

# IMPROVE

Interagency Monitoring of Protected Visual Environments

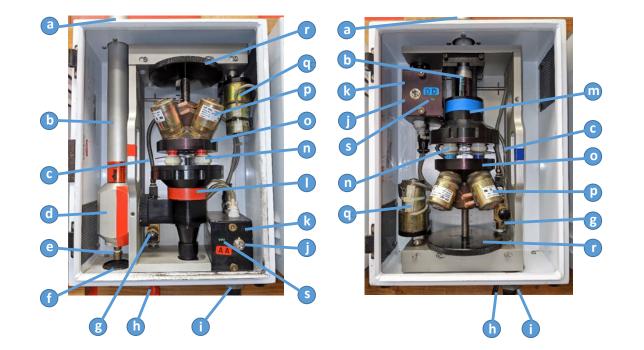
2020 CALENDAR

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.







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)
- I. 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

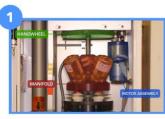
IMPROVE operator training videos: https://aqrc.ucdavis.edu/resources-for-operators

UC Davis General Lab: 530-752-1123 IMPROVE Help Desk: improvehelpdesk@ucdavis.edu





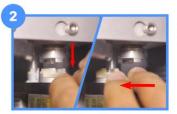
#### **Disengaging Manifold Motor to Manually Raise/Lower the Manifold**



Locate the motor assembly in the module.



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



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



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



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



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



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



Rotate the hand wheel until the coupling snaps into alignment.

**Electronics-Box Replacement** (For A,B, and C modules. For the D module skip steps 3 and 9)



Disconnect the Orifice (ORI) and Cyclone (CYC) hoses by depressing the metal clasp and pulling on the hose.



Remove old electronics box and insert the new box.



Tighten the brass knobs.



Disconnect the grey cable located on top of the box by turning the metal collar counter-clockwise.



Re-connect grey cable on the top of the box.



Disconnect the grey module cable at the bottom of the module, by turning the connector body counter-clockwise.







(line up the key and keyway when connecting the electronic connectors)

Re-connect the hoses to the electronics box.

Re-connect the bottom grey module cable.

Loosen the brass knobs located on the black electronics box.

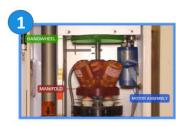
IMPROVE operator training videos: https://aqrc.ucdavis.edu/resources-for-operators

UC Davis General Lab: 530-752-1123 IMPROVE Help Desk: improvehelpdesk@ucdavis.edu





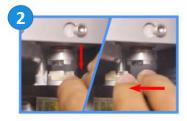
#### **Replacing Plastic Motor Coupler**



Locate the motor assembly in the module



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



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



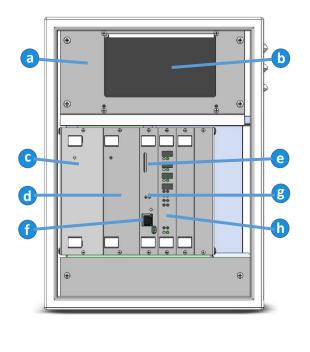
The motor should slide into place and the upper and lower hubs should fit securely into the plastic motor coupler



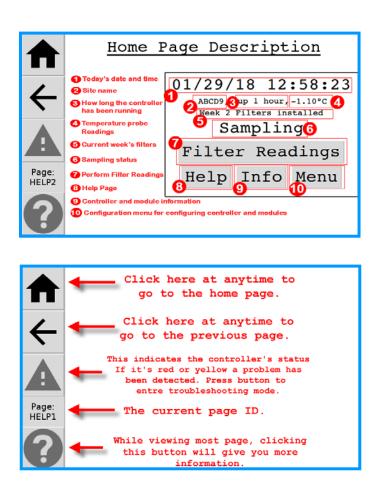
Remove the old plastic coupler and place the new one in. Make sure to center it on the metal hub.

#### **QUICK REFERENCE: CONTROLLER**

#### **Controller 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 | <b>h.</b> Hub Card |

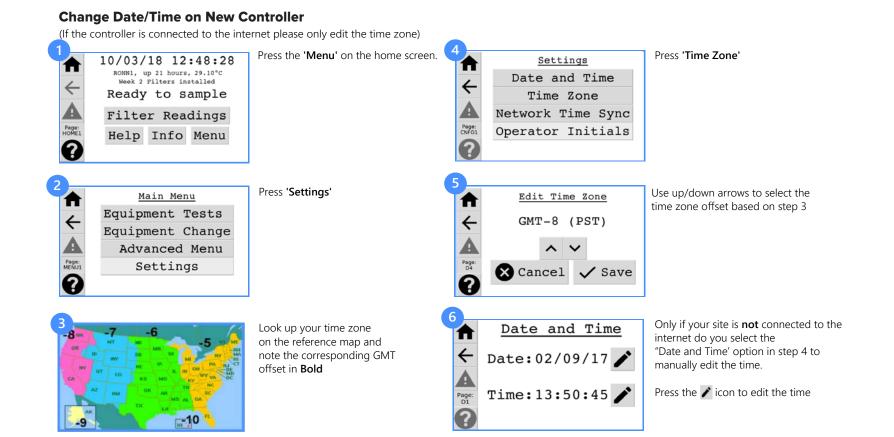


IMPROVE operator training videos: https://aqrc.ucdavis.edu/resources-for-operators

