

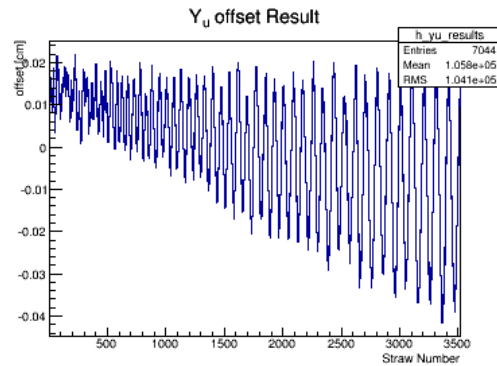
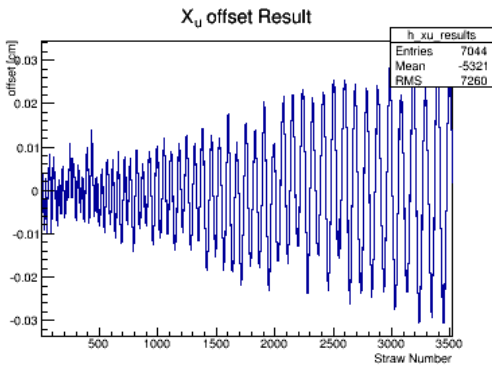
# Millepede Update

Michael Staib

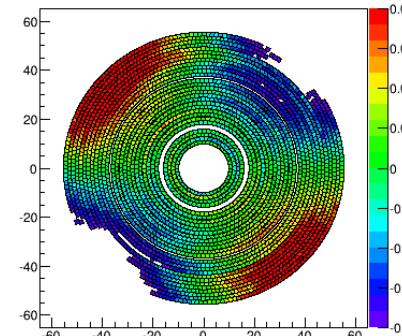
# Effect of Regularization Factor

- Regularization of the matrix is handled by defining a “pre-sigma”. The matrix is regularized by adding a diagonal element of  $(\text{pre-sigma})^{-2}$ .
- Modeled offsets are a random gaussian with a width of  $150\ \mu\text{m}$ .
- Plotted are the difference between the result of millipede and this input distribution.

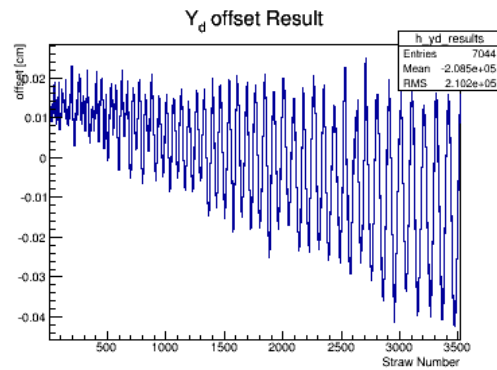
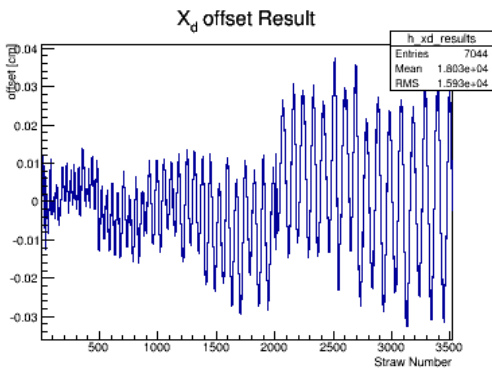
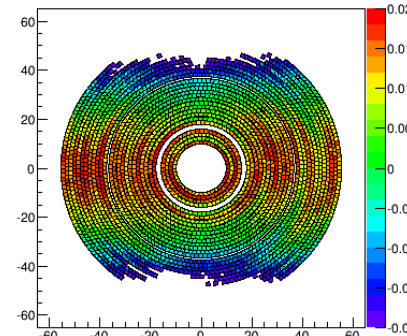
## 60 $\mu\text{m}$ pre-sigma



