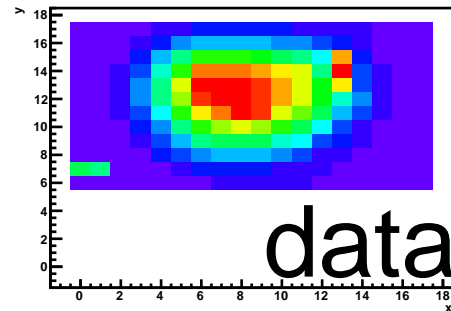
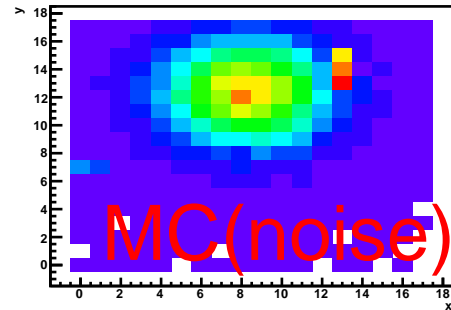
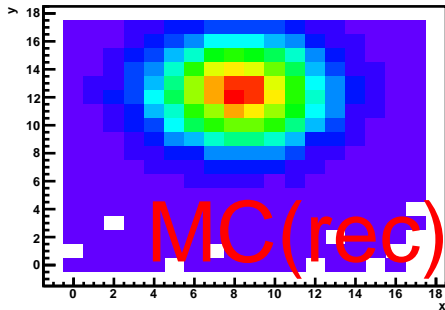
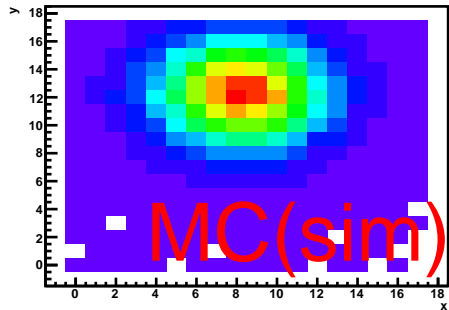


ECAL Digitization Status

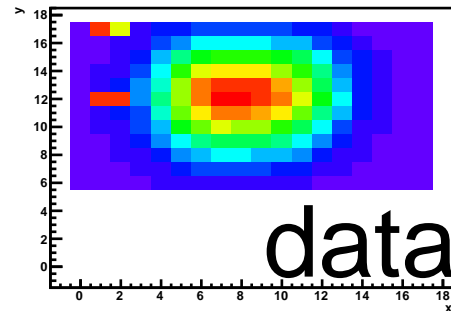
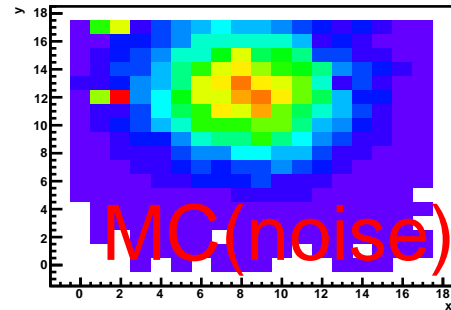
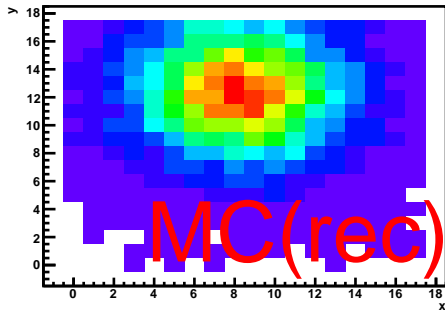
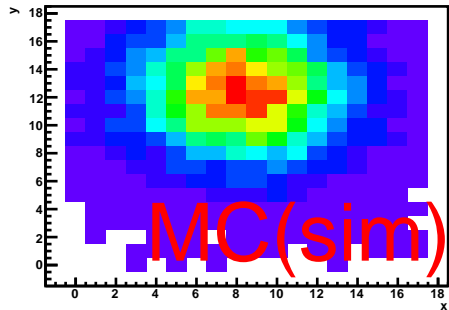
Kaloyan Krastev, LPSC Grenoble

CALICE Analysis

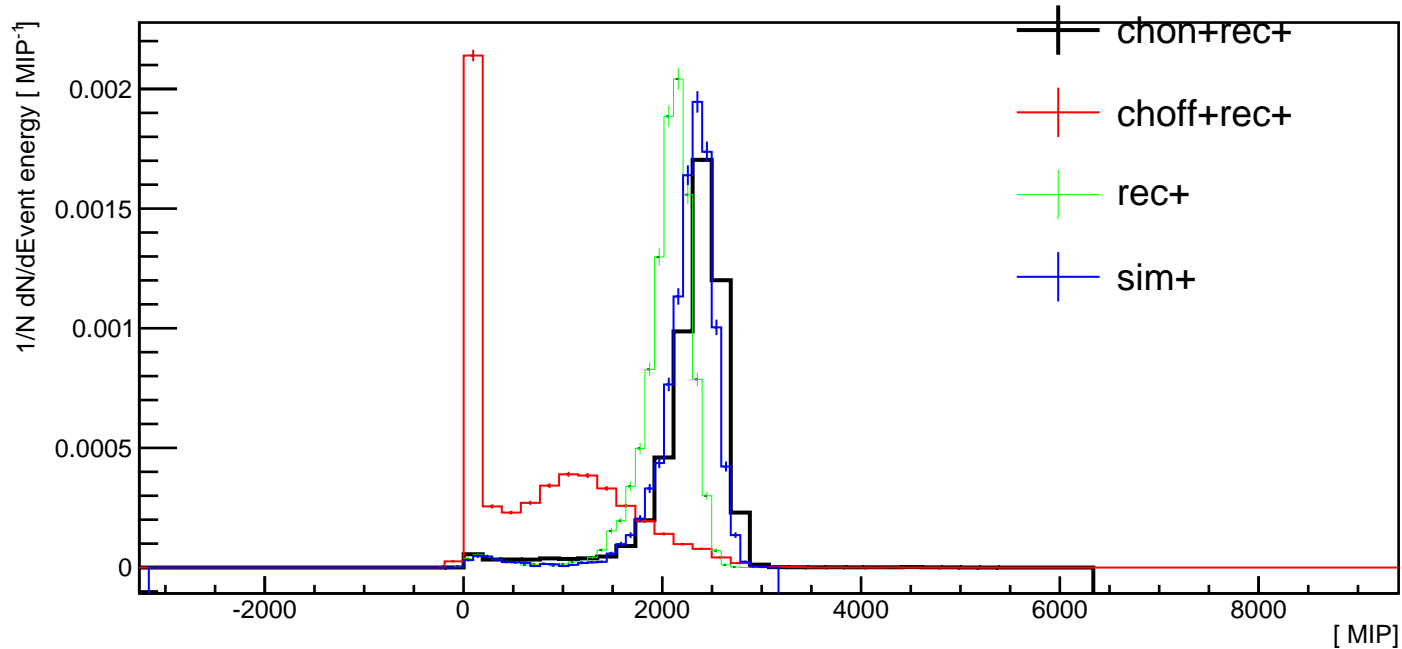
Layer 6



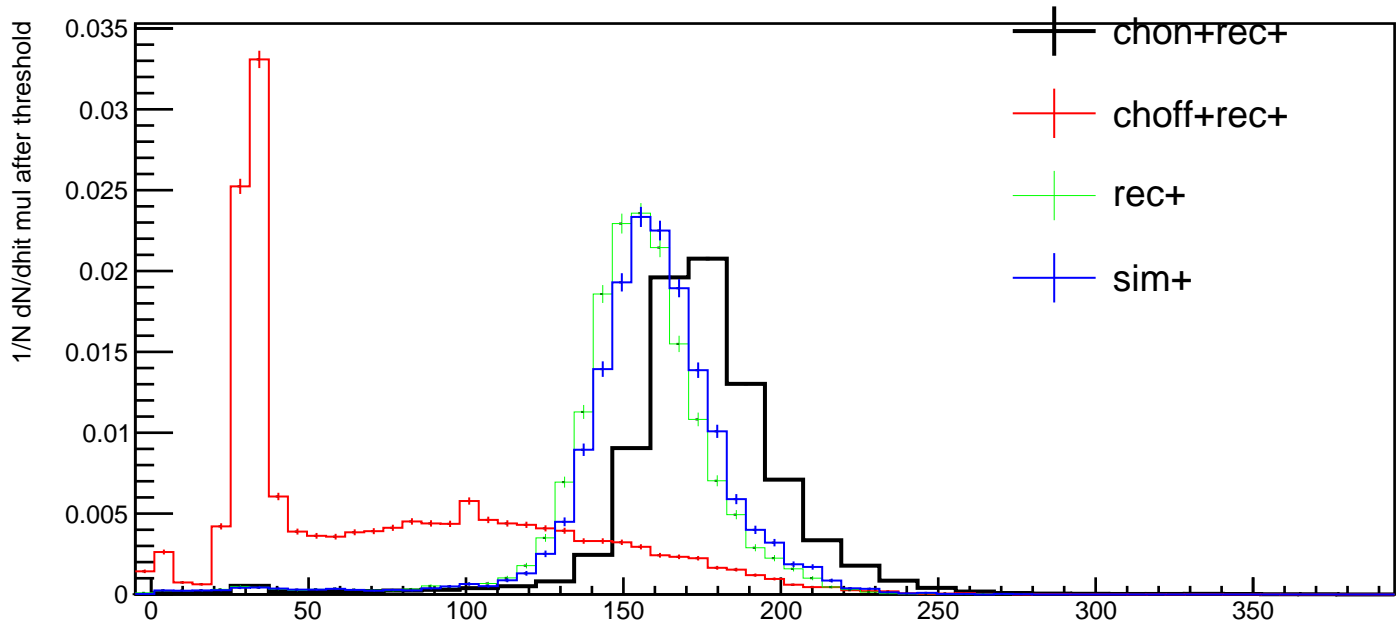
Layer 26



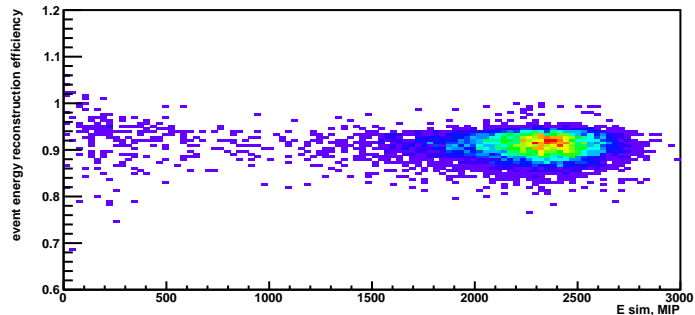
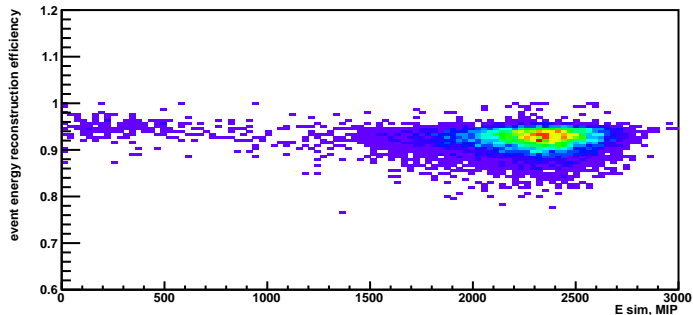
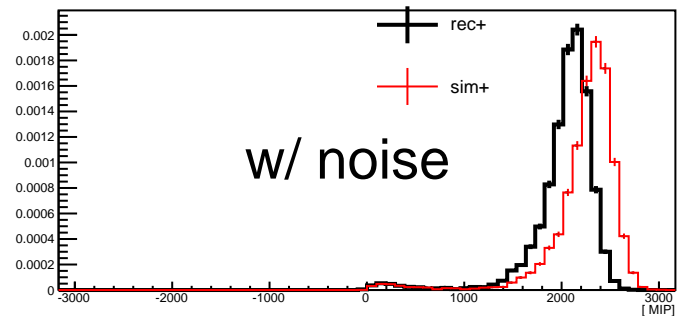
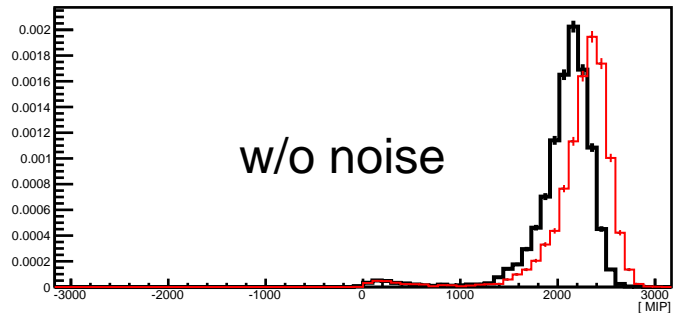
event energy



