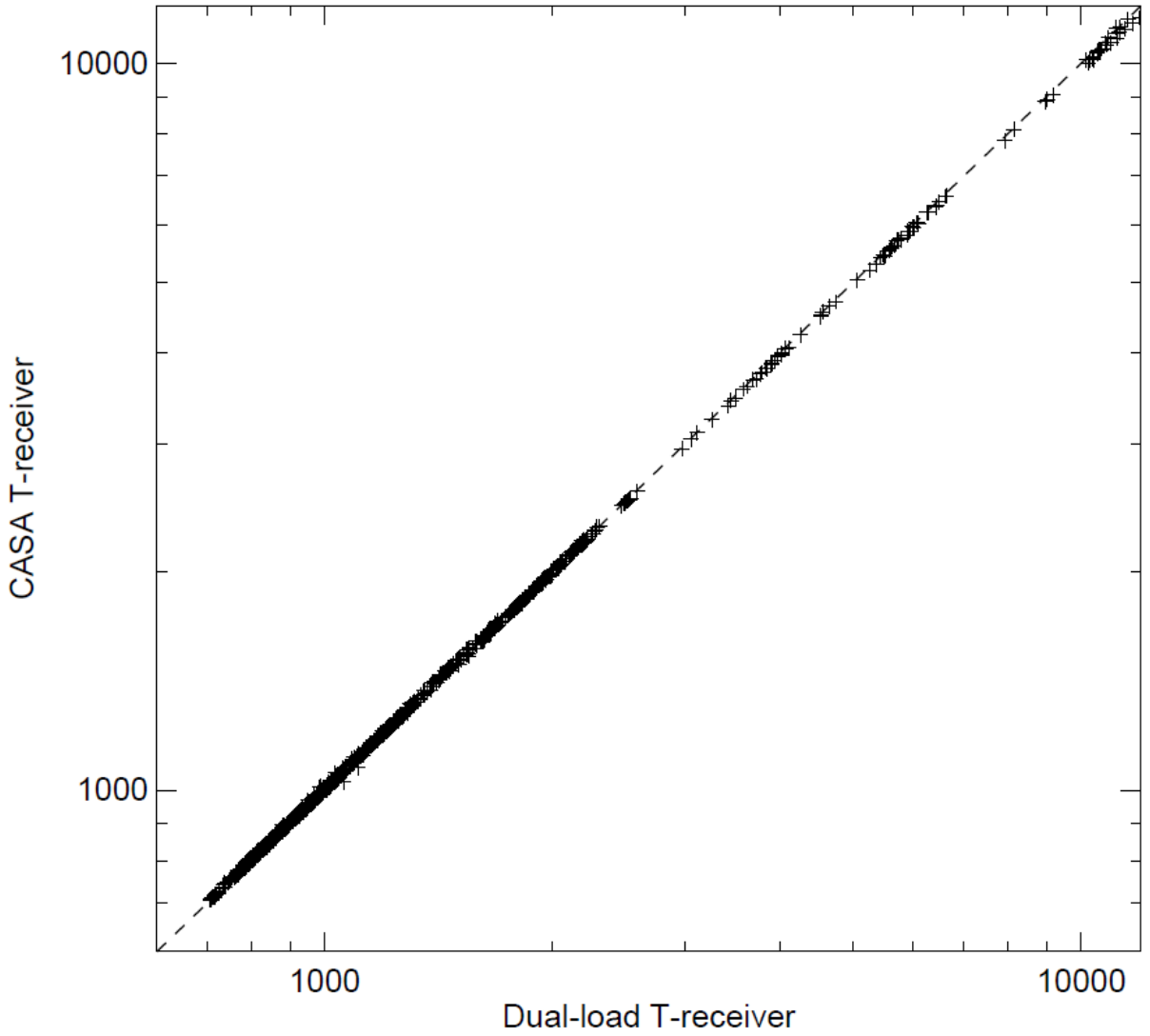
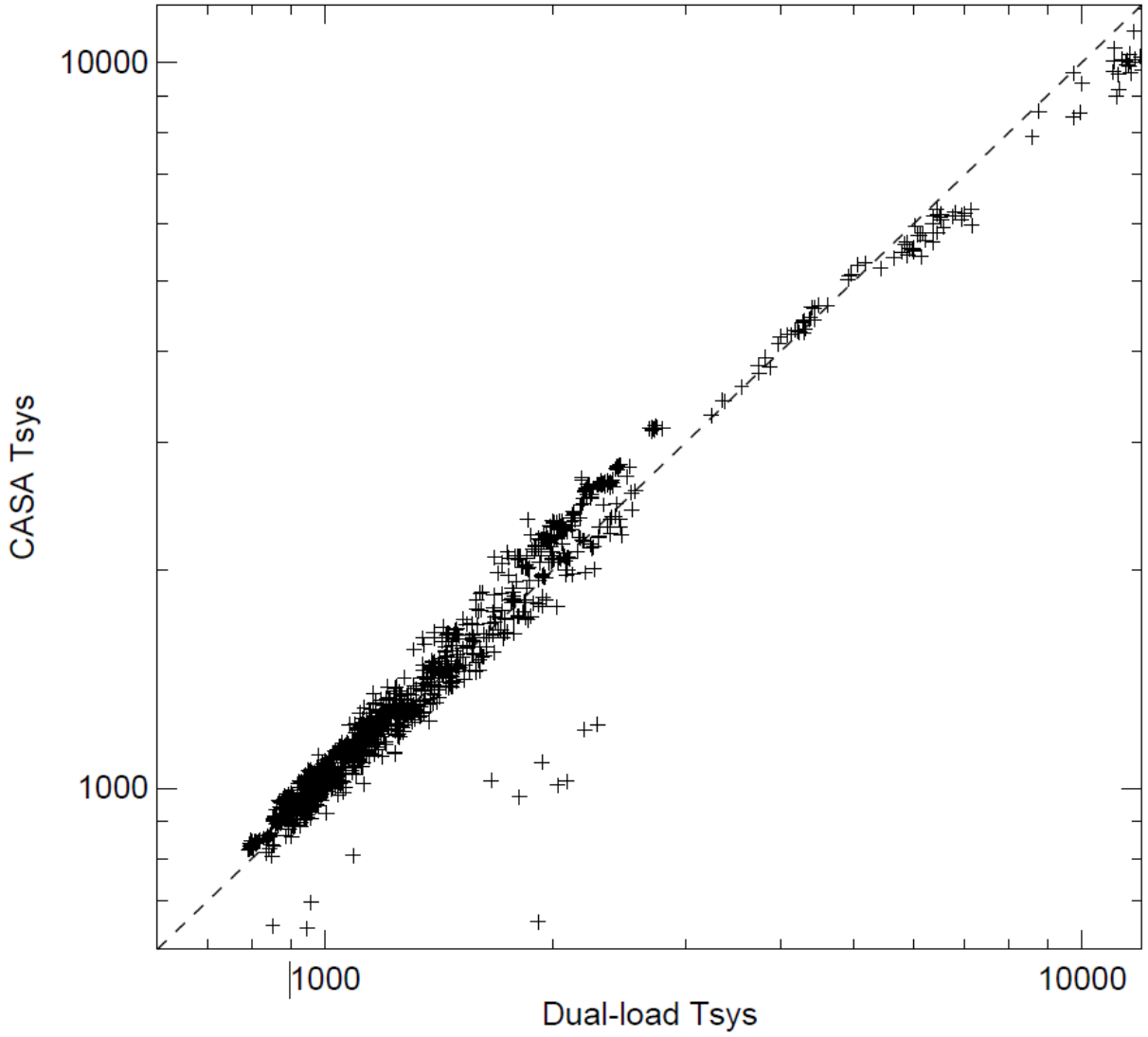
Single-Dish Calibration and Imaging

