Spring 2018 run summary

A. Deur
Jefferson Lab

Spring 2018 run summary

A. Deur
Jefferson Lab

Weekly (run coordinator's) summaries available at:
https://halldweb.jlab.org/wiki/index.php/Summary_Fall_2017_Spring2018_Run

Run plan: https://halldweb.jlab.org/wiki/index.php/Run_Coordination_Meetings:Fall2017_Spring2018_Run

Spring 18 run (+ Fall 17)

- Fall 17 and Spring 18 runs separated by 2 weeks. ⇒Treated as a single run period.
- Operation: physics running. Energy: 11.62 GeV (Similar to Fall 16 and Spring 17)
  - 4-hall ops, mostly 5-pass for all Halls, some at high current. Challenge successfully meet by CEBAF: Great success

Spring 18 run (+ Fall 17)

- Fall 17 and Spring 18 runs separated by 2 weeks. ⇒Treated as a single run period.
- Operation: physics running. Energy: 11.62 GeV (Similar to Fall 16 and Spring 17)
  - 4-hall ops, mostly 5-pass for all Halls, some at high current. Challenge successfully meet by CEBAF: Great success

- Accelerator work related Hall D:
  - Act. Col. fast raster commissioning;
  - FFB commissioning, test nA BPm, test stripline BPM improvements for lower beam current ops.;
  - Beam Energy Monitoring;
  - Rapid-access system (Hall D. Collimator cave and Tagger area excluded).

Spring 18 run (+ Fall 17)

- Fall 17 and Spring 18 runs separated by 2 weeks. ⇒Treated as a single run period.
- Operation: physics running. Energy: 11.62 GeV (Similar to Fall 16 and Spring 17)
  - 4-hall ops, mostly 5-pass for all Halls, some at high current. Challenge successfully meet by CEBAF: Great success
- Accelerator work related Hall D:
  - Act. Col. fast raster commissioning;
  - FFB commissioning, test nA BPm, test stripline BPM improvements for lower beam current ops.;
  - Beam Energy Monitoring;
  - Rapid-access system (Hall D. Collimator cave and Tagger area excluded).
- Hall D configuration:
  - Solenoid at 1350A. Rep. rate 250 MHz (As for Spr. 17. Fall 16 was 500 MHz). Slit shared with A (it was with B in Fall)
  - Beam current 1 nA-1.5 μA. 150 nA for standard production on 58 μm diamond;
  - Main diamond: 58 μm J70-100 (+new: 47 μm J70-105 & 17 μm JD70-104);
  - 5mm collimator hole (except for TAC runs and possible thin diamond test runs);
  - Slow locks;
  - Tagger quadrupole on (negative polarity);
  - LH2 target.

Spring 18 run (+ Fall 17)

- Fall 17 and Spring 18 runs separated by 2 weeks. ⇒Treated as a single run period.
- Operation: physics running. Energy: 11.62 GeV (Similar to Fall 16 and Spring 17)
  - 4-hall ops, mostly 5-pass for all Halls, some at high current. Challenge successfully meet by CEBAF: Great success
- Accelerator work related Hall D:
  - Act. Col. fast raster commissioning;
  - FFB commissioning, test nA BPm, test stripline BPM improvements for lower beam current ops.;
  - Beam Energy Monitoring;
  - Rapid-access system (Hall D. Collimator cave and Tagger area excluded).
- Hall D configuration:
  - Solenoid at 1350A. Rep. rate 250 MHz (As for Spr. 17. Fall 16 was 500 MHz). Slit shared with A (it was with B in Fall)
  - Beam current 1 nA-1.5 μA. 150 nA for standard production on 58 μm diamond;
  - Main diamond: 58 μm J70-100 (+new: 47 μm J70-105 & 17 μm JD70-104);
  - 5mm collimator hole (except for TAC runs and possible thin diamond test runs);
  - Slow locks;
  - Tagger quadrupole on (negative polarity);
  - LH2 target.

No high current limitation

Spring 18 run (+ Fall 17)

- Fall 17 and Spring 18 runs separated by 2 weeks. ⇒Treated as a single run period.
- Operation: physics running. Energy: 11.62 GeV (Similar to Fall 16 and Spring 17)
  - 4-hall ops, mostly 5-pass for all Halls, some at high current. Challenge successfully meet by CEBAF: Great success
- Accelerator work related Hall D:
  - Act. Col. fast raster commissioning;
  - FFB commissioning, test nA BPm, test stripline BPM improvements for lower beam current ops.;
  - Beam Energy Monitoring;
  - Rapid-access system (Hall D. Collimator cave and Tagger area excluded).
- Hall D configuration:
  - Solenoid at 1350A. Rep. rate 250 MHz (As for Spr. 17. Fall 16 was 500 MHz). Slit shared with A (it was with B in Fall)
  - Beam current 1 nA-1.5 μA. 150 nA for standard production on 58 μm diamond;
  - Main diamond: 58 μm J70-100 (+new: 47 μm J70-105 & 17 μm JD70-104);
  - 5mm collimator hole (except for TAC runs and possible thin diamond test runs);
  - Slow locks;
  - Tagger quadrupole on (negative polarity);
  - LH2 target.

Hall D goals:

- **Gather GlueX production data with its necessary systematic data;**
- High intensity DAQ/L1 tests;
- Low intensity GlueX production runs;
- TAC V-wire radiator commissioning. TAC test;
- 17 μm JD70-104 diamond alignment and performance check;
- Detector tests: CDC and FDC HV scans, ToF CAEN TDC non-linearity study;
- (Muon chamber, TRD, PrimEx's PbWO CompCal prototype. Trigger config. for future programs. Mostly Non-invasive tests).

Schedule and organization

Actual Timeline: Fall: 3 days + Spring: 13 weeks (original timeline: 2 weeks in Fall + 10 weeks in Spring)

- Nov. 27th-Dec. 3rd: Electron beam restoration/run other halls (5-pass separator trip problems: IoT arcing)
- Dec. 18th-Dec. 21st: Hall D Fall run (3 days): Commissioning/tests. No significant data taking. Hall A was down (target issue) ⇒ 3-hall operation for CEBAF.
- Dec. 21st-Jan. 5th: Xmas break.
- Jan. 5th-Jan. 10th: Electron beam restoration.
- Jan. 10th-May. 6th: Hall D Spring run: 13 weeks (+3 weeks CEBAF repairs). Focus: production.

Schedule and organization

Actual Timeline: Fall: 3 days + Spring: 13 weeks (original timeline: 2 weeks in Fall + 10 weeks in Spring)

- Nov. 27th-Dec. 3rd: Electron beam restoration/run other halls (5-pass separator trip problems: IoT arcing)
- Dec. 18th-Dec. 21st: Hall D Fall run (3 days): Commissioning/tests. No significant data taking. Hall A was down (target issue) ⇒ 3-hall operation for CEBAF.
- Dec. 21st-Jan. 5th: Xmas break.
- Jan. 5th-Jan. 10th: Electron beam restoration.
- Jan. 10th-May. 6th: Hall D Spring run: 13 weeks (+3 weeks CEBAF repairs). Focus: production.

Run responsibilities:

Leadership: C. Meyer/M. Shepherd, E. Chudakov/E. Smith

Run Coordinators:

Nov. 27th-Dec. 1st, 5 days: A. Deur (accelerator restoration)
Dec. 1st-Dec. 21st, 20 days: A. Deur
Xmas break.
Jan. 5th-Jan. 11th, 7 days: A. Deur (accelerator restoration)
Jan. 12th-Jan. 24th, 12 days: A. Deur
Jan. 24th-Jan. 31st, 7 days: A. Ostrovidov
Jan. 31st-Feb. 7th, 7 days: J. Stevens
Feb. 7th-Feb. 14th, 7 days: M. Dalton
Feb. 14th-Feb. 21st, 7 days: A. Barnes
Feb. 21st-Feb. 28th, 7 days: Z. Papandreou
Feb. 28th-March 5th, 6 days: C. Fanelli

March 5th-March 28th, Accelerator down (tranformer replacement).
R. Jones (1 week) and A. Deur (2 weeks) RCs.
March 28th-Apr. 4th, 7 days: N. Jarvis
Apr. 4th-Apr. 11th, 7 days: D. lawrence
Apr. 11th-Apr. 18th, 7 days: C. Gleason
Apr. 18th-Apr. 25th, 7 days: M. Dalton
Apr. 25th-May. 2nd, 7 days: S. Fegan
May. 2nd-May. 6th, 4 days: A. Austregesilo

Physics Division Liaison: Benedikt Zihlmann.

Analysis Coordinator: Alexander Austregesilo.

Run coordination, subsystem status, data quality monitoring, offline analysis are discussed at daily RC meetings (Usually 8:45am, counting house).

