

# Krypton Calibration

Run 7850

Krypton Calibration Group

**Table:** Conditions and data for run 7850

| Conditions             | Data       |
|------------------------|------------|
| run number             | 7850       |
| file range             | (0,4334)   |
| date                   | 2020-02-20 |
| lab temperature:       | 20.1 deg   |
| Total number of S2s    | 1358395    |
| Total number of events | 1165367    |

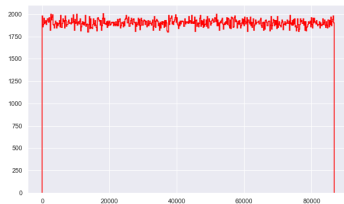
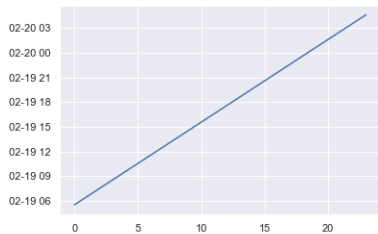


Figure: Run data.

Table: S1 &amp; S2 for run 7850

| Conditions             | Data |
|------------------------|------|
| fraction of S1s        | 0.77 |
| fraction of S2s (1 S1) | 0.97 |
| fraction 1 S2 & 1 S1   | 0.75 |

Table: S1 &amp; S2 selection for run 7850

| Variables            | Data                      |
|----------------------|---------------------------|
| $s_1$ energy         | 3 pes to 25 pes           |
| $s_2$ energy (PMTs)  | 3000 pes to 13000 pes     |
| $s_2$ charge (SiPMs) | 200 pes to 800 pes        |
| $s_2$ width          | $5\ \mu s$ to $15\ \mu s$ |
| $n_{sipm}$ min       | 15                        |

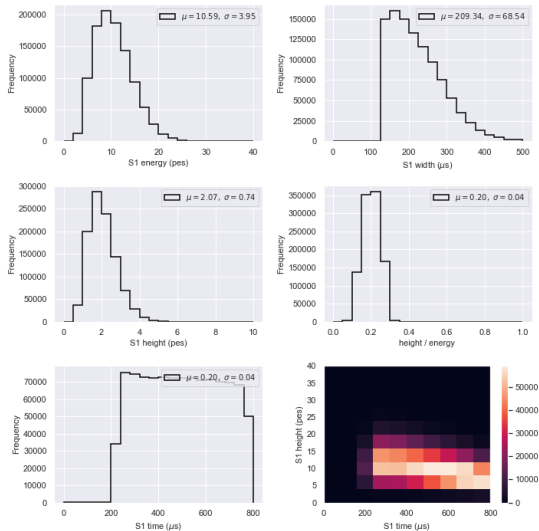


Figure: S1 distributions.

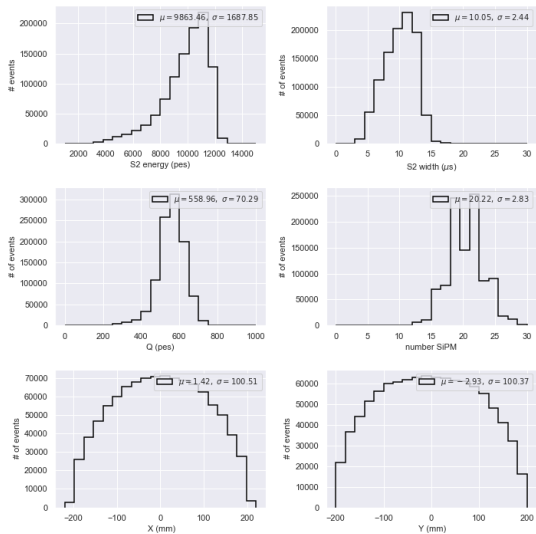


Figure: S2 distributions.

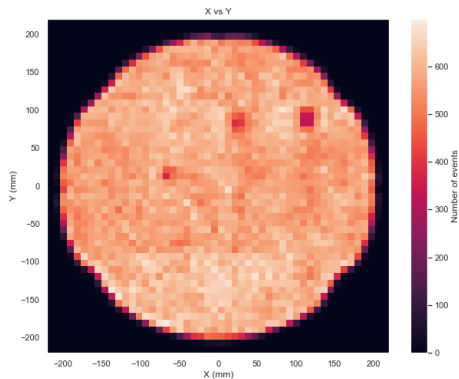


Figure: XY distribution.

