

SHENAIR

Shenandoah Valley Air Quality Initiative

Jim Giraytys

Associate Director

SHENAIR Institute

James Madison University

What is SHENAIR?

Shenandoah Valley Air Quality Initiative

- An Integrated Program
 - Societal
 - Community Needs
 - Planning and decision Making
 - Economic Development
 - Science/Medical
 - Engineering
 - Virtual Institute

Mandate from Congress

- Text of the FY 2005 and FY 2006 budget language for National Weather Service:
“includes funding for air quality forecasting programs including **an effort to establish air quality and meteorological monitoring equipment throughout the Shenandoah Valley and utilize sophisticated computer modeling software and data processing hardware to gather, analyze and disseminate real time and predictive information to local decision makers, research programs, and the general public.**”

SHENAIR Long-Term Goals

Air Quality Sustainability	Natural Systems Preservation	Planning and Regional Cooperation	Education and Stewardship
Ensure that air quality is kept in sustainable balance with the health of citizens, animals, crops, forests, aquatic life, water resources, and the economic needs of Valley enterprises.	Protect and maintain the natural systems that are integral to supporting the air quality in the region including the forests and urban ecosystems.	Achieve a broad regional consensus on the direction of air resources policy, planning, and management so that common goals can be achieved and solutions implemented efficiently and cost-effectively.	Have well-informed conservation-minded citizens, business people and elected officials who are actively involved with promoting air resources stewardship.

Problem Pollutants for the Valley

(**Red** designates pollutants of interest for SHENAIR)

- Pollutants EPA defines as “Criteria”
 - **Ozone**
 - **SO_x**
 - **CO**
 - **NO_x**
 - Particulate Matter
 - **PM 2.5**
 - PM 10
 - Lead
- Others of Significance to the Valley
 - Mercury
 - **Volatile Organic Compounds (VOC)**

Not every place in the Valley has the same problem

SHENAIR Science and Technological Program

August 2005-Continuing

August 2006- July 2007 (Just started)

FY 2005 SHENAIR Program

(\$637,500)

- FY 2005 Objectives
 - Establish Institute at JMU
- FY 2005 Status
 - Facilities, Program manager, staff

SHENAIR Structure

SHENAIR Shenandoah Valley Air Quality Initiative

Northern Shenandoah Valley Regional Commission

SHENAIR Local Government Committee
Steve Bauserman
Chris Anderson

SHENAIR Institute
Ron Kander
Director (incoming)

C.J. Brodrick
Associate Director

Jim Giraytys
Associate Director

Tiffany Newbold
Program Manager

Lynn Radocha
Administrative

Science Team
CJ Brodrick
Team Leader

Implementation Team
Steve Bauserman
Team Leader

Plus: Lowell Smith, Mike Deaton,
and Education Coordinator (TBD)

FY 2005 SHENAIR Program

(\$637,500)

- FY 2005 Objectives

- **Establish Institute at JMU**
- **Network Design**

- FY 2005 Status

- **Facilities, Program manager, staff**
- **Hired Oklahoma Climatological Survey for Design**

FY 2005 SHENAIR Program

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- **Establish Institute at JMU**
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- **Install at least one pilot station**

- FY 2005 Status

- **Facilities, Program manager, staff**
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- **Blandy Station on Line**

