

This document contains the model plots and the time budget calculations for the **3-filter strategies** for the LSST ToO program, as discussed in the Europe+Asia+Africa discussion calls during the workshop.

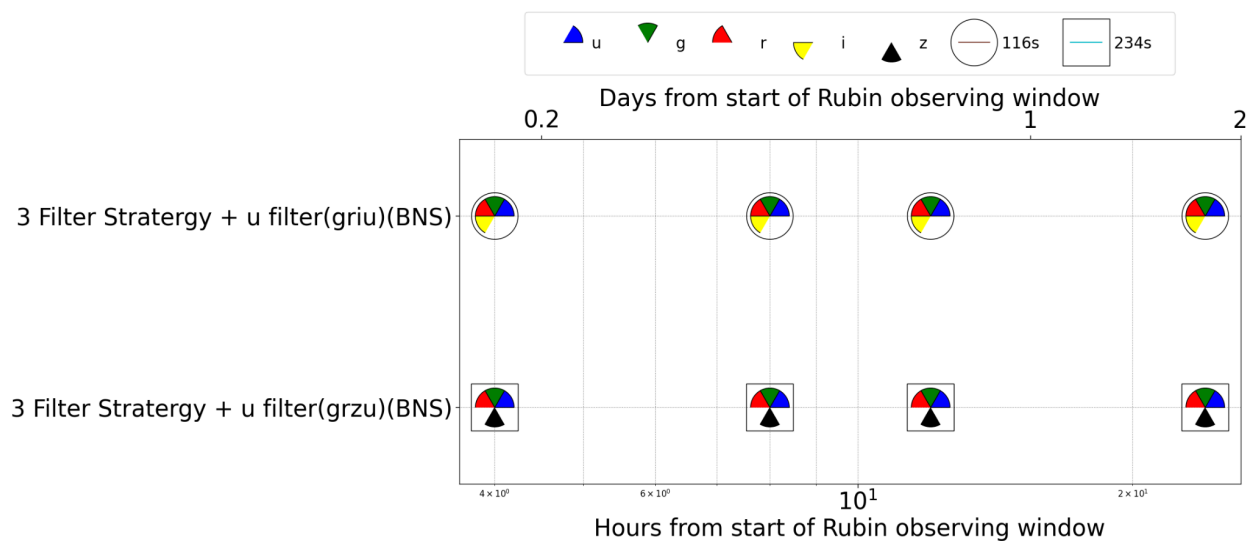
Considered combinations - gri + u, grz + u

Epochs - 3 visits on a single night, followed by one epoch after $t_0 + 1$ day

Science Case considered - BNS

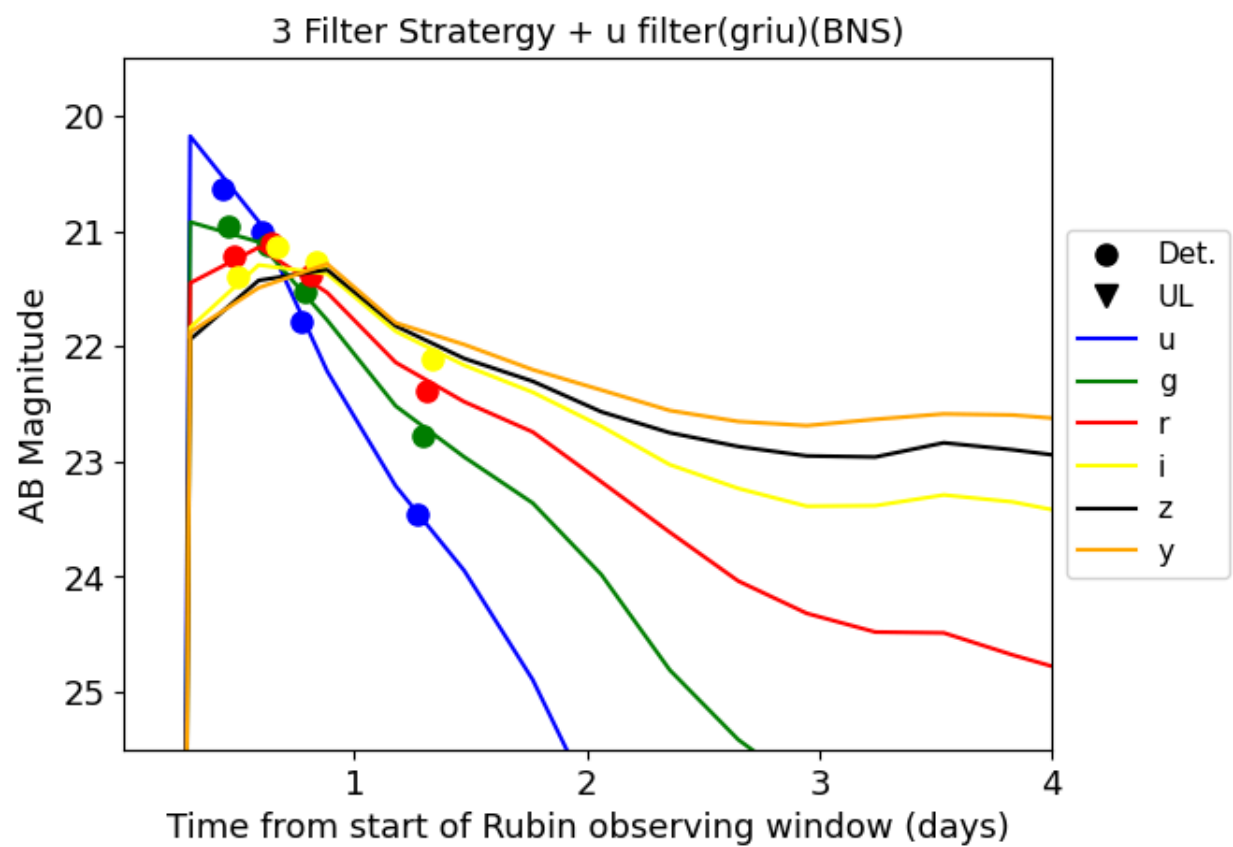
Depths are fixed to 25.0 for all filters, and corresponding exposure times (and hence the final time requirements) are calculated by the code here:

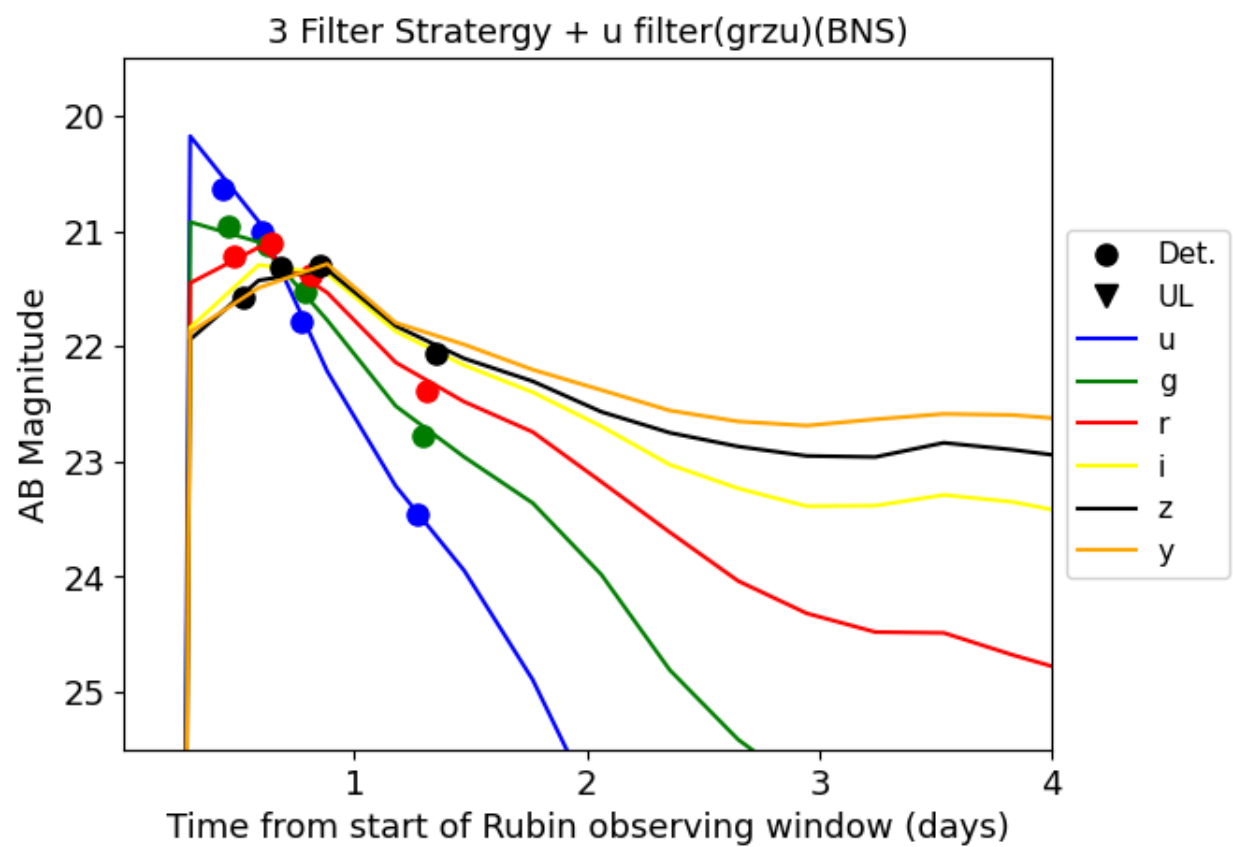
https://github.com/igorandreoni/RubinToO2024/blob/main/plots_RubinToO2024.ipynb



Model plots at 400 Mpc (files for 350 Mpc to be added to Github yet). Model choice: GW170817 best fit polar viewing angle, $\theta=26$ degrees; taken from <https://arxiv.org/pdf/2307.09511>:

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Time budget calculations for each strategy:

Strategy name: 3 Filter Strategy (gri + u):

	Epoch = 4 hr	Epoch = 8 hr	Epoch = 12 hr	Epoch = 24 hr
exposure times	659s	659s	659s	659s
overhead change filter	480s	480s	480s	480s
overhead between exposures	21s	21s	21s	21s
			Total exposure time per pointing	0.73hr
			Total time for 4 fields	3.16hr
			Total time for 4 fields and 5 events	15.82hr

Strategy name: 3 Filter Strategy (grz + u):

	Epoch = 4 hr	Epoch = 8 hr	Epoch = 12 hr	Epoch = 24 hr
exposure times	942s	942s	942s	942s
overhead change filter	480s	480s	480s	480s
overhead between exposures	21s	21s	21s	21s
			Total exposure time per pointing	1.05hr
			Total time for 4 fields	4.42hr
			Total time for 4 fields and 5 events	22.11hr