Spring 18 runplan

1. Verify electron beam quality and establish photon beam.

2. DAQ, L1 trigger, detectors and beamline checkouts.

3. Check 58 μm diamond (JD70-100) alignment.

4. Beam envelope measurement with fast raster.

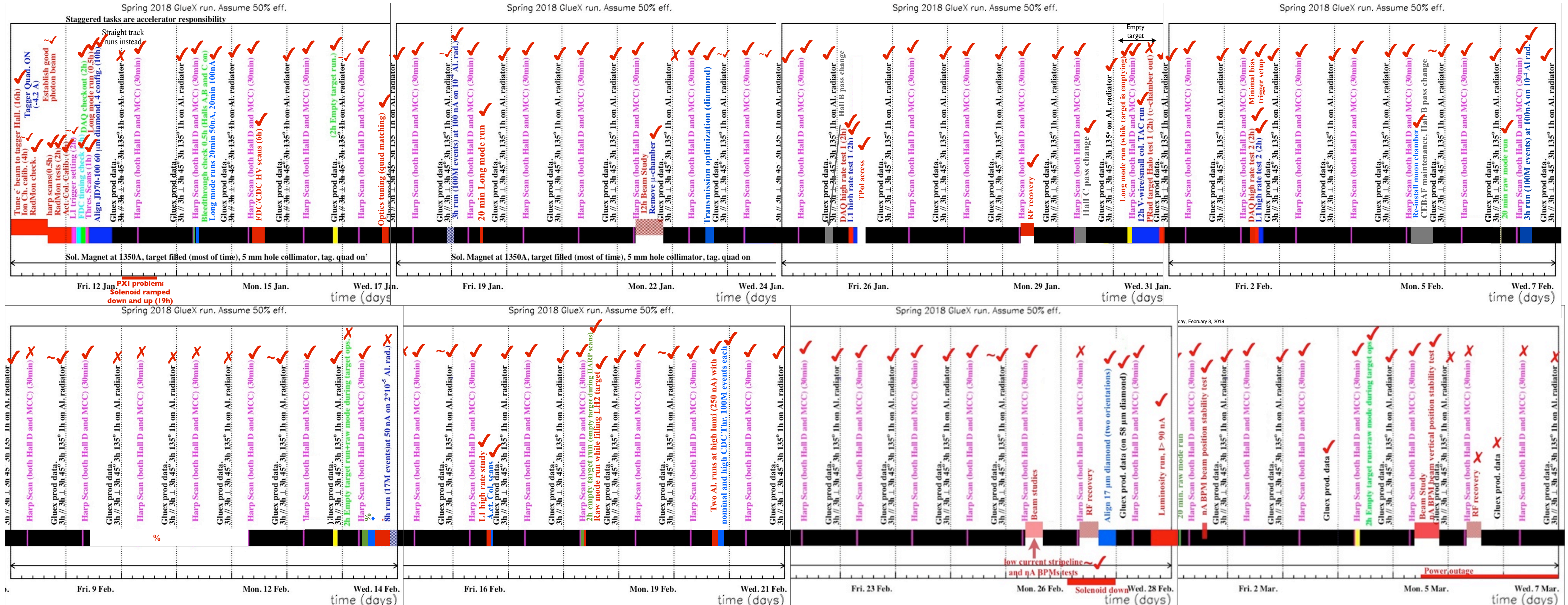
5. **Gluex data production**:
   - Goal gather at least twice the amount of trigger taken in Spring 2017.
   - Harp scans (once every day).
   - Empty target run every 2 weeks. (Done at standard production current.)
   - Raw mode run every week. (Done during target fill/empty, or during Harp Scans)
   - TAC runs. 2 TAC runs (one at beginning, one in middle of the run) + TAC syst. tests + V-wire test.
   - Physics production with diamond(s) and 5 mm collimator.
     - Balanced amount of $0^o/90^o/45^o/135^o$ data + shorter Al. run per cycle: gather 10-15% of total number of triggers with Al. radiator.
     - Switch polarization every run.
     - Start production with 58 μm diamond (JD70-100).
     - Align 17 μm diamond and do 1-2 days of production runs (3.4 mm coll.) to assess its quality.
     - Luminosity: Same as Spring 17: ~45 kHz, 150nA on 58 μm diamond + low lumi. runs for syst. studies
     - TPol monitoring

6. Straight track data

7. Parasitic: Muon chamber/TRD/CompCal/Trigger config. for future programs. Take data for Hall D fast access.

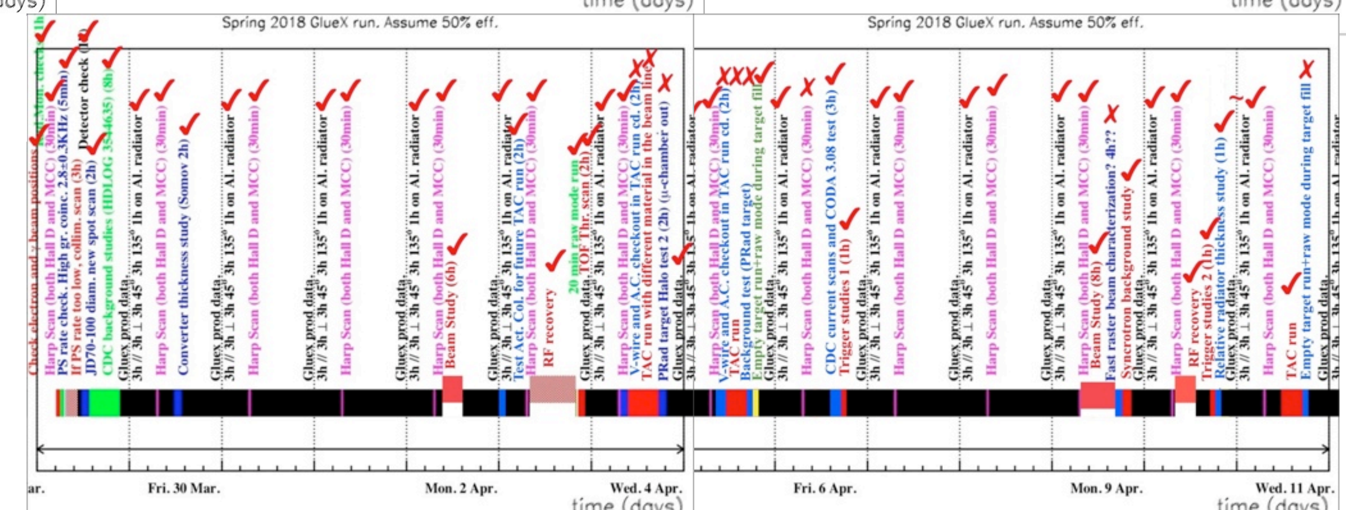
Spring 18 runplan

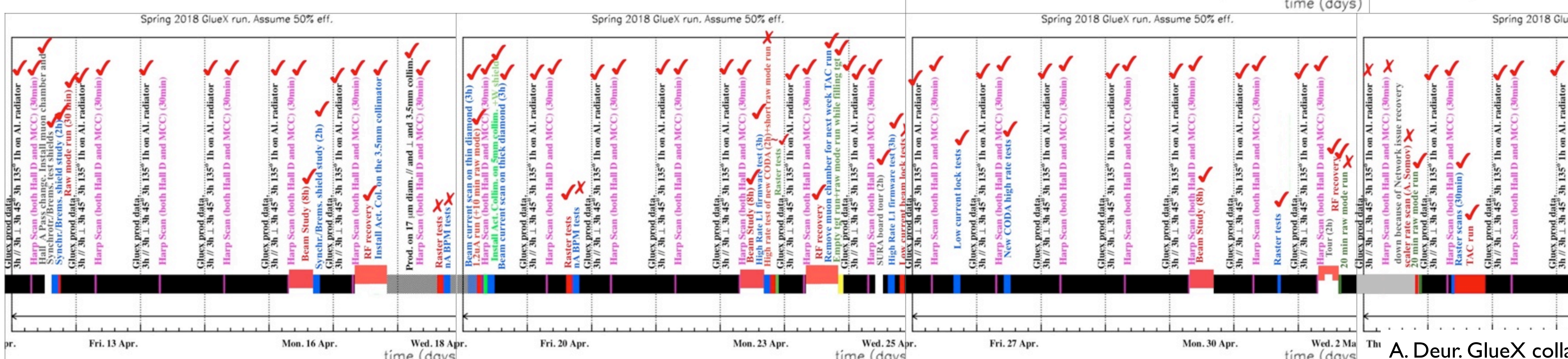
1. Verify electron beam quality and establish photon beam.
2. DAQ, L1 trigger, detectors and beamline checkouts.
3. Check 58 μm diamond (JD70-100) alignment.
4. Beam envelope measurement with fast raster.
5. **Gluex data production**:
   - Goal gather at least twice the amount of trigger taken in Spring 2017.
   - Harp scans (once every day).
   - Empty target run every 2 weeks. (Done at standard production current.)
   - Raw mode run every week. (Done during target fill/empty, or during Harp Scans)
   - TAC runs. 2 TAC runs (one at beginning, one in middle of the run) + TAC syst. tests + V-wire test.
   - Physics production with diamond(s) and 5 mm collimator.
     - Balanced amount of $0^o/90^o/45^o/135^o$ data + shorter Al. run per cycle: gather 10-15% of total number of triggers with Al. radiator.
     - Switch polarization every run.
     - Start production with 58 μm diamond (JD70-100).
     - Align 17 μm diamond and do 1-2 days of production runs (3.4 mm coll.) to assess its quality.
     - Luminosity: Same as Spring 17: ~45 kHz, 150nA on 58 μm diamond + low lumi. runs for syst. studies
     - TPol monitoring
6. Straight track data
7. Parasitic: Muon chamber/TRD/CompCal/Trigger config. for future programs. Take data for Hall D fast access.



March 5th-28th: No beam CHL transformer replacement

(solenoid ramped down, other magnets turned off. Target warmed up. Cosmic data taken)





https://halldweb.jlab.org/wiki/index.php/Run_Coordination_Meetings:Fall2017_Spring2018_Run#Runplan_time_charts

A. Deur. GlueX collaboration meeting. 06/21/2018

Spring 18 runplan

1. Verify electron beam quality and establish photon beam.

2. DAQ, L1 trigger, detectors and beamline checkouts.

3. Check 58 μm diamond (JD70-100) alignment.

4. Beam envelope measurement with fast raster.

5. **Gluex data production**:
   - Goal gather at least twice the amount of trigger taken in Spring 2017.
   - Harp scans (once every day).
   - Empty target run every 2 weeks. (Done at standard production current.)
   - Raw mode run every week. (Done during target fill/empty, or during Harp Scans)
   - TAC runs. 2 TAC runs (one at beginning, one in middle of the run) + TAC syst. tests + V-wire test.
   - Physics production with diamond(s) and 5 mm collimator.
     - Balanced amount of $0^o/90^o/45^o/135^o$ data + shorter Al. run per cycle: gather 10-15% of total number of triggers with Al. radiator.
     - Switch polarization every run.
     - Start production with 58 μm diamond (JD70-100).
     - Align 17 μm diamond and do 1-2 days of production runs (3.4 mm coll.) to assess its quality.
     - Luminosity: Same as Spring 17: ~45 kHz, 150nA on 58 μm diamond + low lumi. runs for syst. studies
     - TPol monitoring

6. Straight track data

7. Parasitic: Muon chamber/TRD/CompCal/Trigger config. for future programs. Take data for Hall D fast access.

Spring 18 achievements

1. Verify electron beam quality and establish photon beam.
2. DAQ, L1 trigger, detectors and beamline checkouts.
3. Check 58 μm diamond (JD70-100) alignment.
4. Beam envelope measurement with fast raster.

