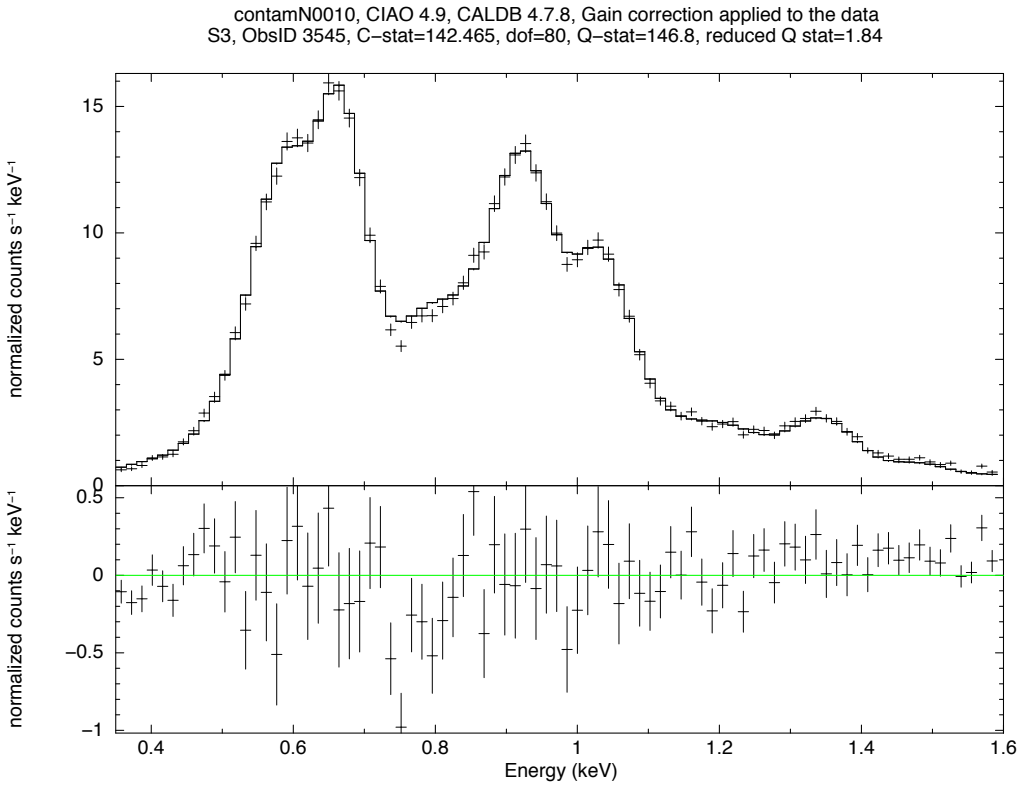
Monitoring the ACIS contamination layer with the IACHEC model for 1 E0102.2-7219

An Assigned Talk

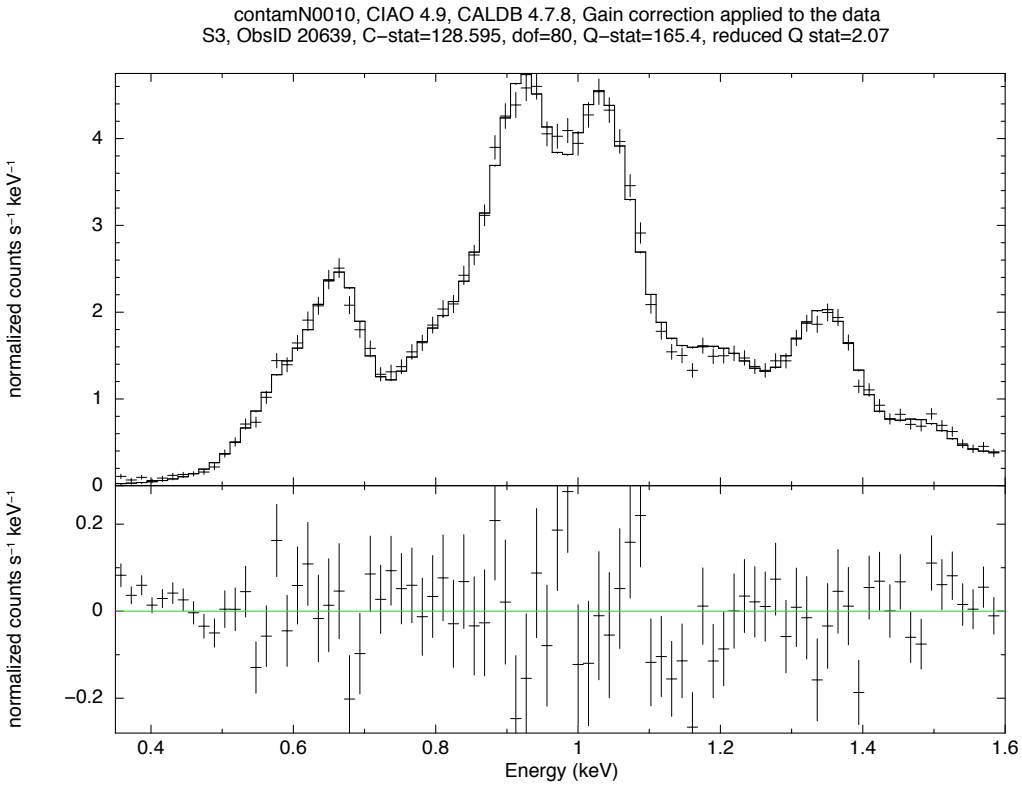
E0102 over Time

E0102 is observed once a year in 3 positions on S3
We fit it with the standard IACHEC model to verify the contamination model
If the model is correct, the line normalizations should be constant with time even though the effective area at low energies is changing by a large amount