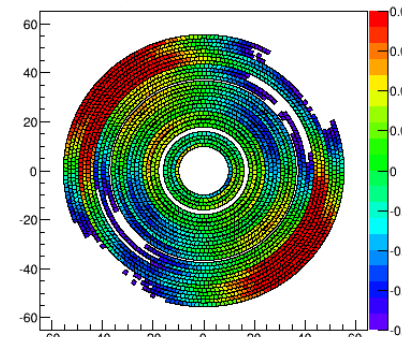
**X<sub>u</sub> Offset Difference**



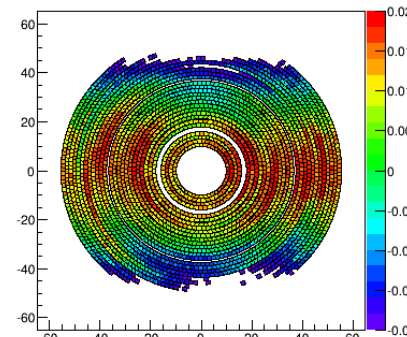
**Y<sub>u</sub> Offset Difference**



**X<sub>d</sub> Offset Difference**



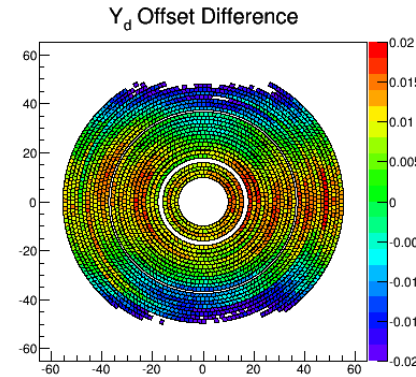
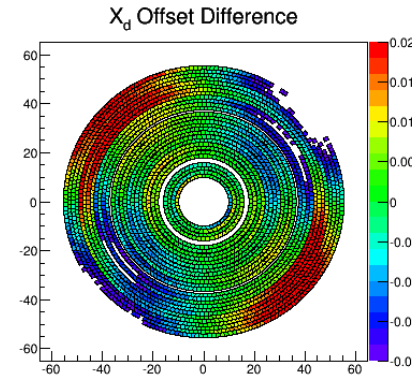
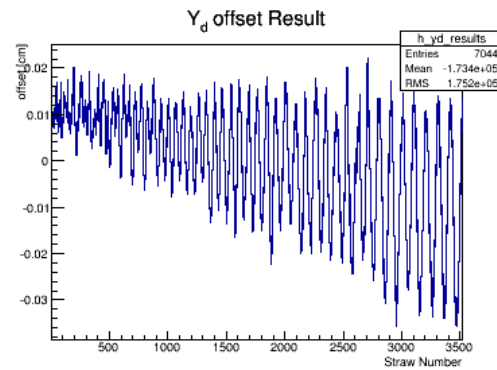
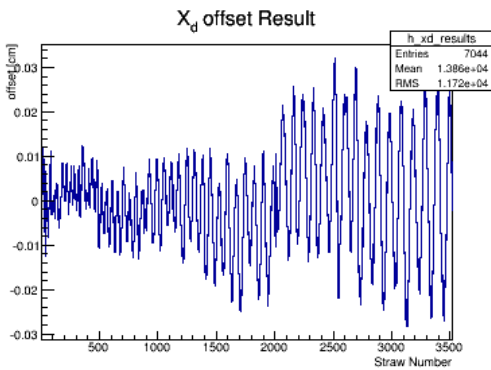
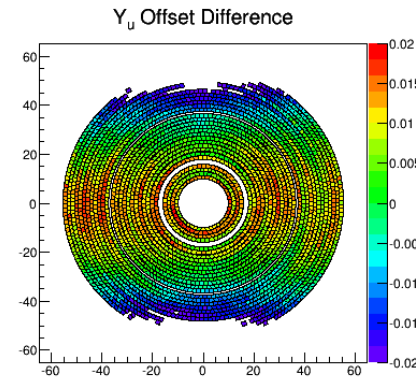
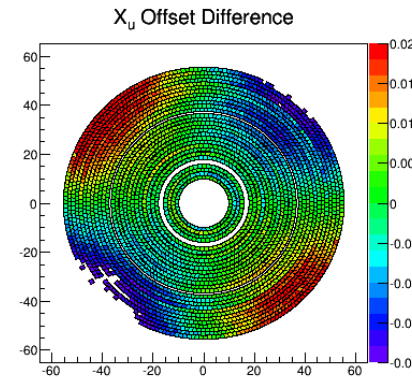
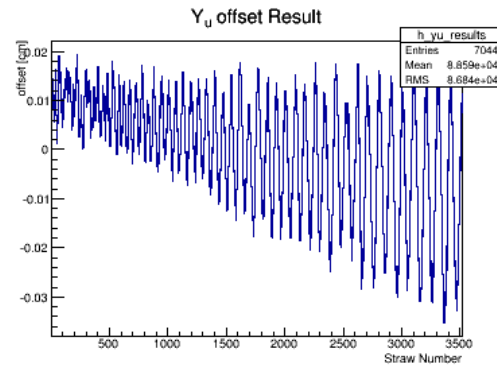
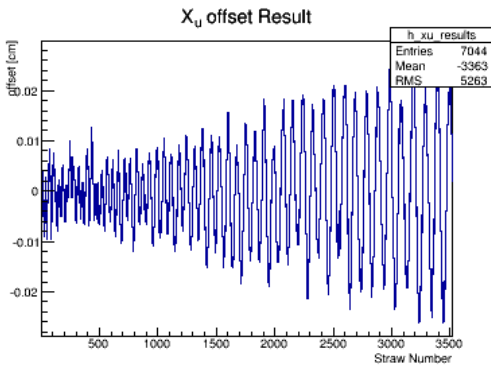
**Y<sub>d</sub> Offset Difference**



# Effect of Regularization Factor

- Regularization of the matrix is handled by defining a “pre-sigma”. The matrix is regularized by adding a diagonal element of  $(\text{pre-sigma})^{-2}$ .
- Modeled offsets are a random gaussian with a width of 150  $\mu\text{m}$ .
- Plotted are the difference between the result of millipede and this input distribution.