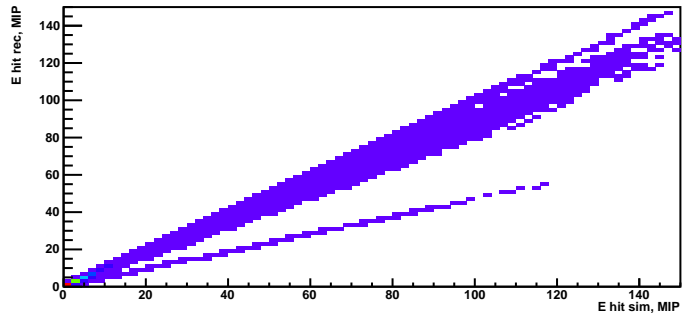
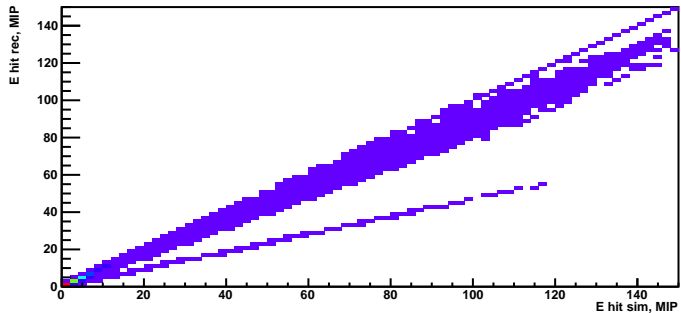
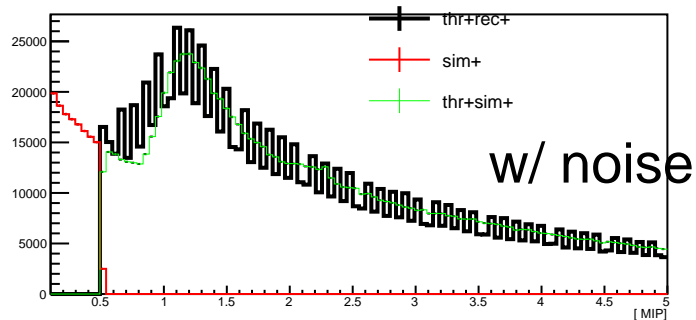
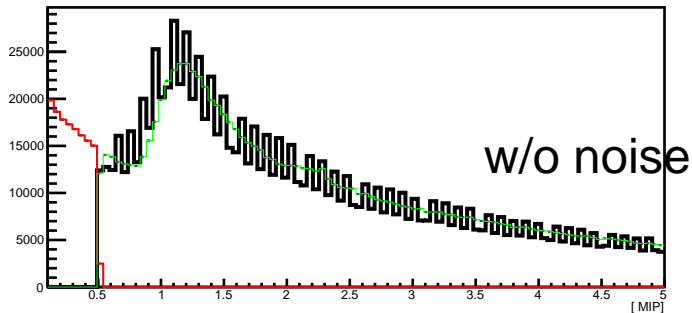
hit multiplicity



Event energy reconstruction



Hit energy reconstruction



ECAL reconstructed to simulated hit relation

```
// How to calculate
// hit reconstruction
// efficiency?

// Now implemented in the CalibrateAndApplyThreshold processor:

const char * col_rec2sim_name = "EmcRecToSim";

try {
  LCCollection * col_rec2sim = evtP->getCollection(col_rec2sim_name);
  for (int i = 0; i < col_rec2sim->getNumberOfElements(); i++) {
    const LCRelation * rel_rec2sim = (const LCRelation *)col_rec2sim->getElementAt(i);
    CalorimeterHit * hit_rec = (CalorimeterHit *)rel_rec2sim->getFrom();
    SimCalorimeterHit * hit_sim = (SimCalorimeterHit *)rel_rec2sim->getTo();
    /*
     * . . .
     * .
     */
  }
} catch (lcio::DataNotAvailableException err) {
  std::cout << "Sorry, collection "<< col_rec2sim_name << " not found." << std::endl;
}
```

Conclusions

Reconstructed hit is linked to the simulated (implemented in the calibration processor as LCRelation collection)

Warning: duplicates sim/rec hits

Question 1: Do we drop the original collections?

Question 2: Do we introduce fake sim hits in data to be consistent?

Noise is now added by the digi processor (minor changes in TBEcalDigi required)

ECAL imperfection is transferred to Monte Carlo

The impact on event energy and hit multiplicity is negligible

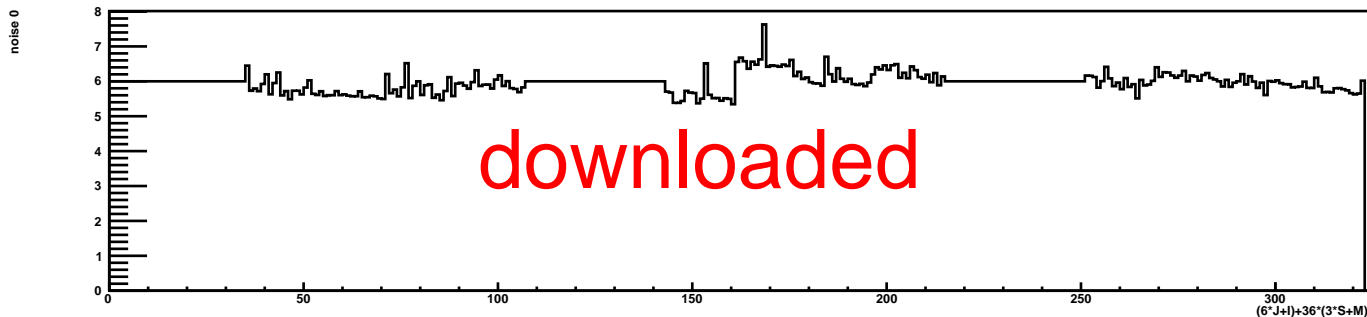
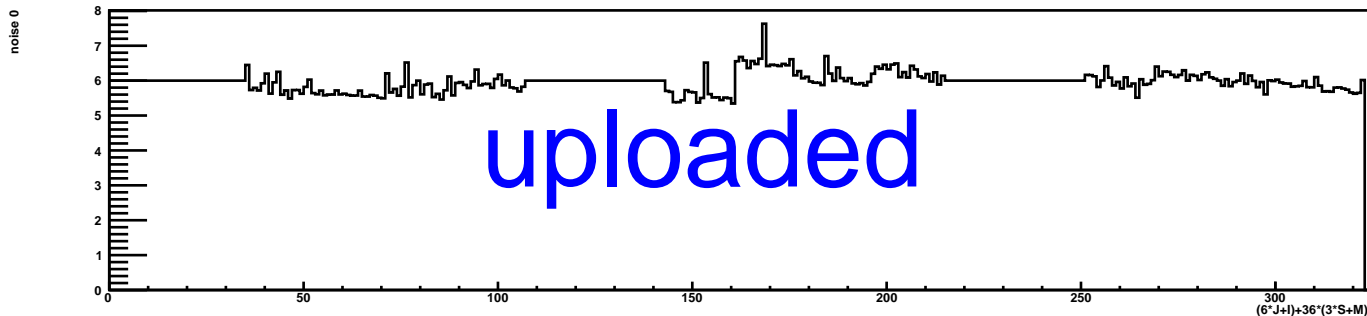
Noise upload during future mass production is strongly recommended

Warning: Reconstructed hit energy loss

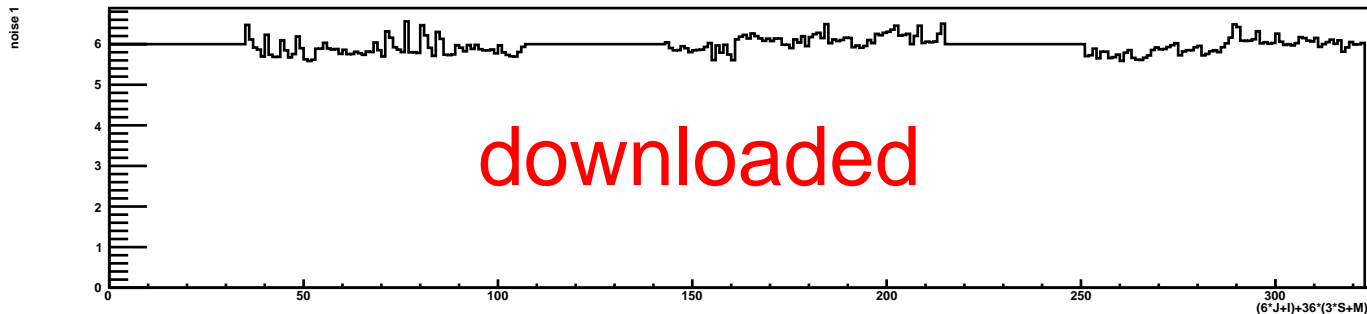
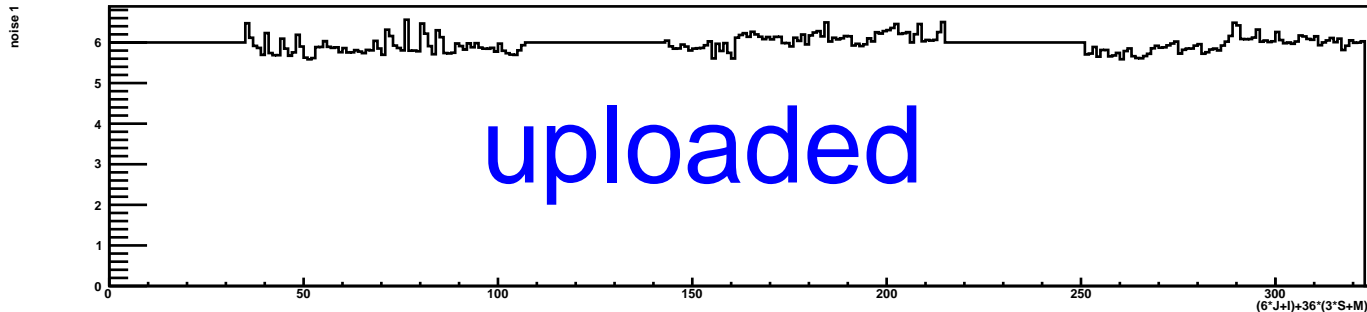
Question 1: Could we recommend digitized Monte Carlo production in future?

Question 2: Are there more studies needed?