S3 2003



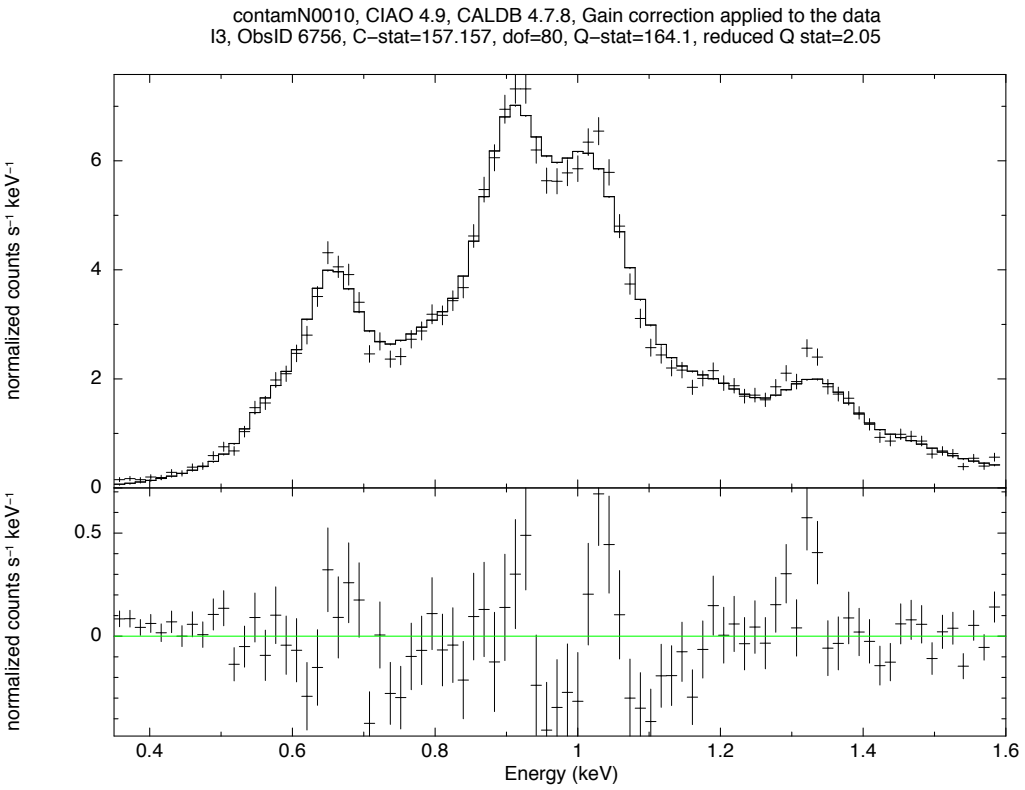
S3 2018



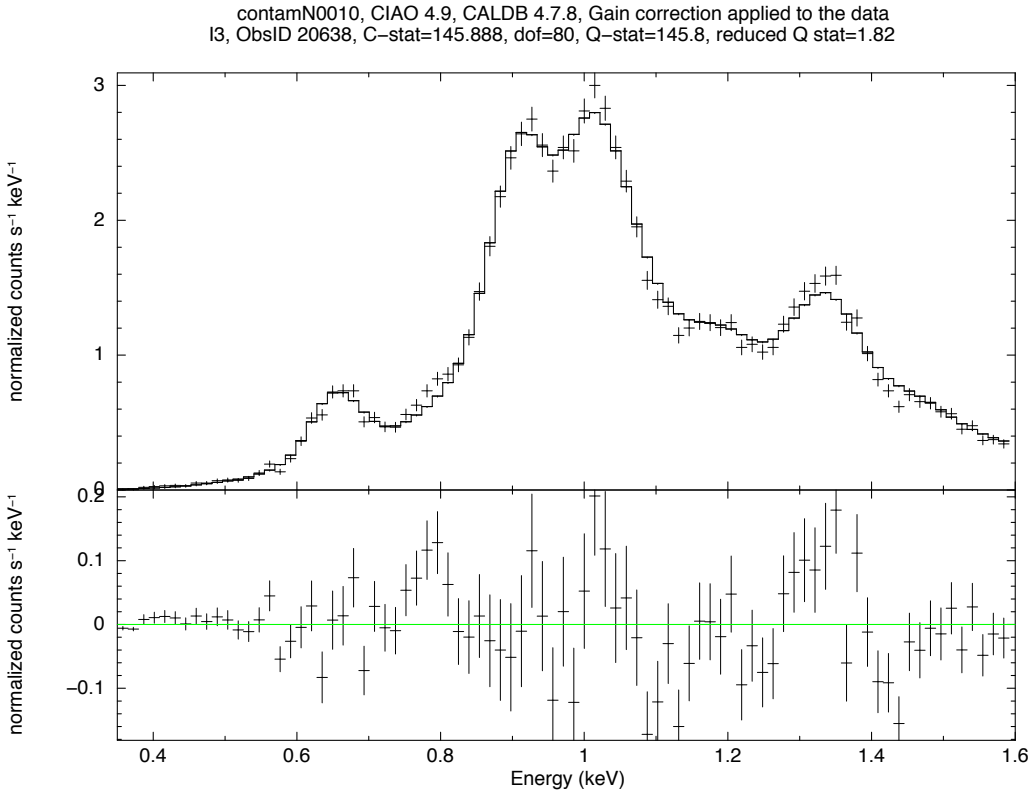
E0102 over Time

E0102 is observed once a year in at the aim point position on I3
Only 5 parameters are free in the fits, a global normalization and the normalizations for O VII, O VIII, Ne IX, and Ne X
I3 fits would benefit if the Mg XI normalization were free

