
 - 2. Trees: Can cause parachute to collapse and get a hard fall.
 - 3. Rocks
 - 4. Water (rapids anchor chute and can cause drowning). More water landings on rainy, damp days, or if wind blowing wrong direction.



Bridge Day: Concerns

- River Level Matters: Low = more landing space, High = more water landings and a faster current.



Four boats (2 mini snout and 2 jet boats) to respond to jumpers who land in river (28%). No jumps allowed until boats available (10-12 sec response). Hypothermia

Bridge Day: Support

- Committee that meets every month (law enforce., NPS, dept. of commerce)
- National Security Event (fed govt allows on Bridge Day only...illegal to jump any other time)
- Pre 9/11: Traffic allowed on one side of the bridge (bridge closes at 7 am except to authorized vehicles)
- 2001: Bridge Day Cancelled!!!
- Security heightened after 9/11



Bridge Day: Support

- The Feds (Homeland Security and FBI)



Including Snipers!!!

Bridge Day: Support

Inside...

FBI EOC



AMRS Unit



Bridge Day: Support

- Also Inside the FBI EOC

**Various Cams
and monitors for
Situational
Awareness**



Bridge Day: Support

- National Park Service, New River Gorge National River

Bruce Miller, Fire Mgt Officer. Both NWS and NPS Perform river level wx obs.

Riding with them has perks!!



Bridge Day: Support



State Agencies including the WV National Guard



Bridge Day: Support



LOCALS, OTHERS:
Helicopters for injuries,
emergencies
Fayette County Emergency
Services
Fayetteville fire, police

Bridge Day: IMET Support

- Q: *Why are we there?*
- A: To provide support for the emergency management agencies as an incident (so they can properly plan for the event) (seen as a National Security Event by federal government).

Bridge Day: IMET Support

- Before event, a forecast is provided to agencies so decisions can be made ahead of time (also provide a briefing at 5 am the day of event).
- Example: The National Guard brought in their medical helicopters a day early based on our forecast of low ceilings (hospitals decided not to bring in helicopters).



Bridge Day: IMET Support

Bridge Day 2009 Weather Forecast

PREDICTION FOR: BRIDGE DAY – 10/17/2009 NEW RIVER GORGE NEAR FAYETTEVILLE, WV

DATE: 10/16/2008

SIGNED:

Mark Pellerito, NOAA/NWS Incident Meteorologist

WEATHER DISCUSSION:

As a low pressure system moves up the Mid-Atlantic coast today, a very chilly flow out of the north-northwest will continue for us on the far back side of that system. **Stubborn low level moisture will cause a persistent low-hanging overcast sky (clouds perhaps just a couple hundred feet above the bridge in the morning, rising to 700-900 feet by mid-afternoon), as well as some drizzle or very light rain.** The cold stable nature of the air will cause the wind to flow quite steadily, instead of fluctuating like in most other years. Winds will be aligned with the gorge, blowing from downriver to upriver. They will increase slightly with time, getting into a steady 11-14 mph range during the afternoon at bridge level.

WEATHER FORECAST:

TIME (EDT)	8AM	9AM	10AM	11AM	12PM	1PM
BRIDGE LEVEL WIND	NW	NW	NW	NW	NNW	NNW
DIR. / SPEED in mph	8	8	9G12	10G13	11G14	11G14
RIVER LEVEL WIND	NNW	NNW	NNW	NNW	NNW	NNW
DIR. / SPEED in mph	4	3	3	4G6	4G8	4G8
SKY COVER(%).....	100	100	100	100	100	100
WEATHER.....	PERIODIC DRIZZLE			←← TIMES OF LIGHT RAIN →→		
TEMPERATURE.....	36	36	38	39	40	41
REL. HUMIDITY(%).....	99	97	93	88	84	79

Bridge Day: IMET Support

MAIN CONCERNS:

Critical Wind Threshold:

Event may be shut down if sustained > 15 mph

Visibility: Near end of valley fog season... can't see, can't jump!



General Weather: This is a huge public event, so weather impacts it greatly.

Set-up, tear-down, everything in between

General health/welfare of the public (2009 cold and rainy!)