UC Davis General Lab: 530-752-1123 IMPROVE Help Desk: improvehelpdesk@ucdavis.edu







#### Test Network Connection and Send Data to Server



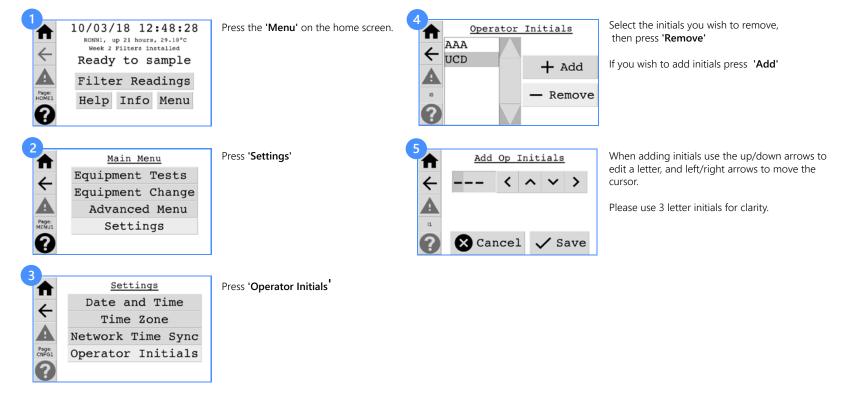
IMPROVE operator training videos: https://aqrc.ucdavis.edu/resources-for-operators

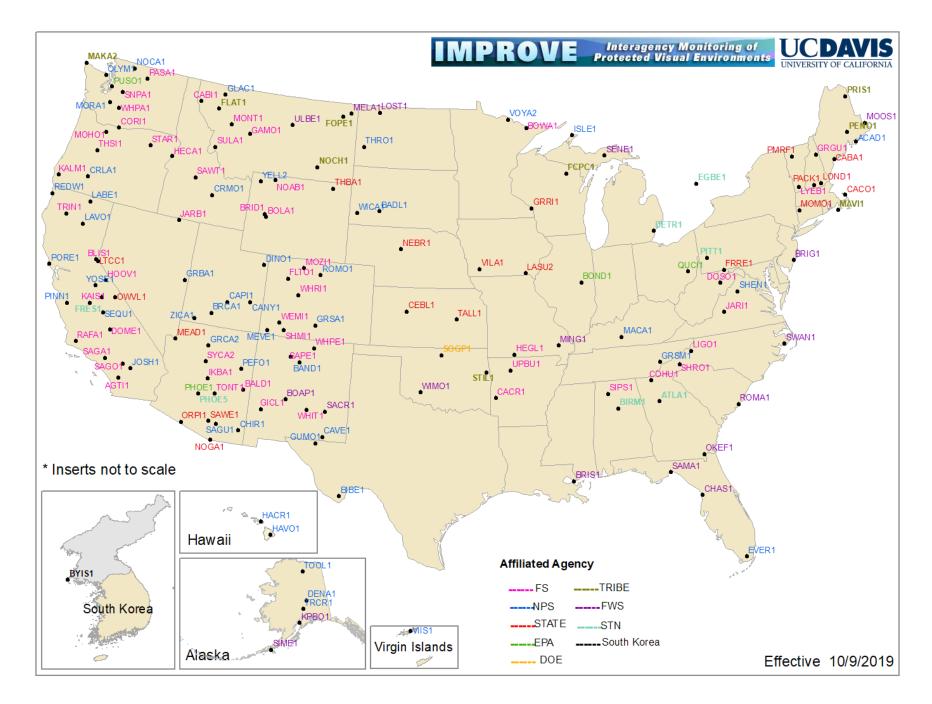
#### UC Davis General Lab: 530-752-1123 IMPROVE Help Desk: improvehelpdesk@ucdavis.edu





