

DHPS | NY

DOCUMENTARY HERITAGE & PRESERVATION SERVICES FOR NEW YORK

Thanks for joining us! Today's presentation will begin shortly.

If you have questions or want to report any technical issues,
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ENVIRONMENTAL MONITORING: GETTING STARTED

Presented by Chloe Houseman

July 6, 2021

WHAT IS ENVIRONMENTAL MONITORING?

- Basically, what it says on the tin- Monitoring your environment!
- This includes metrics like temperature, relative humidity, and light exposure.
- Done via equipment like hygrothermographs, dataloggers, and manual recording from equipment like thermometers and light meters.



Hygrothermograph



Datalogger



ELSEC

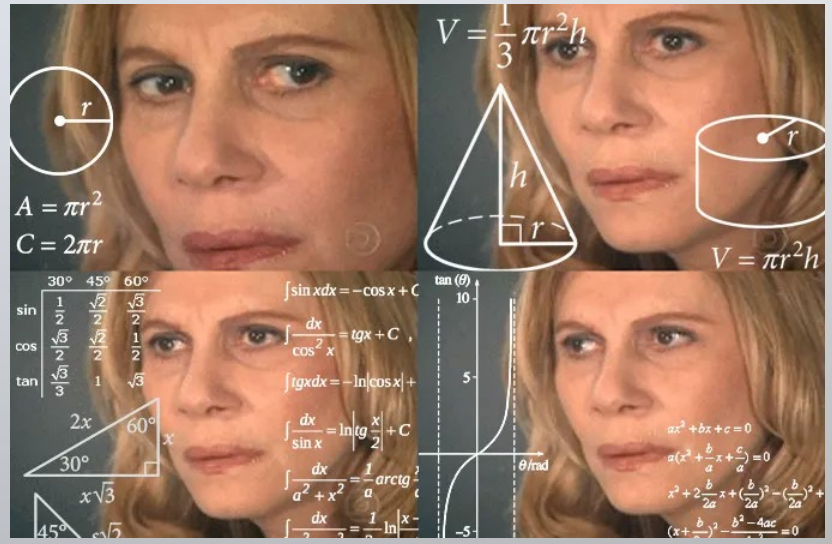
HOW DOES IT HELP US?

- Increases the longevity of collections
- Acts as a preventative measure to keep collections in good condition
- Helps resolve possible issues before they become a big problem
- Protects sensitive collections (ex. photos, film, etc.)
- Familiarizes you with what's "normal" in your space, so environmental anomalies or problems are more apparent



INITIAL CONSIDERATIONS

- Current heating/cooling system (if any)
  - Amount of environmental control
  - Is humidity included?
  - Control in sections, or building-wide?
  - Who controls the environment, why?
- Building envelope: is the space well sealed?
  - Open doors/windows, drafts, chimneys, etc.



- Are there any pre-existing measuring devices? Thermostats, humidistats, hygrothermographs, etc.

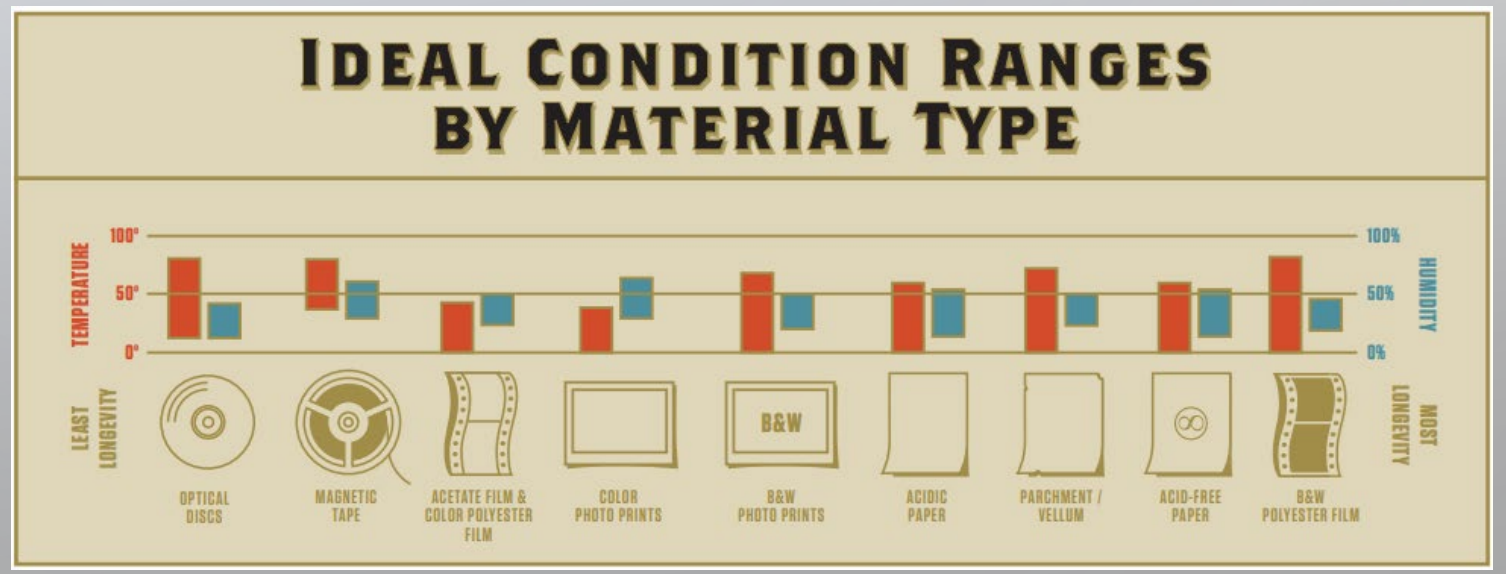
SETTING UP AN E.M. PROGRAM

- Choose how you will obtain readings- dataloggers are preferable, but manual readings are perfectly fine if that's more accessible.
  - If dataloggers, which type? How many? Where will they be located in the building??
  - If manual- how often, who is responsible?
- Where will data be stored/recorded?
- Create an E.M. log to note unusual occurrences/circumstances that may skew data- i.e. a power outage, unusually hot or cold weather, etc.

