



Detector Support Group

We choose to do these things "not because they are easy, but because they are hard".

Weekly Report, 2023-09-06

Hall A - ECal

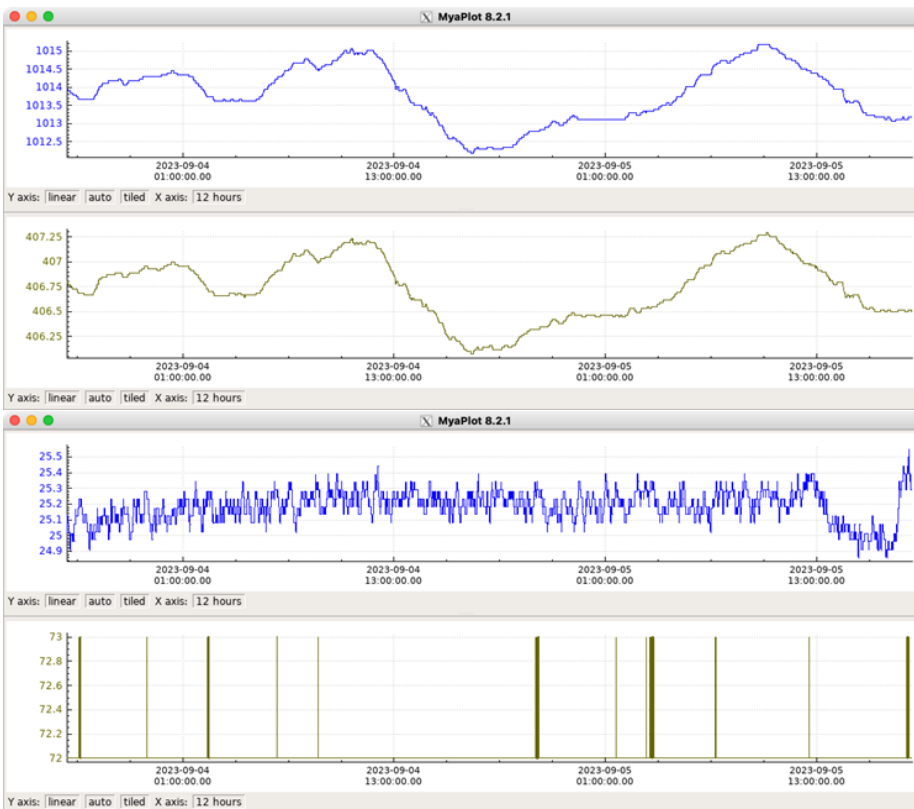
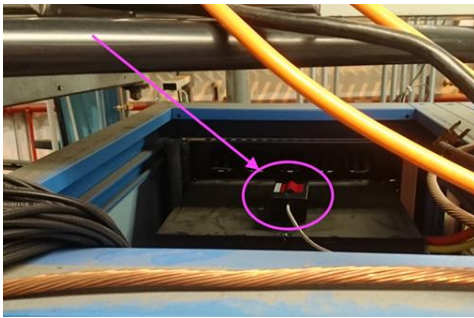
Brian Eng, Mindy Leffel, and Marc McMullen

- Fabricated one high voltage cable with two Fischer connectors; 20 of 24 completed
- Requested network access to relocate the controls equipment to Hall A
- Started adding EPICS process variables to the controls software
- Started testing the Real Time application of the controls software; running for four consecutive days—no more 12-hour crashes

Hall B – Environmental Monitoring

Brian Eng

- Deployed first sensor box (with temporary housing)



Sensor comparison: blue = new, brown = existing; different units on sensors (hPa vs inWC) and (C vs F)