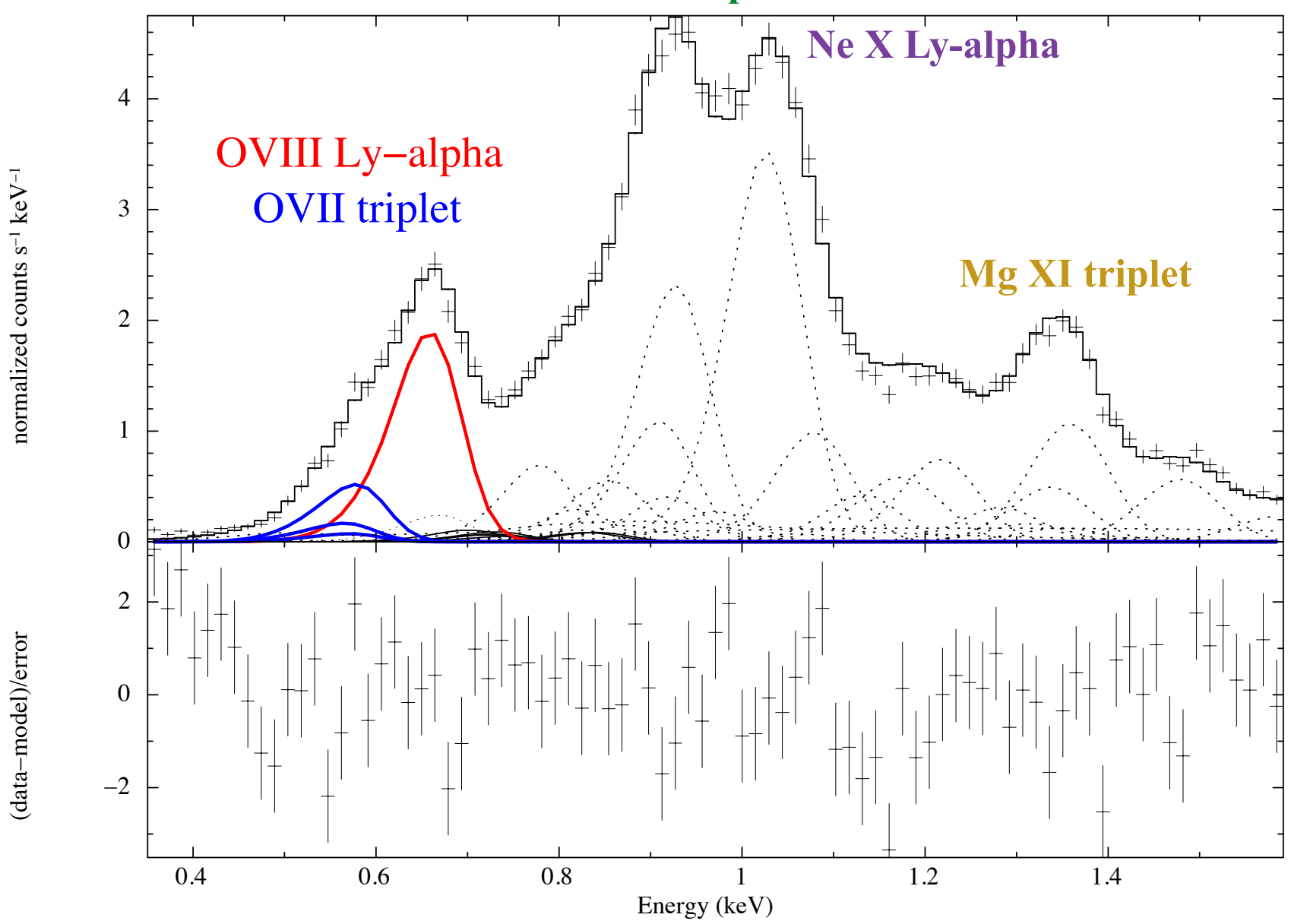
I3 2006



I3 2018



Bright Line Complexes

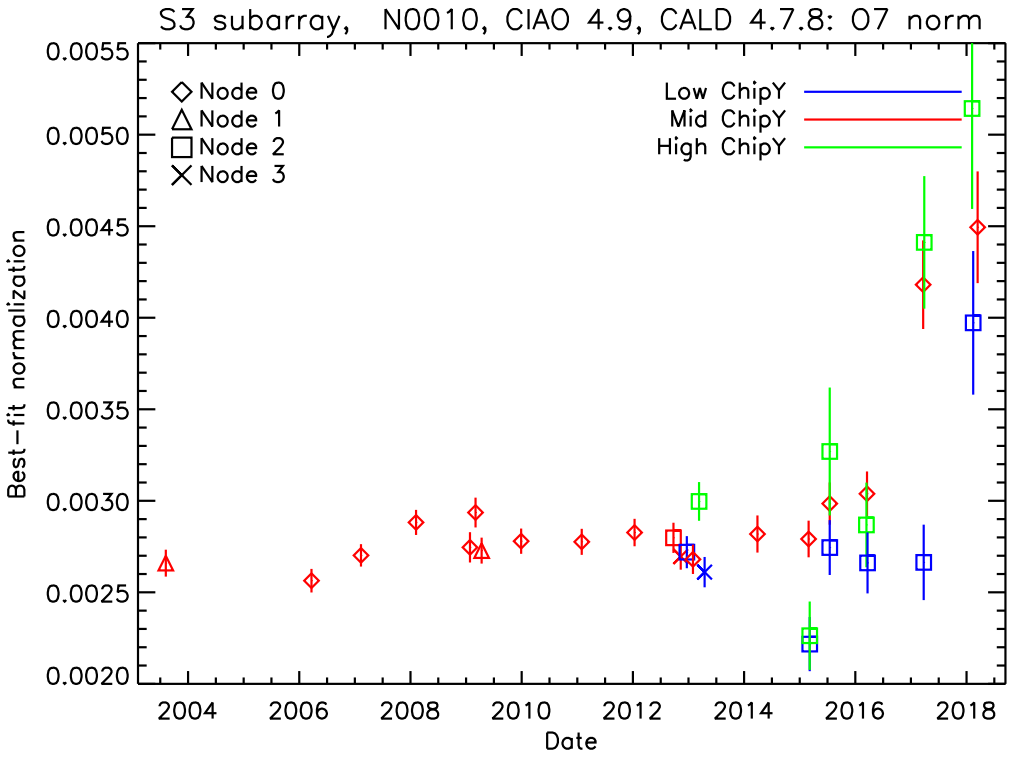


OBSID 20639
S3 3/2018
It is getting progressively more difficult to constrain the OVII normalization given the low number of counts.

