

UC DAVIS SPRING 2023 NETWORK UPDATE

IMPROVE Spring Steering Committee Meeting
2023 June 8

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and the whole team

UCDAVIS
AIR QUALITY RESEARCH CENTER

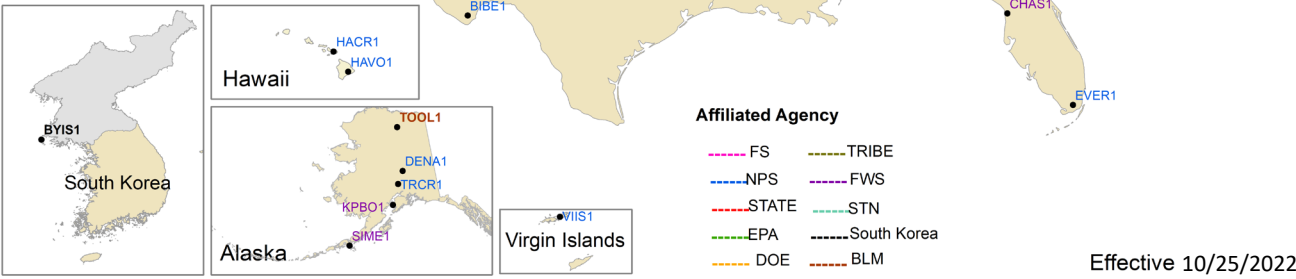
Several Sites Failed RHR Completeness Criteria in 2023 1st Quarter

1. Agua Tibia, CA (AGTI1)
2. Fort Peck, MT (FOPE1)
3. Gates of the Mountains, MT (GAMO1)
4. Hoover Wilderness, CA (HOOV1)
5. Kaiser Wilderness, CA (KAIS1)
6. Nebraska Natl. Forest, NE (NEBR1)
7. San Rafael, CA (RAFA1)
8. San Gabriel, CA (SAGA)
9. UL Bend, MT (ULBE)

