

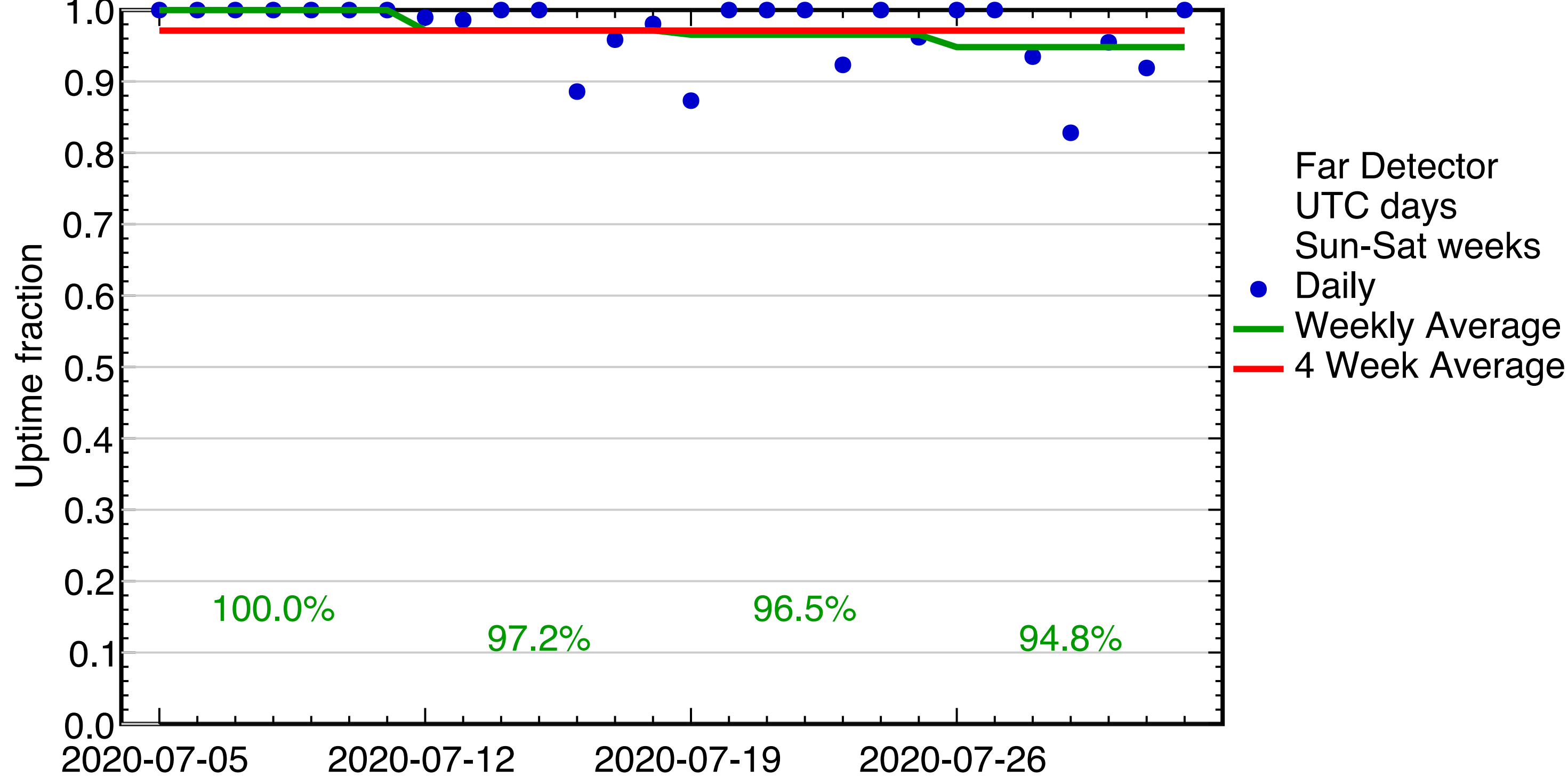
NOvA Operations Update

Matt Judah (UPitt) , Hongyue Duyang (USC)