Paper Lab Back, Housing	1/12/20	Temperature overages in both areas, due to unseasonably warm temperatures. Max temp. in paper was 72.6F, in housing 73.7F.
Vault	1/13/20	Temperature recorded as 72.1 from 3-4pm, possibly due to warmer external temperature.

SETTING UP AN E.M. PROGRAM

- Who is in charge of E.M.? Having a designated person ensures it isn't neglected.
- What is the goal temp/RH?
- In 2010, the American Institute for Conservation (AIC) Environmental Guidelines Working Group established guidelines for environmental requirements-
  - Temperature: 49- 57 degrees fahrenheit, RH: 45% - 55%
  - Look at the "ideal", come up with something that works for you.
  - Consistency is key!



WHERE AND HOW TO COLLECT DATA

- Where are your dataloggers located/where are you taking readings?
  - Consider variables: is it right under a vent? Does it get direct sunlight? Etc.
- Consider moving loggers (or taking readings in different areas) for short periods of time (noted in your EM log) to gather data on less critical locations.
  - Remember, the climate *near* collections/gallery spaces impacts the climate in those areas.
- If manual data collection is required, how often will you do it?

DATALOGGER FEATURES AND CONSIDERATIONS

- See CCAHA datalogger comparison chart & NPS conserve-o-gram for specific recommendations.
- Operating range- most are fine for typical range of museum environments.
  - If your building/space has more extreme temperatures, select a logger rated for that.
- Accuracy- may be hard to gauge unless supplied by manufacturer. Often related to price. Usually based on quality and type of sensor.
- Recalibration- how often is it necessary? Usually done via the manufacturer.
  - Timeframes differ, yearly is generally recommended.

DATALOGGER FEATURES AND CONSIDERATIONS

- Power source/ battery life
  - More readings, shorter lifespan.
  - Look for non-volatile memory! (AKA memory that saves even if the device loses power.)
- Memory capacity/ runtime
  - How long can your datalogger run? How soon is its internal memory full?
- Alarms/ alerts
  - Can you set alarms so the system will notify you when out of range? Who is informed and how?
- Display
  - Most will have at least a battery readout, generally real-time Temp. and RH as well.

DATALOGGER FEATURES AND CONSIDERATIONS

- Additional probes- most dataloggers handle temperature and RH, but additional external probes may be available.
- Service/ technical support
  - See what is included with your purchase, whether there are additional costs for support in the future, etc.
- Cost- the perennial consideration. Pricier tends to be more accurate.
- Dataloggers collect data: there is still a need for interpretation.
  - Different levels of interpretation available: pure numbers, graphs, etc.
  - Outside of pre-set alarms, rely on people and/or software to figure out what environment is “good”.

NO DATALOGGER? NO PROBLEM.

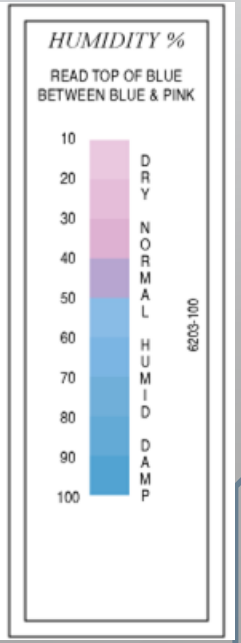
- Dataloggers aren’t always accessible, alternatives exist!
- May be more time/work intensive to get readings, but better than nothing.
- Some data is better than no data- don’t be discouraged if you can “only” take readings intermittently.
  - Prioritize readings/data collection in collections storage/exhibit spaces first, then expand to other areas as feasible.



ALTERNATIVE DATA-GATHERING

- Temperature
  - Display on thermostat (may not be 100% accurate, but usually close)
  - Standard wall thermometer, digital ones are fairly inexpensive.
- Relative Humidity
  - Many digital thermometers also include RH readings- these may not be as accurate, but will at least give you a good idea.
  - RH strips
- Light
  - Smartphone apps- probably least accurate, but again, better than nothing
  - ELSEC or similar- measures Temp, RH, Visible and UV light. Pricey though!





FINAL THOUGHTS

- Developing an E.M. program takes time and effort.
- Don’t expect to have a perfect, complete program right away- and that’s okay!
- Your program will evolve and change over time as you learn more. Do what you can with the knowledge and resources you have at any given time.
- Ask for help!
  - Colleagues in the cultural heritage sector are generally willing to share findings/tips, and answer questions.
- Seek out additional training/workshops when possible. There’s a lot out there!
- Perfect is the enemy of good.

References:

- CCAHA, Collections Environment Infographic https://ccaha.org/resources/collections-environment-infographic
- CCAHA, Environmental Datalogger Quick Comparison Chart https://ccaha.org/resources/environmental-datalogger-quick-comparison-chart-0
- National Park Service, Comparing Temperature and Relative Humidity Dataloggers for Museum Monitoring. www.nps.gov/museum/publications/conserveogram/03-03.pdf
- Museums & Galleries Commission, Relative Humidity and Temperature Pattern Book https://collectionstrust.org.uk/resource/relative-humidity-and-temperature-pattern-book/

THANK YOU!
ANY QUESTIONS?



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