

UCDAVIS

Air Quality Research Center



IMPROVE

Interagency Monitoring of Protected Visual Environments

2023 CALENDAR

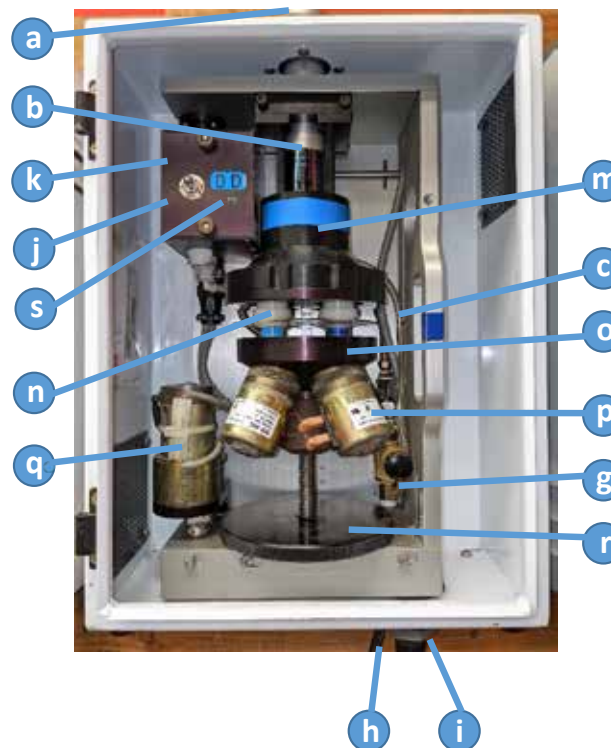
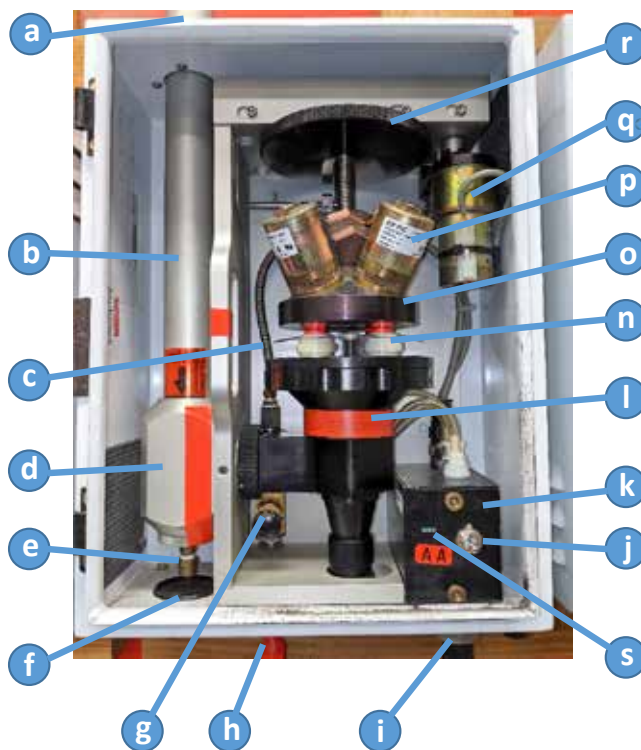
IMPROVE is a collaborative association of state, tribal, and federal agencies, and international partners. US Environmental Protection Agency is the primary funding source, with contracting and research support from the National Park Service. The Air Quality Research Center (AQRC) at the University of California, Davis provides field maintenance and operator support, sample handling, elemental analysis, and data processing; Research Triangle Institute (RTI) performs ions analysis; and Desert Research Institute (DRI) performs carbon analysis. IMPROVE data and documentation are available from the website

<http://vista.cira.colostate.edu/improve/> maintained by the Cooperative Institute for Research in the Atmosphere (CIRA).

For questions or problems with optical or scene monitoring equipment, contact Mark Tigges, Air Resource Specialists, Fort Collins, CO at 970-224-9300. For questions or problems with air sampler controllers, filters or flow checks, contact Air Quality Research Center, UC Davis at 530-752-1123, improvehelpdesk@ucdavis.edu, or visit <https://aqrc.ucdavis.edu/resources-for-operators>.



