Sensitivity Improvement

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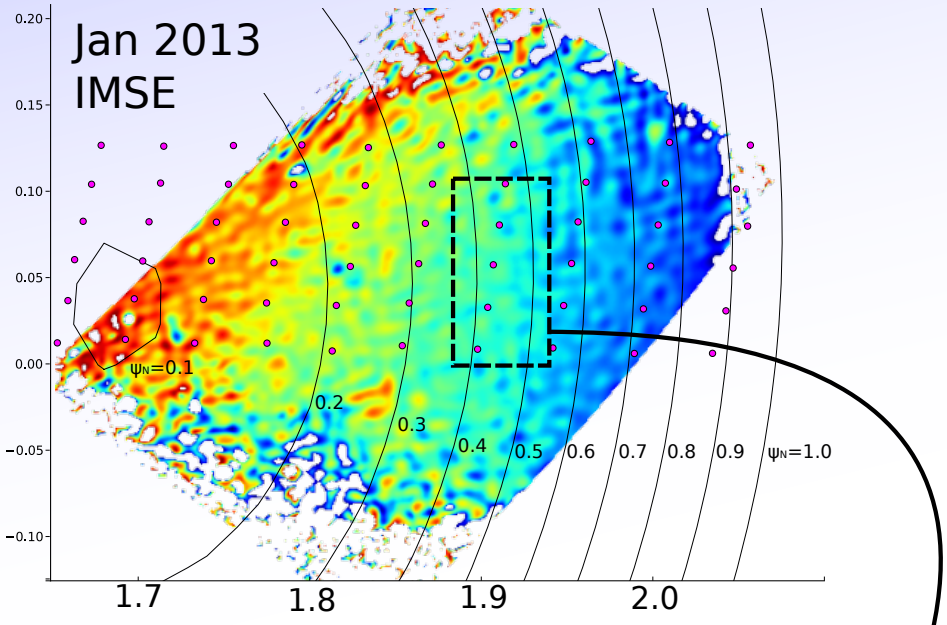
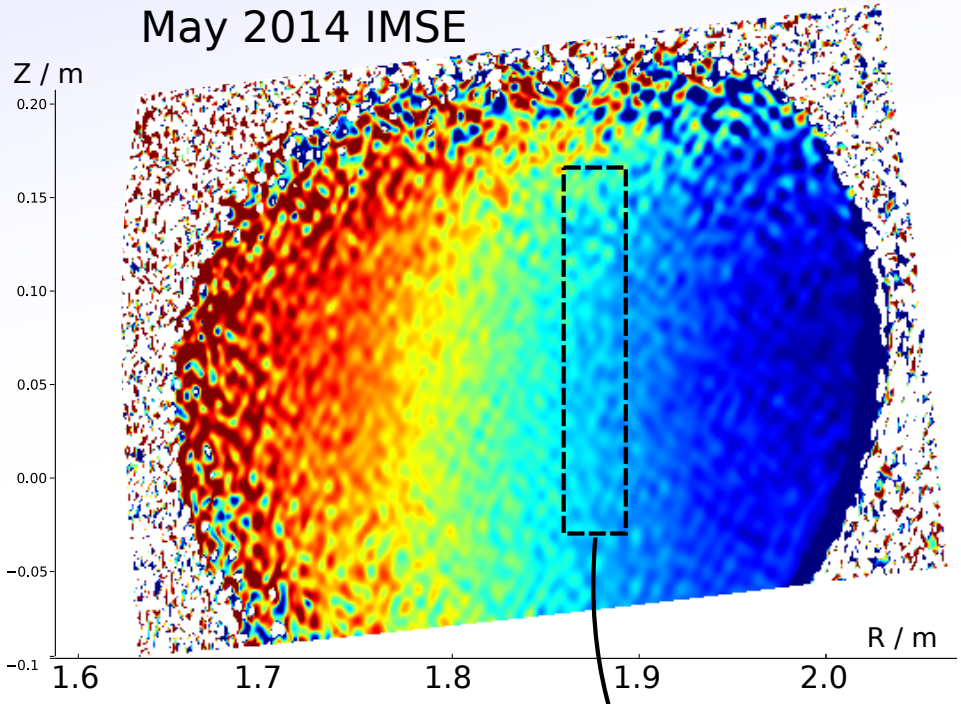
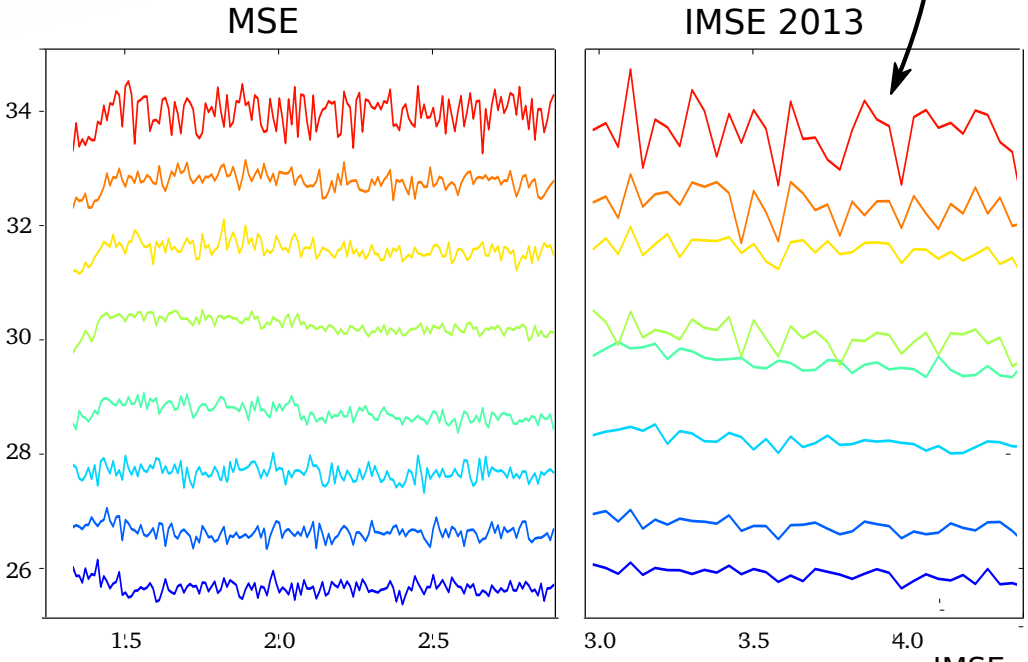