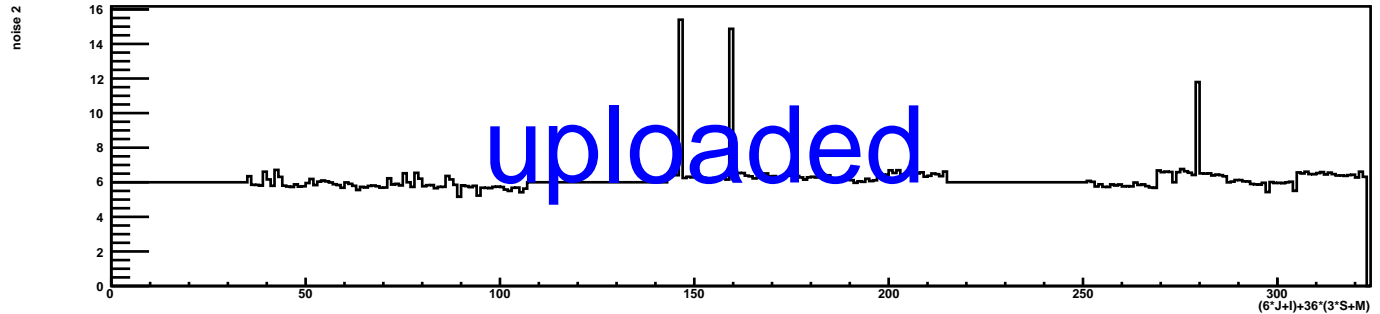
Noise (ECAL Layer 01)



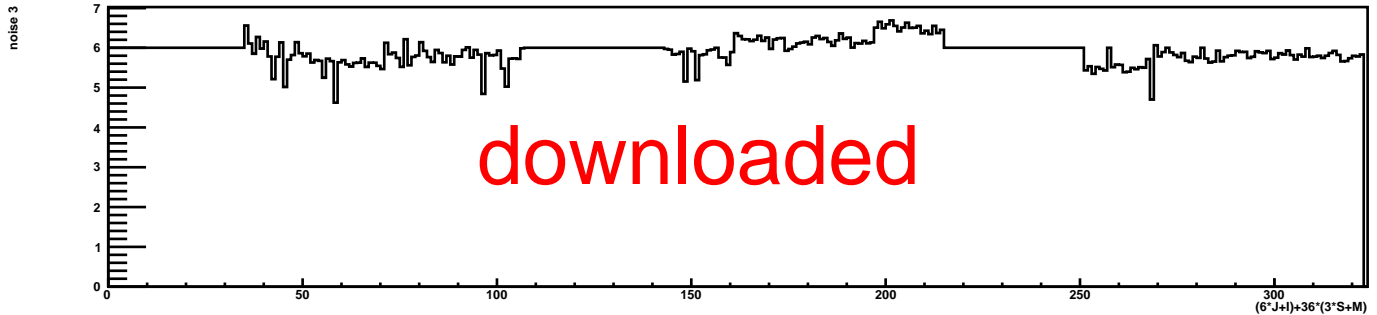
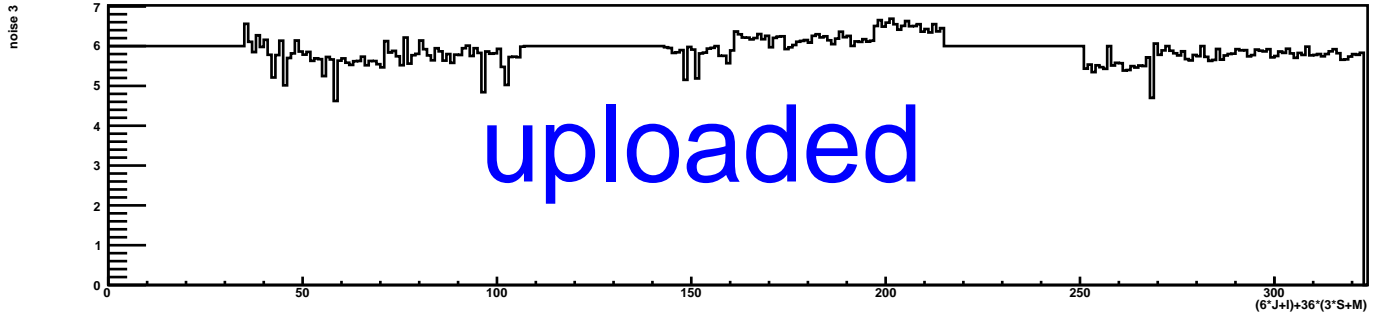
Noise (ECAL Layer 02)



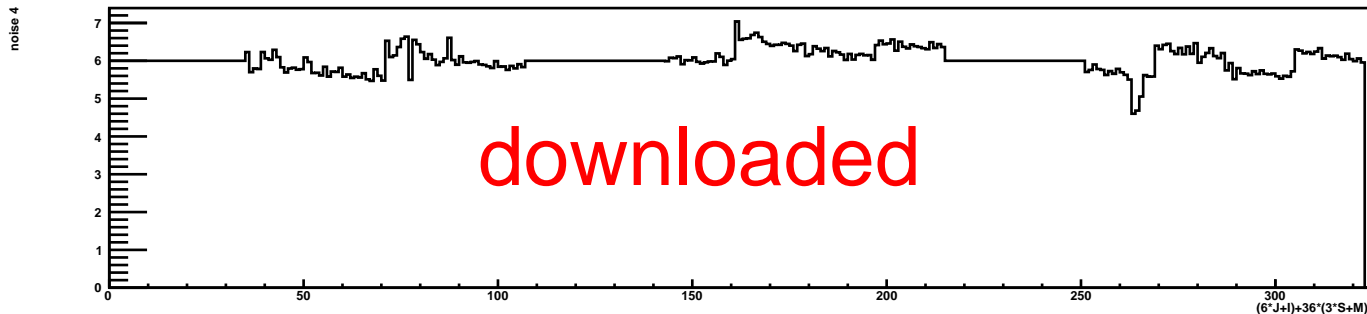
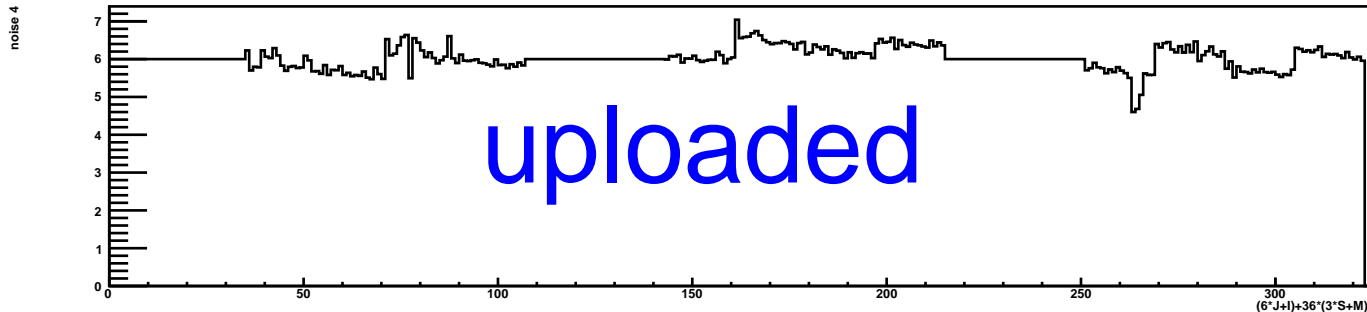
Noise (ECAL Layer 03)



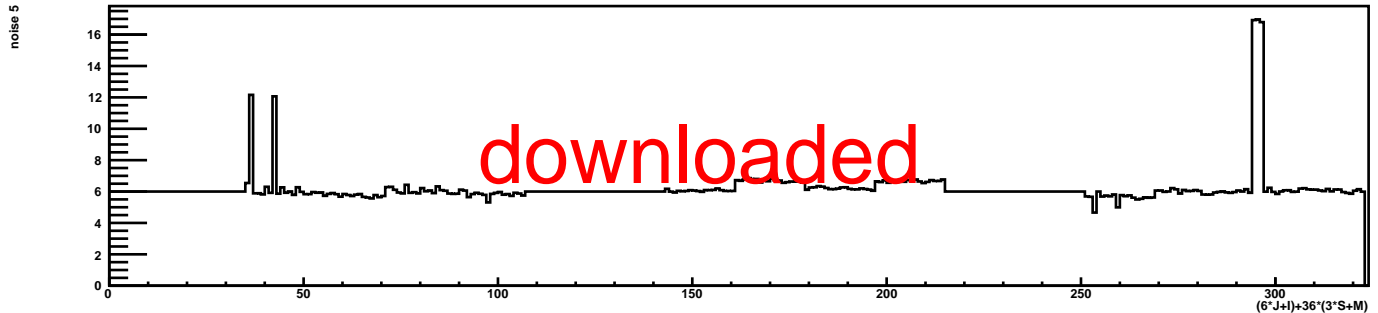
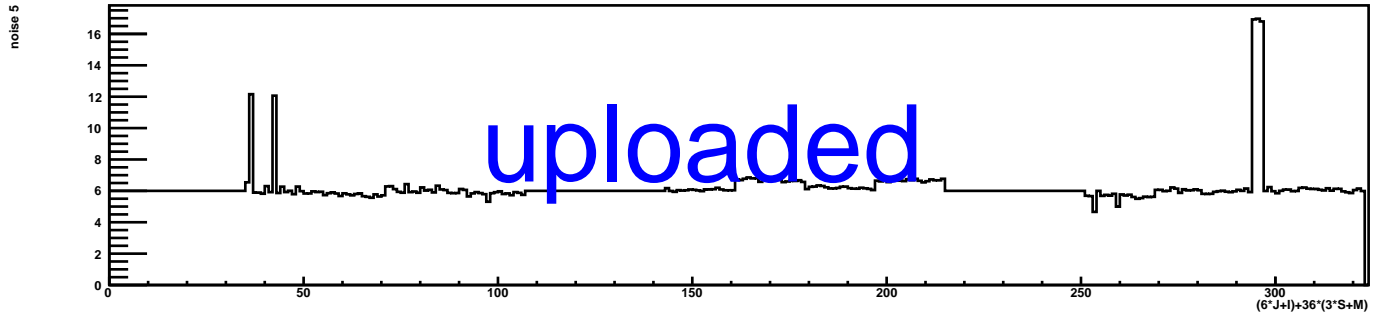
Noise (ECAL Layer 04)



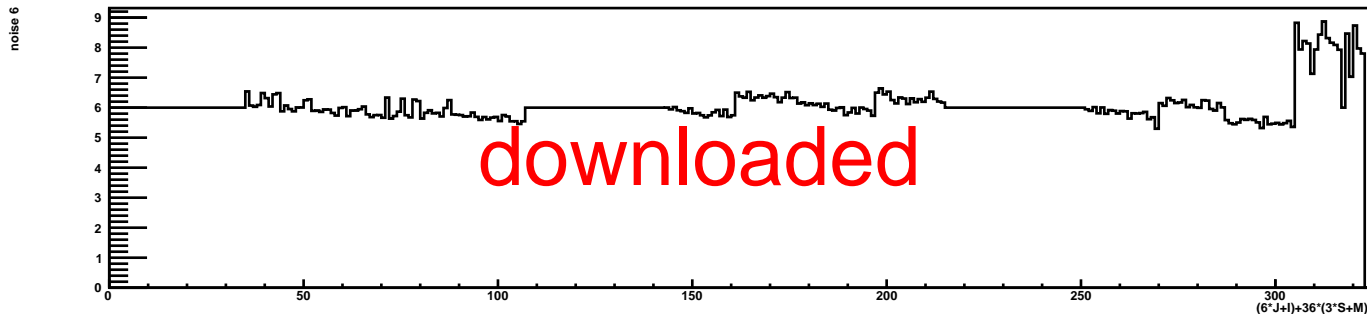
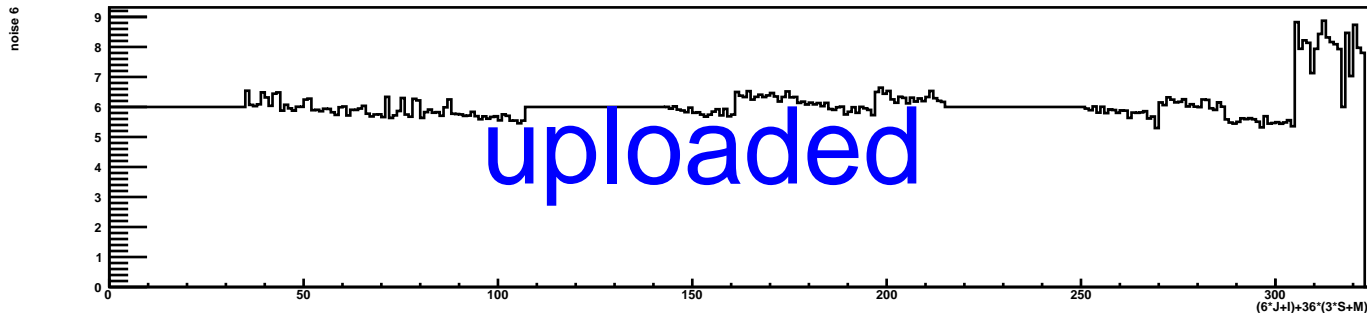
Noise (ECAL Layer 05)



