

Juraj Lörinčík¹, Jaroslav Dudík², Elena Dzifčáková²

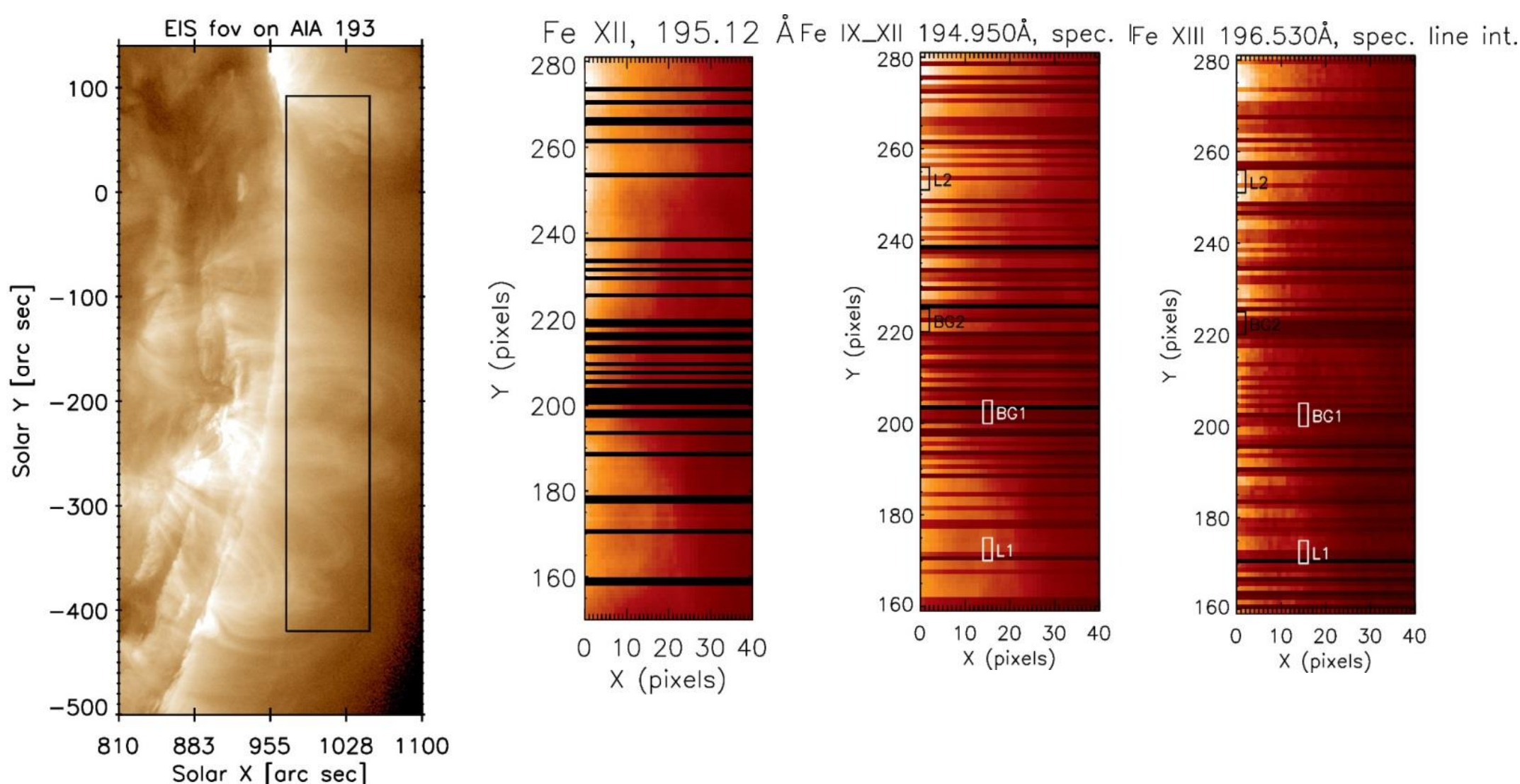
1 – Faculty of Mathematics, Physics and Computer Science, Comenius University, Mlynská Dolina F2, 842 48 Bratislava, Slovak Republic

2 – Astronomical Institute of the Academy of Sciences of the Czech Republic, Fričova 298, 251 65 Ondřejov, Czech Republic

1. Introduction

- Missing pixels (MP) are pixels showing false signal due to detector damage and aging
- We produce spectra averaged over a small box while leaving out the MPs
- These are compared to averaged spectra with interpolated MPs using the standard EIS software
- Plasma density diagnosed within two areas