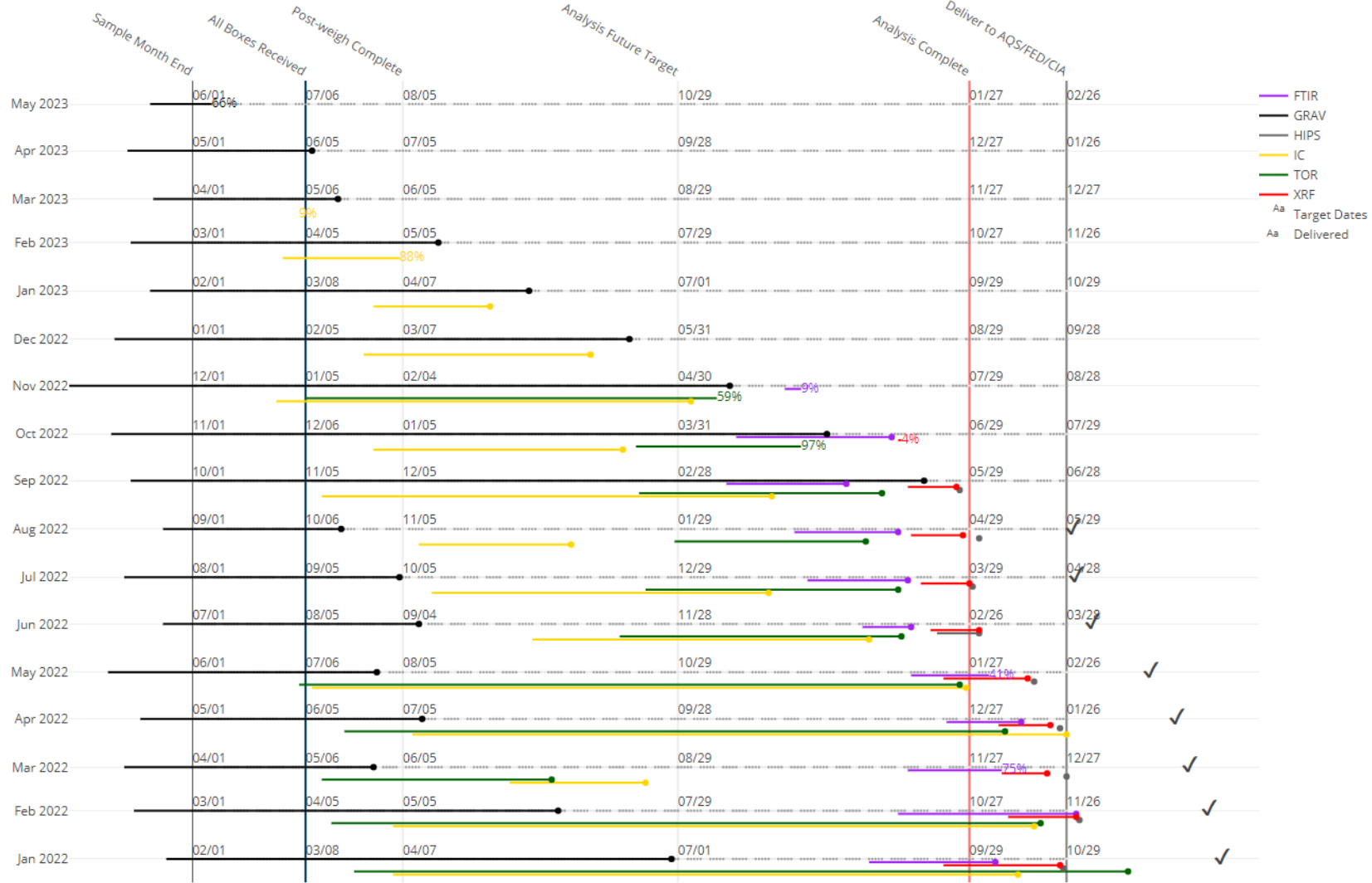
2023 Site Updates

- Field Maintenance
 - Season is underway
 - More sites than usual are being relocated
 - **MAKA2, GAMO1, WHPA1, RAFA1, BLIS1/2**
- And being rebuilt
 - **PORE1, NEBR1, BRID1**
- One site has been shutdown
 - **BYIS1 (South Korea)**
- One site will be shutdown at end of 2023
 - **TOOL1 (AK, BLM)**

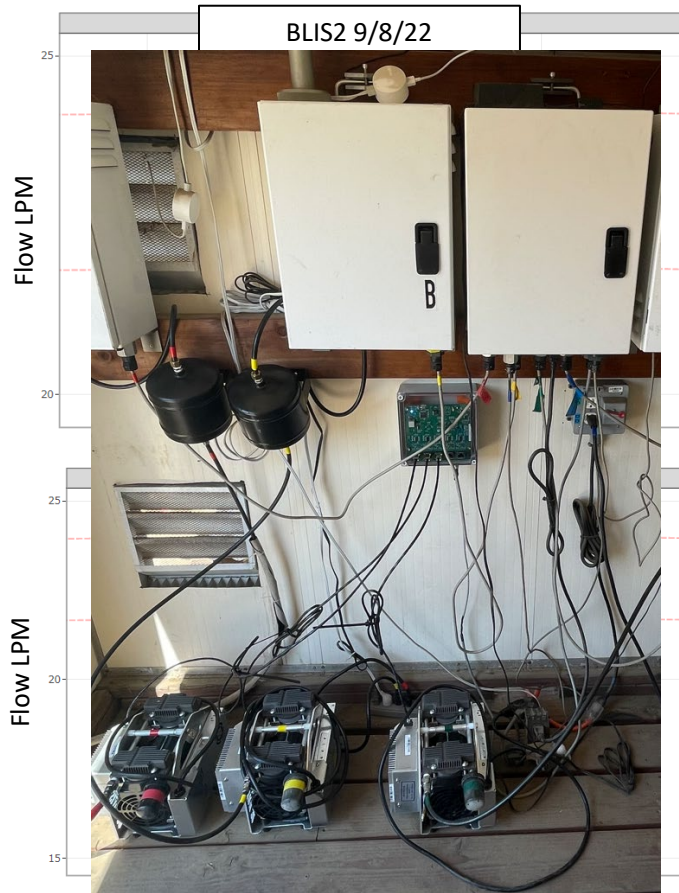
* Inserts not to scale



Data Delivery



Active Flow Control – Deployment Update 2023



- Requires new hardware, including variable speed pumps, electronic boards and software
- 4 Sites (FRES1, BLIS1, HOOV1, and PHOE5) are running active flow control
- Graph shows nearby sites LTCC1 and BLIS2 on a medium/heavy filter loading day
 - The flow control site (BLIS2) maintains a constant flow rate
- Filter clogging is delayed but inevitable with heavy loadings even with active flow control