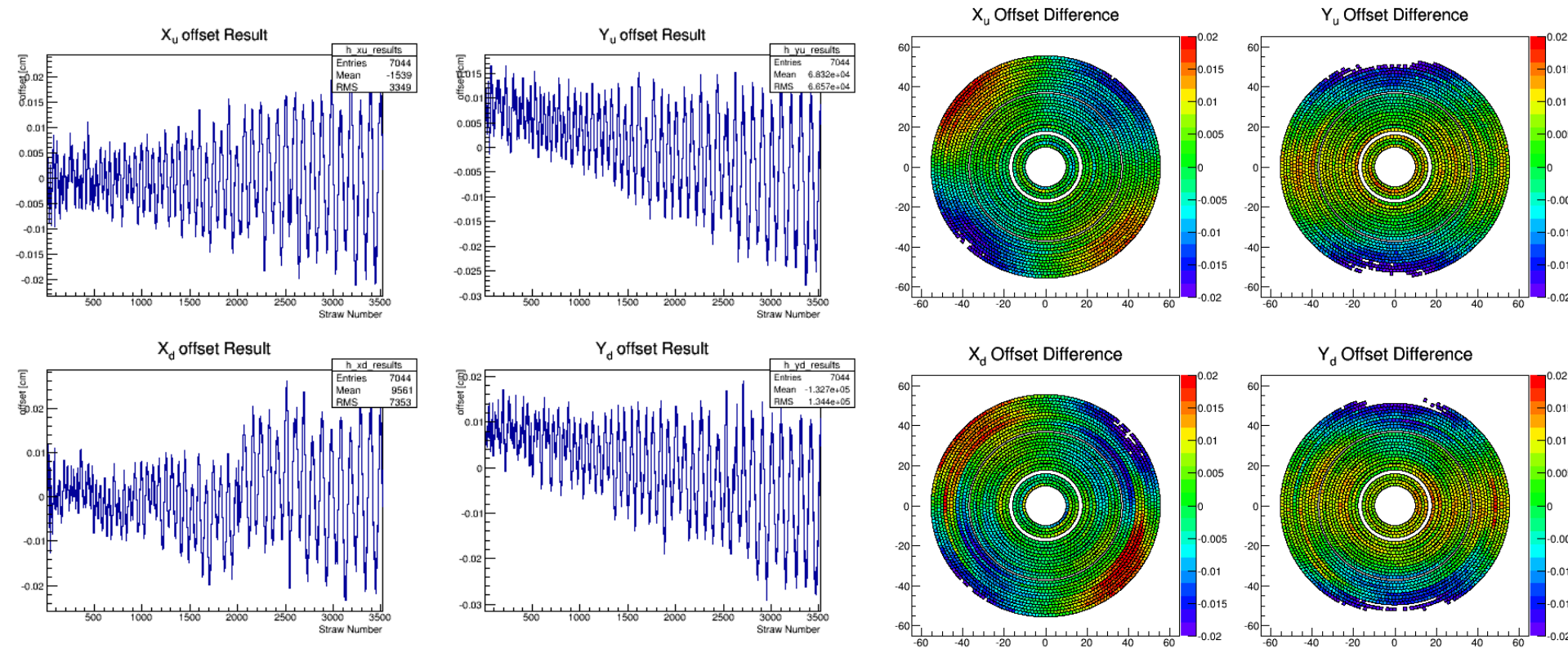
## 50 $\mu\text{m}$ pre-sigma



# Effect of Regularization Factor

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- Modeled offsets are a random gaussian with a width of  $150\ \mu\text{m}$ .
- Plotted are the difference between the result of millipede and this input distribution.

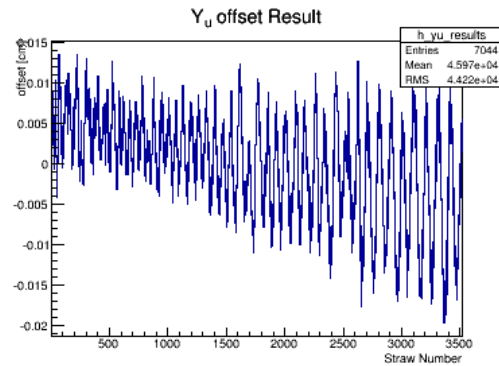
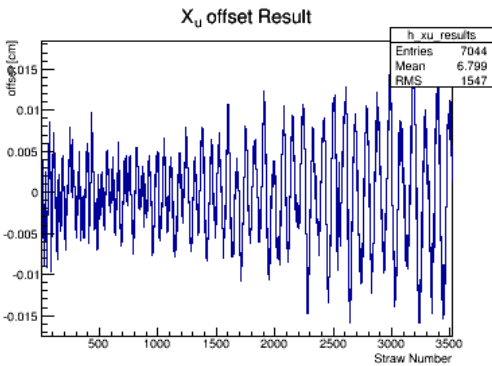
## 40 $\mu\text{m}$ pre-sigma



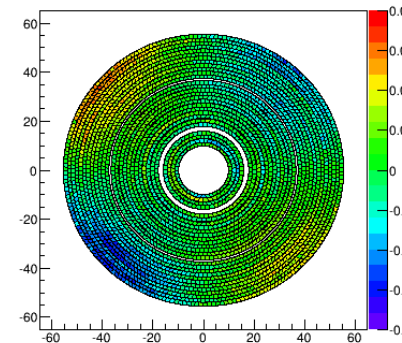
# Effect of Regularization Factor

- Regularization of the matrix is handled by defining a “pre-sigma”. The matrix is regularized by adding a diagonal element of  $(\text{pre-sigma})^{-2}$ .
- Modeled offsets are a random gaussian with a width of  $150\ \mu\text{m}$ .
- Plotted are the difference between the result of millipede and this input distribution.

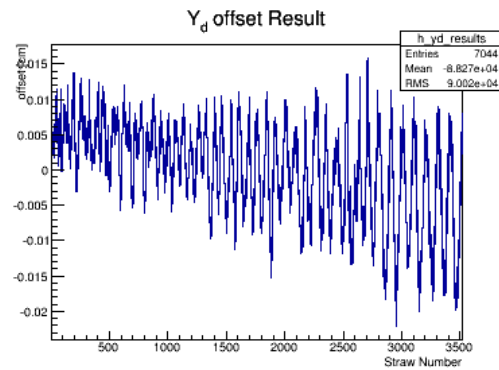
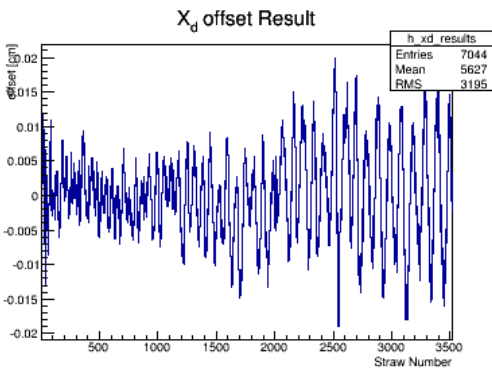
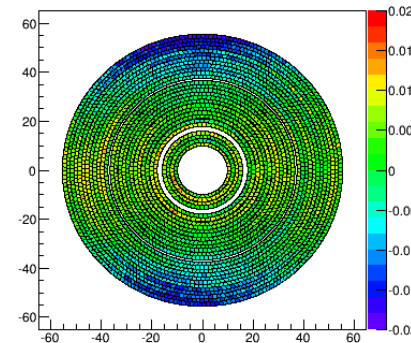
## 30 $\mu\text{m}$ pre-sigma



