

Shawn McClure, Rodger Ames and Doug Fox - CIRA

Bret Schichtel - NPS

<http://vista.cira.colostate.edu/VIEWS/>

VIEWS' Vision

National air quality data integration, analysis and delivery system supporting the better understanding and analysis of haze and the implementation of the Regional Haze Regulation

- Promote the use of quality-controlled, well-documented, high quality data and data products.
- Enhance the technical knowledge, skills and resources of data users.
- Reduce costs, increase efficiency and minimize conflicting data analysis results that would be associated with multiple separately developed systems.

Views Objectives

- Develop a database/web infrastructure
- Integrate, homogenize and describe data (raw and derived) from multiple sources
- Develop data query and analysis tools
- Develop annual summary products

- VIEWS began about 3 years ago and its development has been governed by the VIEWS steering committee
- All objectives of Phase I of this project have been met
 - Fine tuning of tools until the end of December
- January and onward move into maintenance and support
 - Bug fixes and minor enhancements but no new tool developments

VIEWS International User Community

- Over 700 registered users
- About 2000 unique visitors a month
- Visitors from over 100 different countries including from Mauritius, Iran and Vietnam (no one from Iraq or Afghanistan yet)
- Over a 1000 queries to the database each month

VIEWS Users

| Last 20 Visitors | | Unique Visitors | |
|-----------------------|------------------------------------|-----------------|--------------|
| 08 Jun, Wed, 20:10:58 | 188santiagord14.codetel.net.do | MSIE 6 | Windows 2000 |
| 08 Jun, Wed, 20:32:34 | 63.77.8.2 | MSIE 6 | Windows XP |
| 08 Jun, Wed, 20:33:02 | cpe-24-242-127-97.sport.res.rr.com | MSIE 6 | Windows XP |
| 08 Jun, Wed, 22:54:50 | phobos.dri.edu | MSIE 6 | Windows XP |
| 09 Jun, Thu, 05:09:44 | phobos.dri.edu | MSIE 6 | Windows XP |
| 09 Jun, Thu, 08:25:33 | 61.145.137.236 | MSIE 6 | Windows XP |
| 09 Jun, Thu, 09:08:24 | rogue.cira.colostate.edu | MSIE 6 | Windows XP |
| 09 Jun, Thu, 09:18:25 | 129.82.108.94 | MSIE 6 | Windows XP |
| 09 Jun, Thu, 09:28:51 | hos10115.aep.com | MSIE 6 | Windows XP |
| 09 Jun, Thu, 09:38:12 | wcgwcc.ocio.usda.gov | MSIE 6 | Windows XP |
| 09 Jun, Thu, 10:06:50 | exeuntcha.tva.gov | MSIE 6 | Windows 2000 |
| 09 Jun, Thu, 10:17:14 | CA3949.camp.clarkson.edu | MSIE 6 | Windows XP |
| 09 Jun, Thu, 10:17:40 | exeuntnas.tva.gov | MSIE 6 | Windows XP |
| 09 Jun, Thu, 10:24:43 | nat-7.cat.com | MSIE 6 | Windows XP |
| 09 Jun, Thu, 10:28:24 | JONGHOON.camp.clarkson.edu | MSIE 6 | Windows 2000 |
| 09 Jun, Thu, 10:46:45 | 129.82.108.9 | MSIE 6 | Windows XP |
| 09 Jun, Thu, 11:17:22 | cpe-66-24-86-23.stny.res.rr.com | MSIE 6 | Windows 2000 |
| 09 Jun, Thu, 11:38:46 | sephiroth.rtp.epa.gov | MSIE 6 | Windows XP |
| 09 Jun, Thu, 11:51:33 | guido.ensr.com | MSIE 6 | Windows XP |

Visibility Information Exchange Web System

VIEWS

Visibility Information Exchange Web System

[Home](#)[What's New](#)[Tour](#)[Site Map](#)[Contact Us](#)[Your Account](#)

Data & Metadata

- All Data
- Metadata
- Query Wizard
- Site Browser
- ASCII Data Files
- Data Repository

Annual Summary

- Spatial Patterns
- Composition
- Trends
- Back Trajectories
- Visibility Grid
- Summary Data
- Archived Graphics

Resources

- Air Quality Catalog
- Weather Catalog
- Emissions Catalog
- RHR Planning Docs
- CAPITA Tools

Imagery

- Visibility Photos
- Class I Webcams
- Forest Service

Development

- Trends
- Composition
- Query Wizard II
- Data Browser

[Guest List](#)

Dedicated to reducing [Regional Haze](#) in [Class I Areas](#) through the exchange of **Data, Tools, and Ideas**



The Visibility Information Exchange Web System is an online exchange of visibility data, research, and ideas designed to support the Regional Haze Rule enacted by the U.S. Environmental Protection Agency (EPA) to reduce regional haze in national parks and wilderness areas. In addition to this primary goal, VIEWS supports global efforts to better understand the effects of air pollution on visibility and to improve air quality in general.