Desert Dandelions in Bloom, Joshua Tree National Park (JOSH1). *Stacy Manson*



- a. stack compression sleeve
- b. inlet stack
- c. braided hose
- d. inlet tee
- e. tee plug

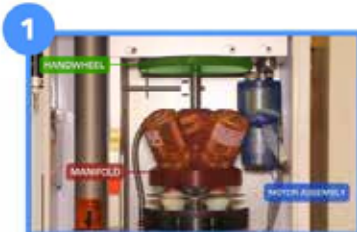
- f. black cap
- g. flow control valve
- h. pump hose connector
- i. module cable connector
- j. motor control toggle switch

- k. electronics box (ebox)
- l. cyclone
- m. funnel
- n. cartridge with 4 filter cassettes
- o. solenoid manifold

- p. solenoid valve (4)
- q. motor assembly to raise solenoid manifold
- r. handwheel (flywheel) to raise manifold
- s. Ebox status LED lights



Disengaging Manifold Motor to Manually Raise/Lower the Manifold



1 Locate the motor assembly in the module.



2 Separate the motor assembly from the coupling sliding the assembly down. Then pivot it towards to the hand wheel.



2.a A gentle wiggle may be required to slide the assembly up or down.



3 For the A, B, and C modules spin the hand wheel to the left to raise the manifold.



4 Spin the hand wheel to the right to lower the manifold.



4.a The spinning direction to raise and lower the manifold is opposite for the D module.

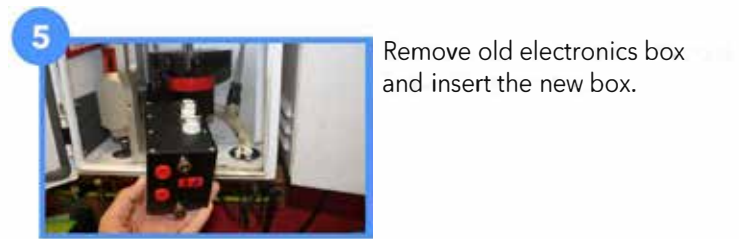
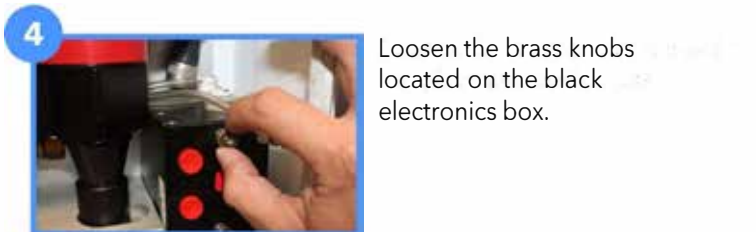
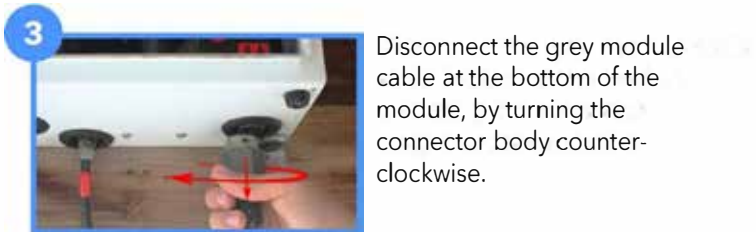
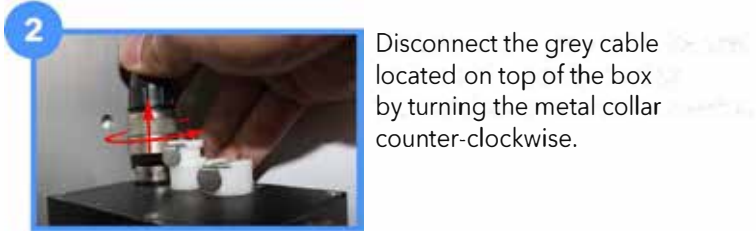


5 If the motor starts to work again it can be reengaged with the hand wheel. Pivot the motor assembly back to its original location.