Datasets from 2017/03/16 (Band 3)
and 2017/03/23 (Band 6)

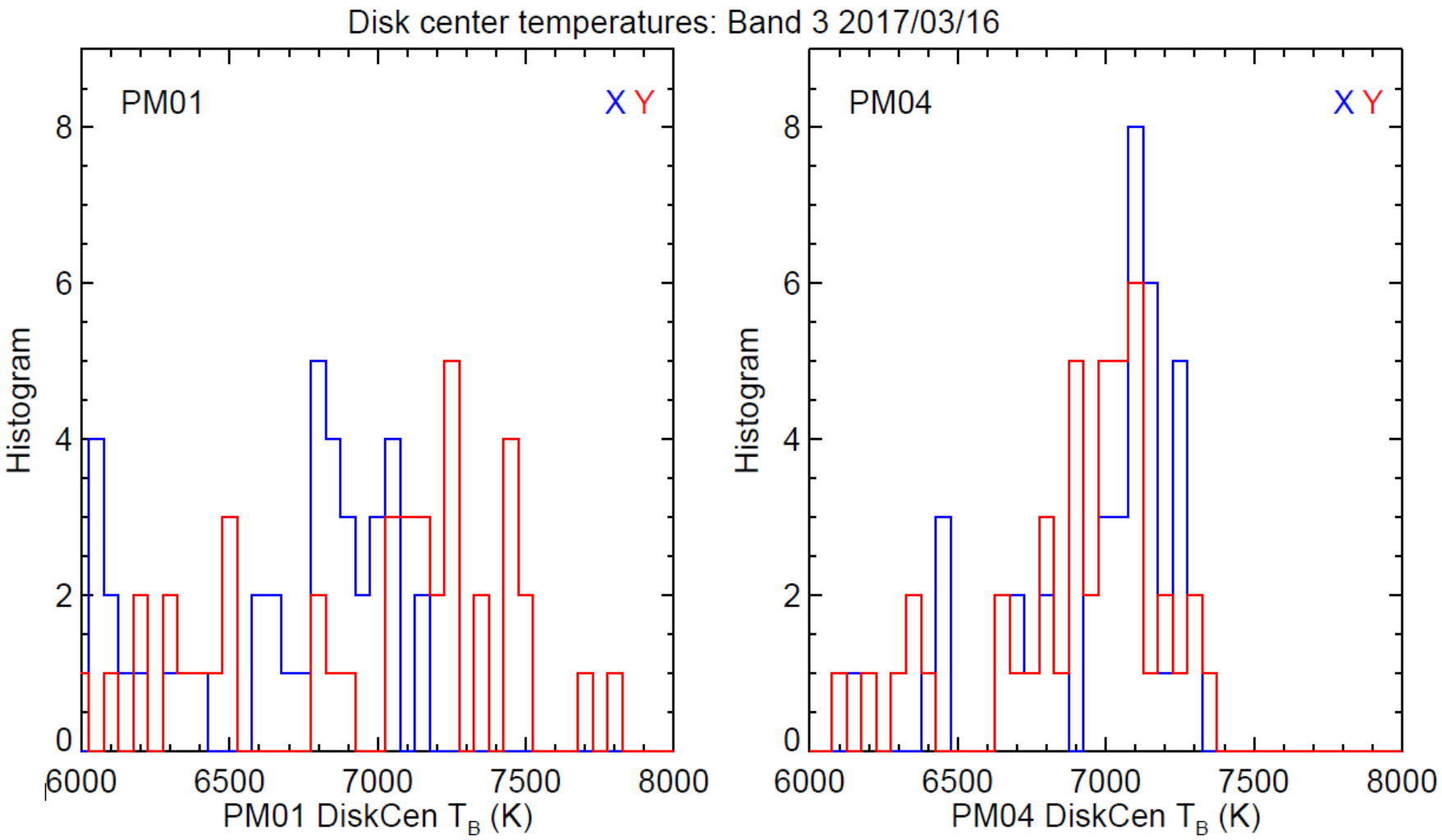
Comparing calibration per commissioning paper with CASA: receiver temperature