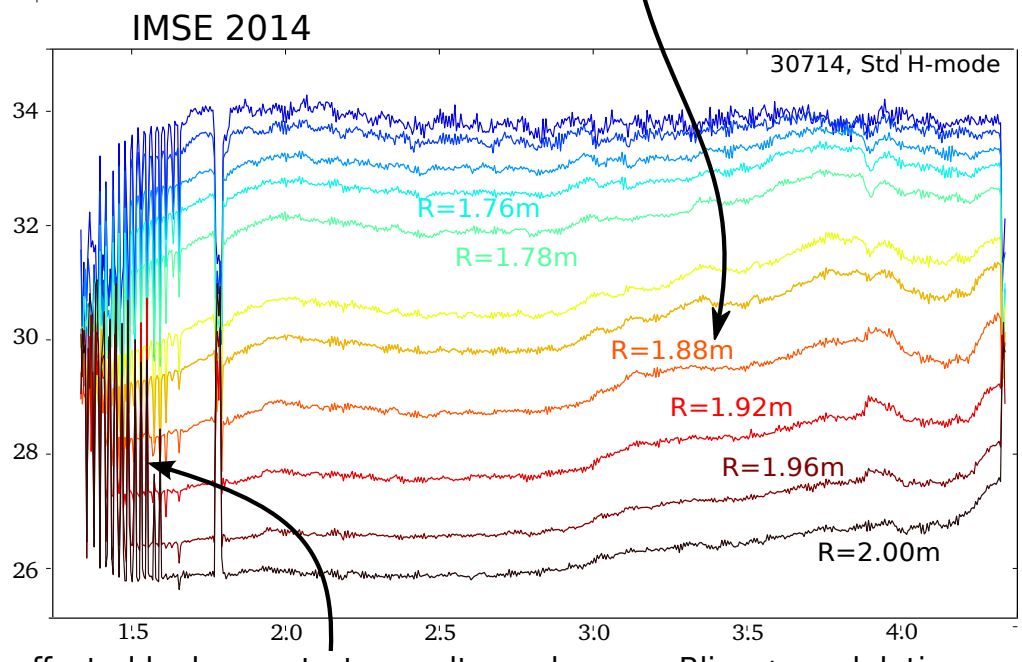
Improved both signal to noise and time resolution:









IMSE not effected by beam start-up voltage changes. Blips + modulation work.

