

Analysis of Multi-Wavelength SLR Tracking Data Using Precise Orbits

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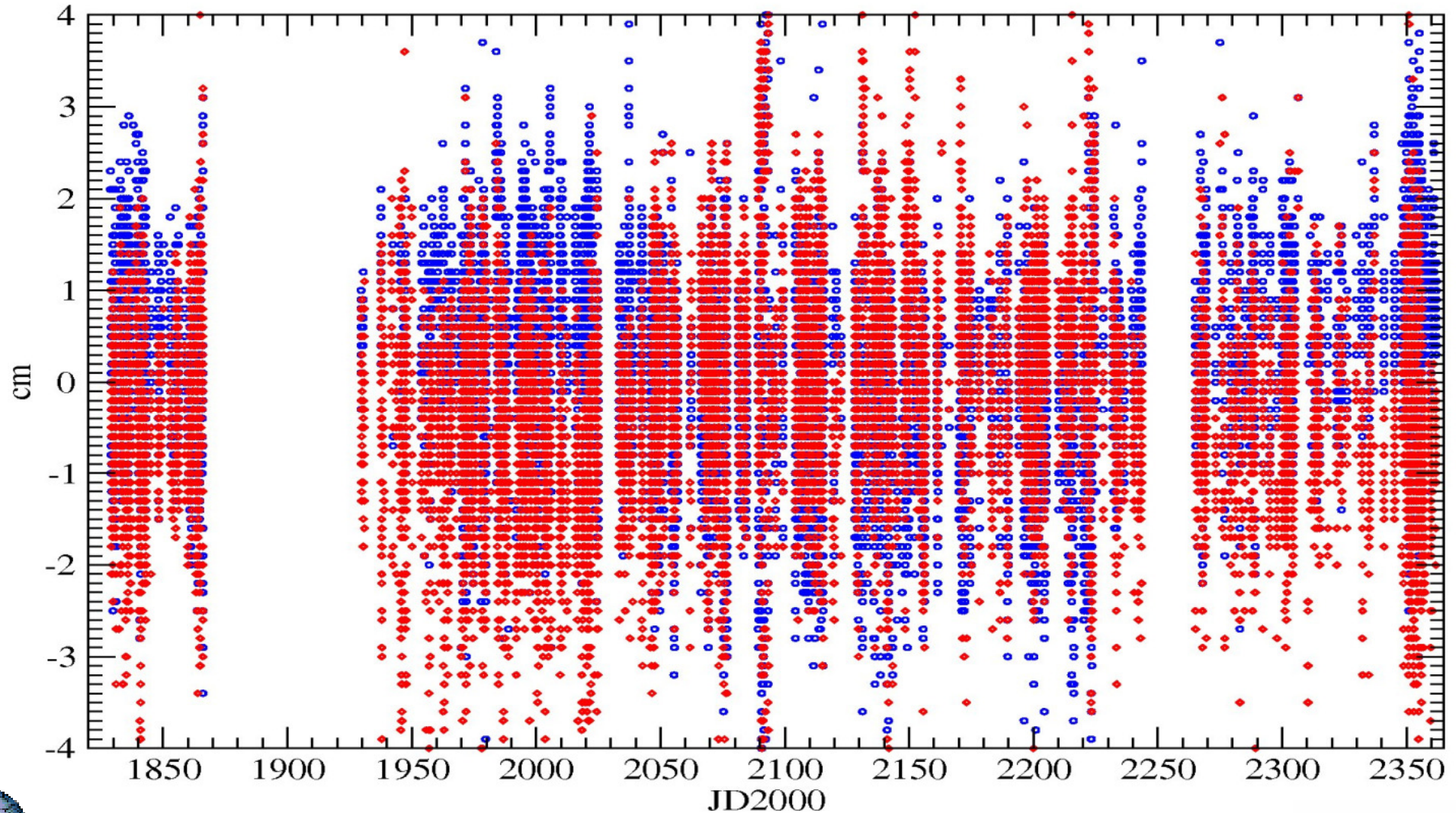