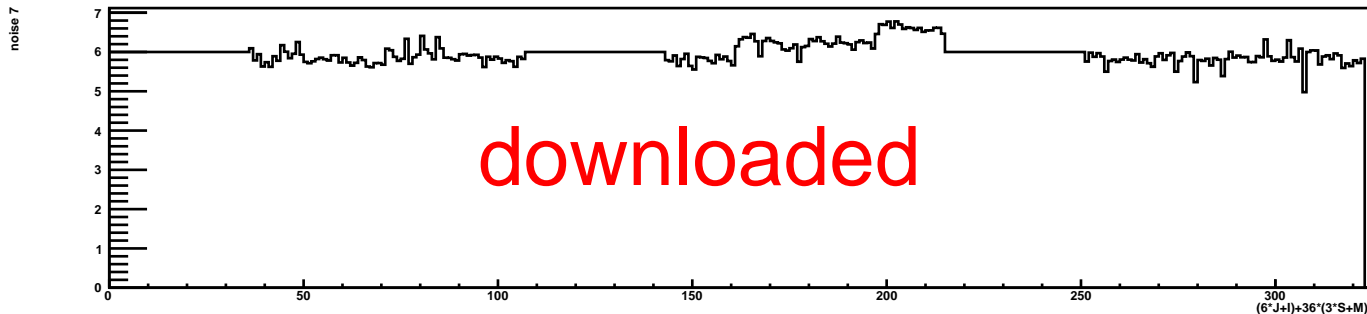
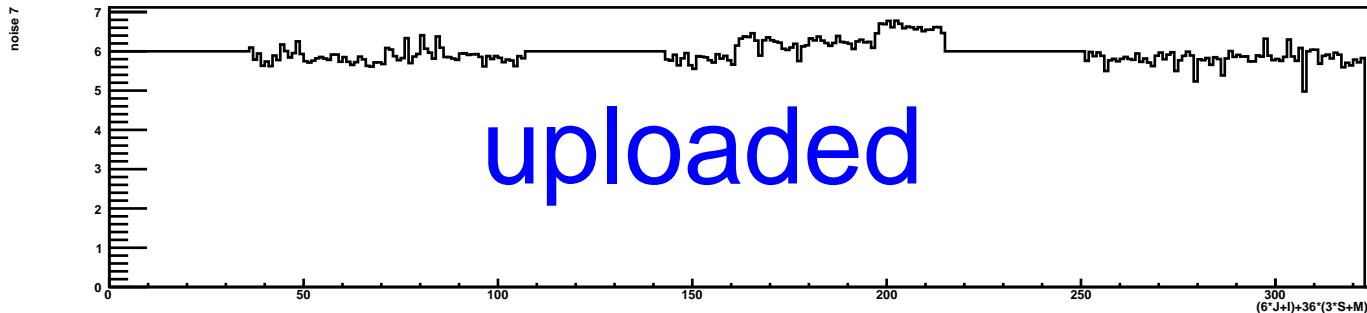
Noise (ECAL Layer 06)



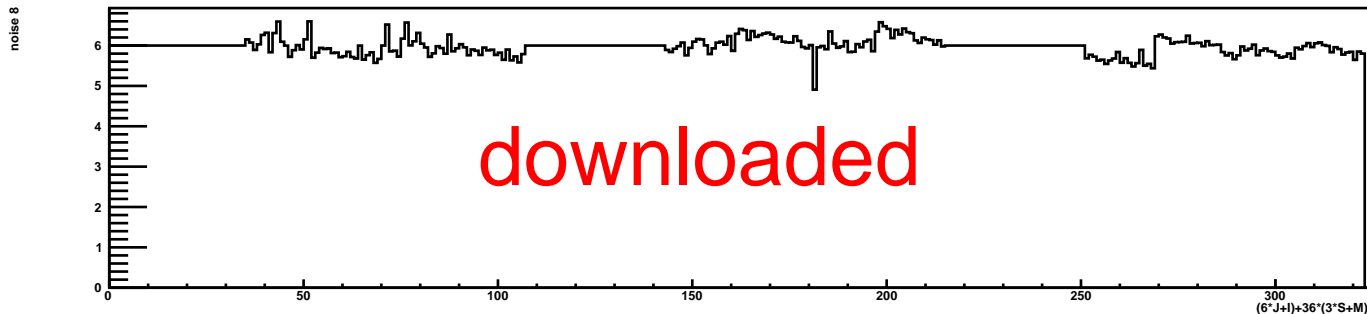
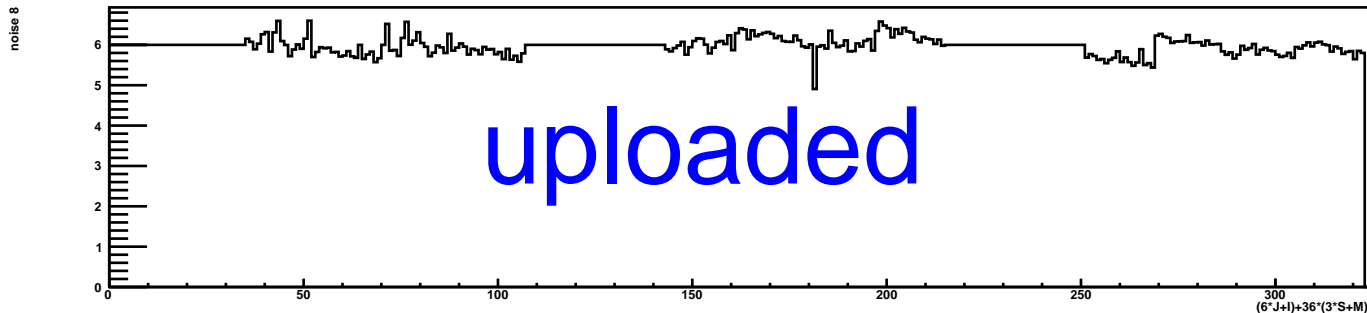
Noise (ECAL Layer 07)



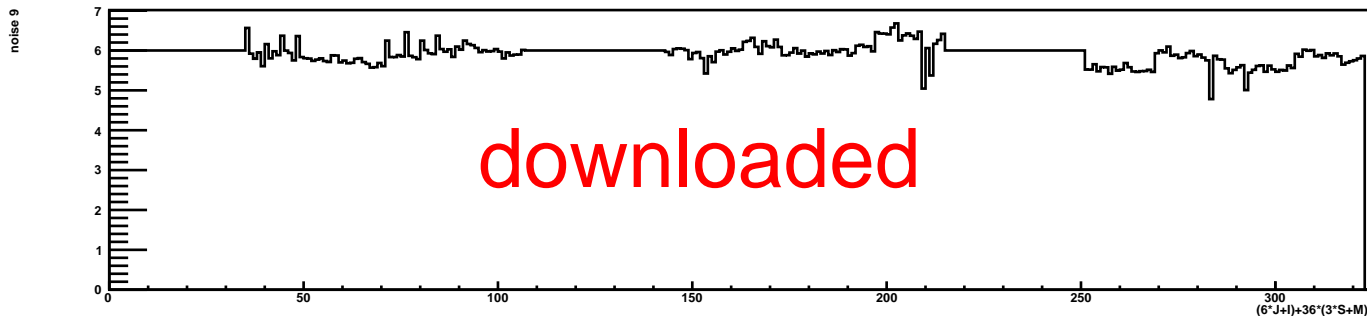
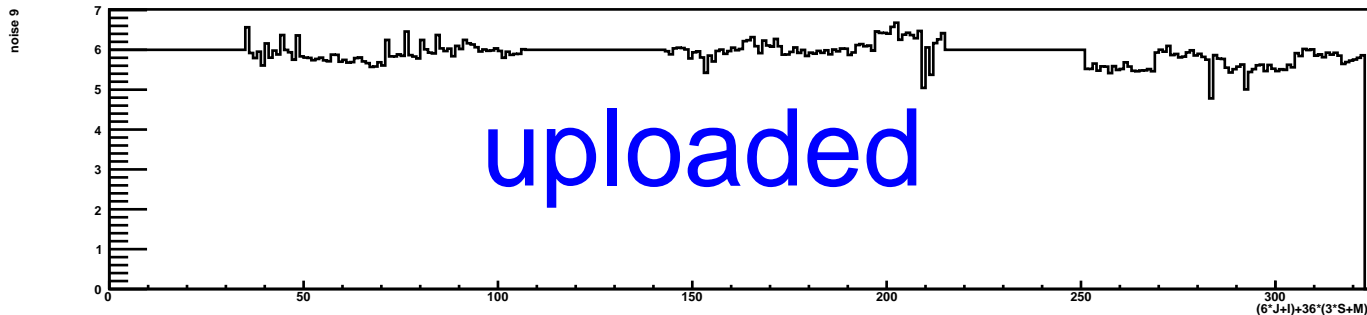
Noise (ECAL Layer 08)



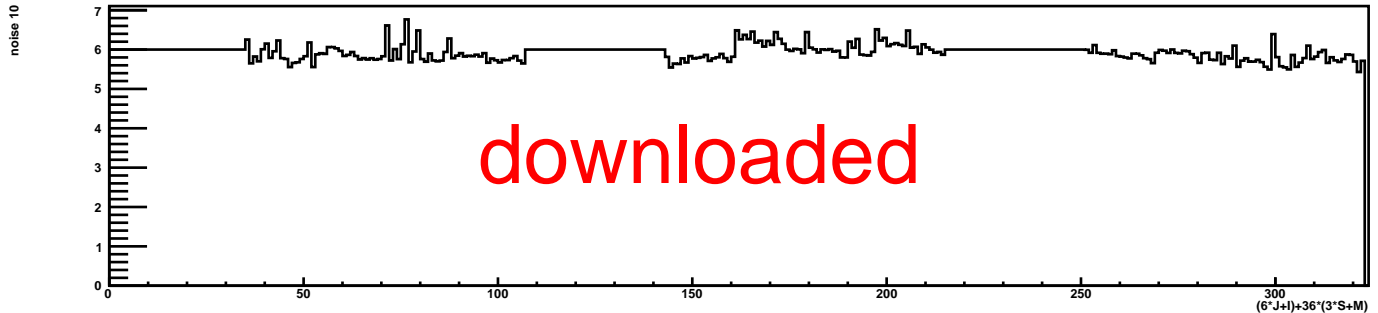
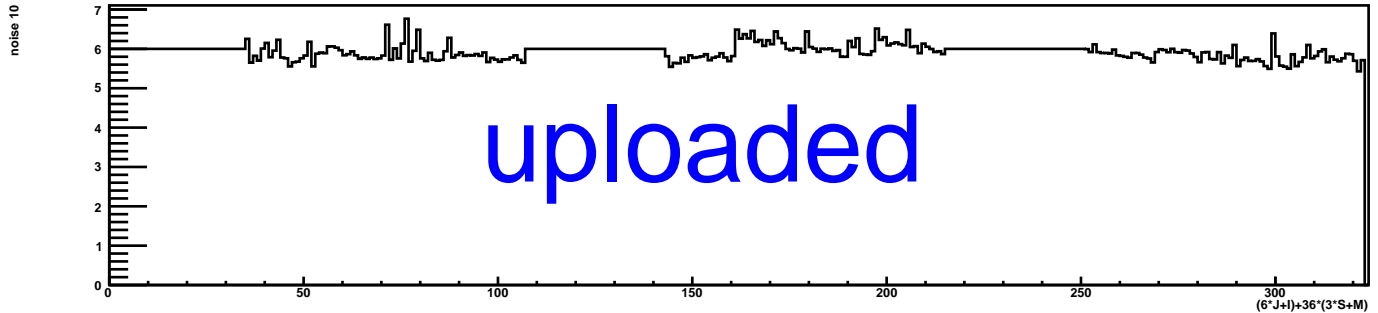
Noise (ECAL Layer 09)



