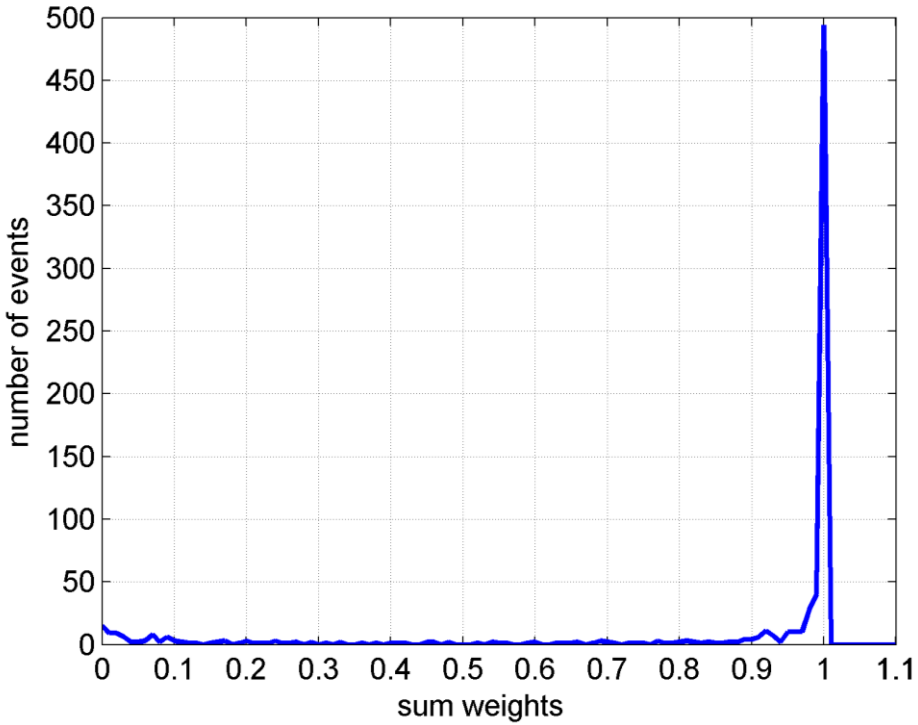
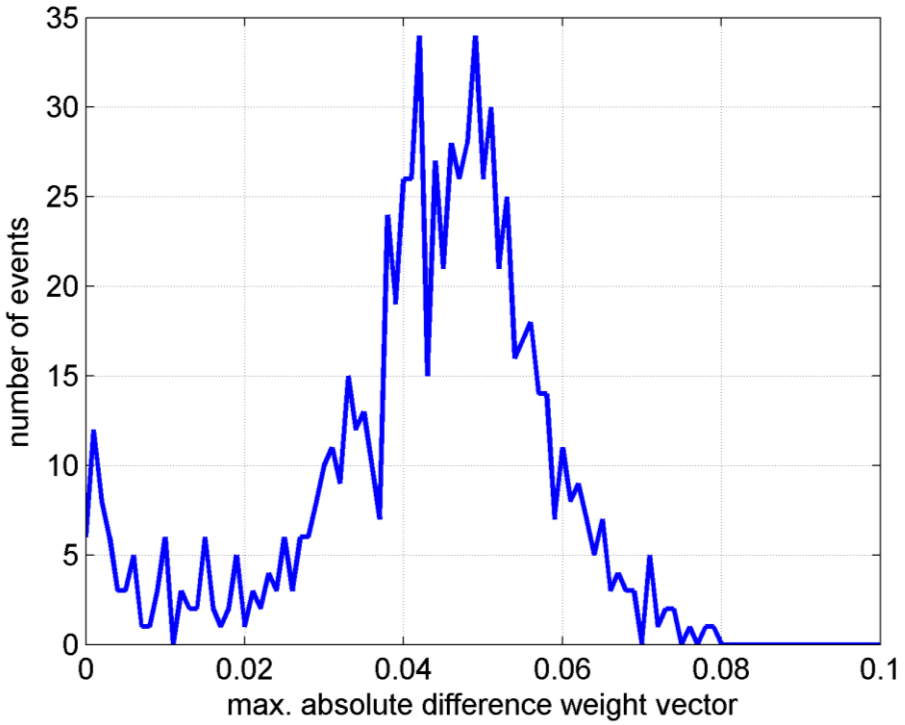
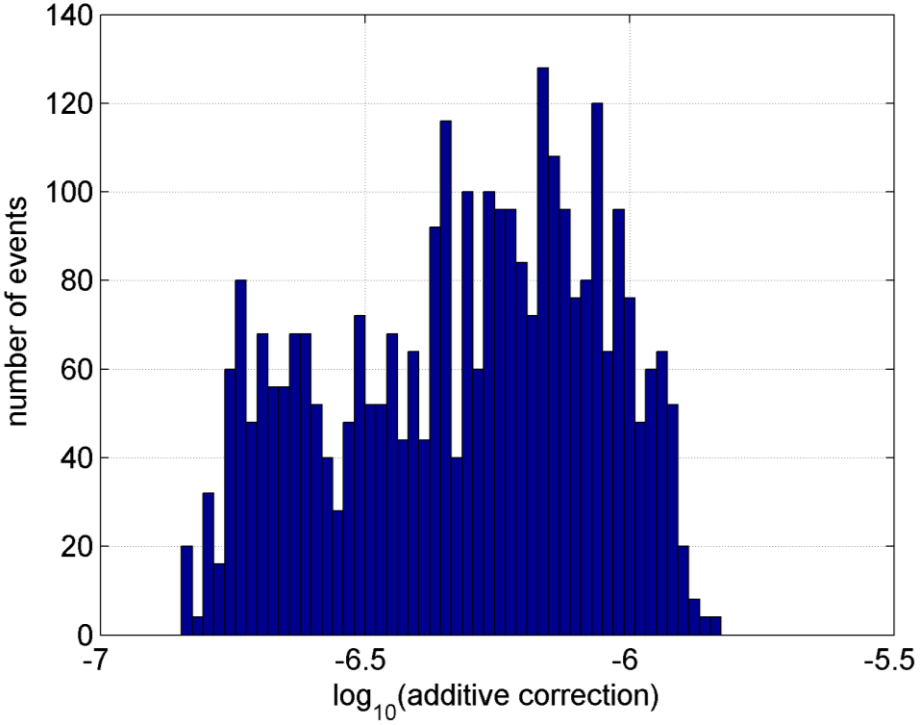
dump_castor_benchmark_test

