

Responding to Issues

IMAGE PERMANENCE INSTITUTE
TRAINING SUSTAINABLE ENVIRONMENTAL MANAGEMENT TEAMS FOR CULTURAL INSTITUTIONS

Today's Webinar

- ▶ **Funding provided by the National Endowment for the Humanities Education and Training grant**

- ▶ **Series I: Environmental Management**
- ▶ **Series II: Environmental Data Analysis**
 - ▶ **Understanding Fluctuations and Equilibrations**
 - ▶ **Setting Appropriate Parameters**



**NATIONAL
ENDOWMENT
FOR THE
HUMANITIES**

ipisustainability.org/webinars.html



Webinars Workshops Resources Consulting

Webinars

The following webinars are being offered with funding from the [National Endowment for the Humanities](#), Division of Preservation and Access, Education and Training Grant Program. Series I webinars are designed for institutions beginning a program; Series II webinars are for those with a year or more of environmental data, looking to advance data analysis and data-based decision-making. Each live webinar will run for approximately 60 minutes including time for questions, and webinar recordings will remain accessible through December 2020.

There is no cost to attend these webinars, register below to participate.



Upcoming Webinars

Webinar Series II: Environmental Data Analysis

Series II will teach participants with at least one year of environmental data how to progress from the monitoring stage to the management stage. At the end of the series, participants will be able to analyze and interpret meaning from environmental data, and respond to data interpretation by creating appropriate action plans.

[Register Now](#)

Responding to Issues

July 9, 2020 – 2:00pm – 3:00pm EDT



Recent Webinars

Setting Appropriate Parameters

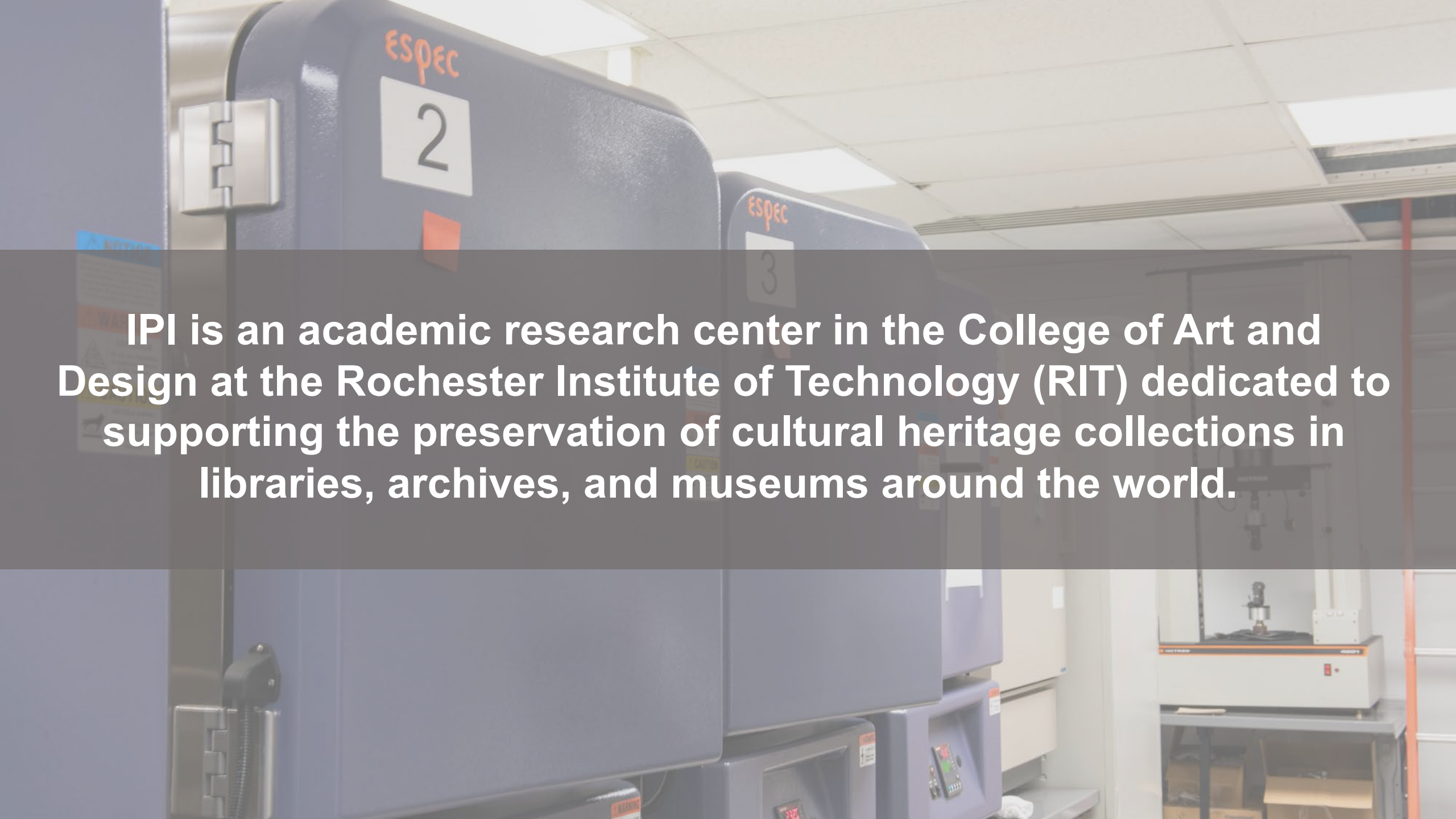
June 11, 2020

[Watch the Recording](#) or [Download the Presentation \(PDF\)](#)

Understanding Fluctuations and Equilibrations

May 14, 2020

[Watch the Recording](#) or [Download the Presentation \(PDF\)](#)



IPI is an academic research center in the College of Art and Design at the Rochester Institute of Technology (RIT) dedicated to supporting the preservation of cultural heritage collections in libraries, archives, and museums around the world.

Your Presenters



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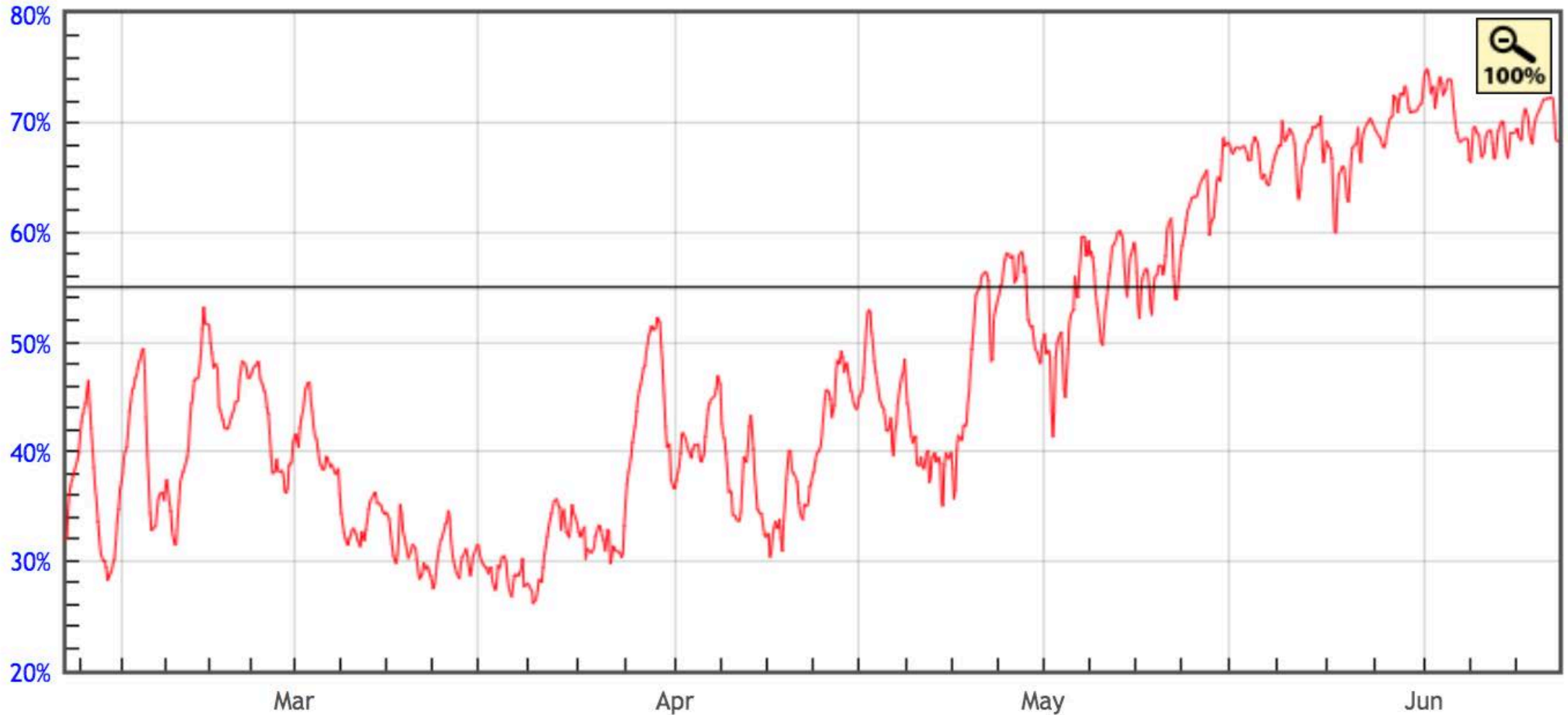
Christopher Cameron