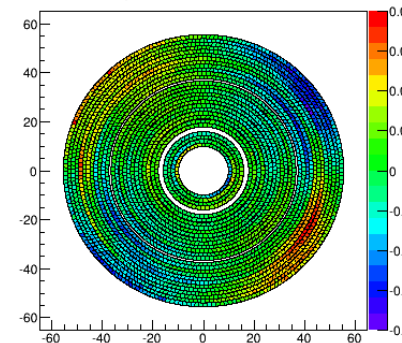
**X<sub>u</sub> Offset Difference**



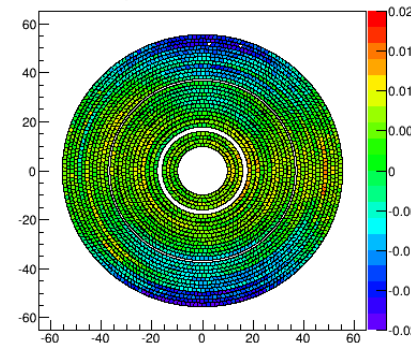
**Y<sub>u</sub> Offset Difference**



**X<sub>d</sub> Offset Difference**



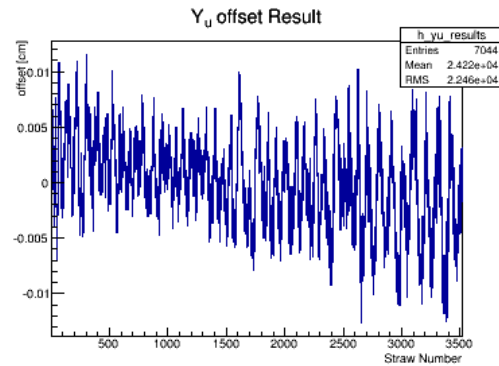
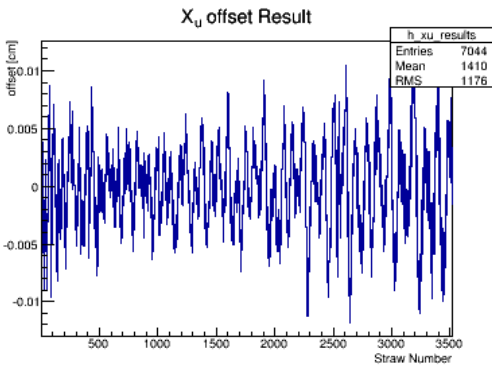
**Y<sub>d</sub> Offset Difference**



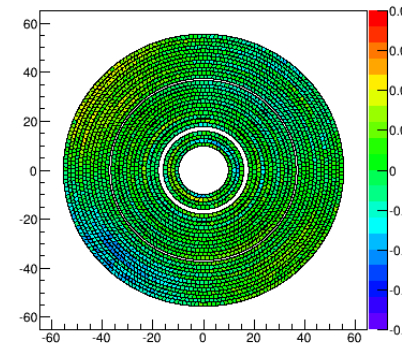
# Effect of Regularization Factor

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- Plotted are the difference between the result of millipede and this input distribution.

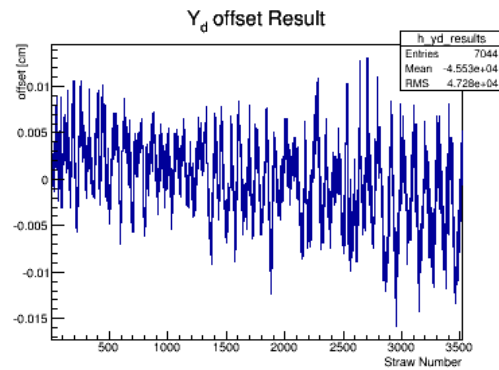
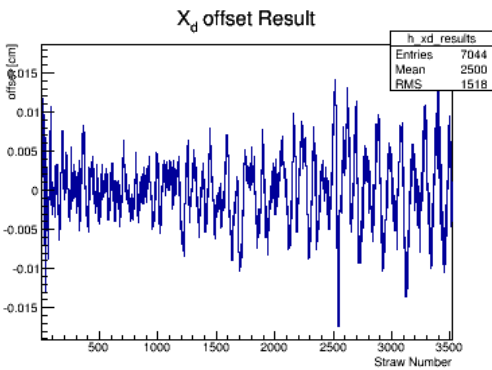
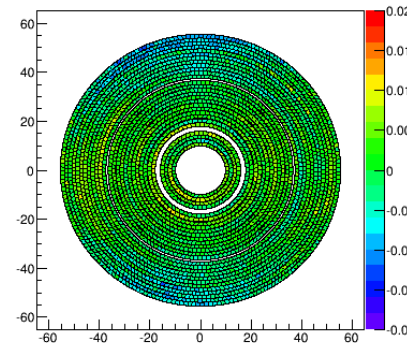
## 20 $\mu\text{m}$ pre-sigma