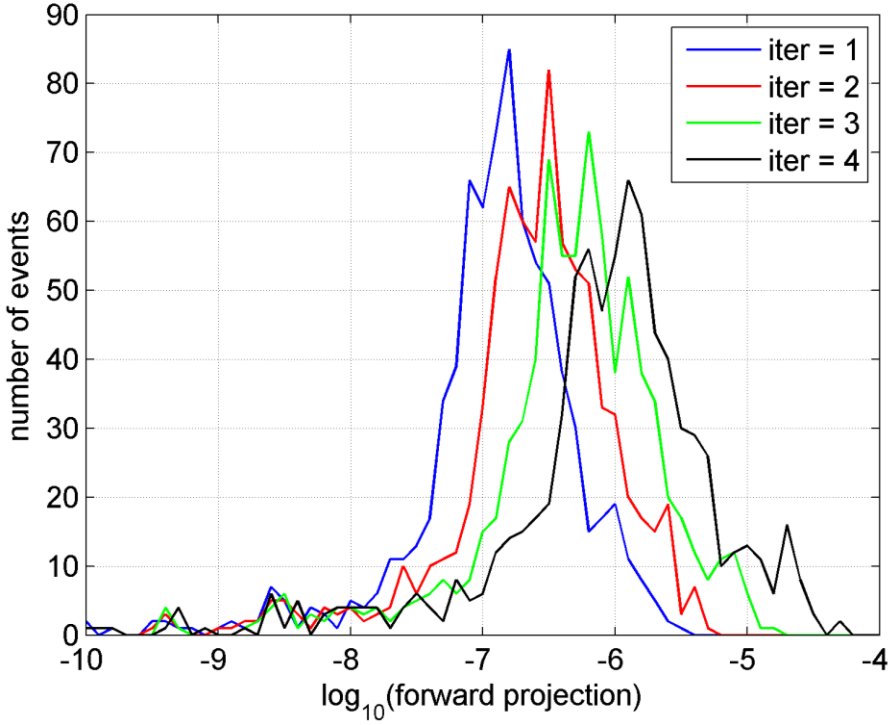




- It was checked that as for previous data: **WEIGHTS USED IN FORWARD AND BACKWARD MODEL ARE THE SAME**
- Benchmark data are TOF data (sum of weights for 50% of events is about 1 - figure on left)
- The distributions of maximal absolute difference of weights is simimar as previously (figure on right – main change is that more small values are observed: below level of 0.02)