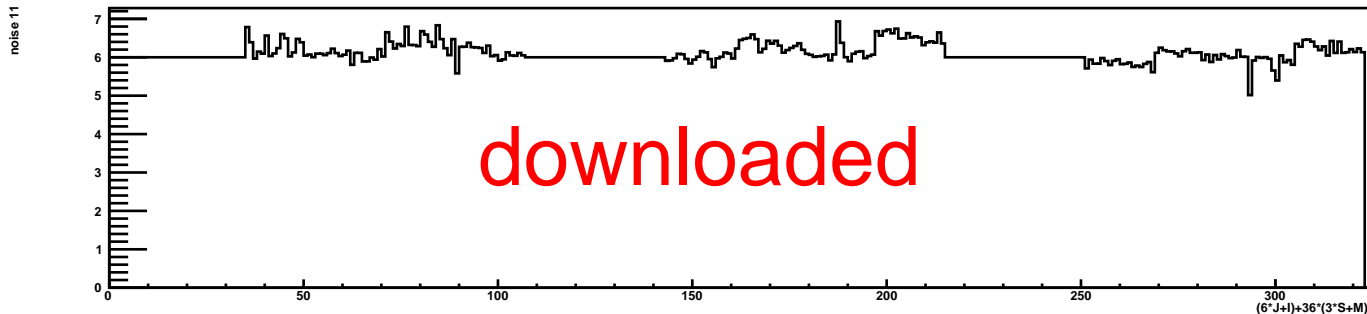
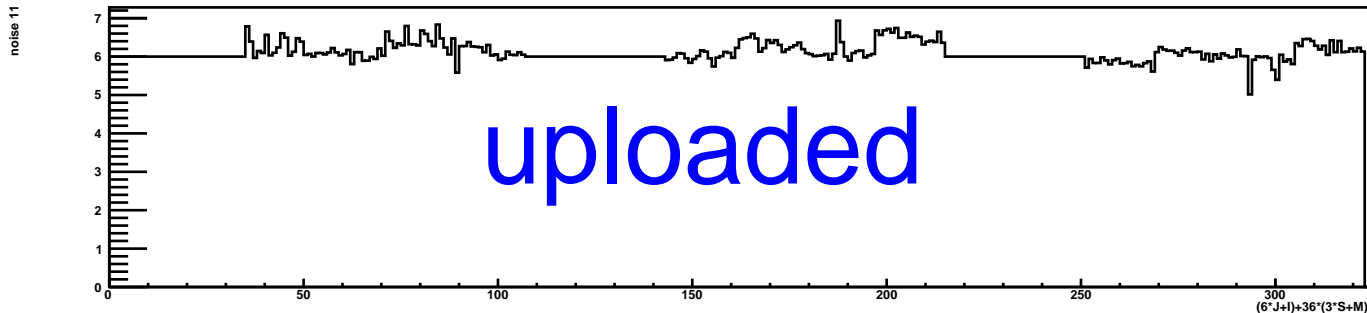
Noise (ECAL Layer 10)



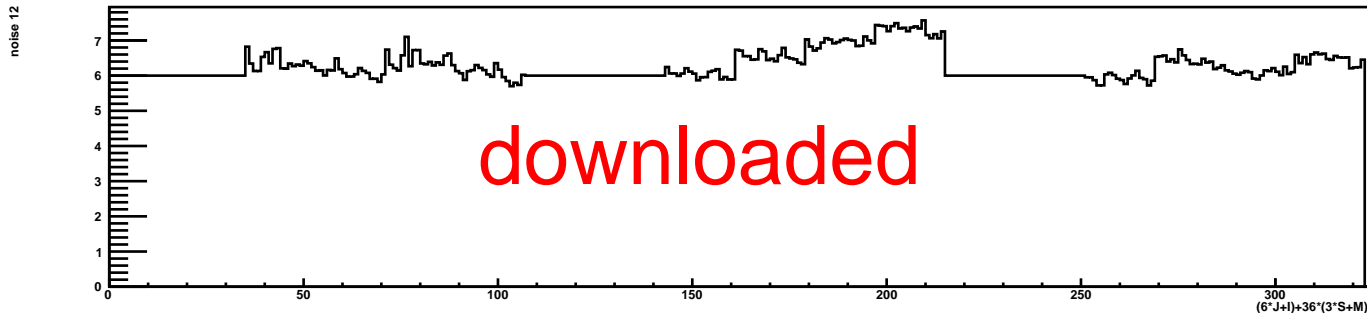
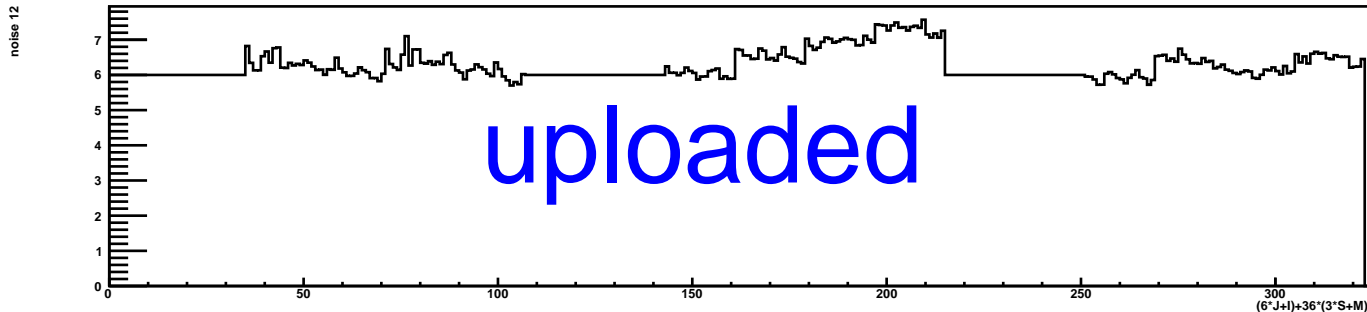
Noise (ECAL Layer 11)



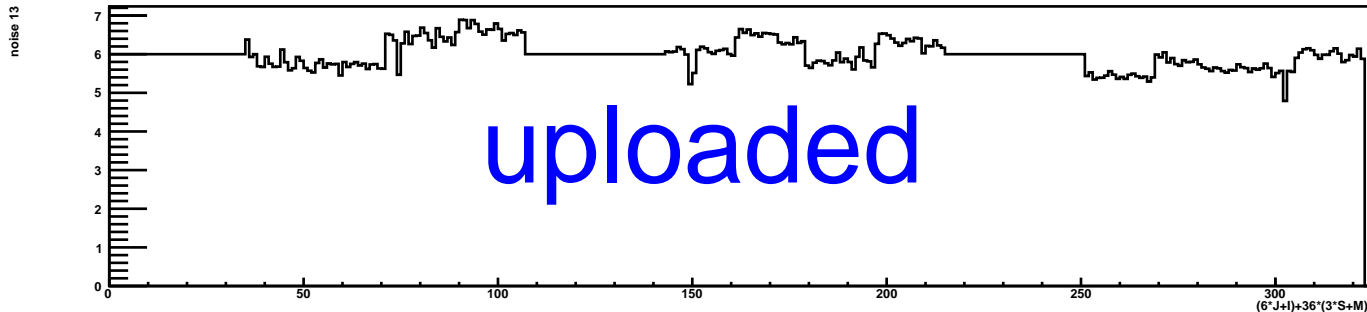
Noise (ECAL Layer 12)



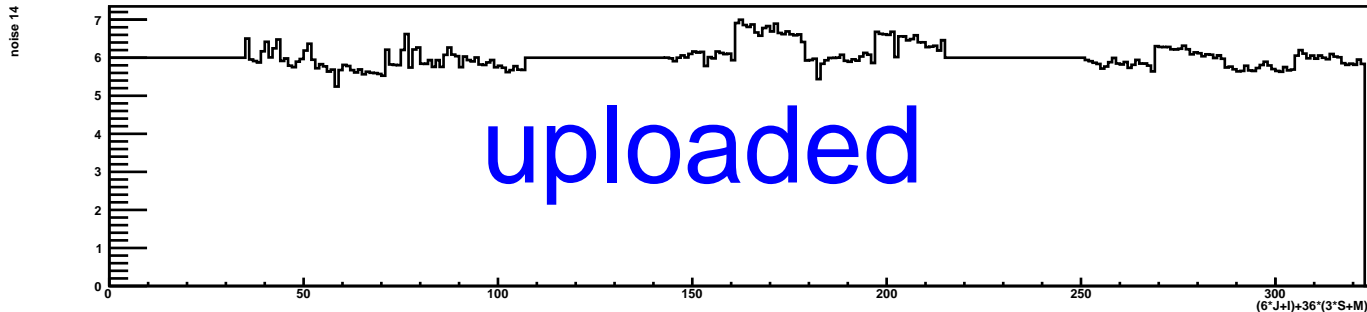
Noise (ECAL Layer 13)



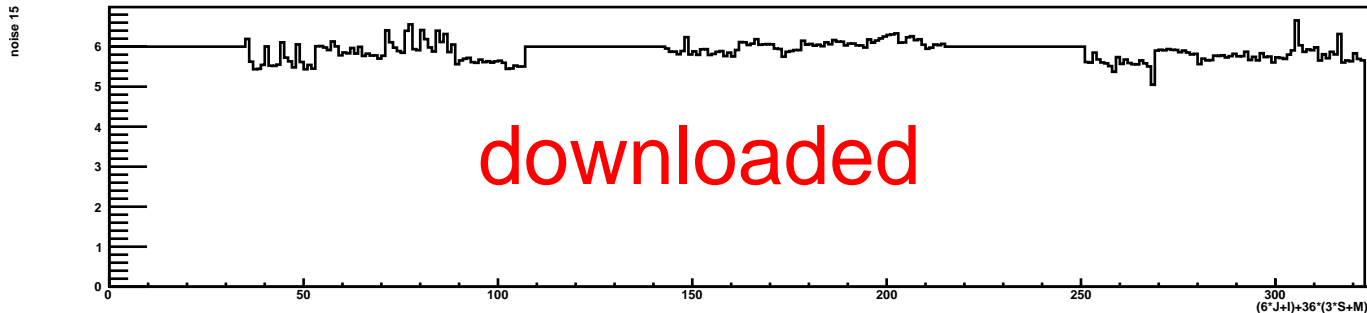
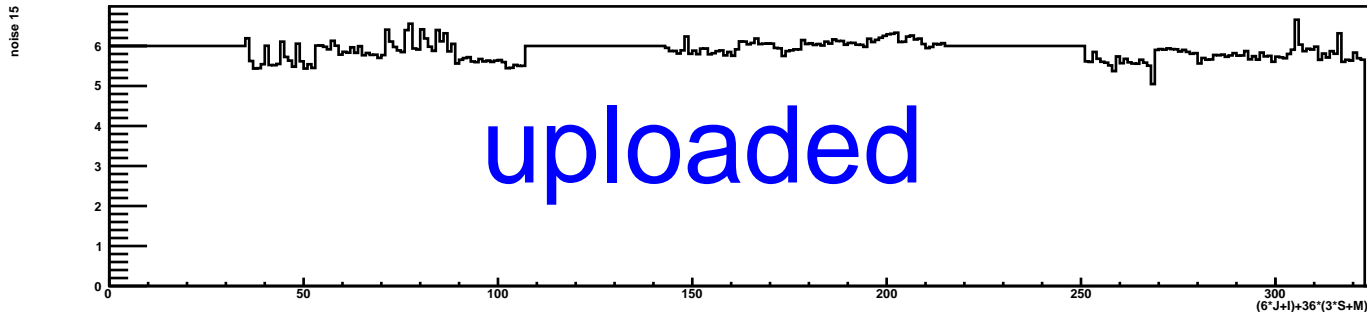
Noise (ECAL Layer 14)