Sustainable Preservation Specialist

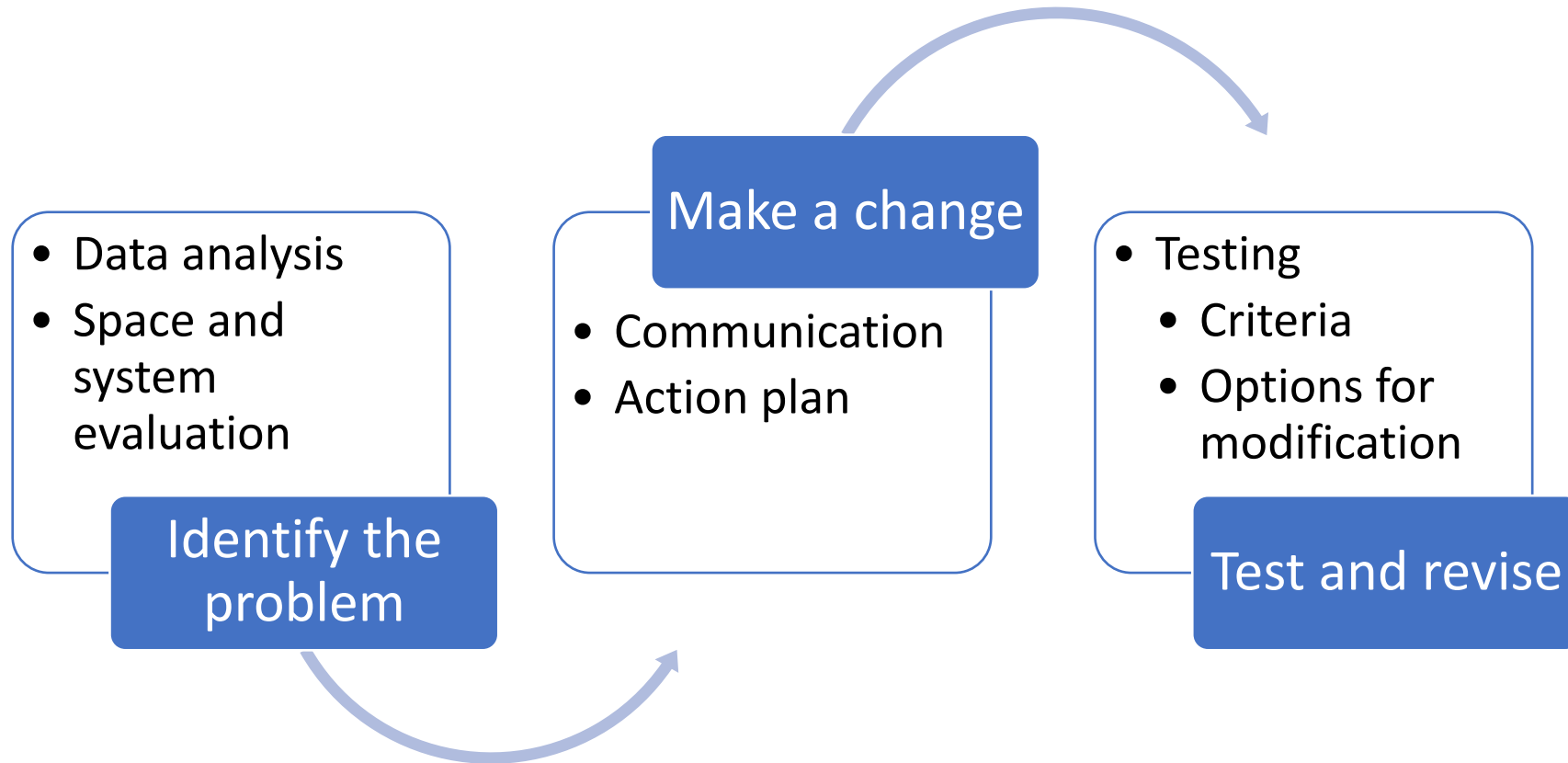
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cmcpvh@rit.edu

Issue vs. incident



Response outline



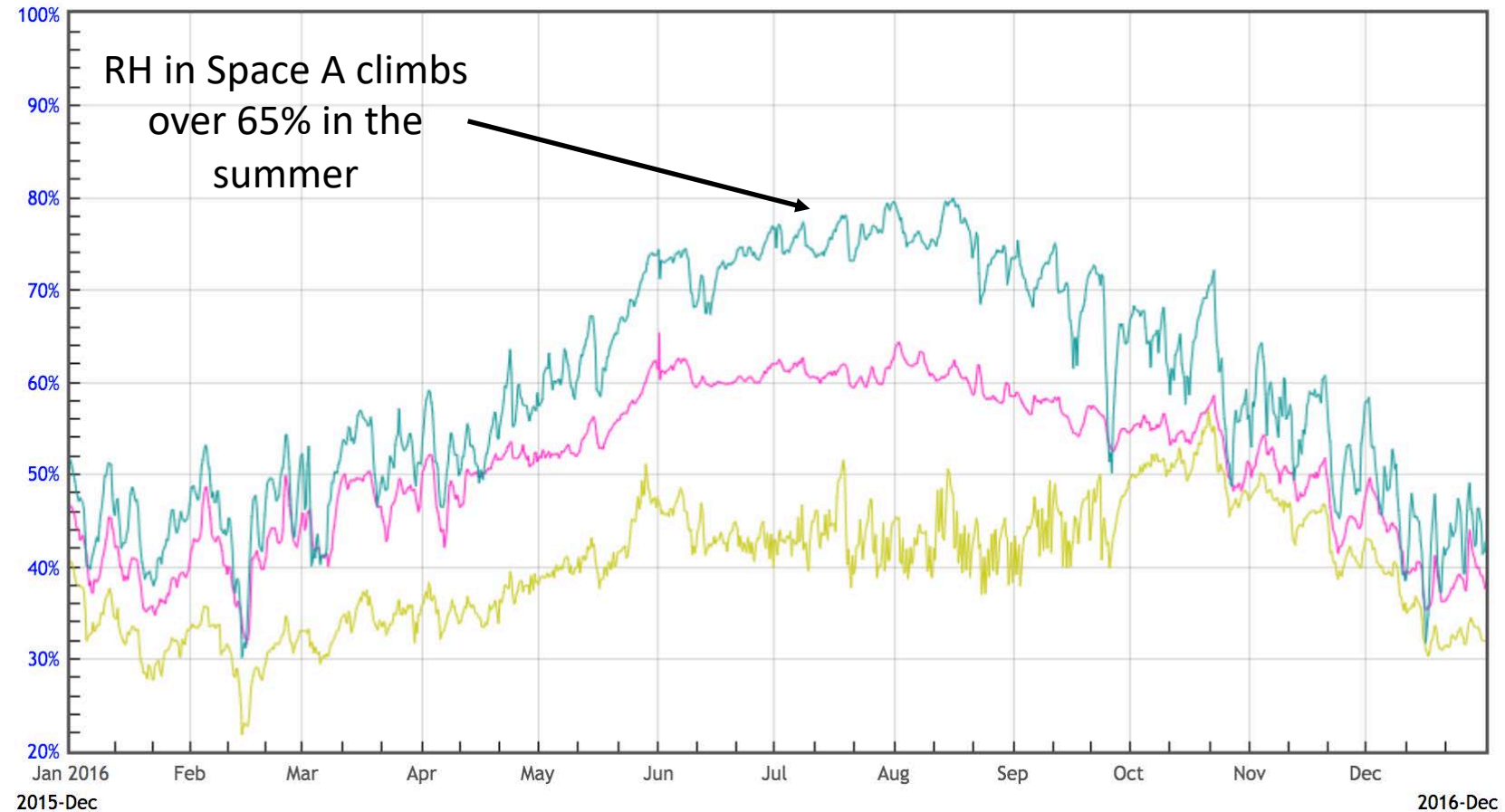
Data analysis

What is happening?

- ▶ Determine extent of issue

Where is it happening?