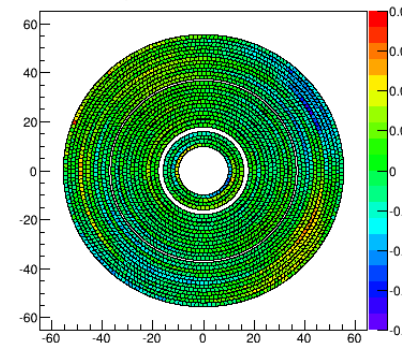
**X<sub>u</sub> Offset Difference**



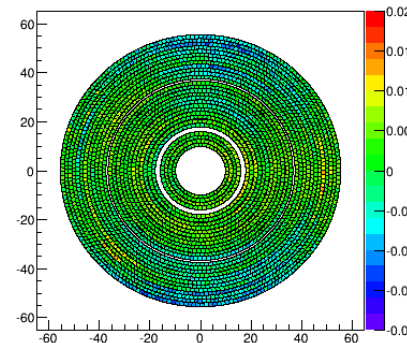
**Y<sub>u</sub> Offset Difference**



**X<sub>d</sub> Offset Difference**



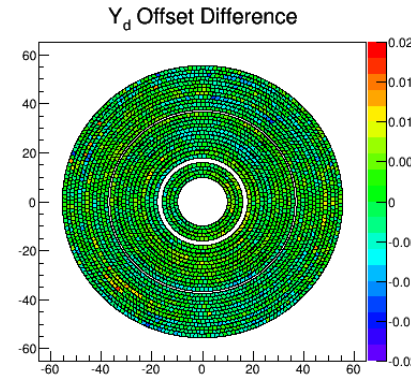
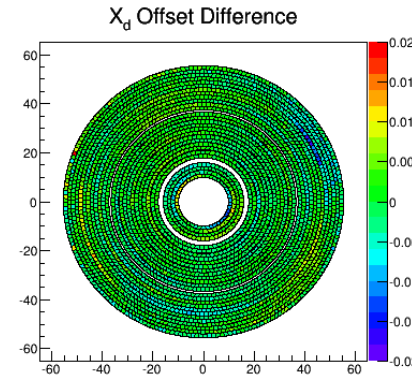
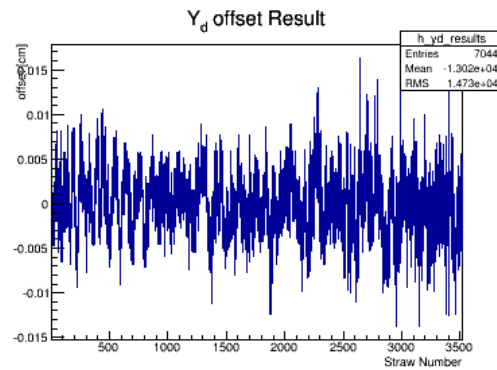
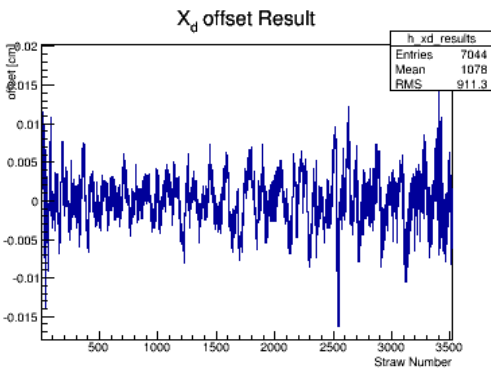
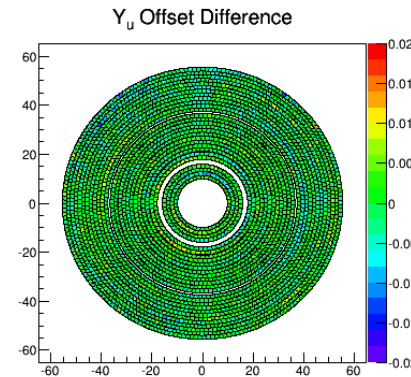
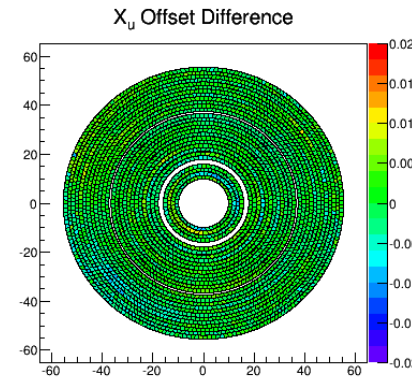
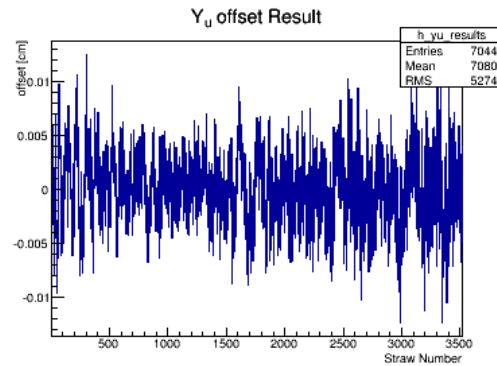
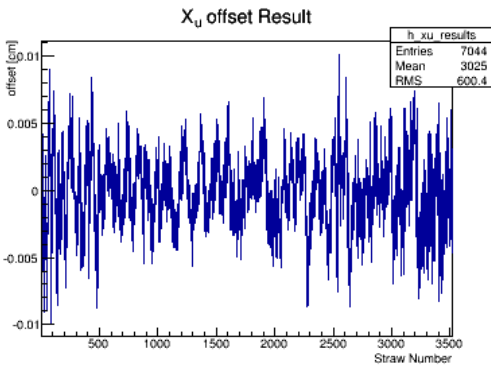
**Y<sub>d</sub> Offset Difference**



# Effect of Regularization Factor

- Regularization of the matrix is handled by defining a “pre-sigma”. The matrix is regularized by adding a diagonal element of  $(\text{pre-sigma})^{-2}$ .
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- Plotted are the difference between the result of millipede and this input distribution.

