Tools for noise study

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- Presentation of the package
- First results on correlations

Package: general presentation

A C++ package has been developped at Saclay in order to obtain easily the maximum number of useful quantities for noise studies

It is possible to have access to:

- correlations between channels

- correlations between samples

- variances, covariances

etc...

Package: class & methods

RUN (run_number, nentries, startime, stoptime)

User's program

variable_values [n_sample][n_channel][n_event]

EventsDistribs ped_runNNN
(run_number, nentries, startime, stoptime,
max_samp, max_chan, max_evts,
&pedestals_values[0][0][0]);

ped_runNNN.cor_between_channels (samp_XXX);

ped_runNNN.cor_between_samples (chan_YYY);

⋮

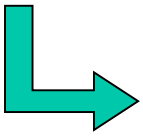
ped_runNNN.var_c (samp_XXX);

etc…

Package: output files (ASCII files)

Correlations between channels for a given sample:

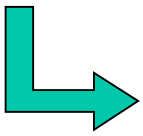
ped_runNNN.cor_between_channels (samp_XXX);



cn_NNN_cor_cc_sXXX.out

Correlations between samples for a given channel:

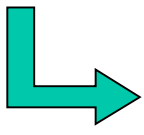
ped_runNNN.cor_between_samples (chan_YYY);



cn_NNN_cor_ss_cYYY.out

Variances of the event distributions for all the channels and for a given sample:

ped_runNNN.var_c (samp_XXX);



cn_NNN_var_c_sXXX.out

etc…

Package: output files (ASCII files)

********** File: cn_45023_cor_cc_s000.out **********

*RUN NUMBER : 45023

*nentries : 500 *startime : 19949177

*nb max samples : 25 *nb max channels: 100 *nb max events : 2000

*met_bruico> Correlation matrix between channels for sample number 0

	0	1	2	3	4	5	6	7	8	9
0	1.000	0.663	0.660	0.578	0.638	0.493	0.509	0.459	0.512	0.507
1	0.663	1.000	0.654	0.629	0.669	0.485	0.525	0.453	0.523	0.505
2	0.660	0.654	1.000	0.549	0.555	0.417	0.482	0.415	0.496	0.468
3	0.578	0.629	0.549	1.000	0.646	0.462	0.502	0.445	0.522	0.496
4	0.638	0.669	0.555	0.646	1.000	0.422	0.447	0.439	0.450	0.466
5	0.493	0.485	0.417	0.462	0.422	1.000	0.669	0.633	0.654	0.713
6	0.509	0.525	0.482	0.502	0.447	0.669	1.000	0.671	0.737	0.729
7	0.459	0.453	0.415	0.445	0.439	0.633	0.671	1.000	0.581	0.634
8	0.512	0.523	0.496	0.522	0.450	0.654	0.737	0.581	1.000	0.744
9	0.507	0.505	0.468	0.496	0.466	0.713	0.729	0.634	0.744	1.000