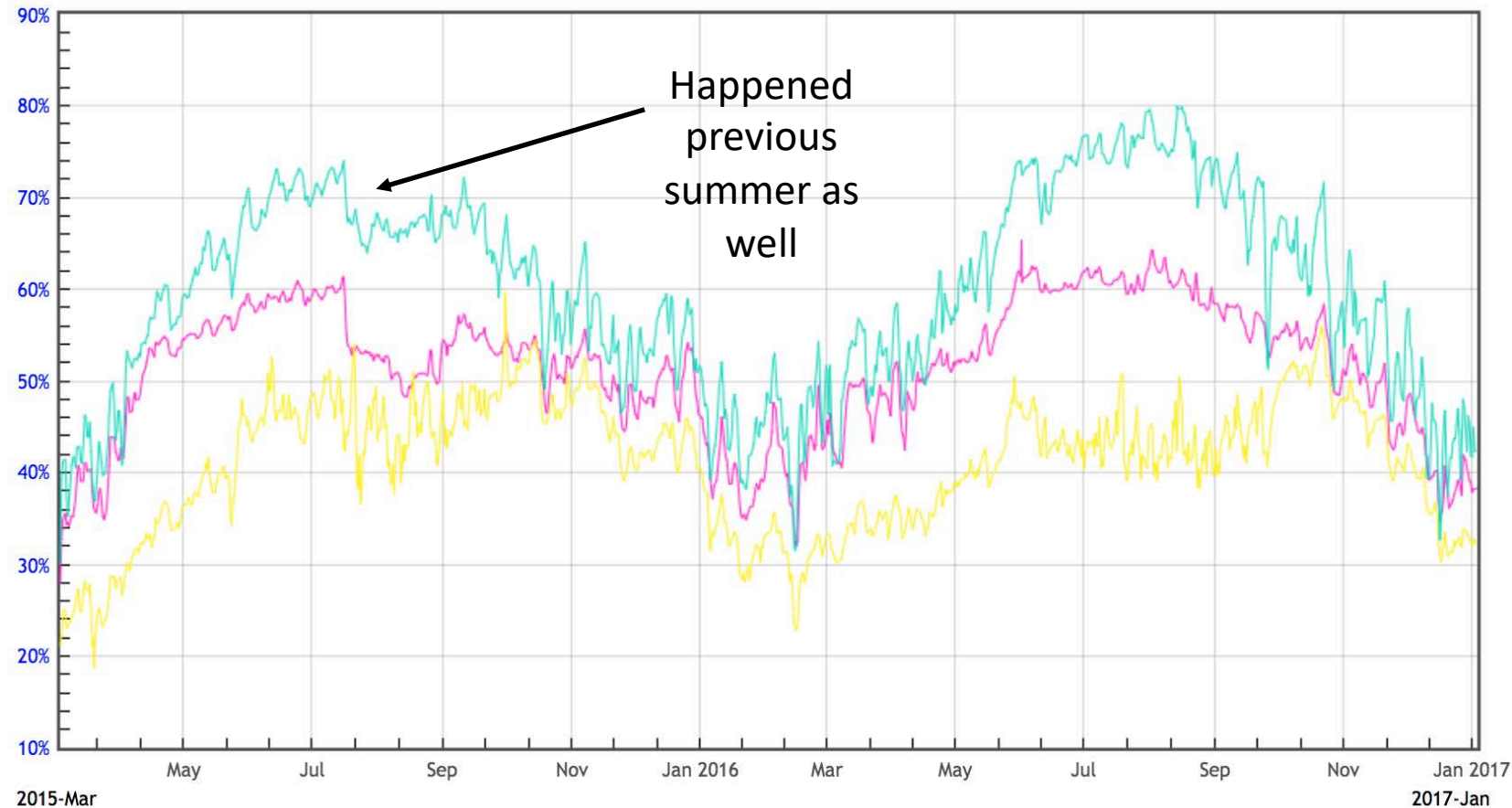
- ▶ Compare to other spaces



Data analysis

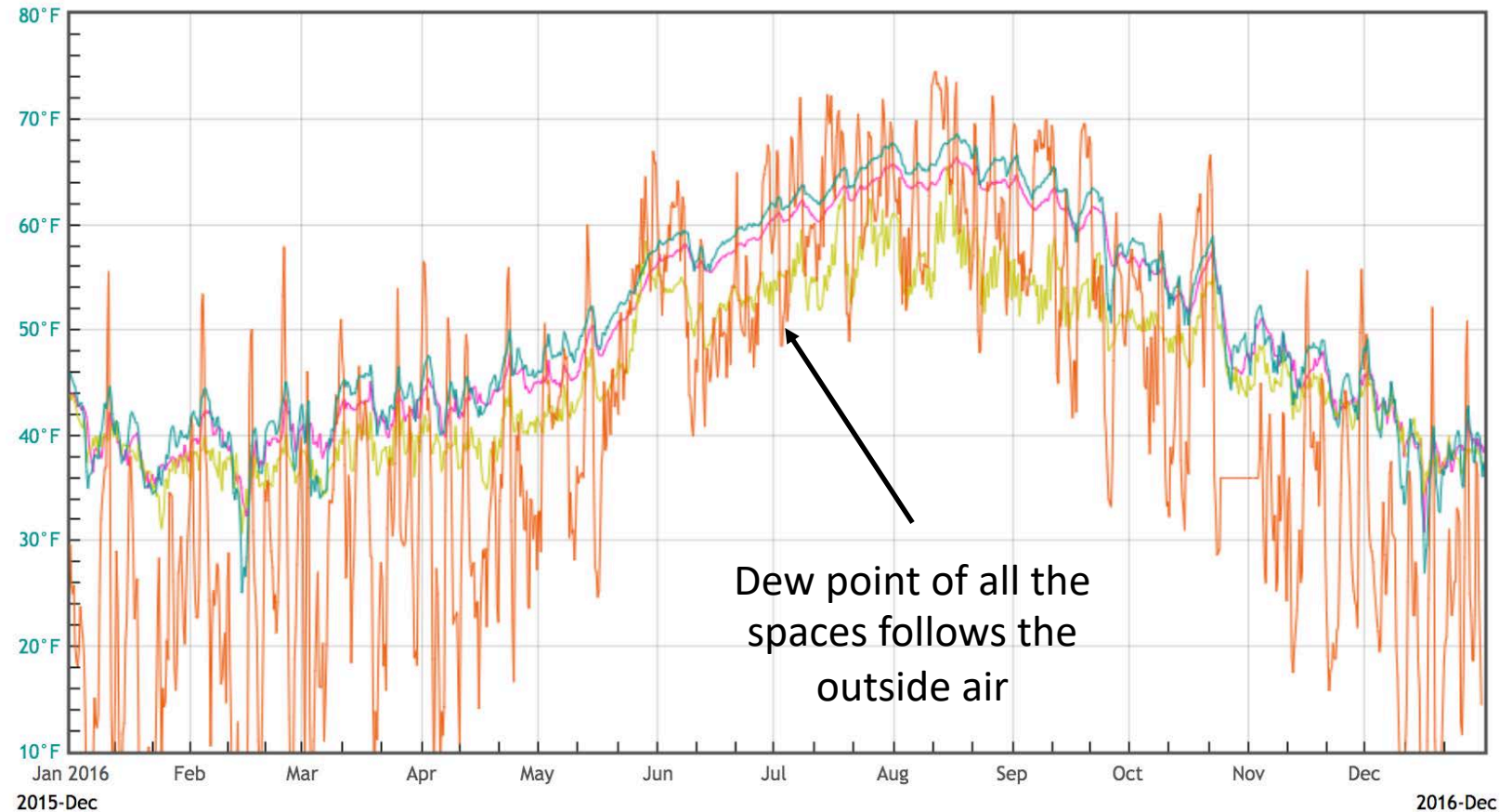
When is it happening?

- ▶ Determine onset of issue
- ▶ Look for patterns
- ▶ Look at historical data
- ▶ Compare with outside air



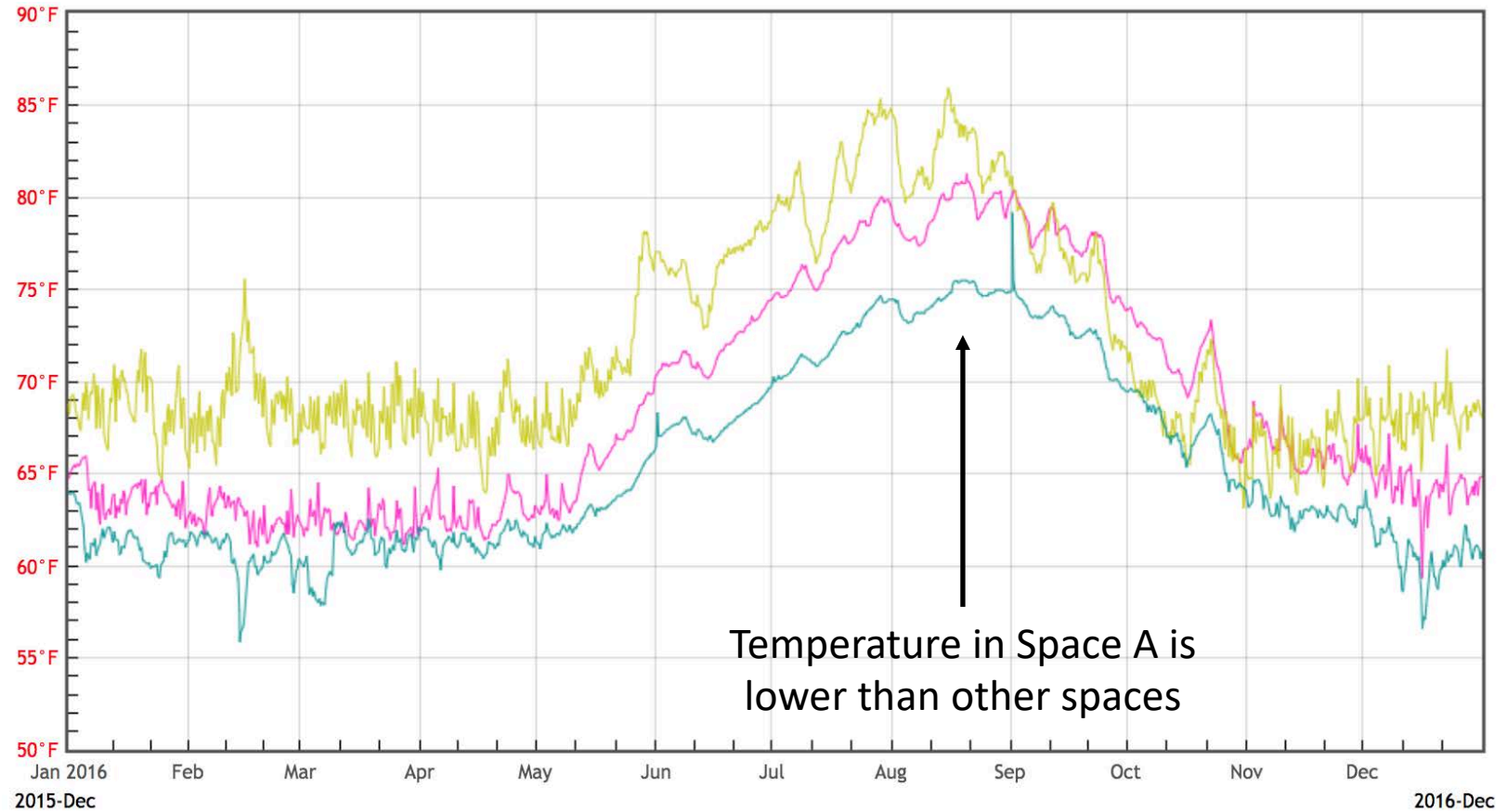
Data analysis

Look at other parameters



Data analysis

Look at other parameters



Mechanical system evaluation

- ▶ Soundness of unit
 - ▶ Structurally intact
 - ▶ Look for water accumulation
- ▶ Data collection
 - ▶ Use additional monitoring to verify
 - ▶ Check location

Safety Precautions

- Always follow your facility's safety procedures
- Have a facility or HVAC representative on hand
- Always carry a flashlight and your cell phone
- Leave everything in the unit as you found it

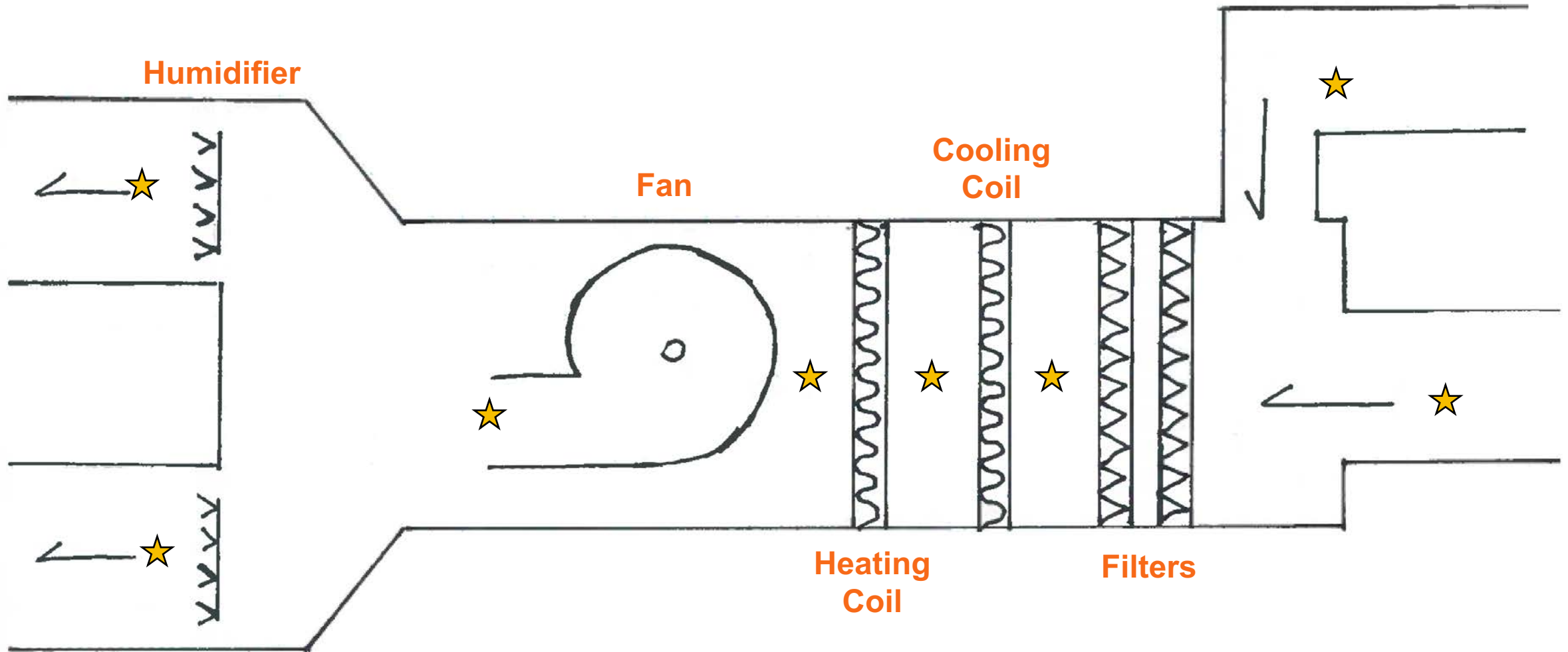


Mechanical system evaluation

Follow airstream

- ▶ Is there a change to outside air?
 - ▶ Percentage used
 - ▶ Location of intake
- ▶ What is the status of the cooling coil?
 - ▶ Chilled water supply
 - ▶ Clogged (preventive maintenance)
- ▶ Where does the ductwork travel?
- ▶ Downstream equipment
 - ▶ Malfunctioning reheat