#### Manage Operator Initials on New Controller





TUMALO FALLS: Near Three Sisters Wilderness, OR (THSII) Josh Grant

1

61 4

### JANUARY 2020

| SUNDAY  | MONDAY  | TUESDAY  | WEDNESDAY                        | THURSDAY                         | FRIDAY                           | SATURDAY                         |
|---|---|--|----------------------------------|----------------------------------|----------------------------------|----------------------------------|
| DECEMBER         2019           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 | FEBRUARY         2020           S         M         T         W         T         F         S           2         3         4         5         6         7         8           9         10         11         12         13         14         15 |  | New Year's Day 1                 | 2                                | 3                                | 4                                |
| 22 23 24 25 26 27 28<br>29 30 31  | 16         17         18         19         20         21         22         23         24         25         26         27         28         29   |  | IMPROVE Particle<br>Sampling Day |                                  |                                  | IMPROVE Particle<br>Sampling Day |
| 5   | 6   | 3-2-2 Week 2 <b>7</b><br>2-3-2 Week 3                                      | 8                                | 9                                | 10                               | 11                               |
|   |   | Special cartridge change:<br>move cassette 3 from old<br>cartridge to new. |                                  |                                  |                                  |                                  |
| Alternate Sample<br>Change Day  | Alternate Sample<br>Change Day  | IMPROVE Particle<br>Sampling Day   | Alternate Sample<br>Change Day   | Alternate Sample<br>Change Day   | IMPROVE Particle<br>Sampling Day |                                  |
| 12  | 13  | 3-2-2 Week 3 <b>14</b><br>2-3-2 Week 1                                     | 15                               | 16                               | 17                               | 18                               |
|   | IMPROVE Particle<br>Sampling Day  | Change IMPROVE<br>Particle cartridges                                      | Alternate Sample<br>Change Day   | IMPROVE Particle<br>Sampling Day |                                  |                                  |
| 19  | Martin Luther <b>20</b><br>King, Jr. Day  | 3-2-2 Week 1 <b>21</b><br>2-3-2 Week 2                                     | 22                               | 23                               | 24                               | 25                               |
| IMPROVE Particle<br>Sampling Day  | Alternate Sample<br>Change Day  | Change IMPROVE<br>Particle cartridges                                      | IMPROVE Particle<br>Sampling Day |                                  |                                  | IMPROVE Particle<br>Sampling Day |
| 26  | 27  | 3-2-2 Week 2 <b>28</b><br>2-3-2 Week 3                                     | 29                               | 30                               | 31                               |                                  |
|   |   | Special cartridge change:<br>move cassette 3 from old<br>cartridge to new. |                                  |                                  |                                  |                                  |
| Alternate Sample<br>Change Day  | Alternate Sample<br>Change Day  | IMPROVE Particle<br>Sampling Day   | Alternate Sample<br>Change Day   | Alternate Sample<br>Change Day   | IMPROVE Particle<br>Sampling Day |                                  |



### FEBRUARY 2020

| SUNDAY  | MONDAY  | TUESDAY  | WEDNESDAY                        | THURSDAY                         | FRIDAY                           | SATURDAY                         |
|---|---|--|----------------------------------|----------------------------------|----------------------------------|----------------------------------|
| JANUARY         V         V         F         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 | Image: Normal and the system         Image: Normal and the system <th< th=""><th></th><th></th><th></th><th></th><th>1</th></th<> |  |                                  |                                  |                                  | 1                                |
| 2   | <b>3</b><br>IMPROVE Particle  | 3-2-2 Week 3<br>2-3-2 Week 1<br>Change IMPROVE   | 5<br>Alternate Sample            | 6<br>IMPROVE Particle            | 7                                | 8                                |
|   | Sampling Day  | Particle cartridges  | Change Day                       | Sampling Day                     |                                  |                                  |
| 9   | 10  | 3-2-2 Week 1 <b>11</b><br>2-3-2 Week 2   | 12                               | 13                               | 14                               | 15                               |
| IMPROVE Particle<br>Sampling Day  | Alternate Sample<br>Change Day  | Change IMPROVE<br>Particle cartridges  | IMPROVE Particle<br>Sampling Day |                                  |                                  | IMPROVE Particle<br>Sampling Day |
| 16  | President's Day <b>17</b>   | 3-2-2 Week 2<br>2-3-2 Week 3<br>Special cartridge change:<br>move cassette 3 from old<br>cartridge to new. | 19                               | 20                               | 21                               | 22                               |
| Alternate Sample<br>Change Day  | Alternate Sample<br>Change Day  | IMPROVE Particle<br>Sampling Day   | Alternate Sample<br>Change Day   | Alternate Sample<br>Change Day   | IMPROVE Particle<br>Sampling Day |                                  |
| 23  | 24  | 3-2-2 Week 3 25<br>2-3-2 Week 1  | 26                               | 27                               | 28                               | 29                               |
|   | IMPROVE Particle<br>Sampling Day  | Change IMPROVE<br>Particle cartridges  | Alternate Sample<br>Change Day   | IMPROVE Particle<br>Sampling Day |                                  |                                  |