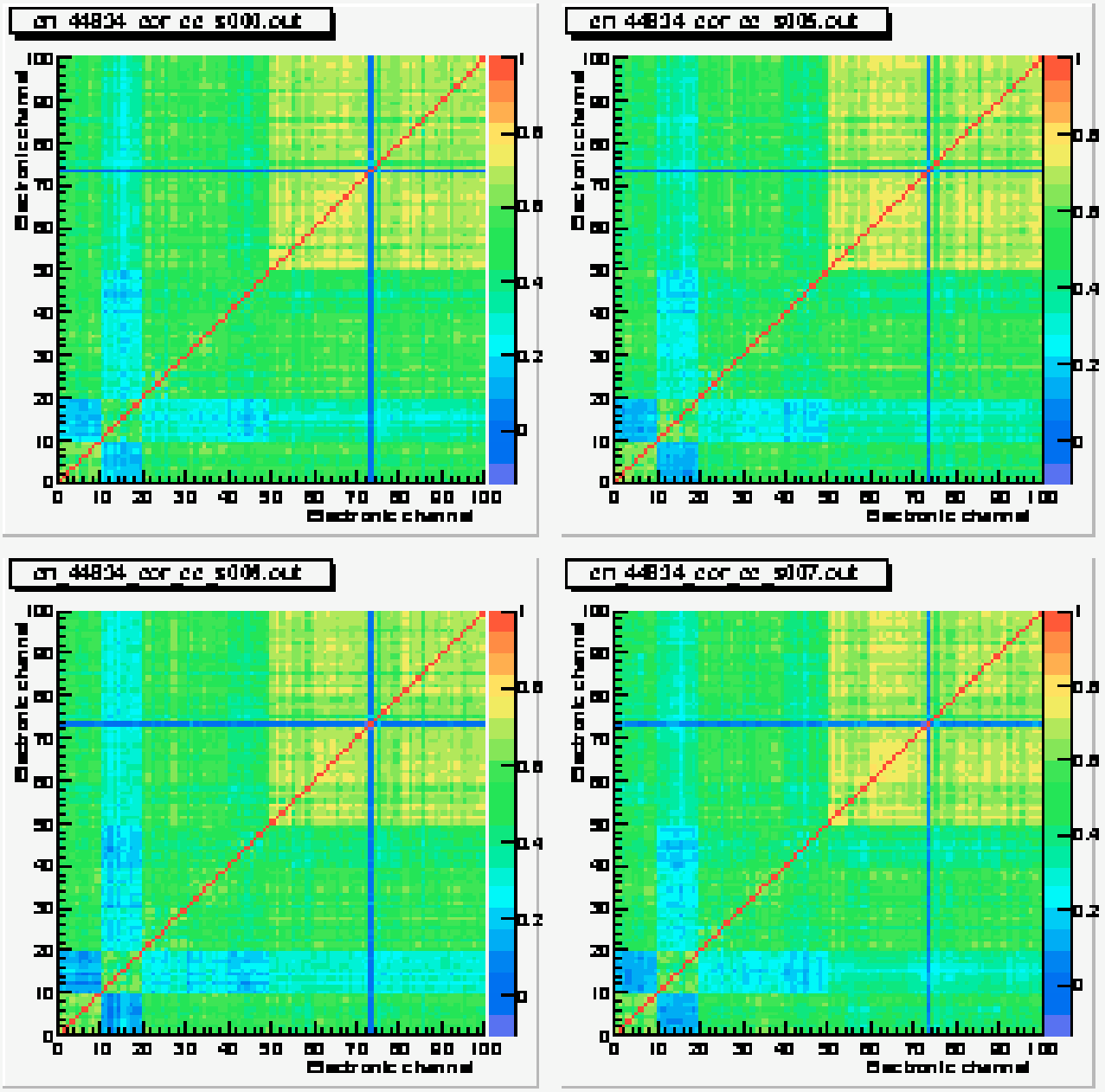
	10	11	12	13	14	15	16	17	18	19
0	0.432	0.526	0.554	0.589	0.576	0.448	0.397	0.437	0.463	0.433
1	0.556	0.509	0.624	0.605	0.599	0.421	0.396	0.452	0.485	0.468

--More--(1%)

2	0.422	0.496	0.527	0.568	0.570	0.402	0.355	0.401	0.430	0.396
3	0.606	0.520	0.589	0.606	0.574	0.434	0.402	0.466	0.454	0.454

Fri Nov 22 10:30:53 2002

Correlated noises



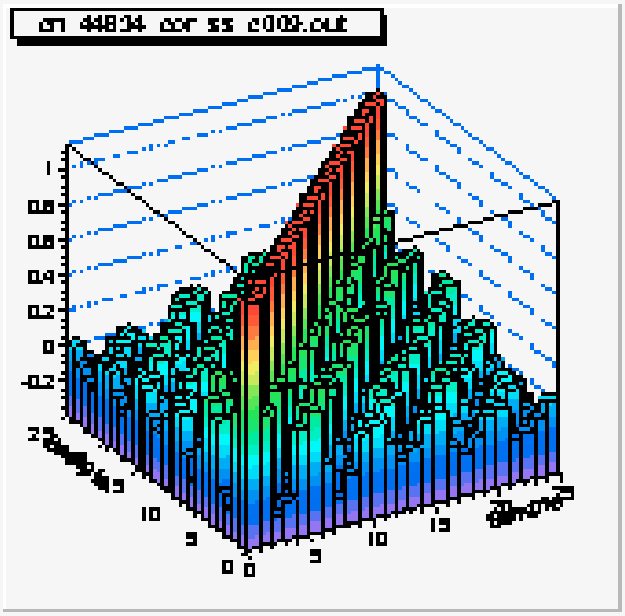
CHANNEL x CHANNEL correlation matrix for samples: 0, 5, 6, 7