Consider adding data loggers to the HVAC system



Return Air



Supply Air



Cooling coil and humidifier

- ▶ Downstream of the cooling coil
- ▶ Use a conformal coated logger
- ▶ Can be hung on the face of the cooling coil



Guidebook

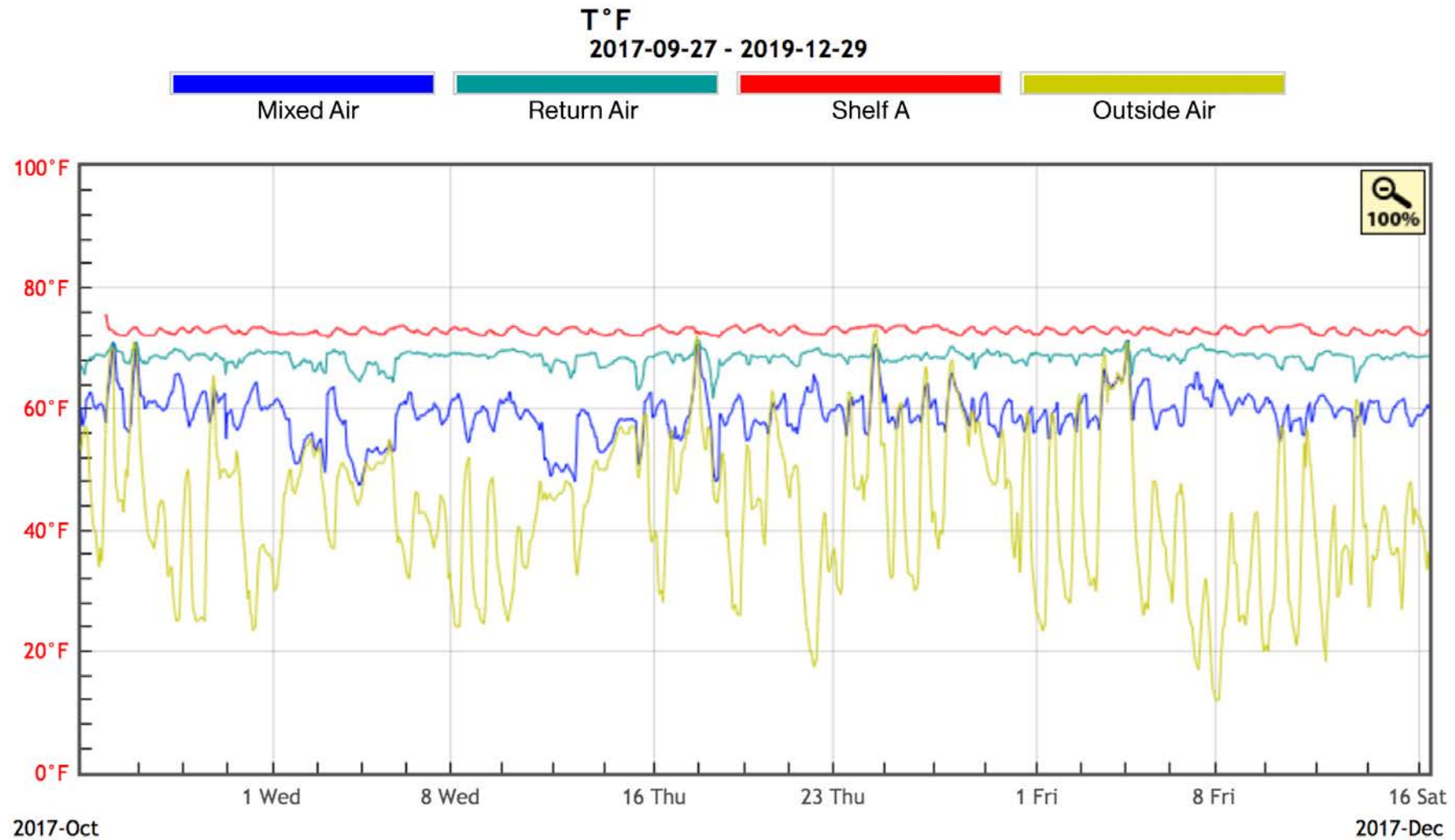
A how-to manual for mechanical system analysis

The guide walks you through a step-by-step process of how to perform a mechanical system analysis and how to implement various strategies to improve the collections environment.

<https://www.imagepermanenceinstitute.org/resources/publications/ipi-methodology-guidebook>



Excess outside air



Space evaluation

Look
Use tools

- ▶ Are there any gaps in the building/room envelope?
 - ▶ Passive vents
 - ▶ Within ceiling
 - ▶ Around doors, former windows
- ▶ What could be placing a load on the space?
 - ▶ Surrounding spaces
 - ▶ Radiators

Assess the major parts of your facility for air tightness, leaks and moisture barriers

- ▶ Roof
- ▶ Walls
- ▶ Glazing (windows)
- ▶ Foundations

Identify potential air leaks

- ▶ Look for gaps in doors and windows
- ▶ Holes in the facade



Space evaluation

Ask questions

- ▶ Are there any changes to the space's operation?
 - ▶ Occupancy
 - ▶ Vendors/construction
 - ▶ Space heaters, humidifiers
 - ▶ Doors propped open
 - ▶ Lights left on
- ▶ Is the airflow clear?
 - ▶ Blocked supply or return
 - ▶ Limited airflow
 - ▶ Closed damper
(inc. fire damper)

Communication

- ▶ Part of environmental management team activities
- ▶ Effective communication is key
 - ▶ Ex. set point change
- ▶ Maintain documentation



The 5 Whys of Strategic Planning

Indiana Historical Society

Communication

- ▶ Does it need to be addressed?
 - ▶ Risk assessment
 - ▶ Latest research
 - ▶ Loan agreements
 - ▶ Human comfort
- ▶ Can it be addressed?
 - ▶ Know capabilities (building envelope, mechanical system, layout, use)
 - ▶ Ex. May have to balance risks



Action plan

Basic changes

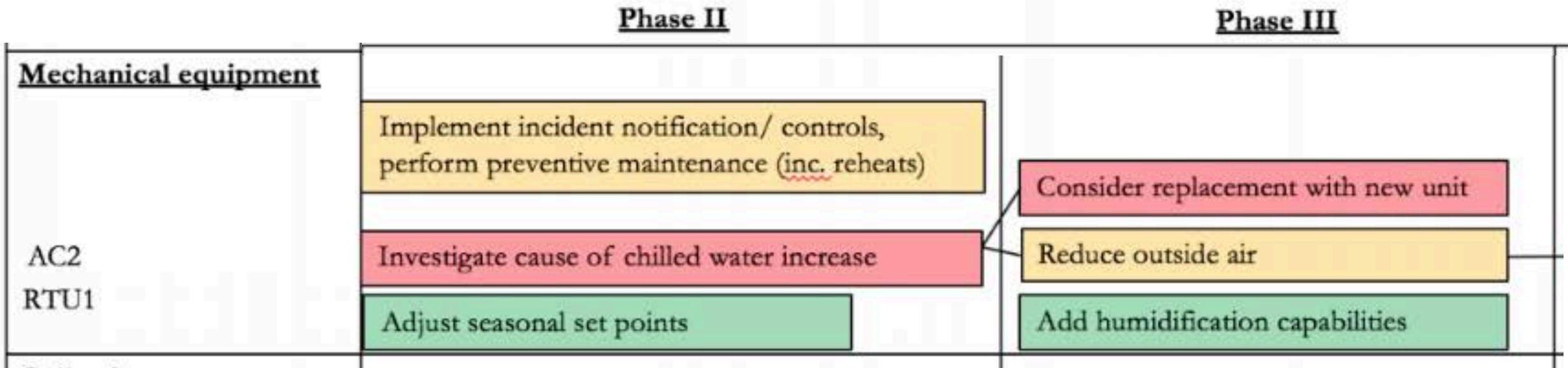
- ▶ Work with team to discuss options
- ▶ Establish parameters under which action can be taken
- ▶ Assign tasks

Long-term planning

- ▶ Involve more stakeholders to establish goals and prioritize
- ▶ Consider additional factors (ex. cost)
- ▶ Sequence actions with respect to other plans