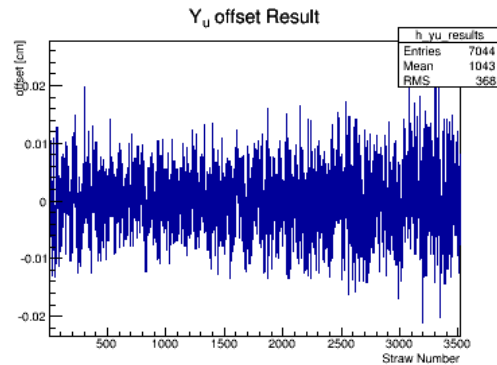
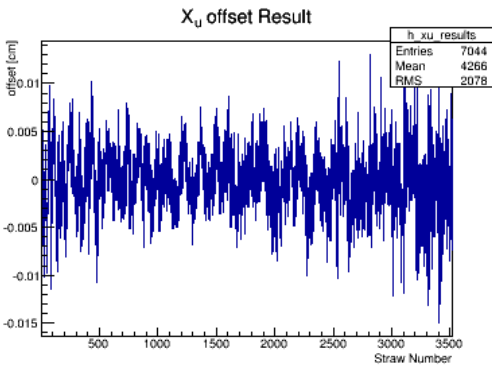
## 10 $\mu\text{m}$ pre-sigma



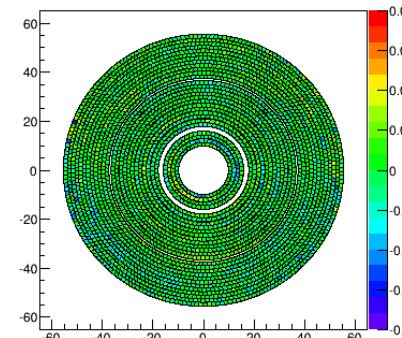
# Effect of Regularization Factor

- Regularization of the matrix is handled by defining a “pre-sigma”. The matrix is regularized by adding a diagonal element of  $(\text{pre-sigma})^{-2}$ .
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- Plotted are the difference between the result of millipede and this input distribution.

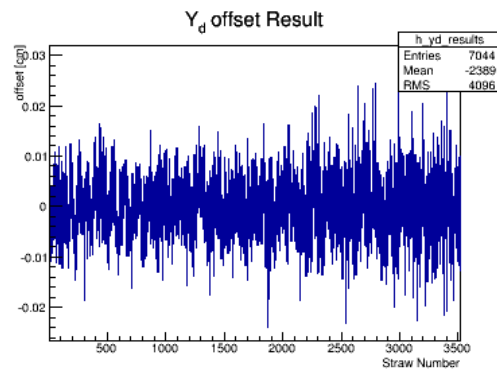
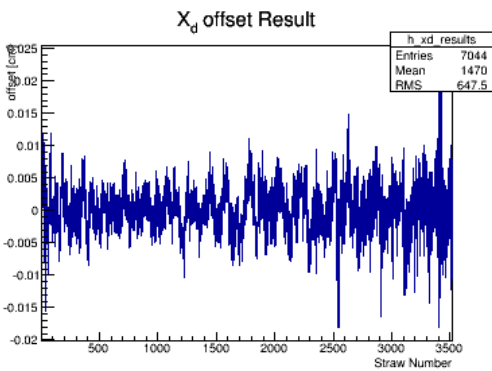
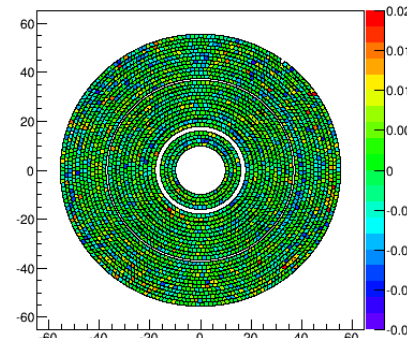
## 5 $\mu\text{m}$ pre-sigma



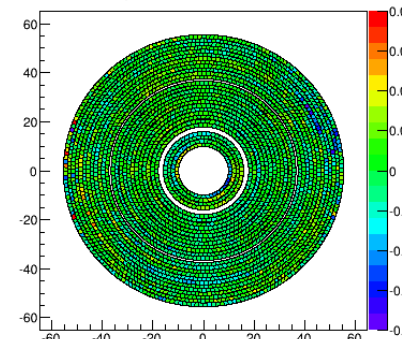
**X<sub>u</sub> Offset Difference**



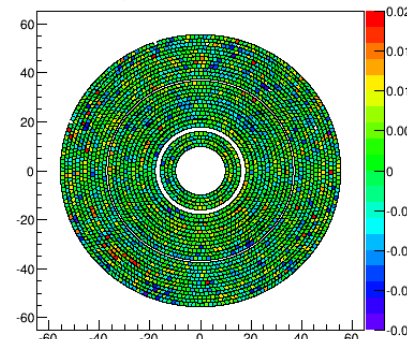
**Y<sub>u</sub> Offset Difference**



**X<sub>d</sub> Offset Difference**



**Y<sub>d</sub> Offset Difference**

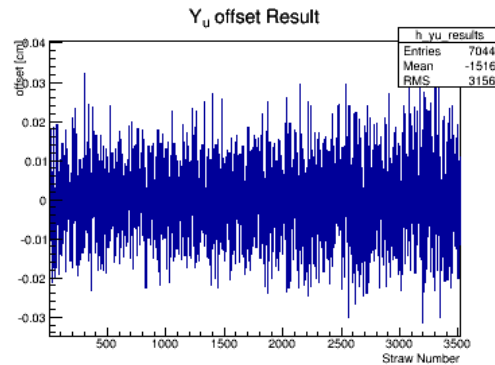
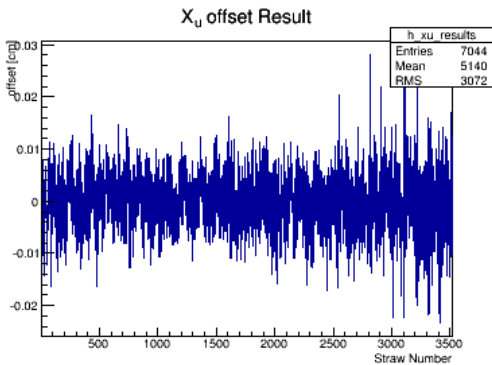