Proton PMG Meeting
August 6, 2020



Far Detector Operations

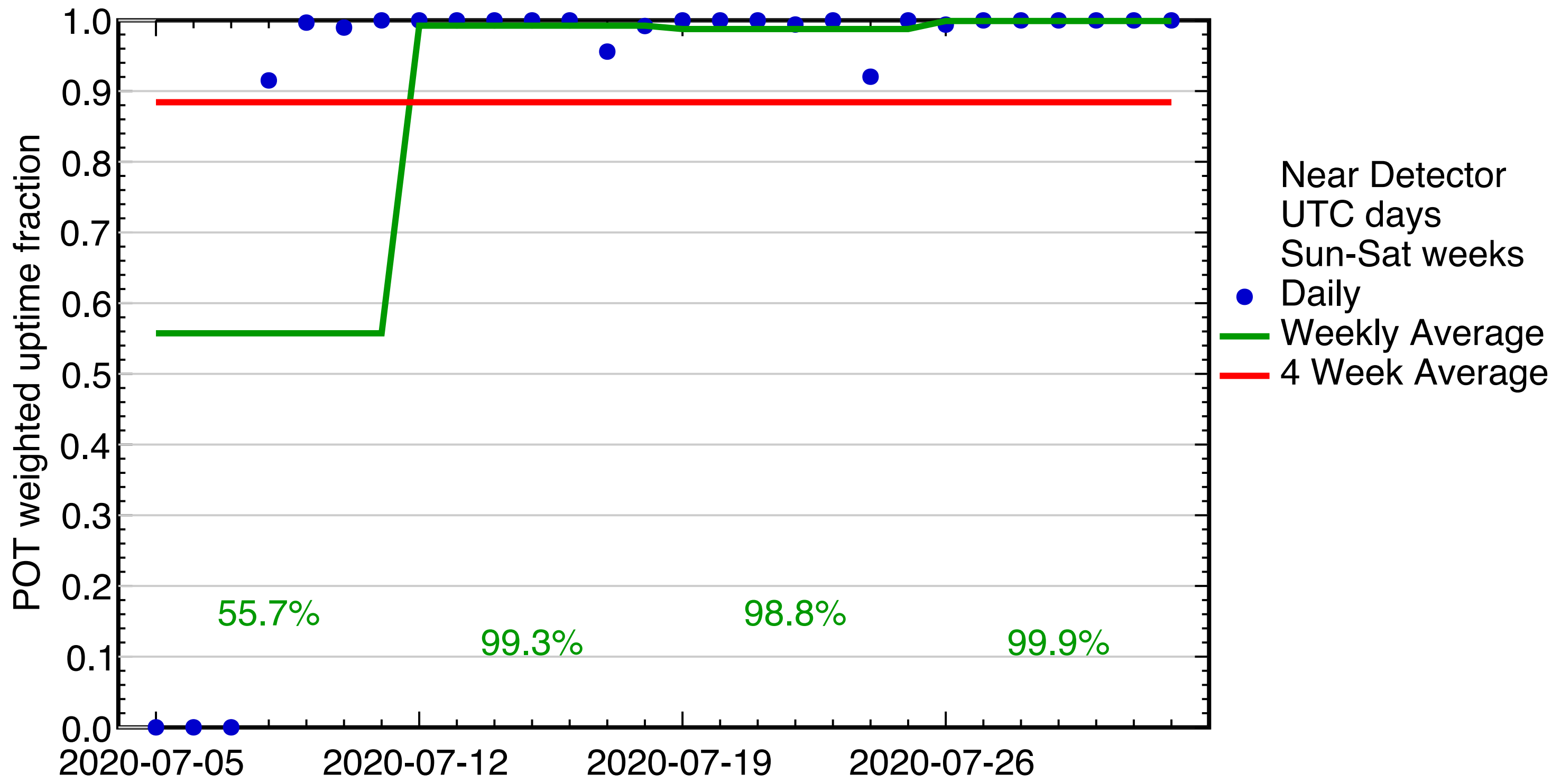


Major Downtimes:

- Multiple Power Bumps (7/16, 7/19)
- Issues with FD router:
 - July: 2nd, 18th, 25th, 31st
 - August: 1st and 2nd
- A few DAQ related crashes

- Unplanned Downtimes: 15 hours
- Planned Downtimes: 7 hours

Near Detector Operations



Major Downtimes:

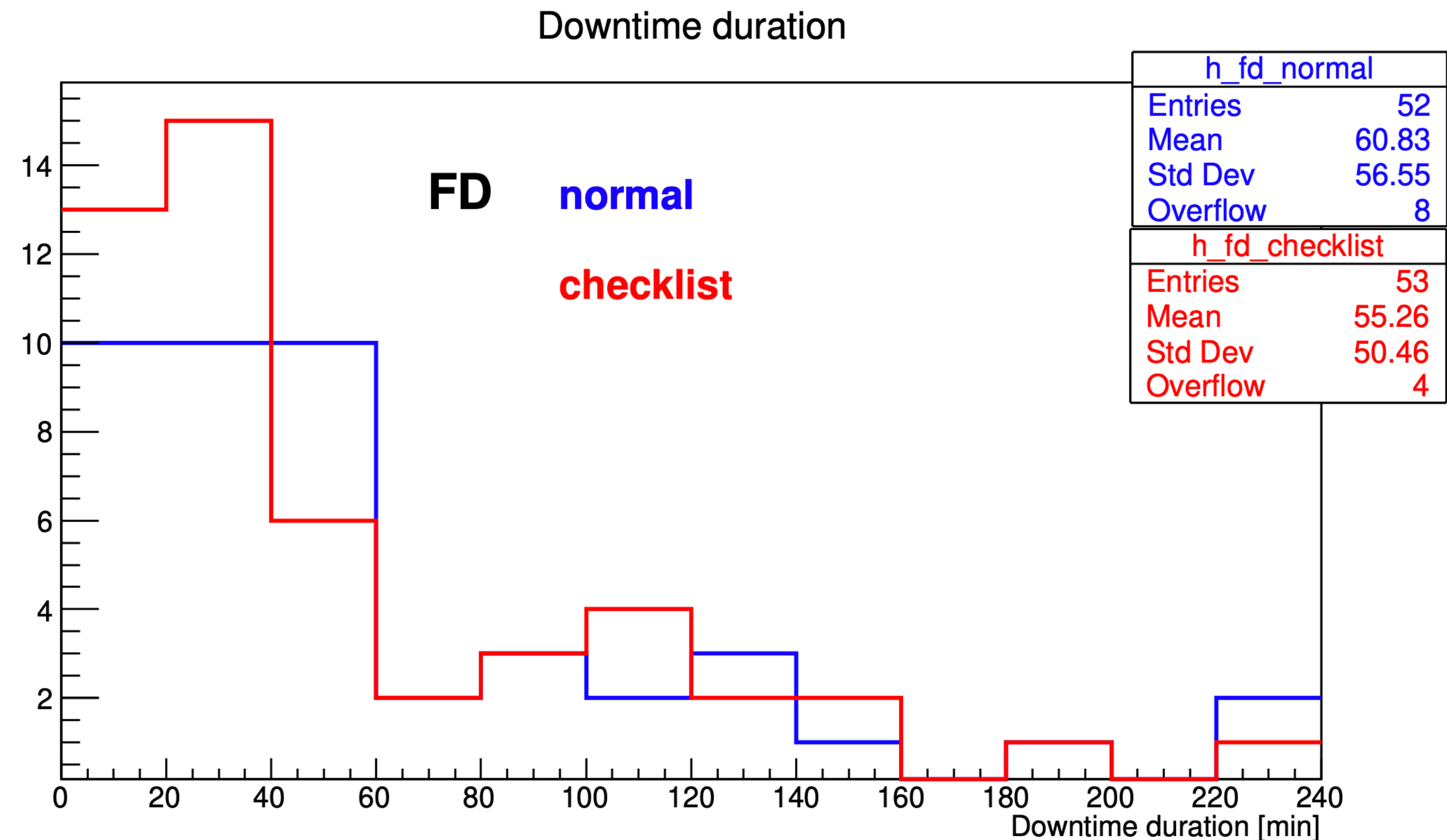
- Issues with compressors in late June/early July
- Waiting for replacements (2.5 week downtime)
- Several crashes over the next few weeks

Summer Work

- Hard at work getting ready for beam:
- Major push to upgrade DAQ cluster from SL6 \implies SL7
 - Currently trying to get existing code/binaries to run on SL7
 - Working directly with Scientific Computing to perform upgrades
 - Recently got a run going with a few SL7 nodes in place
- Backup plan is to run using SL6 containers on SL7 nodes

Checklist Shift Running

- We are currently running in “checklist” shift mode
- Shifters perform all duties from a safe location on their own hardware
- Experts are contacted to directly address any Operations-related issues
- So far, downtimes during the checklist shift era are very similar to our normal running conditions
- Relies on increased use of automated alerts (texts and emails) for shifters