Data & Metadata

- Query Wizard
- Metadata
- Site Browser

[MORE >>](#)

Annual Summary

- Spatial Patterns
- Composition
- Trends

[MORE >>](#)

Resource Catalogs

- Air Quality
- Meteorological
- Emissions

[MORE >>](#)

Imagery

- Visibility Photos
- Class I Webcams
- Forest Service

[MORE >>](#)

Visitor's Guide

- Use the top navigation bar for general information about the website.
- Use the left navigation area to browse and search for **data**.
- Click on the photographs at the very top to find out more about selected Class I Areas.
- Learn about the Regional Planning Organizations by following the **"Partners"** links.
- Click on the VIEWS logo to download the logo in various formats and sizes.

Bulletins and News

* Always check the [Current Dataset Inventory](#) table (below) for any recent **data** updates. *

Regional Haze Rule Visibility Metrics

- [Annual statistics](#) for best and worst 20% visibility days calculated from IMPROVE aerosol data through 2003. ASCII files with annual statistics and daily values. Updated 02/10/2005.
- Links to all graphical products in the [Annual Summary](#).

Improved Tools

- [Database Query Wizard II](#): Use the improved query tool to retrieve aerosol data from our integrated database.

Partners



Of Interest

- ▶ Visibility
- ▶ About Air Pollution
- ▶ Regional Haze Rule
- ▶ Class I Areas
- ▶ IMPROVE Program
- ▶ RPO Information
- ▶ Software Tools
- ▶ Our Staff
- ▶ Fire Presentations

Newsletter

Signup for the VIEWS newsletter to receive bulletins and updates periodically by email:

- ▶ Sign Up
- ▶ Remove Me

Feedback

VIEWS Dataset Inventory - June 10, 2005

- Aerosol, optical and wet deposition datasets
- 23 different data sets with data from 1979 - 2005

| Program | Freq | Start | End | Records |
|--|--------|------------|------------|----------|
| <u>AQS Fine Mass (PM2.5) FRM - Daily</u> | Daily | 01/01/1999 | 12/31/2004 | 798317 |
| <u>AQS Fine Mass (PM2.5) FRM - Hourly</u> | Hourly | 01/01/1999 | 12/31/2004 | 7028023 |
| <u>AQS Fine Speciation (PM2.5) - Daily</u> | Daily | 02/09/2000 | 12/31/2004 | 2838345 |
| <u>AQS PM10 - Daily</u> | Daily | 01/01/1994 | 12/31/2004 | 1121497 |
| <u>AQS PM10 - Hourly</u> | Hourly | 01/01/1994 | 12/31/2004 | 10090668 |
| <u>CASTNet Dry Chemistry</u> | Weekly | 01/06/1987 | 12/28/2004 | 653952 |
| <u>CASTNet Visibility Chemistry</u> | Daily | 10/25/1993 | 12/27/2001 | 166950 |
| <u>Guelph Aerosol and Visibility Monitoring Program (GAVIM)</u> | Daily | 10/25/1993 | 12/27/2001 | 166950 |
| <u>IMPROVE Network Aerosol</u> | Daily | 03/02/1988 | 05/31/2004 | 8330027 |
| <u>IMPROVE Regional Haze Rule Adjusted Aerosol</u> | Daily | 03/02/1988 | 12/29/2003 | 6182946 |
| <u>IMPROVE Network Nephelometer</u> | Hourly | 01/01/1993 | 06/30/2004 | 8772492 |
| <u>MOHAVE - Measurement of Haze and Visual Effects</u> | Daily | 01/10/1992 | 09/02/1992 | 106484 |
| <u>NADP Atmospheric Integrated Research Monitoring Network (AIRMON)</u> | Daily | 09/23/1992 | 02/15/2004 | 281505 |
| <u>NADP Mercury Deposition Network (MDN)</u> | Weekly | 11/22/1995 | 09/28/2004 | 109820 |
| <u>NADP National Trends Network (NTN)</u> | Weekly | 07/05/1978 | 02/03/2004 | 4824603 |
| <u>NGS - Navaho Generating Station</u> | Daily | 03/04/1992 | 05/30/1992 | 701 |
| <u>SFU - NPS Stacked Filter Unit Network</u> | Daily | 07/27/1979 | 11/13/1993 | 850126 |
| <u>PREVENT - Pacific NW Regional Visibility Experiment Using Natural Tracers</u> | Daily | 06/21/1990 | 09/03/1990 | 58547 |
| <u>REVEAL - Regional Visibility Experimental Assessment in the Lower Fraser Valley</u> | Daily | 04/20/1994 | 06/17/1995 | 9618 |
| <u>SEARCH All Variables</u> | Daily | 05/01/1998 | 12/31/2003 | 285428 |
| <u>SEARCH Best Estimate</u> | Daily | 05/01/1998 | 12/31/2003 | 103792 |
| <u>SEARCH FRM</u> | Daily | 05/01/1998 | 12/31/2002 | 100872 |
| <u>SEAVS - Southeastern Aerosol and Visibility Study</u> | Daily | 07/15/1995 | 08/25/1995 | 3564 |