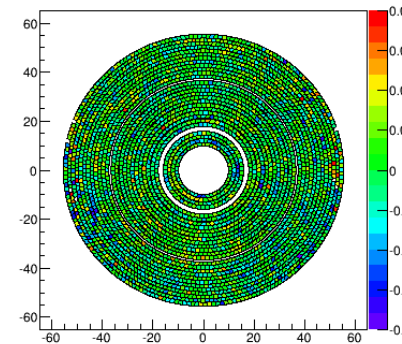
# Effect of Regularization Factor

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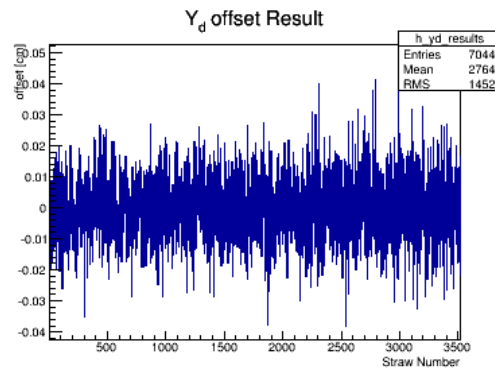
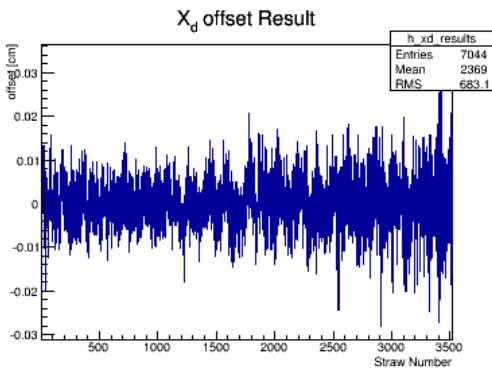
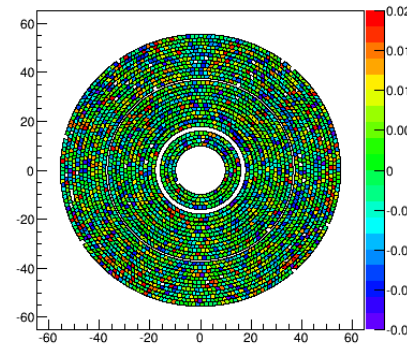
## 2.5 $\mu\text{m}$ pre-sigma



