UPV: a tool for detector characterization

UPV is now documented:
https://wwwcascina.virgo.infn.it/DataAnalysis/GWOLLUM/Friends/upv.html
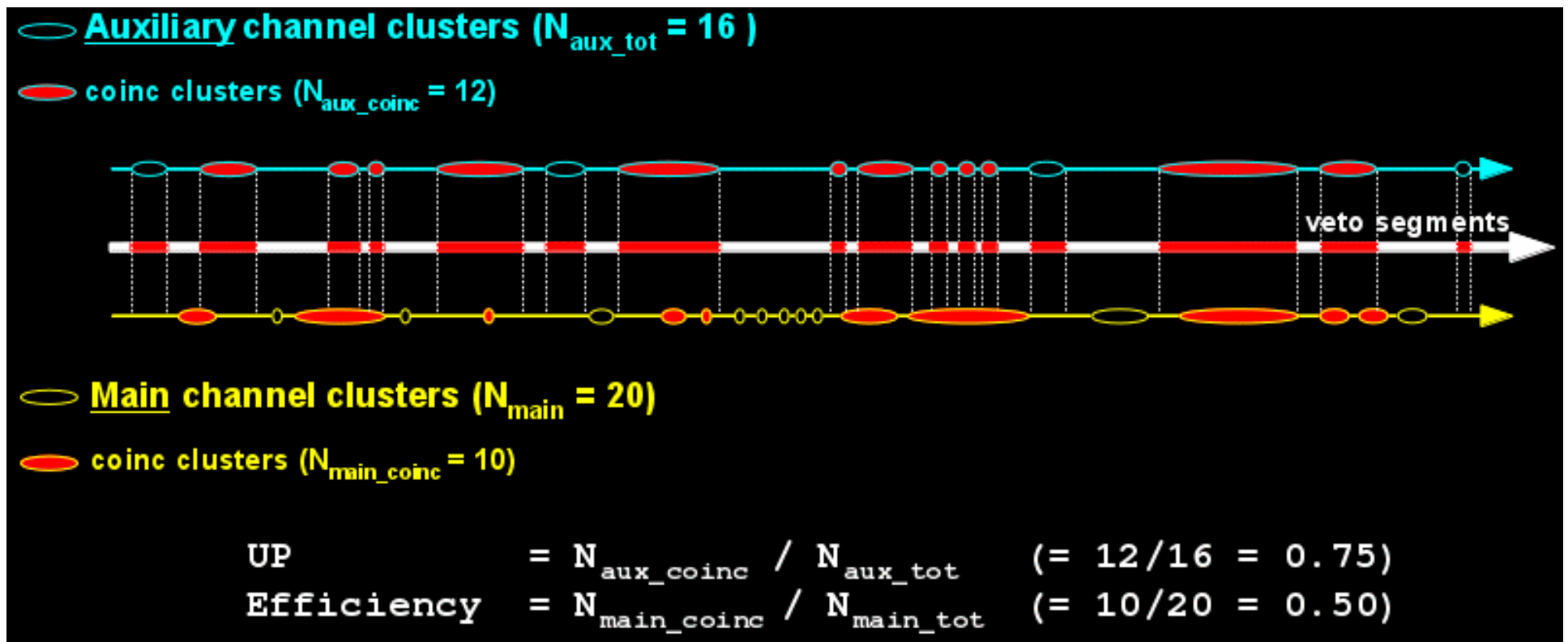