Abort gap cleaning in 2018

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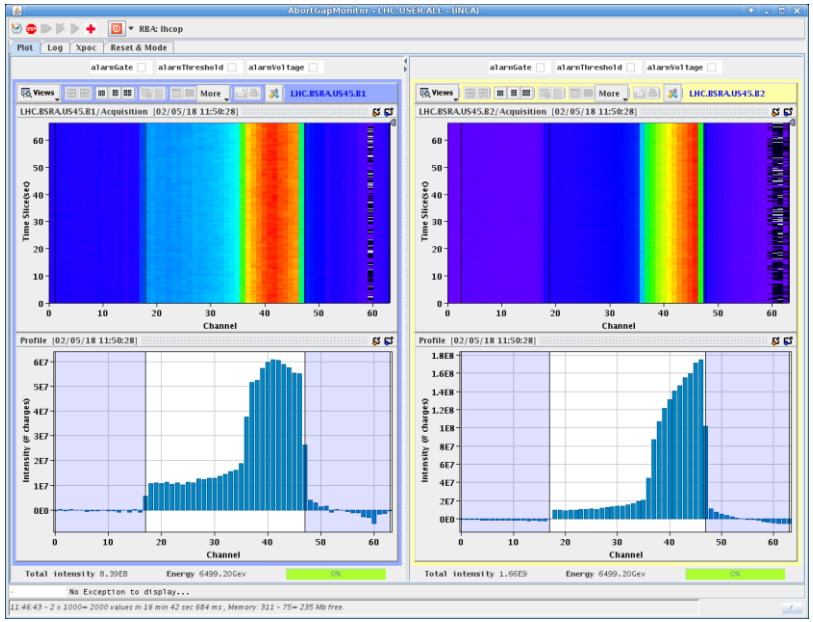
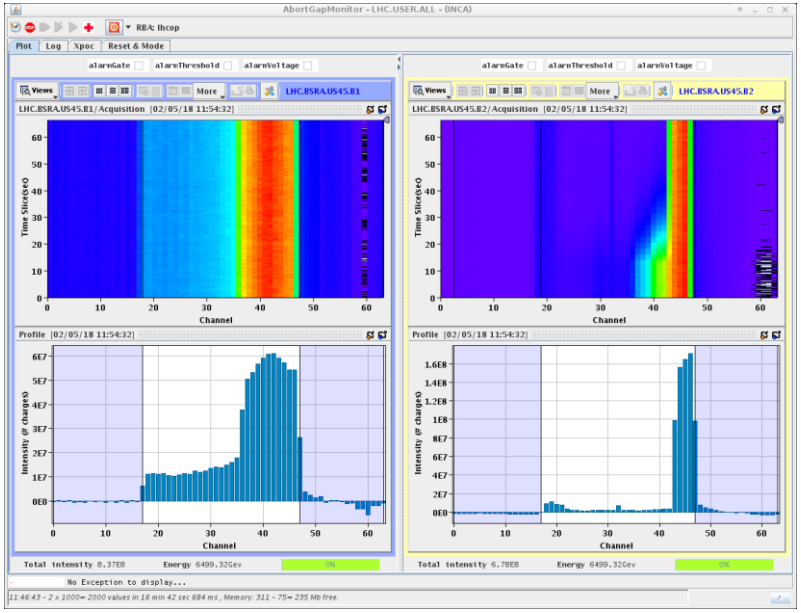
- During run 1 the abort gap cleaning at FT was tuned to avoid impacting the luminosity and bunches adjacent to the AG (basically the first buckets after the AG, i..e buckets ~1 - 100).
  - In view of continuous operation of AG cleaning during a fill.
- The same strategy was so far reused in run 2.
- To minimize the impact on the first buckets, the cleaning action did not cover the full abort gap (only ~ 3/4), the last 1/4 on the bucket 1 side was not affected by the AG cleaning.
  - As a consequence, protons in that part of the AG were locked in place and could not be cleaned.
  - On some occasions this lead to a population > AG cleaning limit, but not cleanable because out of AG cleaning reach.