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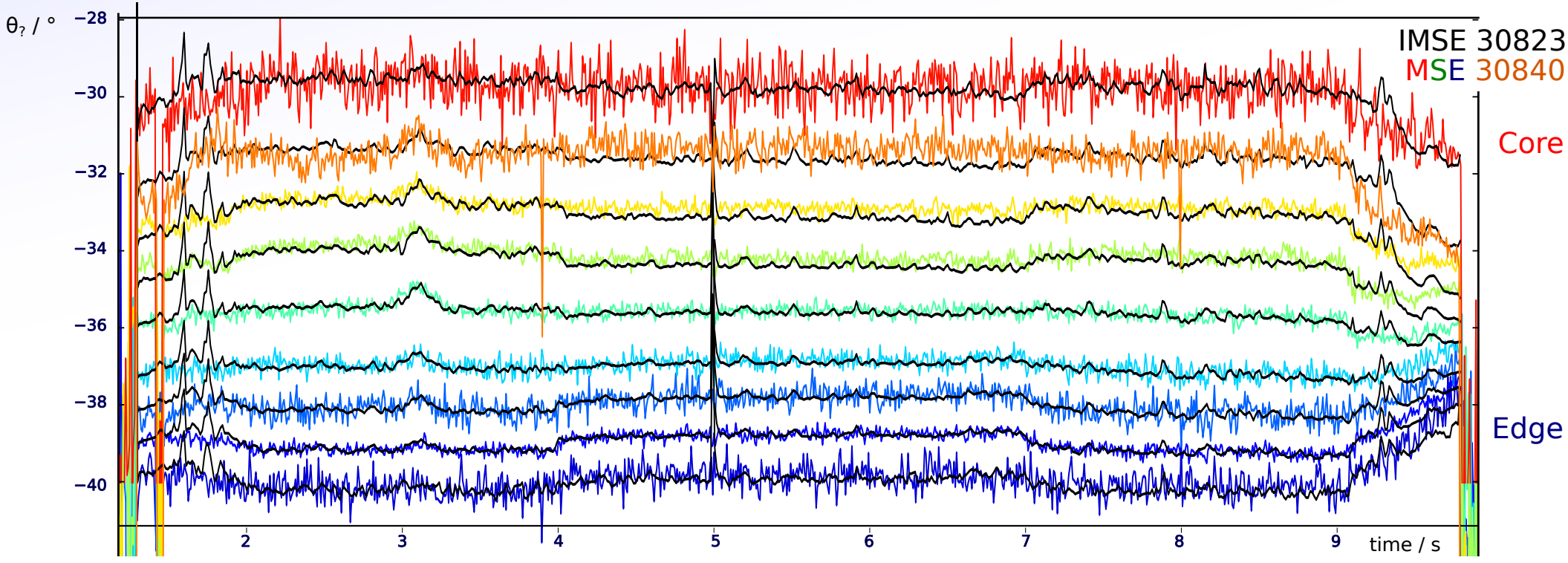
IMSE vs MSE

The raw time traces show a similar stroy - some offset and lots of noise on MSE at core/edge.

Adjusting the offsets independently to see the temporal behaviour shows very good agreement:



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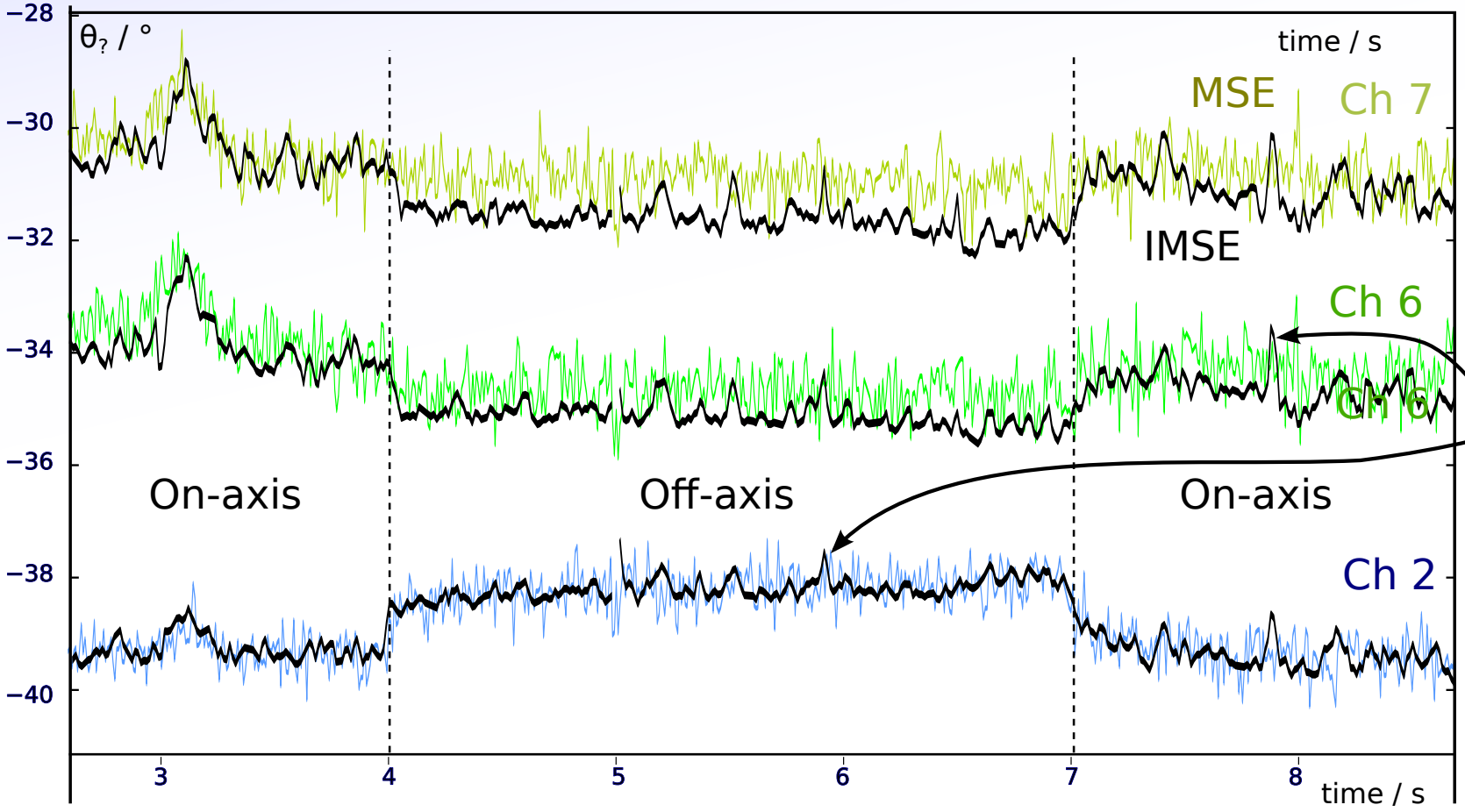
Neutral Beam Current Drive

These are the off-axis NBCD shots, where we are looking to see if the IMSE can detect the current profile changing on the current diffusion timescale after the switch to off-axis NBI.

Firstly, the IMSE shows slightly more of a jump in the core as the switch is made:



These are probably due to vibrations of the IMSE camera (see later) which is solvable next time.

This gave me some concern that the IMSE is susceptible to background contamination.
Here, the background drops by ~20% during the off-axis period (probably changing charge exchange Hα 'Halo' or FIDA emission).

