Updates on DR2 sample simulations

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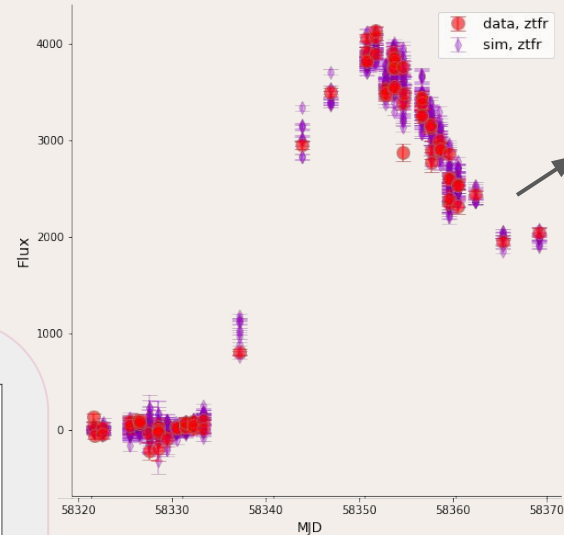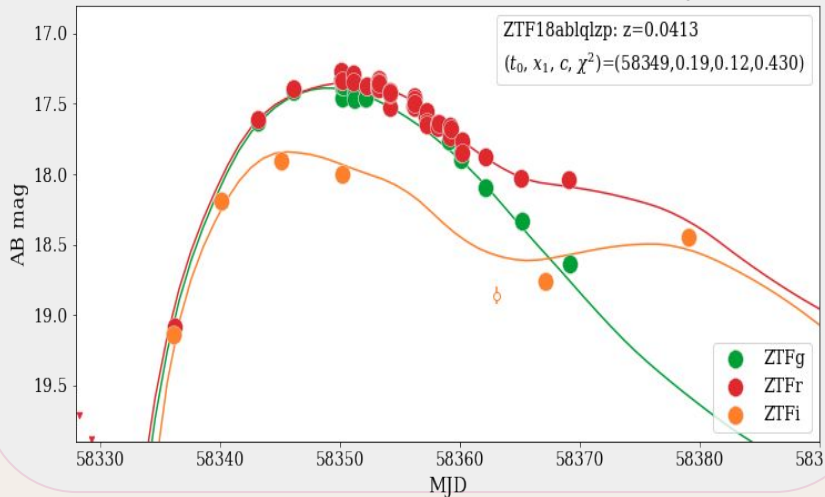
ZTF realistic individual objects

simsurvey inputs

observing logs of ZTF DR2

DR2 measured z, x_1, c and t_0

ZTF18ablqlzp: z=0.0413
$(t_0, x_1, c, \chi^2)=(58349, 0.19, 0.12, 0.430)$
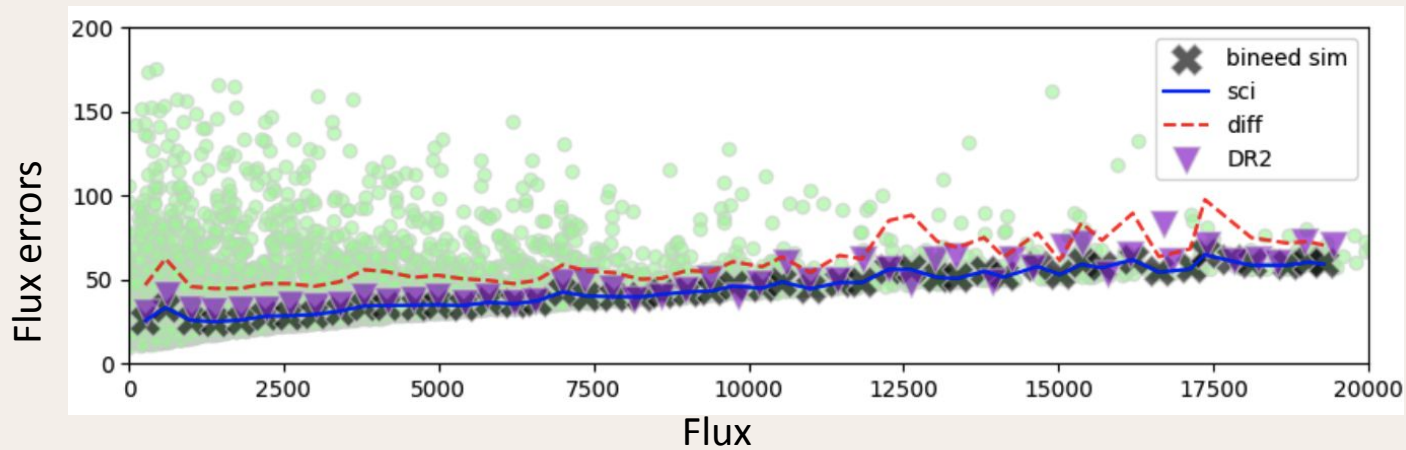
ZTFg
ZTFr
ZTFi

