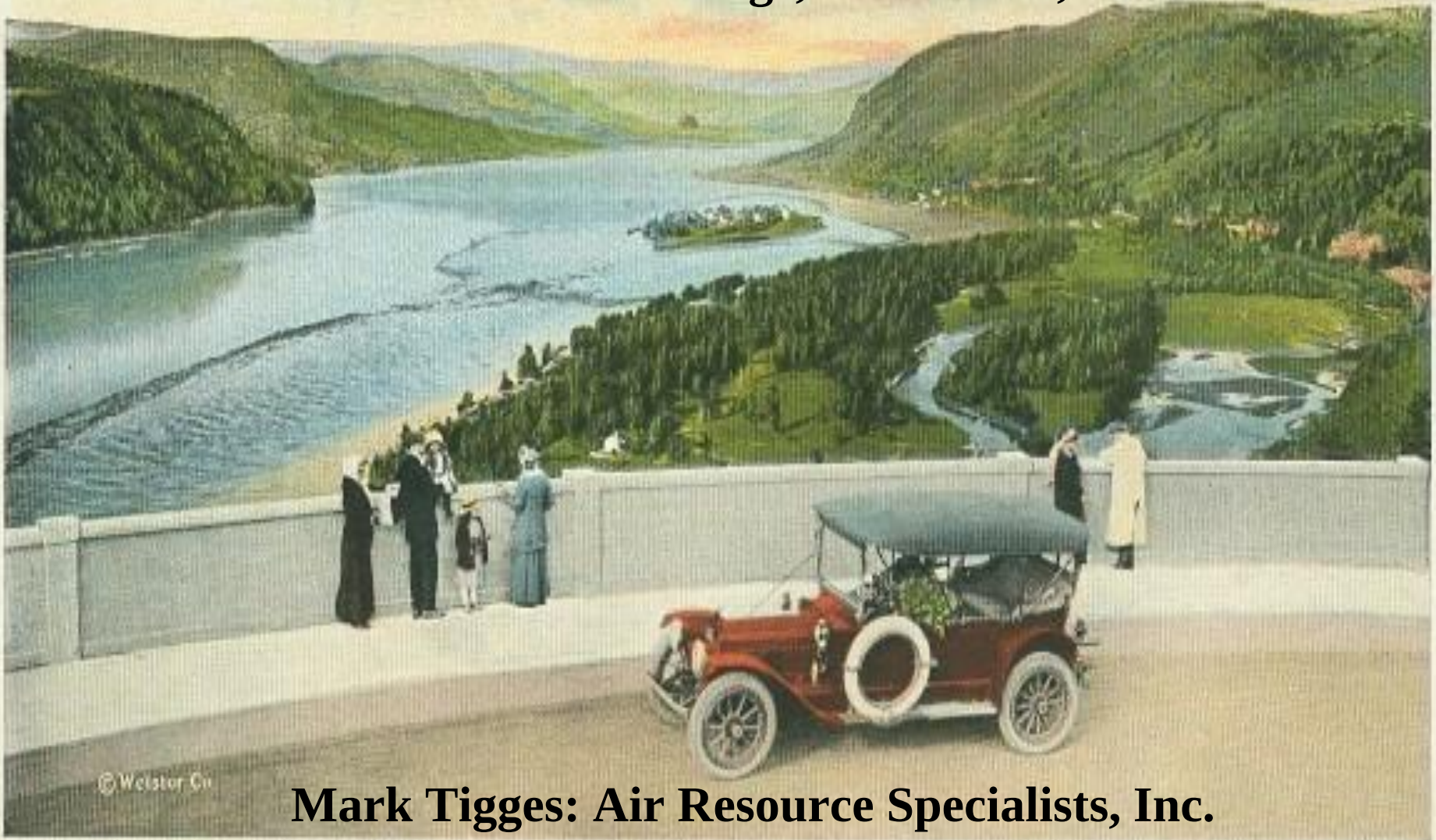


Optical and Scene Networks

Columbia River Gorge, October 21, 2010



© Welster Co

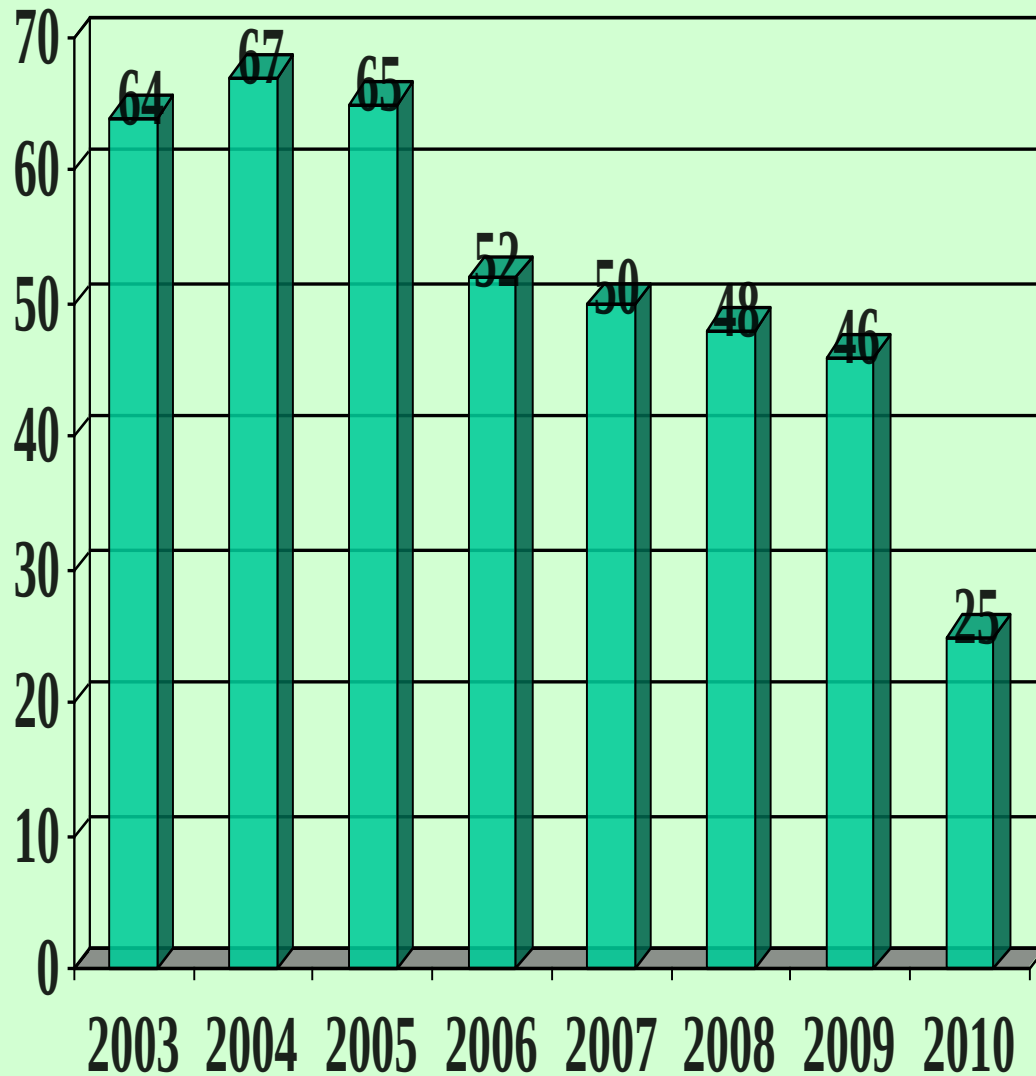
Mark Tigges: Air Resource Specialists, Inc.

325. COLUMBIA GORGE LOOKING EAST FROM CROWN POINT, COLUMBIA RIVER HIGHWAY, OREGON.

Optical & Webcam Networks: 10/21/2010

Network	Transmissometers		Nephelometers		Webcams and Exhibits
	Remote	Urban	Remote	Urban	
NPS (12) -1	- (-1)	-	11	1	18
USFS (2)	2	-	-	-	20 (+3)
Wyoming (3) -2 +3	- (-2)	-	3 (+3)	-	17 (+4)
Arizona (3) -15	-	- (-3) (?)	- (-9)	3 (-3)	5
Colorado (4)	-	2	-	2	2
Nevada (Clark County) (2)	-	- (-2)	-	-	2
S. Carolina (VISTAS) (1)	-	-	1	-	-
Midwest Hazecam (0)	-	-	-	-	8 (-1)
CAMNET (0)	-	-	-	-	10
CENRAP (0) -1	-	-	- (-1)	-	-
Totals (25) -21	2 (-3)	2 (-5)	15 (-10)	6 (-3)	82 (+6)

Number of Optical Monitors (Trans + Neph)



SOPs/TIs

All Nephelometer, Transmissometer, and Scene SOPs and TIs are current. They receive a yearly review (and update if necessary) during their anniversary month.