Database Query Wizard – Query Construction Interface

SELECT MONITORING LOCATIONS

Select Networks:

Select Sites:

| | | |
|---------|---|---|
| ARS | IMPROVE AK: Denali National Park | Select by RPO: <input type="checkbox"/> WRAP <input type="checkbox"/> CENRAP <input type="checkbox"/> Midwest-RPO <input type="checkbox"/> MANE-VU <input type="checkbox"/> VISTAS |
| CASTNet | IMPROVE AK: Simeonof | |
| EPAFRM | IMPROVE AK: Trapper Creek | |
| EPASPEC | IMPROVE AK: Tuxedni | |
| IMPROVE | IMPROVE AL: Sipsy Wilderness | |
| MOHAVE | IMPROVE AR: Caney Creek | |
| NESCAUM | IMPROVE AR: Upper Buffalo Wilderness | |
| PREVENT | IMPROVE AZ: Chiricahua National Monument | |
| REVEAL | IMPROVE AZ: Hance Camp at Grand Canyon NP | |
| SEAVS | IMPROVE AZ: Hillside | |
| SFU | IMPROVE AZ: Hopi Point #1 | |
| | IMPROVE AZ: Hopi Point #2 (High Sensitivity) | |
| | IMPROVE AZ: Ike's Backbone | |
| | IMPROVE AZ: Indian Gardens | |
| | IMPROVE AZ: Indian Gardens 2 (High Sensitivity) | |

SELECT DATES FOR WHICH TO RETRIEVE DATA

By Years and Months:

| | |
|------|-----------|
| 1988 | January |
| 1989 | February |
| 1990 | March |
| 1991 | April |
| 1992 | May |
| 1993 | June |
| 1994 | July |
| 1995 | August |
| 1996 | September |
| 1997 | October |
| 1998 | November |
| 1999 | December |

By Date Ranges:

Start Date:

End Date:

< None Selected >

SPECIFY THE PARAMETERS YOU WISH TO VIEW

| | |
|-----------------------------------|------------------|
| Aerosol extinction | (Calculated) |
| Air Temperature | (Meteorological) |
| Aluminum: Fine | (Particle) |
| Ammonium ion: Fine | (Particle) |
| Ammonium nitrate extinction: Fine | (Calculated) |
| Ammonium Nitrate: Fine | (Calculated) |
| Ammonium sulfate extinction: Fine | (Calculated) |
| Ammonium sulfate: Fine | (Calculated) |
| Arsenic: Fine | (Particle) |
| Bromine: Fine | (Particle) |