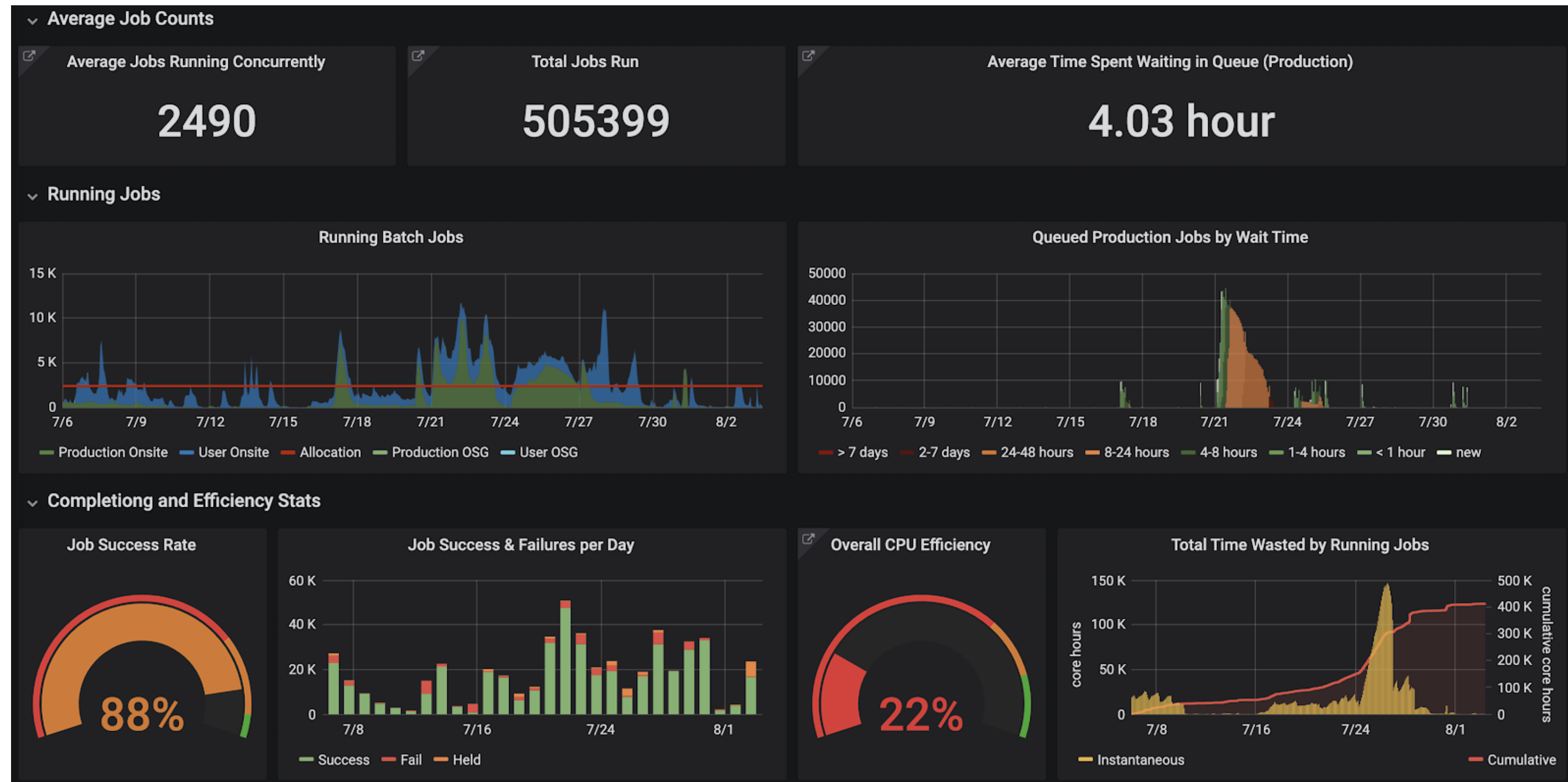


Checklist Shift Running

- We are asking for a temporary modification to the shift protocol to allow NOvA (the primary NuMI user) to take beam with checklist shifts
- We do not yet know whether regular shifts will be possible starting in November
 - Still several unknowns in regards to ROC access in the coming months
 - Access to most ROCs is currently restricted and may remain so during the next few months
 - Our readiness to resume regular shifts will depend on the availability of the ROCs and safety of shifters.
 - Checklist shifts may be the only way to safely take beam
- Question to be addressed for checklist shifts:
 - Do we have the optimal frequency of checklists?
 - Can we improve automatic expert contacts?
 - How do we manage communications between MCR and shifters?
 - AD/Ops concerns?