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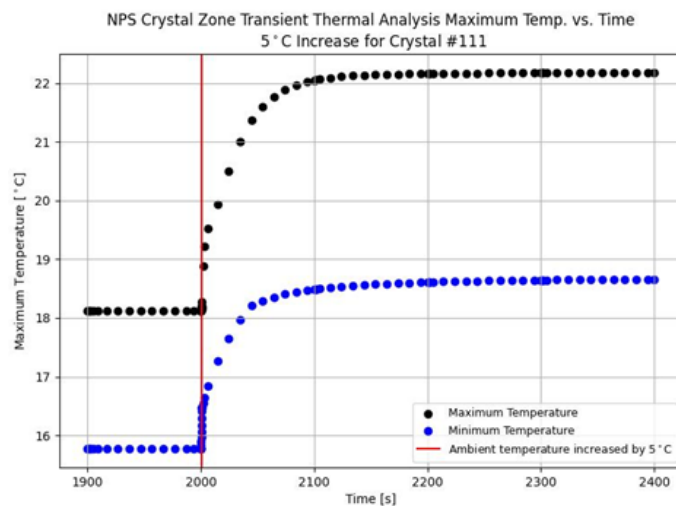
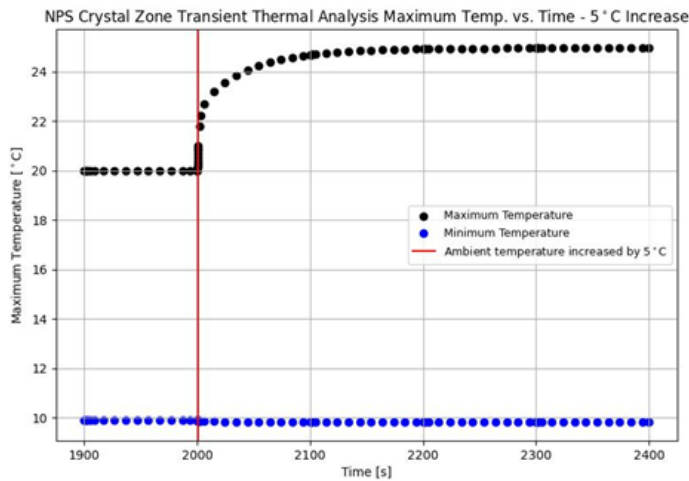
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Hall C – NPS

Mary Ann Antonioli, Peter Bonneau, Aaron Brown, Pablo Campero, Brian Eng, Mindy Leffel, and Marc McMullen

- Replaced ferrules on humidity sensor power supply cable with 9-pin connector
- Ran Ansys transient simulation (5°C ambient increase) and plotted maximum and minimum temperature results for entire crystal array and three individual crystals