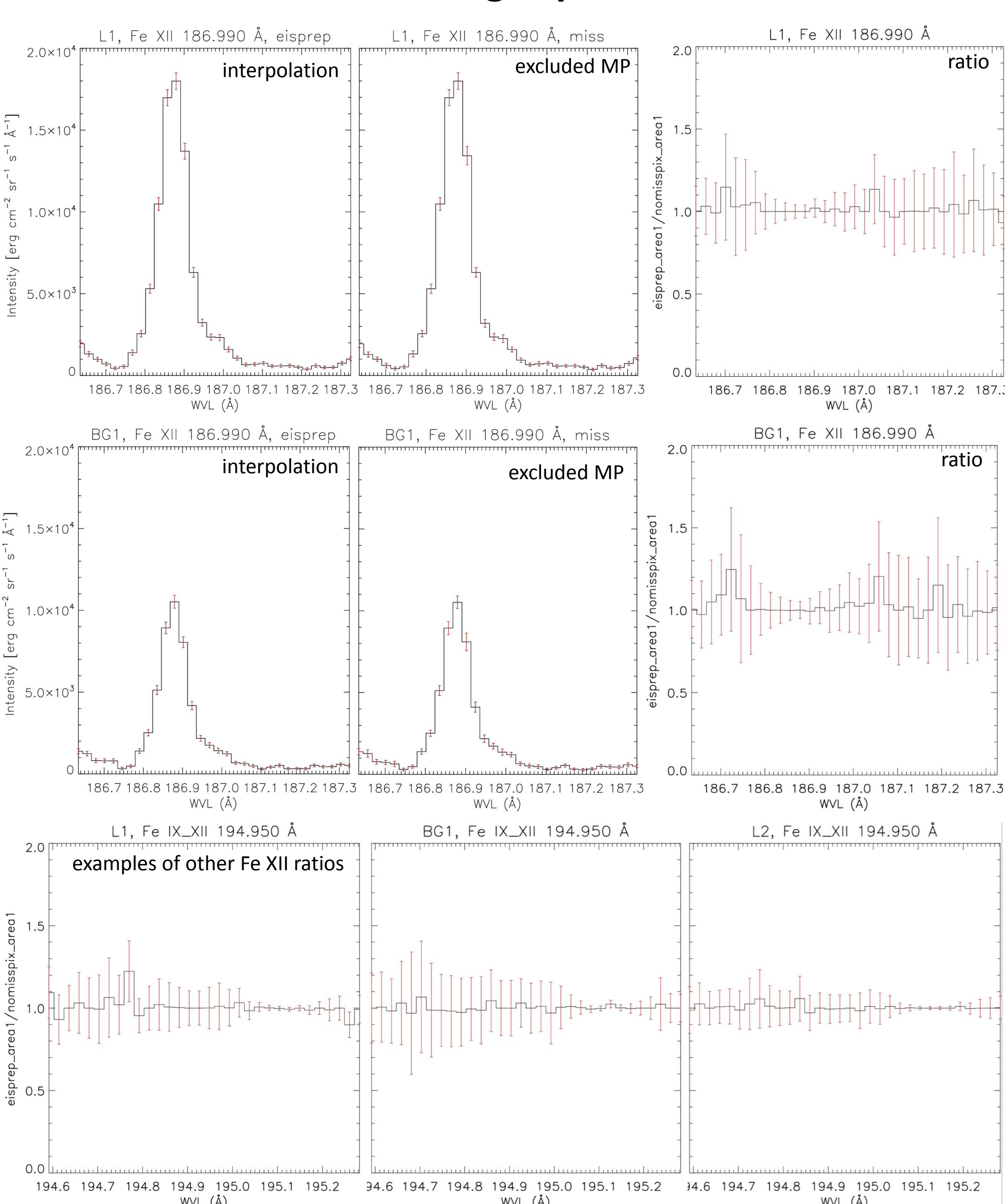
2. Observations and missing pixels



HOP 265

- 80 × 512 arc sec off-limb observation, 2 arc sec slit
- Fe IX – XIII lines in 21 spectral windows
- about 26% of pixels are MPs** (black lines), these are mostly warm pixels
- summing over 3 wavelength bins in line center – brown lines showing MP locations and number
- L1, L2 – loops; BG1, BG2 – background, 2x5 px boxes