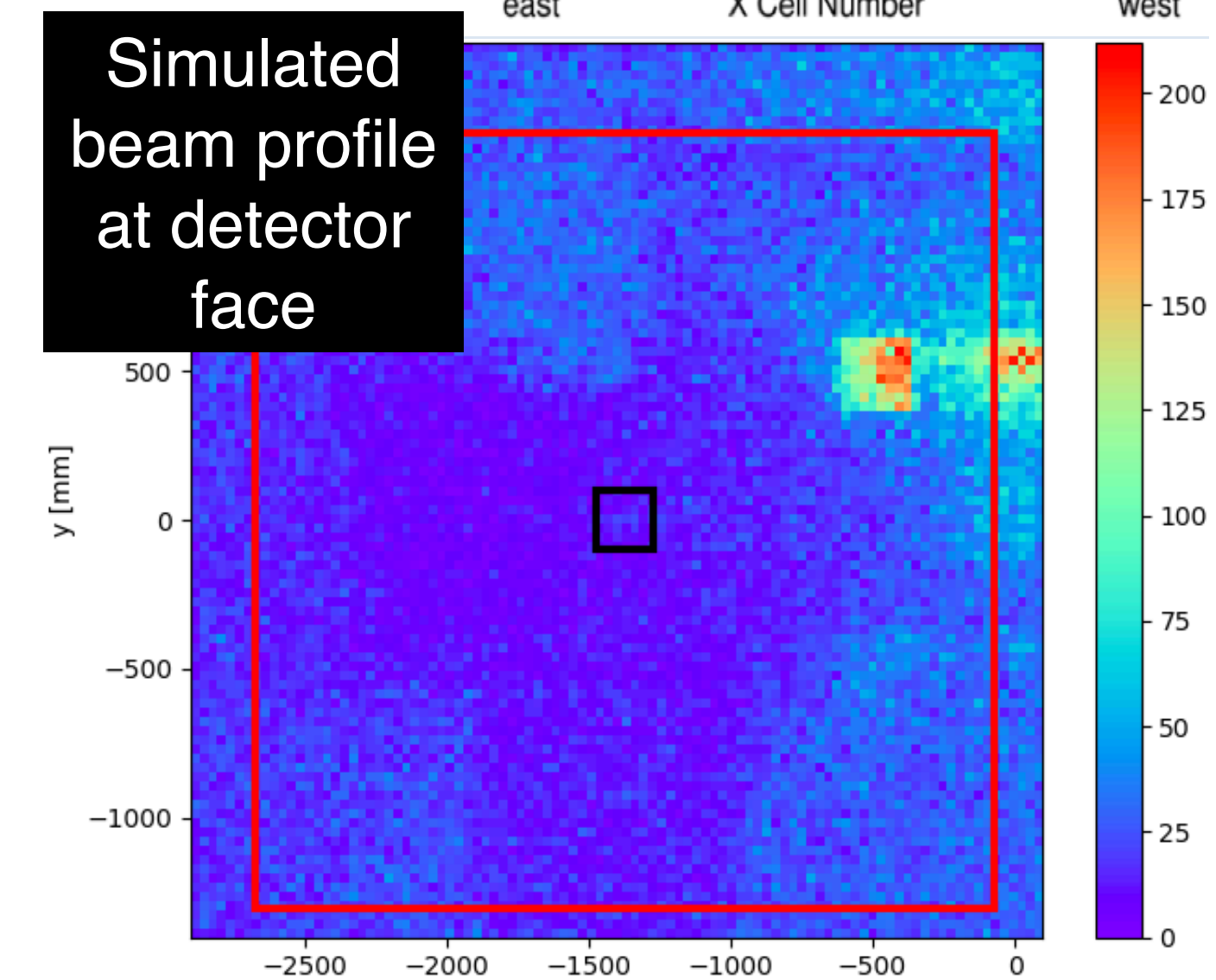
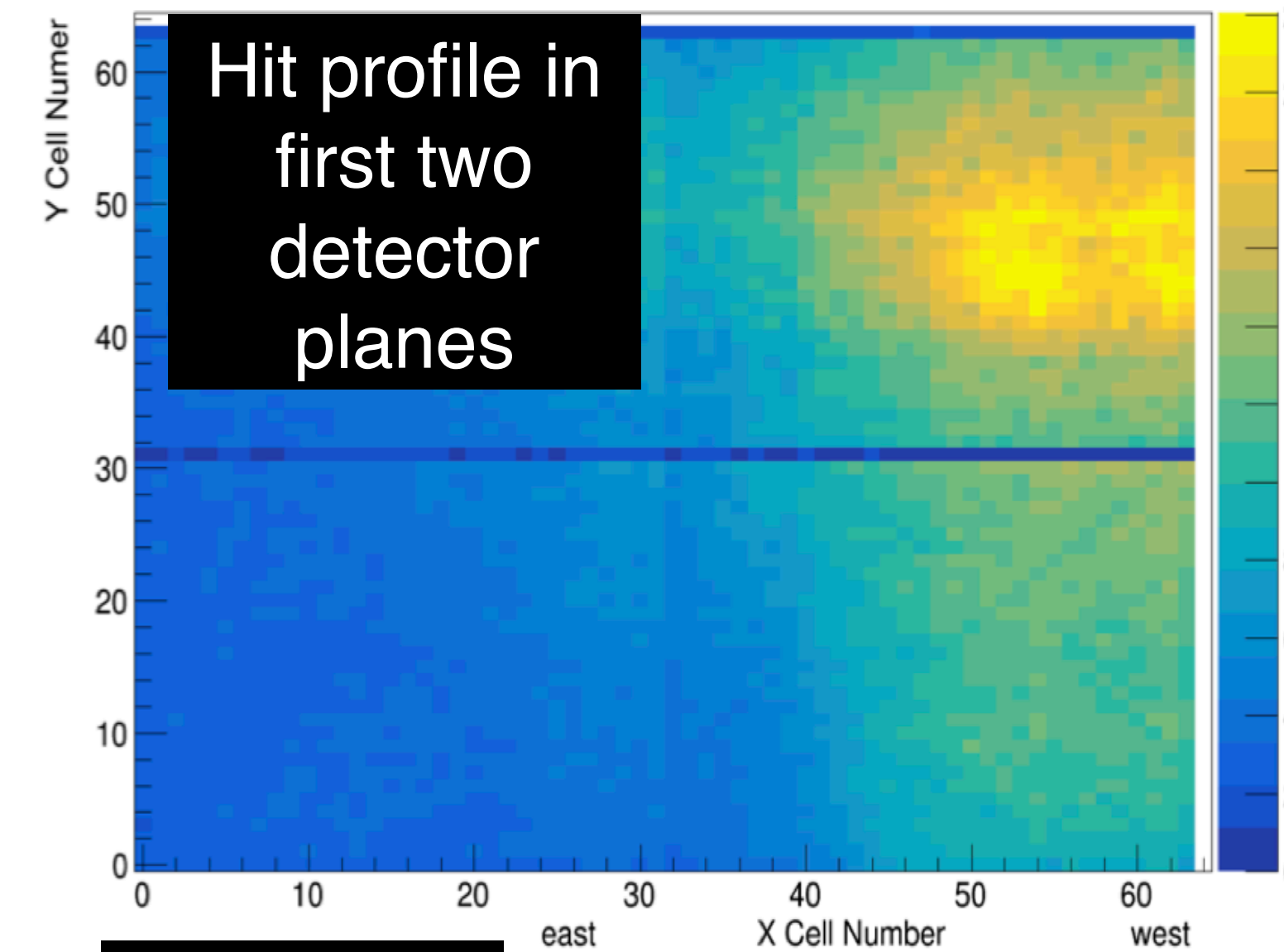
Computing Update

- Between July 6 (last PMG update) - Aug 3, 2020 : NOvA ran a total of ~505k jobs
- ~114k jobs in this period were Production
- Technical difficulties in prestaging were resolved by SCD
- Making some workflow changes in the production & storage of fcls in preparation of Prod 5.1
- Prod 5.1 will last from Aug 2020 ~ Spring 2021



Test Beam Update

- Work during the shutdown is focusing mostly on improving our understanding of the MCenter beam and finding improvements in the running conditions.
- A characteristic feature of the beamline is a highly localized, off-axis 'plume' hitting the upper-West part of the detector.
 - Has limited data taking rate and impacts data quality.
 - Previously unable to be reproduced in simulation so potential improvements were hard to study.
- A concerted effort from the External Beams Group (AD) alongside NOvA Test Beam has led to a much improved simulation, including all relevant material and a full modeling of all the magnetic fields.
 - Qualitatively describes the plume characteristics well.
 - In the process of using this to understand and implement changes to improve the beam quality before the end of shut-down.



Full model used in improved simulation