6 Rotate the hand wheel until the coupling snaps into alignment.

Electronics-Box Replacement



Replacing Plastic Motor Coupler



1 Locate the motor assembly in the module



4 If the plastic motor coupler does not line up with the upper hub, use the hand wheel to put it into place



2 Separate the motor assembly from the coupling sliding the assembly down. Then pivot it towards the hand wheel.

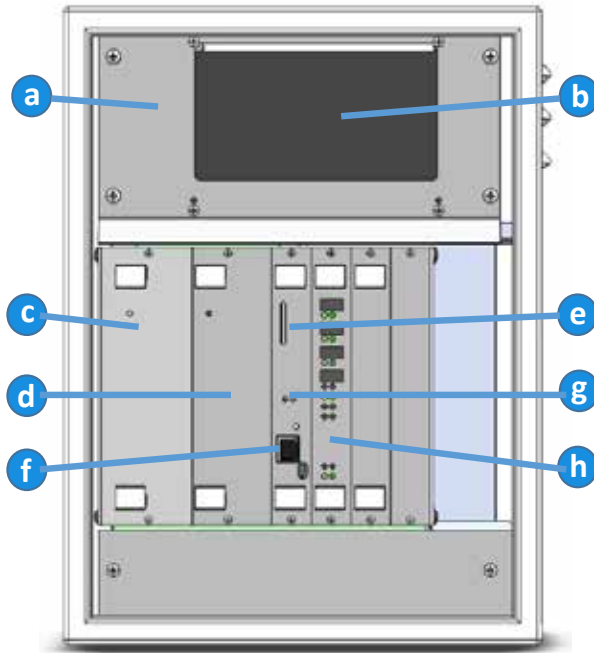


5 The motor should slide into place and the upper and lower hubs should fit securely into the plastic motor coupler



3 Remove the old plastic coupler and place the new one in. Make sure to center it on the metal hub.

Controller Schematic and Information

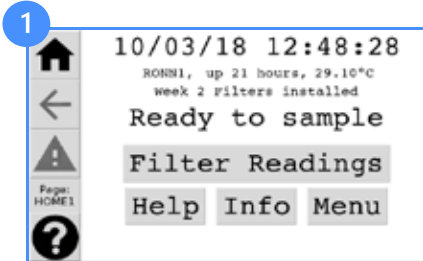


- | | |
|---------------------------|------------------|
| a. Display Faceplate | e. SD Card Slot |
| b. LCD Touch Screen | f. Ethernet Port |
| c. 5 V Power Supply Card | g. CPU Card |
| d. 24 V Power Supply Card | h. Hub Card |

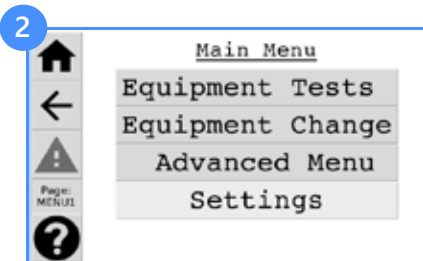


Change the Date/Time on Controller

(If the controller is connected to the internet please only edit the time zone)



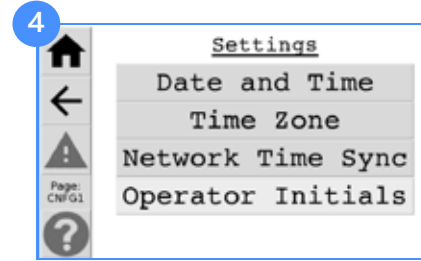
Press the 'Menu' on the home screen.



Press 'Settings'



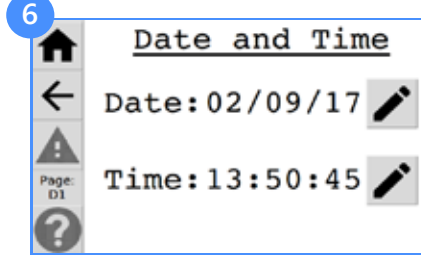
Look up your time zone on the reference map and note the corresponding GMT offset in **Bold**



Press 'Time Zone'



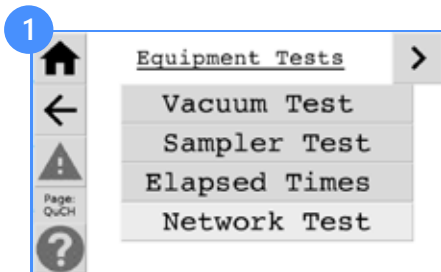
Use up/down arrows to select the time zone offset based on step 3



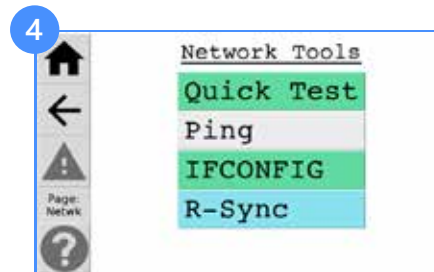
Only if your site is **not** connected to the internet do you select the "Date and Time" option in step 4 to manually edit the time.