✓Very quickly established. Started ahead of schedule.
Beam good for production:
- Transmission same as Spring 2017 (~2.7 kHz PS coinc. scaler
- Transmission independent of diamond orientation
- Polarization same as Spring 2017 (~37%)
- Typically a few nA of bleedthrough.

5. **Gluex data production**:
   - Goal gather at least twice the amount of trigger taken in Spring 2017.
   - Harp scans (once every day).
   - Empty target run every 2 weeks. (Done at standard production current.)
   - Raw mode run every week. (Done during target fill/empty, or during Harp Scans)
   - TAC runs. 2 TAC runs (one at beginning, one in middle of the run) + TAC syst. tests + V-wire test.
   - Physics production with diamond(s) and 5 mm collimator.
     - Balanced amount of $0^o/90^o/45^o/135^o$ data + shorter Al. run per cycle: gather 10-15% of total number of triggers with Al. radiator.
     - Switch polarization every run.
     - Start production with 58 μm diamond (JD70-100).
     - Align 17 μm diamond and do 1-2 days of production runs (3.4 mm coll.) to assess its quality.
     - Luminosity: Same as Spring 17: ~45 kHz, 150nA on 58 μm diamond + low lumi. runs for syst. studies
     - TPol monitoring
6. Straight track data
7. Parasitic: Muon chamber/TRD/CompCal/Trigger config. for future programs. Take data for Hall D fast access.

Spring 18 achievements

1. Verify electron beam quality and establish photon beam. ✓Very quickly established. Beam good for production
2. DAQ, L1 trigger, detectors and beamline checkouts. ✓ High rate tests done too: run at 65 kHz with 96% livetime.
3. Check 58 μm diamond (JD70-100) alignment.
4. Beam envelope measurement with fast raster.
5. **Gluex data production**:
   - Goal gather at least twice the amount of trigger taken in Spring 2017.
   - Harp scans (once every day).
   - Empty target run every 2 weeks. (Done at standard production current.)
   - Raw mode run every week. (Done during target fill/empty, or during Harp Scans)
   - TAC runs. 2 TAC runs (one at beginning, one in middle of the run) + TAC syst. tests + V-wire test.
   - Physics production with diamond(s) and 5 mm collimator.
     - Balanced amount of $0^o/90^o/45^o/135^o$ data + shorter Al. run per cycle: gather 10-15% of total number of triggers with Al. radiator.
     - Switch polarization every run.
     - Start production with 58 μm diamond (JD70-100).
     - Align 17 μm diamond and do 1-2 days of production runs (3.4 mm coll.) to assess its quality.
     - Luminosity: Same as Spring 17: ~45 kHz, 150nA on 58 μm diamond + low lumi. runs for syst. studies
     - TPol monitoring
6. Straight track data
7. Parasitic: Muon chamber/TRD/CompCal/Trigger config. for future programs. Take data for Hall D fast access.

Spring 18 achievements

1. Verify electron beam quality and establish photon beam. ✓Very quickly established. Beam good for production

2. DAQ, L1 trigger, detectors and beamline checkouts. ✓ High rate tests done too: run at 65 kHz with 96% livetime.

3. Check 58 μm diamond (JD70-100) alignment. ✓ Polarization same as Spring 2017 (~37%)

4. Beam envelope measurement with fast raster.

5. **Gluex data production**:
   - Goal gather at least twice the amount of trigger taken in Spring 2017.
   - Harp scans (once every day).
   - Empty target run every 2 weeks. (Done at standard production current.)
   - Raw mode run every week. (Done during target fill/empty, or during Harp Scans)
   - TAC runs. 2 TAC runs (one at beginning, one in middle of the run) + TAC syst. tests + V-wire test.
   - Physics production with diamond(s) and 5 mm collimator.
     - Balanced amount of $0^o/90^o/45^o/135^o$ data + shorter Al. run per cycle: gather 10-15% of total number of triggers with Al. radiator.
     - Switch polarization every run.
     - Start production with 58 μm diamond (JD70-100).
     - Align 17 μm diamond and do 1-2 days of production runs (3.4 mm coll.) to assess its quality.
     - Luminosity: Same as Spring 17: ~45 kHz, 150nA on 58 μm diamond + low lumi. runs for syst. studies
     - TPol monitoring

6. Straight track data

7. Parasitic: Muon chamber/TRD/CompCal/Trigger config. for future programs. Take data for Hall D fast access.

Spring 18 achievements

1. Verify electron beam quality and establish photon beam. ✓Very quickly established. Beam good for production
2. DAQ, L1 trigger, detectors and beamline checkouts. ✓ High rate tests done too: run at 65 kHz with 96% livetime.
3. Check 58 μm diamond (JD70-100) alignment. ✓ Polarization same as spring 2017 (~37%)
4. Beam envelope measurement with fast raster. ~✓ Several tests done. Enough for assessment of the method validity. If validated, then more tests will be needed.
5. **Gluex data production**:
   - Goal gather at least twice the amount of trigger taken in Spring 2017.
   - Harp scans (once every day).
   - Empty target run every 2 weeks. (Done at standard production current.)
   - Raw mode run every week. (Done during target fill/empty, or during Harp Scans)
   - TAC runs. 2 TAC runs (one at beginning, one in middle of the run) + TAC syst. tests + V-wire test.
   - Physics production with diamond(s) and 5 mm collimator.
     - Balanced amount of $0^o/90^o/45^o/135^o$ data + shorter Al. run per cycle: gather 10-15% of total number of triggers with Al. radiator.
     - Switch polarization every run.
     - Start production with 58 μm diamond (JD70-100).
     - Align 17 μm diamond and do 1-2 days of production runs (3.4 mm coll.) to assess its quality.
     - Luminosity: Same as Spring 17: ~45 kHz, 150nA on 58 μm diamond + low lumi. runs for syst. studies
     - TPol monitoring
6. Straight track data
7. Parasitic: Muon chamber/TRD/CompCal/Trigger config. for future programs. Take data for Hall D fast access.

Spring 18 achievements

1. Verify electron beam quality and establish photon beam. ✓Very quickly established. Beam good for production
2. DAQ, L1 trigger, detectors and beamline checkouts. ✓ High rate tests done too: run at 65 kHz with 96% livetime.
3. Check 58 μm diamond (JD70-100) alignment. ✓ Polarization same as spring 2017 (~37%)
4. Beam envelope measurement with fast raster. ~✓ Several tests done. Enough for assessment of the method validity. If validated, then more tests will be needed.
5. **Gluex data production**:
   - Goal gather at least twice the amount of trigger taken in Spring 2017. ✓ Exceeded goal thanks to run extension. 150B triggers.
   - Harp scans (once every day).
   - Empty target run every 2 weeks. (Done at standard production current.)
   - Raw mode run every week. (Done during target fill/empty, or during Harp Scans)
   - TAC runs. 2 TAC runs (one at beginning, one in middle of the run) + TAC syst. tests + V-wire test.
   - Physics production with diamond(s) and 5 mm collimator.
     - Balanced amount of $0^o/90^o/45^o/135^o$ data + shorter Al. run per cycle: gather 10-15% of total number of triggers with Al. radiator.
     - Switch polarization every run.
     - Start production with 58 μm diamond (JD70-100).
     - Align 17 μm diamond and do 1-2 days of production runs (3.4 mm coll.) to assess its quality.
     - Luminosity: Same as Spring 17: ~45 kHz, 150nA on 58 μm diamond + low lumi. runs for syst. studies
     - TPol monitoring
6. Straight track data
7. Parasitic: Muon chamber/TRD/CompCal/Trigger config. for future programs. Take data for Hall D fast access.

Spring 18 achievements

1. Verify electron beam quality and establish photon beam. ✓Very quickly established. Beam good for production
2. DAQ, L1 trigger, detectors and beamline checkouts.✓ High rate tests done too: run at 65 kHz with 96% livetime.
3. Check 58 μm diamond (JD70-100) alignment.✓ Polarization same as spring 2017 (~37%)
4. Beam envelope measurement with fast raster.~✓ Several tests done. Enough for assessment of the method.
5. **Gluex data production**:
   - Goal gather at least twice the amount of trigger taken in Spring 2017. ✓ Exceeded goal. 150B triggers.
   - Harp scans (once every day).✓ Critical to make sure beam transmission and polarization remain optimal.
   - Empty target run every 2 weeks. (Done at standard production current.)
   - Raw mode run every week. (Done during target fill/empty, or during Harp Scans)
   - TAC runs. 2 TAC runs (one at beginning, one in middle of the run) + TAC syst. tests + V-wire test.
   - Physics production with diamond(s) and 5 mm collimator.
     - Balanced amount of $0^o/90^o/45^o/135^o$ data + shorter Al. run per cycle: gather 10-15% of total number of triggers with Al. radiator.
     - Switch polarization every run.
     - Start production with 58 μm diamond (JD70-100).
     - Align 17 μm diamond and do 1-2 days of production runs (3.4 mm coll.) to assess its quality.
     - Luminosity: Same as Spring 17: ~45 kHz, 150nA on 58 μm diamond + low lumi. runs for syst. studies
     - TPol monitoring
6. Straight track data
7. Parasitic: Muon chamber/TRD/CompCal/Trigger config. for future programs. Take data for Hall D fast access.