Optical Data

- Nephelometer data through 06/30/2010 delivered to NPS/CIRA on 9/28/2010
- Transmissometer data (2 USFS sites - Bridger & San Geronio) through 12/31/2009 delivered to NPS/CIRA on 8/30/2010

Glacier Nephelometer Site

- Nephelometer moved from AQ shelter to provide safer access for the operator
- Wireless communications linking nephelometer to the modem in the AQ shelter



Urban Visibility (Nephelometer) Study

- EPA funded a nephelometer study as part of Cleveland Multiple Air Pollutant Study (CMAQS): December 2009 – June 2010
- 2 sites operated Optec and EcoTech nephelometers



- Goal was to evaluate the usefulness of nephelometers for the proposed Urban Visibility standard, especially in an eastern, humid environment
- ARS and Optec each provided one nephelometer for the study



NPS/Wyoming DEQ Partnership

- NPS and WDEQ have partnered to install an air quality/visibility station at Grand Teton NP:
 - Ozone & Meteorology
 - Nephelometer
 - Visibility Web Camera
- Installation expected Spring of 2011

NPS Webcam Network and Web Site Upgrades

November 2008: Start of partnership between NPS and Olympus to upgrade and support 16 site webcam network

Oct 2009 – Oct 2010: NPS funded upgrades of web site and server software infrastructure. All camera site upgrades complete.

Network Operations (NPS-Olympus Partnership funded)

- Technical support, backup equipment, communications, archive
- Annual agreements. Third and final agreement begins October 1, 2010

System Upgrades (NPS-Olympus Partnership funded)

- New digital SLRs (E420) and backups supplied by Olympus
- Hardware upgrades, computers and replacements (site dependent)
- All site upgrades completed as of October 22, 2010 (JOTR upgrade this week)

Web Site Upgrades (NPS-ARD funded)

- NPS-ARD redesigned web site went live early Summer 2010
- ARS developed server software to support camera system upgrades and new web site features
- New features include high resolution images (1600x1200 replaces 500x300), streamlined maintenance, greatly improved reliability and simplified changes to web site content and features



input search search

EXPLORE AIR

NPS » Explore Nature » Air » Web Cameras » Theodore Roosevelt National Park

Theodore Roosevelt National Park
View of Painted CanyonAir Data
& WeatherNPS Air
Webcams

updated 10/20/2010 08:30 AM MDT

Redesigned Visibility Camera Web Site



National Park Service photo captured by Olympus camera

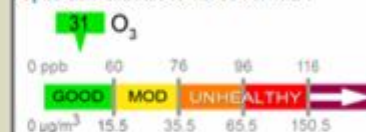
webcam clear/hazy landmark map it archives view larger

Current Air Quality »

at the Visitor Center

Ozone - O_3

updated 10/20/2010 08:00 AM MDT

PM_{2.5} UnavailableParticulate Matter - PM_{2.5}

updated 10/20/2010 08:00 AM MDT

[See more air data »](#)

Current Weather »

at the Visitor Center

updated 10/20/2010 08:00 AM MDT

Temperature 45 F
Humidity 55 %
Wind WNW-12 mph
Precipitation - 1 hr 0.00 in.

[See more weather data »](#)

About Air Pollution »

In Depth »

Feature »



NPS WebCam Stats – Pages

2009 Webcam Webpage Visits			
Rank	Park	Visits	Daily
			Average
1	Great Smoky Mountains NP – Look Rock	1,113,700	3,051
2	Great Smoky Mountains NP- Purchase Knob	998,512	2,735
3	Grand Canyon NP	718,237	1,967
4	Yosemite NP	332,782	911
5	Denali NP	318,399	872
6	Washington DC Mall	306,765	840
7	Point Reyes NS	284,788	780
8	Mount Rainier NP	279,785	766
9	Sequoia-Kings Canyon NP	213,089	583
10	North Cascades NP	180,993	495
11	Olympic NP	175,449	480
12	Mammoth Cave NP	152,640	418
13	Theodore Roosevelt NP	148,268	406
14	Joshua Tree NP	102,686	281
15	Acadia NP	86,441	236
16	Big Bend NP	78,923	216
Total		5,491,457	

NPS WebCam Stats – Images

2009 Webcam Photo Image Visits			
Rank	Park	Visits	Daily
			Average
1	Grand Canyon NP	4,792,028	13,128
2	Washington DC Mall	3,065,418	8,398
3	Yosemite NP	2,698,388	7,392
4	Great Smoky Mountains NP- Purchase Knob	2,072,703	5,678
5	Great Smoky Mountains NP – Look Rock	2,046,945	5,608
6	Point Reyes NS	1,386,413	3,798
7	North Cascades NP	1,127,704	3,089
8	Mount Rainier NP	1,078,096	2,953
9	Sequoia-Kings Canyon NP	1,029,736	2,821
10	Mammoth Cave NP	905,469	2,480
11	Olympic NP	797,199	2,184
12	Joshua Tree NP	758,907	2,079
13	Denali NP	693,021	1,898
14	Big Bend NP	477,172	1,307
15	Theodore Roosevelt NP	313,094	857
16	Acadia NP	228,015	624
Total		23,470,308	

Air Quality Apps



- ARS is in the process of developing AQ applications for mobile devices (iPhone & Android platforms):
 - Simplified versions of visibility camera web pages
 - Access to displays of monitoring data
 - Tools to support field tech site visits
 - *Any other good ideas???*