SELECT ANY ADDITIONAL OUTPUT FIELDS

| Basic Fields: | Data Flags: | Location Fields: | Parameter Fields: |
|---|--|------------------------------------|--|
| <input checked="" type="checkbox"/> Network Code | <input type="checkbox"/> Observation Uncertainty (UNC) | <input type="checkbox"/> Site Name | <input type="checkbox"/> Parameter Code |
| <input checked="" type="checkbox"/> Site Code | <input type="checkbox"/> Minimum Detection Limit (MDL) | <input type="checkbox"/> Elevation | <input type="checkbox"/> Parameter Description |
| <input checked="" type="checkbox"/> Observation Date/Time | <input type="checkbox"/> Status Flag (Flag) | <input type="checkbox"/> Latitude | |
| <input checked="" type="checkbox"/> Observation Value | <input type="checkbox"/> Quality Control (QC) Level | <input type="checkbox"/> Longitude | |

SPECIFY DESIRED OUTPUT OPTIONS

Report Format: Smart Grid HTML Text Text File

Row Format: Wide Skinny

Column Format: Fixed Width Delimited

Date Format:

Additional Data: Show Metadata Show Headers

Substitutions: Missing Values: Inapplicable Values:

Text File Name:

VERIFY YOUR SELECTIONS

| | |
|----------------|-------------------------------------|
| Network: | IMPROVE |
| Site: | IMPROVE AK: Denali National Park |
| Parameter: | Aerosol extinction (Calculated) |
| Date Range: | January 1, 1988 - December 31, 1988 |
| Output Field: | Network Code |
| Output Field: | Site Code |
| Output Field: | Observation Date/Time |
| Output Field: | Observation Value |
| Output Option: | Table Format = Smart Grid |
| Output Option: | Row Format = Wide |
| Output Option: | Column Format = Fixed Width |
| Output Option: | Delimiter = , |
| Output Option: | Display Metadata = true |
| Output Option: | Column Headers = true |
| Output Option: | Missing Values = -999 |

Query Wizard III – Coming Soon

VIEWS

Visibility Information Exchange Web System

Home What's New Tour Site Map Contact Us Your Account

VIEWS Database Query Tool

Query: **Submit Query...**

✓ Programs: INA
✗ Sites: < None selected >
✗ Parameters: < None selected >
✗ Dates: < None selected >
✗ Flags: Default: All Flags
✓ Aggregations: Non-Aggregated
✓ Output Fields: Default: Basic Fields

Select Programs 1 Select Sites 2 Select Parameters 3 Select Dates 4 Select Flags 5 Select Aggregations 6 Select Fields 7 Format Output 8

Select Programs Select Sites

1. Select Monitoring Programs and Networks

21 items

| Name | Code | Start | End | Freq | Sites | Params | Records |
|---------------------------------|------|---------|---------|--------|-------|--------|---------|
| IMPROVE Aerosol | INA | 3/1988 | 7/2003 | Daily | 200 | 61 | 6790955 |
| IMPROVE RHR Aerosol | IRHR | | | Daily | 181 | 32 | 6182946 |
| MOHAVE (IMPROVE Special Study) | MOH | 1/1992 | 9/1992 | Daily | 44 | 44 | 106484 |
| PREVENT (IMPROVE Special Study) | PRE | 6/1990 | 9/1990 | Daily | 31 | 27 | 58547 |
| REVEAL (IMPROVE Special Study) | REV | 4/1994 | 6/1995 | Daily | 2 | 42 | 9618 |
| SEAVS (IMPROVE Special Study) | SEA | 7/1995 | 8/1995 | Daily | 1 | 44 | 3564 |
| IMPROVE Nephelometer | INN | 1/1993 | 3/2003 | Hourly | 60 | 4 | 8121868 |
| NPS SFU Aerosol | SFU | 7/1979 | 11/1993 | Daily | 82 | 48 | 850126 |
| CASTNet Dry Chemistry | CDC | 1/1987 | 12/2002 | Daily | 116 | 13 | 603200 |
| CASTNet Visibility Chemistry | CVC | 10/1993 | 12/2001 | Daily | 12 | 45 | 166950 |

IMPROVE

Interagency Monitoring of Protected Visual Environments: IMPROVE Aerosol Network

Focus: Visibility in protected visual environments (National Parks, National Monuments, Wilderness Areas, etc.)
Website: <http://vista.cira.colostate.edu/improve>
Data: [Entire Dataset](#) The entire IMPROVE Aerosol dataset in a .zip file. (Size: 100MB)
[Site Datasets](#) The ASCII data for each individual IMPROVE site in separate files.