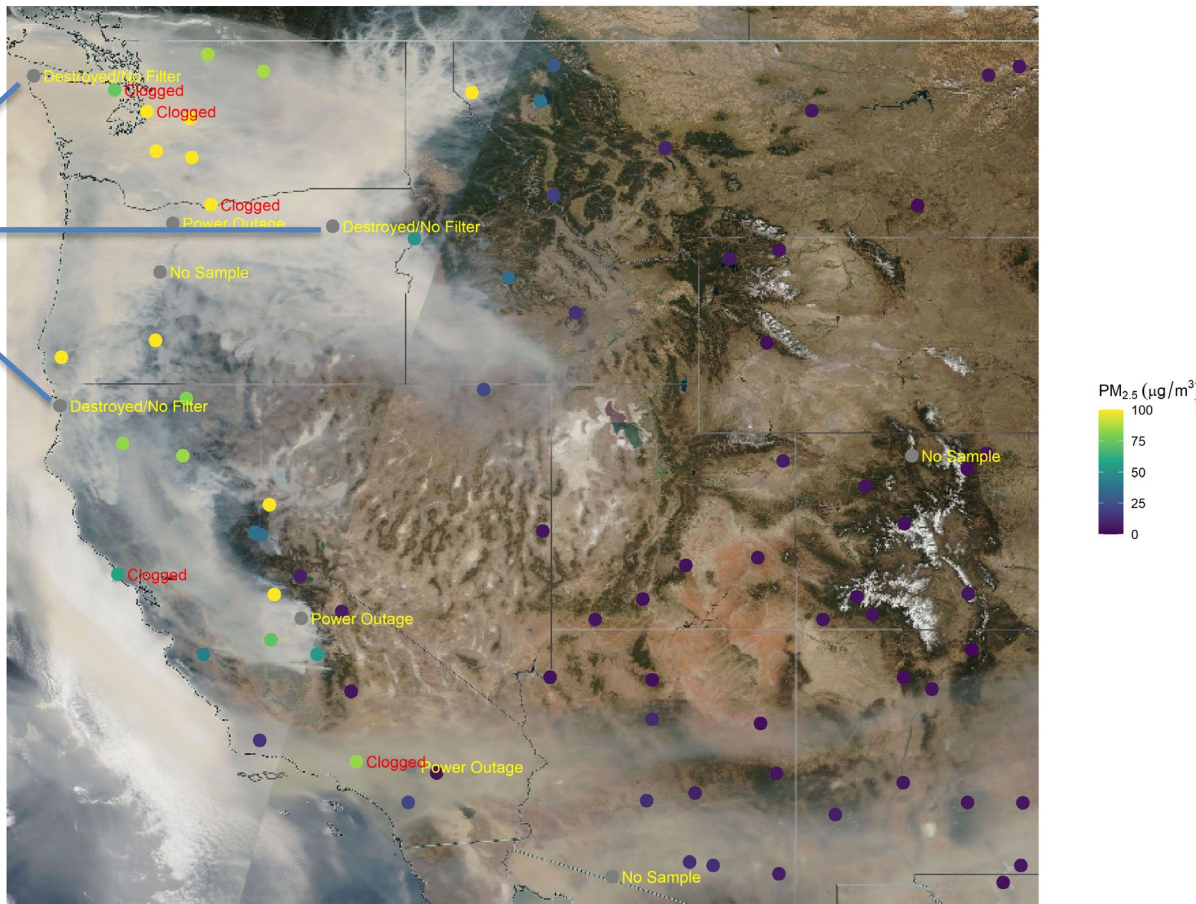
Sample Clogging/Sticking

- MAKA – filter stuck ($43 \mu\text{g}/\text{m}^3 \text{ OC}$)
- STAR – filter stuck ($200 \mu\text{g}/\text{m}^3 \text{ OC}$)
- REDW – filter stuck ($76 \mu\text{g}/\text{m}^3 \text{ OC}$)



- 27 filters in September 2020 invalidated because of holes
- 45 filter invalidated because of **clogged** flow