Spring 18 achievements

1. Verify electron beam quality and establish photon beam. ✓Very quickly established. Beam good for production

2. DAQ, L1 trigger, detectors and beamline checkouts.✓ High rate tests done too: run at 65 kHz with 96% livetime.

3. Check 58 μm diamond (JD70-100) alignment.✓ Polarization same as spring 2017 (~37%)

4. Beam envelope measurement with fast raster.~✓ Several tests done. Enough for assessment of the method.

5. **Gluex data production**:
   - Goal gather at least twice the amount of trigger taken in Spring 2017. ✓ Exceeded goal. 150B triggers.
   - Harp scans (once every day).✓ Critical to make sure beam transmission and polarization remain optimal.
   - Empty target run every 2 weeks. (Done at standard production current.)✓
   - Raw mode run every week. (Done during target fill/empty, or during Harp Scans) ✓
   - TAC runs. 2 TAC runs (one at beginning, one in middle of the run) + TAC syst. tests + V-wire test.
   - Physics production with diamond(s) and 5 mm collimator.
     - Balanced amount of $0^o/90^o/45^o/135^o$ data + shorter Al. run per cycle: gather 10-15% of total number of triggers with Al. radiator.
     - Switch polarization every run.
     - Start production with 58 μm diamond (JD70-100).
     - Align 17 μm diamond and do 1-2 days of production runs (3.4 mm coll.) to assess its quality.
     - Luminosity: Same as Spring 17: ~45 kHz, 150nA on 58 μm diamond + low lumi. runs for syst. studies
     - TPol monitoring

6. Straight track data

7. Parasitic: Muon chamber/TRD/CompCal/Trigger config. for future programs. Take data for Hall D fast access.

Spring 18 achievements

1. Verify electron beam quality and establish photon beam. ✓Very quickly established. Beam good for productior
2. DAQ, L1 trigger, detectors and beamline checkouts. ✓ High rate tests done too: run at 65 kHz with 96% livetime.
3. Check 58 µm diamond (JD70-100) alignment. ✓ Polarization same as spring 2017 (~37%)
4. Beam envelope measurement with fast raster. ~✓ Several tests done. Enough for assessment of the method.
5. **Gluex data production**:
   - Goal gather at least twice the amount of trigger taken in Spring 2017. ✓ Exceeded goal. 150B triggers.
   - Harp scans (once every day). ✓ Critical to make sure beam transmission and polarization remain optimal.
   - Empty target run every 2 weeks. (Done at standard production current.) ✓
   - Raw mode run every week. (Done during target fill/empty, or during Harp Scans) ✓
   - TAC runs. 2 TAC runs (one at beginning, one in middle of the run) ✓ + TAC syst. tests ✓ + V-wire test. ✓
   - Physics production with diamond(s) and 5 mm collimator.
     - Balanced amount of $0^o/90^o/45^o/135^o$ data + shorter Al. run per cy
       number of triggers with Al. radiator.
     - Switch polarization every run.
     - Start production with 58 µm diamond (JD70-100).
     - Align 17 µm diamond and do 1-2 days of production runs (3.4 m
     - Luminosity: Same as Spring 17: ~45 kHz, 150nA on 58 µm diamond + low lumi. runs for syst. studies
     - TPol monitoring

V-wire tested successfully and used for TAC runs (30 nA).
Low current tests successful.
Effect of in-beam material checked (target fill/empty runs).
TAC runs done at the start, second half and end of the run.

6. Straight track data
7. Parasitic: Muon chamber/TRD/CompCal/Trigger config. for future programs. Take data for Hall D fast access.

Spring 18 achievements

1. Verify electron beam quality and establish photon beam. ✓Very quickly established. Beam good for production
2. DAQ, L1 trigger, detectors and beamline checkouts.✓ High rate tests done too: run at 65 kHz with 96% livetime.
3. Check 58 μm diamond (JD70-100) alignment.✓ Polarization same as spring 2017 (~37%)
4. Beam envelope measurement with fast raster.~✓ Several tests done. Enough for assessment of the method.
5. **Gluex data production**:
   - Goal gather at least twice the amount of trigger taken in Spring 2017. ✓ Exceeded goal. 150B triggers.
   - Harp scans (once every day).✓ Critical to make sure beam transmission and polarization remain optimal.
   - Empty target run every 2 weeks. (Done at standard production current.) ✓
   - Raw mode run every week. (Done during target fill/empty, or during Harp Scans) ✓
   - TAC runs. 2 TAC runs (one at beginning, one in middle of the run) ✓ + TAC syst. tests ✓ + V-wire test. ✓
   - Physics production with diamond(s) and 5 mm collimator.
     - Balanced amount of $0^o/90^o/45^o/135^o$ data + shorter Al. run per cycle: gather 10-15% of total number of triggers with Al. radiator. ✓ 0^o: 22% / 90^o: 22% / 45^o: 21% / 135^o : 22.% / Al.: 8%
     - Switch polarization every run.
     - Start production with 58 μm diamond (JD70-100).
     - Align 17 μm diamond and do 1-2 days of production runs (3.4 mm coll.) to assess its quality.
     - Luminosity: Same as Spring 17: ~45 kHz, 150nA on 58 μm diamond + low lumi. runs for syst. studies
     - TPol monitoring
6. Straight track data
7. Parasitic: Muon chamber/TRD/CompCal/Trigger config. for future programs. Take data for Hall D fast access.

Spring 18 achievements

1. Verify electron beam quality and establish photon beam. ✓Very quickly established. Beam good for production
2. DAQ, L1 trigger, detectors and beamline checkouts.✓ High rate tests done too: run at 65 kHz with 96% livetime.
3. Check 58 μm diamond (JD70-100) alignment.✓ Polarization same as spring 2017 (~37%)
4. Beam envelope measurement with fast raster.~✓ Several tests done. Enough for assessment of the method.
5. **Gluex data production**:
   - Goal gather at least twice the amount of trigger taken in Spring 2017. ✓ Exceeded goal. 150B triggers.
   - Harp scans (once every day).✓ Critical to make sure beam transmission and polarization remain optimal.
   - Empty target run every 2 weeks. (Done at standard production current.) ✓
   - Raw mode run every week. (Done during target fill/empty, or during Harp Scans) ✓
   - TAC runs. 2 TAC runs (one at beginning, one in middle of the run)✓+ TAC syst. tests✓+ V-wire test.✓
   - Physics production with diamond(s) and 5 mm collimator.
     - Balanced amount of 0°/90°/45°/135° data + shorter Al. run per cycle: gather 10-15% of total number of triggers with Al. radiator.✓
     - Switch polarization every run.✓
     - Start production with 58 μm diamond (JD70-100).✓ Nearly all production data taken on JD70-100
     - Align 17 μm diamond and do 1-2 days of production runs (3.4 mm coll.) to assess its quality.
     - Luminosity: Same as Spring 17: ~45 kHz, 150nA on 58 μm diamond + low lumi. runs for syst. studies
     - TPol monitoring
6. Straight track data
7. Parasitic: Muon chamber/TRD/CompCal/Trigger config. for future programs. Take data for Hall D fast access.

Spring 18 achievements

1. Verify electron beam quality and establish photon beam. ✓Very quickly established. Beam good for production

2. DAQ, L1 trigger, detectors and beamline checkouts.✓ High rate tests done too: run at 65 kHz with 96% livetime.

3. Check 58 μm diamond (JD70-100) alignment.

4. Beam envelope measurement with fast raster.~✓ Several tests done. Enough for assessment of the method.

5. **Gluex data production**:
   - Goal gather at least twice the amount of trigger taken in Spring 2017. ✓ Exceeded goal. 150B triggers.
   - Harp scans (once every day).✓ Critical to make sure beam transmission and polarization remain optimal.
   - Empty target run every 2 weeks. (Done at standard production current.)✓
   - Raw mode run every week. (Done during target fill/empty, or during Harp Scans) ✓
   - TAC runs. 2 TAC runs (one at beginning, one in middle of the run)✓+ TAC syst. tests✓+ V-wire test.✓
   - Physics production with diamond(s) and 5 mm collimator.
     - Balanced amount of $0^o/90^o/45^o/135^o$ data + shorter Al. run per cycle: gather 10-15% of total number of triggers with Al. radiator.✓
     - Switch polarization every run.✓
     - Start production with 58 μm diamond (JD70-100).✓
     - Align 17 μm diamond and do 1-2 days of production runs (3.4 mm coll.) to assess its quality. ✓ Yields similar polarization as 58 μm diamond
     - Luminosity: Same as Spring 17: ~45 kHz, 150nA on 58 μm diamond + low lum
     - TPol monitoring