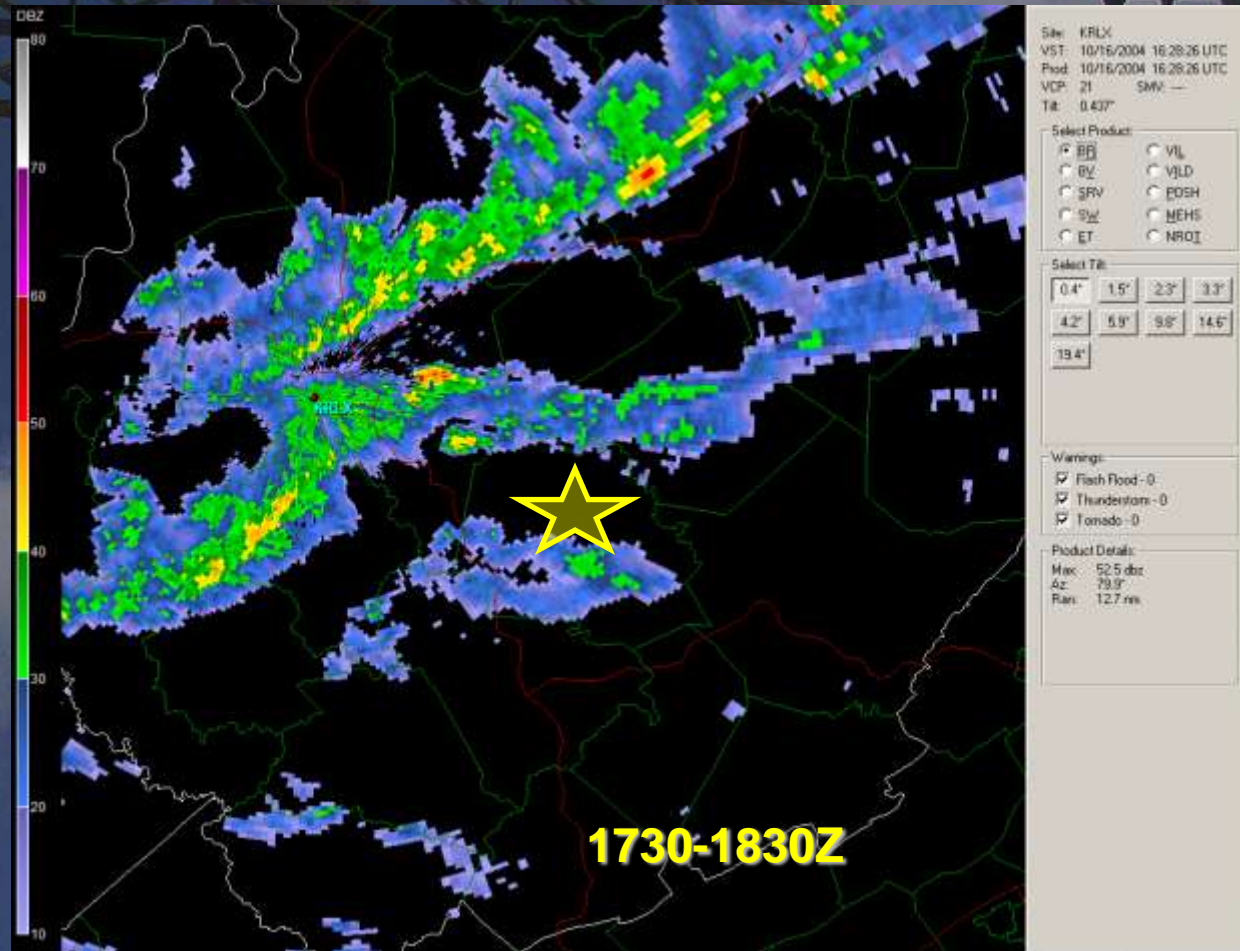
Few years ago: Storms w/ hail + wind (next slide)

Bridge Day: IMET Support

**BRIDGE DAY
OCT. 16, 2004:**

**Thunderstorms
with hail and
estimated 40-45
mph wind gusts**

**IMET (Kari
Fleegel) gave 2-3
hours of lead
time to onsite
event personnel**



1730-1830Z

Bridge Day: IMET Support

Entire Bridge: US 19 Closed for Day



Left Side:
Media
General public
BASE jumpers

Right side:
Event support
Law enforcement
IMET wx observations

Bridge Day: IMET Support

Bridge Center, near jump site

10 am	38F	86% RH	NW5G10	rag-tags at bridge, low cig/drizzle
11 am	38F	92%RH	NW8G11	drizzle/low cigs