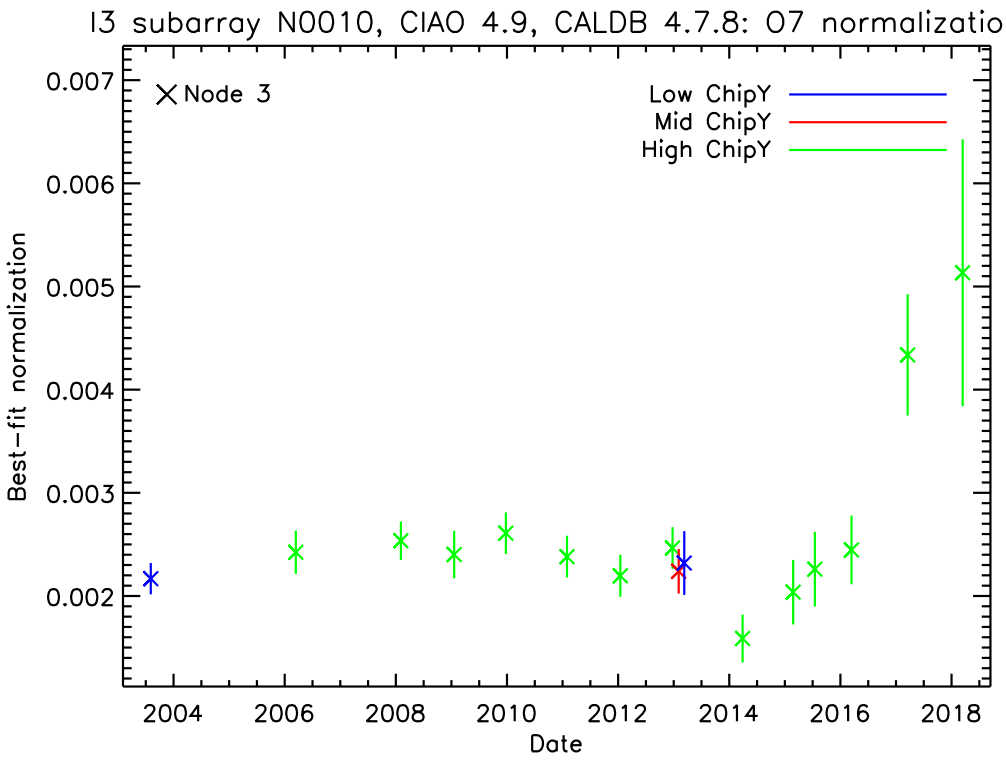
E0102 O VII Line Normalizations

- **both S3 and I3 show an increase in the apparent normalization in 2017-2018**

S3



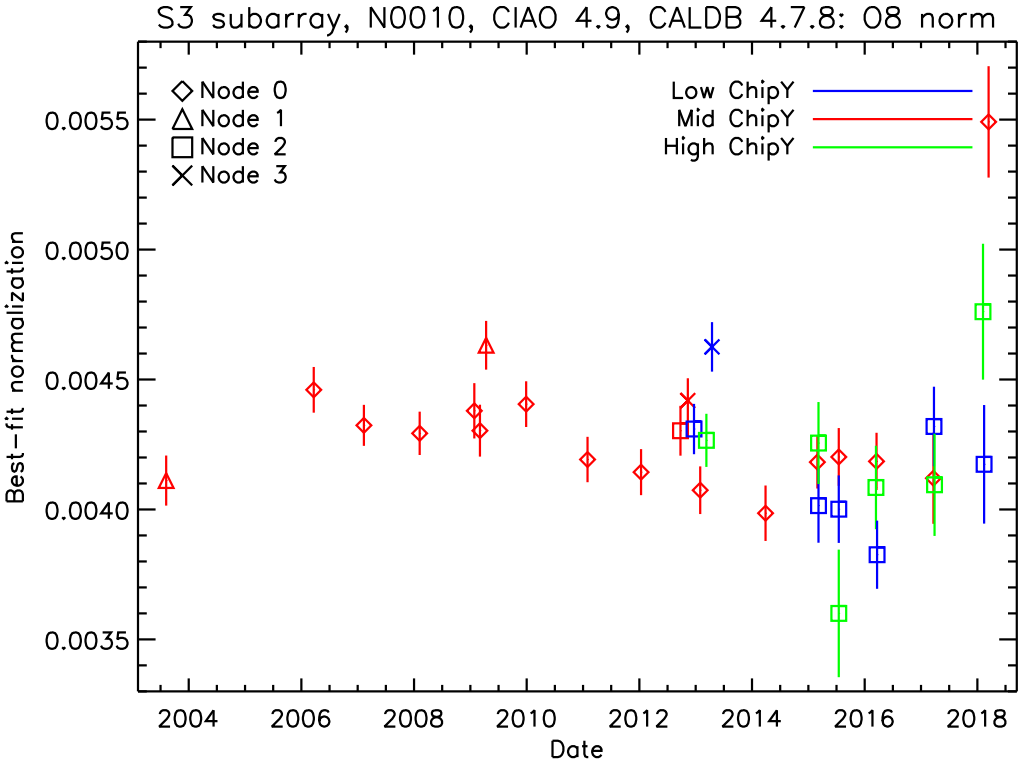
I3



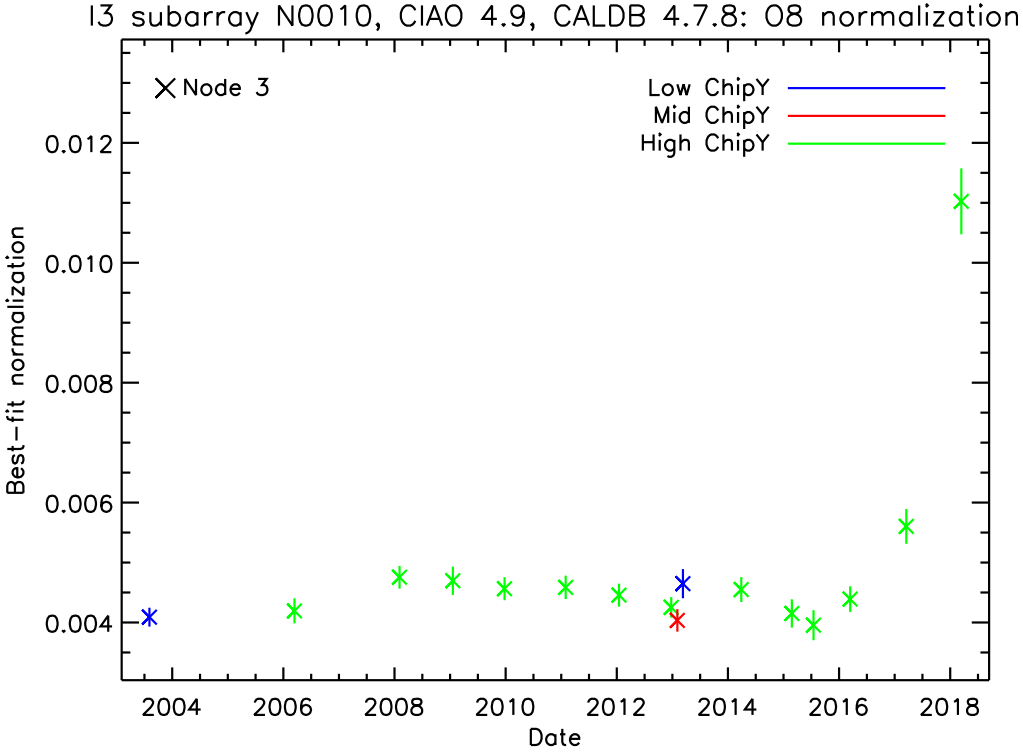
E0102 O VIII Line Normalizations

- **S3 shows an increase in the apparent normalization in 2018, largest effect in the middle of the CCD, bottom of the CCD is consistent with previous measurements**
- **I3 shows an increase in the apparent normalization in 2017-2018**