Press the  icon to edit the time

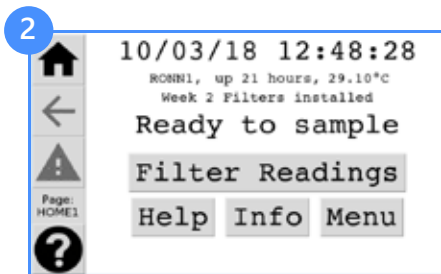
Test Network Connection and Send Data to Server



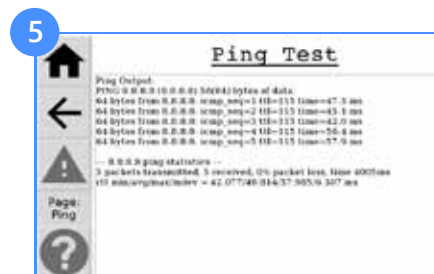
1 Press the 'Menu' on the home screen.



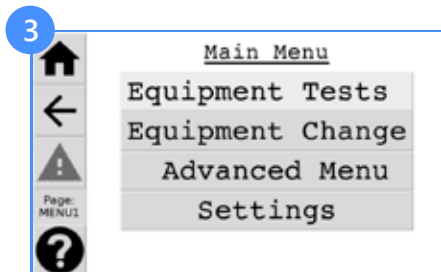
4 Press 'Ping'



2 Press 'Equipment Tests'



5 Read the output of the test. If the 2nd to last line reads '**5 packets transmitted, 5 received, 0% packet loss**' then the controller is successfully connected to the internet



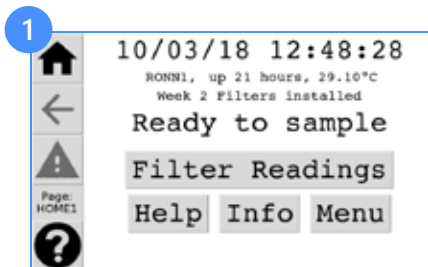
3 Press 'Network Test'



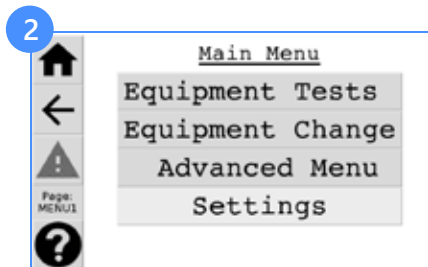
6 Press the ← button to go back to 'Network Tools' then select the 'R-Sync' option. This will send the controller data back to the server.



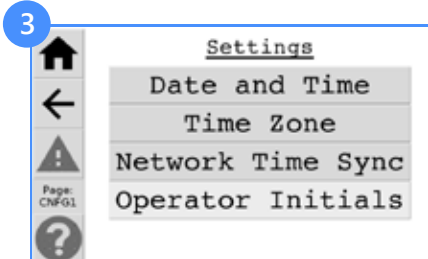
Manage Operator Initials on Controller



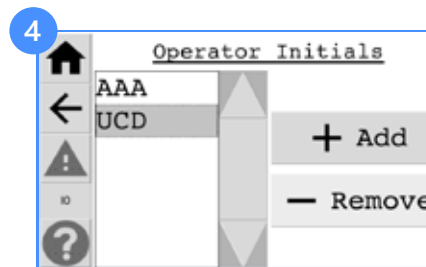
1 Press the **'Menu'** on the home screen.



2 Press **'Settings'**

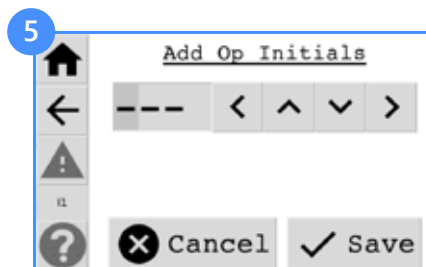


3 Press **'Operator Initials'**



4 Select the initials you wish to remove, then press **'Remove'**

If you wish to add initials press **'Add'**



5 When adding initials use the up/down arrows to edit a letter, and left/right arrows to move the cursor.

Please use 3 letter initials for clarity.