6. Straight track data

7. Parasitic: Muon chamber/TRD/CompCal/Trigger config. for future programs. Take data for Hall D fast access.

Spring 18 achievements

1. Verify electron beam quality and establish photon beam. ✓Very quickly established. Beam good for production

2. DAQ, L1 trigger, detectors and beamline checkouts.✓ High rate tests done too: run at 65 kHz with 96% livetime.

3. Check 58 μm diamond (JD70-100) alignment.

4. Beam envelope measurement with fast raster.~✓ Several tests done. Enough for assessment of the method.

5. **Gluex data production**:
   - Goal gather at least twice the amount of trigger taken in Spring 2017. ✓ Exceeded goal. 150B triggers.
   - Harp scans (once every day).✓ Critical to make sure beam transmission and polarization remain optimal.
   - Empty target run every 2 weeks. (Done at standard production current.)✓
   - Raw mode run every week. (Done during target fill/empty, or during Harp Scans) ✓
   - TAC runs. 2 TAC runs (one at beginning, one in middle of the run)✓+ TAC syst. tests✓+ V-wire test.✓
   - Physics production with diamond(s) and 5 mm collimator.
     - Balanced amount of $0^o/90^o/45^o/135^o$ data + shorter Al. run per cycle: gather 10-15% of total number of triggers with Al. radiator.✓
     - Switch polarization every run.✓
     - Start production with 58 μm diamond (JD70-100).✓
     - Align 17 μm diamond and do 1-2 days of production runs (3.4 mm coll.) to assess its quality.✓
     - Luminosity: Same as Spring 17: ~45 kHz, 150nA on 58 μm diamond + low lumi. runs for syst. studies✓
     - TPol monitoring

     Several luminosity scans to study yield luminosity-dependence

6. Straight track data

7. Parasitic: Muon chamber/TRD/CompCal/Trigger config. for future programs. Take data for Hall D fast access.

Spring 18 achievements

1. Verify electron beam quality and establish photon beam. ✓Very quickly established. Beam good for production
2. DAQ, L1 trigger, detectors and beamline checkouts.✓ High rate tests done too: run at 65 kHz with 96% livetime.
3. Check 58 μm diamond (JD70-100) alignment.
4. Beam envelope measurement with fast raster.~✓ Several tests done. Enough for assessment of the method.
5. **Gluex data production**:
   - Goal gather at least twice the amount of trigger taken in Spring 2017. ✓ Exceeded goal. 150B triggers.
   - Harp scans (once every day).✓ Critical to make sure beam transmission and polarization remain optimal.
   - Empty target run every 2 weeks. (Done at standard production current.)✓
   - Raw mode run every week. (Done during target fill/empty, or during Harp Scans)✓
   - TAC runs. 2 TAC runs (one at beginning, one in middle of the run)✓+ TAC syst. tests✓+ V-wire test.✓
   - Physics production with diamond(s) and 5 mm collimator.
     - Balanced amount of 0°/90°/45°/135° data + shorter Al. run per cycle: gather 10-15% of total number of triggers with Al. radiator.✓
     - Switch polarization every run.✓
     - Start production with 58 μm diamond (JD70-100).✓
     - Align 17 μm diamond and do 1-2 days of production runs (3.4 mm coll.) to assess its quality.✓
     - Luminosity: Same as Spring 17: ~45 kHz, 150nA on 58 μm diamond + low lumi. runs for syst. studies✓
     - TPol monitoring✓ Also, TPol study with thick 750μm Be converter. Then alternated thin/thick converter each 0°/90°/45°/135° run quartet.
6. Straight track data
7. Parasitic: Muon chamber/TRD/CompCal/Trigger config. for future programs. Take data for Hall D fast access.

Spring 18 achievements

1. Verify electron beam quality and establish photon beam. ✓ Very quickly established. Beam good for production

2. DAQ, L1 trigger, detectors and beamline checkouts. ✓ High rate tests done too: run at 65 kHz with 96% livetime.

3. Check 58 μm diamond (JD70-100) alignment.

4. Beam envelope measurement with fast raster. ~✓ Several tests done. Enough for assessment of the method.

5. **Gluex data production**:
   - Goal gather at least twice the amount of trigger taken in Spring 2017. ✓ Exceeded goal. 150B triggers.
   - Harp scans (once every day). ✓ Critical to make sure beam transmission and polarization remain optimal.
   - Empty target run every 2 weeks. (Done at standard production current.) ✓
   - Raw mode run every week. (Done during target fill/empty, or during Harp Scans) ✓
   - TAC runs. 2 TAC runs (one at beginning, one in middle of the run) ✓ + TAC syst. tests ✓ + V-wire test. ✓
   - Physics production with diamond(s) and 5 mm collimator.
     - Balanced amount of $0^o/90^o/45^o/135^o$ data + shorter Al. run per cycle: gather 10-15% of total number of triggers with Al. radiator. ✓
     - Switch polarization every run. ✓
     - Start production with 58 μm diamond (JD70-100). ✓
     - Align 17 μm diamond and do 1-2 days of production runs (3.4 mm coll.) to assess its quality. ✓
     - Luminosity: Same as Spring 17: ~45 kHz, 150nA on 58 μm diamond + low lumi. runs for syst. studies ✓
     - TPol monitoring ✓ Also, TPol study with thick 750μm converter, then alternate thin/thick converter each $0^o/90^o/45^o/135^o$ run set.

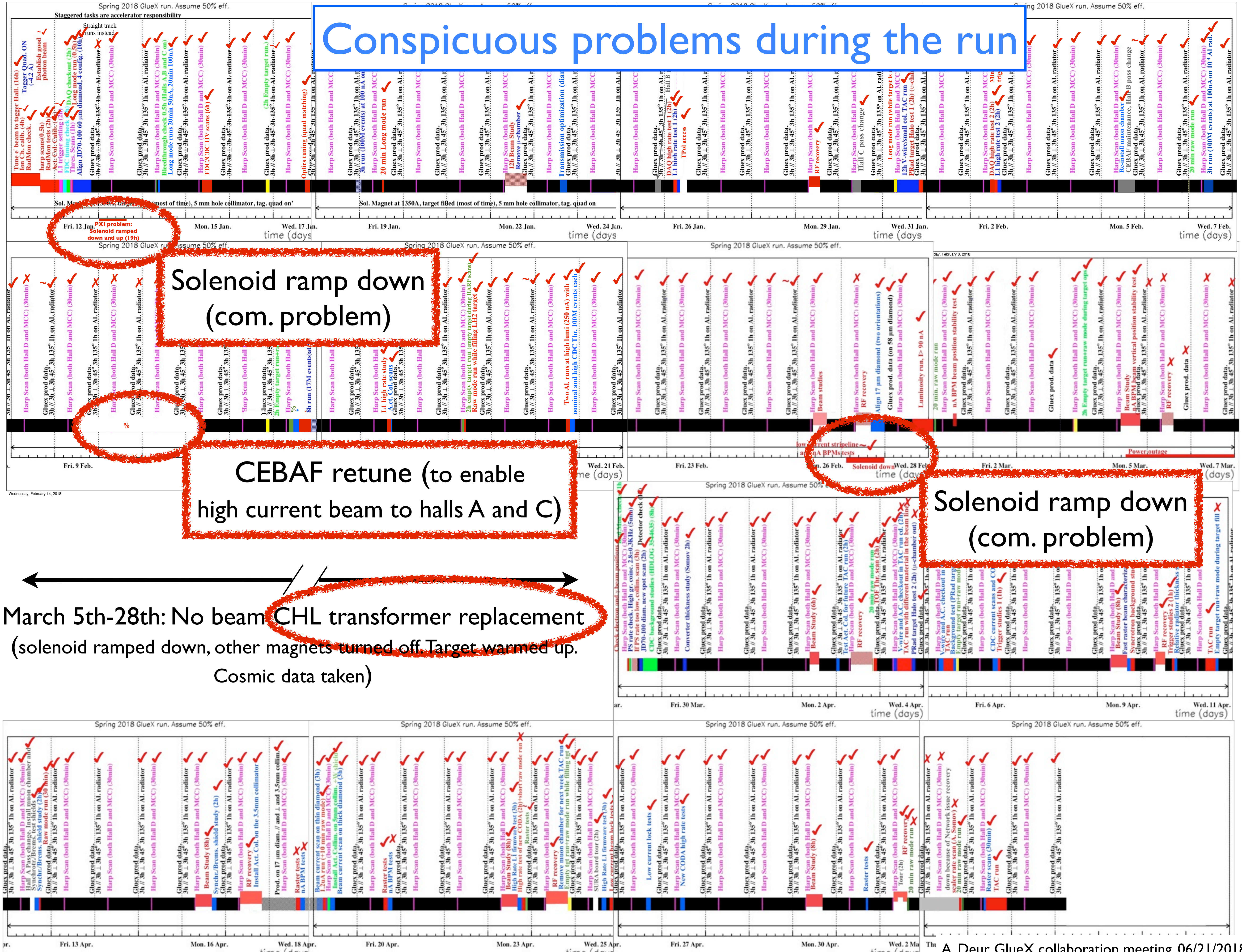
6. Straight track data ✓ Done during 1st solenoid magnet ramp-down.

7. Parasitic: Muon chamber/TRD/CompCal/Trigger config. for future programs. Take data for Hall D fast access.

Spring 18 achievements

1. Verify electron beam quality and establish photon beam. ✓ Very quickly established. Beam good for production
2. DAQ, L1 trigger, detectors and beamline checkouts. ✓ High rate tests done too: run at 65 kHz with 96% livetime.
3. Check 58 μm diamond (JD70-100) alignment.
4. Beam envelope measurement with fast raster. ~✓ Several tests done. Enough for assessment of the method.
5. **Gluex data production**:
   - Goal gather at least twice the amount of trigger taken in Spring 2017. ✓ Exceeded goal. 150B triggers.
   - Harp scans (once every day). ✓ Critical to make sure beam transmission and polarization remain optimal.
   - Empty target run every 2 weeks. (Done at standard production current.) ✓
   - Raw mode run every week. (Done during target fill/empty, or during Harp Scans) ✓
   - TAC runs. 2 TAC runs (one at beginning, one in middle of the run) ✓ + TAC syst. tests ✓ + V-wire test. ✓
   - Physics production with diamond(s) and 5 mm collimator.
     - Balanced amount of $0^o/90^o/45^o/135^o$ data + shorter Al. run per cycle: gather 10-15% of total number of triggers with Al. radiator. ✓
     - Switch polarization every run. ✓
     - Start production with 58 μm diamond (JD70-100). ✓
     - Align 17 μm diamond and do 1-2 days of production runs (3.4 mm coll.) to assess its quality. ✓
     - Luminosity: Same as Spring 17: ~45 kHz, 150nA on 58 μm diamond + low lumi. runs for syst. studies ✓
     - TPol monitoring ✓ Also, TPol study with thick 750μm converter, then alternate thin/thick converter each $0^o/90^o/45^o/135^o$ run set.
6. Straight track data ✓ Done during 1st solenoid magnet ramp-down.
7. Parasitic: Muon chamber ✓/TRD ✓/CompCal ✓/Trigger ✓ config. for future programs. Take data ✓ for Hall D fast access. Fall data were enough. Fast access enabled during Spring run.