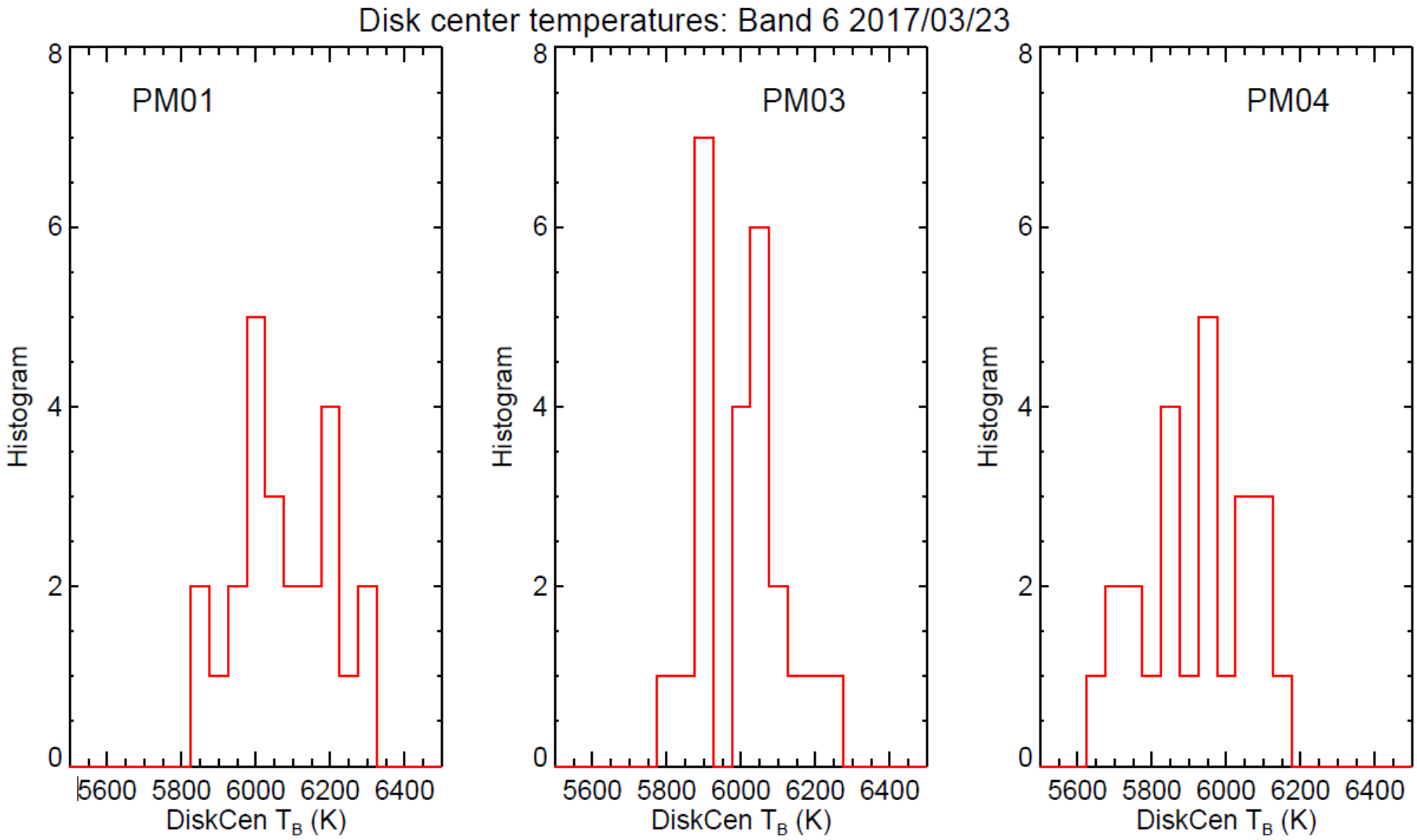
Comparing calibration per commissioning paper with CASA: system temperature



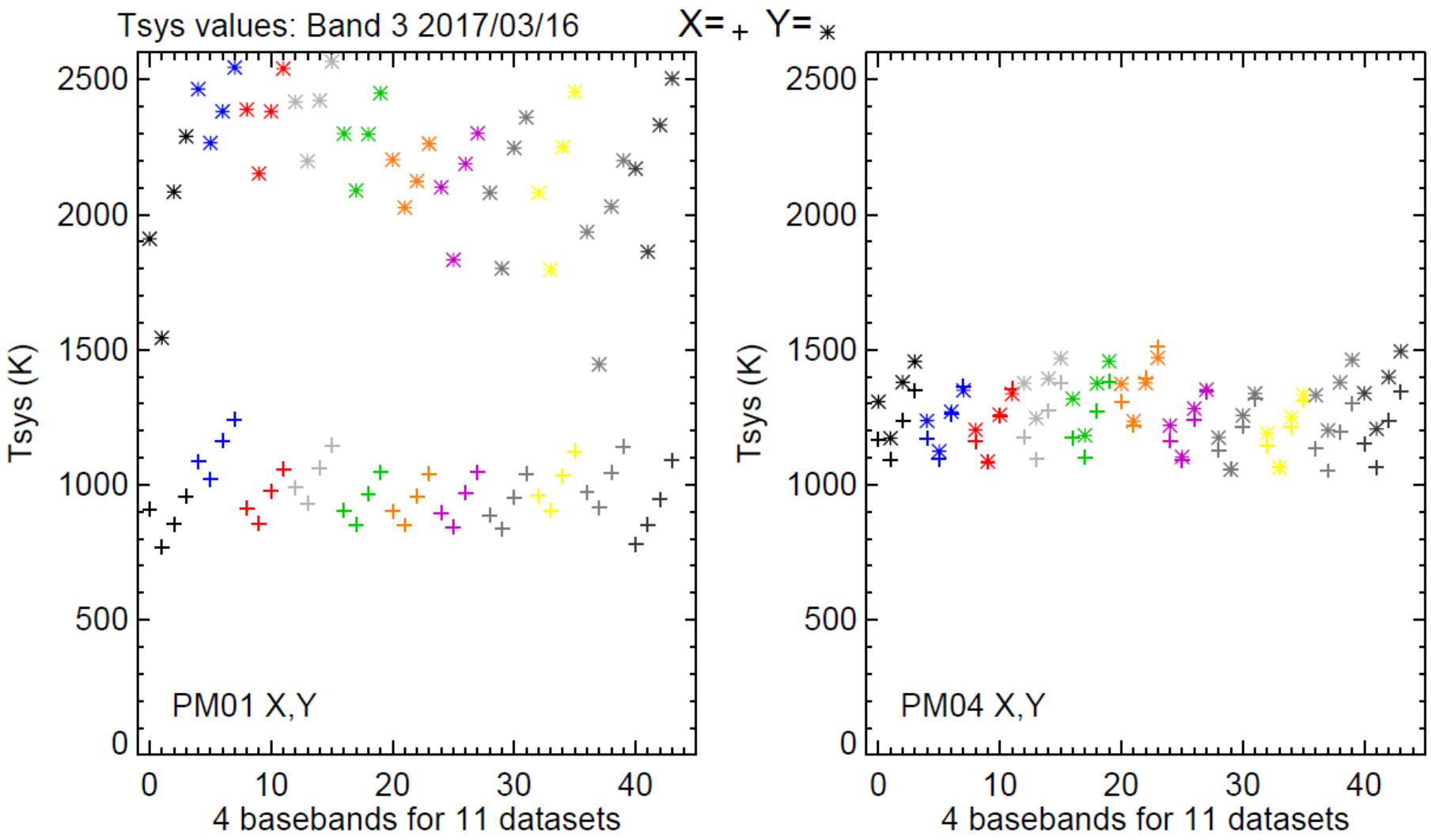
Disk center brightness temperatures: Band 3



