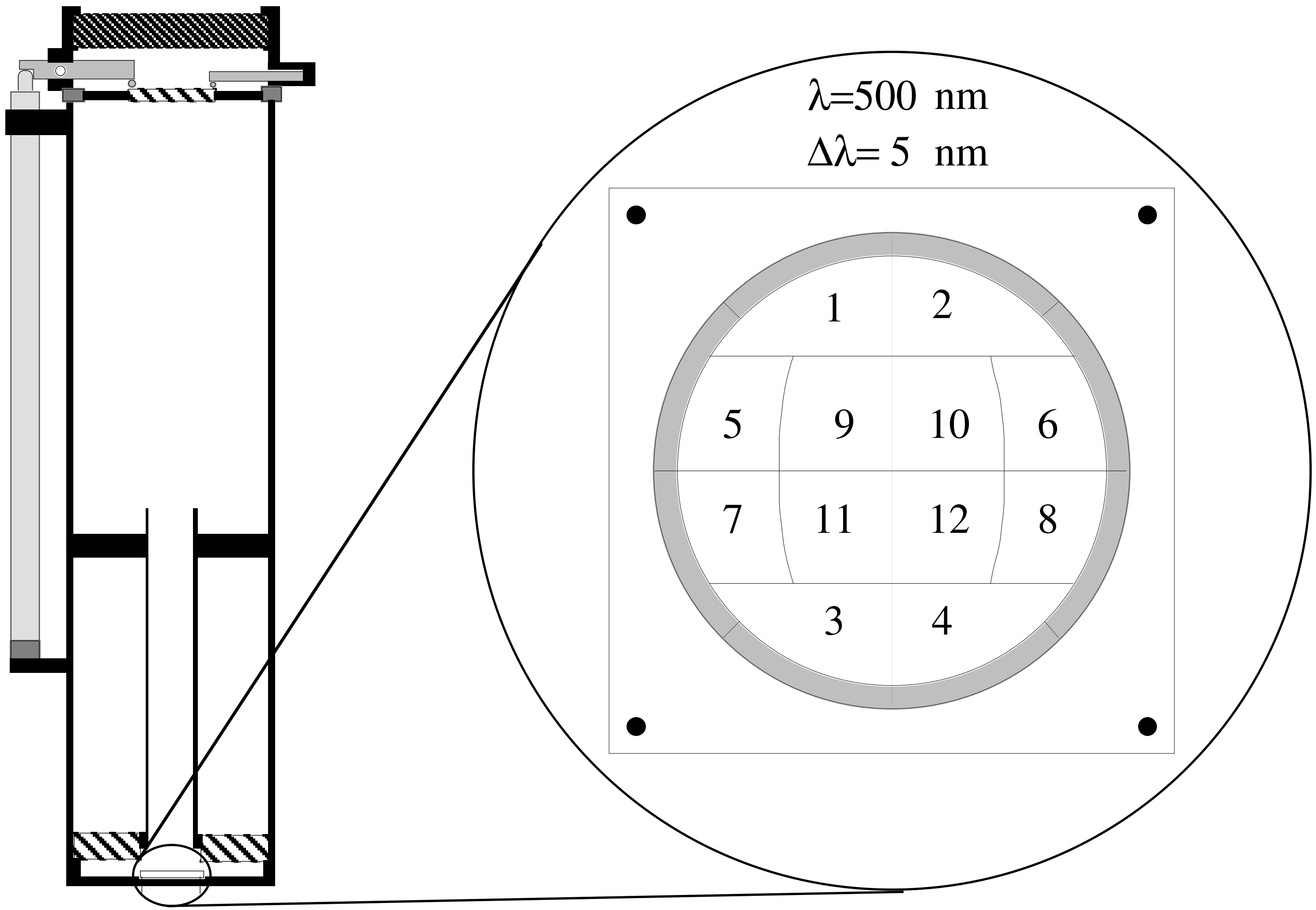
Luminosity Oscillations Imager



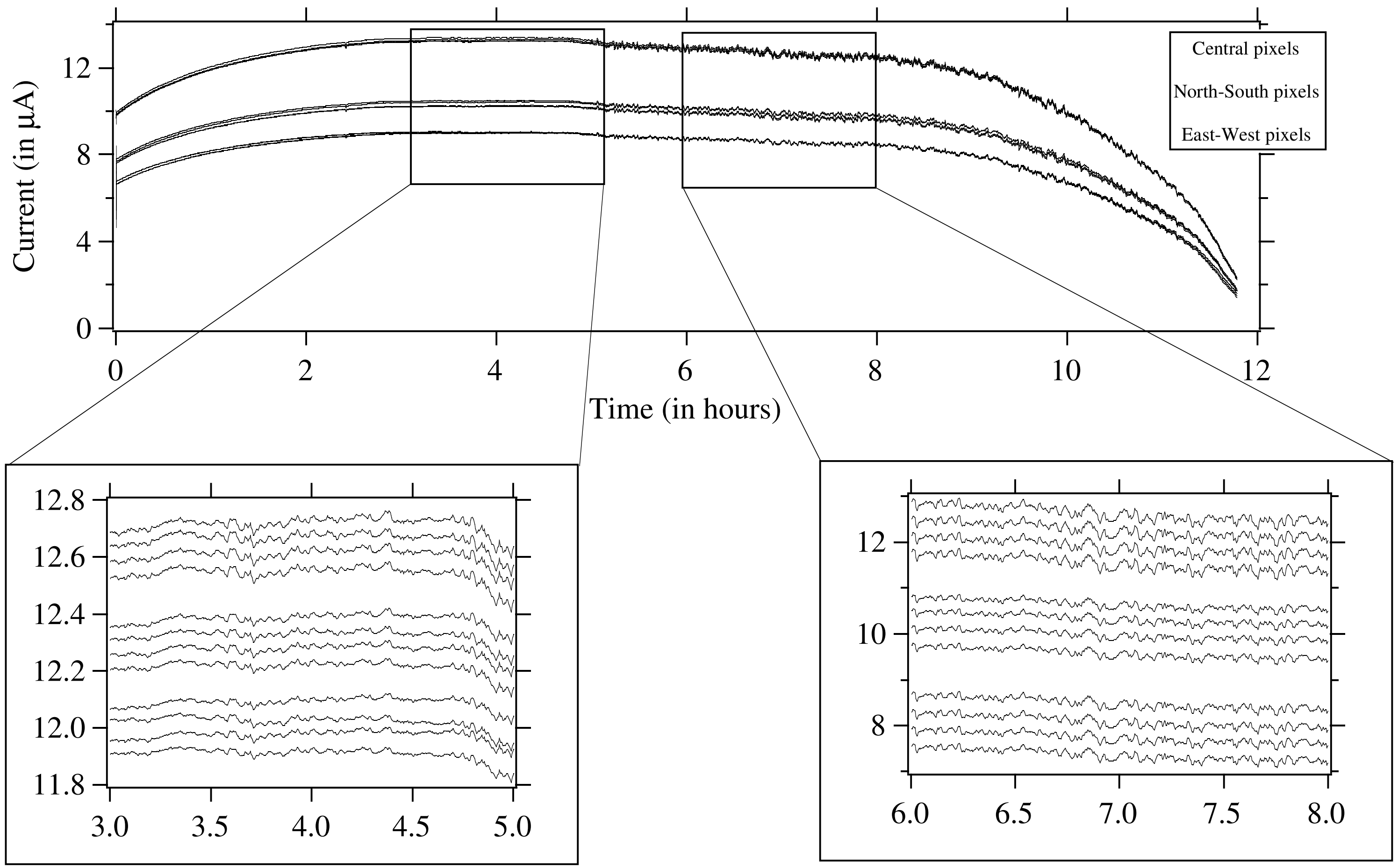
LOI: design and performances

- **12 pixels read simultaneously**
- **60-sec sampling rate with a 94% duty cycle**
- **Guiding system with piezoelectric actuators. Bandwidth 10 Hz. Range: 7′. Precision 0.1″**
- **Voltage-to-Frequency converter; 0.1 ppm in 60 s**
- **No active temperature control**
- **Space qualified and design validated...**