Processing Strategy

- Software: DOGS-OC 4.07
- Models:
 - same models like the routine weekly processing
 - weekly Lageos 1/2 arcs in 2006
- Solved parameters:
 - Internal arc parameters
 - earth orientation parameters
 - station coordinates
 - individual pass biases for blue and red laser

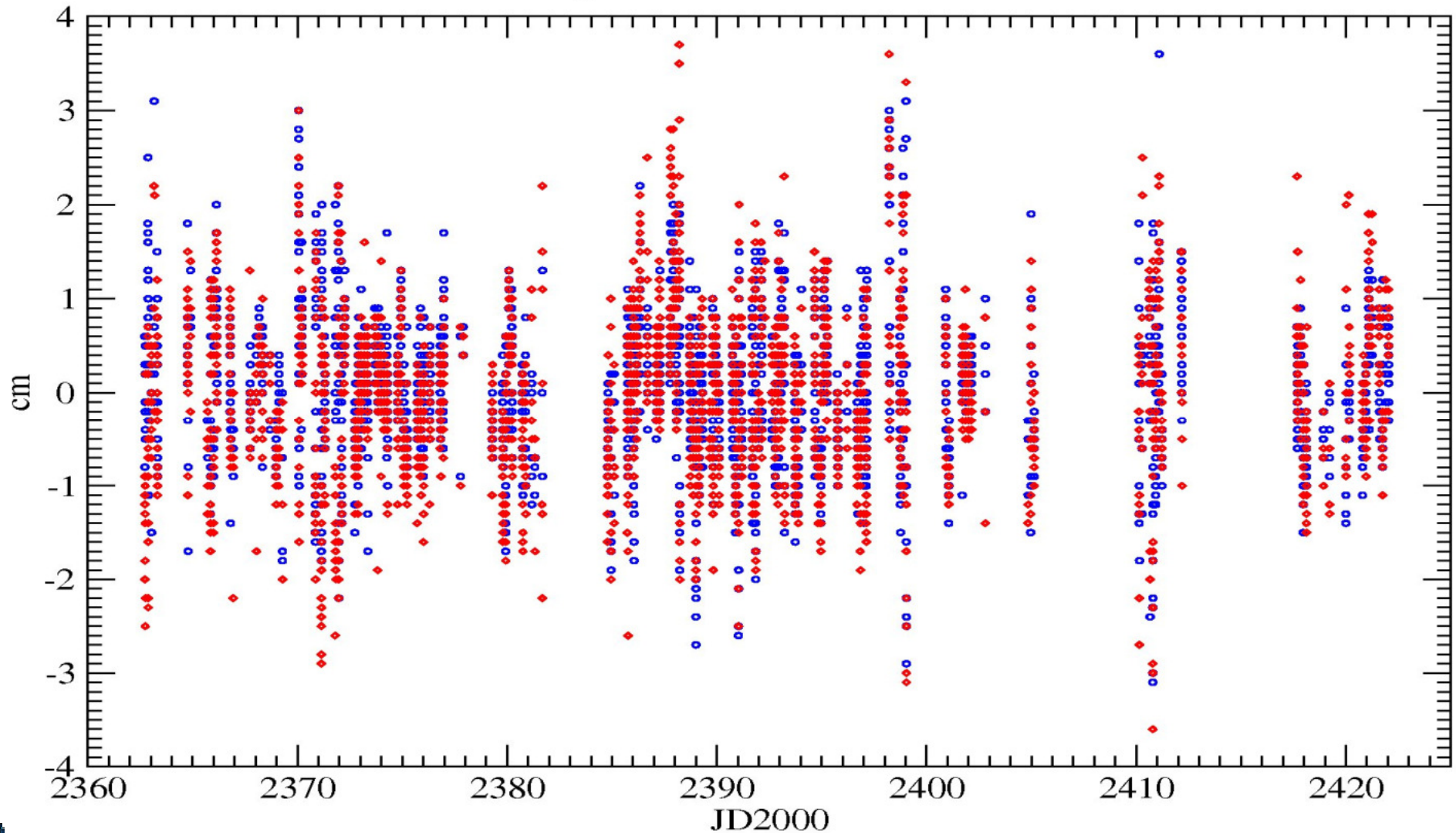