S3



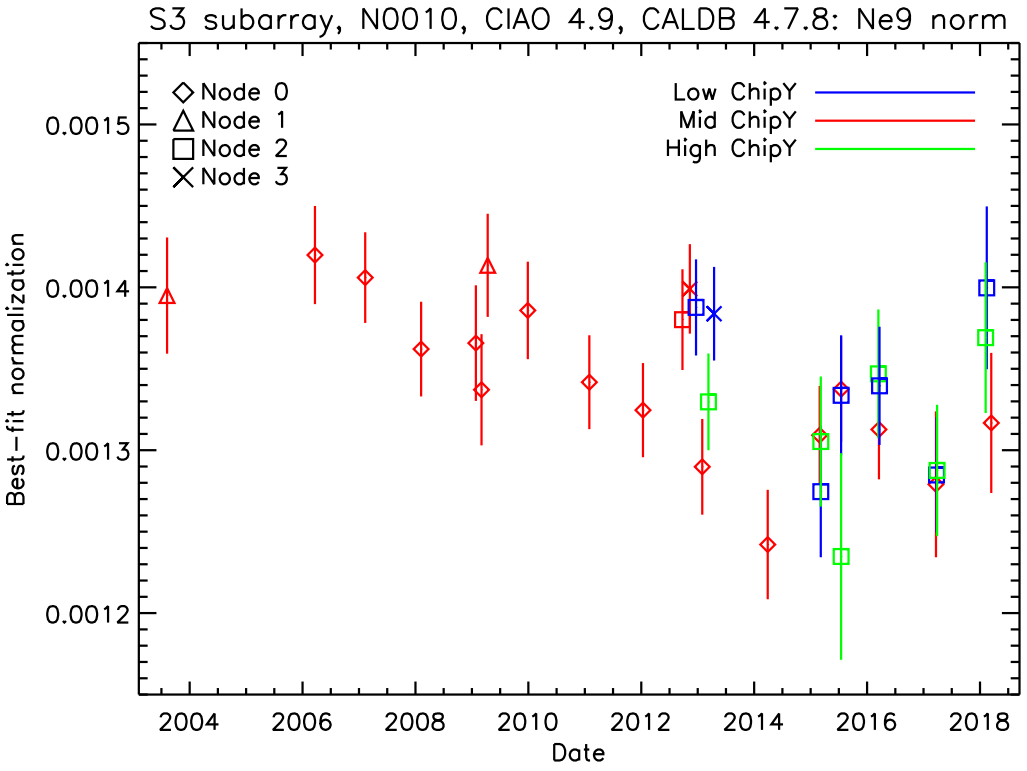
I3



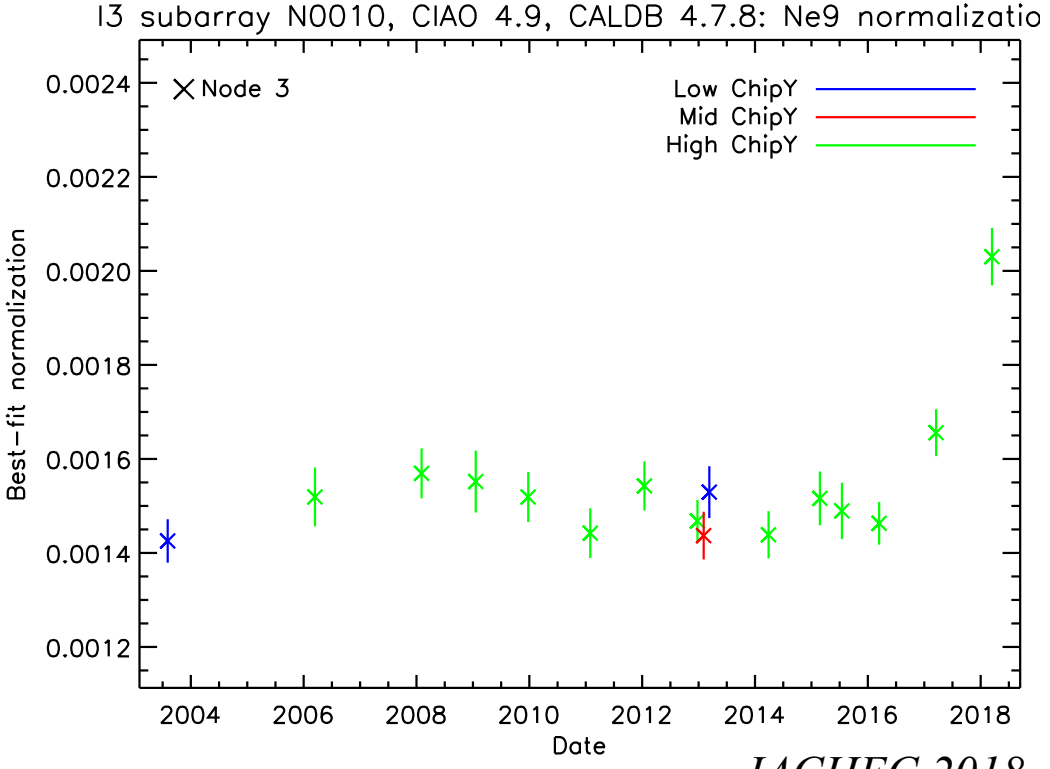
E0102 Ne IX Line Normalizations

- **only I3 shows an increase in the apparent normalization in 2017-2018**

S3