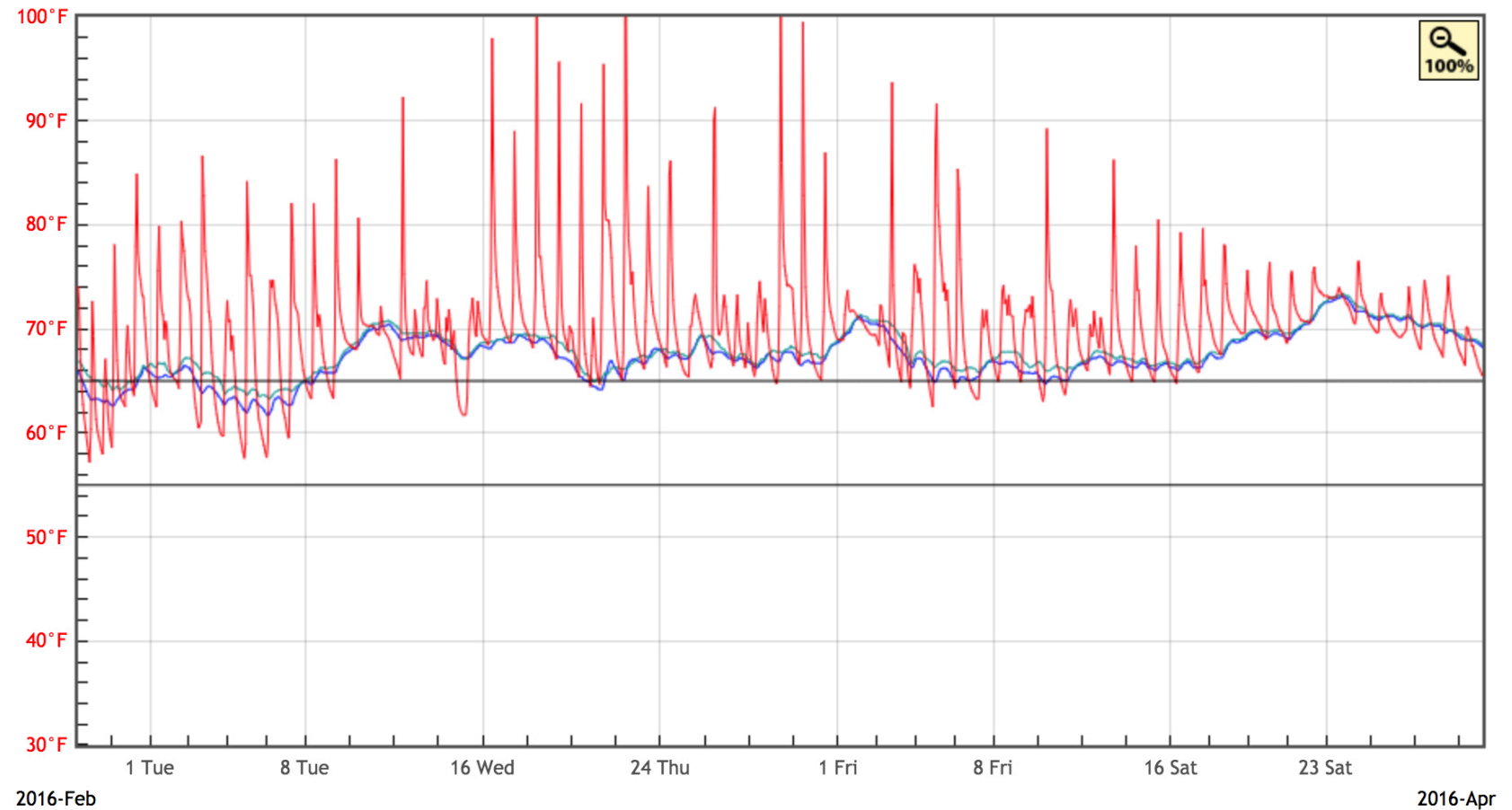
Action plan

Preservation planning: www.connectingtocollections.org



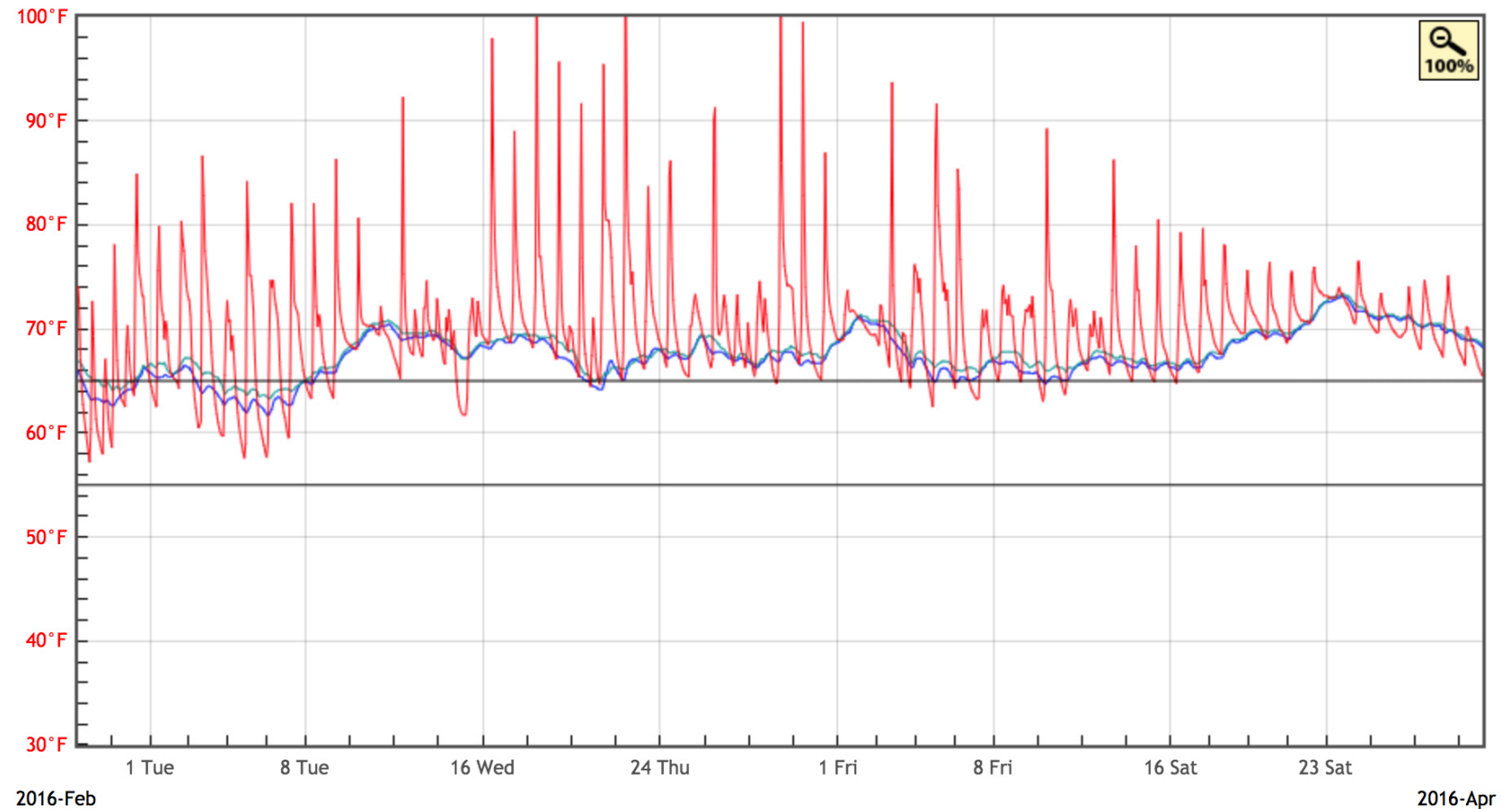
Testing

- ▶ Start small
- ▶ Consider timing and duration of test
- ▶ Change one variable at a time



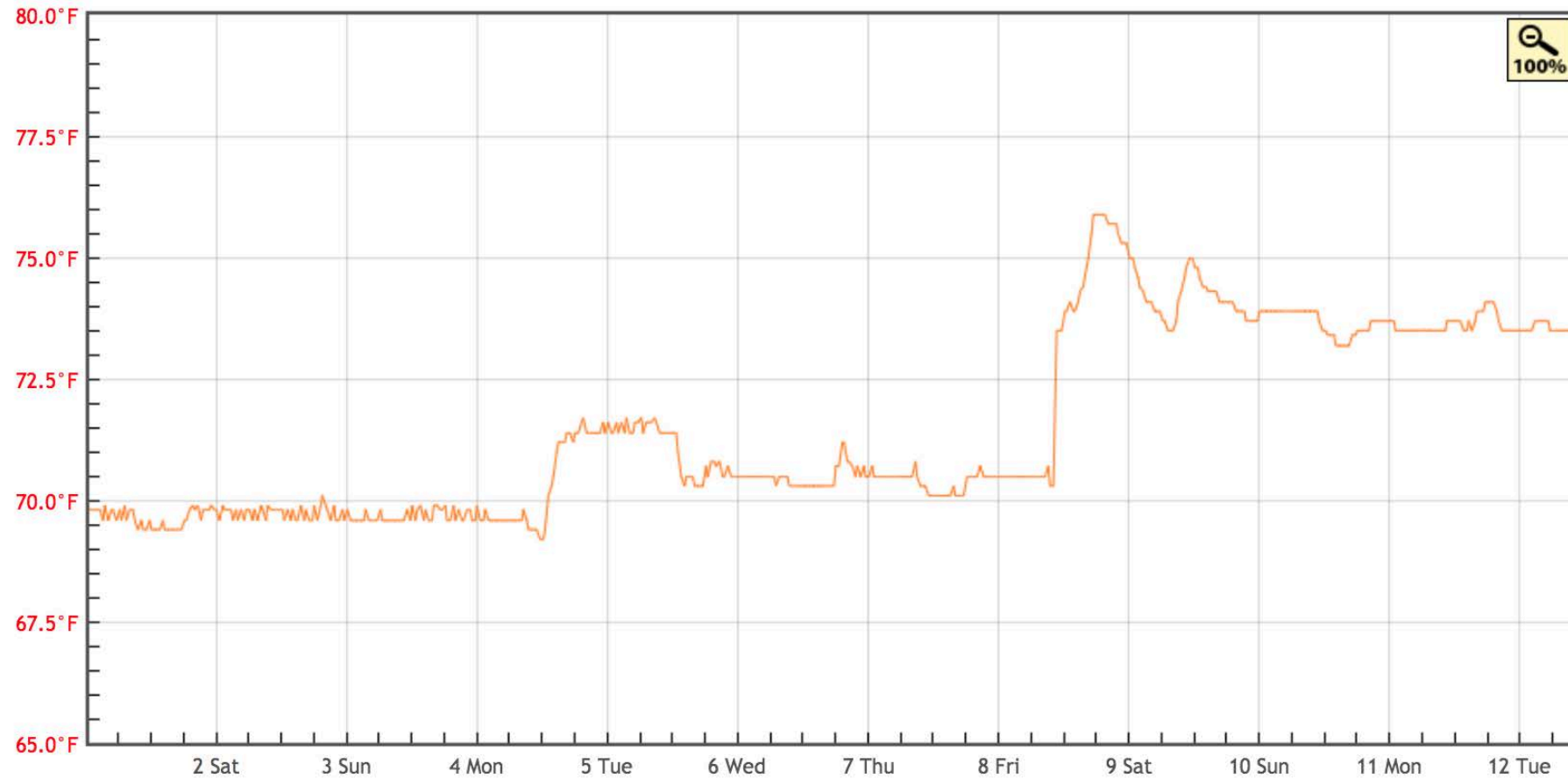
Testing

- ▶ Evaluate more frequently (ex. after two weeks)
 - ▶ Did the situation improve somewhat, return to its previous state, a better state, no effect, or a negative effect?
 - ▶ Can further measures be taken?
 - ▶ Should the location, intensity, duration, timing, etc. be modified?