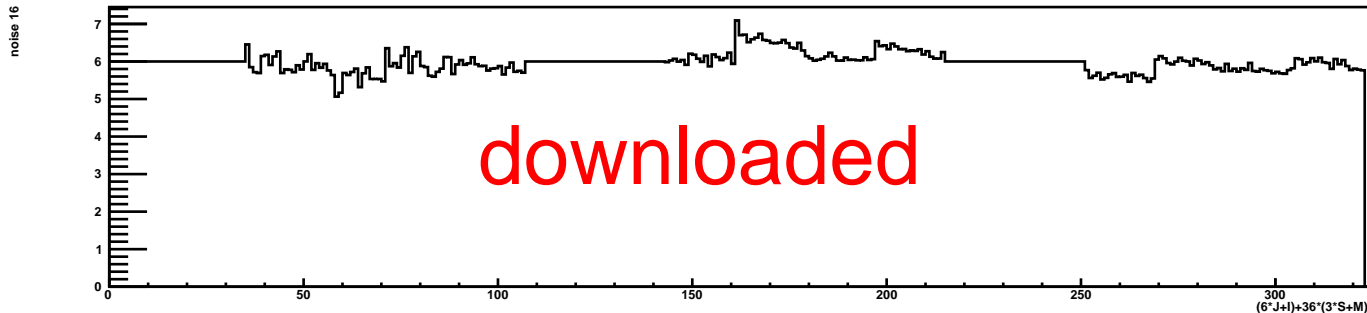
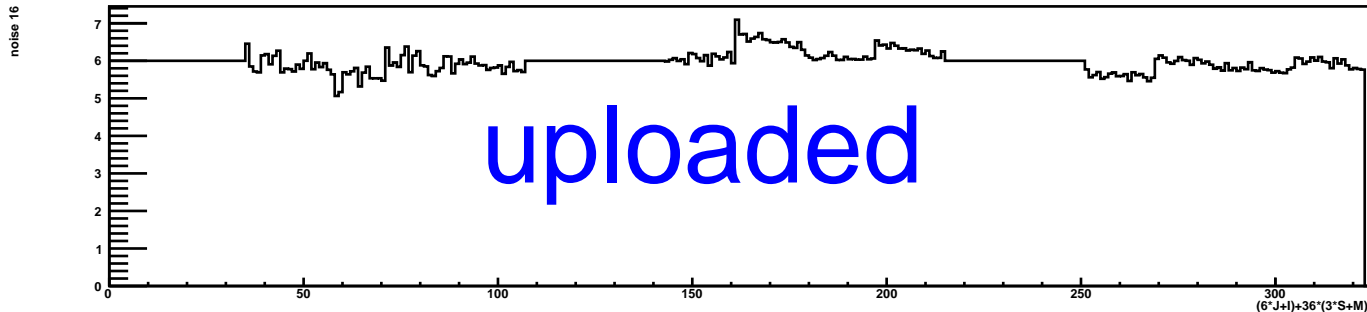
Noise (ECAL Layer 15)



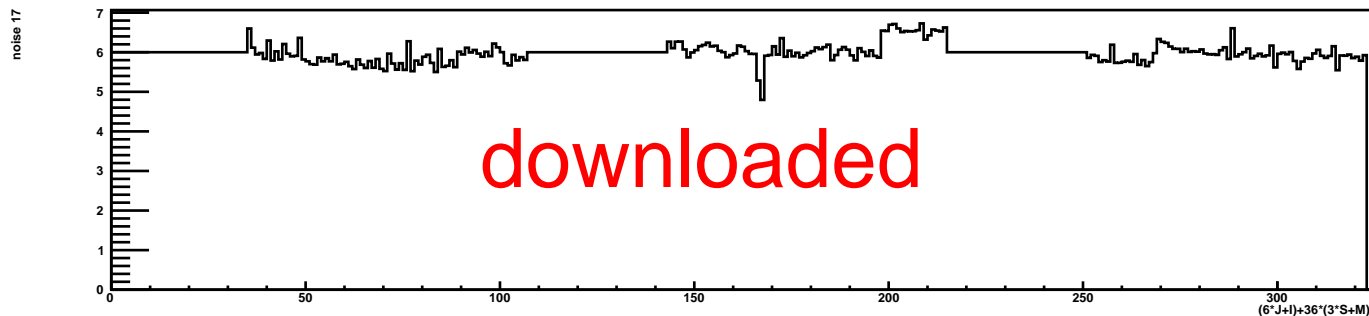
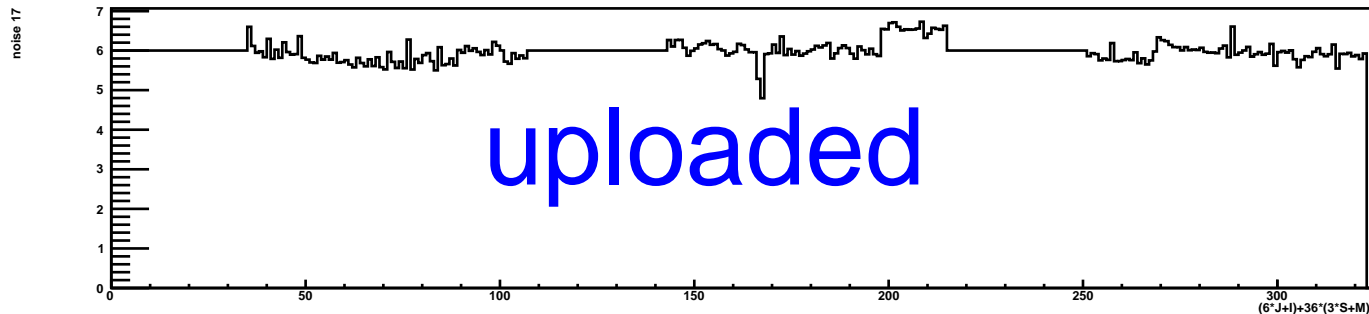
Noise (ECAL Layer 16)



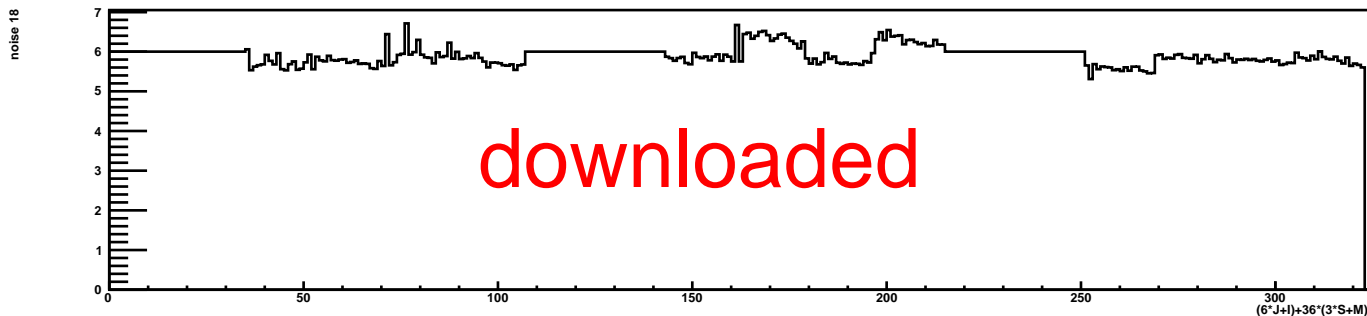
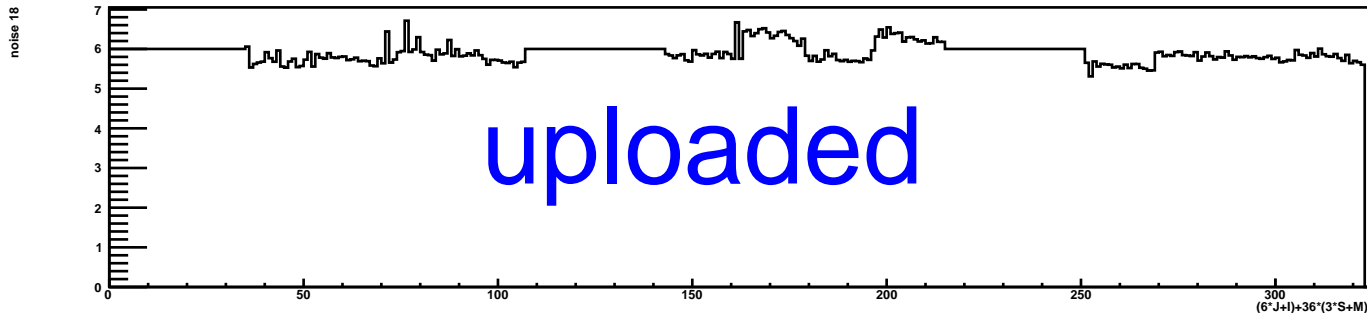
Noise (ECAL Layer 17)



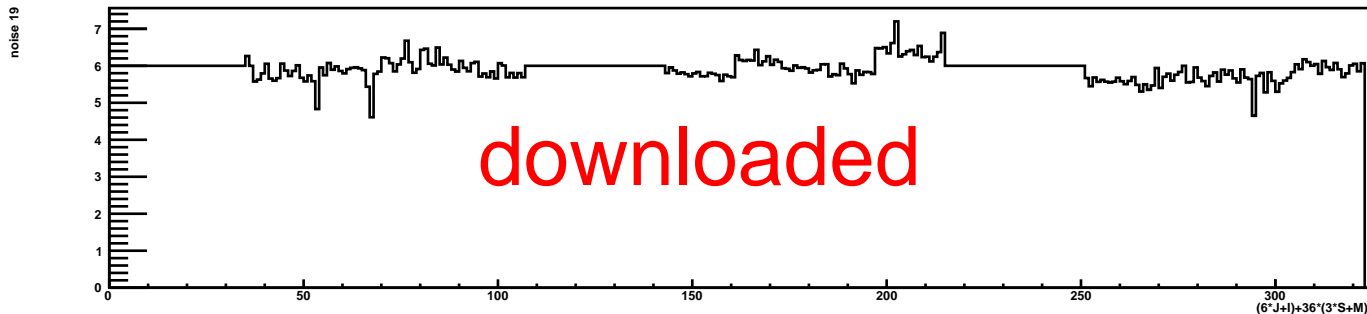
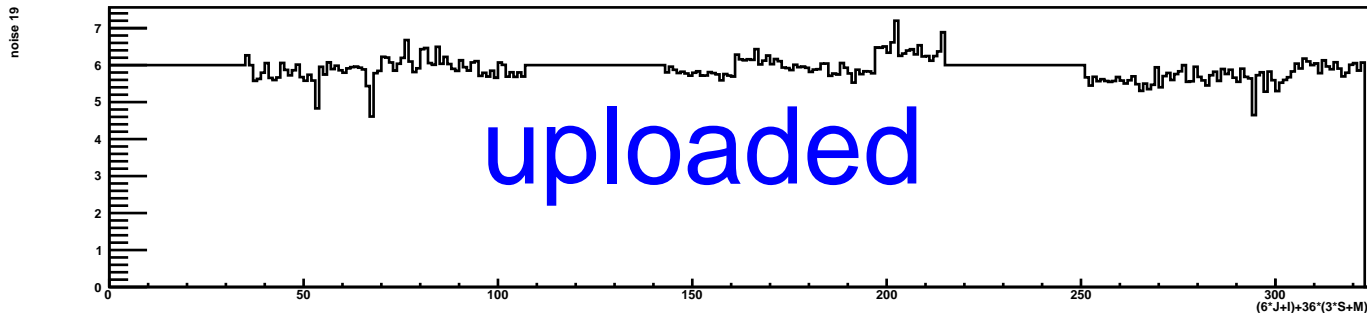
Noise (ECAL Layer 18)