data, ztfr
sim, ztfr

Compute Signal-to-Noise (SNR)

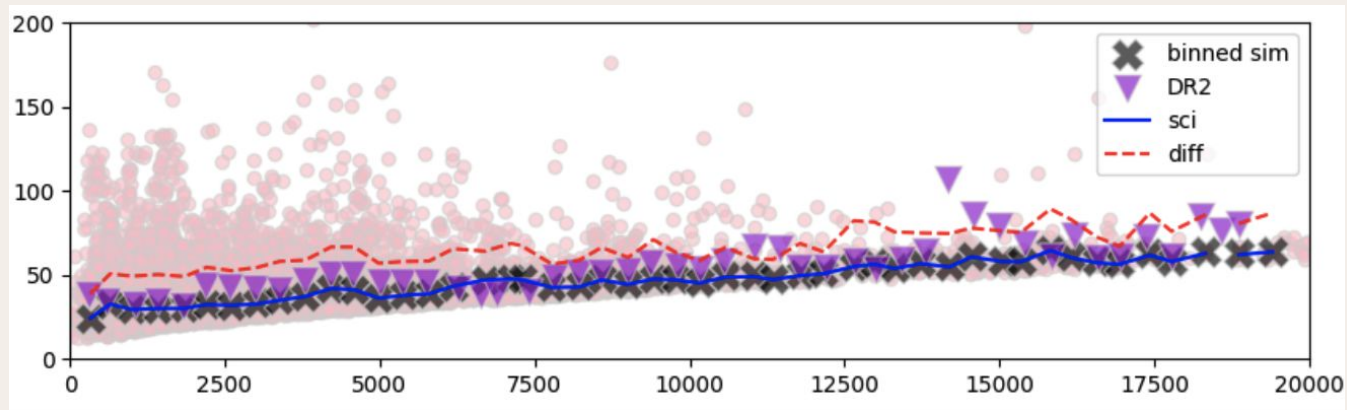$$SNR_{sim} = \frac{\Phi_{sim}}{\sigma_{\Phi, sim}}$$