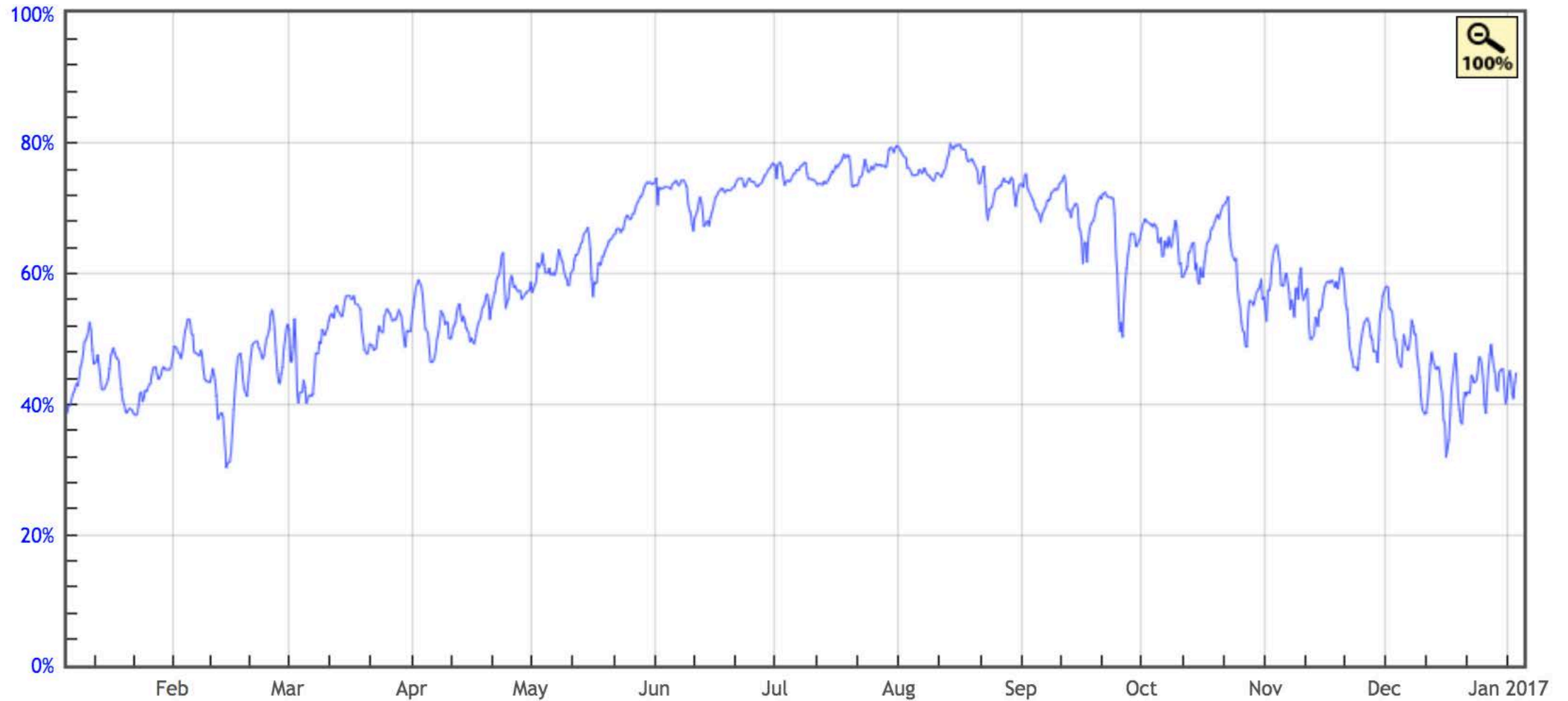


Preservation issues

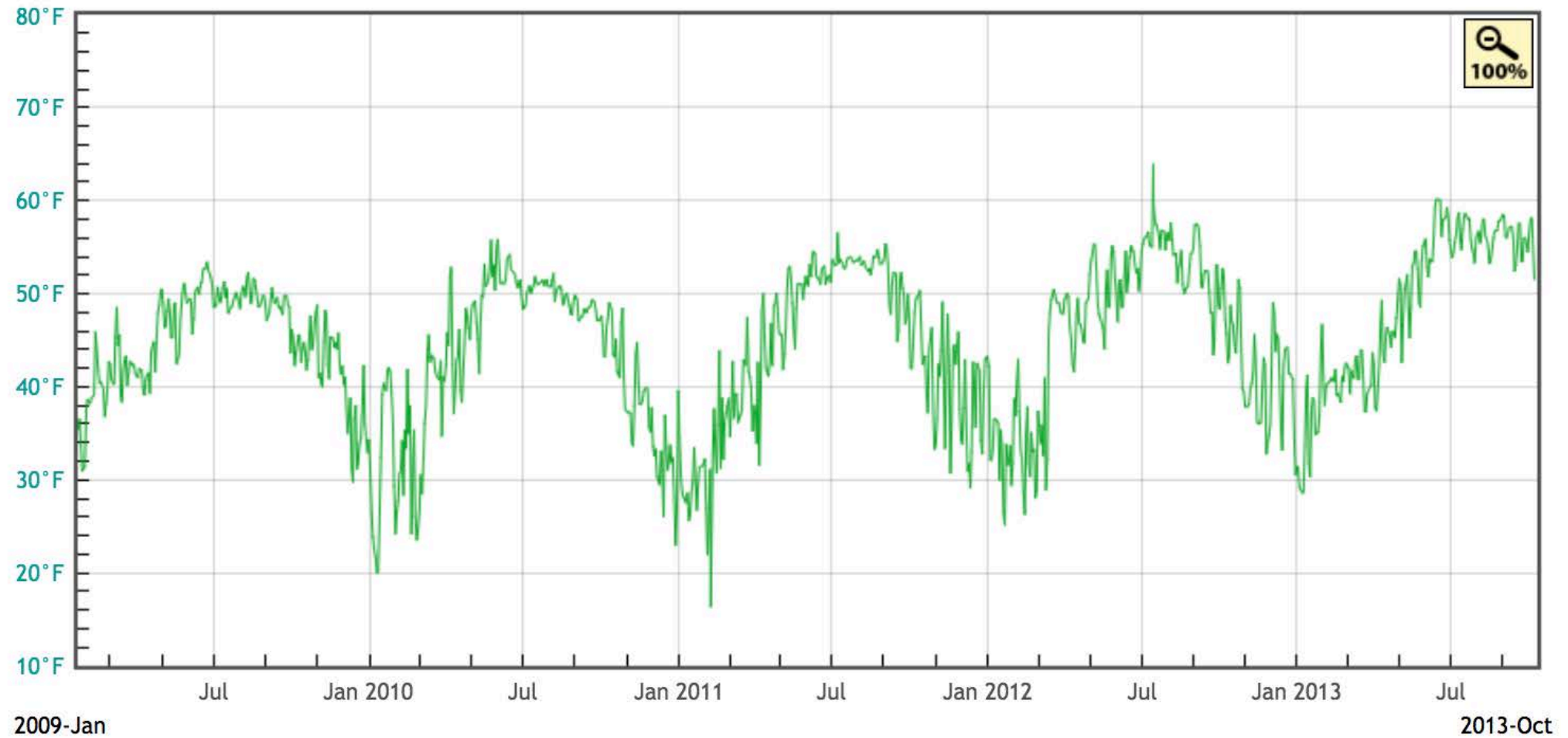
Change in temperature



Increase in relative humidity



Increase in dew point

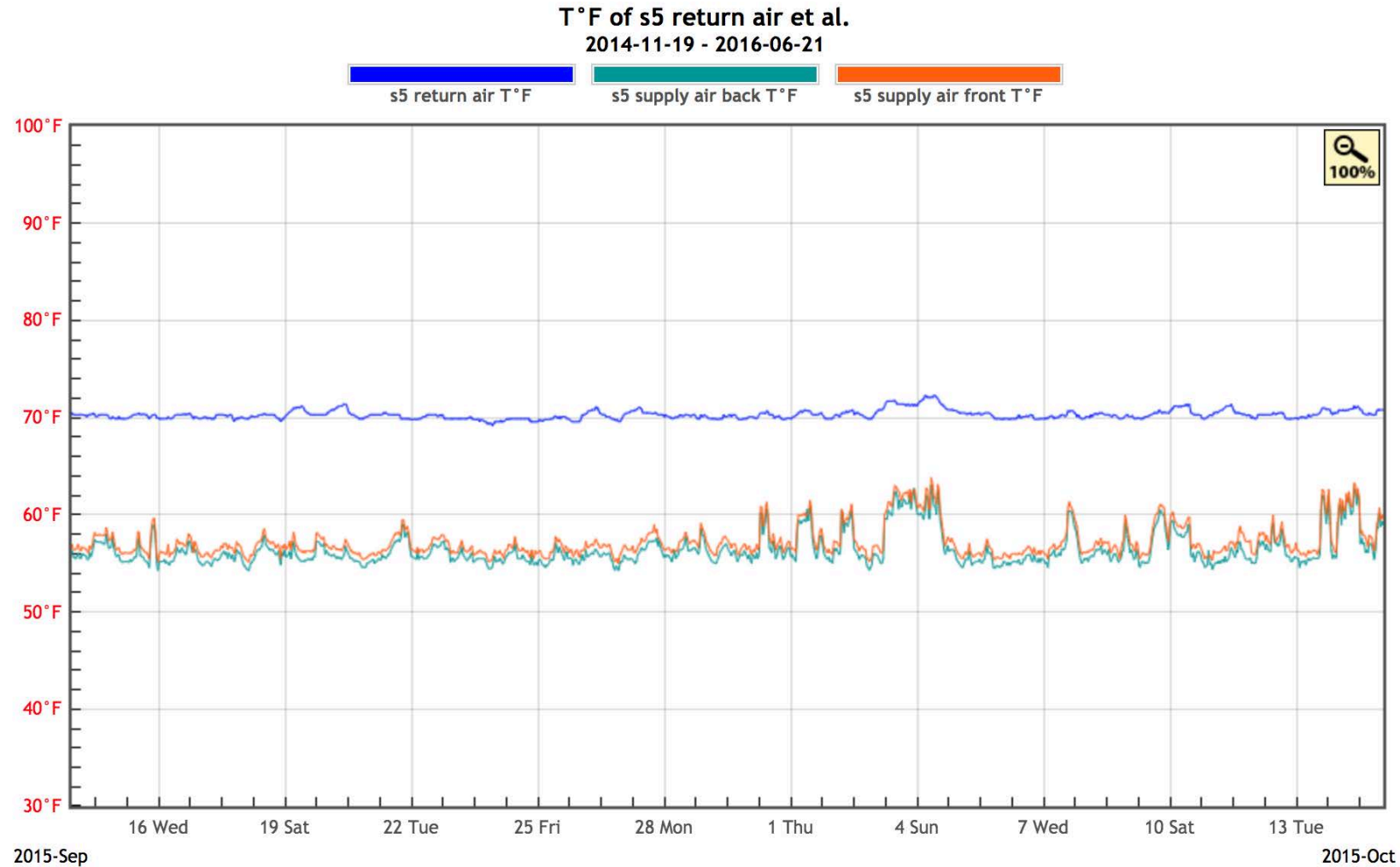


Stagnant/ stale air

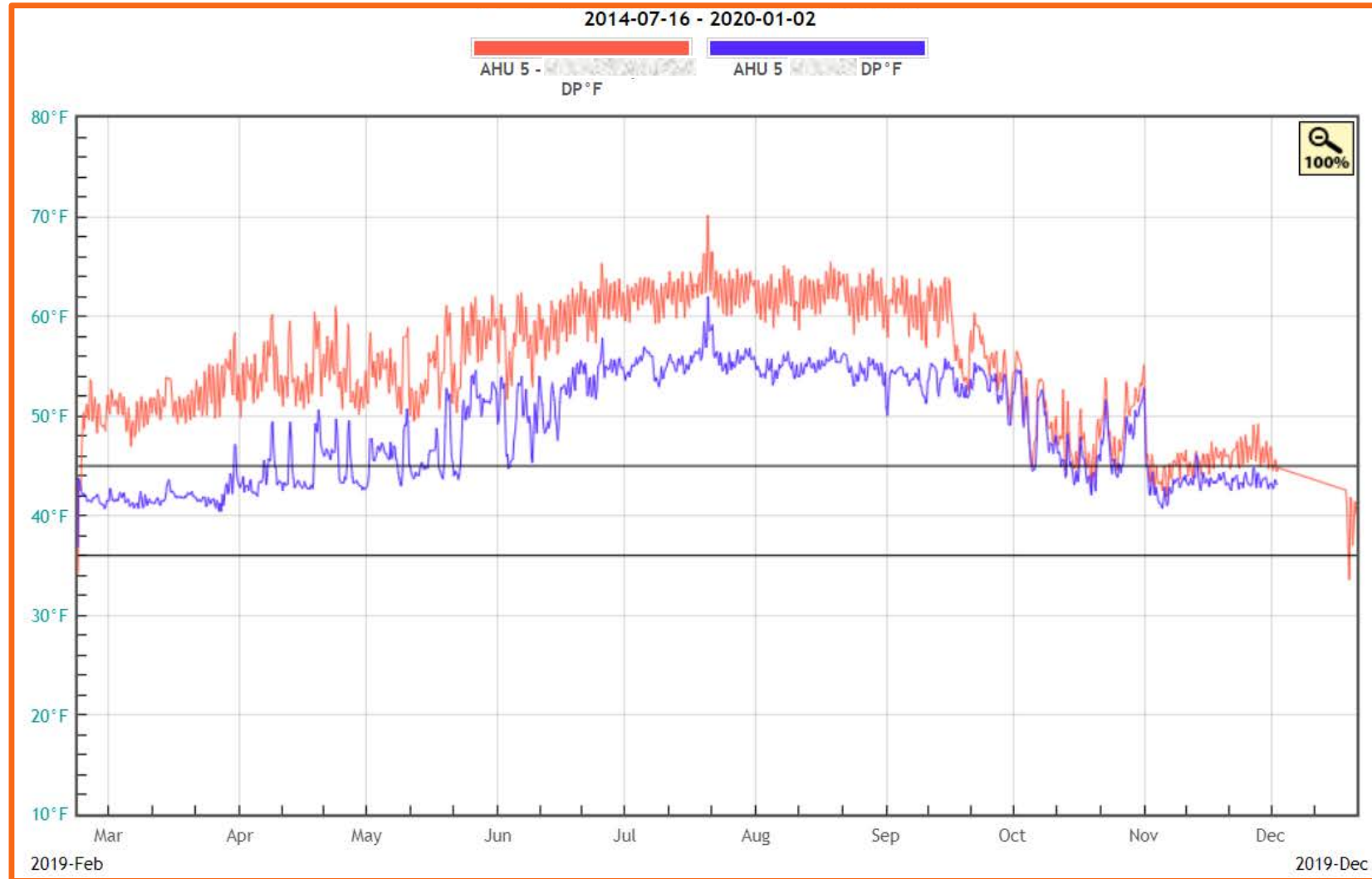


Operational issues

Temperature load on the space