Bridge NE end near exposed gorge rim

10 am			NW6G10	
11 am			NW3G7	

Bridge SW end near exposed gorge rim

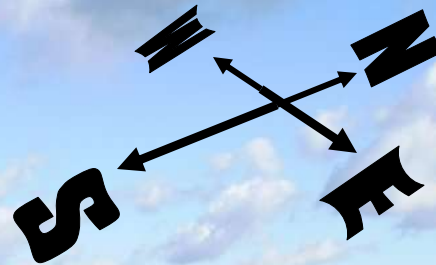
10 am			NNW 2	
11 am			NNW 2	

Landing Site

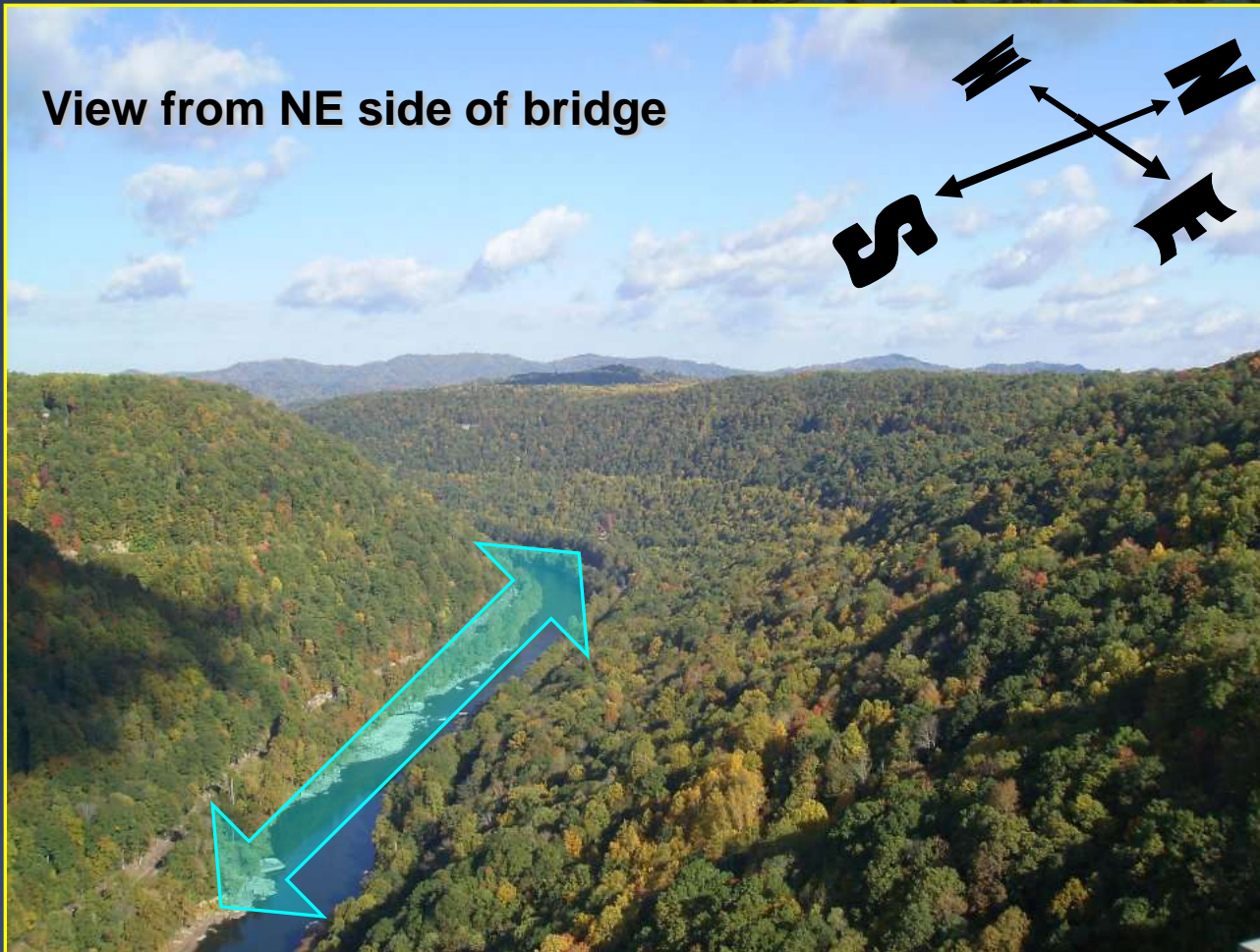
Noon	43F	90%RH	NW2G4	sometimes calm, sheltered by trees at bank
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Bridge Day: IMET Support