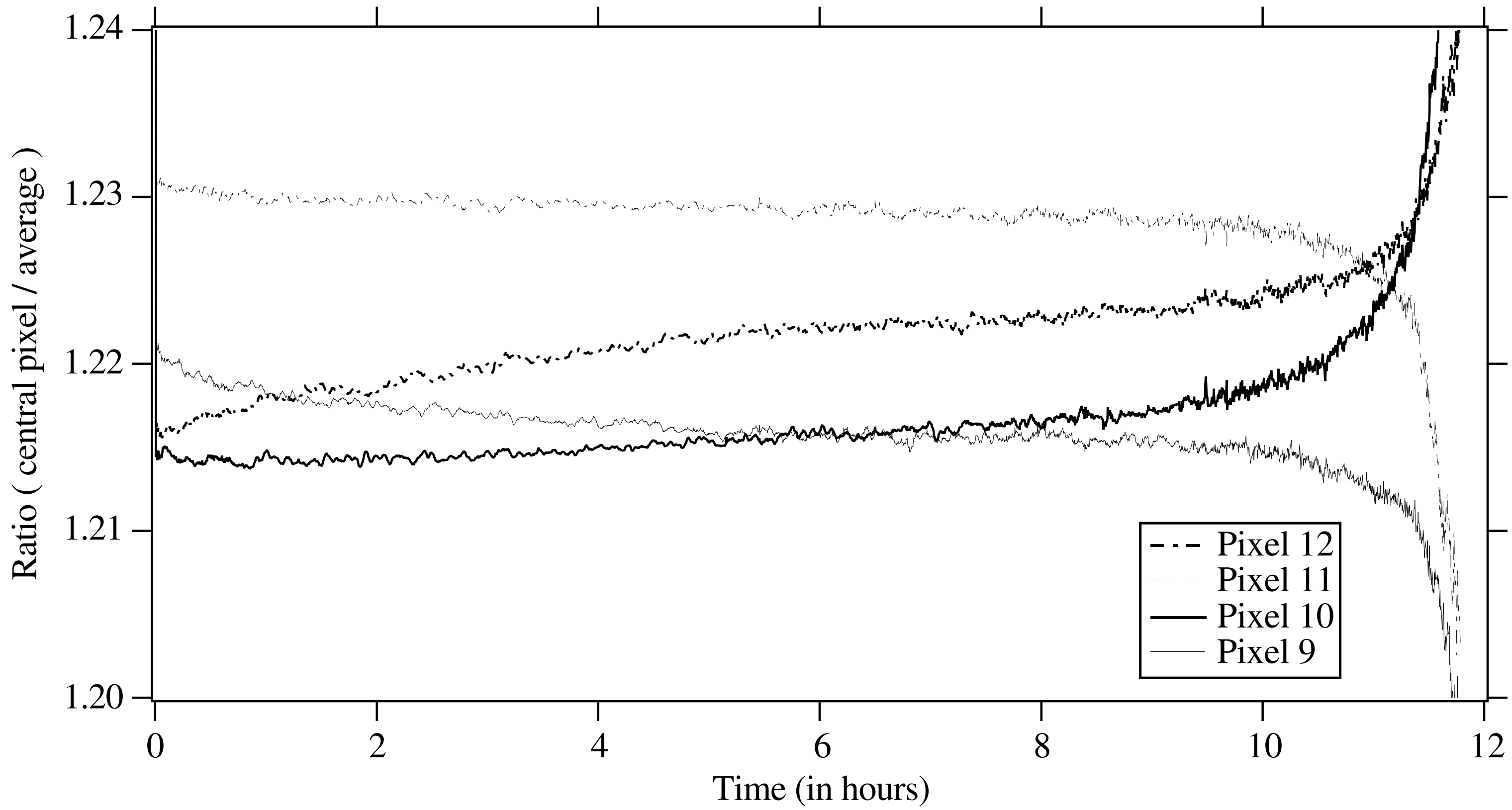
LOI: scientific objectives

- **Detect and classify low-l g modes for $l<7$.**
- **Characterize low-l p modes $l<7$: amplitudes, linewidths, frequencies and splittings.**
- **Phase difference between intensity and velocity measurements.**
- **Effect of active region on solar irradiance.**