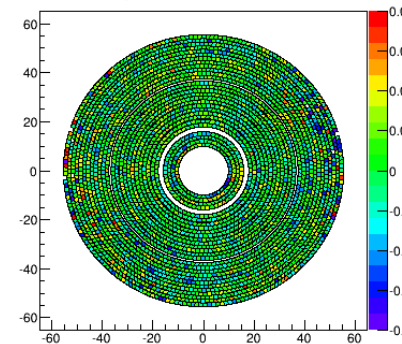
**X<sub>u</sub> Offset Difference**



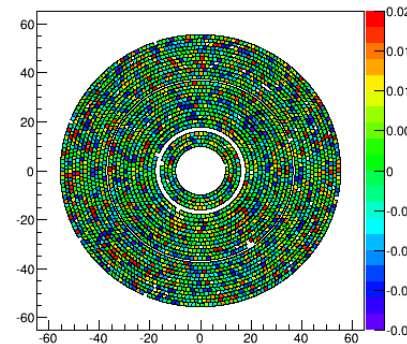
**Y<sub>u</sub> Offset Difference**



**X<sub>d</sub> Offset Difference**



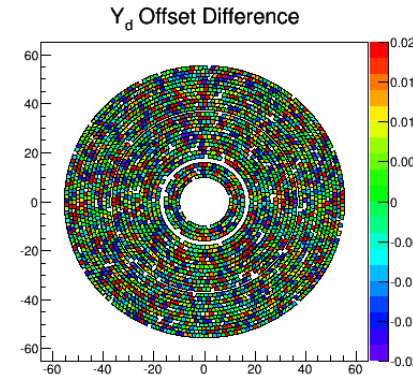
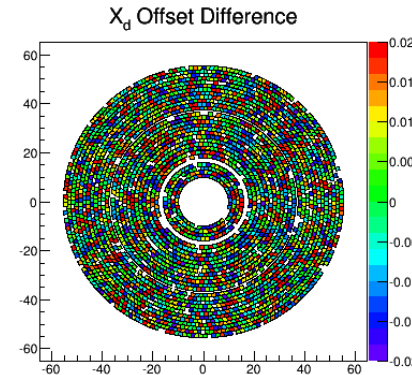
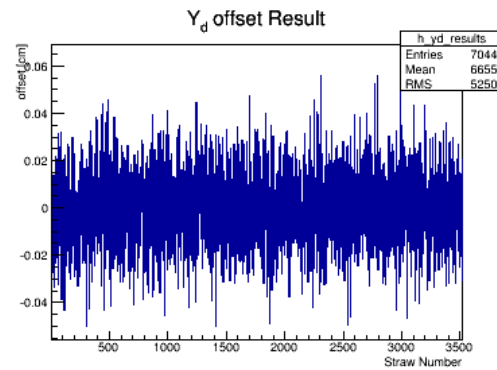
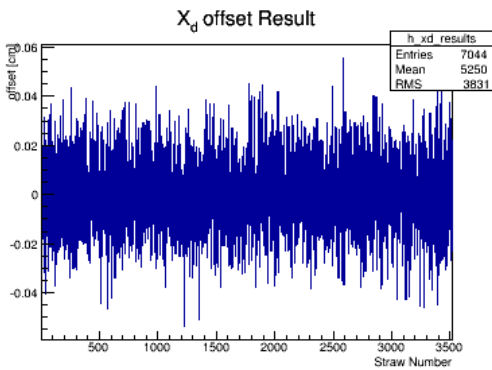
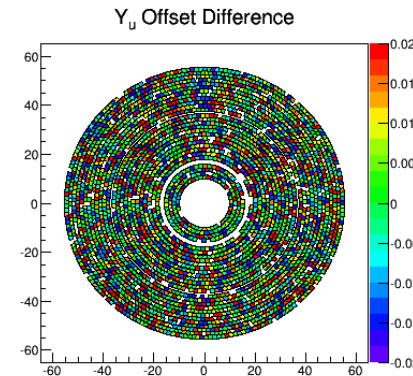
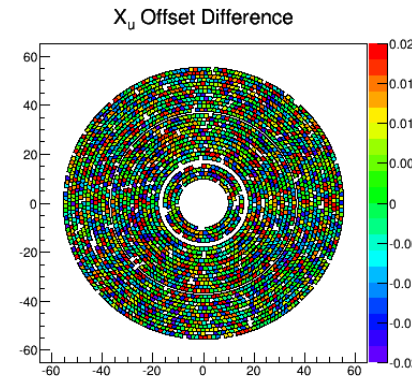
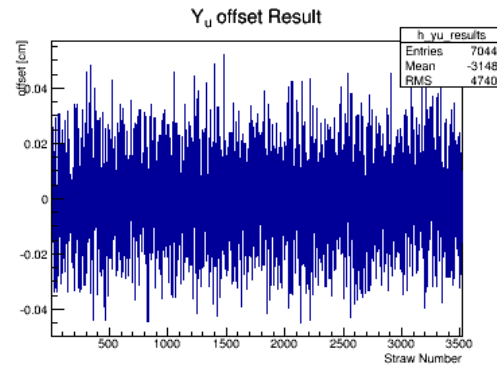
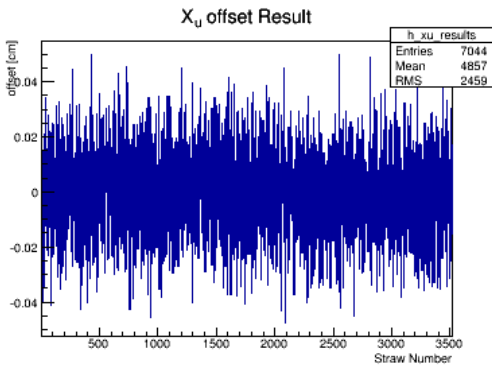
**Y<sub>d</sub> Offset Difference**



# Effect of Regularization Factor

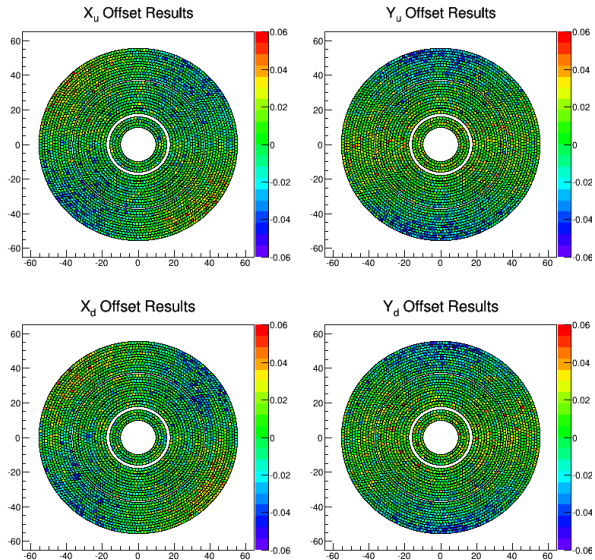
- Regularization of the matrix is handled by defining a “pre-sigma”. The matrix is regularized by adding a diagonal element of  $(\text{pre-sigma})^{-2}$ .
- Modeled offsets are a random gaussian with a width of  $150\ \mu\text{m}$ .
- Plotted are the difference between the result of millipede and this input distribution.

## 1 $\mu\text{m}$ pre-sigma

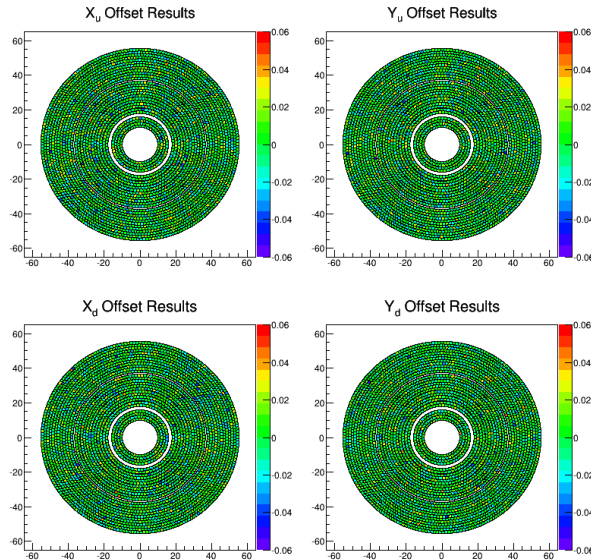


# Raw Results

50  $\mu\text{m}$  pre-sigma



10  $\mu\text{m}$  pre-sigma



1  $\mu\text{m}$  pre-sigma