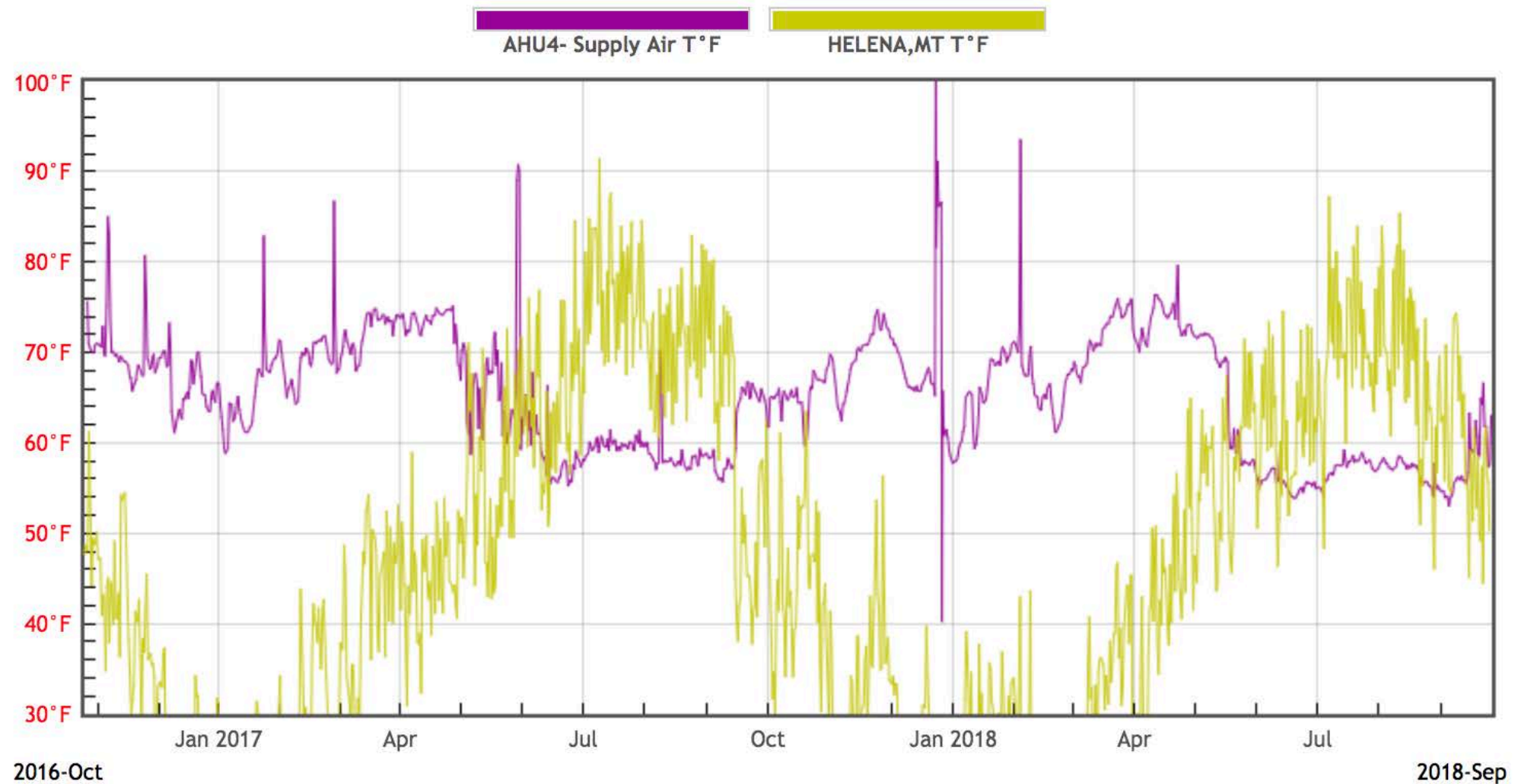
Moisture load on the space



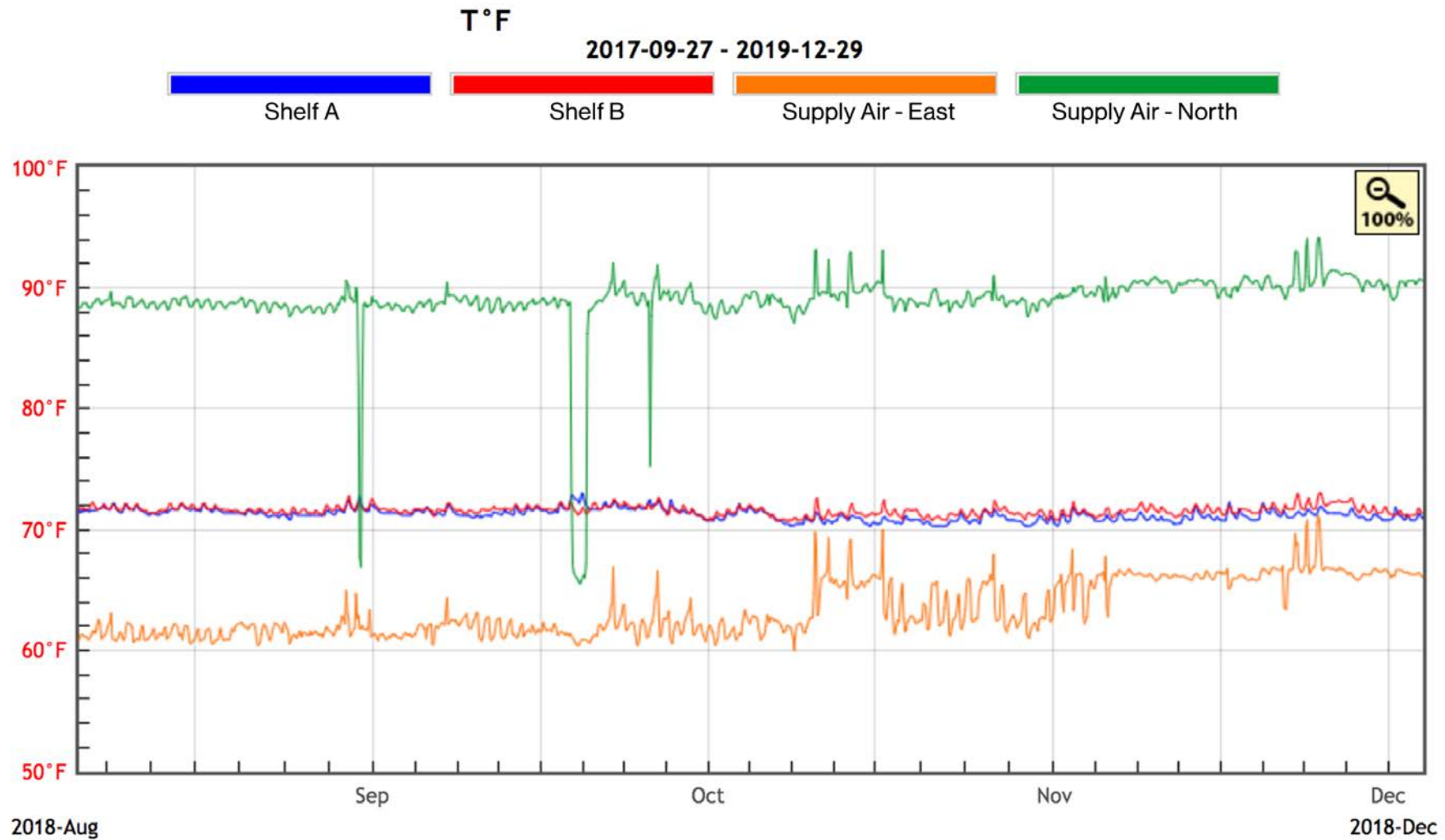
Portable dehumidifiers



Incorrect set points



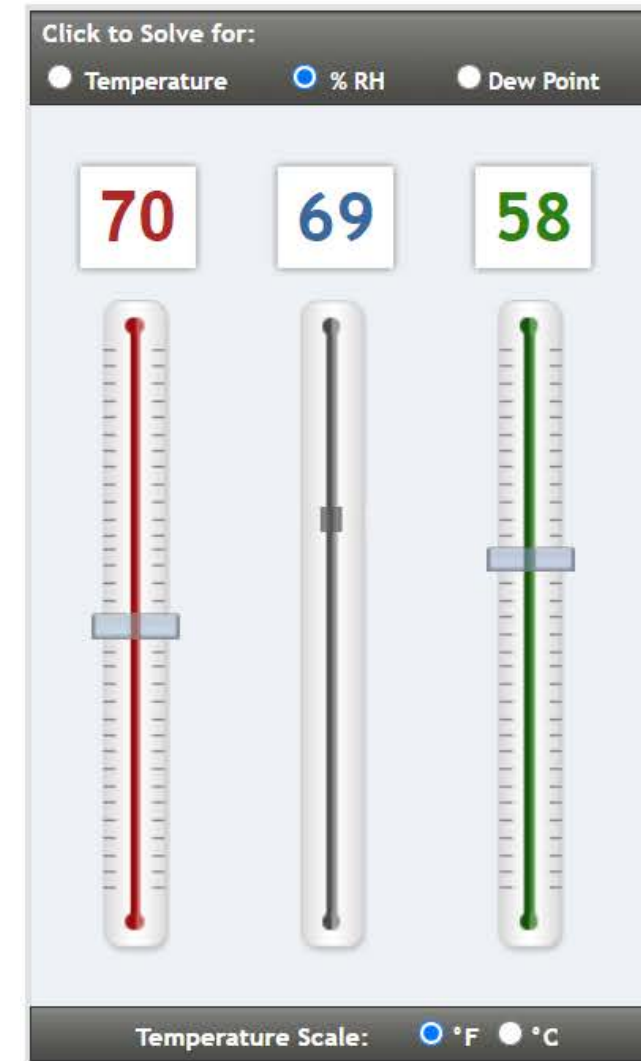
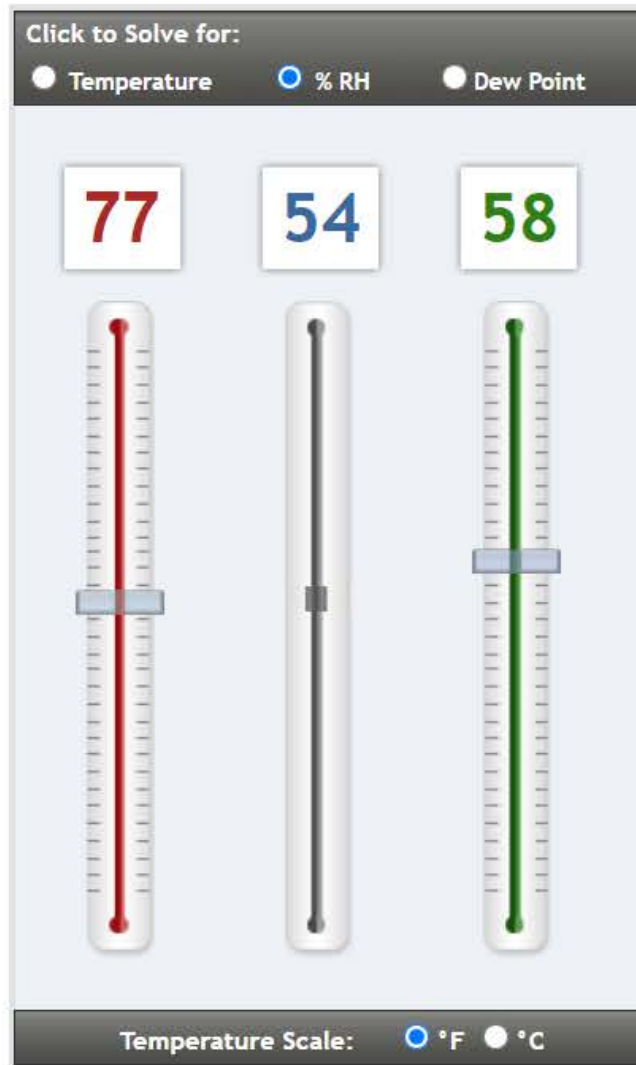
Heating and cooling



What NOT To Do

Look at all three parameters- **Do not lower temperature w/o dehumidification**