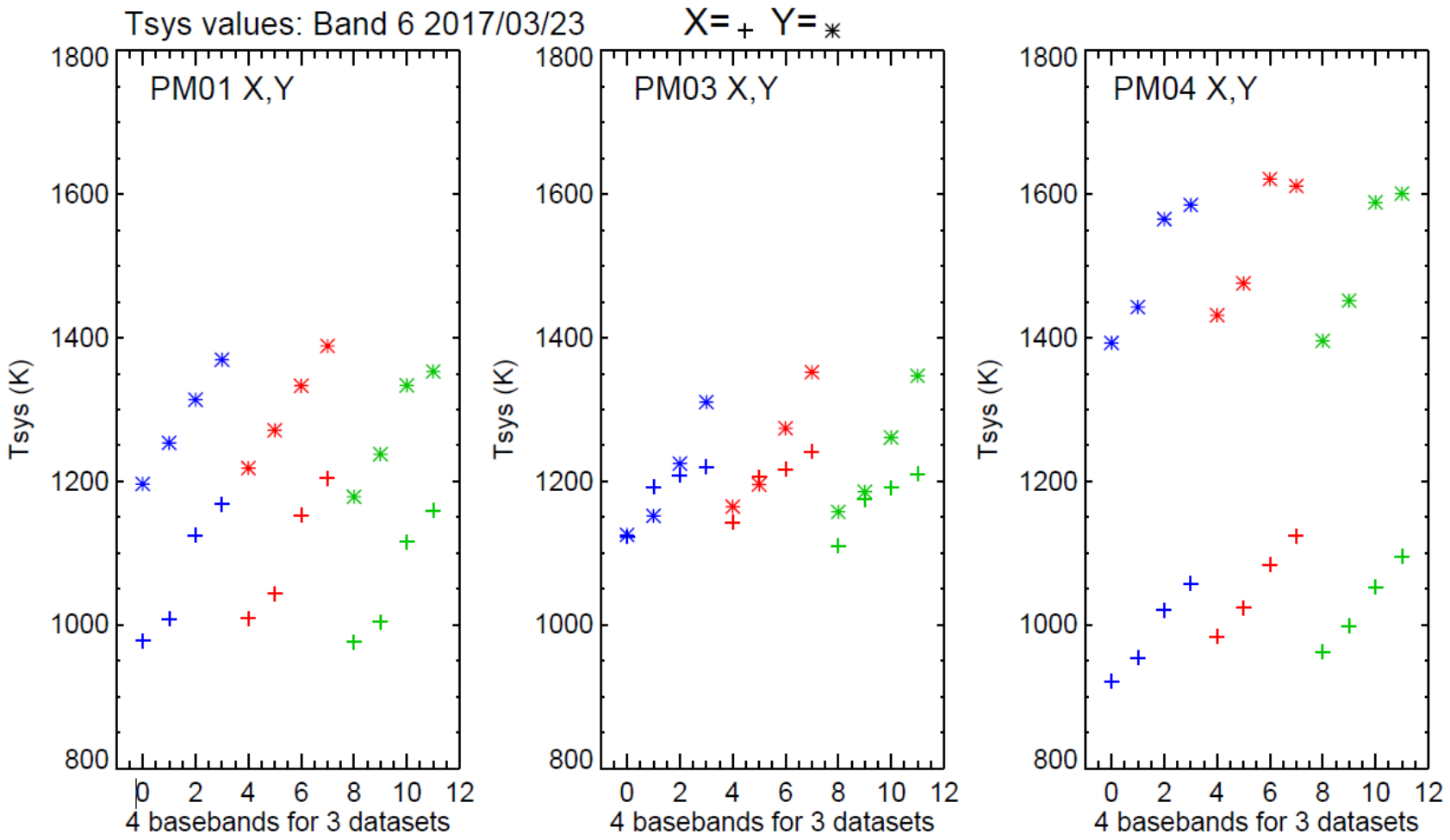
Disk center brightness temperatures: Band 6