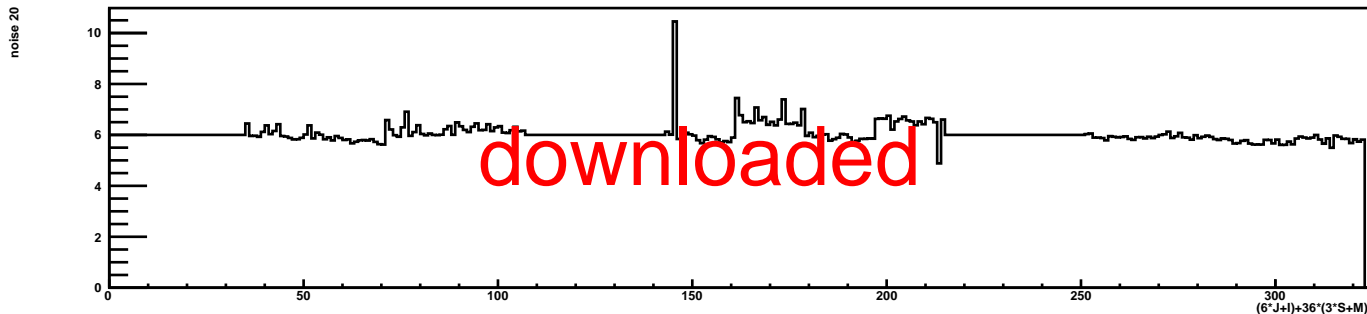
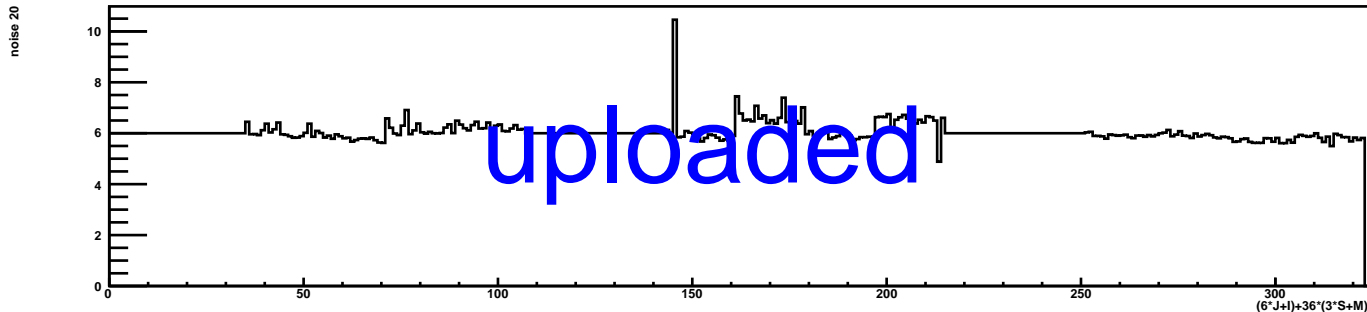
Noise (ECAL Layer 19)



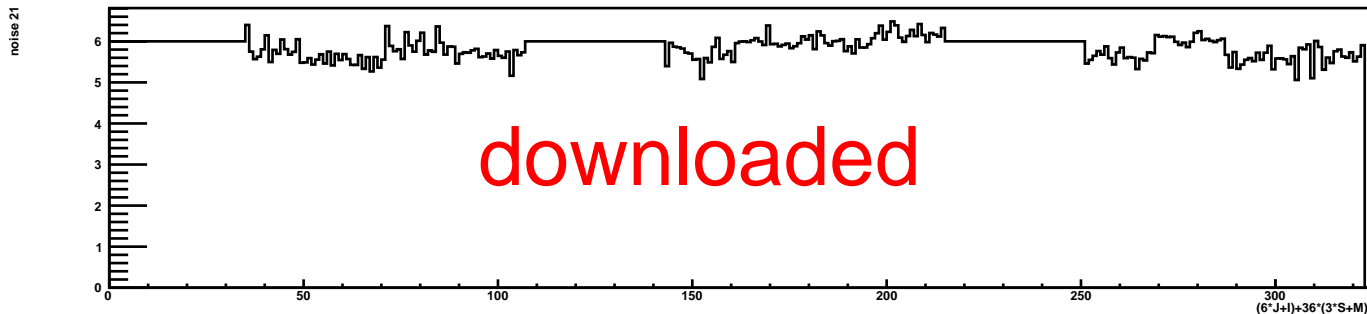
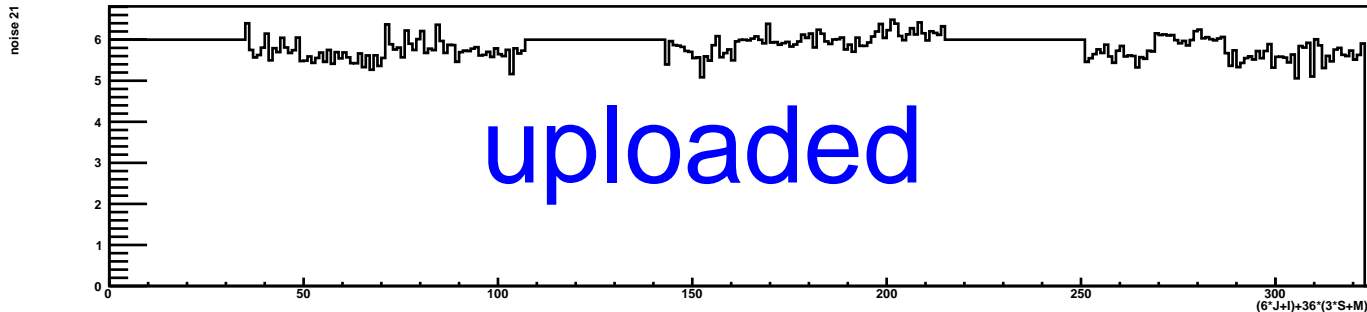
Noise (ECAL Layer 20)



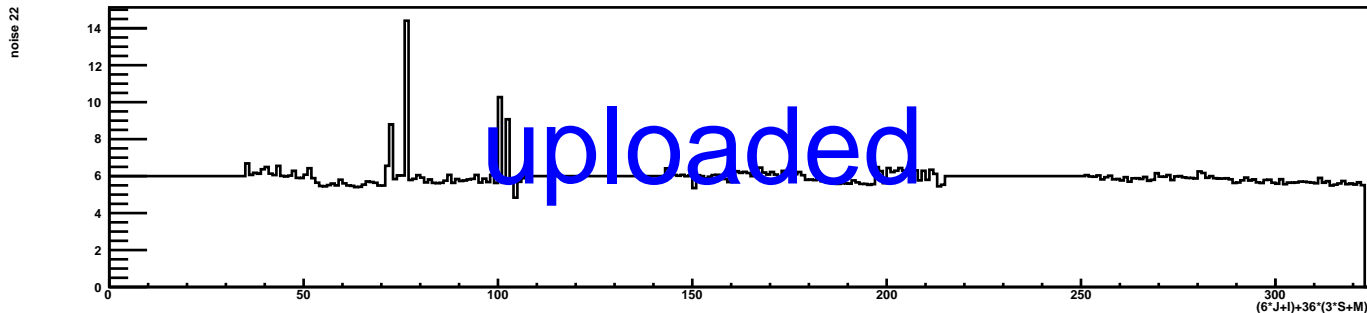
Noise (ECAL Layer 21)



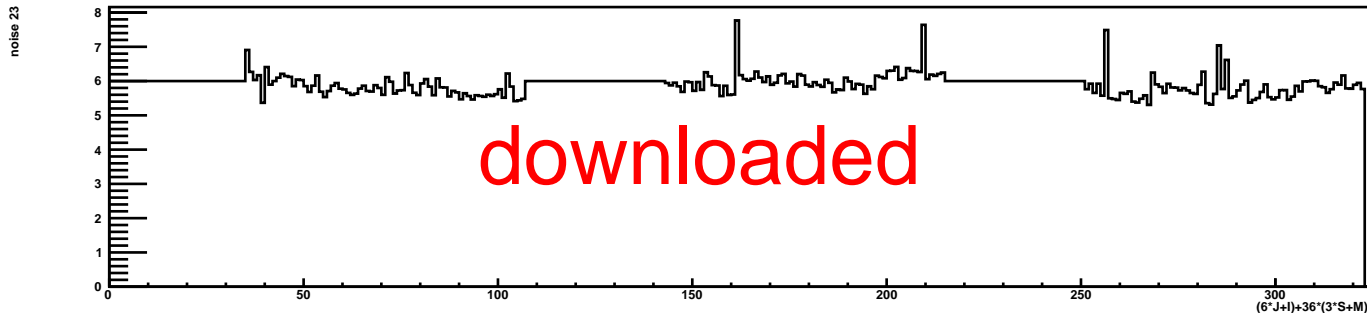
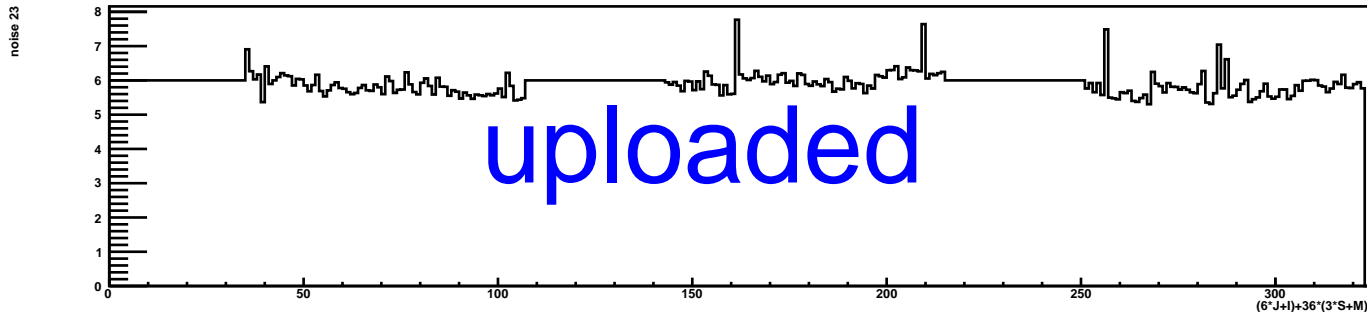
Noise (ECAL Layer 22)