Conspicuous problems during the run



A. Deur. GlueX collaboration meeting. 06/21/2018

Noticeable problems/complications

- Solenoid magnet ramped down twice due to PXI comm. loss. Time losses were mitigated (straight track data taken, thin diamond alignment done, chance coincidence with RF studies).

Noticeable problems/complications

- Solenoid magnet ramped down twice due to PXI comm. loss. Time losses were mitigated (straight track data taken, thin diamond alignment done, chance coincidence with RF studies).
- Timing shifts (4 ns, 32 ns and 100 ns).
  - Workaround 100 ns shifts implemented (they compromise the data).
  - Workaround 32 ns shifts implemented (they do not compromise the data). Still happen occasionally.
  - 4 ns problem will not be fixed at the raw data level. Data not compromised but they complicate calibration.

Noticeable problems/complications

- Solenoid magnet ramped down twice due to PXI comm. loss. Time losses were mitigated (straight track data taken, thin diamond alignment done, chance coincidence with RF studies).
- Timing shifts (4 ns, 32 ns and 100 ns).
  - Workaround 100 ns shifts implemented (they compromise the data).
  - Workaround 32 ns shifts implemented (they do not compromise the data). Still happen occasionally.
  - 4 ns problem will not be fixed at the raw data level. Data not compromised but they complicate calibration.
- DAQ slow starts of run and other issues.

Noticeable problems/complications

- Solenoid magnet ramped down twice due to PXI comm. loss. Time losses were mitigated (straight track data taken, thin diamond alignment done, chance coincidence with RF studies).
- Timing shifts (4 ns, 32 ns and 100 ns).
  - Workaround 100 ns shifts implemented (they compromise the data).
  - Workaround 32 ns shifts implemented (they do not compromise the data). Still happen occasionally.
  - 4 ns problem will not be fixed at the raw data level. Data not compromised but they complicate calibration.
- DAQ slow starts of run and other issues.
- CDC mass flow controller failure. Not diagnosed during run (no sign of MFC misbehavior $\Rightarrow$ misdiagnosed as a leak). Lower CDC tracking and dEdx PID efficiencies.

Noticeable problems/complications

- Solenoid magnet ramped down twice due to PXI comm. loss. Time losses were mitigated (straight track data taken, thin diamond alignment done, chance coincidence with RF studies).
- Timing shifts (4 ns, 32 ns and 100 ns).
  - Workaround 100 ns shifts implemented (they compromise the data).
  - Workaround 32 ns shifts implemented (they do not compromise the data). Still happen occasionally.
  - 4 ns problem will not be fixed at the raw data level. Data not compromised but they complicate calibration.
- DAQ slow starts of run and other issues.
- CDC mass flow controller failure. Not diagnosed during run (no sign of MFC misbehavior ⇒ misdiagnosed as a leak). Lower CDC tracking and dEdx PID efficiencies.
- TPol noisy and initially unable to produce polarimetry. Noise issue ~fixed. No timely polarimetry for beam quality assessment.

Noticeable problems/complications

- Solenoid magnet ramped down twice due to PXI comm. loss. Time losses were mitigated (straight track data taken, thin diamond alignment done, chance coincidence with RF studies).
- Timing shifts (4 ns, 32 ns and 100 ns).
  - Workaround 100 ns shifts implemented (they compromise the data).
  - Workaround 32 ns shifts implemented (they do not compromise the data). Still happen occasionally.
  - 4 ns problem will not be fixed at the raw data level. Data not compromised but they complicate calibration.
- DAQ slow starts of run and other issues.
- CDC mass flow controller failure. Not diagnosed during run (no sign of MFC misbehavior ⇒ misdiagnosed as a leak). Lower CDC tracking and dEdx PID efficiencies.
- TPol noisy and initially unable to produce polarimetry. Noise issue ~fixed. No timely polarimetry for beam quality assessment.
- Active Collimator voltage adapter failures/loose cable issues. No enough spares to fix some Out channels. No alarm indicating A.C. failures. Lead to beam mis-steering and time loss.

Noticeable problems/complications

- Solenoid magnet ramped down twice due to PXI comm. loss. Time losses were mitigated (straight track data taken, thin diamond alignment done, chance coincidence with RF studies).
- Timing shifts (4 ns, 32 ns and 100 ns).
  - Workaround 100 ns shifts implemented (they compromise the data).
  - Workaround 32 ns shifts implemented (they do not compromise the data). Still happen occasionally.
  - 4 ns problem will not be fixed at the raw data level. Data not compromised but they complicate calibration.
- DAQ slow starts of run and other issues.
- CDC mass flow controller failure. Not diagnosed during run (no sign of MFC misbehavior ⇒ misdiagnosed as a leak). Lower CDC tracking and dEdx PID efficiencies.
- TPol noisy and initially unable to produce polarimetry. Noise issue ~fixed. No timely polarimetry for beam quality assessment.
- Active Collimator voltage adapter failures/loose cable issues. No enough spares to fix some Out channels. No alarm indicating A.C. failures. Lead to beam mis-steering and time loss.
- Backgrounds in profiler, CDC and FDC. Identified *via* absorption tests as Synchrotron radiation, but source not clearly identified. 100 µm W shield plate installed in collimator cave.

Noticeable problems/complications

- Solenoid magnet ramped down twice due to PXI comm. loss. Time losses were mitigated (straight track data taken, thin diamond alignment done, chance coincidence with RF studies).
- Timing shifts (4 ns, 32 ns and 100 ns).
  - Workaround 100 ns shifts implemented (they compromise the data).
  - Workaround 32 ns shifts implemented (they do not compromise the data). Still happen occasionally.
  - 4 ns problem will not be fixed at the raw data level. Data not compromised but they complicate calibration.
- DAQ slow starts of run and other issues.
- CDC mass flow controller failure. Not diagnosed during run (no sign of MFC misbehavior ⇒ misdiagnosed as a leak). Lower CDC tracking and dEdx PID efficiencies.
- TPol noisy and initially unable to produce polarimetry. Noise issue ~fixed. No timely polarimetry for beam quality assessment.
- Active Collimator voltage adapter failures/loose cable issues. No enough spares to fix some Out channels. No alarm indicating A.C. failure lead to beam mis-steering and time loss.
- Backgrounds in profiler, CDC and FDC. Identified *via* absorption tests as Synchrotron radiation, but source not clearly identified. 100 μm W shield plate installed in collimator cave.
- Visible (expected) degradation of 58 μm diamond. Successfully realigned on new spot for last 5 weeks of the run.

Noticeable problems/complications

- Solenoid magnet ramped down twice due to PXI comm. loss. Time losses were mitigated (straight track data taken, thin diamond alignment done, chance coincidence with RF studies).
- Timing shifts (4 ns, 32 ns and 100 ns).
  - Workaround 100 ns shifts implemented (they compromise the data).
  - Workaround 32 ns shifts implemented (they do not compromise the data). Still happen occasionally.
  - 4 ns problem will not be fixed at the raw data level. Data not compromised but they complicate calibration.
- DAQ slow starts of run and other issues.
- CDC mass flow controller failure. Not diagnosed during run (no sign of MFC misbehavior ⇒ misdiagnosed as a leak). Lower CDC tracking and dEdx PID efficiencies.
- TPol noisy and initially unable to produce polarimetry. Noise issue ~fixed. No timely polarimetry for beam quality assessment.
- Active Collimator voltage adapter failures/loose cable issues. No enough spares to fix some Out channels. No alarm indicating A.C. failure lead to beam mis-steering and time loss.
- Backgrounds in profiler, CDC and FDC. Identified *via* absorption tests as Synchrotron radiation, but source not clearly identified. 100 μm W shield plate installed in collimator cave.
- Visible (expected) degradation of 58 μm diamond. Successfully realigned on new spot for last 5 weeks of the run.

- Unstable beam convergence. Demanding periodic optic optimization.
- No fast and reliable diagnostic available yet to assess beam convergence at main collimator.

Noticeable problems/complications

- Solenoid magnet ramped down twice due to PXI comm. loss. Time losses were mitigated (straight track data taken, thin diamond alignment done, chance coincidence with RF studies).
- Timing shifts (4 ns, 32 ns and 100 ns).
  - Workaround 100 ns shifts implemented (they compromise the data).
  - Workaround 32 ns shifts implemented (they do not compromise the data). Still happen occasionally.
  - 4 ns problem will not be fixed at the raw data level. Data not compromised but they complicate calibration.
- DAQ slow starts of run and other issues.
- CDC mass flow controller failure. Not diagnosed during run (no sign of MFC misbehavior ⇒ misdiagnosed as a leak). Lower CDC tracking and dEdx PID efficiencies.
- TPol noisy and initially unable to produce polarimetry. Noise issue ~fixed. No timely polarimetry for beam quality assessment.
- Active Collimator voltage adapter failures/loose cable issues. No enough spares to fix some Out channels. No alarm indicating A.C. failure lead to beam mis-steering and time loss.
- Backgrounds in profiler, CDC and FDC. Identified *via* absorption tests as Synchrotron radiation, but source not clearly identified. 100 μm W shield plate installed in collimator cave.
- Visible (expected) degradation of 58 μm diamond. Successfully realigned on new spot for last 5 weeks of the run.