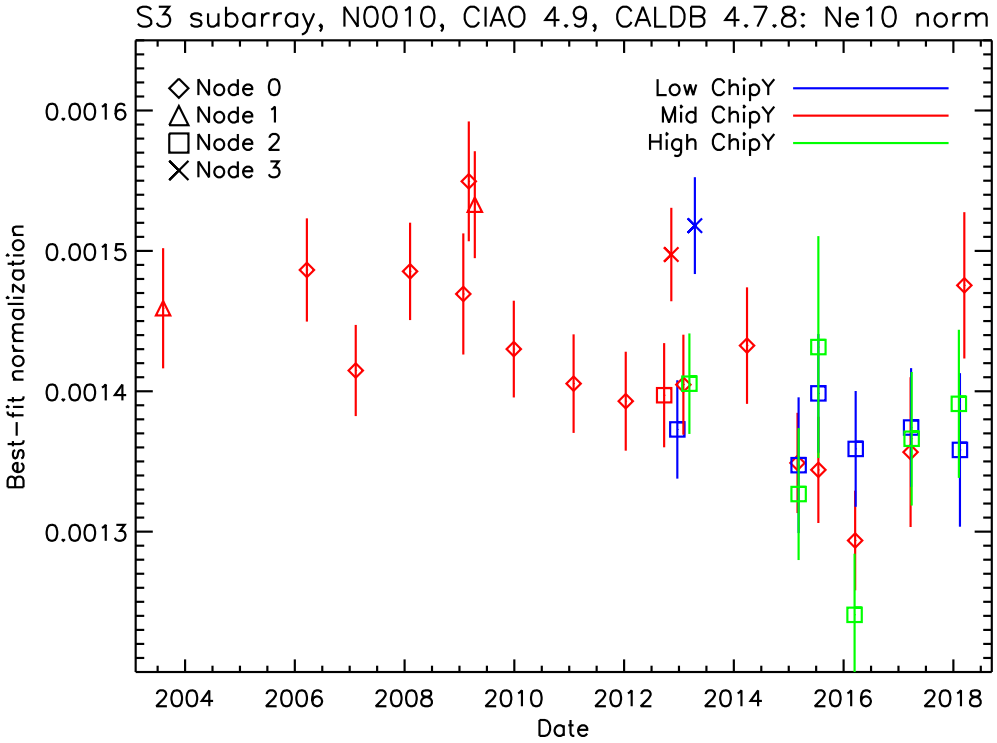
I3



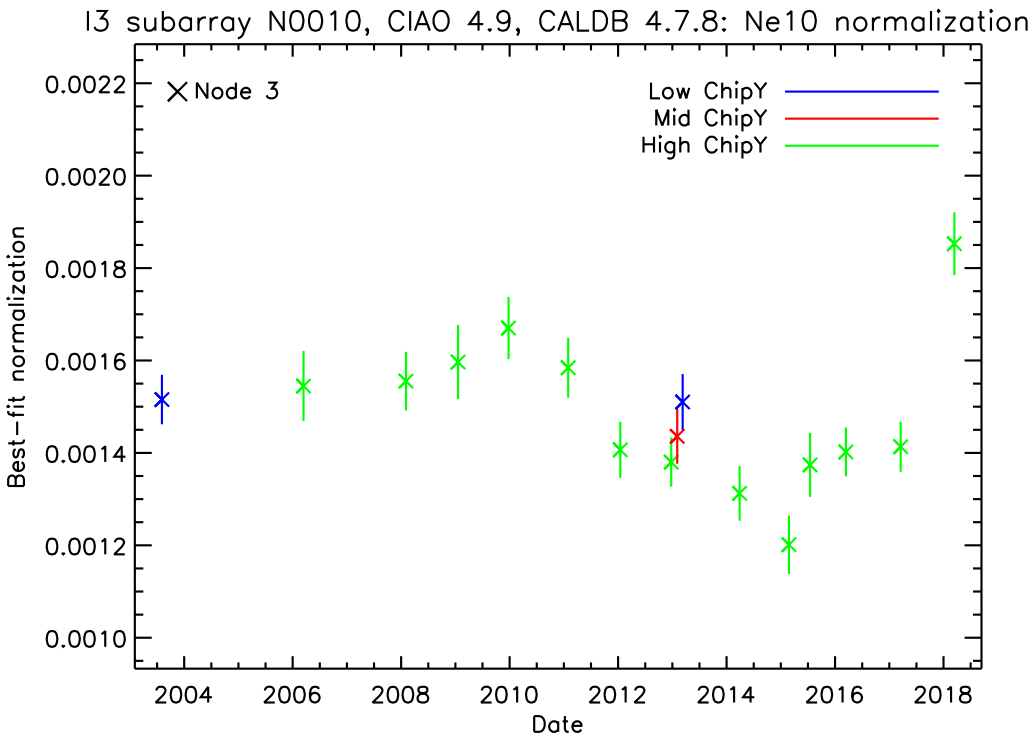
E0102 Ne X Line Normalizations

- only I3 shows an increase in the apparent normalization in 2018

S3



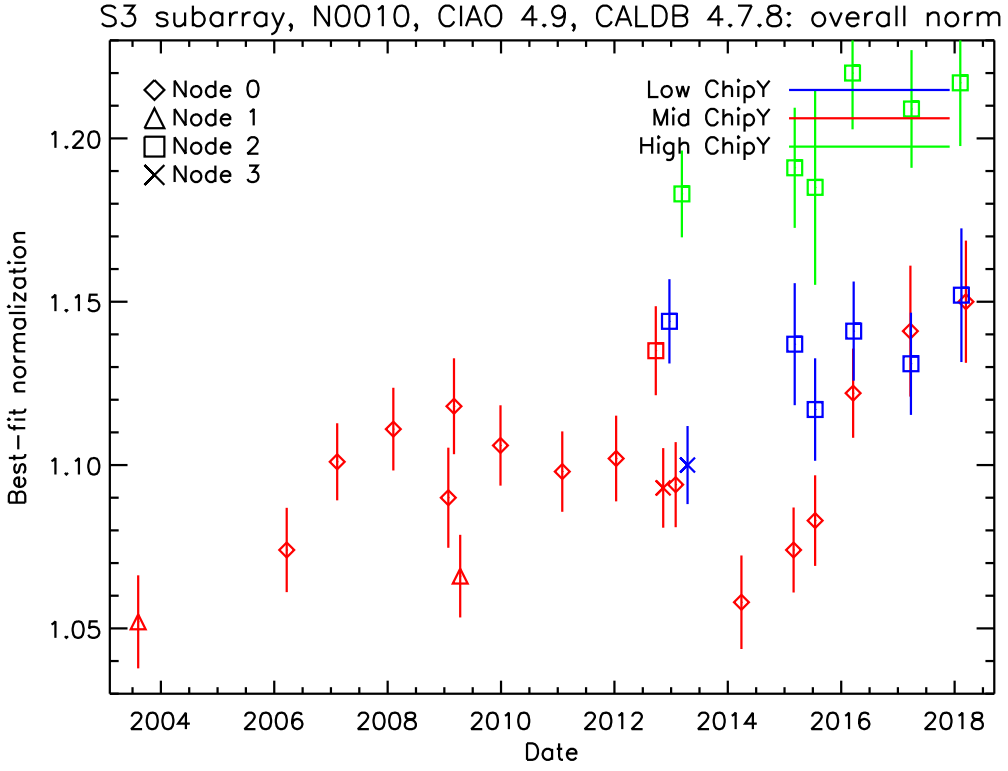
I3