Example 02.05.2018



- Abort gap population before cleaning.

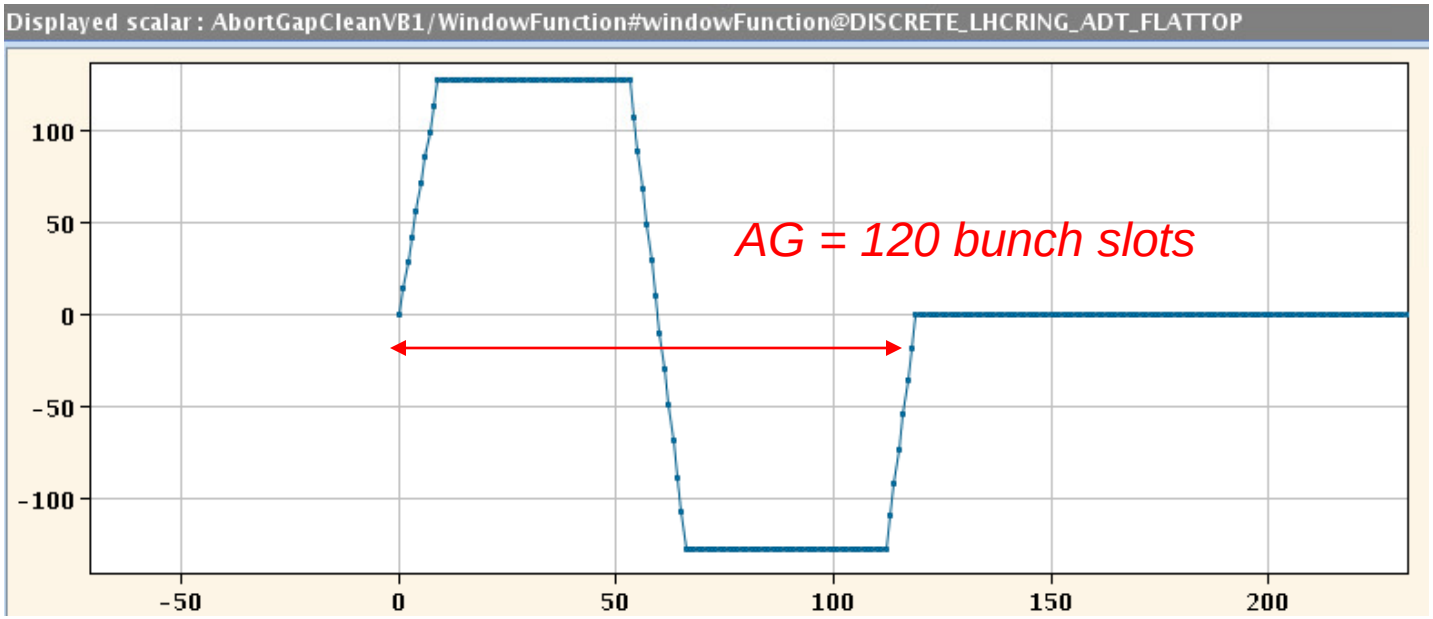
- Cleaning of B1 with old / run 1 style cleaning range.
  - Clear uncleanable region.