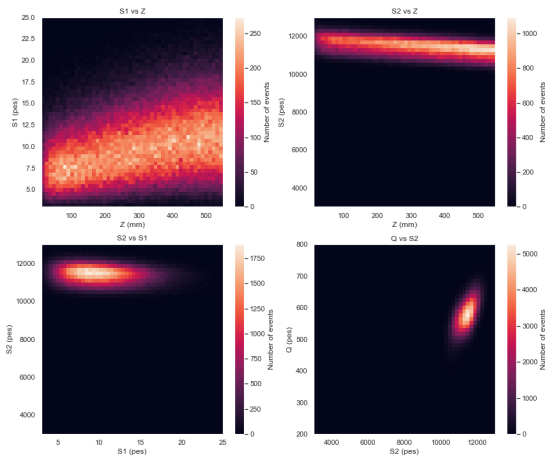


Figure: S1, S2 & Q distributions.



# Lifetime distributions

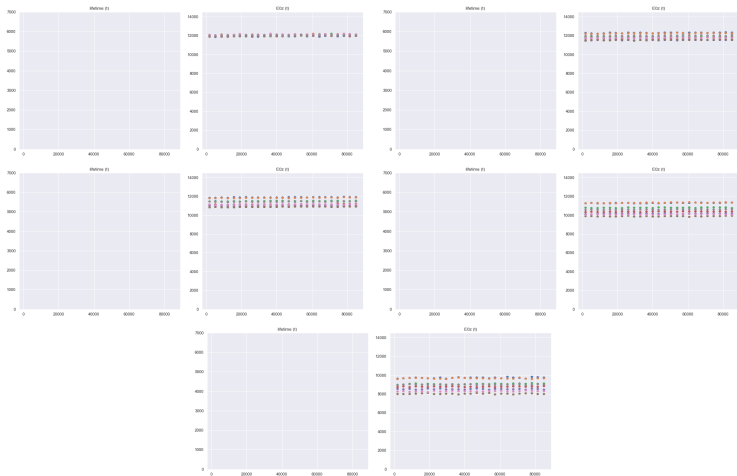


Figure: Distributions of lifetime and  $E_0$  for 5 radial sectors (40, 80, 120, 160, 200).

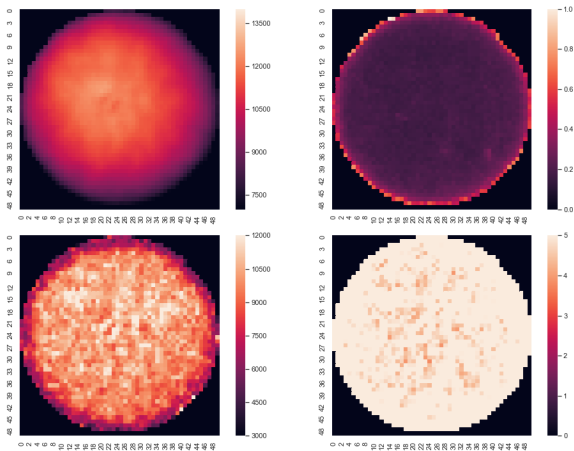


Figure: Lifetime and geometrical map.

# Lifetime maps

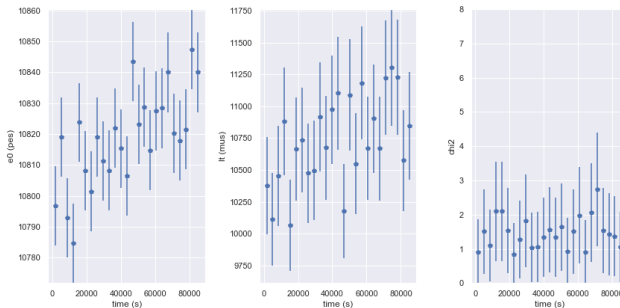


Figure: Average lifetime.