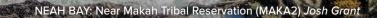
### **MARCH** 2020

| SUNDAY                               | MONDAY                               | TUESDAY  | WEDNESDAY                        | THURSDAY                         | FRIDAY  | SATURDAY  |
|--------------------------------------|--------------------------------------|--|----------------------------------|----------------------------------|---|---|
| 1                                    | 2                                    | 3-2-2 Week 1 3<br>2-3-2 Week 2   | 4                                | 5                                | 6   | 7   |
| IMPROVE Particle<br>Sampling Day     | Alternate Sample<br>Change Day       | Change IMPROVE<br>Particle cartridges  | IMPROVE Particle<br>Sampling Day |                                  |   | IMPROVE Particle<br>Sampling Day  |
| 8                                    | 9                                    | 3-2-2 Week 2<br>2-3-2 Week 3<br>Special cartridge change:<br>move cassette 3 from old<br>cartridge to new.                                     | 11                               | 12                               | 13  | 14  |
| Alternate Sample<br>Change Day       | Alternate Sample<br>Change Day       | IMPROVE Particle<br>Sampling Day   | Alternate Sample<br>Change Day   | Alternate Sample<br>Change Day   | IMPROVE Particle<br>Sampling Day  |   |
| 15                                   | 16                                   | 3-2-2 Week 3 <b>17</b><br>2-3-2 Week 1   | 18                               | 19                               | 20  | 21  |
|                                      | IMPROVE Particle<br>Sampling Day     | Change IMPROVE<br>Particle cartridges  | Alternate Sample<br>Change Day   | IMPROVE Particle<br>Sampling Day |   |   |
| 22                                   | 23                                   | 3-2-2 Week 1 24<br>2-3-2 Week 2  | 25                               | 26                               | 27  | 28  |
| IMPROVE Particle<br>Sampling Day     | Alternate Sample<br>Change Day       | Change IMPROVE<br>Particle cartridges  | IMPROVE Particle<br>Sampling Day |                                  |   | IMPROVE Particle<br>Sampling Day  |
| 29<br>Alternate Sample<br>Change Day | 30<br>Alternate Sample<br>Change Day | 3-2-2 Week 2<br>2-3-2 Week 3<br>Special cartridge change:<br>move cassette 3 from old<br>cartridge to new.<br>IMPROVE Particle<br>Sampling Day |                                  |                                  | K         K | A PRI-L 2020       S     M     T     W     T     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 |



### **APRIL** 2020

| SUNDAY                           | MONDAY                                 | TUESDAY   | WEDNESDAY                                   | THURSDAY                                      | FRIDAY  | SATURDAY  |
|----------------------------------|--|---|---|---|---|---|
|                                  |  |   | 1   | 2   | 3   | 4   |
|                                  |  |   | Alternate Sample<br>Change Day              | Alternate Sample<br>Change Day                | IMPROVE Particle<br>Sampling Day  |   |
| 5                                | 6                                      | 3-2-2 Week 3 7<br>2-3-2 Week 1  | 8   | 9   | 10  | 11  |
|                                  | IMPROVE Particle<br>Sampling Day       | Change IMPROVE<br>Particle cartridges   | Alternate Sample<br>Change Day              | IMPROVE Particle<br>Sampling Day              |   |   |
| 12                               | 13                                     | 3-2-2 Week 1 <b>14</b><br>2-3-2 Week 2  | 15  | 16  | 17  | 18  |
| IMPROVE Particle<br>Sampling Day | Alternate Sample<br>Change Day         | Change IMPROVE<br>Particle cartridges   | IMPROVE Particle<br>Sampling Day            |   |   | IMPROVE Particle<br>Sampling Day  |
| 19                               | 20                                     | 3-2-2 Week 2 21<br>2-3-2 Week 3<br>Special cartridge change:<br>move cassette 3 from old<br>cartridge to new. | 22  | 23  | 24  | 25  |
| Alternate Sample<br>Change Day   | Alternate Sample<br>Change Day         | IMPROVE Particle<br>Sampling Day  | Alternate Sample<br>Change Day              | Alternate Sample<br>Change Day                | IMPROVE Particle<br>Sampling Day  |   |
| 26                               | 27<br>IMPROVE Particle<br>Sampling Day | 3-2-2 Week 3<br>2-3-2 Week 1<br>Change IMPROVE<br>Particle cartridges   | <b>29</b><br>Alternate Sample<br>Change Day | <b>30</b><br>IMPROVE Particle<br>Sampling Day | MARCH         2020           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         14         14         14         14         14 | MAY         2 U J U           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         31         25         26         27         28         29         30 |



18m

A DE LA ANT

Martin Inter 200

and a

22-

### **MAY** 2020

| SUNDAY                           | MONDAY                           | TUESDAY   | WEDNESDAY                        | THURSDAY                         | FRIDAY   | SATURDAY   |
|----------------------------------|----------------------------------|---|----------------------------------|----------------------------------|--|--|
|                                  |                                  |   |                                  |                                  | 1  | 2  |
|                                  |                                  |   |                                  |                                  |  |  |
| 3                                | 4                                | 3-2-2 Week 1 5<br>2-3-2 Week 2  | 6                                | 7                                | 8  | 9  |
| IMPROVE Particle<br>Sampling Day | Alternate Sample<br>Change Day   | Change IMPROVE<br>Particle cartridges   | IMPROVE Particle<br>Sampling Day |                                  |  | IMPROVE Particle<br>Sampling Day   |
| 10                               | 11                               | 3-2-2 Week 2<br>2-3-2 Week 3<br>Special cartridge change:<br>move cassette 3 from old | 13                               | 14                               | 15   | 16   |
| Alternate Sample<br>Change Day   | Alternate Sample<br>Change Day   | IMPROVE Particle<br>Sampling Day  | Alternate Sample<br>Change Day   | Alternate Sample<br>Change Day   | IMPROVE Particle<br>Sampling Day   |  |
| 17                               | 18                               | 3-2-2 Week 3 19<br>2-3-2 Week 1   | 20                               | 21                               | 22   | 23   |
|                                  | IMPROVE Particle<br>Sampling Day | Change IMPROVE<br>Particle cartridges   | Alternate Sample<br>Change Day   | IMPROVE Particle<br>Sampling Day |  |  |
| 24                               | Memorial Day <b>25</b>           | 3-2-2 Week 1<br>2-3-2 Week 2<br><b>26</b>   | 27                               | 28                               | 29   | 30   |
| IMPROVE Particle<br>Sampling Day | Alternate Sample<br>Change Day   | Change IMPROVE<br>Particle cartridges   | IMPROVE Particle<br>Sampling Day |                                  |  | IMPROVE Particle<br>Sampling Day   |
| 31                               |                                  |   |                                  |                                  | A PRI         Z O Z           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 | JUNE         2020           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 |
| Alternate Sample<br>Change Day   |                                  |   |                                  |                                  | 192021222324252627282930   | 21     22     23     24     25     26     27       28     29     30  |