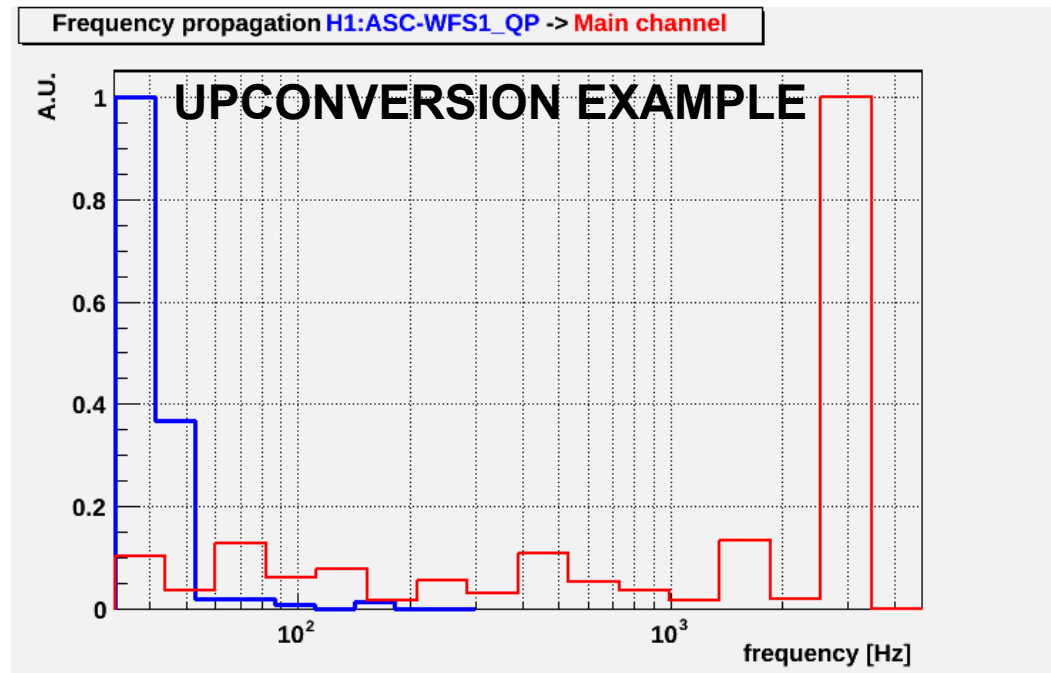
Coincidences are established in frequency bands of the auxiliary channel
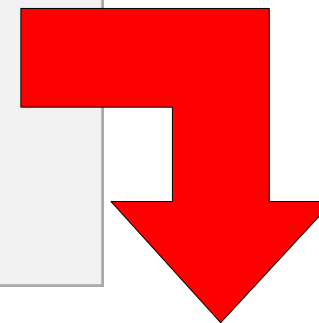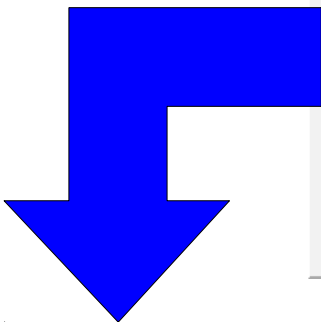