The **Interagency Monitoring of Protected Visual Environments (IMPROVE)** program is a cooperative measurement effort governed by a steering committee of representatives from Federal, state, and regional organizations. The IMPROVE monitoring program was established in 1985 to facilitate the creation of Federal and State implementation plans for the protection of visibility in Class I areas (156 national parks and wilderness areas) as stipulated by the 1977 amendments to the Clean Air Act.

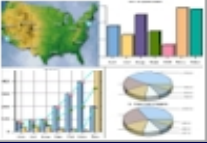
The objectives of IMPROVE are:

- to establish current visibility and aerosol conditions in mandatory class I areas;
- to identify chemical species and emission sources responsible for existing man-made visibility impairment;
- to document long-term trends for assessing progress towards the national visibility goal;
- and with the enactment of the Regional Haze Rule, to provided regional haze monitoring representing all visibility-protected federal class I areas where practical.

IMPROVE has also been a key participant in visibility-related research, including the advancement of monitoring instrumentation, analysis techniques, visibility modeling, policy formulation and source attribution field studies.

Guest List

For best results, please use:
[Internet Explorer 5](#) (or higher)
[Netscape 6](#) (or higher)
[more info...](#)



VIEWS Annual Data Summary

- An on-line report containing routine data analyses of IMPROVE aerosol data to aid the implementation of the Regional Haze Rule
- Original concept: archive of derived images for the best and worst 20% and average visibility days from 2000 - Present
 - Spatial patterns, Best and aerosol budgets, daily composition and Trends and back trajectories

- Data & Metadata
 - All Data
 - Metadata
 - Query Wizard
 - Site Browser
 - ASCII Data Files
 - Data Repository
- Annual Summary
 - Spatial Patterns
 - Composition
 - Trends
 - Back Trajectories
 - Visibility Grid
 - Summary Data
 - Archived Graphics
- Resources
 - Air Quality Catalog
 - Weather Catalog
 - Emissions Catalog
 - RHR Planning Docs
 - CAPITA Tools
- Imagery
 - Visibility Photos
 - Class I Webcam
 - Forest Service
- Development
 - Trends
 - Composition
 - Query Wizard II
 - Data Browser
- Guest List

IEWS Annual Summary

The Annual Summary section of the VIEWS web site provides access to data products described in the [VIEWS scope of work](#). It also provides browsing capabilities of the IMPROVE aerosol database using graphical interfaces.

On 2/10/2005 the Annual Summary was updated with annual statistics through 2003. These annual data aggregations for the 20% best and 20% worst visibility days represent the finalized calculation procedures as specified in Guidance documents for the Regional Haze Rule. Daily IMPROVE data through December 2003 are also available in this new posting of the Annual Summary.

Spatial and Seasonal Patterns

Map displays contours of selected parameter values. Choose annual time period to display seasonal or averages or group averages (group averages for annual data only). Groups are sorted by aerosol extinction. Select map icon to display data and statistics for a given monitoring location.



Composition

Click on a map icon to view data for a respective site. Data can be selected for the worst 20% days or best 20% days in a calendar year based on the selected sort variable. The timeline below shows the date and magnitude of the sort parameter for each day, with either best or worst 20% days highlighted in red. The pie chart shows the average composition for the selected days. If an individual day is selected by clicking on the daily bar, that day will be highlighted in blue and the pie chart will show the composition for that day.



Trends

Click on a map icon to view trend data for a selected parameter at that site. Annual data aggregations can be selected by calculated aerosol extinction percentile group and averaging period (either Annual averages or 5-year rolling averages). The Timeline plot has two modes, 'Single' and 'Multi'. In Single mode the timeline will display your most recent selection. In Multi mode each additional selection adds another timeline to the display. Up to 4 timelines can be superimposed in 'Multi' mode. To remove multiple plots from the view, select Single mode and your most recent selection is displayed.



Back Trajectories

Back trajectories from ATAD. Click on a icon to show trajectories ending at a selected site. Timeline shows best and worst 20% sampling days by aerosol extinction, reconstructed fine mass or reconstructed total mass. Click on a day from the timeline to select trajectory arrival day.