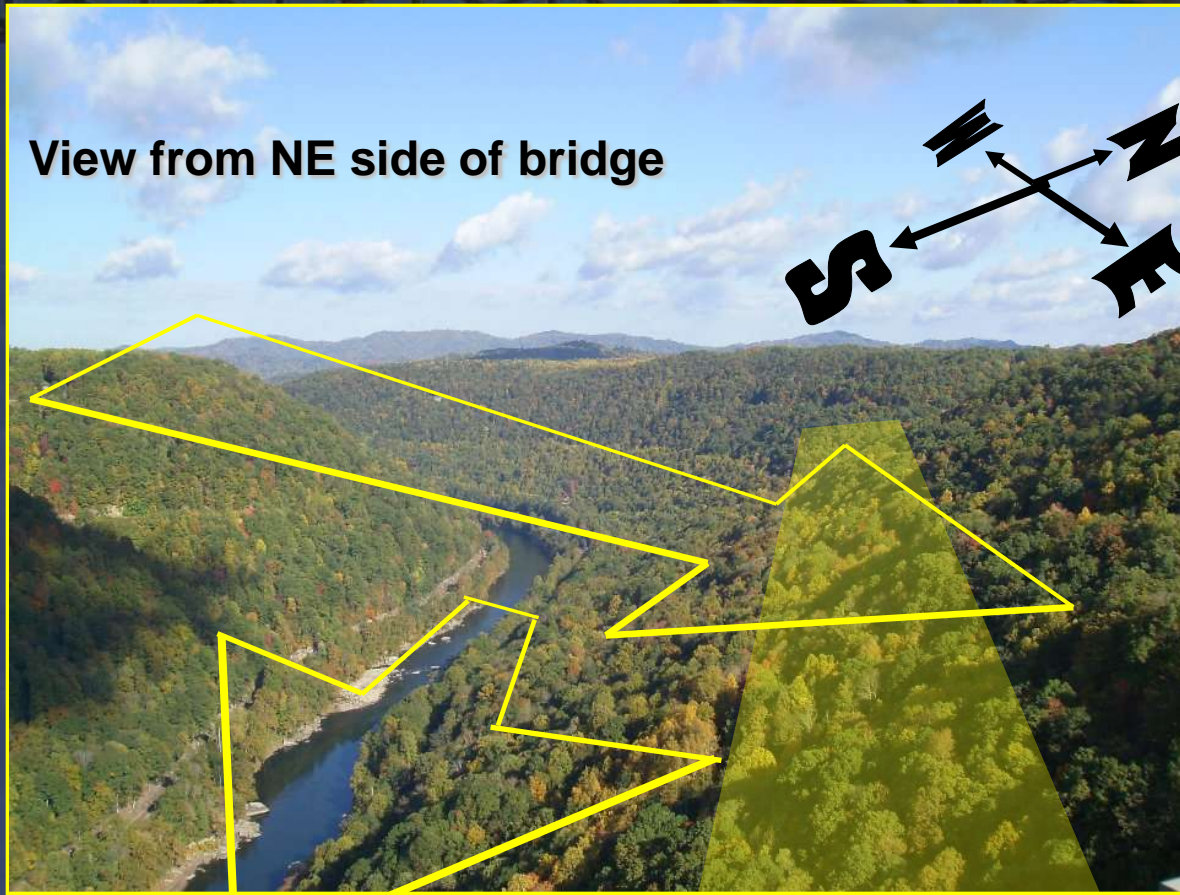
View from NE side of bridge



•River Level: Not well-understood drainage winds (no sensors to study patterns) (unless strong synoptic winds, most of time wind blows up valley (day, valley oriented NW to SE) (towards us in slide), other local effects?)