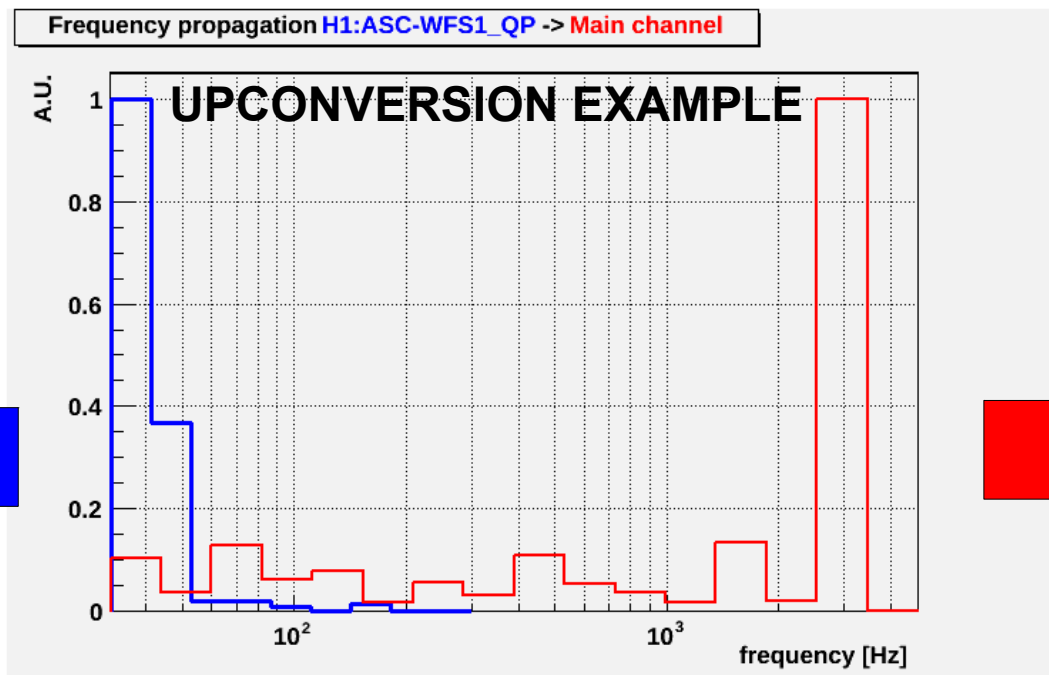(the number of frequency bins is determined by the available statistic)
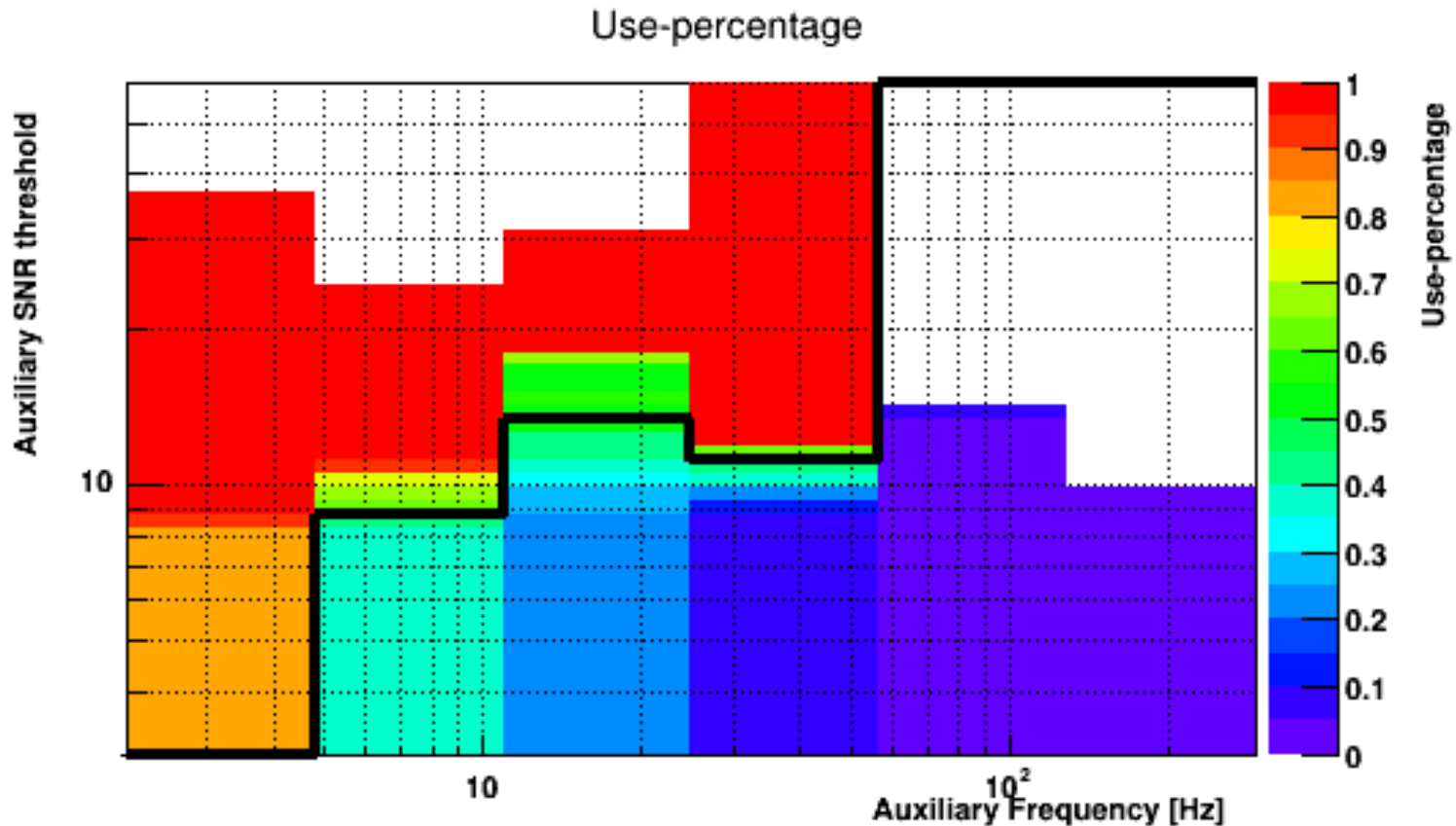
The threshold is tuned to have UP>50%