# Lifetime and geometry correction

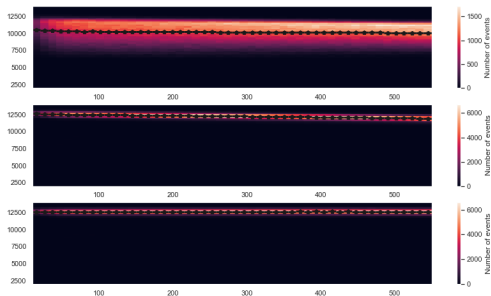


Figure: Lifetime and geometry correction.

## R Profile showing R dropout

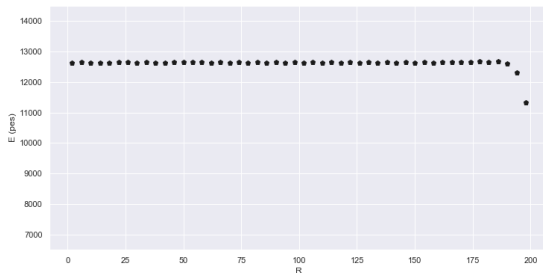


Figure: R profile shows that fiducial volume must be  $R < 180\text{mm}$ .

# Profiles after $R < 180\text{mm}$

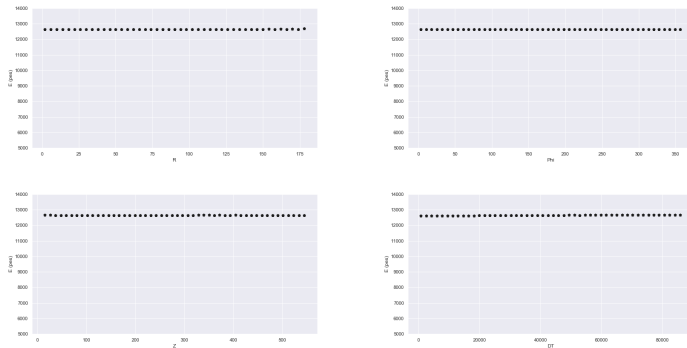


Figure: Profiles showing correction is robust.

# Resolution fits as a function of R and Z

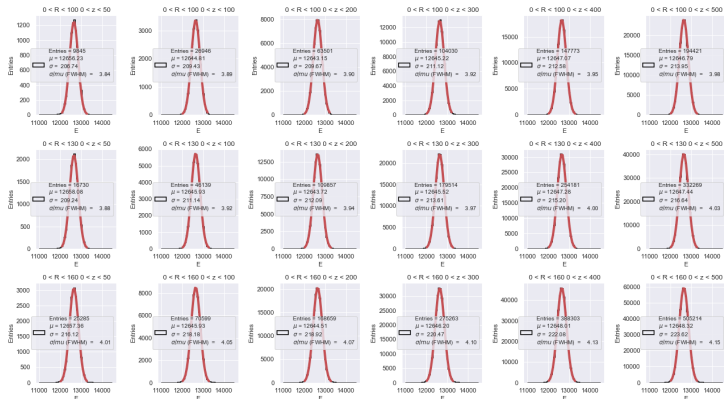


Figure: Resolution fits.

# Resolution as a function of R and Z

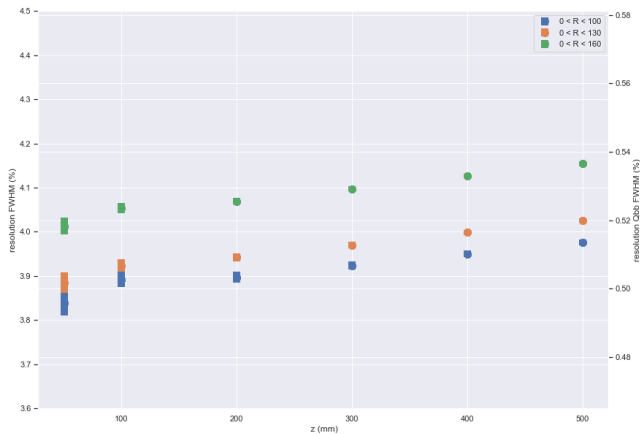


Figure: Resolution fits.



