Temperature analysis

Electronic noise

Neutrino oscillations' group meeting
15/11/2018

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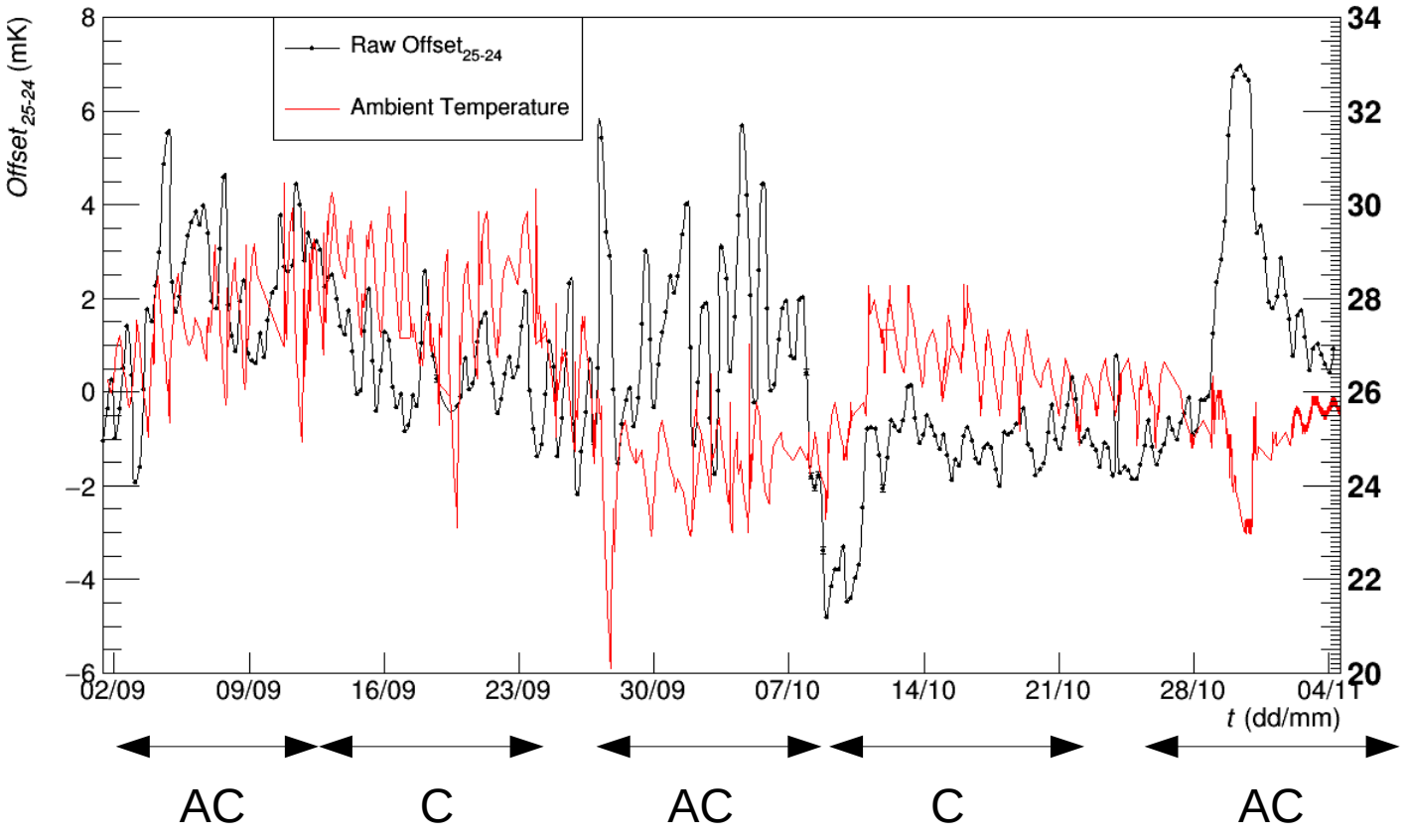
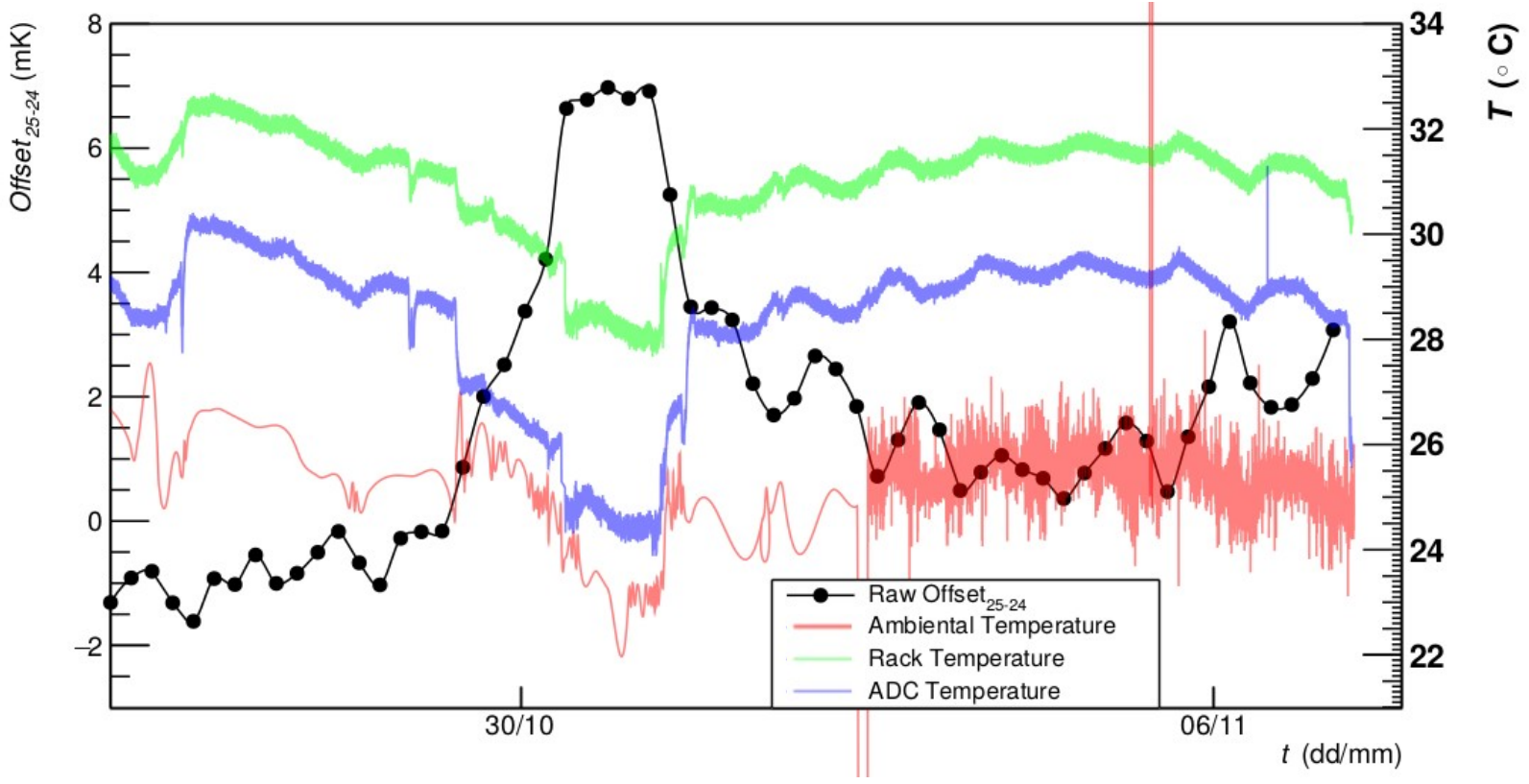
Electronic offset



Last time it was showed that electronic noise between amux cards was related with ambient temperature. Now it has been realized that this relation can be either a correlation or an anticorrelation.