$$SNR_{DR2} = \frac{\Phi_{DR2}}{\sigma_{\Phi, DR2}}$$

Compare SNR of measured and simulated LC points

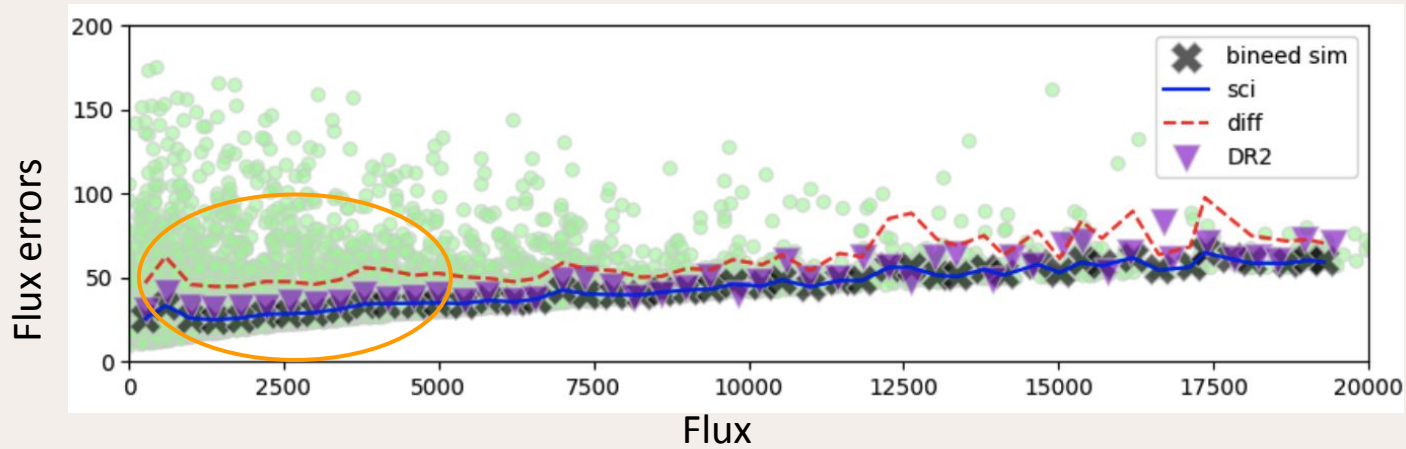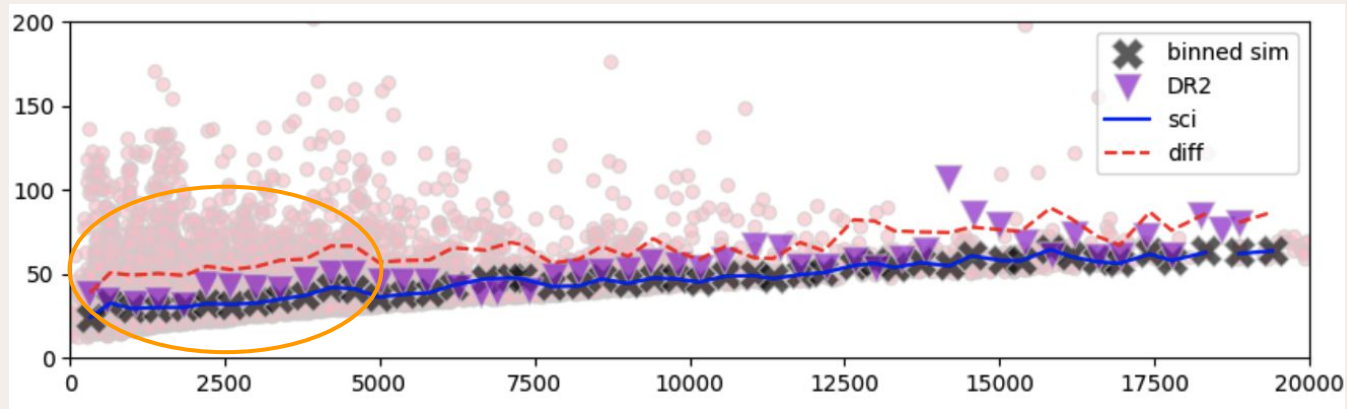# Flux uncertainties comparison

ztfg

ztfr

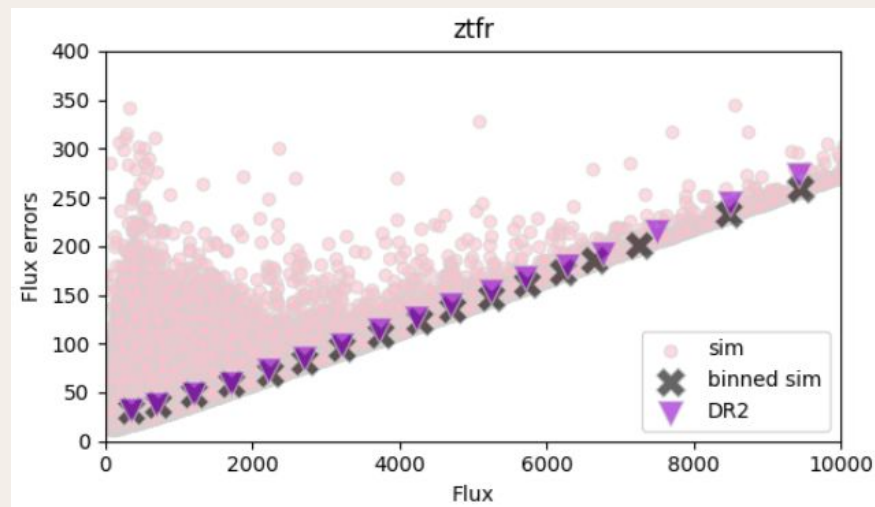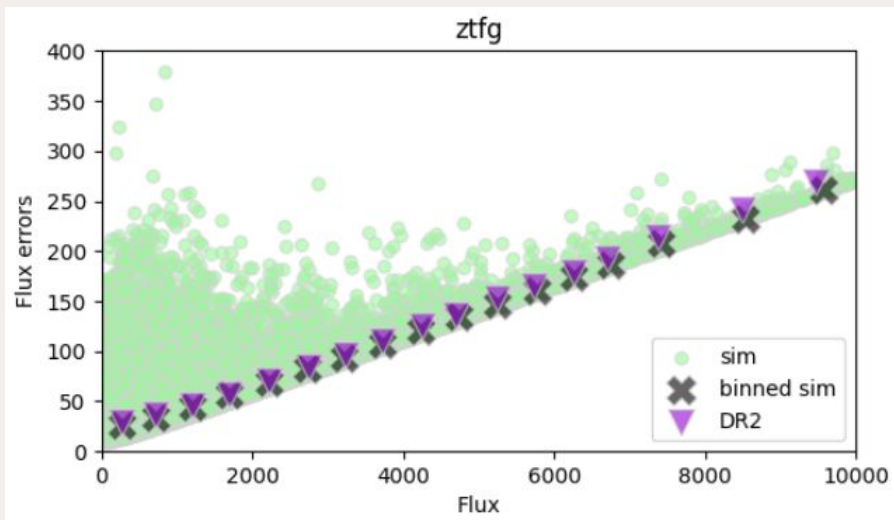# Which skynoise should we use ?