# Efficiency over time

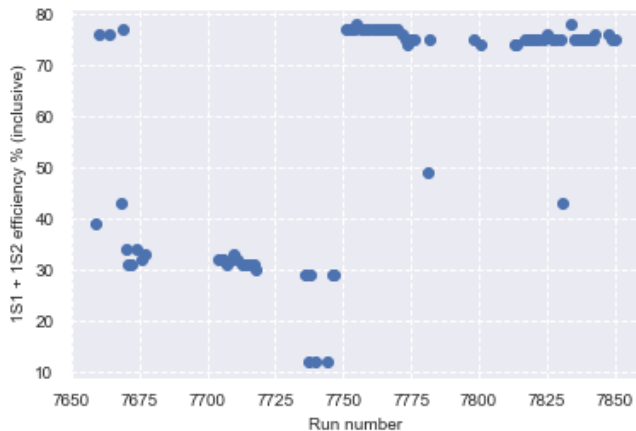


Figure: Efficiency tracking over time.

# Response over time

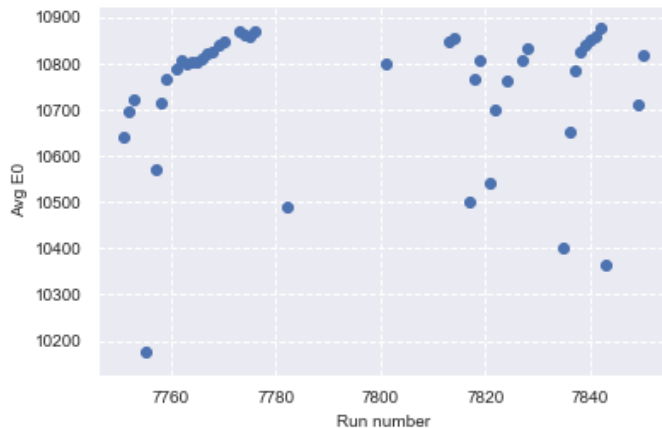


Figure: Response tracking over time.

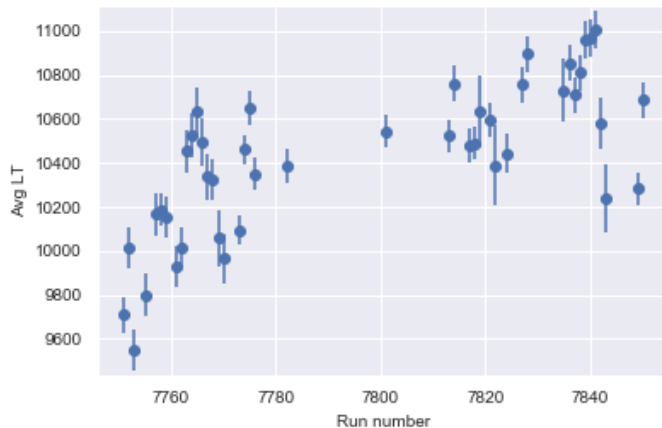


Figure: Lifetime tracking over time.

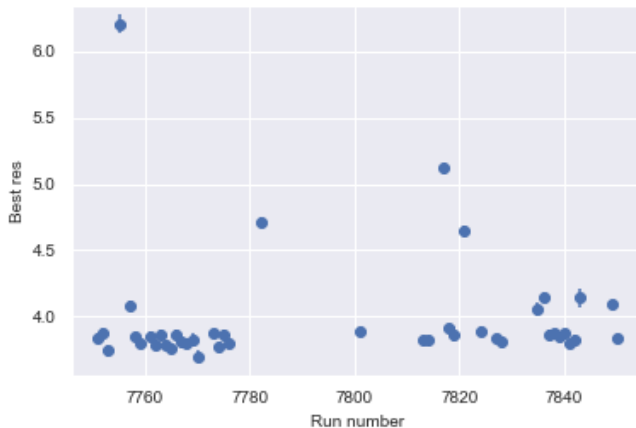


Figure: Resolution tracking over time.