Results, Lageos1

Range residuals for Zimmerwald, old calibration, no biases



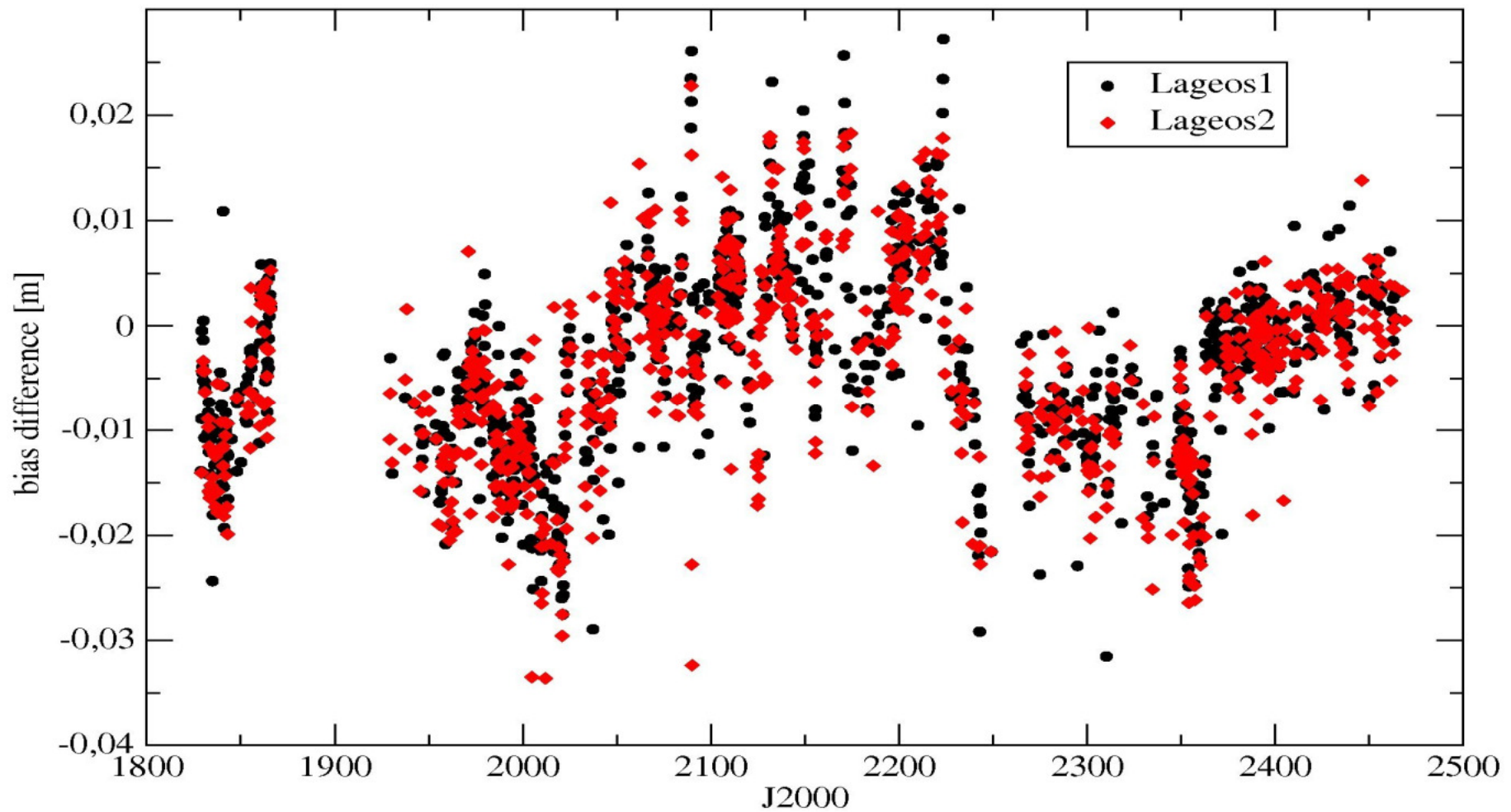
Results, Lageos1

Range residuals for Zimmerwald, new