ztfg

ztfr

Low and high flux correction

For the simulation, we need:

- Low flux: new skynoise
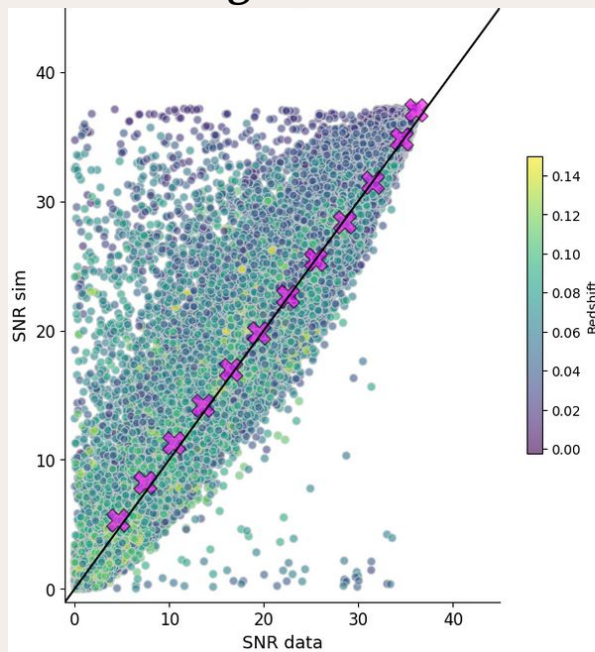
- Higher flux: calibration uncertainties

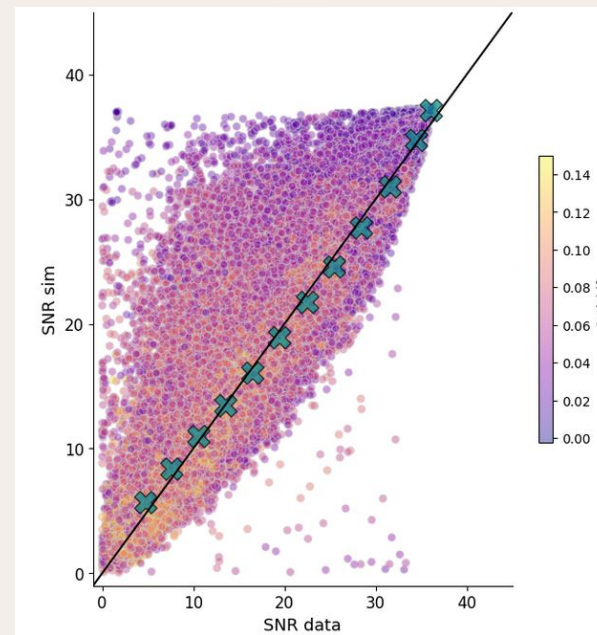# Individual objects simulations: all DR2 sample