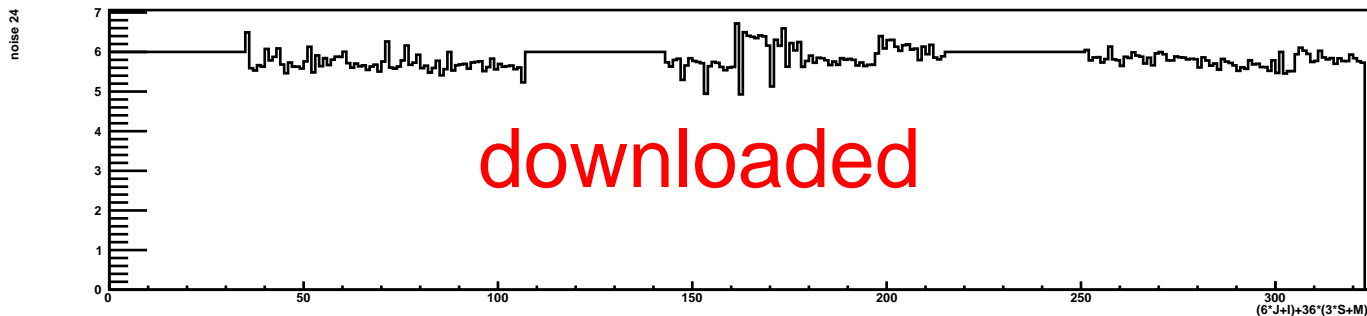
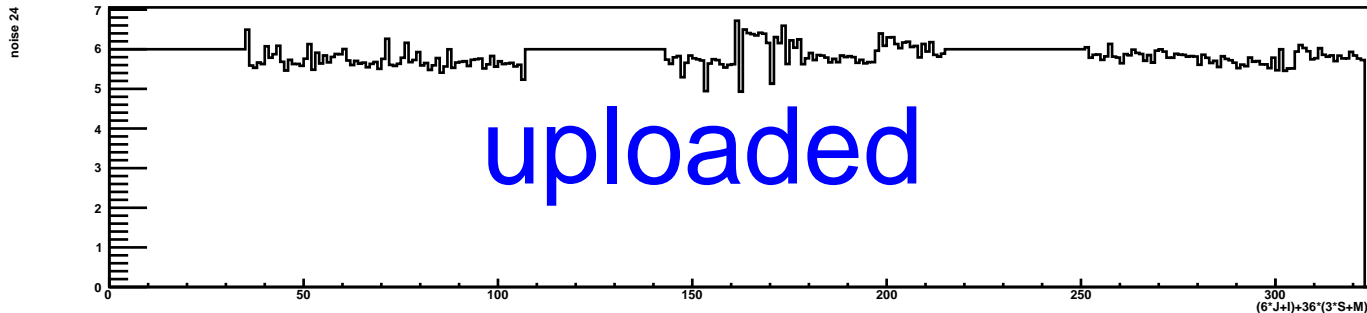
Noise (ECAL Layer 23)



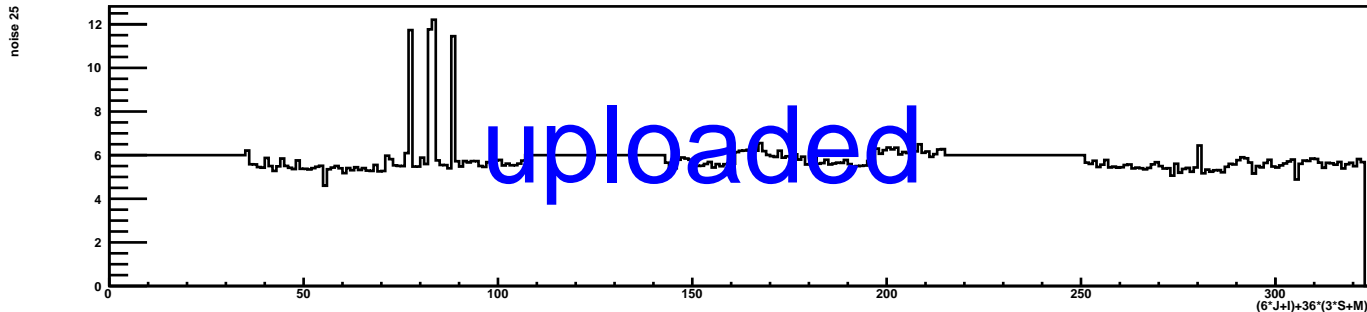
Noise (ECAL Layer 24)



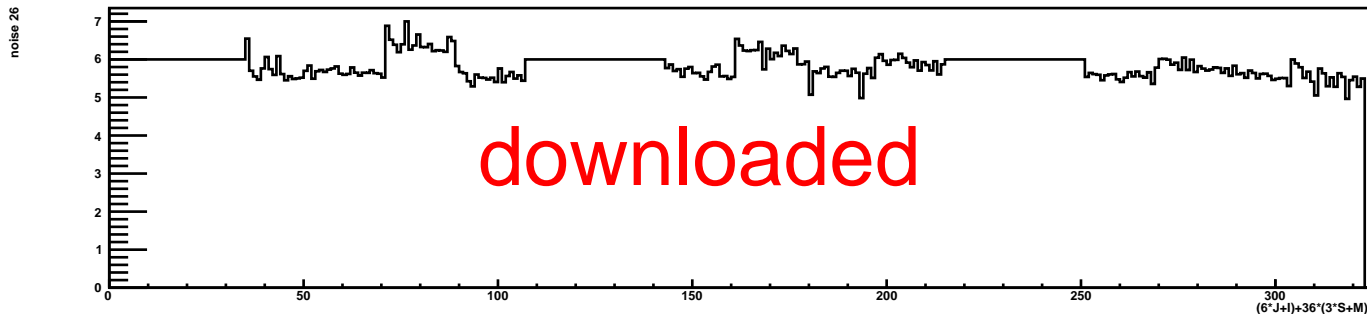
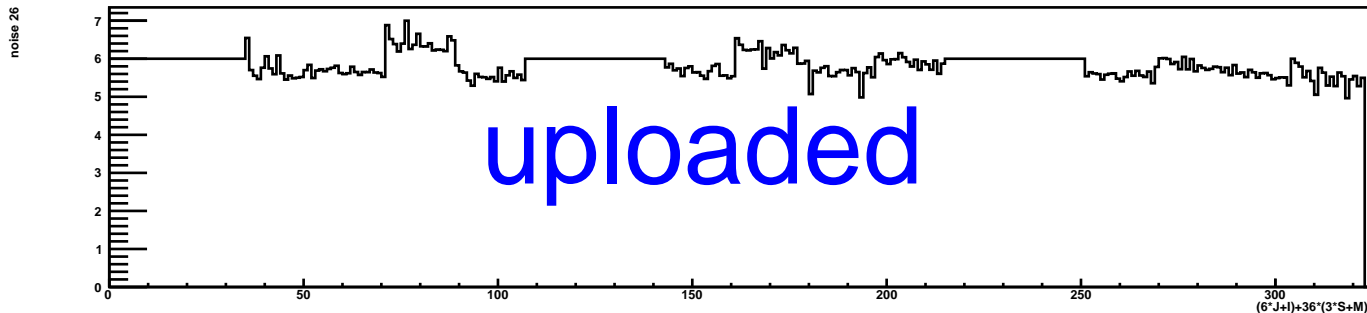
Noise (ECAL Layer 25)



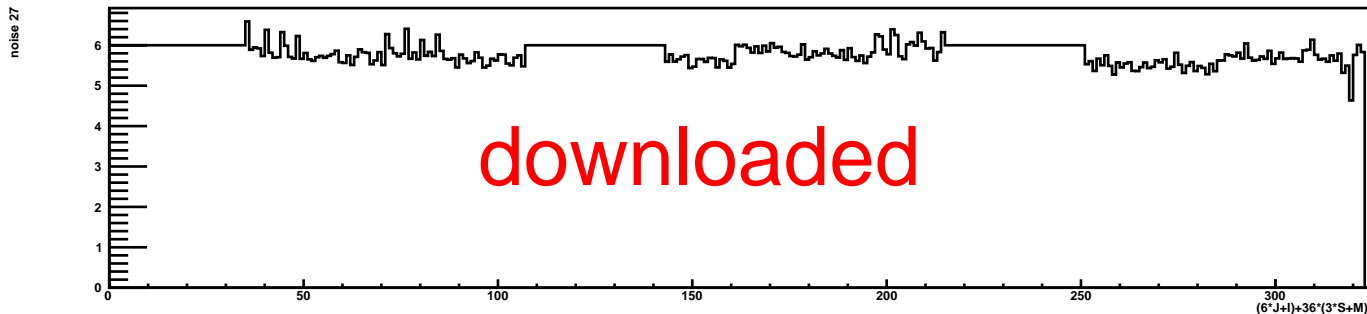
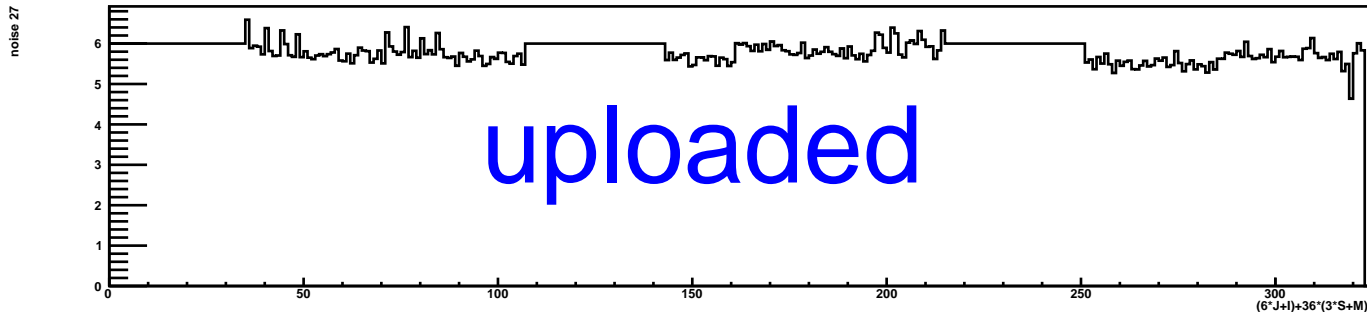
Noise (ECAL Layer 26)



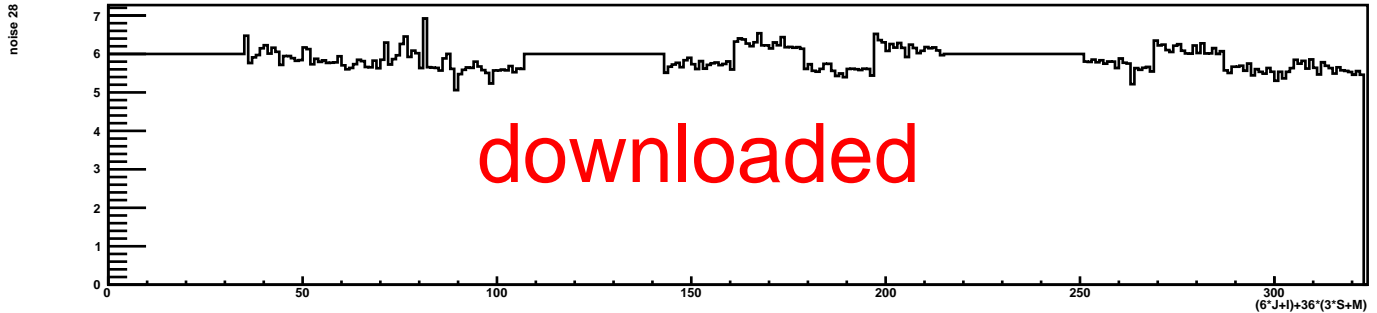
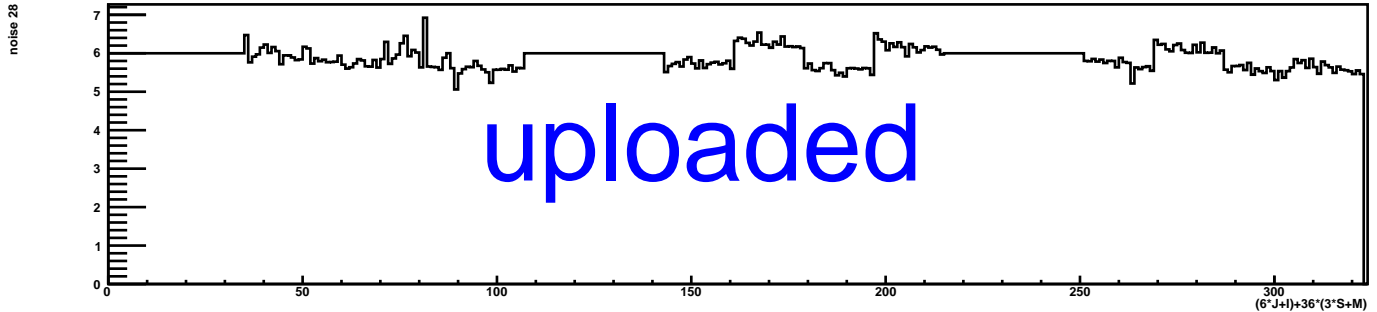
Noise (ECAL Layer 27)



Noise (ECAL Layer 28)



Noise (ECAL Layer 29)



Noise (ECAL Layer 30)