TOOLIK LAKE: Near Toolik Lake, AK (TOOL1) Josh Grant

 $\bigcirc$ 

#### **JUNE** 2020

| SUNDAY                           | MONDAY                           | TUESDAY  | WEDNESDAY                        | THURSDAY                         | FRIDAY  | SATURDAY  |
|----------------------------------|----------------------------------|--|----------------------------------|----------------------------------|---|---|
|                                  | 1                                | 3-2-2 Week 2 2<br>2-3-2 Week 3   | 3                                | 4                                | 5   | 6   |
|                                  |                                  | Special cartridge change:<br>move cassette 3 from old<br>cartridge to new. |                                  |                                  |   |   |
|                                  | Alternate Sample<br>Change Day   | IMPROVE Particle<br>Sampling Day   | Alternate Sample<br>Change Day   | Alternate Sample<br>Change Day   | IMPROVE Particle<br>Sampling Day  |   |
| 7                                | 8                                | 3-2-2 Week 3 9<br>2-3-2 Week 1   | 10                               | 11                               | 12  | 13  |
|                                  | IMPROVE Particle<br>Sampling Day | Change IMPROVE<br>Particle cartridges                                      | Alternate Sample<br>Change Day   | IMPROVE Particle<br>Sampling Day |   |   |
| 14                               | 15                               | 3-2-2 Week 1 <b>16</b><br>2-3-2 Week 2                                     | 17                               | 18                               | 19  | 20  |
| IMPROVE Particle<br>Sampling Day | Alternate Sample<br>Change Day   | Change IMPROVE<br>Particle cartridges                                      | IMPROVE Particle<br>Sampling Day |                                  |   | IMPROVE Particle<br>Sampling Day  |
| 21                               | 22                               | 3-2-2 Week 2 <b>23</b><br>2-3-2 Week 3                                     | 24                               | 25                               | 26  | 27  |
|                                  |                                  | Special cartridge change:<br>move cassette 3 from old<br>cartridge to new. |                                  |                                  |   |   |
| Alternate Sample<br>Change Day   | Alternate Sample<br>Change Day   | IMPROVE Particle<br>Sampling Day   | Alternate Sample<br>Change Day   | Alternate Sample<br>Change Day   | IMPROVE Particle<br>Sampling Day  |   |
| 28                               | 29                               | 3-2-2 Week 3 30<br>2-3-2 Week 1  |                                  |                                  | M         Y         V         T         F         S           3         4         5         6         7         8         9           10         11         12         13         14         15         16           17         18         19         20         21         22         23 | JULY         2020           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 |
|                                  | IMPROVE Particle<br>Sampling Day | Change IMPROVE<br>Particle cartridges                                      |                                  |                                  | <sup>24</sup> 25 26 27 28 29 30   | 26 27 28 29 30 31   |

BAENGNYEONGDO: Near Baengnyeongdo Island, South Korea (BYIS1) Josh Grant

### **JULY** 2020

| SUNDAY  | MONDAY  | TUESDAY  | WEDNESDAY                           | THURSDAY                              | FRIDAY                           | SATURDAY                      |
|---|---|--|-------------------------------------|---------------------------------------|----------------------------------|-------------------------------|
| JUNE         JUNE         JUNE         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 | A         V         V         V         V         F         S           V         - |  | 1<br>Alternate Sample<br>Change Day | 2<br>IMPROVE Particle<br>Sampling Day | 3                                | Independence Day 4            |
| 5<br>IMPROVE Particle   | 6<br>Alternate Sample   | 3-2-2 Week 1 <b>7</b><br>2-3-2 Week 2<br>Change IMPROVE  | 8<br>IMPROVE Particle               | 9                                     | 10                               | <b>11</b><br>IMPROVE Particle |
| Sampling Day  | Change Day  | Particle cartridges  | Sampling Day                        |                                       |                                  | Sampling Day                  |
| 12  | 13  | 3-2-2 Week 2<br>2-3-2 Week 3<br>Special cartridge change:<br>move cassette 3 from old<br>cartridge to new.<br>IMPROVE Particle | 15                                  | 16                                    | 17                               | 18                            |
| Alternate Sample<br>Change Day  | Alternate Sample<br>Change Day  | Sampling Day   | Alternate Sample<br>Change Day      | Alternate Sample<br>Change Day        | IMPROVE Particle<br>Sampling Day |                               |
| 19  | 20  | 3-2-2 Week 3 21<br>2-3-2 Week 1  | 22                                  | 23                                    | 24                               | 25                            |
|   | IMPROVE Particle<br>Sampling Day  | Change IMPROVE<br>Particle cartridges  | Alternate Sample<br>Change Day      | IMPROVE Particle<br>Sampling Day      |                                  |                               |
| 26  | 27  | 3-2-2 Week 1 28<br>2-3-2 Week 2  | 29                                  | 30                                    | 31                               |                               |
| IMPROVE Particle<br>Sampling Day  | Alternate Sample<br>Change Day  | Change IMPROVE<br>Particle cartridges  | IMPROVE Particle<br>Sampling Day    |                                       |                                  |                               |