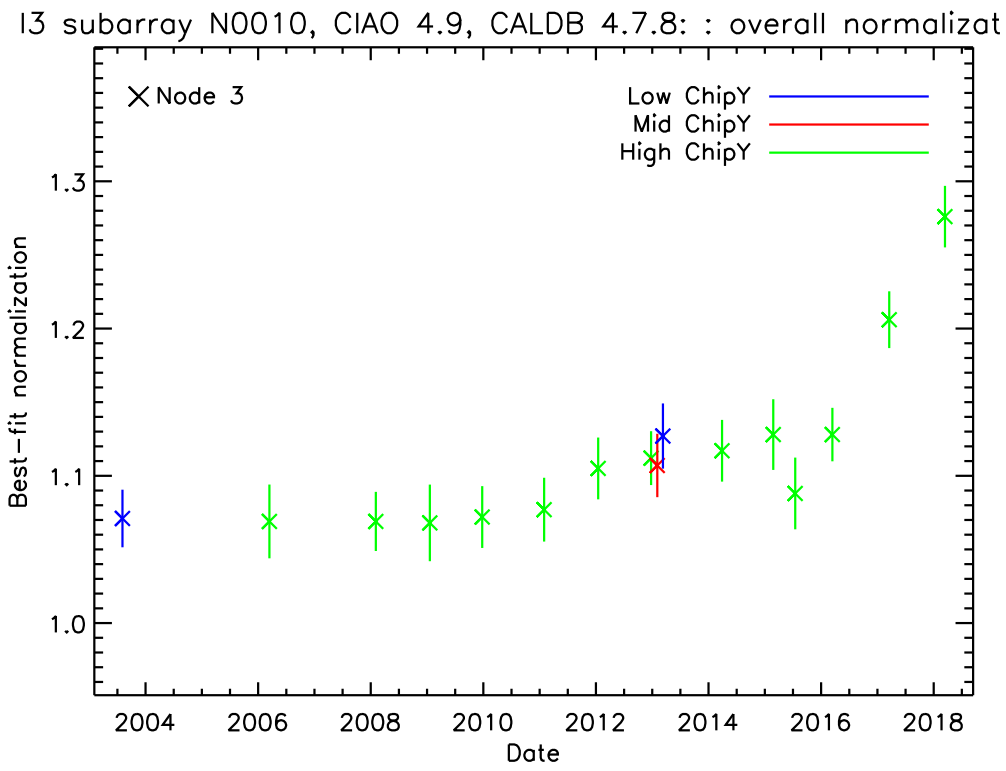
E0102 Global Normalizations

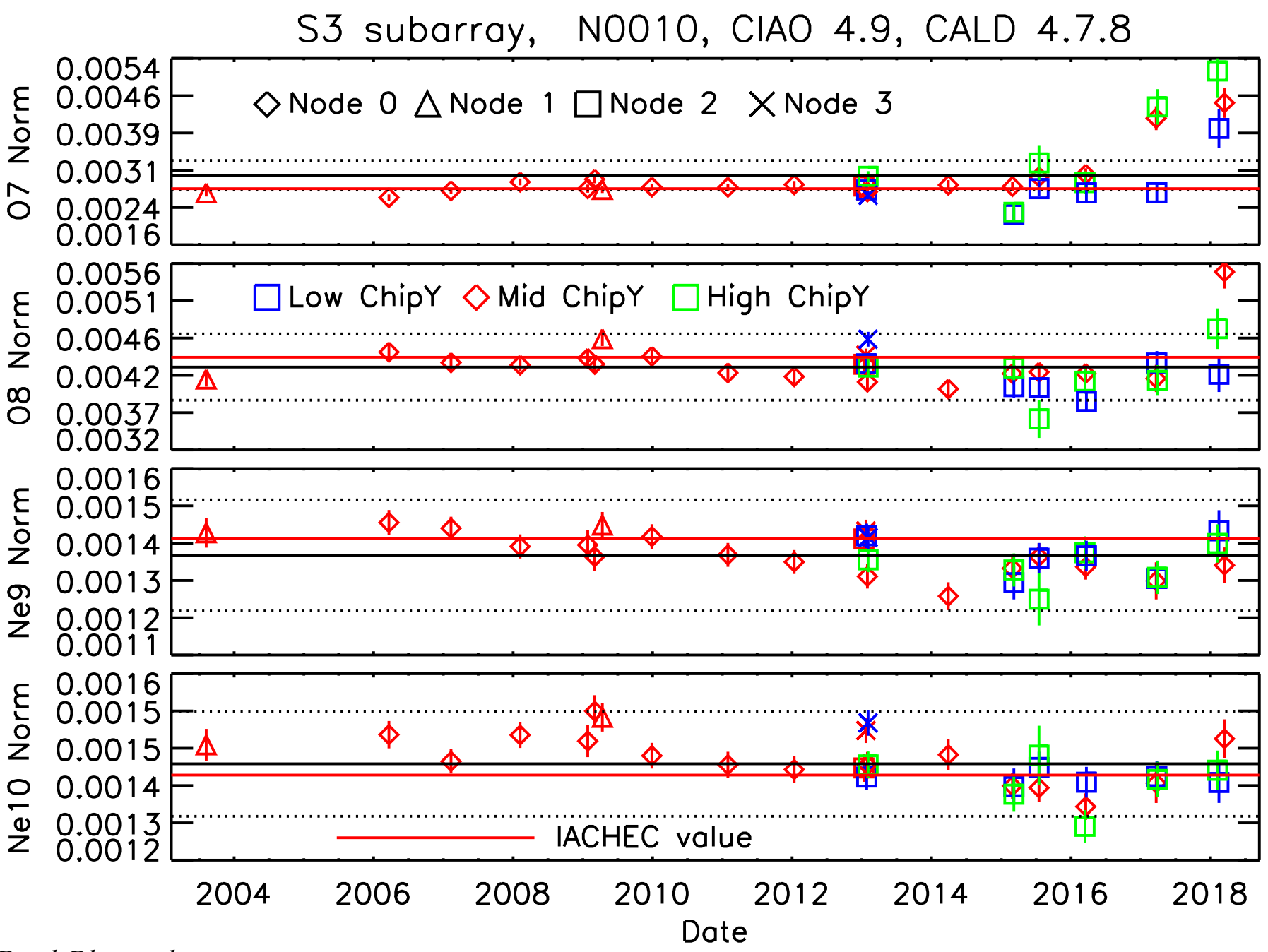
- S3 global normalization is higher for the high chipy positions
- I3 global normalization starts increasing in 2017