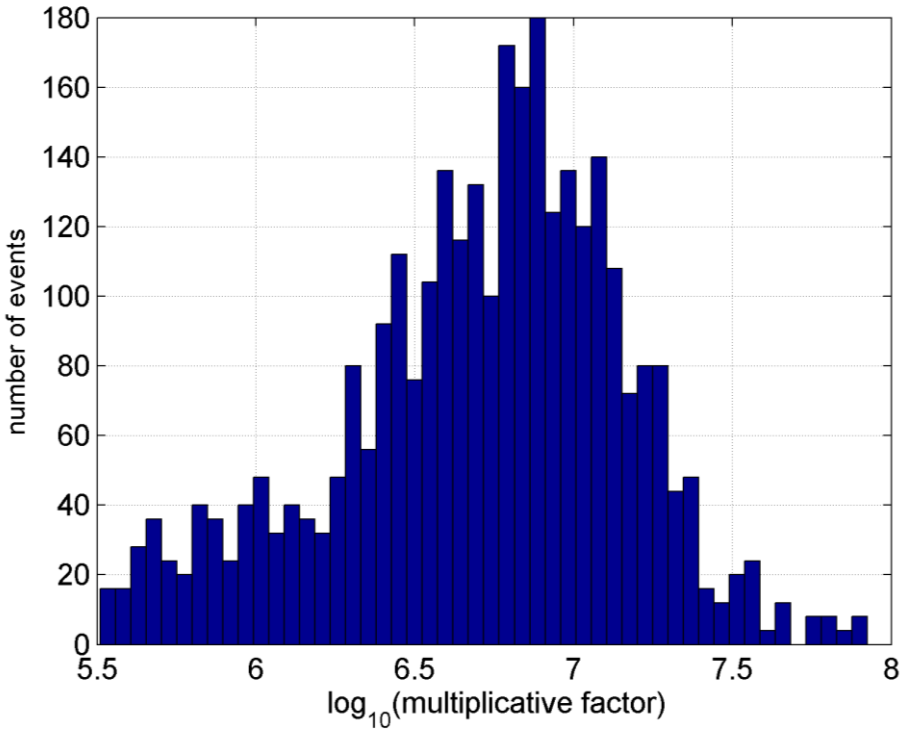
dump_castor_benchmark_test

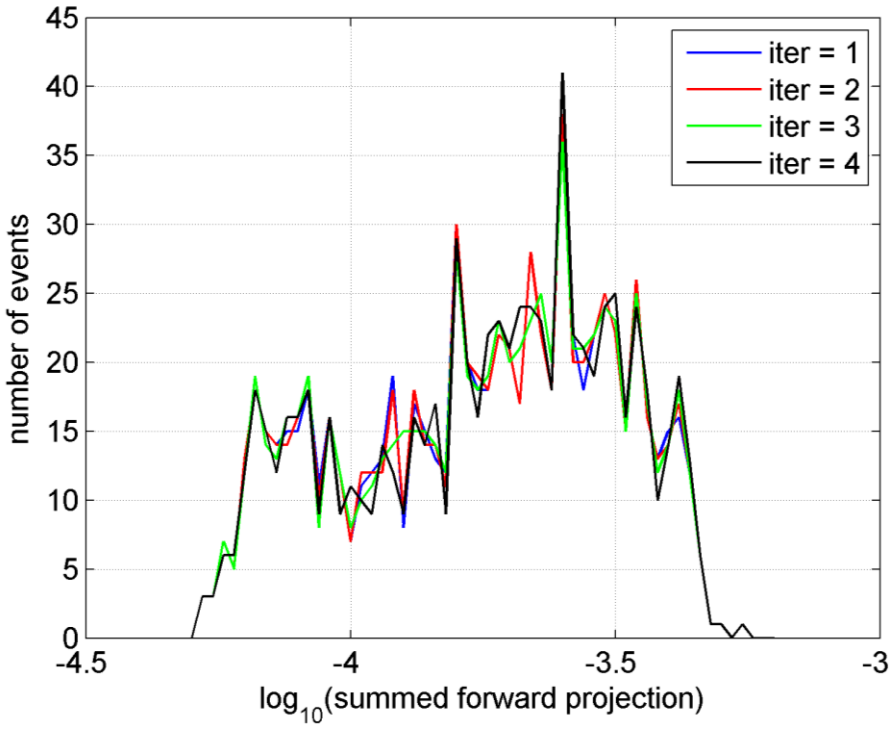




- **Global basis coefficient = 1** for all events (data not shown here)
- We considered true + scatter + random events (distribution of additive correction is shown on the left figure)
- Distribution of **forward projection** for each iteration is shown on the right. Mean value slightly increases for subsequent iterations from about $\mathbf{10^{-7}}$ to $\mathbf{10^{-6}}$.