INDIAN CREEK: Near Canyonlands NP, UT (CANY1) Josh Grant

### **AUGUST** 2020

|   | SUNDAY                          | MONDAY                           | TUESDAY  | WEDNESDAY                        | THURSDAY                         | FRIDAY   | SATURDAY   |
|---|---------------------------------|----------------------------------|--|----------------------------------|----------------------------------|--|--|
|   |                                 |                                  |  |                                  |                                  |  | 1  |
|   |                                 |                                  |  |                                  |                                  |  | IMPROVE Particle<br>Sampling Day   |
|   | 2                               | 3                                | 3-2-2 Week 2 4<br>2-3-2 Week 3<br>Special cartridge change:<br>move cassette 3 from old<br>cartridge to new.     | 5                                | 6                                | 7  | 8  |
| A | lternate Sample<br>Change Day   | Alternate Sample<br>Change Day   | IMPROVE Particle<br>Sampling Day   | Alternate Sample<br>Change Day   | Alternate Sample<br>Change Day   | IMPROVE Particle<br>Sampling Day   |  |
|   | 9                               | 10                               | 3-2-2 Week 3 <b>11</b><br>2-3-2 Week 1   | 12                               | 13                               | 14   | 15   |
|   |                                 | IMPROVE Particle<br>Sampling Day | Change IMPROVE<br>Particle cartridges  | Alternate Sample<br>Change Day   | IMPROVE Particle<br>Sampling Day |  |  |
|   | 16                              | 17                               | 3-2-2 Week 1<br>2-3-2 Week 2   | 19                               | 20                               | 21   | 22   |
|   | IPROVE Particle<br>Sampling Day | Alternate Sample<br>Change Day   | Change IMPROVE<br>Particle cartridges  | IMPROVE Particle<br>Sampling Day |                                  |  | IMPROVE Particle<br>Sampling Day   |
|   | 23                              | 24                               | 3-2-2 Week 2 25<br>2-3-2 Week 3 25<br>Special cartridge change:<br>move cassette 3 from old<br>cartridge to new. | 26                               | 27                               | 28   | 29   |
| А | Alternate Sample<br>Change Day  | Alternate Sample<br>Change Day   | IMPROVE Particle<br>Sampling Day   | Alternate Sample<br>Change Day   | Alternate Sample<br>Change Day   | IMPROVE Particle<br>Sampling Day   |  |
|   | 30                              | 31                               |  |                                  |                                  | JULY         V         F         S           8         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 | SEPTEMBER         2U2           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 |
|   |                                 | Sampling Day                     |  |                                  |                                  | 19     20     21     22     23     24     25       26     27     28     29     30     31   | 20     21     22     23     24     25     26       27     28     29     30   |

BIG ARROYO: Near Sequoia NP, CA (SEQU1) Josh Grant

and the

#### **SEPTEMBER** 2020

| SUNDAY                           | MONDAY                           | TUESDAY  | WEDNESDAY                        | THURSDAY                         | FRIDAY   | SATURDAY  |
|----------------------------------|----------------------------------|--|----------------------------------|----------------------------------|--|---|
|                                  |                                  | 3-2-2 Week 3 <b>1</b><br>2-3-2 Week 1  | 2                                | 3                                | 4  | 5   |
|                                  |                                  | Change IMPROVE<br>Particle cartridges  | Alternate Sample<br>Change Day   | IMPROVE Particle<br>Sampling Day |  |   |
| 6                                | Labor Day <b>7</b>               | 3-2-2 Week 1 8<br>2-3-2 Week 2   | 9                                | 10                               | 11   | 12  |
| IMPROVE Particle<br>Sampling Day | Alternate Sample<br>Change Day   | Change IMPROVE<br>Particle cartridges  | IMPROVE Particle<br>Sampling Day |                                  |  | IMPROVE Particle<br>Sampling Day  |
| 13                               | 14                               | 3-2-2 Week 2<br>2-3-2 Week 3<br>Special cartridge change:<br>move cassette 3 from old<br>cartridge to new. | 16                               | 17                               | 18   | 19  |
| Alternate Sample<br>Change Day   | Alternate Sample<br>Change Day   | IMPROVE Particle<br>Sampling Day   | Alternate Sample<br>Change Day   | Alternate Sample<br>Change Day   | IMPROVE Particle<br>Sampling Day   |   |
| 20                               | 21                               | 3-2-2 Week 3 22<br>2-3-2 Week 1  | 23                               | 24                               | 25   | 26  |
|                                  | IMPROVE Particle<br>Sampling Day | Change IMPROVE<br>Particle cartridges  | Alternate Sample<br>Change Day   | IMPROVE Particle<br>Sampling Day |  |   |
|                                  | 28                               | 3-2-2 Week 1 29<br>2-3-2 Week 2  |                                  |                                  | AUGUST         2020           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 | OCTOBER         2020           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 |
| IMPROVE Particle<br>Sampling Day | Alternate Sample<br>Change Day   | Change IMPROVE<br>Particle cartridges  | IMPROVE Particle<br>Sampling Day |                                  | <sup>23</sup> <sup>24</sup> 25 26 27 28 29   | 25 26 <b>27</b> 28 29 <b>30</b> 31  |