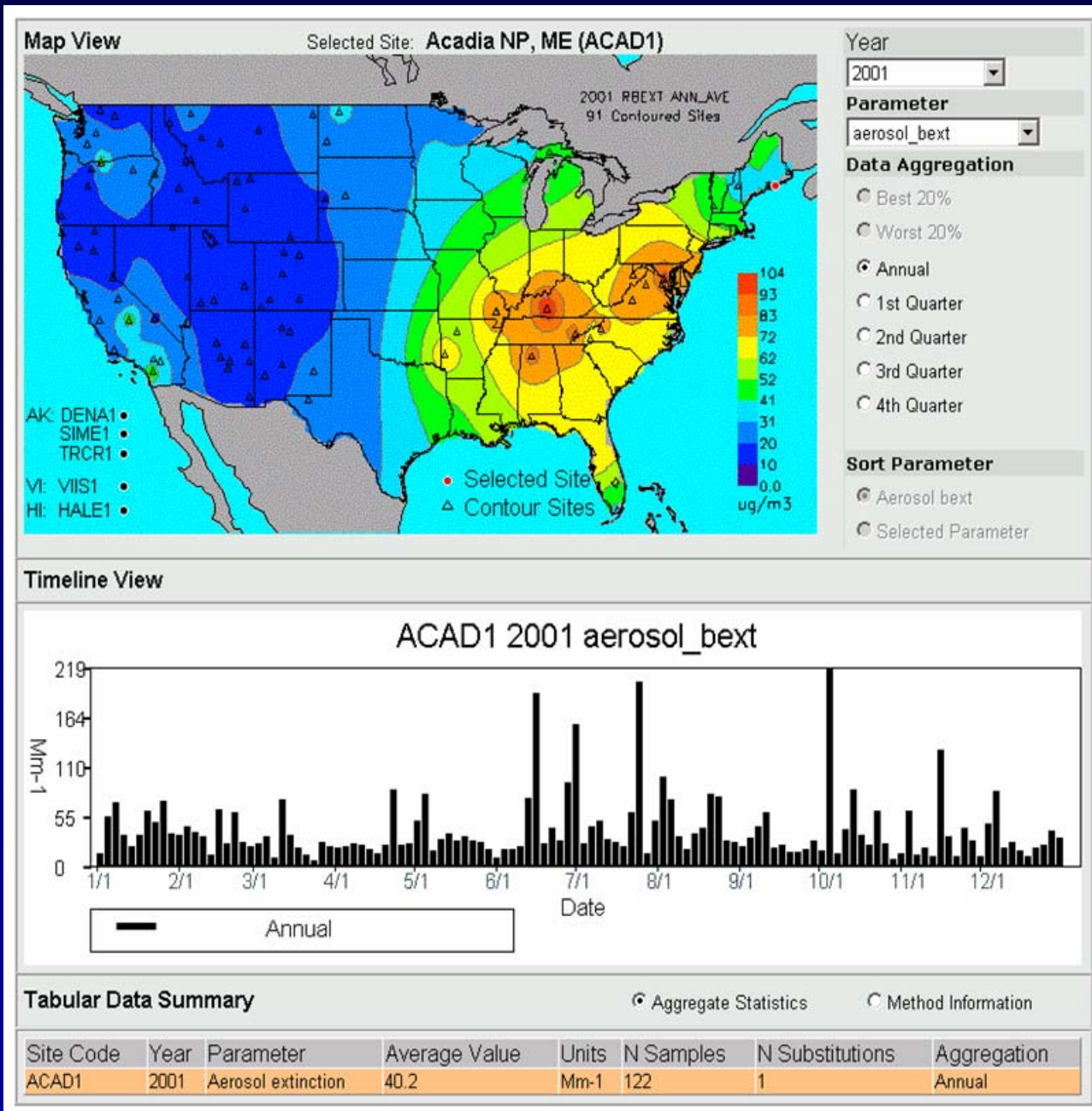
Visibility Grid

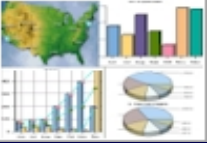
Color coded tabular display of the best and worst 20% sampling days by deciview.



For best results, please use: Internet Explorer 5 (or higher)

Annual Summary - Spatial and Seasonal Patterns





VIEWS Annual Data Summary

- Current concept: dynamic tools with on-the-fly aggregation and visualization
 - Customize graphics
 - Immediately answer new questions
- Track progress towards the regional haze goal
- Explore the IMPROVE RHR data
 - best and worst 20% visibility days from 1988 – present
- Easily access routine data analysis products

Tracking Progress

- Tracking Progress Towards Regional Haze Goal
 - Baseline and current conditions
 - Natural conditions
 - Glide slope
- Ideally want to be able to track changes in emissions (controls) to changes in haze
- Problem: Regional Haze Rule is based on best and worst 20% haze days and these days will change as atmospheric composition changes
- Beneficial to track trends in deciview and extinction/aerosol components (sulfate, organics, etc)
 - Best and worst 20% haze days
 - Annual, seasonal, 20% highest concentrations, etc.

