

Is the quality of hybrid data constant over time?

Ioana C. Mariş

Universite Libre de Bruxelles

July 11, 2019

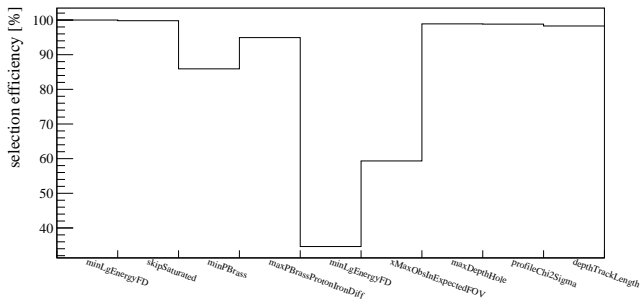
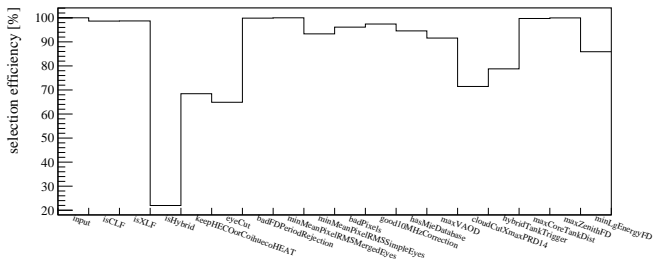
# How?

Select events with basic cuts (related to detectors)

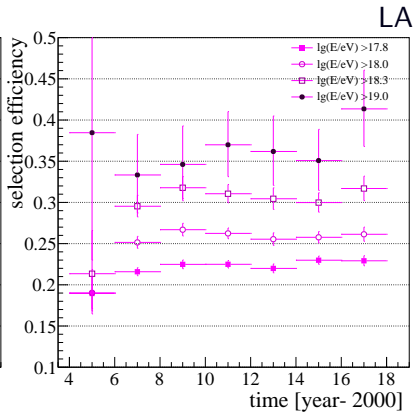
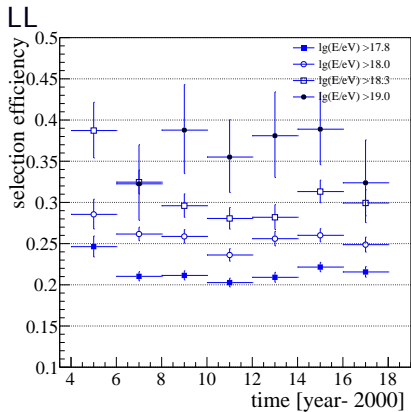
Select events with high quality ( $X_{\max}$  or energy calib.)

Selection efficiency should not depend on time if the quality of data remained the same

# Examples of cuts

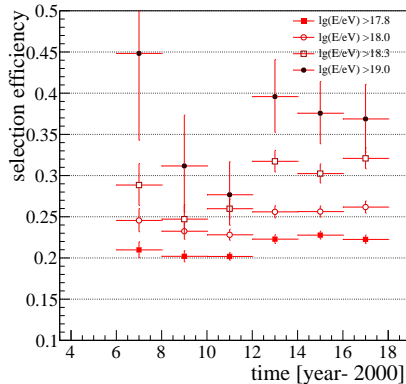


# $X_{\max}$ quality and FoV cuts

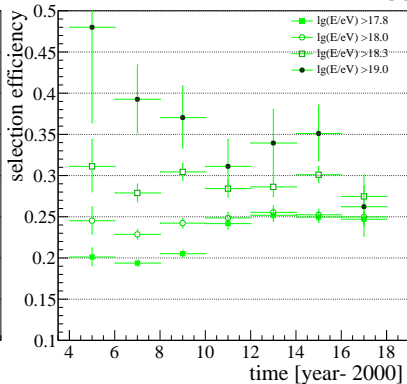


# $X_{\max}$ quality and FoV cuts

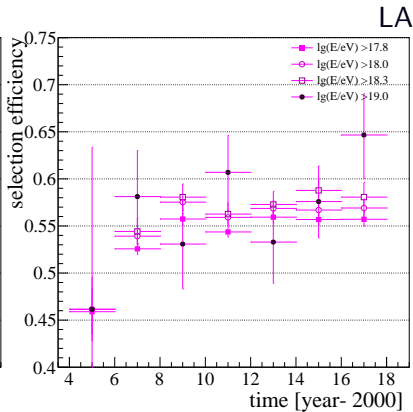
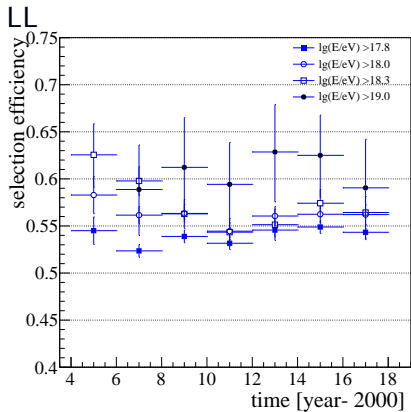
LM