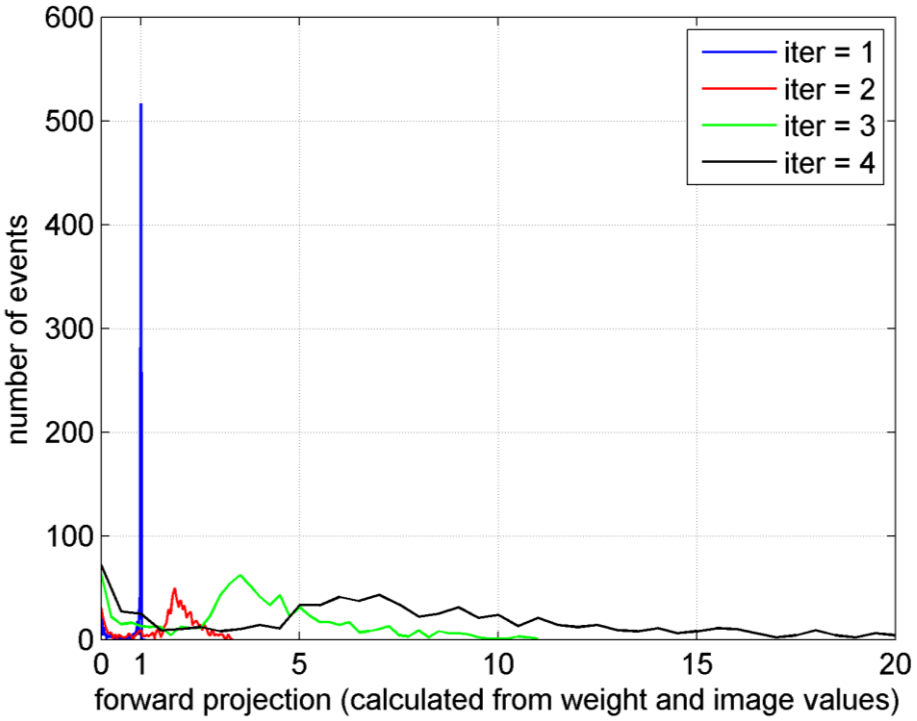
dump_castor_benchmark_test

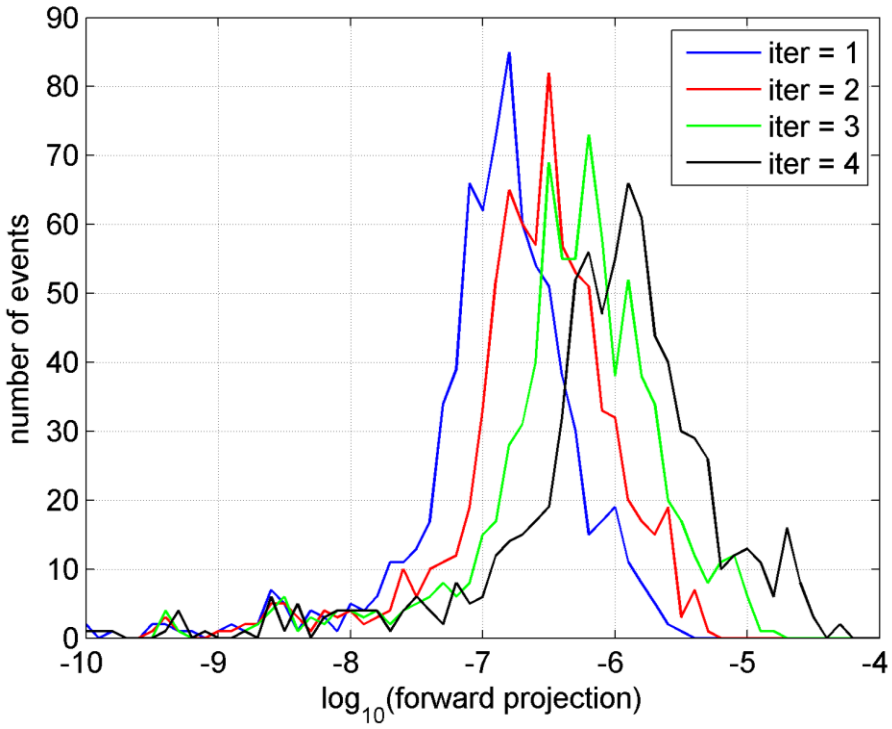




- **In contrary to previous TOF data** (dump_factor_20000_tof_bin_*ps) where CASToR variable **multiplicative factor** was always equal 1 here we observe distributions on the left with mean value about 7,000,000.
- Distribution of **summed of forward projection** for each iteration is shown on the right. Mean value is stable for all iterations and is about $\mathbf{10^{-4}}$. This value is at least two orders of magnitude larger than **forward projection** (previous slide).

dump_castor_benchmark_test





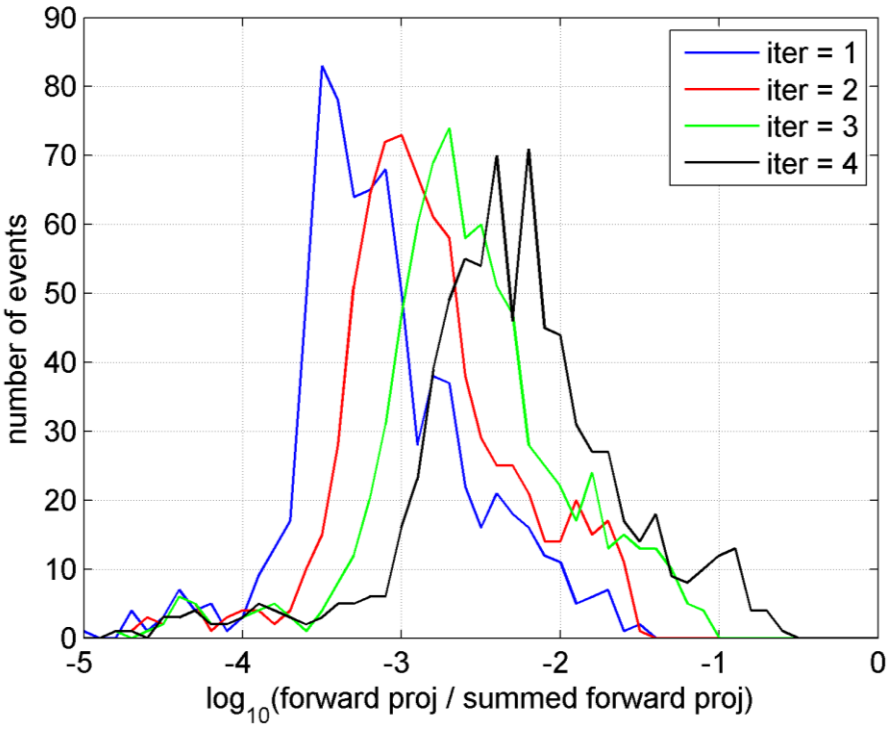
- **calculated forw proj = weights * image'**

  (dot product of weights and image: distribution shown on the left)

- **forw proj = calculated forw proj / multiplicative factor**

  (normalization with multiplicative factor: distribution shown on the right)

dump_castor_benchmark_test



- Distribution of ratio of **forward projection to summed forward projection** for each iteration is shown. Mean value increases to about **1%** (-2 on log scale) for last recorded iteration.
- It was checked that **GetFrameDurationInSec = 360** for all events (see code below).

```
for (int b=0; b<ap_Line->GetNbTOFBins(); b++)
{
m2p_forwardValues[a_th][b] += ap_Event->
GetAdditiveCorrections(b) *
mp_ImageDimensionsAndQuantification->
GetFrameDurationInSec(a_bed, a_timeFrame);
}
```