- Unstable beam convergence. Demanding periodic optic optimization.
- No fast and reliable diagnostic available yet to assess beam convergence at main collimator.
- 5th-pass separator reliability: IOT problem and vacuum leaks caused significant Hall D downtime.

Noticeable problems/complications

- Solenoid magnet ramped down twice due to PXI comm. loss. Time losses were mitigated (straight track data taken, thin diamond alignment done, chance coincidence with RF studies).
- Timing shifts (4 ns, 32 ns and 100 ns).
  - Workaround 100 ns shifts implemented (they compromise the data).
  - Workaround 32 ns shifts implemented (they do not compromise the data). Still happen occasionally.
  - 4 ns problem will not be fixed at the raw data level. Data not compromised but they complicate calibration.
- DAQ slow starts of run and other issues.
- CDC mass flow controller failure. Not diagnosed during run (no sign of MFC misbehavior ⇒ misdiagnosed as a leak). Lower CDC tracking and dEdx PID efficiencies.
- TPol noisy and initially unable to produce polarimetry. Noise issue ~fixed. No timely polarimetry for beam quality assessment.
- Active Collimator voltage adapter failures/loose cable issues. No enough spares to fix some Out channels. No alarm indicating A.C. failure lead to beam mis-steering and time loss.
- Backgrounds in profiler, CDC and FDC. Identified *via* absorption tests as Synchrotron radiation, but source not clearly identified. 100 μm W shield plate installed in collimator cave.
- Visible (expected) degradation of 58 μm diamond. Successfully realigned on new spot for last 5 weeks of the run.

- Unstable beam convergence. Demanding periodic optic optimization.
- No fast and reliable diagnostic available yet to assess beam convergence at main collimator.
- 5th-pass separator reliability: IOT problem and vacuum leaks caused significant Hall D downtime.

0^{+-}

Noticeable problems/complications

- Solenoid magnet ramped down twice due to PXI comm. loss. Time losses were mitigated (straight track data taken, thin diamond alignment done, chance coincidence with RF studies).
- Timing shifts (4 ns, 32 ns and 100 ns).
  - Workaround 100 ns shifts implemented (they compromise the data).
  - Workaround 32 ns shifts implemented (they do not compromise the data). Still happen occasionally.
  - 4 ns problem will not be fixed at the raw data level. Data not compromised but they complicate calibration.
- DAQ slow starts of run and other issues.
- CDC mass flow controller failure. Not diagnosed during run (no sign of MFC misbehavior ⇒ misdiagnosed as a leak). Lower CDC tracking and dEdx PID efficiencies.
- TPol noisy and initially unable to produce polarimetry. Noise issue ~fixed. No timely polarimetry for beam quality assessment.
- Active Collimator voltage adapter failures/loose cable issues. No enough spares to fix some Out channels. No alarm indicating A.C. failure lead to beam mis-steering and time loss.
- Backgrounds in profiler, CDC and FDC. Identified *via* absorption tests as Synchrotron radiation, but source not clearly identified. 100 μm W shield plate installed in collimator cave.
- Visible (expected) degradation of 58 μm diamond. Successfully realigned on new spot for last 5 weeks of the run.

- Unstable beam convergence. Demanding periodic optic optimization.
- No fast and reliable diagnostic available yet to assess beam convergence at main collimator.
- 5th-pass separator reliability: IOT problem and vacuum leaks caused significant Hall D downtime.
- Up to ~5 nA bleedthrough. Complicates TAC runs. Alleviated with V-wire radiator (runs at 30 nA).

Noticeable problems/complications

- Solenoid magnet ramped down twice due to PXI comm. loss. Time losses were mitigated (straight track data taken, thin diamond alignment done, chance coincidence with RF studies).
- Timing shifts (4 ns, 32 ns and 100 ns).
  - Workaround 100 ns shifts implemented (they compromise the data).
  - Workaround 32 ns shifts implemented (they do not compromise the data). Still happen occasionally.
  - 4 ns problem will not be fixed at the raw data level. Data not compromised but they complicate calibration.
- DAQ slow starts of run and other issues.
- CDC mass flow controller failure. Not diagnosed during run (no sign of MFC misbehavior ⇒ misdiagnosed as a leak). Lower CDC tracking and dEdx PID efficiencies.
- TPol noisy and initially unable to produce polarimetry. Noise issue ~fixed. No timely polarimetry for beam quality assessment.
- Active Collimator voltage adapter failures/loose cable issues. No enough spares to fix some Out channels. No alarm indicating A.C. failure lead to beam mis-steering and time loss.
- Backgrounds in profiler, CDC and FDC. Identified *via* absorption tests as Synchrotron radiation, but source not clearly identified. 100 μm W shield plate installed in collimator cave.
- Visible (expected) degradation of 58 μm diamond. Successfully realigned on new spot for last 5 weeks of the run.

- Unstable beam convergence. Demanding periodic optic optimization.
- No fast and reliable diagnostic available yet to assess beam convergence at main collimator.
- 5th-pass separator reliability: IOT problem and vacuum leaks caused significant Hall D downtime.
- Up to ~5 nA bleedthrough. Complicates TAC runs. Alleviated with V-wire radiator (runs at 30 nA).
- Initially unable to run stable beam below ~30 nA for TAC run. Latter nA-BPM successfully tested allowed 5 nA operations.

Noticeable problems/complications

- Solenoid magnet ramped down twice due to PXI comm. loss. Time losses were mitigated (straight track data taken, thin diamond alignment done, chance coincidence with RF studies).
- Timing shifts (4 ns, 32 ns and 100 ns).
  - Workaround 100 ns shifts implemented (they compromise the data).
  - Workaround 32 ns shifts implemented (they do not compromise the data). Still happen occasionally.
  - 4 ns problem will not be fixed at the raw data level. Data not compromised but they complicate calibration.
- DAQ slow starts of run and other issues.
- CDC mass flow controller failure. Not diagnosed during run (no sign of MFC misbehavior ⇒ misdiagnosed as a leak). Lower CDC tracking and dEdx PID efficiencies.
- TPol noisy and initially unable to produce polarimetry. Noise issue ~fixed. No timely polarimetry for beam quality assessment.
- Active Collimator voltage adapter failures/loose cable issues. No enough spares to fix some Out channels. No alarm indicating A.C. failure. Lead to beam mis-steering and time loss.
- Backgrounds in profiler, CDC and FDC. Identified *via* absorption tests as Synchrotron radiation, but source not clearly identified. 100 µm W shield plate installed in collimator cave.
- Visible (expected) degradation of 58 µm diamond. Successfully realigned on new spot for last 5 weeks of the run.

- Unstable beam convergence. Demanding periodic optic optimization.
- No fast and reliable diagnostic available yet to assess beam convergence at main collimator.
- 5th-pass separator reliability: IOT problem and vacuum leaks caused significant Hall D downtime.
- Up to ~5 nA bleedthrough. Complicates TAC runs. Alleviated with V-wire radiator (runs at 30 nA).
- Initially unable to run stable beam below ~30 nA for TAC run. Latter nA-BPM successfully tested allowed 5 nA operations.

Statistics for Spring 2018 run

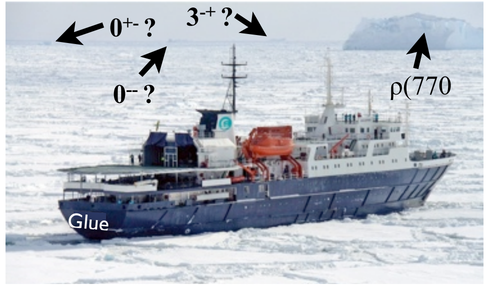
Scheduled time (Include extension. Exclude transformer repairs): 2014h (84 days)
Actual Run time (Include CEBAF and Hall inefficiencies): 1111.8h (46 days)
$\Rightarrow$ Running efficiency: 55%
Production triggers: 1.5×10^{11} (0^o: 22% / 90^o: 22% / 45^o: 21% / 135^o : 22.% / Al.: 8%)
Main time losses imputable to Hall D:

- DAQ: 38h
- Config. change: 29h
- Solenoid: 20h
- Active Col.: 8h
- Trigger: 6h
- Tpol: 4h

Comparison with other runs

Spring 2018
Actual Run time: 1111.8h
Running efficiency: 55%
Production triggers: 1.5×10^{11}

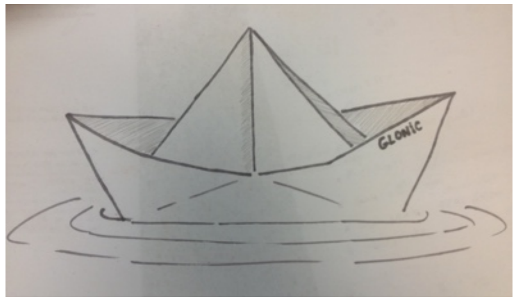
Spring 2017
Actual Run time: 354.1h
Running efficiency: 56%
Production triggers: 4.7×10^{10}



Spring 2016
Actual Run time: 458h
Running efficiency: 41%
Production triggers: 6.9×10^{9}

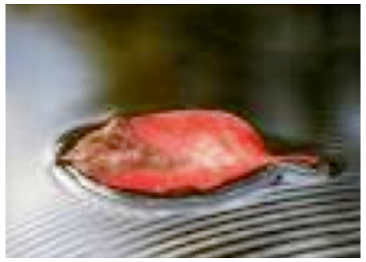
Partly commissioning

Spring 2015
Actual Run time: 122h
Running efficiency: 20%
Prod. triggers: 0 (5.5 GeV run)