- Show new tools

Other potential Uses of the New Annual Summary Tools

- Site specific and regional analyses
- Aerosol component contribution to haze
- Source apportionment
- Episode analysis
- Exploration of natural conditions
- Aerosol data quality control
- Model evaluation
- and more

Developments: June- December 2005

- Data access, visualization and analysis tools will be refined and finalized
 - Please let us know of any favorite data analysis products that are currently missing
- Contour plots will be added
- Simple back trajectory visualization
- Update current database inventory
 - Maybe add the Canadian aerosol data

Potential Future Applications

- VIEWS is built on a mature database architecture and website infrastructure which is applicable to non-air quality data
 - Model base case and source attribution results
 - Summary emission data
 - GIS databases
 - Alternative RHR metrics and natural background estimates and resulting glide slopes
- Application of annual summary tools to other datasets, e.g. Speciated Trend Network
- What if scenarios – change the concentrations of a component to see how it changes the current conditions and days included in the haze metric

VIEWS Backend Metadata Database

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|---|--|--|---|---|---|---|--|--|--|---|--|--|--|--|--|---|---|--|---|---|---|--|--|--|---|---|---|---|---|---|---|---|--|
| Program ProgramID ProgramCode ProgramName Caption DisplaySequence Status ProtocolGroup ProgramGroup StartDate EndDate | Site SiteID SiteCode SiteName ProgramID State CountyFIPS Latitude Longitude ElevationMSL StartDate EndDate Status LocDesc AirSiteCode BFARegion ImproveRegionID AQCRID AirBasinID LocSettingID LandUseID AgencyID StreetAddress CityID ZipCode Comment CBOCode UTMZone UTMBaseline UTMNorthing LDMID LDPDieterCode LDPDurnCode LDPSSCode LDPRecfist LDPUnitCode LDPLocCode MapKey | Parameter ParamID ParamCode ParamName Description CASNum AQSCode SourceUnits ConvFactor ParamID TypeCode SizeCode UnitID GroupKey SigDigits DataTypeCode Status ModDate ModBy ModComments | ParameterMap MappingCode MappingKey SourceName Description SourceDataType SourceUnits ConvFactor ParamID ParamID GroupKey Mdl Unc | Method MethodID MethodCode MethodType Description MethodGroup SampInstrument SampMedia SampFreqCode SampDurCode AnalysisMethod OldAnalysisMethod AnalysisProvider OperatingRange MethodName MethodDesc Comments Algorithm ParamClassCode ProgramCode InfoSource EquivalentMethod ReferenceMethod NativeMethodCode ReferenceURL LastModDate LastModBy LastModComments | FactDate DateID YearNum MonthNum DayOfMonthNum JulianDay MonthName MonthAbbr DayOfWeekNum DayOfWeekName QuarterNum SeasonName | FactTime TimeID TimeString TimeStringRegular HourNum MinuteNum HourRegular AMPM | Aggregation AggregationID Calc_Method_Flag SortKey Name Description | Unit UnitID UnitName UnitType UnitAbbr | SamplingFrequency SampFreqCode SampFreqDesc | SamplingDuration SampDurCode SampDurDesc MinValidTolAvg | MethodSource MethodSourceCode MethodSourceDesc | ParameterType Code Name | ParameterClass ParamClassCode ParamClassCodeKey ParamClassName | ImproveRegion RegionID RegionCode RegionName | AQCR AqcrID AqcrDesc AqcrPopulation AqcrSize AqcrExtentType | MSA MSAID MSADESC MSAPopulation CHSACode | MSA CHSAID CHSADESC CHSAPopulation | Flag FlagCode Category Description Source GroupKey InfoURL | FlagMap MappingCode MappingKey FlagSourceID FlagSourceDesc StatusFlag | Agency AgencyID AgencyCode StateCode AgencyName AgencyTypeCode | AgencyType AgencyTypeCode AgencyTypeDesc | Organization OrgID OrgName