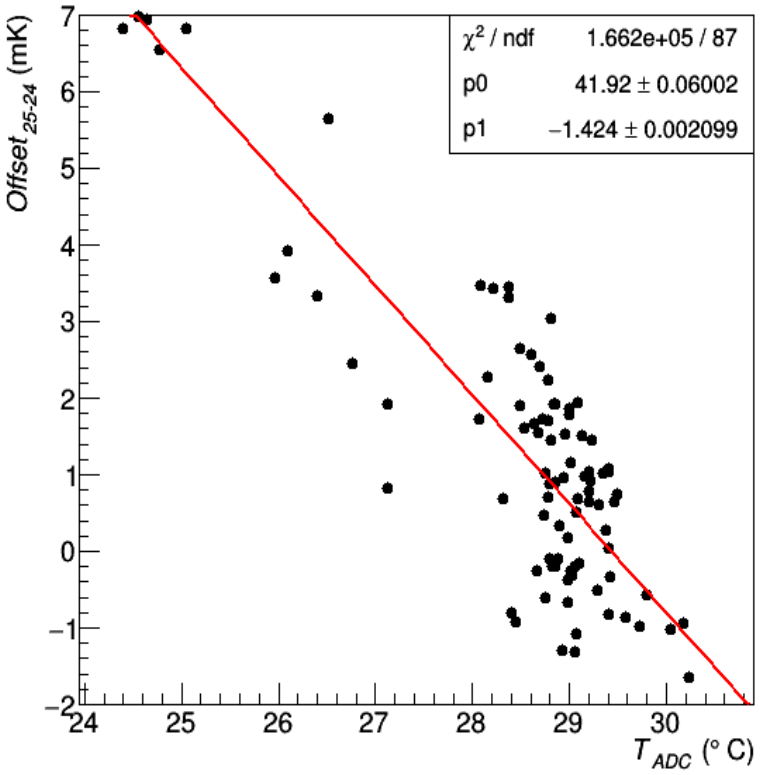
Electronic offset

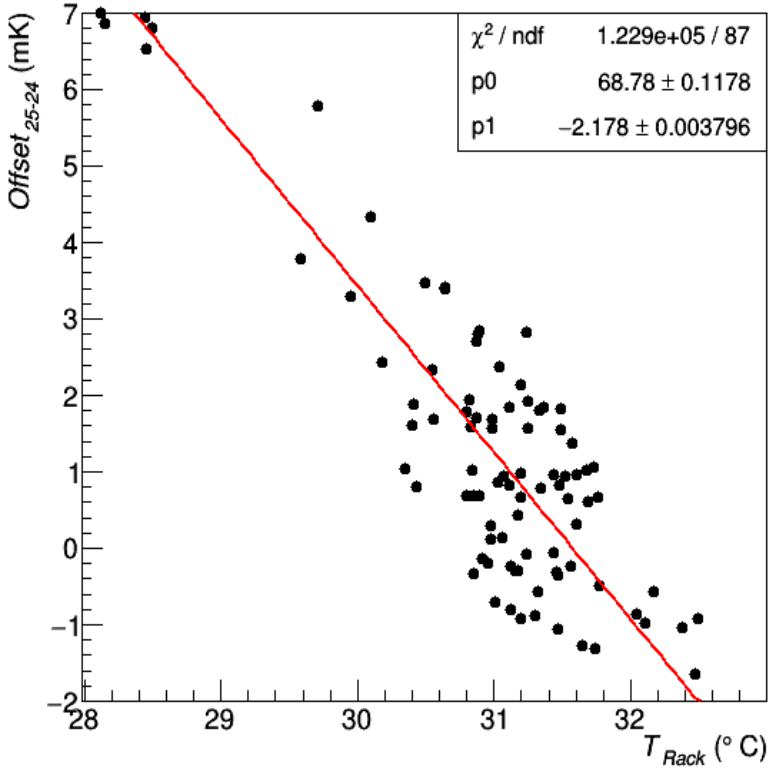
The last days it has been more anticorrelated.