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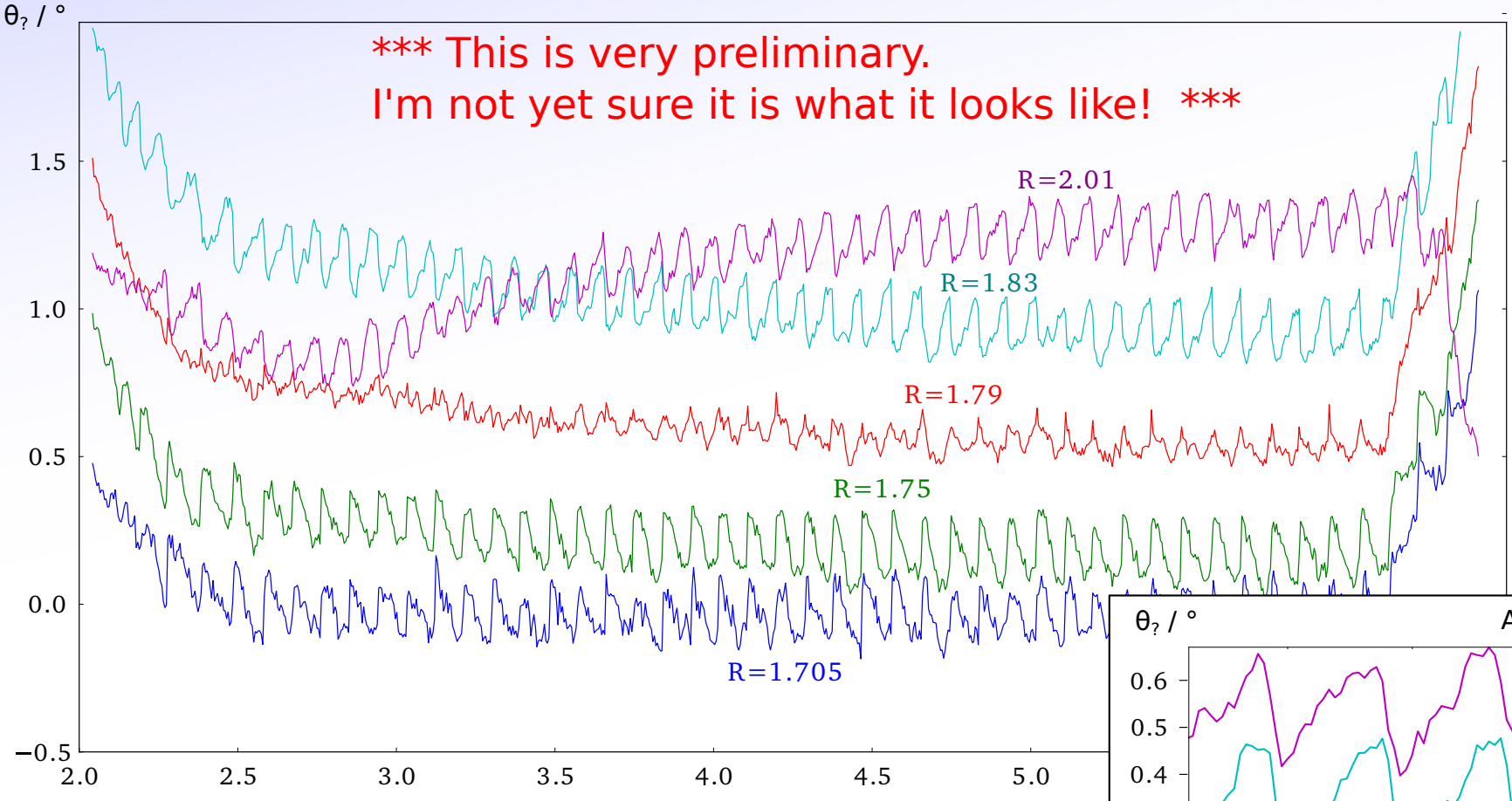
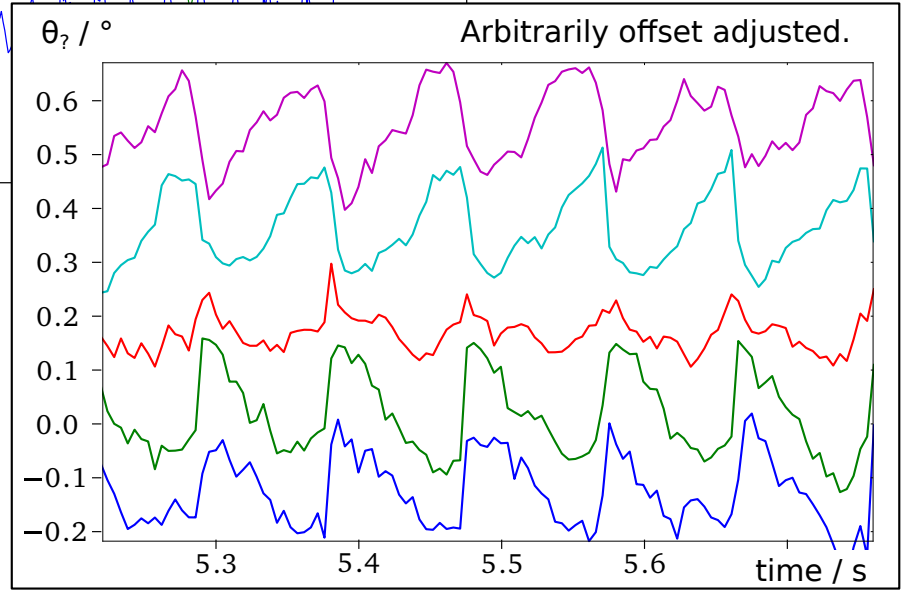
Sawteeth