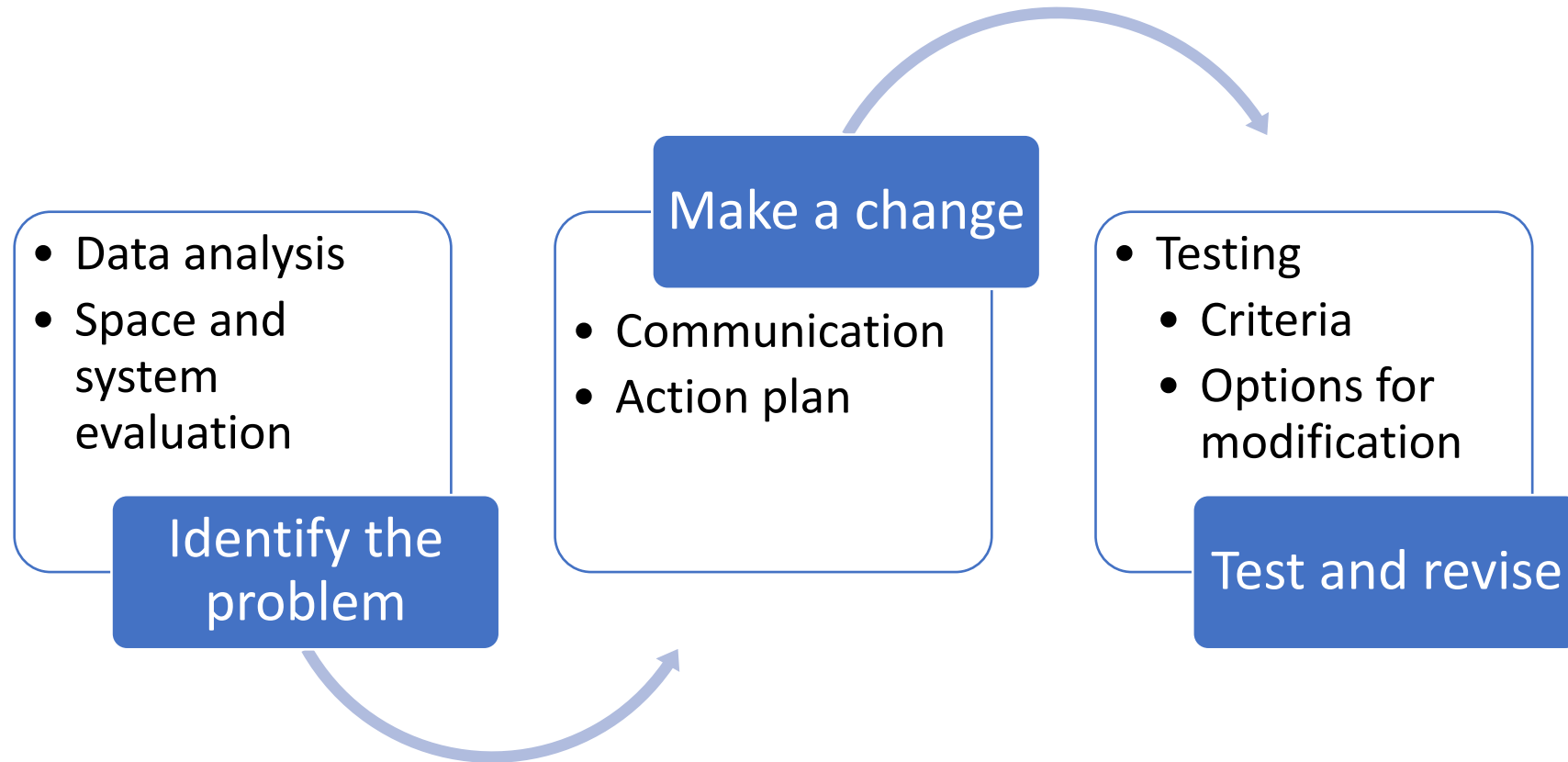


<http://www.dpcalc.org/>

Consider building envelope- Do not humidify or dehumidify without a vapor barrier



Conclusions



Thank you

**Please complete the brief post-webinar survey
to provide us valuable feedback!**

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