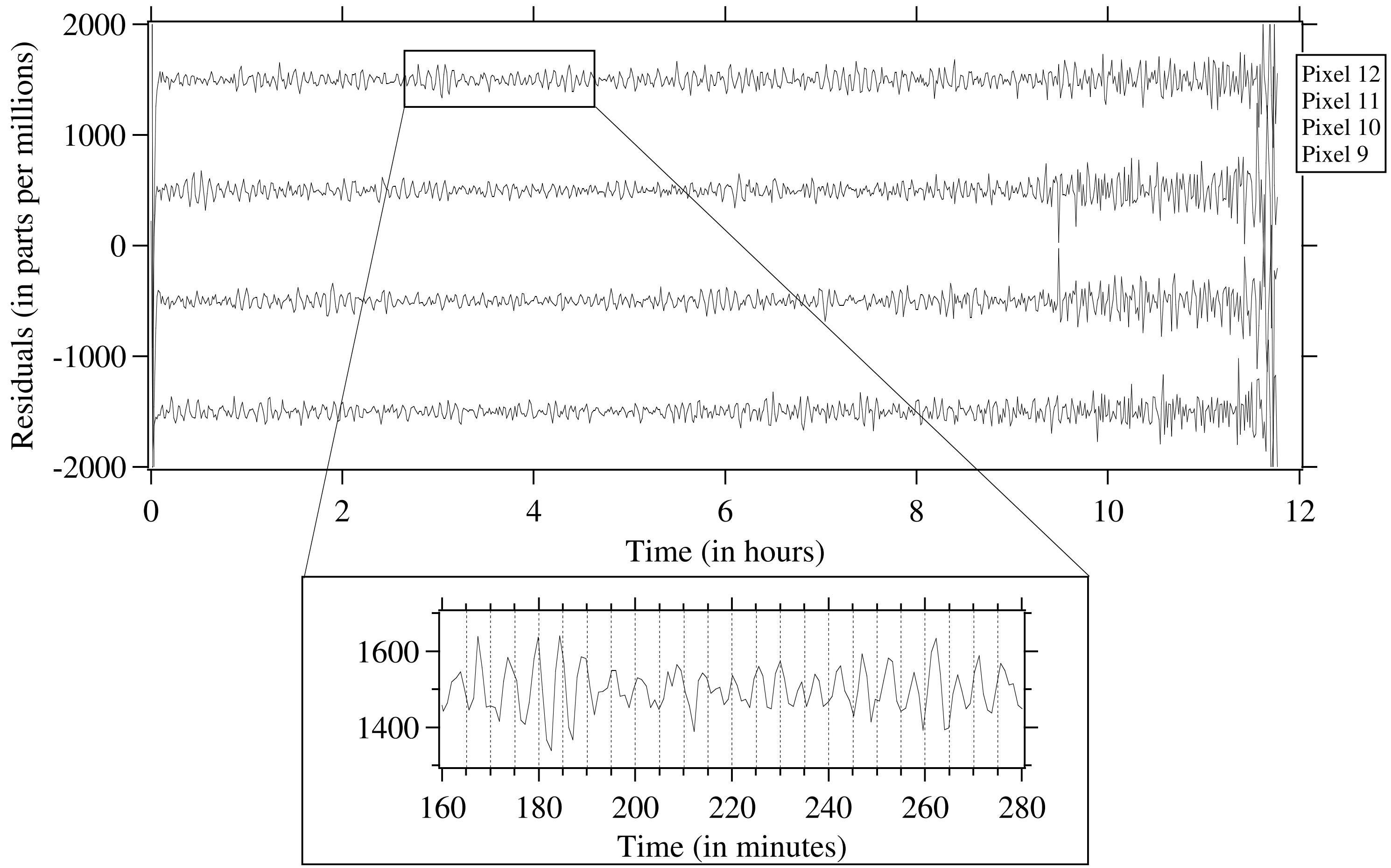
The coherence of the atmosphere



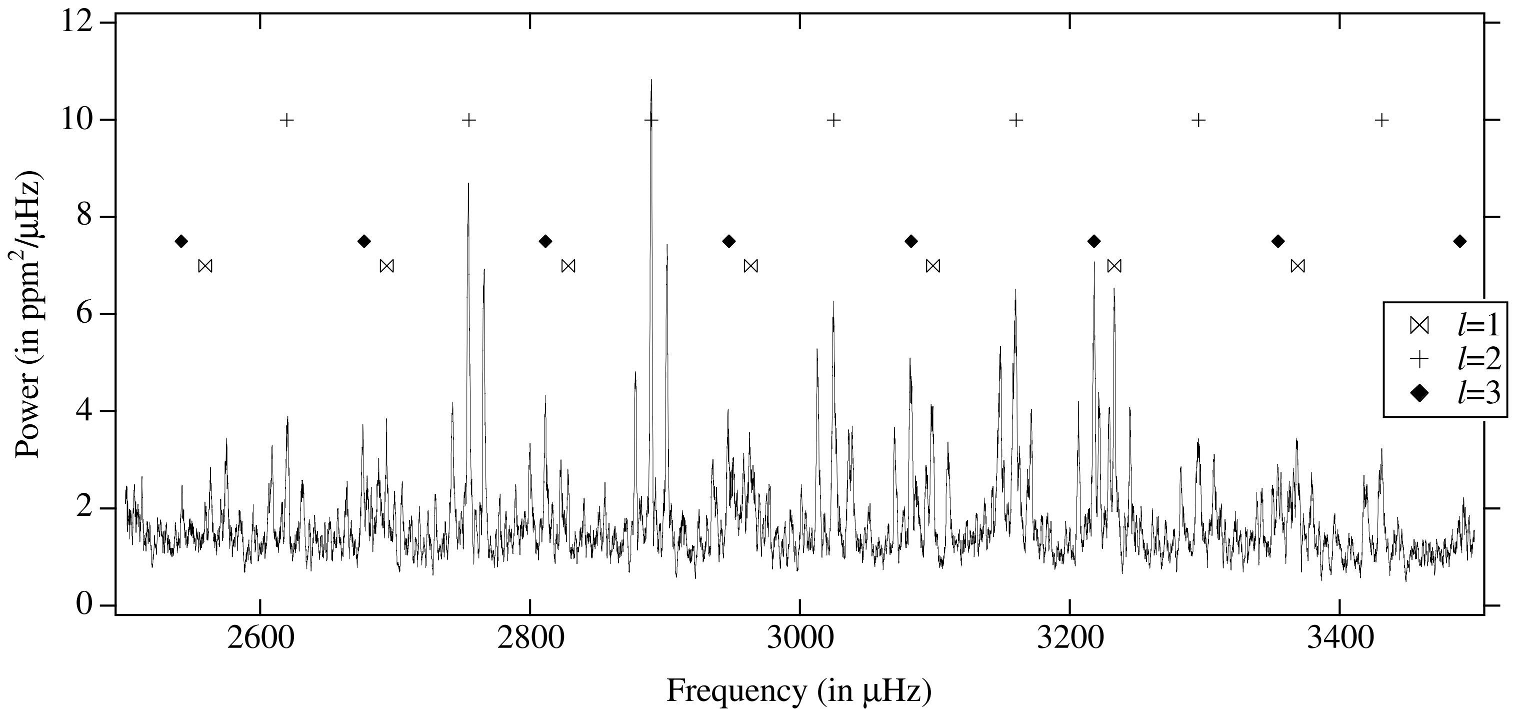
Correction using the coherence



Other corrections...



Power spectra for l=1 m=0



LOI pixel flat fielding

- **Pixel sensitivity variations ranges from 1% to 3%**
- **Pixel sensitivity are calibrated using quiet MDI and/or GONG images.**
- **Residual sensitivity variations, after calibration, should be of the order of 0.1% (enough?)**
- **Calibration is sensitive to active regions (sunspot). This could be used to detect sunspot passages from pixel to pixel.**
- **For more infos ask thierrya@so.estec.esa.nl. Thanks!**