Electronic offset

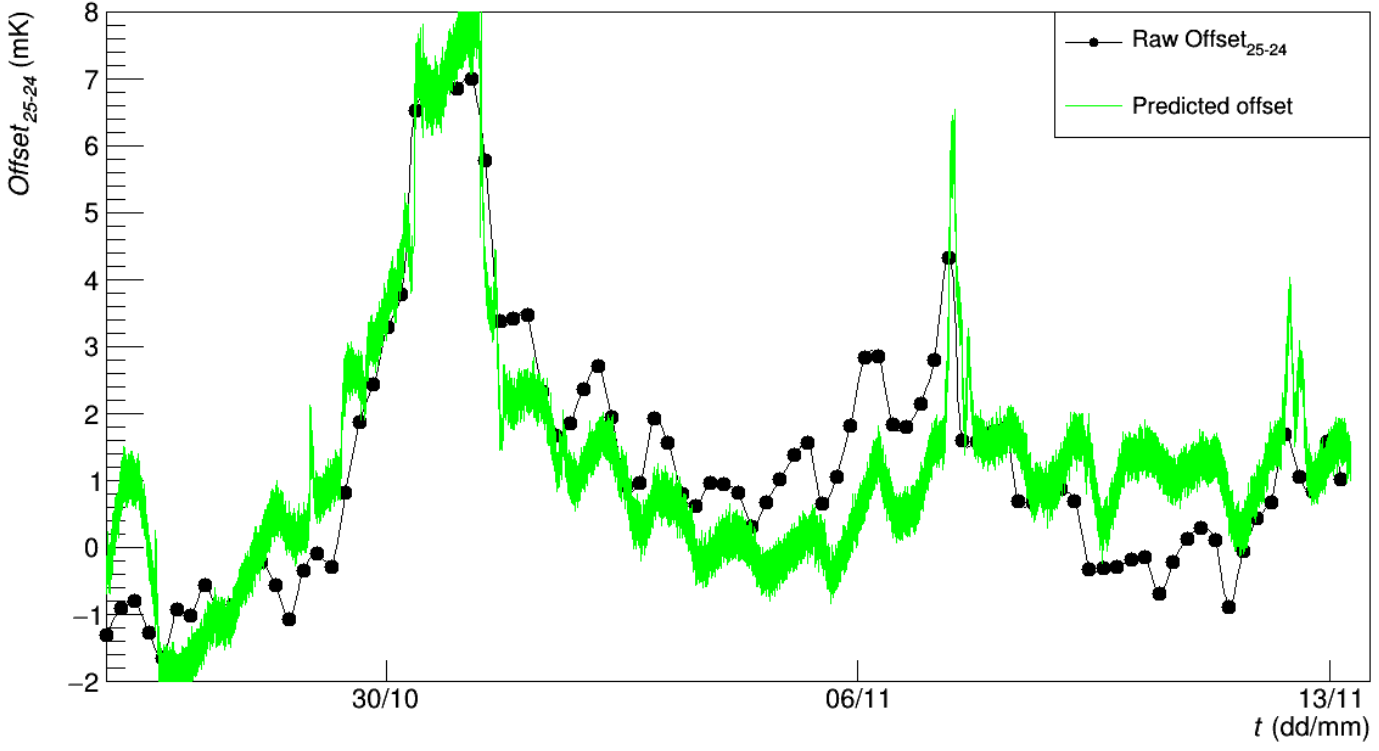
If we plot the electronic offste vs devices temperatures we can see that is more correlated to rack's temperature.





