

# **Re-inventing HazeCams:**

## **The New Camnet “Wide” High Resolution Format**

George Allen



IMPROVE Steering Committee Meeting, Acadia National Park, July 27, 2005

## **Re-inventing HazeCams -- the New Camnet “Wide Format”**

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- Camnet: one of the first HazeCam networks (June 1999 Boston site)  
<http://hazecam.net> : Fantastic PM / Haze air pollution outreach tool  
But -- it's starting to look its age...
- March 2005: Public Launch of two “Wide-Angle” Boston Camnet sites
  - “Classic Boston” and Blue Hill/Boston
  - Massively enhanced content ==> view angle of 100-120 degrees
  - High resolution cameras and JP2000 picture format maintain resolution
  - Redesigned web page format to accommodate increased scene content
  - Support from EPA-R1, Mane-Vu, and MA-DEP for these updates
- New “wide” Hi-Res format was implemented by NESCAUM and ARS
  - over a year in development
  - first of its kind -- a model for other hazecam networks
- Wide format will be implemented at additional Camnet sites (aging HW)
  - Burlington VT, hopefully Acadia National Park

# Camnet “Classic Boston” Site (since 1999): Old and New Scenes

Old Boston Picture:



New Boston Picture (same scale):



The wider view is pretty. But is it useful?



Yes -- shows range of “brown cloud” events (August 26, 2004)  
==> Can distinguish between local and regional haze

# Camnet enhanced wide-angle Boston home page:



**CAMNET** [www.hazecam.net](http://www.hazecam.net)  
Realtime Air Pollution and Visibility Monitoring

[CAMNET Home](#) [What causes poor visibility](#) [Gallery of good & bad days](#) [Realtime pollution maps & forecasts](#) [About CAMNET](#) [Questions & Comments](#) [Links to related sites](#)

**Boston, Massachusetts - Enhanced Wide-Angle Two-Camera Site**  
*Best Viewed at 1024 x 768 or Higher*  
Updated every 15 minutes.



**Live Sites**

- Acadia
- Boston
- Blue Hill
- Burlington
- Frostburg
- Hartford
- Mt. Washington
- Moosehorn
- Mohawk Mtn.
- Newark/NYC
- Presque Isle
- All Sites

**Today's Archived Photos:** 8:00 AM - [Low Res](#) [High Res](#) 3:00 PM - [Low Res](#) [High Res](#)

[Health Info](#) [View Zoomed Images](#) [View Larger Image](#) [Map It](#)

Air Pollution	Temp.	Wind	Precip.
Low Medium High	Current	Speed	1 Hour
●●●●●●●●●● Fine Particles	23 °	8 mph	N/A
●●●●●●●●●● Black Carbon	Humidity	Direction	24 Hours
●●●●●●●●●● Ozone	50 %	W	N/A

[About These Data](#)





# CAMNET [www.hazecam.net](http://www.hazecam.net)

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**Blue Hill Observatory, Massachusetts - Enhanced Wide-Angle Two-Camera Site**  
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Air Pollution	Temp.	Wind	Precip.
Low Medium High ●○○○○○○○○○○○○○○○○○○○○ Fine Particles ●○○○○○○○○○○○○○○○○○○○○ Black Carbon ●○○○○○○○○○○○○○○○○○○○○ Ozone	Current 41 ° Humidity 77 %	Speed 4 mph Direction N	1 Hour N/A 24 Hours N/A

[About These Data](#)

### Class I Sites

Read [www.hazecam.net](http://www.hazecam.net)



Click on a “Zoomed Image” Thumbnail to open native size sub-pictures:

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**Boston, Massachusetts - Zoomed Images**  
*Best Viewed at 1024 x 768 or Higher*  
*Click a Pristine Thumbnail Image to See the Current Zoomed Image Below*

**View to the South**

Zoom #1      Zoom #2      Zoom #3      Zoom #4      Zoom #5



**View to the Southwest**

Zoom #1      Zoom #2      Zoom #3      Zoom #4      Zoom #5



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- Brigantine
- Lye Brook
- Mt. Washington



[Click here to view this image in JPEG2000 format.](#)

[Click here to view information on the JPEG2000 image format.](#)



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## Technical Details...

Each wide site: a pair of 8 MegaPixel Olympus C8080 cameras (16 MP/site)  
Allow 100-130 degrees horizontal range of view

Hi-res cameras coupled with

raw image downloads (uncompressed tiff, 25 mb/pic!)

on-site JPEG2000 image compression (>15x - uploads/archives)

==> ~5 times more compression than JPEG, no apparent image quality loss

Result:

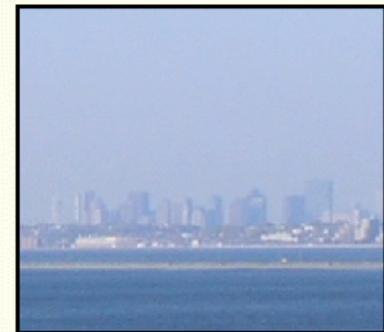
Maintain high resolution (example: <http://Airbeat.org> mini-zoom picture ▼)

Greatly enhanced range of view

Bottom line:

==>Massive info content

<b>Current Air Quality:</b>	Good for ozone Good for fine particles
<b>People at Risk:</b>	None.
<b>Recommendations:</b>	None.



Boston Hazecam View  
From Swampscott 12 miles away

# Existing Acadia McFarland Hill HazeCam page:



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**Acadia National Park, Maine**  
Updated every 15 minutes.



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[Ideal Conditions](#)



[Site Description](#)

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Air Pollution	Temp.	Wind	Precip.	Visual Range
Low Medium High Ozone Fine Particles	Current 58 ° Humidity 92 %	Speed 9 mph Direction SW	1 Hour 0.00 in 24 Hours 0.00 in	Less Than 17 miles <a href="#">About These Data</a>

# Mockup of Panavision Cadillac Acadia Hazecam page:



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Ideal Conditions



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## Camnet Links

Camnet Home Page: <http://www.hazecam.net>

Camnet All-sites Page: <http://www.hazecam.net/allsites.html>

Boston page: <http://www.hazecam.net/boston.html>

Boston zoomed page: <http://www.hazecam.net/boston/widezoomed.html>

Blue Hill (Boston): <http://www.hazecam.net/bluehill.html>

Blue Hill zoomed page: <http://www.hazecam.net/bluehill/widezoomed.html>

Air-Resource Specialists webcam page:

<http://www.air-resource.com/photographic.php>