Elk Wading Snake River, near BRID1. *Scott Copeland*

JANUARY 2023

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
New Year's Day 1 <i>Alternative Sample Change Day</i>	2 <i>Alternative Sample Change Day</i>	3-2-2 Week 2 2-3-2 Week 3 Special cartridge change: move cassette 3 from old cartridge to new. IMPROVE Particle Sampling Day	4 <i>Alternative Sample Change Day</i>	5 <i>Alternative Sample Change Day</i>	6 IMPROVE Particle Sampling Day	7
8	9 IMPROVE Particle Sampling Day	3-2-2 Week 3 2-3-2 Week 1 Change IMPROVE Particle Cartridges	11 <i>Alternative Sample Change Day</i>	12 IMPROVE Particle Sampling Day	13	14
15 IMPROVE Particle Sampling Day	Martin Luther King, Jr. Day 16 <i>Alternative Sample Change Day</i>	3-2-2 Week 1 2-3-2 Week 2 Change IMPROVE Particle Cartridges	18 IMPROVE Particle Sampling Day	19	20	21 IMPROVE Particle Sampling Day
22 <i>Alternative Sample Change Day</i>	23 <i>Alternative Sample Change Day</i>	3-2-2 Week 2 2-3-2 Week 3 Special cartridge change: move cassette 3 from old cartridge to new. IMPROVE Particle Sampling Day	25 <i>Alternative Sample Change Day</i>	26 <i>Alternative Sample Change Day</i>	27 IMPROVE Particle Sampling Day	28
29	30 IMPROVE Particle Sampling Day	3-2-2 Week 3 2-3-2 Week 1 Change IMPROVE Particle Cartridges			DECEMBER 2022 S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	FEBRUARY 2023 S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28



Kīlauea Volcano, Hawai'i Volcanoes National Park (HAVO1). NPS Photo/J.Weir

FEBRUARY 2023

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Great Smoky Mountains National Park (GRSM1) from Mt. LeConte. *Jeanne Renfro*

MARCH 2023

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Inglesby Rapids, Green River, Dinosaur National Monument (DINO). NPS Photo/Jake Holgerson

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Mississippi River, Great River Bluffs State Park (GRR1). *Anne Selness*

MAY 2023

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
	1 <i>Alternative Sample Change Day</i>	3-2-2 Week 1 2-3-2 Week 2 2 Change IMPROVE Particle Cartridges	3 IMPROVE Particle Sampling Day	4	5	6 IMPROVE Particle Sampling Day
7 <i>Alternative Sample Change Day</i>	8 <i>Alternative Sample Change Day</i>	3-2-2 Week 2 2-3-2 Week 3 9 Special cartridge change: move cassette 3 from old cartridge to new. IMPROVE Particle Sampling Day	10 <i>Alternative Sample Change Day</i>	11 <i>Alternative Sample Change Day</i>	12 IMPROVE Particle Sampling Day	13
14	15 IMPROVE Particle Sampling Day	3-2-2 Week 3 2-3-2 Week 1 16 Change IMPROVE Particle Cartridges	17 <i>Alternative Sample Change Day</i>	18 IMPROVE Particle Sampling Day	19	20
21 IMPROVE Particle Sampling Day	22 <i>Alternative Sample Change Day</i>	3-2-2 Week 1 2-3-2 Week 2 23 Change IMPROVE Particle Cartridges	24 IMPROVE Particle Sampling Day	25	26	27 IMPROVE Particle Sampling Day
28 <i>Alternative Sample Change Day</i>	Memorial Day 29 <i>Alternative Sample Change Day</i>	3-2-2 Week 2 2-3-2 Week 3 30 Special cartridge change: move cassette 3 from old cartridge to new. IMPROVE Particle Sampling Day	31 <i>Alternative Sample Change Day</i>		APRIL 2023 S M T W T F S 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30	JUNE 2023 S M T W T F S 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30



Monsoon Sunset, Chiricahua National Monument (CHIR1). NPS Photo/R. Stewart

JUNE 2023

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Top of Panther Creek Falls, Cohutta Wilderness (COHU1). *Joe Sauls*

JULY 2023

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Fall Colors at Toolik, AK (TOOL1), *Seth Beadreault*

AUGUST 2023

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Near Hidden Valley, Joshua Tree National Park (JOSH1). *Stacy Manson*

SEPTEMBER 2023

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Mt. LeConte, Great Smoky Mountains National Park (GRSM1). *Jim Renfro*

OCTOBER 2023

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
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Mount Hood and Columbia River, from COR1. *Mary LaPlant*