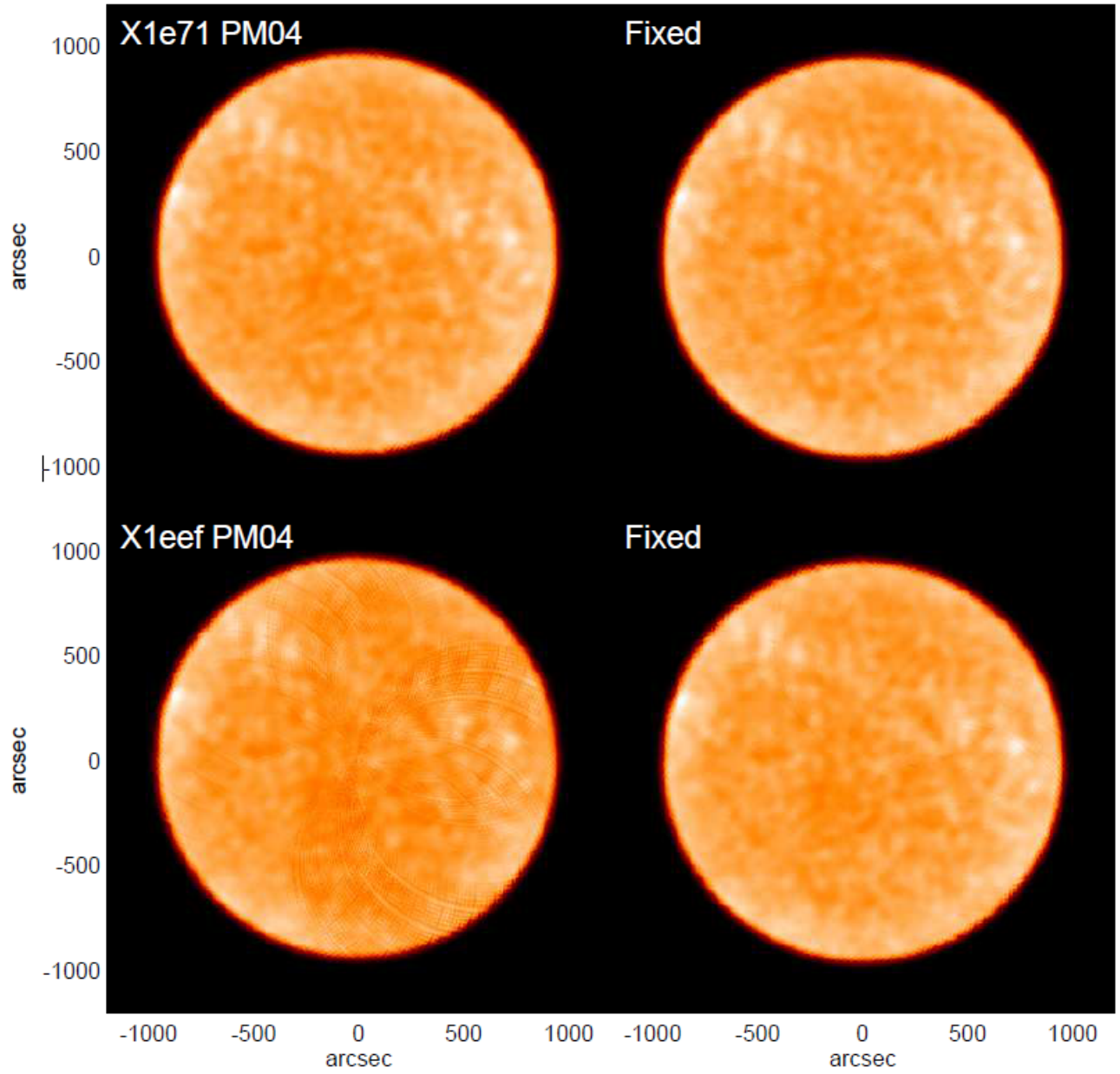
System temperatures vs polarization: Band 3

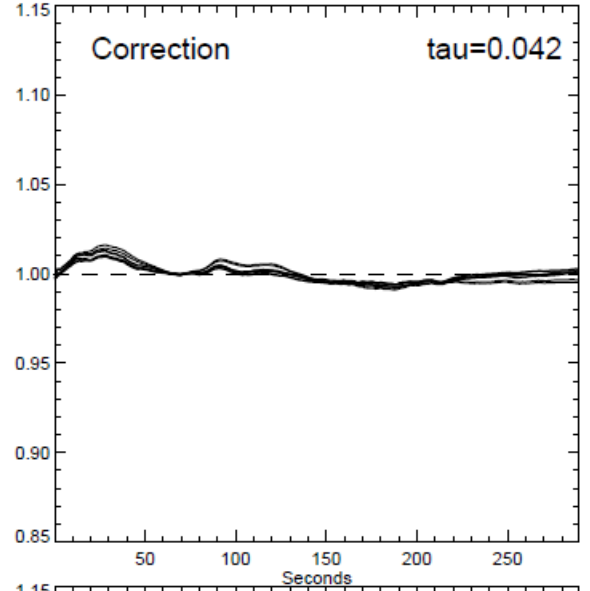


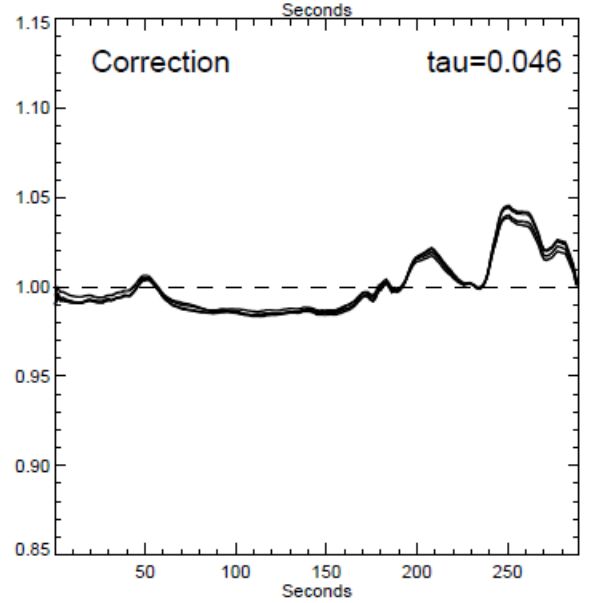
System temperatures vs polarization: Band 6