3. Average spectra

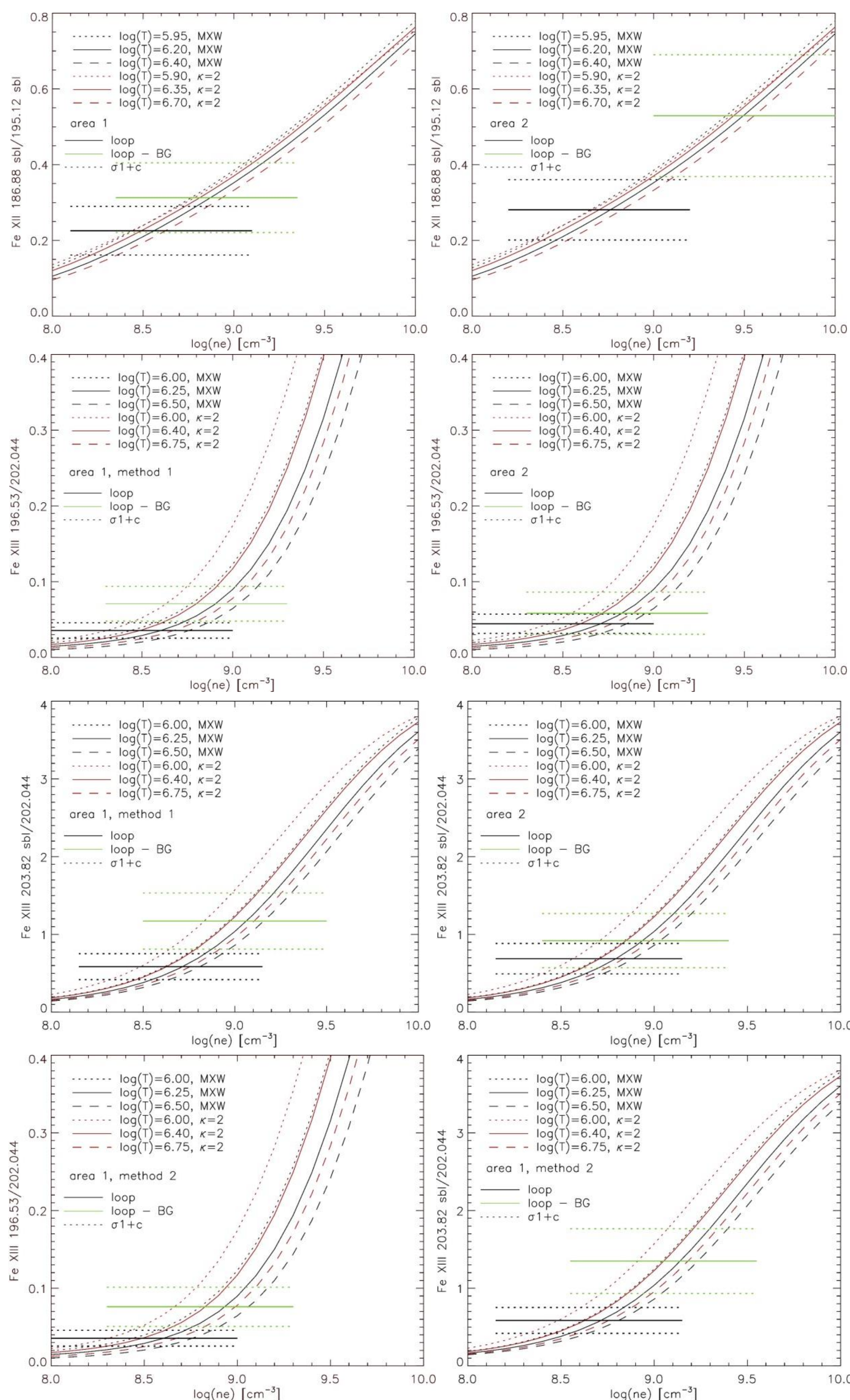


- Averaged spectra with excluded MPs are the same as the averaged ones with MPs interpolated (within photon noise uncertainty)

4. Background subtraction and data fitting

- Background (BG) is a significant portion of the observed signal (up to 50%)
- BG subtraction and data fitting the manual XCFIT routine done in two ways:
 - BG subtracted directly, resulting spectrum then fitted (method 1)
 - BG and loop spectra fitted, intensities then subtracted (method 2)
- The highest difference in resulting intensities: 11.12 % for Fe XIII 202.04 Å

5. Density diagnostics



6. Conclusions

- Average spectra with interpolated and excluded MPs showed the same results
- $\log(n_e/\text{cm}^{-3}) \sim 8.6$ for L1 and L2 with no BG subtraction
- $\log(n_e/\text{cm}^{-3}) \sim 8.95$ after BG subtraction
- Density is **not sensitive** to the method of BG subtraction (due to uncertainties)
- Poorly chosen BG2 leads to inconsistent densities from Fe XII and Fe XIII

ACKNOWLEDGEMENTS

This work was supported by the Faculty of Mathematics, Physics and Computer Science (FMPHI), Comenius University in Bratislava. JL acknowledges Cambridge Philosophical Society, ESA and FMPHI for providing financial support needed for attending CL VII Workshop. JD and EDZ acknowledge Grant Agency of the Czech Republic, Project No. P209/12/1652. JD also acknowledges support from the Royal Society via the Newton Alumni Programme. Hinode is a Japanese mission, developed and launched by ISAS/JAXA, with NAOJ as domestic partner and NASA and STFC (UK) as international partners.