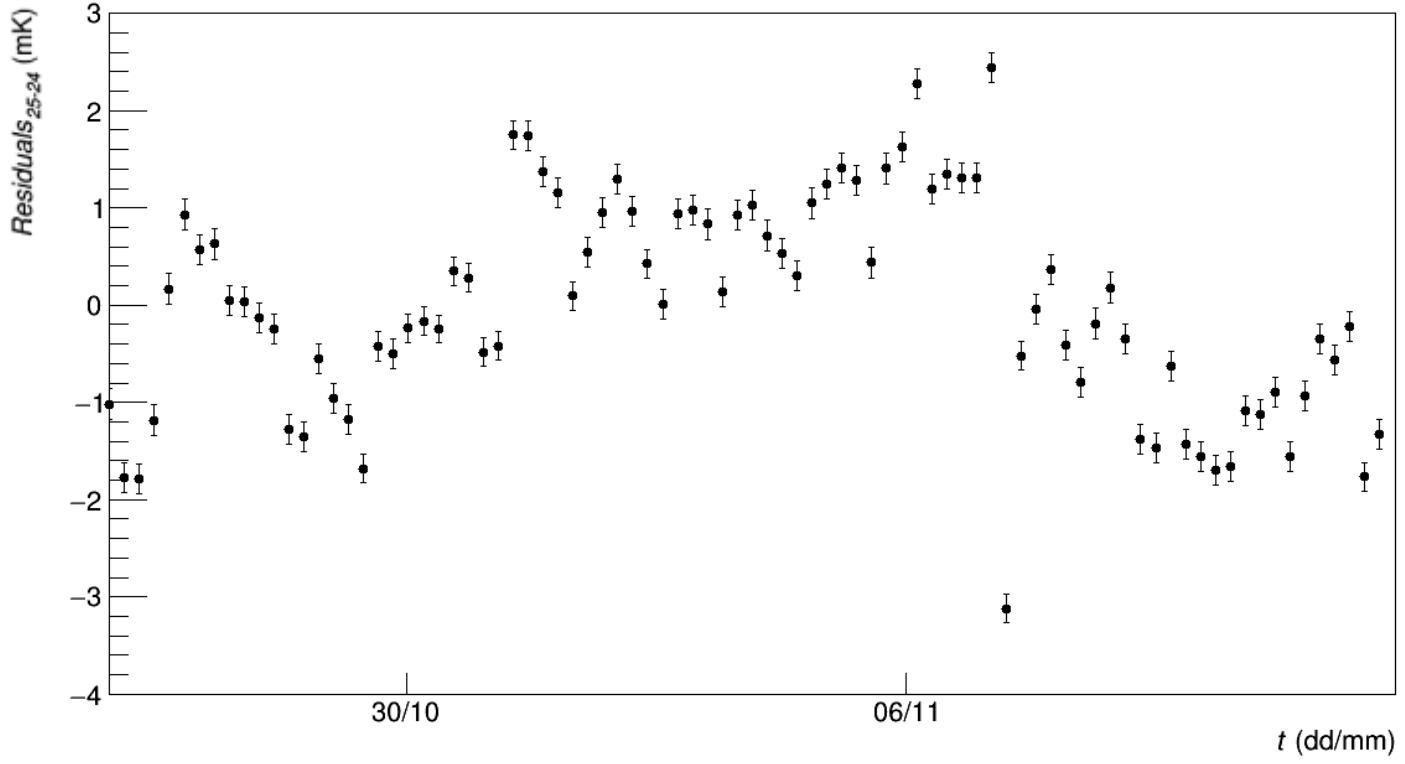
Electronic offset

With this naive fit we are able of predict the offset's general behavior very accurately. Anyway we still observe some kind of desviation between maximums and minimums.