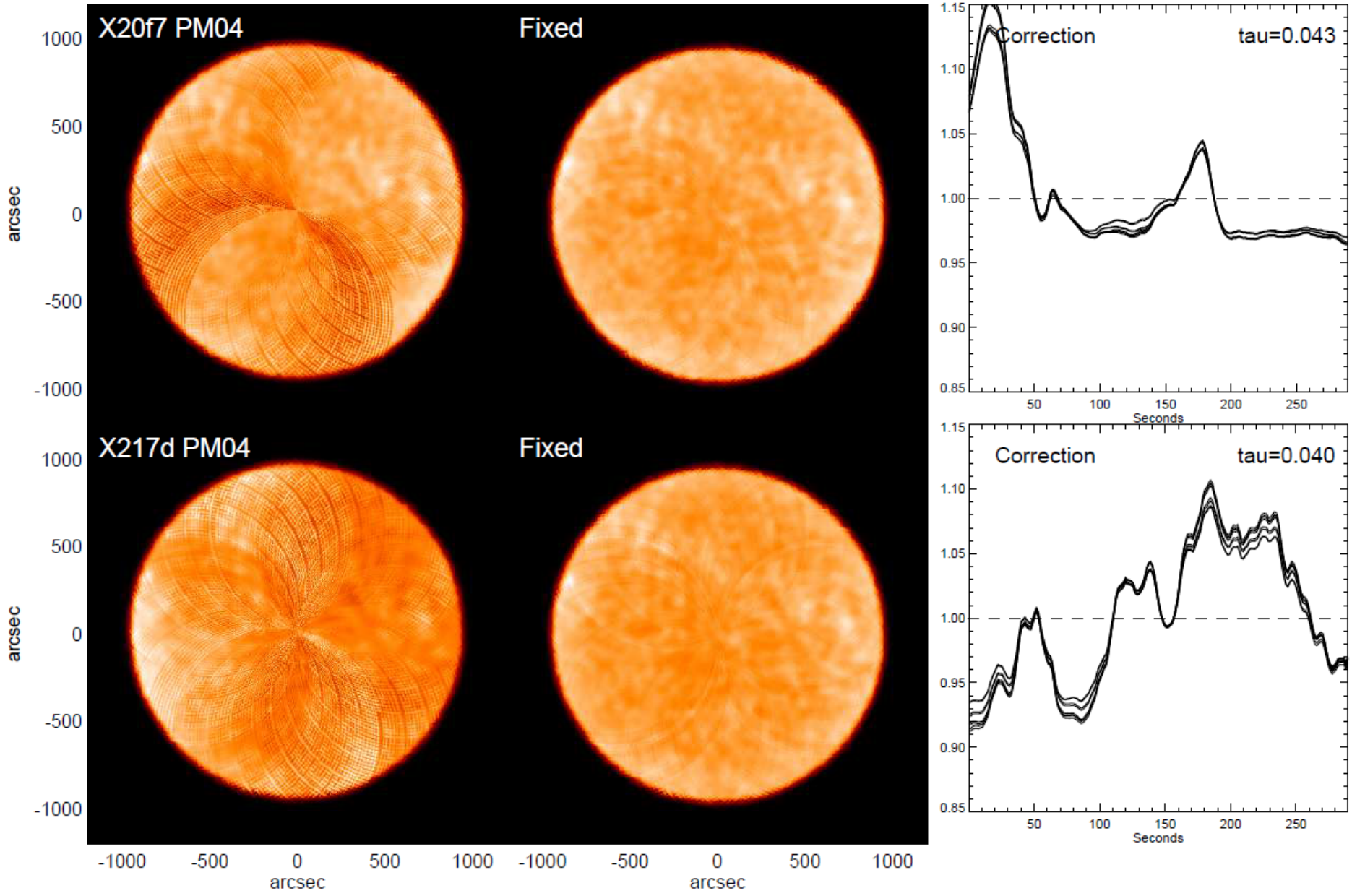
Imaging issues and atmospheric correction: Band 3