OrgDesc OrgAcronym OrgAddress OrgCity OrgState OrgZipCode OrgPhone1 OrgPhone1Desc OrgPhone2 OrgPhone2Desc OrgFax OrgEmail OrgURL | ProgramAggregation ProgramID AggregationID | DataSource DataSourceID DataSourceName Status ProgramID ProtocolID RevisionNum TableOrView AsciiTextFile SourceFile Provider Contact URL StartDate EndDate NumSites NumParams NumMethods NumRecords Dependencies Comments RegistratorDate ImportDate ImportedBy ImportComments LastModDate LastModBy LastModComments | DataProtocolScheme ProtocolCode ColumnName Description Caption Orientation DestColumn ColumnGroup DimensionCode DimensionID MethodID GroupKey Units ConvFactor OrdinalPosition IsNullable DataType CharMaxLength NumericPrecision NumericPrecision | Report ReportName DesignName StartPage Description Sequence Status ProgramMode SizeCode ParamMode ParamGroupMode DateMode AggregationMode | ReportProgram ReportName ProgramID | ReportParameter ReportName ParamID | ReportAggregation ReportName AggregationID | ReportArgument ReportName ArgKey ArgValue | DataProtocol ProtocolID ProtocolCode SiteMappingCode ParameterMappingCode FlagMappingCode MethodMappingCode FactType NullValue PrevID | Parameter_Parame GroupID ParamID | SiteParameter SiteID ParamID StartYear EndYear | MethodMap MappingCode MappingKey MethodID MethodID SummaryScale AbsMaxSampleValue AbsMinSampleValue SourceParamKey_Old SourceMethodKey_Old ParamID_Old | Person PersonID PersonFirstName PersonLastName PersonFullName PersonPhone1 PersonPhone1Desc PersonPhone2 PersonPhone2Desc PersonFax PersonEmail |
| Program_Site ProgramID SiteID | SiteMap MappingCode MappingKey SiteID StartDate EndDate Comments UID NHID_Site_Code | ProgramParameter ProgramID ParamCode ParamName Description DataType Units ConvFactor ParamID MethodID GroupKey Status SigDigits Mdl Unc ModDate ModBy ModComments | Substance Name Synonyms Formula FormulaTML CASRN ACDNumber Density RefractiveIndex EvaporationRate FlashPoint DOTNumber Comments MolecularWeight MeltingPoint BoilingPoint | Substance Name Synonyms Formula FormulaTML CASRN ACDNumber Density RefractiveIndex EvaporationRate FlashPoint DOTNumber Comments MolecularWeight MeltingPoint BoilingPoint | GCMSScienceKey ParamGroupID Category Topic Term Variable | Periodic Table Name Symbol (Atomic #) (Atomic Mass) (Group #) (Period #) (Density (g/mL)) (Melting/Freezing Point) (Boiling point (°C)) (Atomic Radius (Å)) (State of Matter) Series | City CityID CityCode StateCode CityName CityPopulation | Class1Area CIAID CIAName CIAFLM CIAFLMDesignation CIAFLMDesignationCoc CIAAddress CIACity CIAState CIAZipCode CIALatitude CIALongitude CIAHRCode | Class1Area_Site CIAID State SiteID | County CountyID CountyName StateCode CountyFIPSCode CountyPopulation CountyPopulation CountySize MinLatitude MaxLatitude MinLongitude MaxLongitude | County CountyID CountyName StateCode CountyFIPSCode CountyPopulation CountyPopulation CountySize MinLatitude MaxLatitude MinLongitude MaxLongitude | RPO RPOID RPOCode RPOName | RPO_State StateCode RPOID | ImproveRegion_Site RegionID SiteID | State StateCode StateName StateFIPSCode StateSize StatePopulation BFARegionCode MinLatitude MaxLatitude MinLongitude MaxLongitude | State StateCode StateName StateFIPSCode StateSize StatePopulation BFARegionCode MinLatitude MaxLatitude MinLongitude MaxLongitude | LocationSetting LocationSettingID LocationSettingDesc | LandUse LandUseID LandUseDesc | TopographyType TopographyTypeID TopographyTypeDesc | LDM LDMID LDMCode LDMDesc | LDPUnit LDPUnitCode LDPUnitDesc | LDPSourceScale LDPSourceScaleCode LDPSourceScaleDesc | | | | | | | | | | | | | |