Observing Station Blandy Farms



Kiosk



Site
Plan



Operated by UVA
15 November 2006

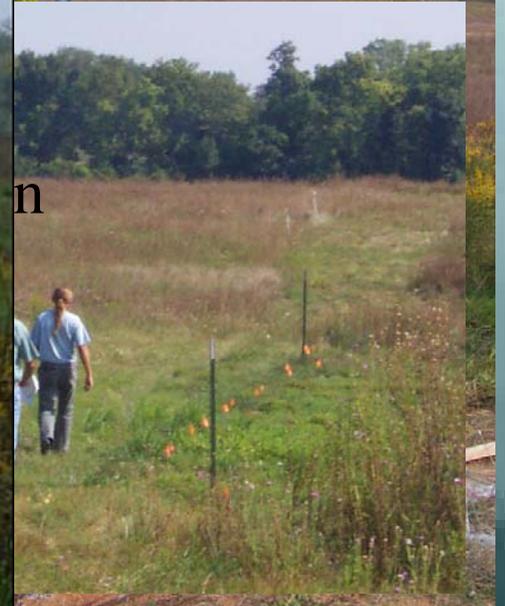
Great Valley Presentation

Blandy Tower Progress

Gener

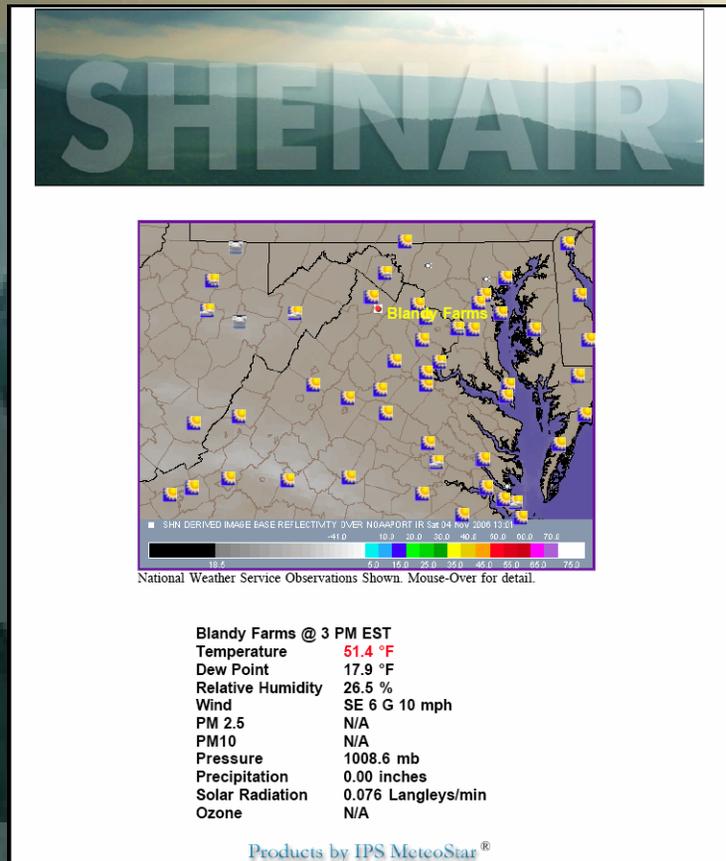


Full up



15 November 2006

Blandy Farms Station



- Pressure is Station Pressure (not Mean Sea Level)
- Dots are weather reporting stations (NWS and aviation)
- Other weather on web site includes satellite and radar data

<http://wxweb.meteostar.com/SHENAIR/>

FY 2005 SHENAIR Program

(\$637,500)

- FY 2005 Objectives

- **Establish Institute at JMU**
- Network Design
- **Install at least one pilot station**
- Establish Modeling System at VT

- FY 2005 Status

- **Facilities, Program manager, staff**
- **Hired Oklahoma Climatological Survey for Design**
- **Blandy Station on Line**
- **Installing Models at VT including chemical**
- **Evaluating Model for Shenandoah Valley transport**

FY 2005 SHENAIR Program

(\$637,500)

- FY 2005 Objectives

- **Establish Institute at JMU**
- **Network Design**
- **Install at least one pilot station**
- **Establish Modeling System at VT**
- **Use DEQ Data, especially in models**

- FY 2005 Status

- **Facilities, Program manager, staff**
- **Hired Oklahoma Climatological Survey for Design**
- **Blandy Station on Line**
- **Installing Models at VT including chemical**
- **Evaluating Model for Shenandoah Valley transport**
- **Contacting DEQ for data**

FY 2005 SHENAIR Program

(\$637,500)

- FY 2005 Objectives

- **Establish Institute at JMU**
- **Network Design**
- **Install at least one pilot station**
- **Establish Modeling System at VT**
- **Use DEQ Data, especially in models**
- **Initiate outreach and teaching programs**

- FY 2005 Status

- **Facilities, Program manager, staff**
- **Hired Oklahoma Climatological Survey for Design**
- **Blandy Station on Line**
- **Installing Models at VT including chemical**
- **Evaluating Model for Shenandoah Valley transport**
- **Contacting DEQ for data**
- **Teaching the Teachers program for June 2006 (completed)**
- **Launch of Science on a Sphere**

Science on a Sphere™

Sea Surface Temperature



Undersea Pacific Buoys



QuickTime™ and a
H.263 decompressor
are needed to see this picture.

Specific Objectives for FY 2006

- Field observing systems
 - PM 2.5 Micron Monitor in the Winchester/Frederick area
- Information on pollutant flow in Valley
 - UVA Study underway on back tracing to determine pollutant sources
- Test program for distribution and use of particulate matter forecasts
 - NWS-SHENAIR joint project on particulate matter information
 - FX Net for distribution (PC based software)
- Preliminary information for decision models
 - Planning (Long time frame) UVA Asthma Alert
 - Emergency response (Short time frame) (FX Net)
- Education and outreach
 - GLOBE Training in CY 2007

Comments --- Questions



<http://www.isat.jmu.edu/shenair/index.htm>