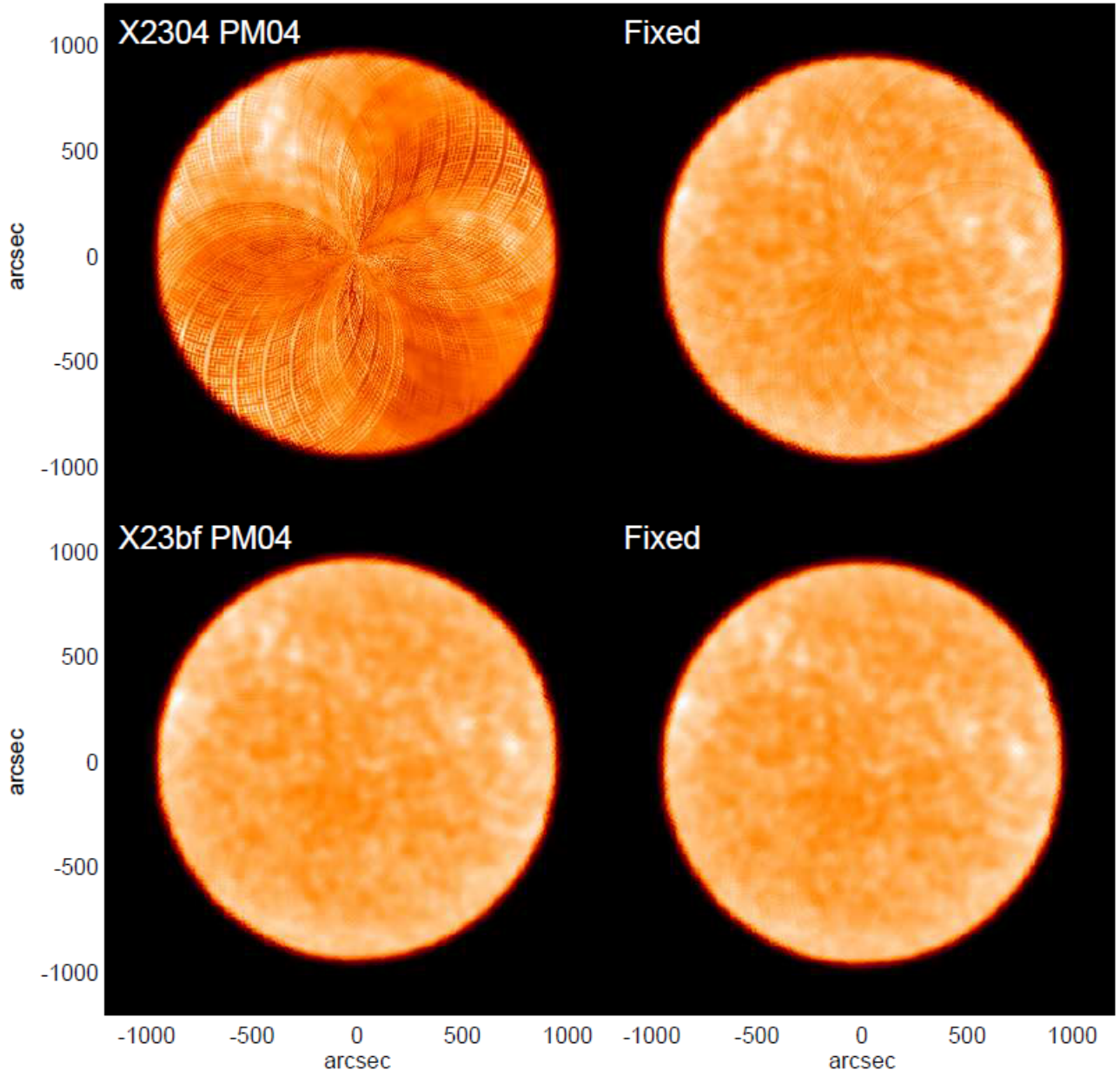


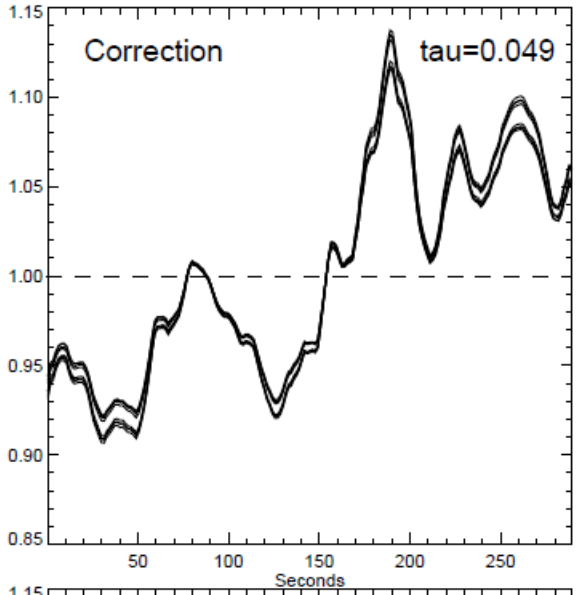


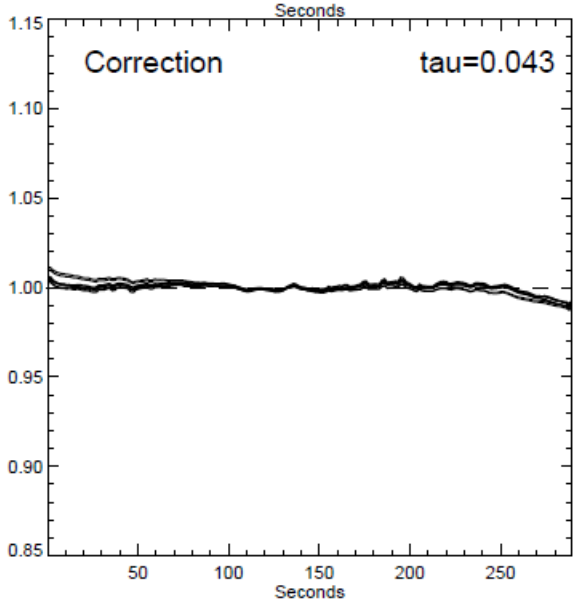
Imaging issues and atmospheric correction: Band 3



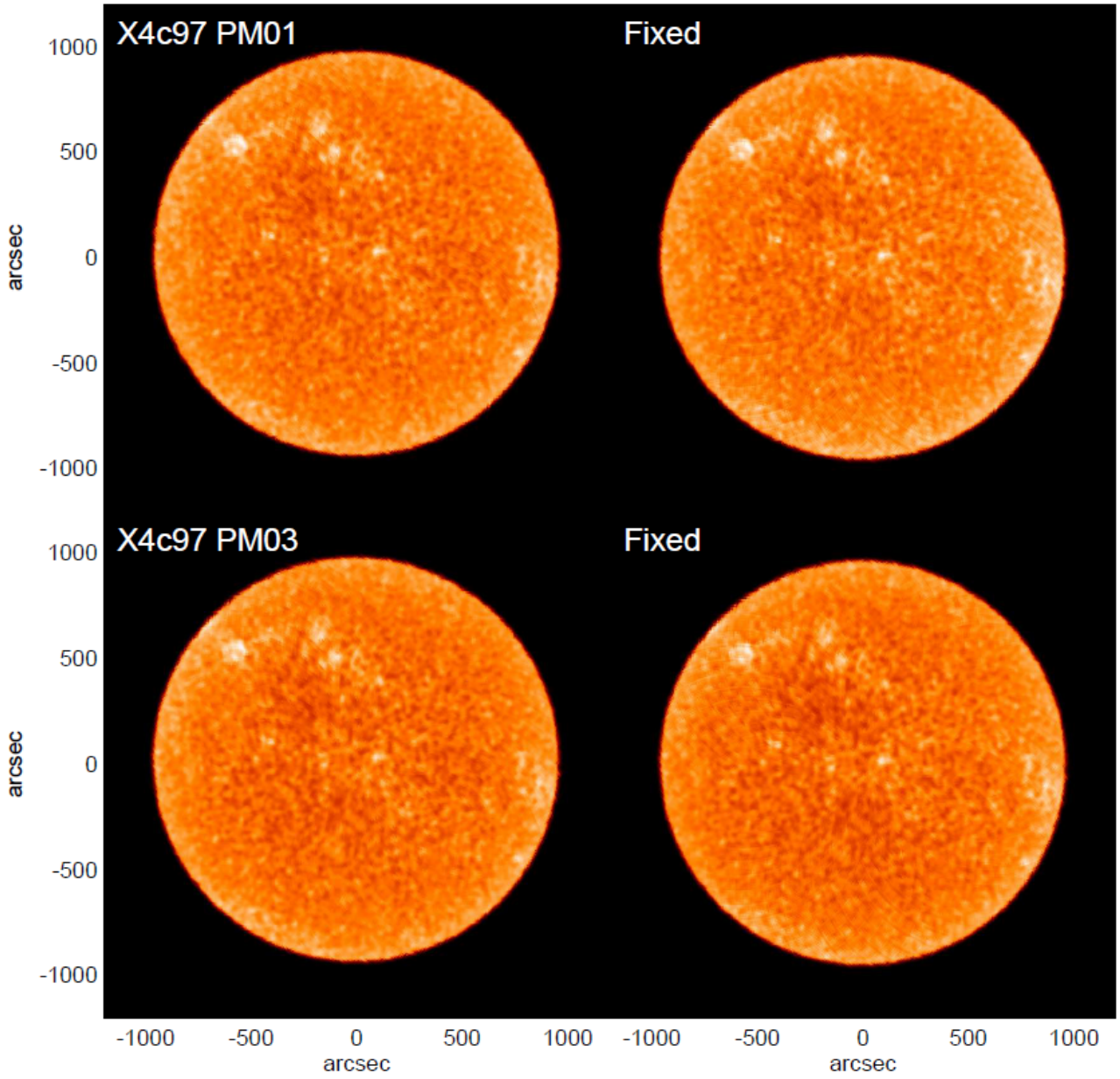
Imaging issues and atmospheric correction: Band 3