NOVEMBER 2023

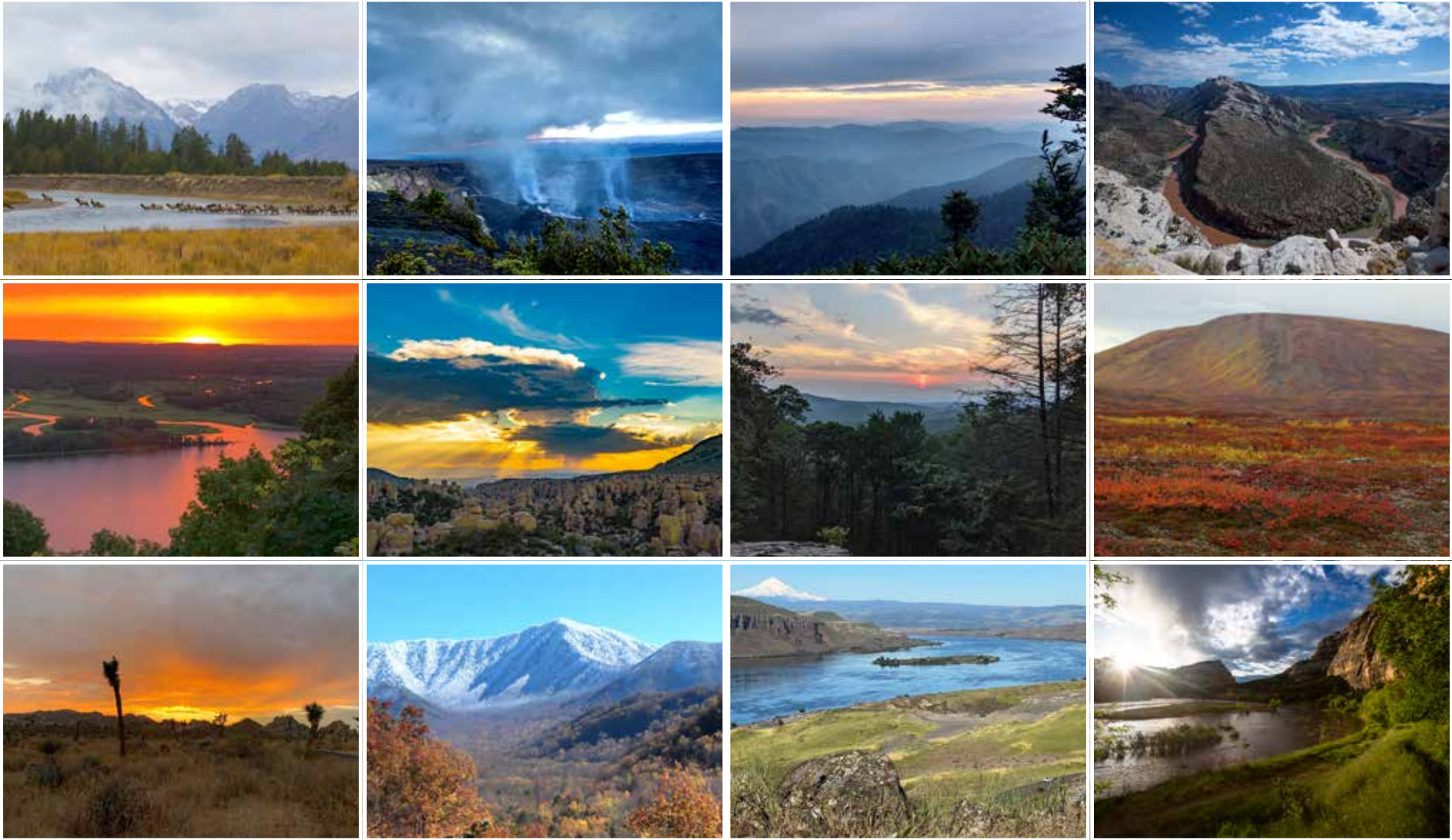
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Mather's Hole, Yampa River, Dinosaur National Monument (DINO). *NPS Photo*

DECEMBER 2023

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Photographs taken by *Julie Bain, Seth Beaudreault, Scott Copeland, Josh Grant, Jake Holgerson, Mary LaPlant, Stacy Manson, Devon Preisendorfer, Jeanne Renfro, Jim Renfro, Joe Sauls, Anne Selness, R. Stewart, J. Wei* and *Kathleen Waters*.

Cover Photo: Sedona Sunrise, Near SYCA1, *Josh Grant*