Fall 2017
Actual Run time: 10.5h
Running efficiency: 3%
Production triggers: 0

Fall 2016
Actual Run time: 84h
Running efficiency: 5.4%
Production triggers: 0



Fall 2015
Actual Run time: 30.2h
Running efficiency: 20%
Production triggers: 0

commissioning

Fall 2014
Actual Run time: 324h
Running efficiency: 34%
Production triggers: 0

Comparison

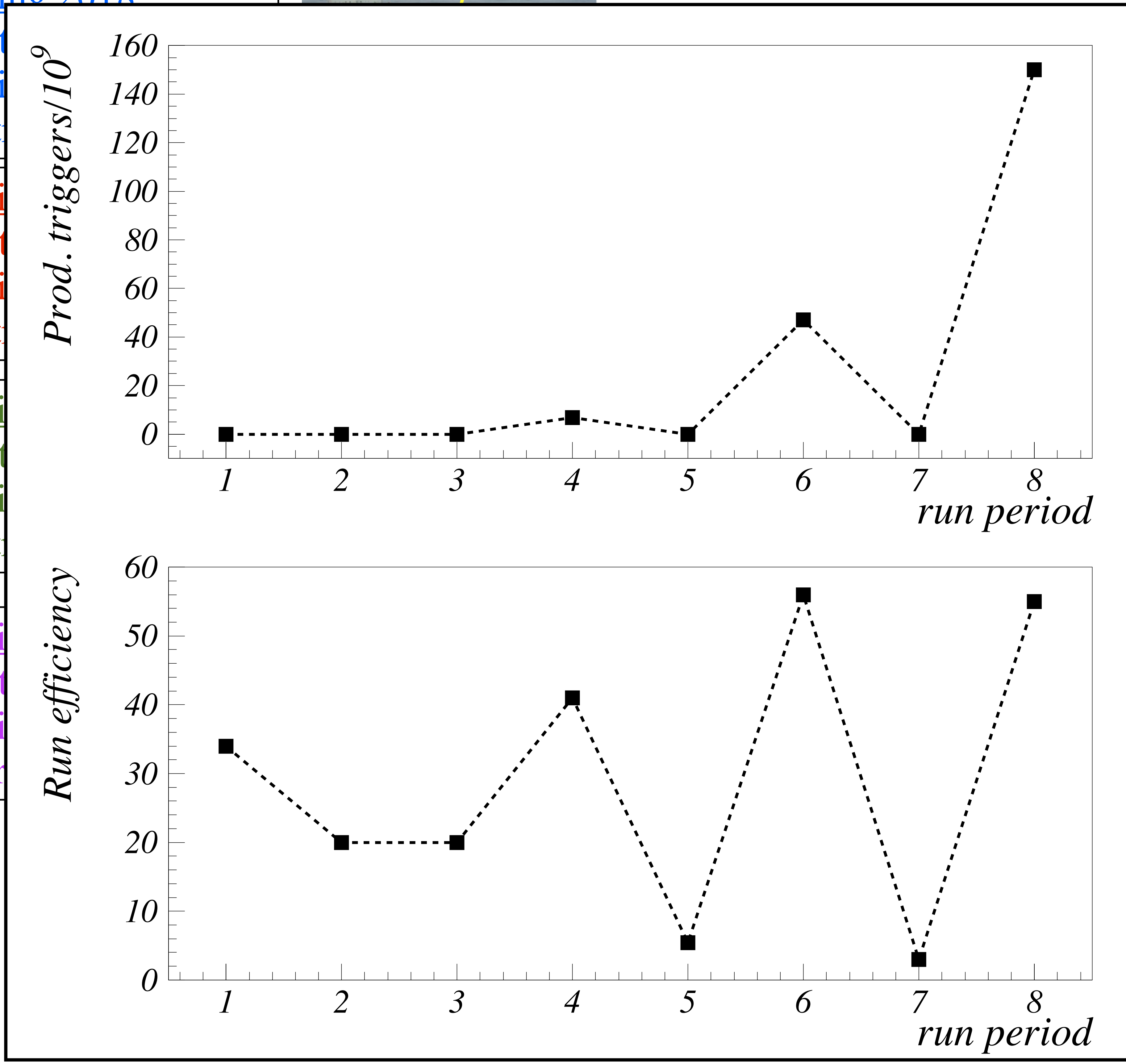
Spring 2018
Actual Run t
Running effi
Production t

Spri
Actual Run t
Running effi
Production t

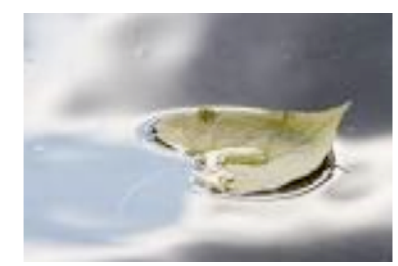
Spri
Actual Run t
Running effi
Production t

Spri
Actual Run t
Running effi
Prod. trigger

Partly commissioning



n
%
%
%
%



Comparison

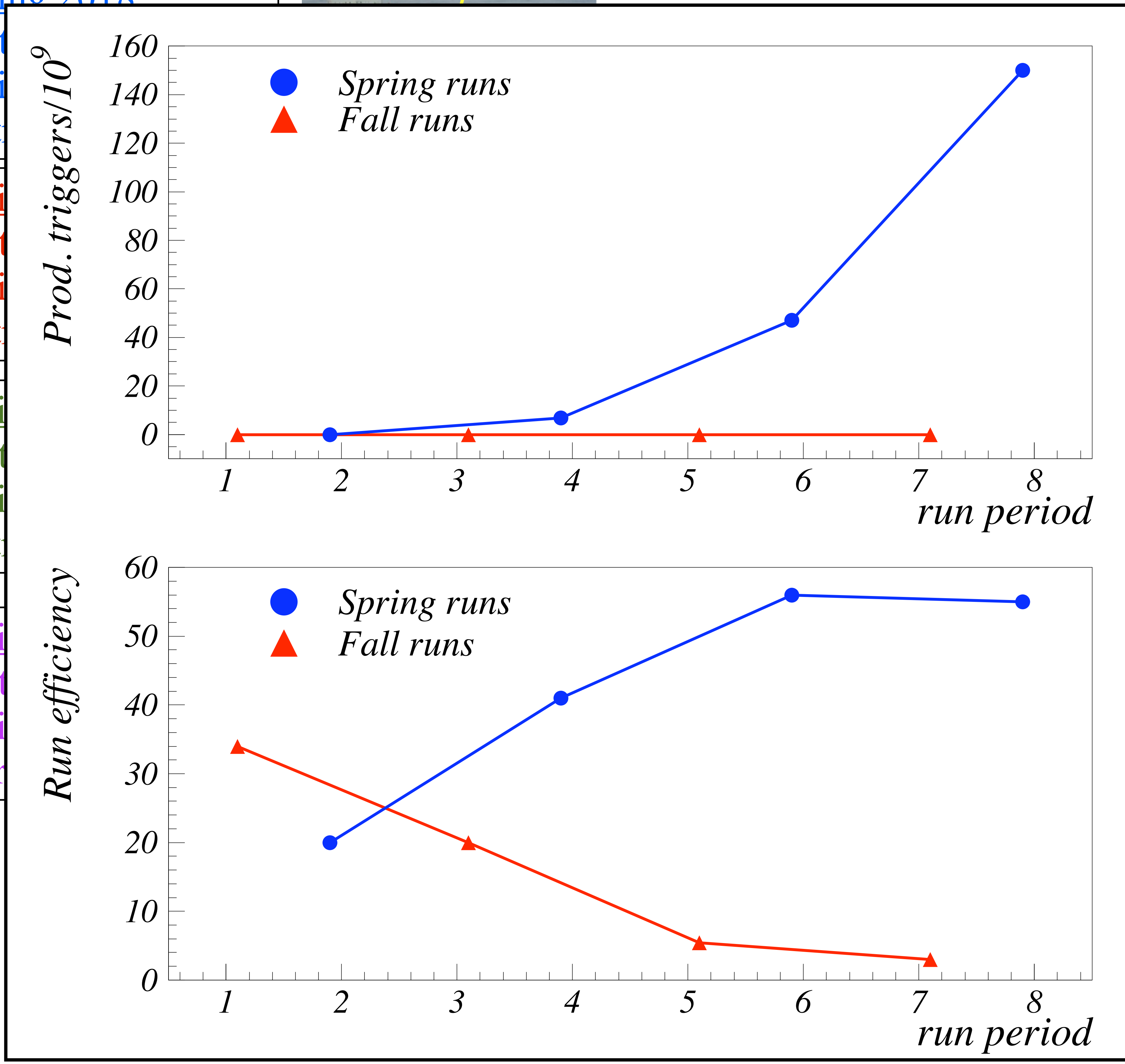
Spring 2018
Actual Run t
Running effi
Production t

Spri
Actual Run t
Running effi
Production t

Spri
Actual Run t
Running effi
Production t

Spri
Actual Run t
Running effi
Prod. trigger

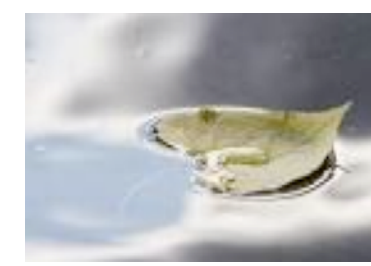
Partly commissioning



n
%

%

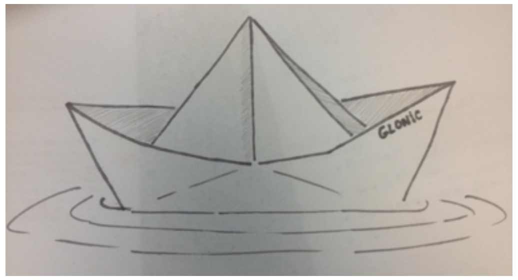
%



%

Summary of the summary

Excellent CEBAF performance and very successful GlueX run for Spring 2018



Thank you