Abort gap cleaning

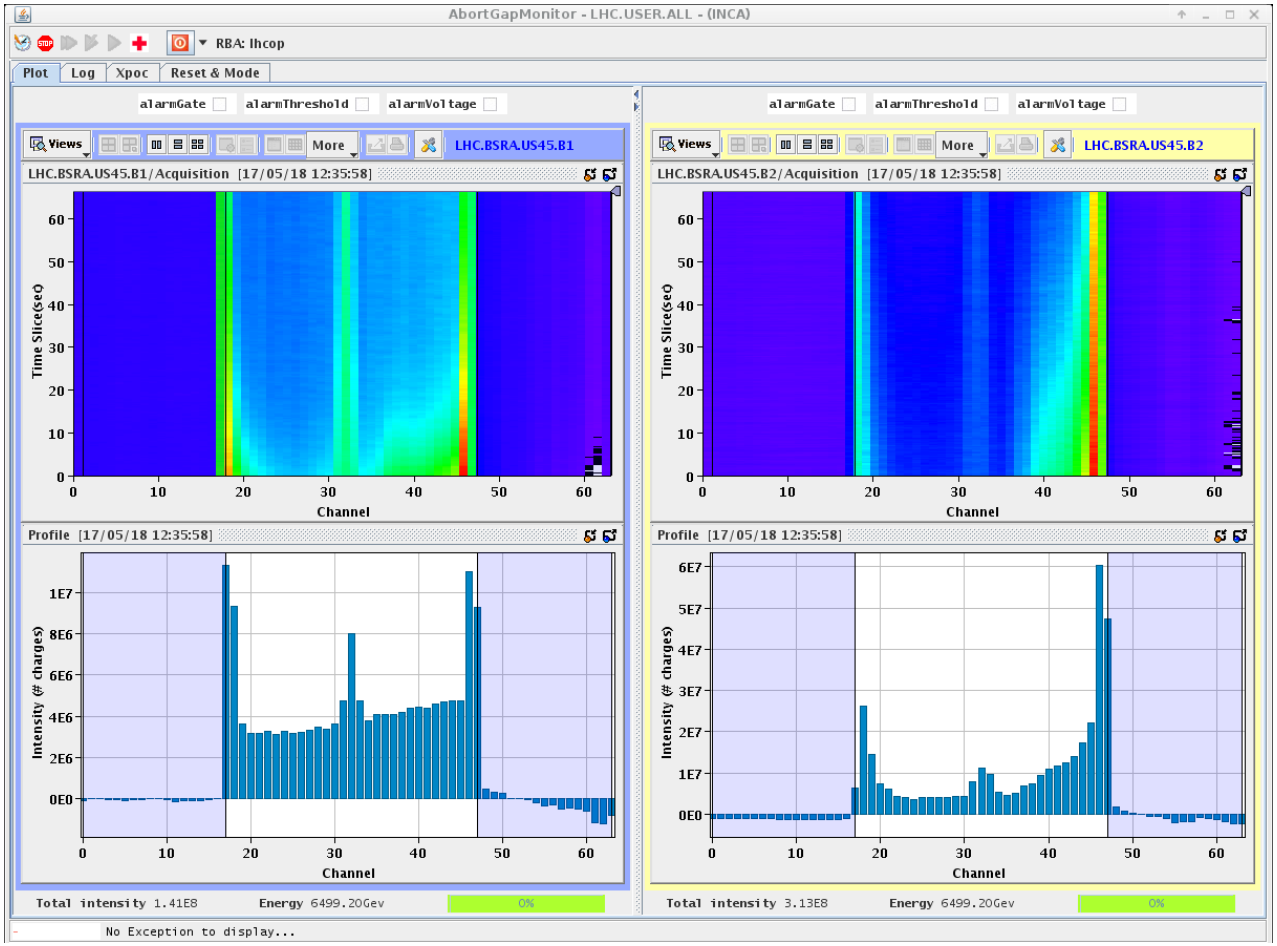
- Since in the large majority of cases the AG population is static, cleaning is only required for a few minutes.
  - One can be more relaxed concerning side effects.
- The cleaning range was extended to cover the full AG, no impact was observed on bucket 51 (bunch slot 6).

New cleaning amplitude envelope



Cleaning example

- The cleaning covers now ~ the entire AG.
  - The central bin requires a longer time to clean,
  - Some residual on the edges (also clean very very slowly…).



Cleaning example

- We currently have typically 5E8 to 2E9 protons in the AG – static distribution.
- After cleaning for 2-3 minutes the population is reduced to < 2E8 protons.