- We need calibration uncertainties in the DR2 light-curves
- We need extra 2.9% in the simulation uncertainties
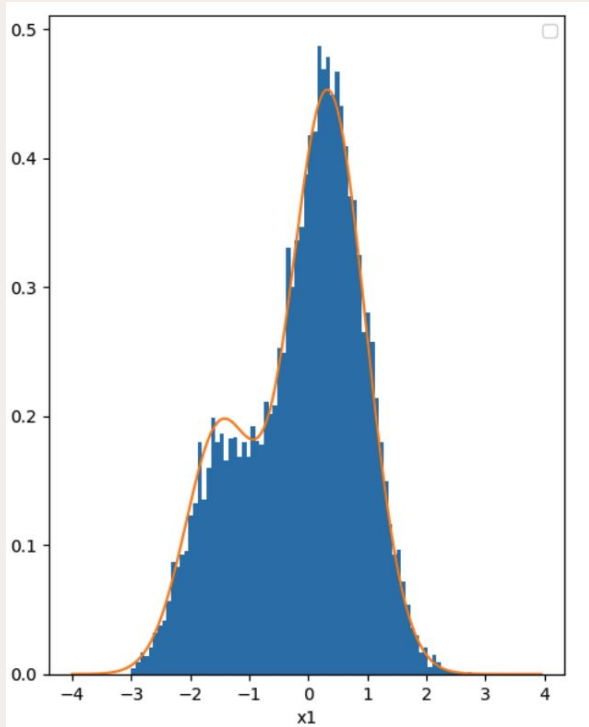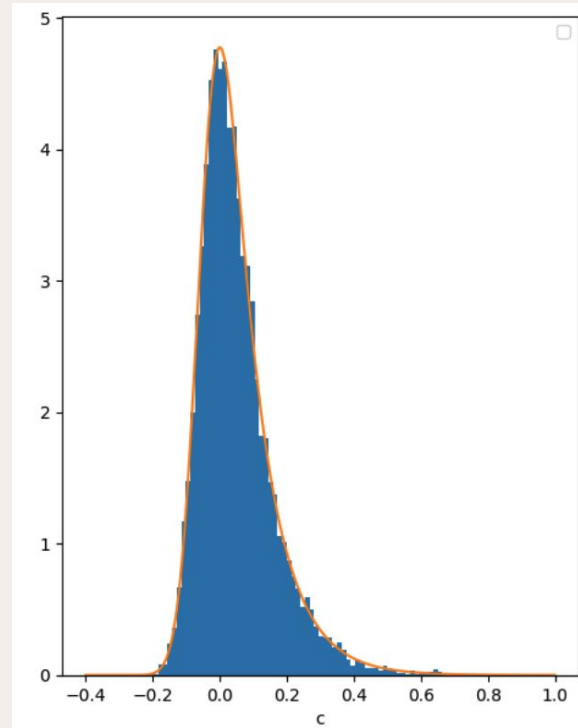
g band