Tuesday also had some very nice discharges with large/slow sawteeth.
Some were missed, but the camera shielding came just in time for the last few.





Data looks very good and shows the sawtooth pattern very clearly throughout the shot.
- Evolution direction inverts at R~1.79m.
- Pattern is unexpectedly large near the edge - R ~2.01m ??

Still need to check for contamination by other variables, plasma position and Shafranov shift.

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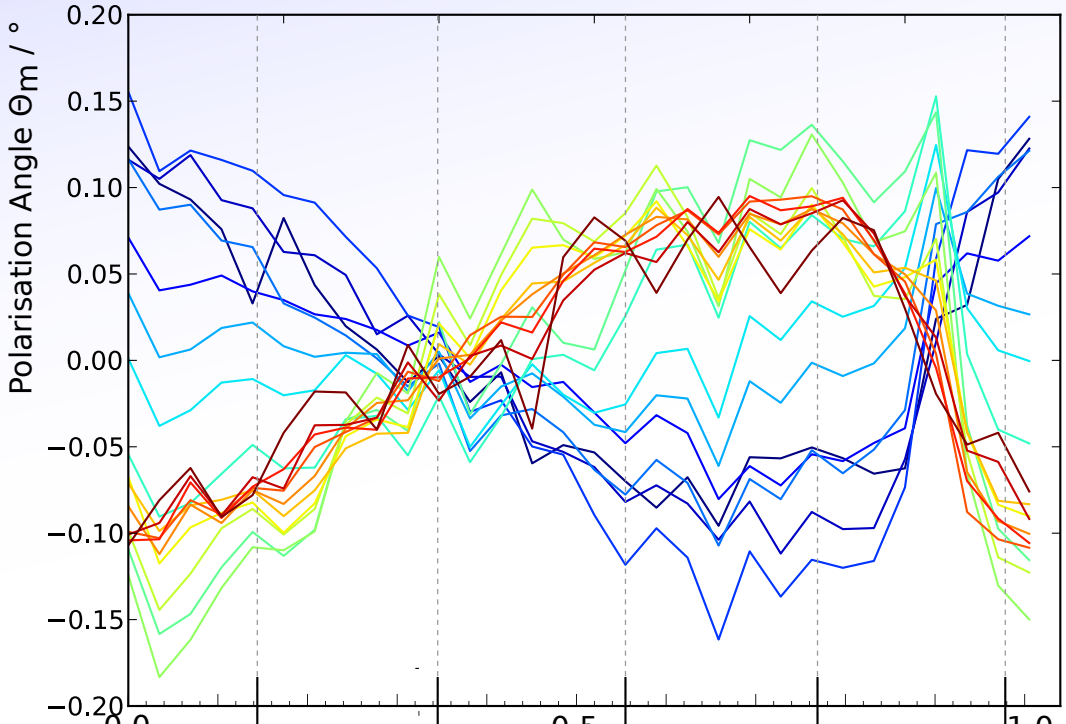
Sawtooth Average Delta Images

Establish approx sawtooth phase from polarisation angle at edge, where the signal is clear.
Average other images in ~30 blocks of phase with respect to that.



The ring is a weird instrumental effect. Probably due to low contrast due to bad spectral optimisation.