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"Frequency propagation" plot

"Frequency propagation" plot
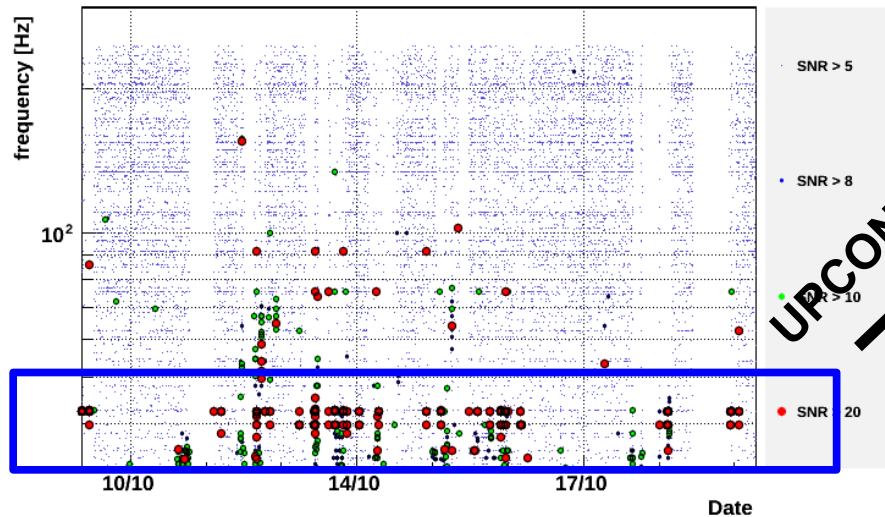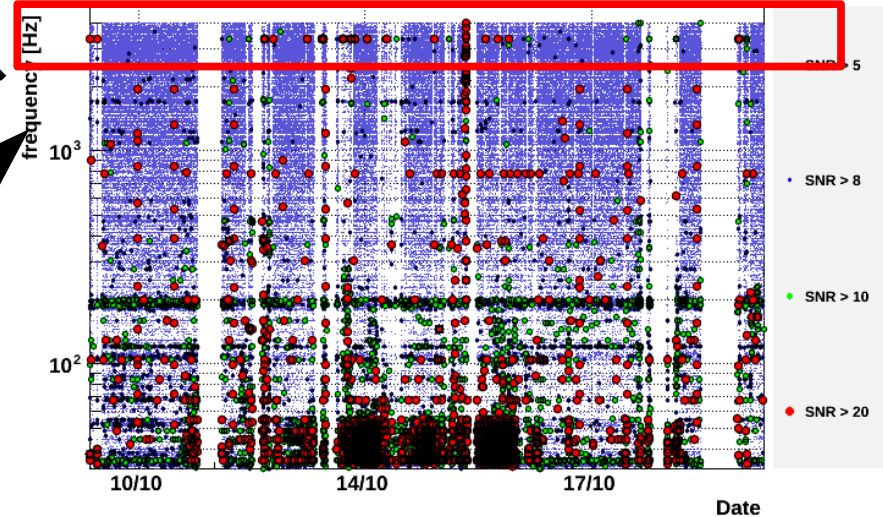
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UPV matrix to study the internal coupling of a sub-system

| Coupling scale: 0.00 | <0.05 | <0.10 | <0.15 | <0.20 | <0.25 | <0.30 | <0.35 | <0.40 | <0.45 | <0.50 | <0.55 | <0.60 | <0.65 | <0.70 | <0.75 | <0.80 | <0.85 | <0.90 | <0.95 | <1.00 |

Click on a given cell to plot the frequency propagation SOURCE → TARGET

SOURCES → TARGETS ↓	Bs_BMS_NFv	Bs_BMS_NFh	Bs_BMS_MUv	Bs_BMS_MUh	Bs_BMS_MDv	Bs_BMS_MDh	Bs_BMS_FFv	Bs_BMS_FFh
Bs_BMS_NFv	1.000	0.004	0.005	0.003	0.005	0.004	0.005	0.002
Bs_BMS_NFh	0.149	0.999	0.040	0.056	0.036	0.056	0.037	0.072
Bs_BMS_MUv	0.002	0.002	1.000	0.179	0.869	0.535	0.839	0.312
Bs_BMS_MUh	0.002	0.007	0.128	1.000	0.183	0.858	0.178	0.935
Bs_BMS_MDv	0.002	0.002	0.963	0.087	1.000	0.422	0.951	0.187
Bs_BMS_MDh	0.002	0.005	0.548	0.617	0.436	1.000	0.430	0.747
Bs_BMS_FFv	0.002	0.002	0.931	0.109	0.954	0.114	1.000	0.208
Bs_BMS_FFh	0.002	0.006	0.176	0.627	0.211	0.711	0.190	1.000

UPV is run NxN times for every possible pairs of channels.

If a matrix cell is colored, it means that there is a "real" coupling between the 2 channels

The strength of the coupling is measured by the veto efficiency (here "coupling scale")

Online examples:

https://wwwcascina.virgo.infn.it/DataAnalysis/UPVmatrix/