r band

binned SNR values

binned SNR values

Free simulations: input distributions
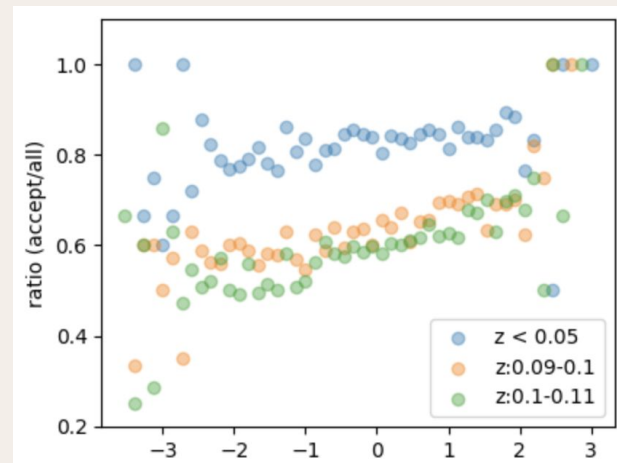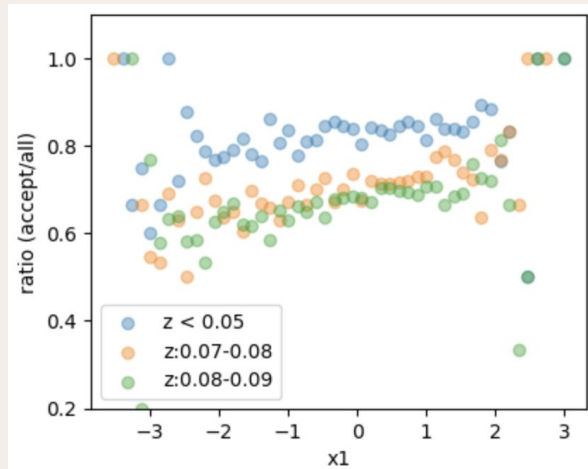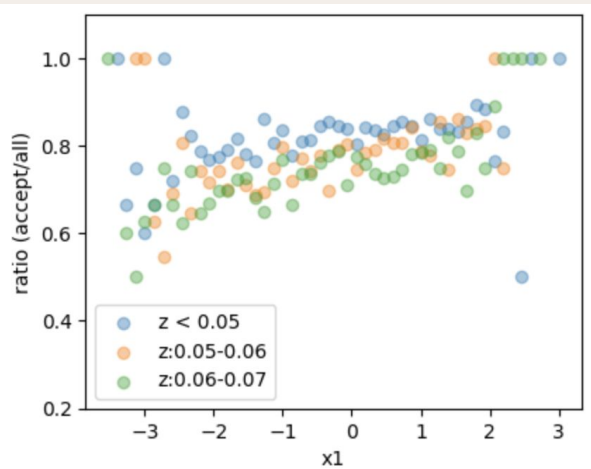
100,000 objects simulated

Stretch (Nicolas et al 2021)

exponential decay

Free simulations: x1

- 100,000 objects simulated
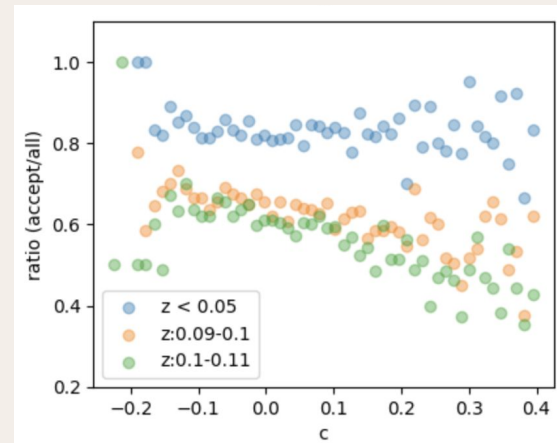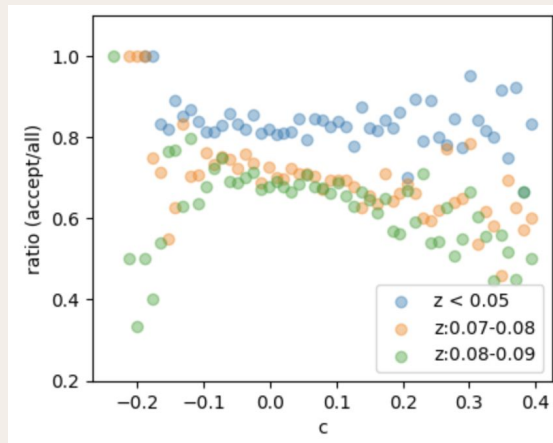
- Requirement: at least 4 detections to accept an object
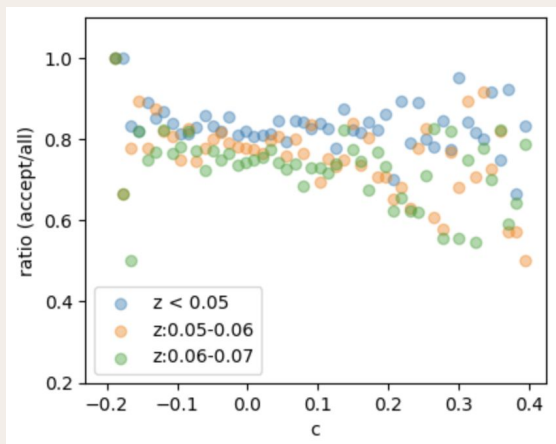
Free simulations: c

- 100,000 objects simulated

- Requirement: at least 4 detections to accept an object

What is next ?

- Individual objects: explore i band simulations

- Continue biases study with the free simulations: comparison after SALT2 fit and estimation of the bias in the distance measurement