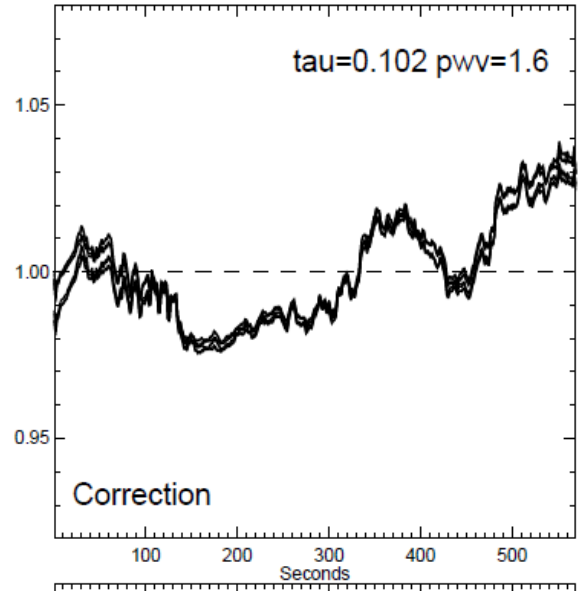


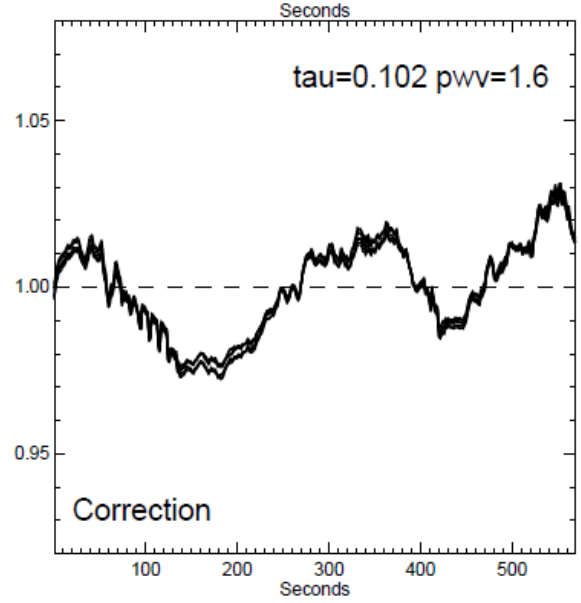




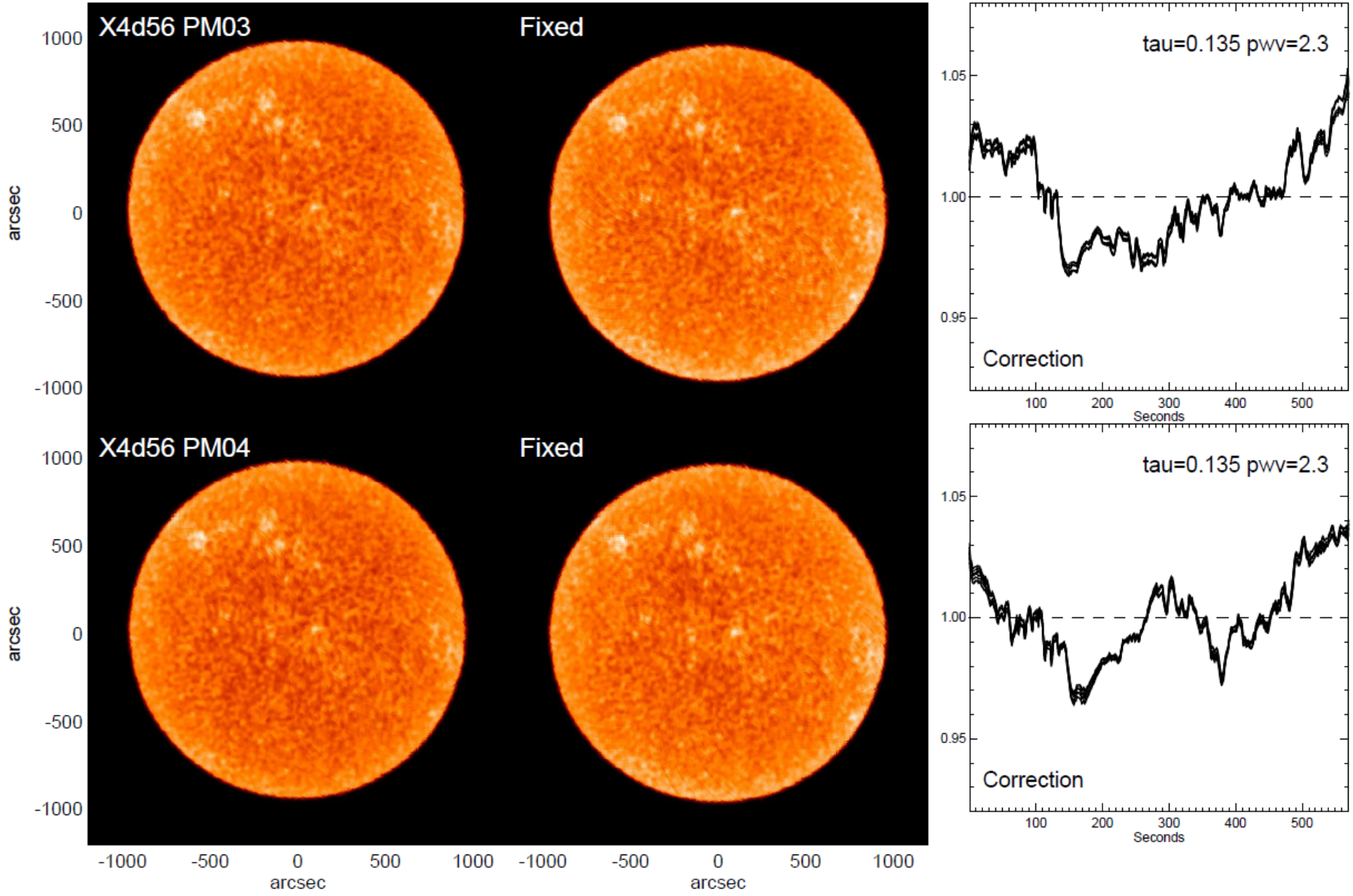
Imaging issues and atmospheric correction: Band 6







Imaging issues and atmospheric correction: Band 6



Summary

- Calibration errors remain significant, and for a given antenna we can see large differences in Tsys between X and Y polarizations.
- **However, scaling of T_B is not as bad as the problem with Tsys**
- The atmospheric correction procedure generally works well to improve the images, although my implementation does not fix everything.
- CASA has a program to carry out the correction: **sdgaincal.** It implements a previous version: I have not tested it much since I assumed it would not be needed for Bands 3 and 6.
- **Data such as these show that correction may actually be needed for Bands 3 and 6.**
- The reason for 15% fluctuations in the gain at Band 3 when tau is only 5% can be explored.