September 12, 2020



Clogging Protocol

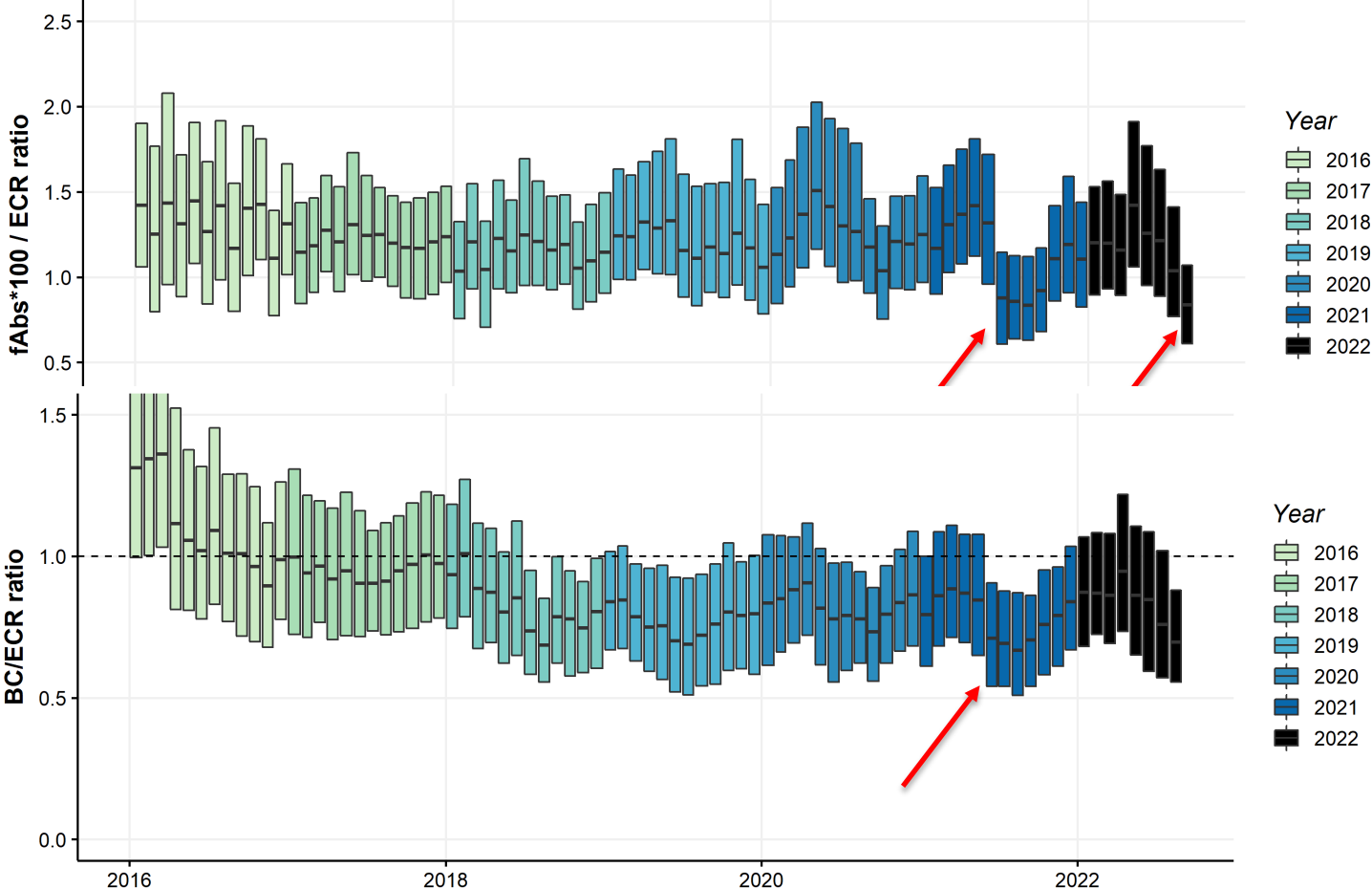
If the flow rate falls below 15 LPM for more than 15 minutes

- If ≥ 18 hours into sample
 - Shut off all modules
 - Data are still valid for RHR
- Else
 - Shut off the clogged module
 - Shut off the companion module for PM coarse calculation (i.e., shut off PM_{10} PTFE if $PM_{2.5}$ PTFE clogs)
 - Data are invalid for RHR but will be delivered with an accurate concentration and a qualifier flag indicating a short sample time

Status: Deployed at several sites and will be deployed networkwide by end of 2023

QUALITY ASSURANCE ACTIVITIES

Cross-Module fAbs/ECR Ratio



- Hyt
- f_{Ab}
- Sev
- HIP
- rea

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 ucible.
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Any questions?