calibration, no biases



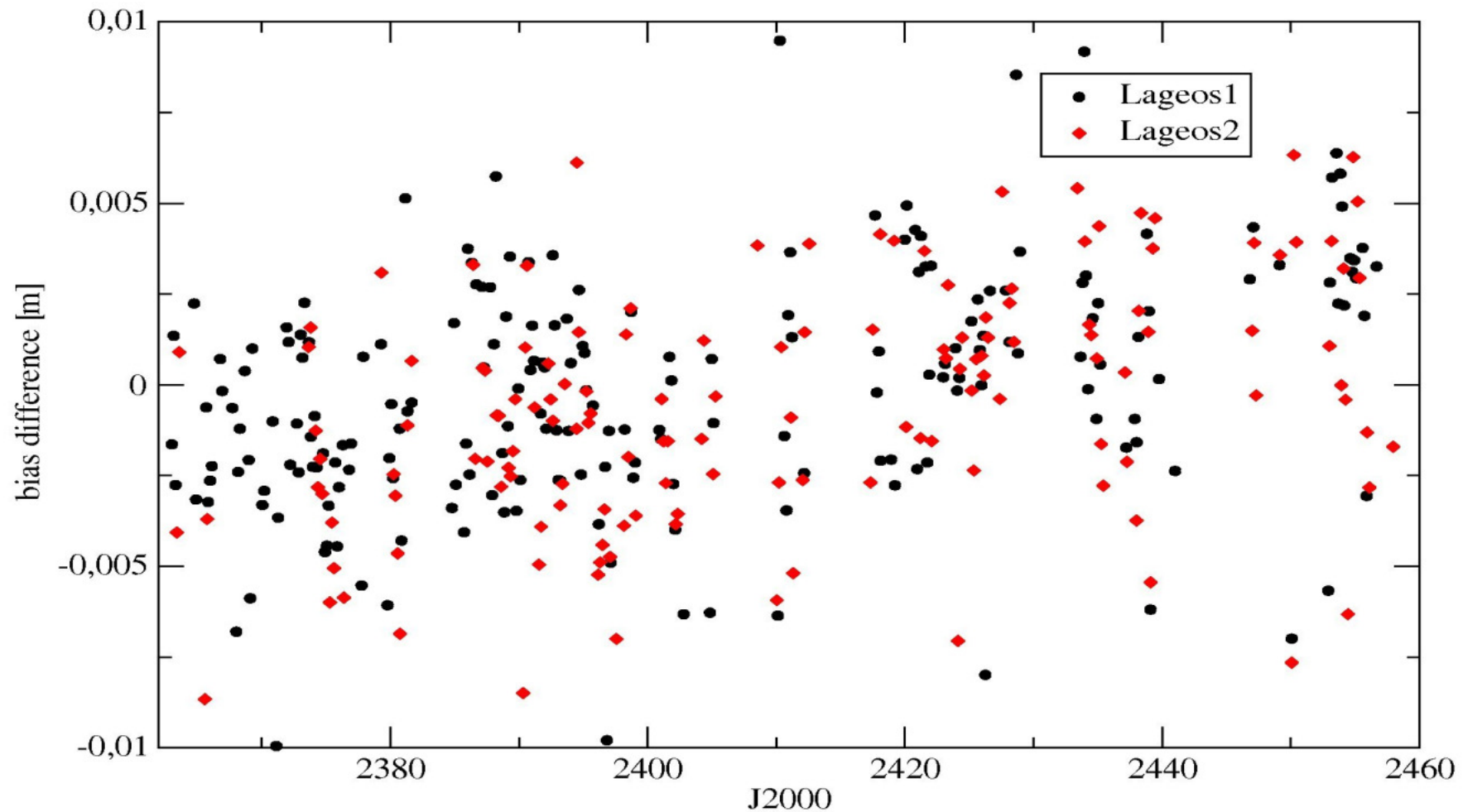
Results

Relative Bias between Red and Blue Laser, Zimmerwald



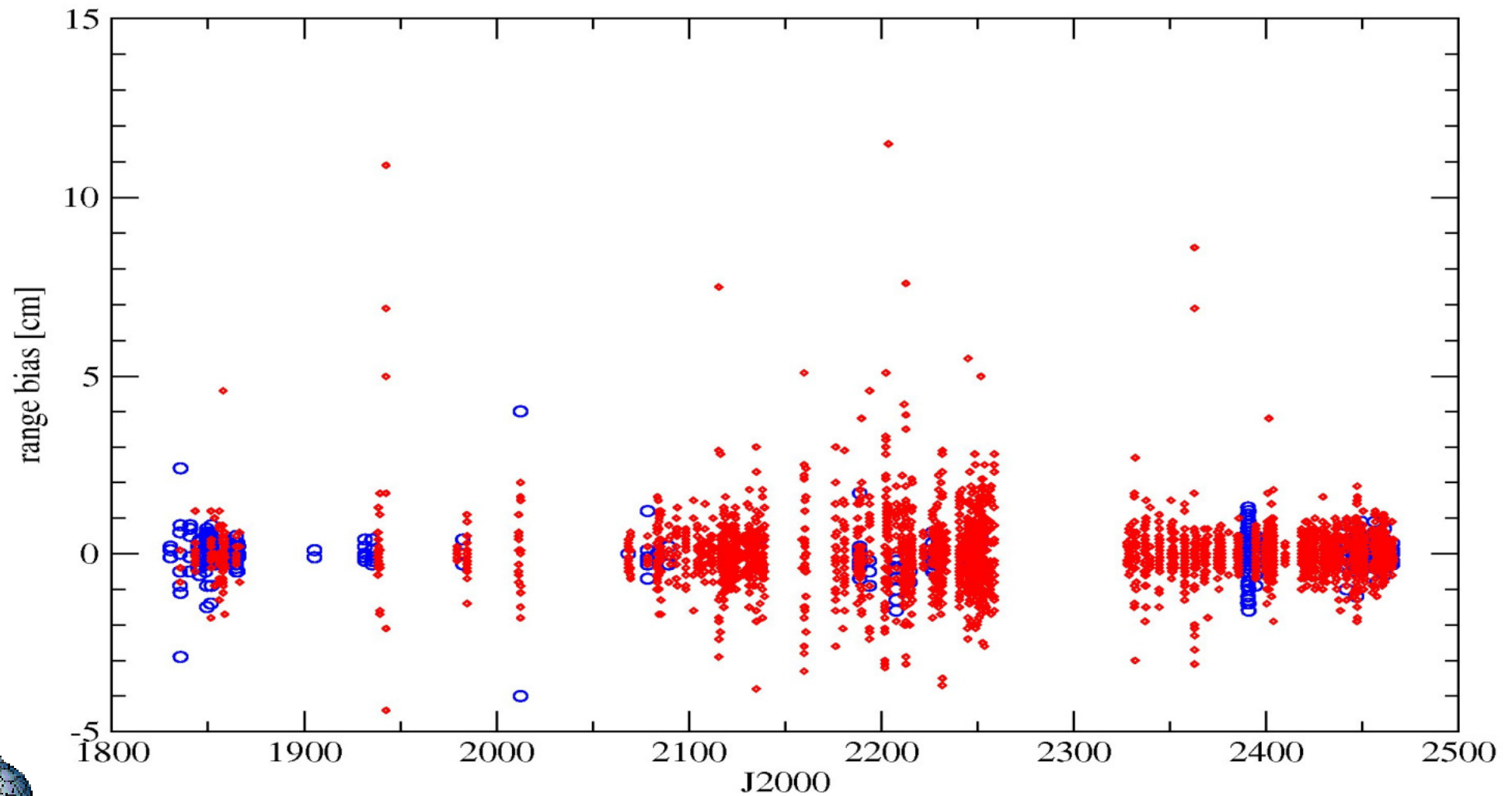