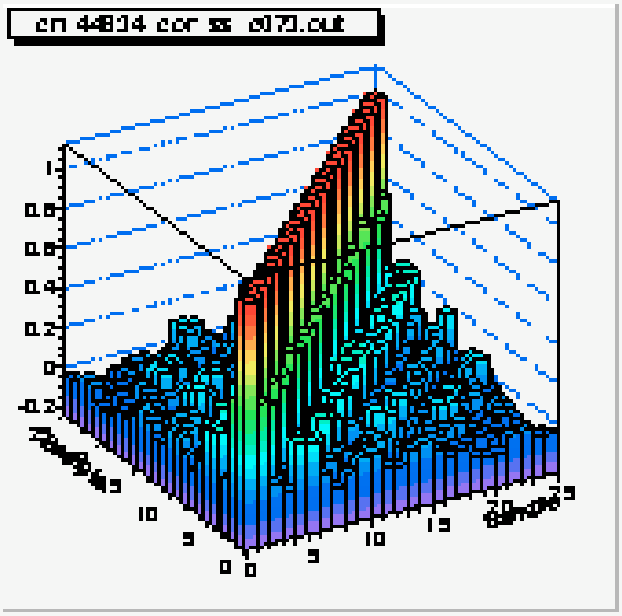
(electronic channels)