Bridge Day: IMET Support



View from NE side of bridge

Bridge Level:
Exposed to mixing /
gradient winds
(every year a strong
west wind has been
present, which
enhances the wind
on the NE side of the
bridge because of
valley shape)

**Terrain-enhanced
wind near exposed
gorge rim (perhaps
near rappellers)**

**•Or, Terrain-enhanced wind at mid-bridge if mixing winds channel through
gorge (north wind) (affects BASE jumpers who jump off bridge center)**

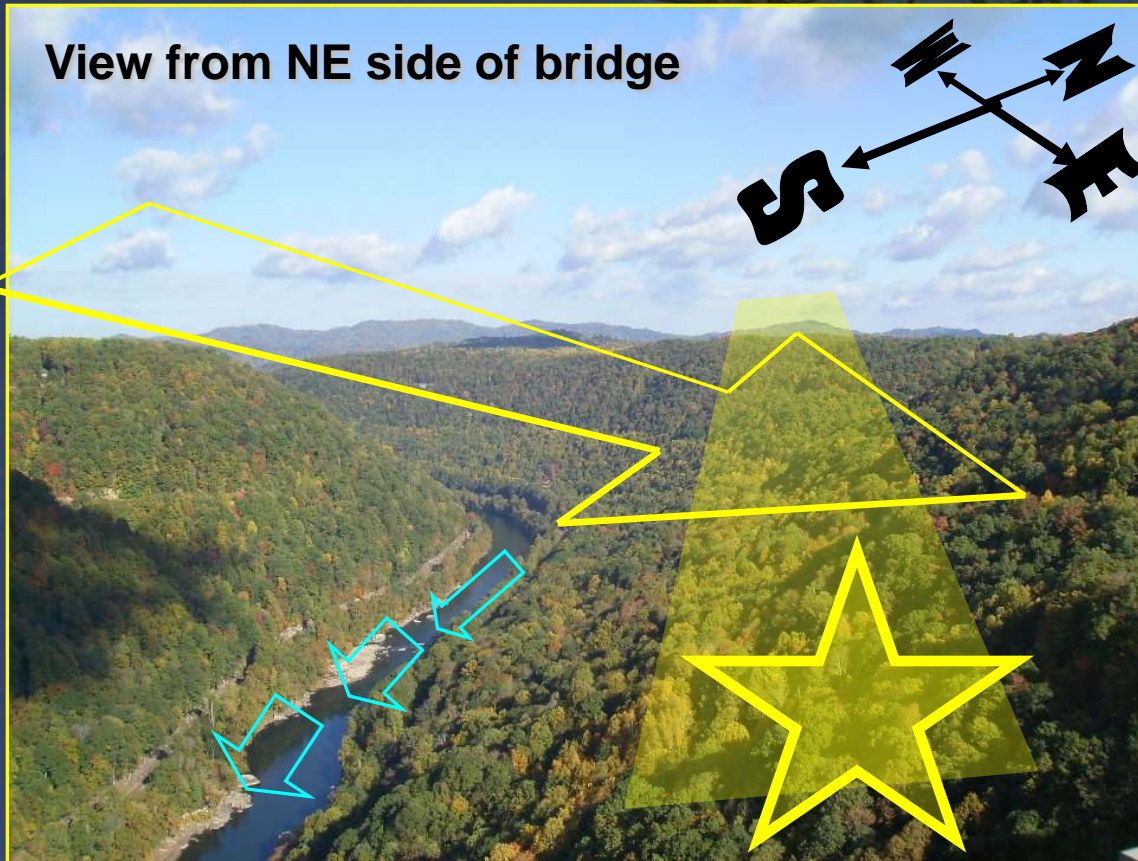
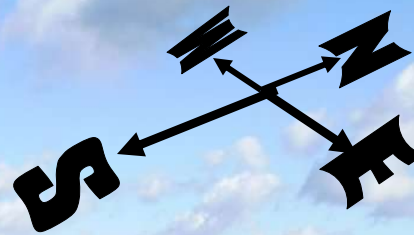
Bridge Day: IMET Support

Bridge Day 2009
Mid-Bridge: Northwest 5-10 G 14 mph

Exposed rim: NE side of bridge
NW 5-10G14

Rappellers were on SSW side in wind shadow (SW end of bridge NW 2-5 mph G 8.

View from NE side of bridge



Bridge Day: Summary

- NWS is involved in event to assist emergency responders in decision making (i.e. bring in helicopters a day early/prepare for more water landings in rainy/windy weather, prepare for potential health problems from visiting public and jumpers related to weather, fog/vsby/wind forecast, etc.).
- Maintain a constant weather watch to warn event coordinators of any impending hazards (storms, sustained winds > 15mph).
- If all goes well, it's a great event that allows the NWS to work with multiple agencies (FBI, NPS) and the public



Bridge Day: Summary

Videos

and

Questions???

Bridge Day: Videos



Bridge Day: Videos



Bridge Day: Videos



Bridge Day: Videos