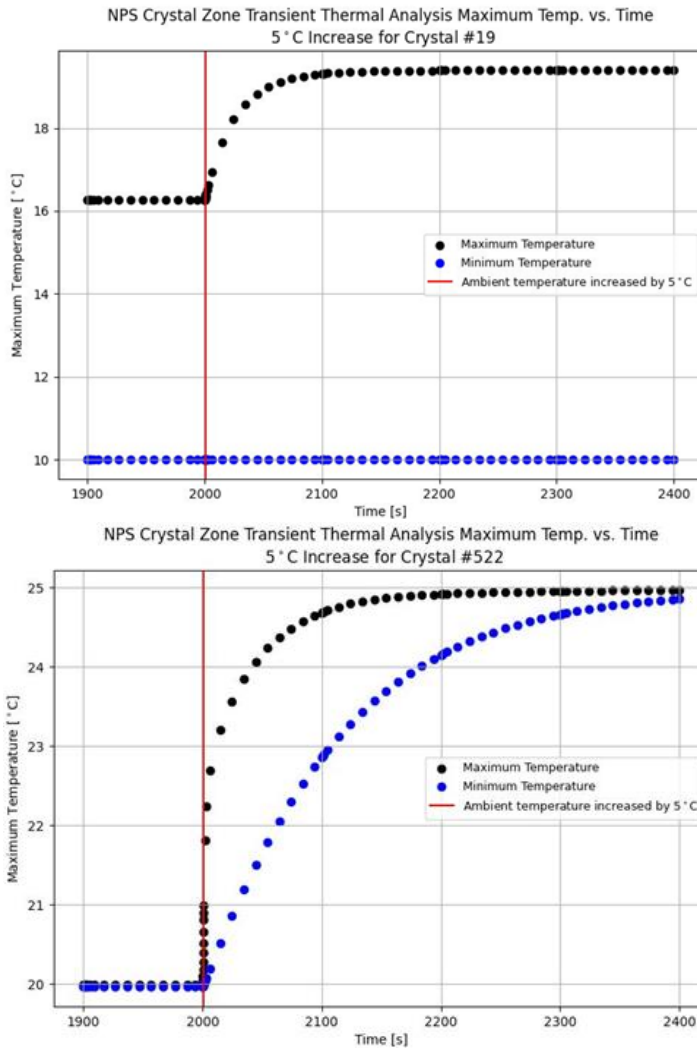




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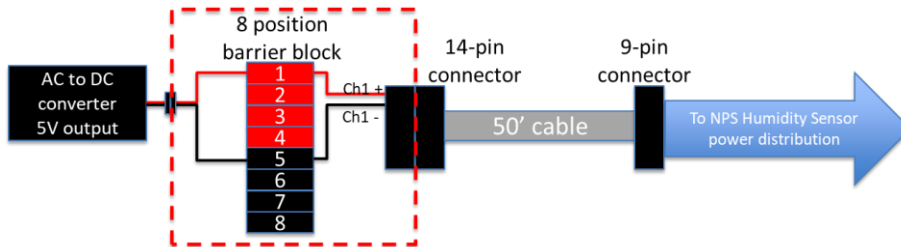


- Configured and tested Tripp-Lite power distribution unit with spare cRIO
 - ★ Using web application (Power Alert Device Manager), was able to power cycle cRIO remotely
 - ★ Researching other web application capabilities (e.g., email alerts and data logging)
- Completed LabVIEW subVIs that build a shared variable array from individual shared variables
- Reviewed variable lists and removed unused variables from LabVIEW project
- Completed bench test of humidity sensor power box and cable

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Wiring connection of the humidity sensor power box, which provides connection of the 50' power cable to the 5V AC-to-DC converter.

- Ansys Fluent thermal analysis
 - ★ Assigned a material for each component of the model
 - ★ Calculated and implemented thermal conditions for the heat exchangers and crystals
 - ★ Set up cell zone conditions for fluid and solid domains

Hall D – JEF

Mindy Leffel

- Wrapped six Crytur crystals with 3M foil and Tedlar; 828 completed

EIC - DIRC

Peter Bonneau, Mindy Leffel, George Jacobs, Tyler Lemon, and Marc McMullen

- Adding current limiting resistors to the interlock PCB design
- Investigating latest upgrade to Phoebus (V4.7.2) to be used for Phoebus alarm system test with laser interlock
- Opened and inspected two of six quartz bar shipping crates; compared crate to previously used shipping crate
 - ★ New crates do not have air-cushion suspension system or support foam for bars
 - ★ Interior basket of new crates uses bolts with threaded inserts to hold on lid, vs. hand-removable latches
 - During opening of crate, a threaded insert broke; bolt had to be cut off
 - If situation occurs with bars inside crate, vibrations from saw and/or drill may damage bars

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Left: interior of crate previously used to ship quartz bars, right: interior of new crates fabricated for quartz bar shipping.

- Design of laser interlock system’s interior control unit in progress
- Modified NX12 drawing of bracket for mounting switch sensors to the optical table—increased spacing from 0.35” to 0.37” between center of 90° bend and cutout for mounting to table
 - ★ Per vendor, location of 90° bend was too close to cutout

EIC - Thermal Test Stand

Pablo Campero, Brian Eng, George Jacobs, and Marc McMullen

- Ansys Fluent thermal analysis
 - ★ Reviewed insulation specifications; did not find technical data required for simulation
 - ★ Estimated material and thickness of each layer of insulation

DSG

Peter Bonneau, Tyler Lemmon

- Debugging and testing DSG’s 3D printer
 - ★ After cleaning internal mirrors and window three times, still not printing to specification of 0.05-mm resolution
 - ★ Manufacturer suggested either continue cleaning to see if it eventually improves or use printer as is
- Added DSG mailing lists subscribers to website