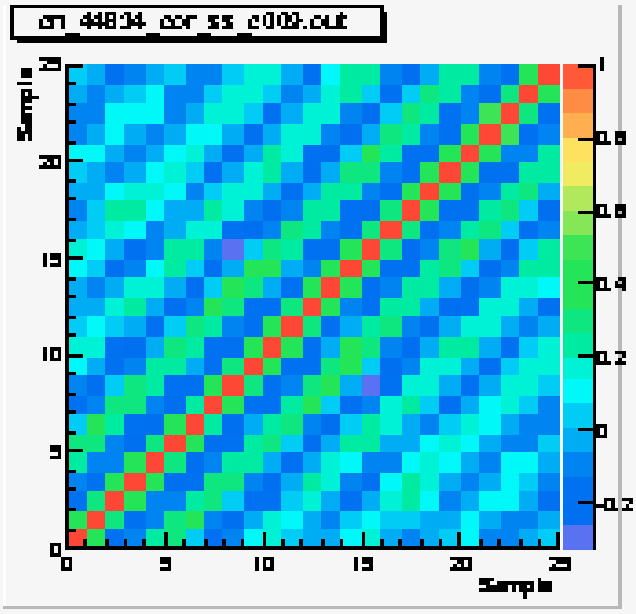
Run number: 44834

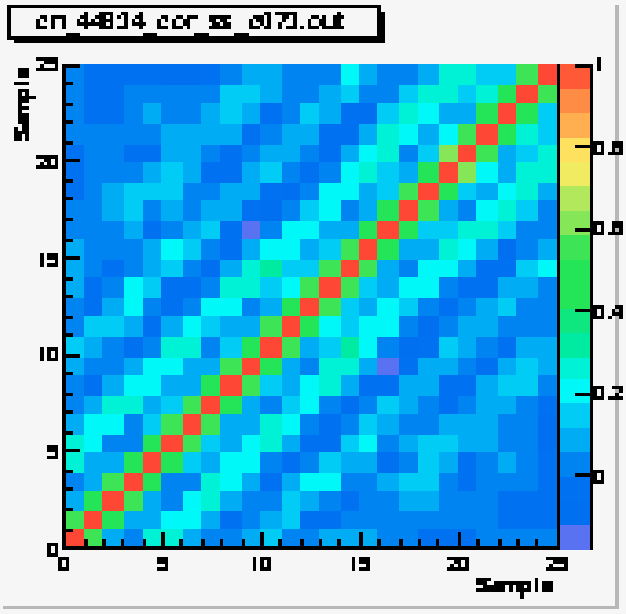
Mon Nov 25 11:57:05 2002

Correlated noises









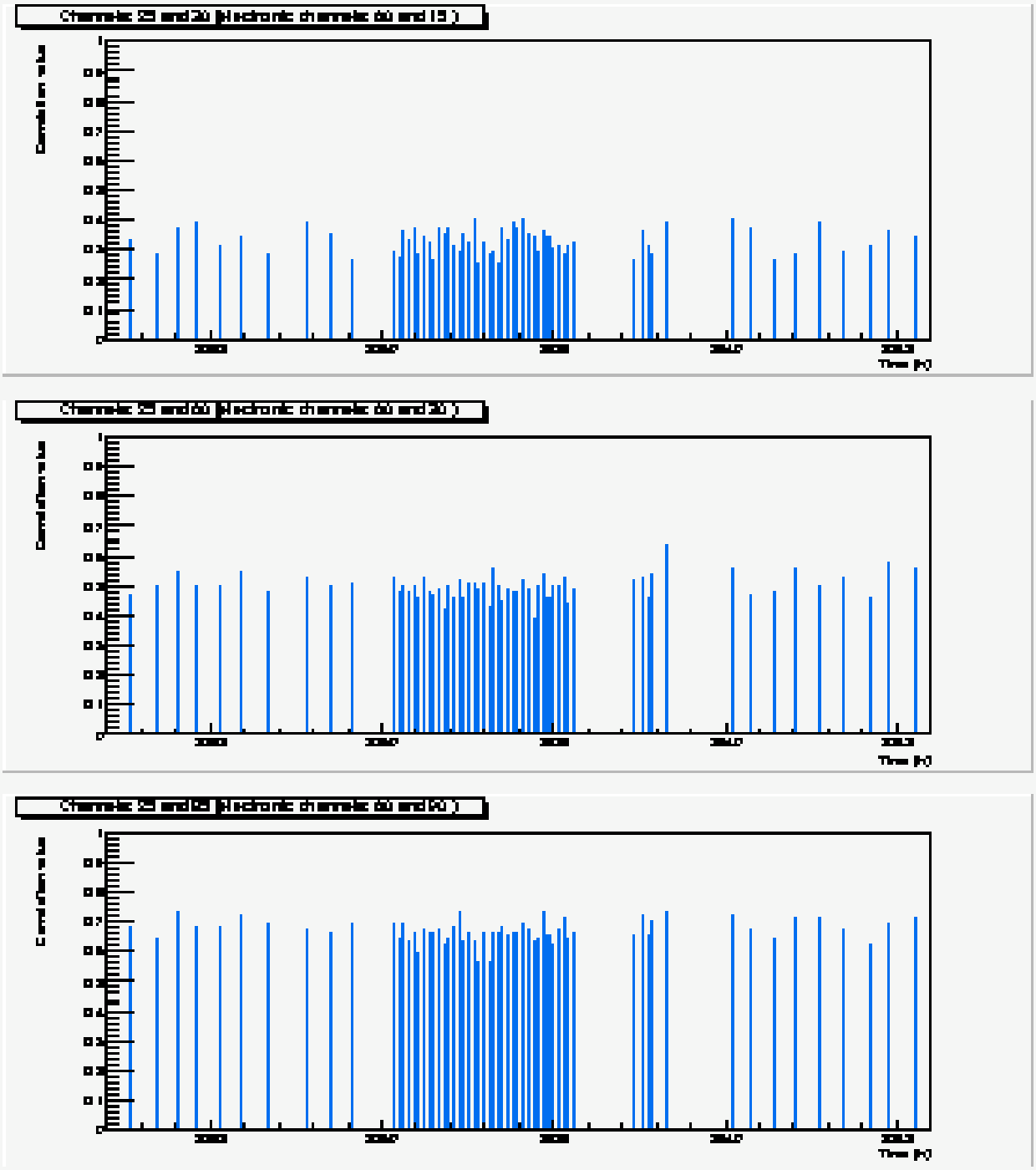
SAMPLE x SAMPLE correlation matrix for channels:

9 and 73 (electronic channel 54 and 38)

Run number: 44834

Mon Nov 25 11:54:22 2002

Correlated noises



Correlations between channels :

25 and 30, 25 and 60, 25 and 85 , 1 on sample 4

RUNS: 44804 to 45048 (2 1st August 2002)