WONDERLAND: Near Joshua Tree NP, CA (JOSH1) Josh Grant

## **OCTOBER** 2020

| SUNDAY   | MONDAY  | TUESDAY  | WEDNESDAY                              | THURSDAY                         | FRIDAY                           | SATURDAY                               |
|--|---|--|--|----------------------------------|----------------------------------|--|
| 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 | NO         V         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         X         X         X         X         X |  |  | 1                                | 2                                | 3<br>IMPROVE Particle<br>Sampling Day  |
| 4  | 5   | 3-2-2 Week 2 6   | 7                                      | 8                                | 9                                | 10                                     |
| Alternate Sample   | Alternate Sample  | 2-3-2 Week 3<br>Special cartridge change:<br>move cassette 3 from old<br>cartridge to new.<br>IMPROVE Particle | Alternate Sample                       | Alternate Sample                 | IMPROVE Particle                 |  |
| Change Day 11  | Change Day  | Sampling Day   | Change Day 14                          | Change Day<br>15                 | Sampling Day                     | 17                                     |
|  | Columbus Day <b>12</b><br>IMPROVE Particle<br>Sampling Day  | 2-3-2 Week 1<br>Change IMPROVE<br>Particle cartridges  | Alternate Sample<br>Change Day         | IMPROVE Particle<br>Sampling Day |                                  |  |
| <b>18</b><br>IMPROVE Particle<br>Sampling Day  | <b>19</b><br>Alternate Sample<br>Change Day   | 3-2-2 Week 1<br>2-3-2 Week 2<br>Change IMPROVE<br>Particle cartridges  | 21<br>IMPROVE Particle<br>Sampling Day | 22                               | 23                               | 24<br>IMPROVE Particle<br>Sampling Day |
| 25   | 26  | 3-2-2 Week 2 27<br>2-3-2 Week 3<br>Special cartridge change:<br>move cassette 3 from old<br>cartridge to new.  | 28                                     | 29                               | 30                               | 31                                     |
| Alternate Sample<br>Change Day   | Alternate Sample<br>Change Day  | IMPROVE Particle<br>Sampling Day   | Alternate Sample<br>Change Day         | Alternate Sample<br>Change Day   | IMPROVE Particle<br>Sampling Day |  |