Co

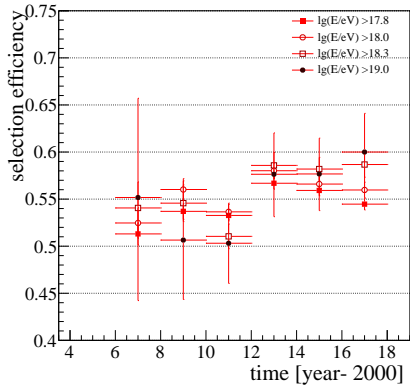


# $X_{\max}$ quality cuts

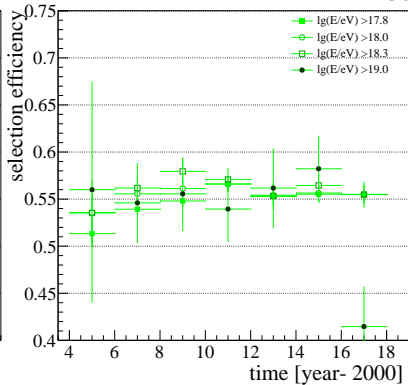


# $X_{\max}$ quality cuts

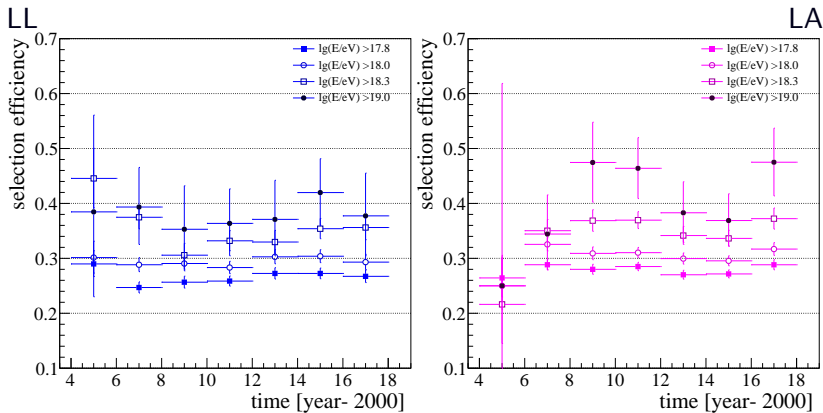
LM



Co



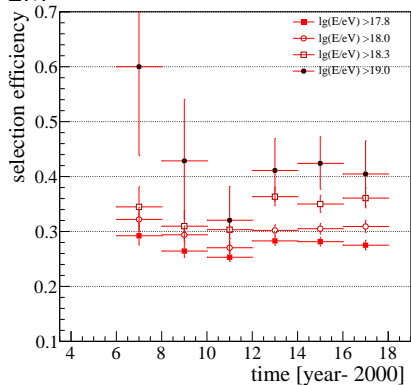
# Energy calibration FoV and quality cuts



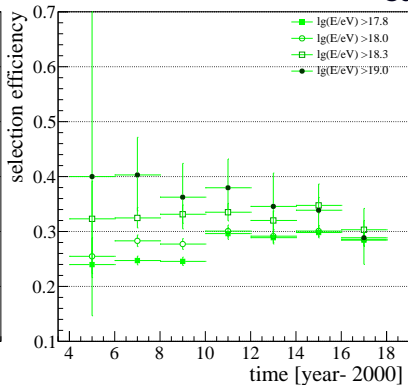


# Energy calibration FoV and quality cuts

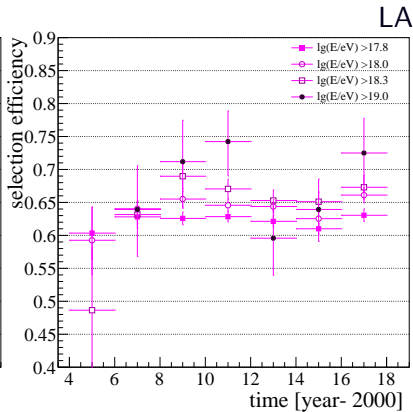
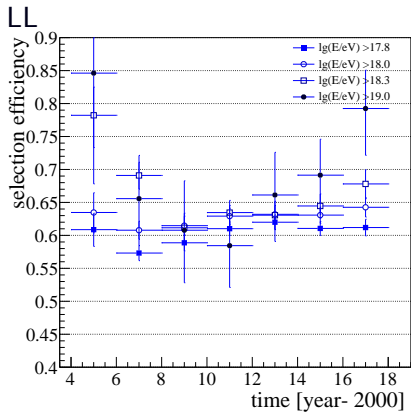
LM



Co

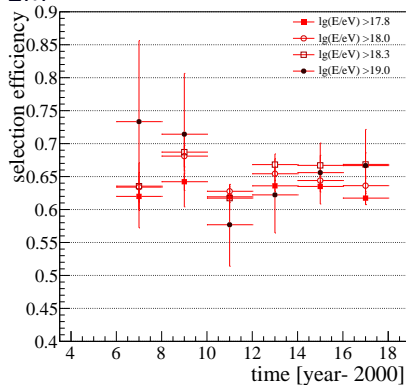


# Energy calibration quality cuts

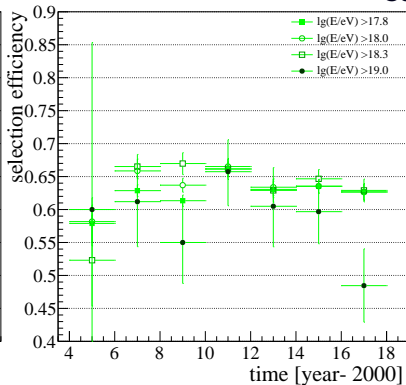


# Energy calibration quality cuts

LM



Co



# Conclusions

Nothing extremely worrying, except for Co down jump (about 10%) in 2016-2018

A jump in LM and Co in 2012 is present → why?