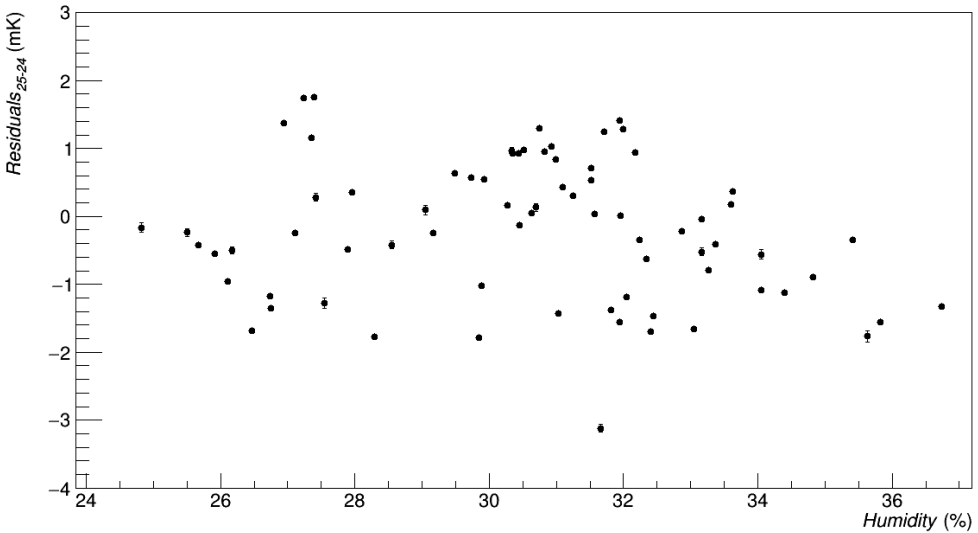
Electronic offset

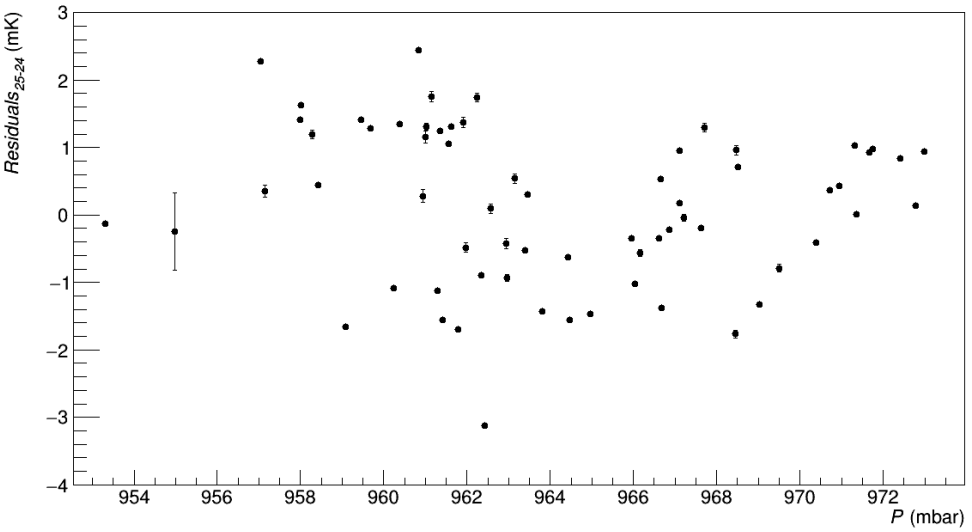
Clearly the residuals point that we are still missing something.



Electronic offset

However they are not related with other ambiental variables like humidity or preassure so there is still something that we are missing.





Conclusions

Electronic offset relation with temperature is somehow strange, it seems that depends on more than one effect.

Some test with ‘artificial’ temperatures are being performed in order to disentagle this effects.

We will keep working on this.

Regarding CFD simulations, some progress has been made and results are actually closer to real LAr temperature, but calculated gradients are still too low. Some updates are being made in the geometry to fix this.