BEARTOOTH PASS: Near North Absaroka Wilderness (NOAB1) Josh Grant

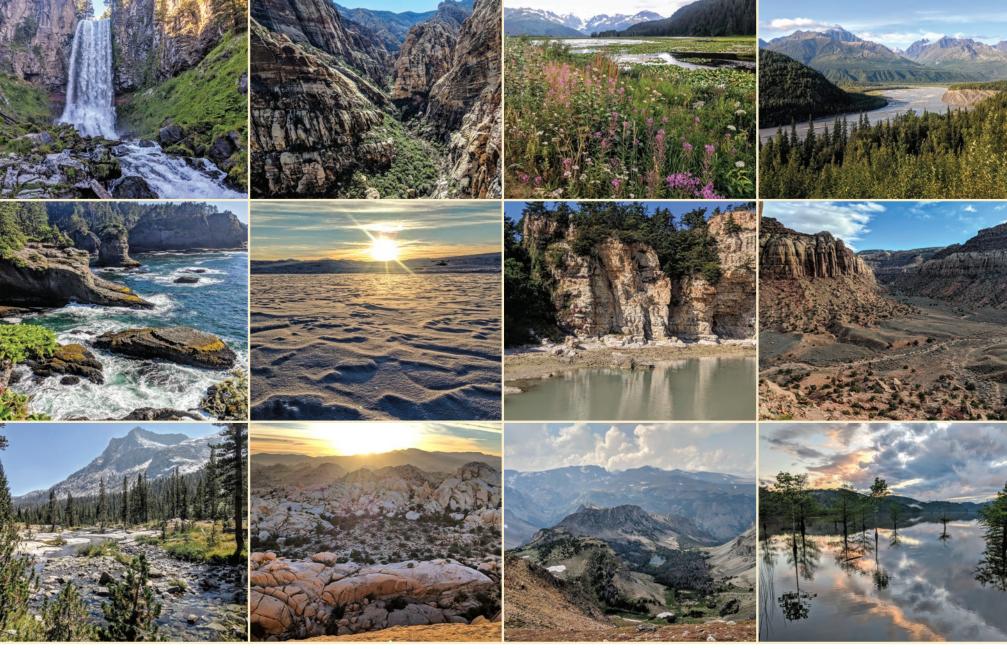
### **NOVEMBER** 2020

| SUNDAY                         |    | MONDAY                                      | TUESDAY  | WEDNESDAY                        | THURSDAY                         | FRIDAY  | SATURDAY   |
|--------------------------------|----|---|--|----------------------------------|----------------------------------|---|--|
|                                | 1  | 2   | 3-2-2 Week 3 3<br>2-3-2 Week 1   | 4                                | 5                                | 6   | 7  |
|                                |    | MPROVE Particle<br>Sampling Day             | Change IMPROVE<br>Particle cartridges                                      | Alternate Sample<br>Change Day   | IMPROVE Particle<br>Sampling Day |   |  |
|                                | 8  | 9   | 3-2-2 Week 1 <b>10</b><br>2-3-2 Week 2                                     | Veterans Day <b>11</b>           | 12                               | 13  | 14   |
| IMPROVE Partic<br>Sampling Day |    | Alternate Sample<br>Change Day              | Change IMPROVE<br>Particle cartridges                                      | IMPROVE Particle<br>Sampling Day |                                  |   | IMPROVE Particle<br>Sampling Day   |
|                                | 15 | 16  | 3-2-2 Week 2 <b>17</b><br>2-3-2 Week 3                                     | 18                               | 19                               | 20  | 21   |
|                                |    |   | Special cartridge change:<br>move cassette 3 from old<br>cartridge to new. |                                  |                                  |   |  |
| Alternate Sampl<br>Change Day  |    | Alternate Sample<br>Change Day              | IMPROVE Particle<br>Sampling Day   | Alternate Sample<br>Change Day   | Alternate Sample<br>Change Day   | IMPROVE Particle<br>Sampling Day  |  |
|                                | 22 | 23  | 3-2-2 Week 3 24<br>2-3-2 Week 1  | 25                               | Thanksgiving Day <b>26</b>       | 27  | 28   |
|                                | IN | MPROVE Particle<br>Sampling Day             | Change IMPROVE<br>Particle cartridges                                      | Alternate Sample<br>Change Day   | IMPROVE Particle<br>Sampling Day |   |  |
| IMPROVE Partic<br>Sampling Day |    | <b>30</b><br>Alternate Sample<br>Change Day |  |                                  |                                  | OC         TO         F         S           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         31 | DECEMBER         2 O 2 O           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 |

LAKE OCOEE: Near Cohutta, GA (COHU1) Josh Grant

### **DECEMBER** 2020

| SUNDAY                               | MONDAY                               | TUESDAY  | WEDNESDAY                            | THURSDAY                             | FRIDAY  | SATURDAY   |
|--------------------------------------|--------------------------------------|--|--------------------------------------|--------------------------------------|---|--|
|                                      |                                      | 3-2-2 Week 1 <b>1</b><br>2-3-2 Week 2  | 2                                    | 3                                    | 4   | 5  |
|                                      |                                      | Change IMPROVE<br>Particle cartridges  | IMPROVE Particle<br>Sampling Day     |                                      |   | IMPROVE Particle<br>Sampling Day   |
| 6                                    | 7                                    | 3-2-2 Week 2<br>2-3-2 Week 3<br>Special cartridge change:<br>move cassette 3 from old<br>cartridge to new.                                     | 9                                    | 10                                   | 11  | 12   |
| Alternate Sample<br>Change Day       | Alternate Sample<br>Change Day       | IMPROVE Particle<br>Sampling Day   | Alternate Sample<br>Change Day       | Alternate Sample<br>Change Day       | IMPROVE Particle<br>Sampling Day  |  |
| 13                                   | 14                                   | 3-2-2 Week 3 15<br>2-3-2 Week 1  | 16                                   | 17                                   | 18  | 19   |
|                                      | IMPROVE Particle<br>Sampling Day     | Change IMPROVE<br>Particle cartridges  | Alternate Sample<br>Change Day       | IMPROVE Particle<br>Sampling Day     |   |  |
| 20                                   | 21                                   | 3-2-2 Week 1 22<br>2-3-2 Week 2  | 23                                   | 24                                   | Christmas Day 25  | 26   |
| IMPROVE Particle<br>Sampling Day     | Alternate Sample<br>Change Day       | Change IMPROVE<br>Particle cartridges  | IMPROVE Particle<br>Sampling Day     |                                      |   | IMPROVE Particle<br>Sampling Day   |
| 27<br>Alternate Sample<br>Change Day | 28<br>Alternate Sample<br>Change Day | 3-2-2 Week 2<br>2-3-2 Week 3<br>Special cartridge change:<br>move cassette 3 from old<br>cartridge to new.<br>IMPROVE Particle<br>Sampling Day | 30<br>Alternate Sample<br>Change Day | 31<br>Alternate Sample<br>Change Day | NO         F         S         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         20         21         20         21 | JANUARY         2 U21           S         M         T         W         T         F         S           1         2         1         2         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 |



Photographs taken by IMPROVE Field Engineer, Josh Grant. Cover Photo: HALF DOME (YOSEMITE NP) Josh Grant