S3



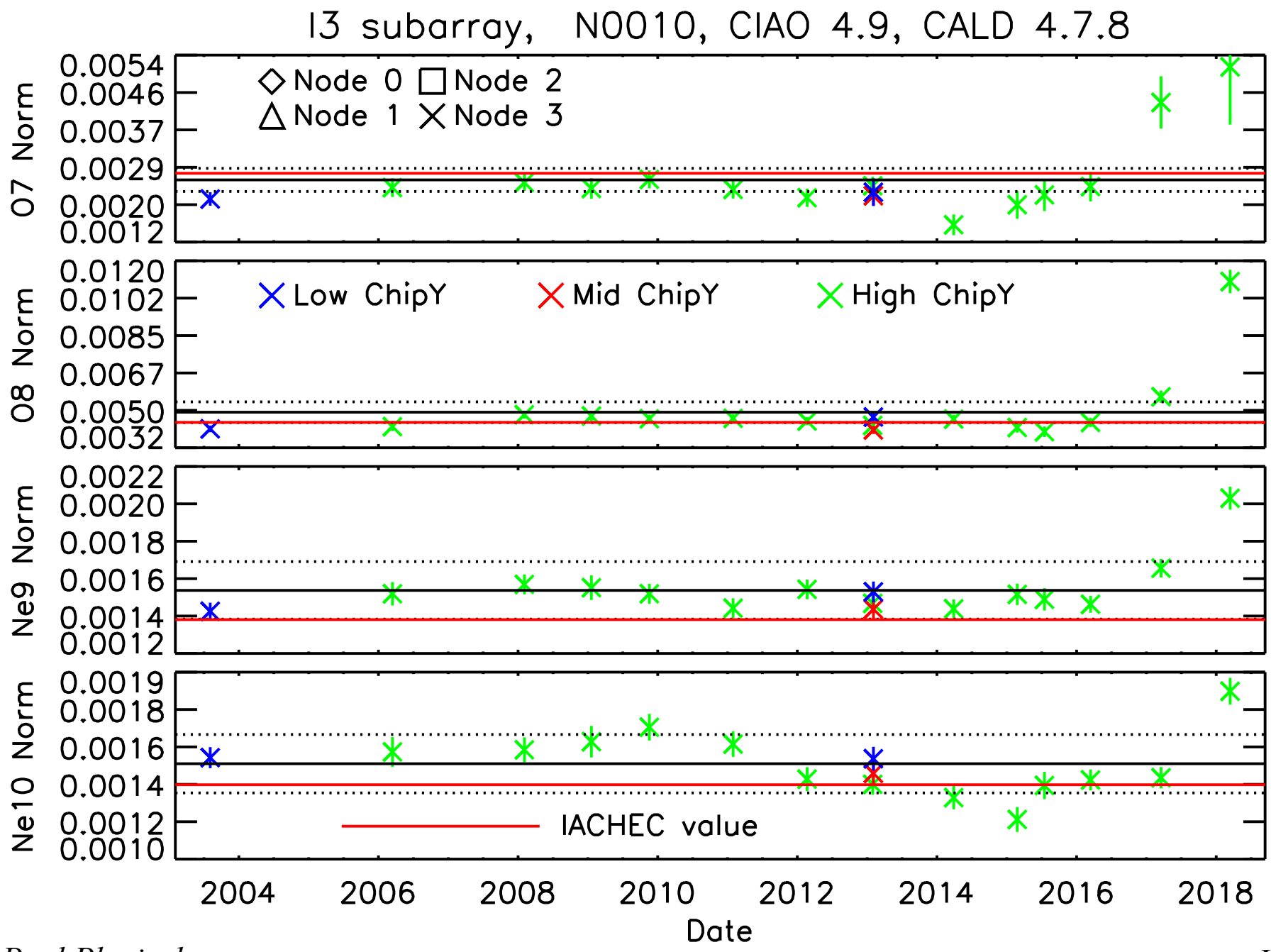
I3





Comparison to IACHEC Values

S3

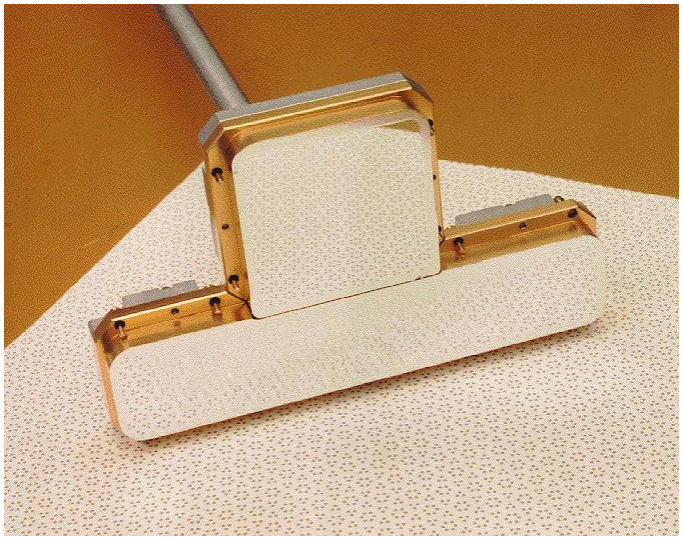


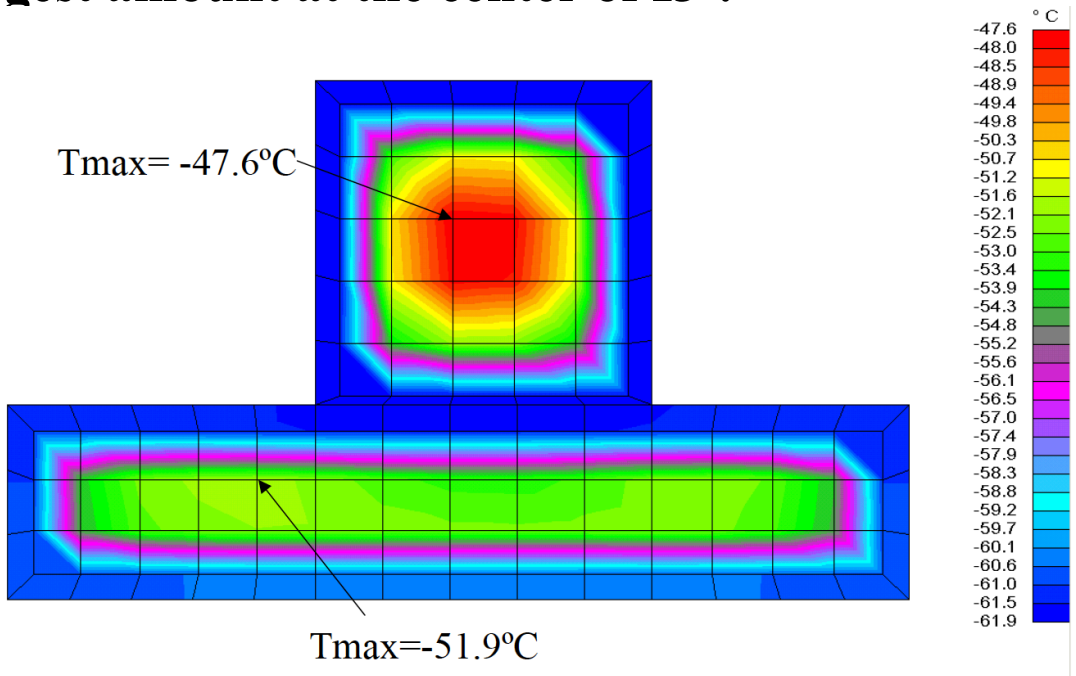
Comparison to IACHEC Values

I3

WHY ???

- **Why is the contamination apparently over-estimated on S3 and I3 ?**
- **Why is it over-estimated by the largest amount at the center of I3 ?**





Could it be ? ***Vaporization Rate > Deposition Rate ??***

Stay Tuned for IACHEC 2019 in Shonan Village !!!!