Results

Relative Bias: Red-Blue, after Calibration change on June 21 2006

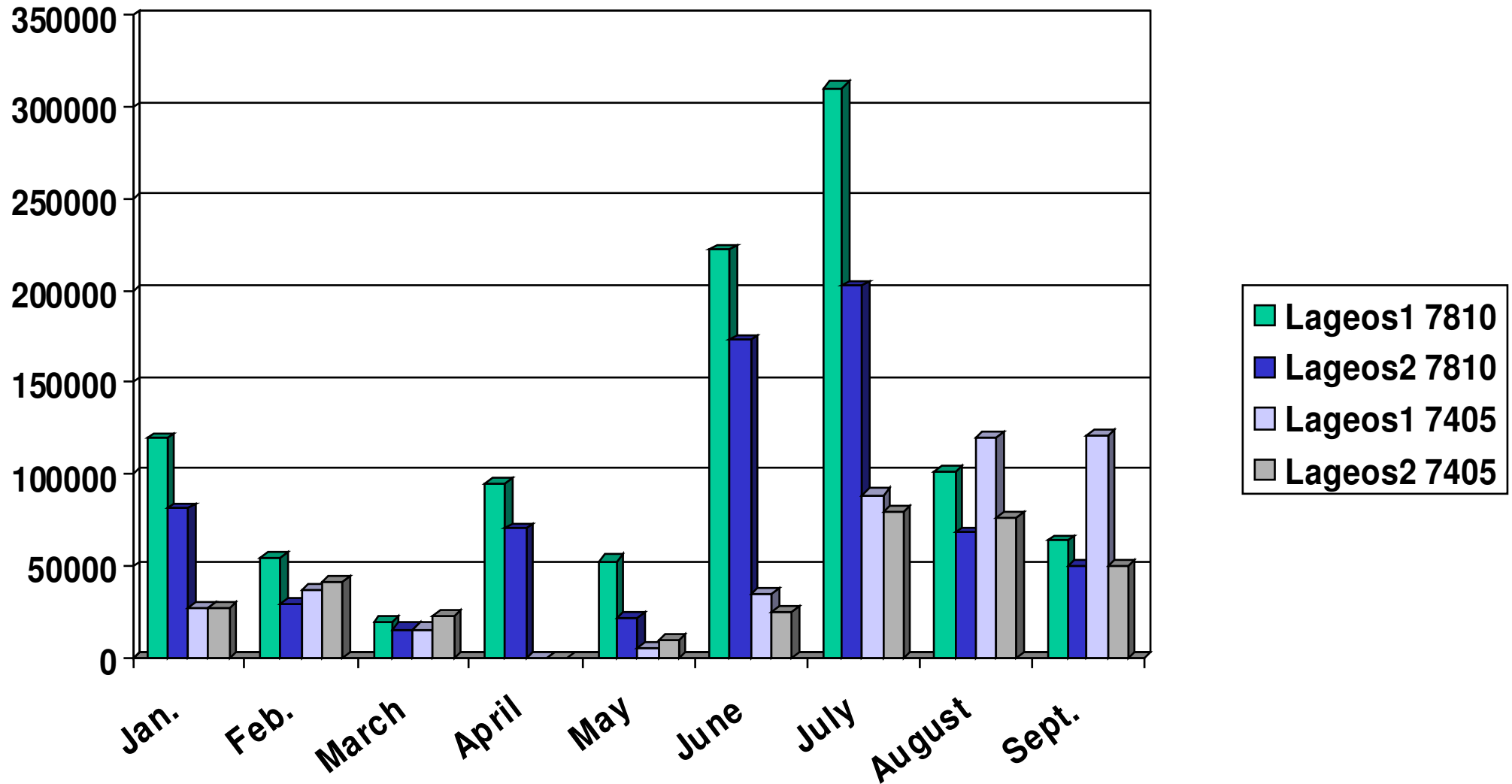


Concepcion

Concepcion Lageos1 range biases

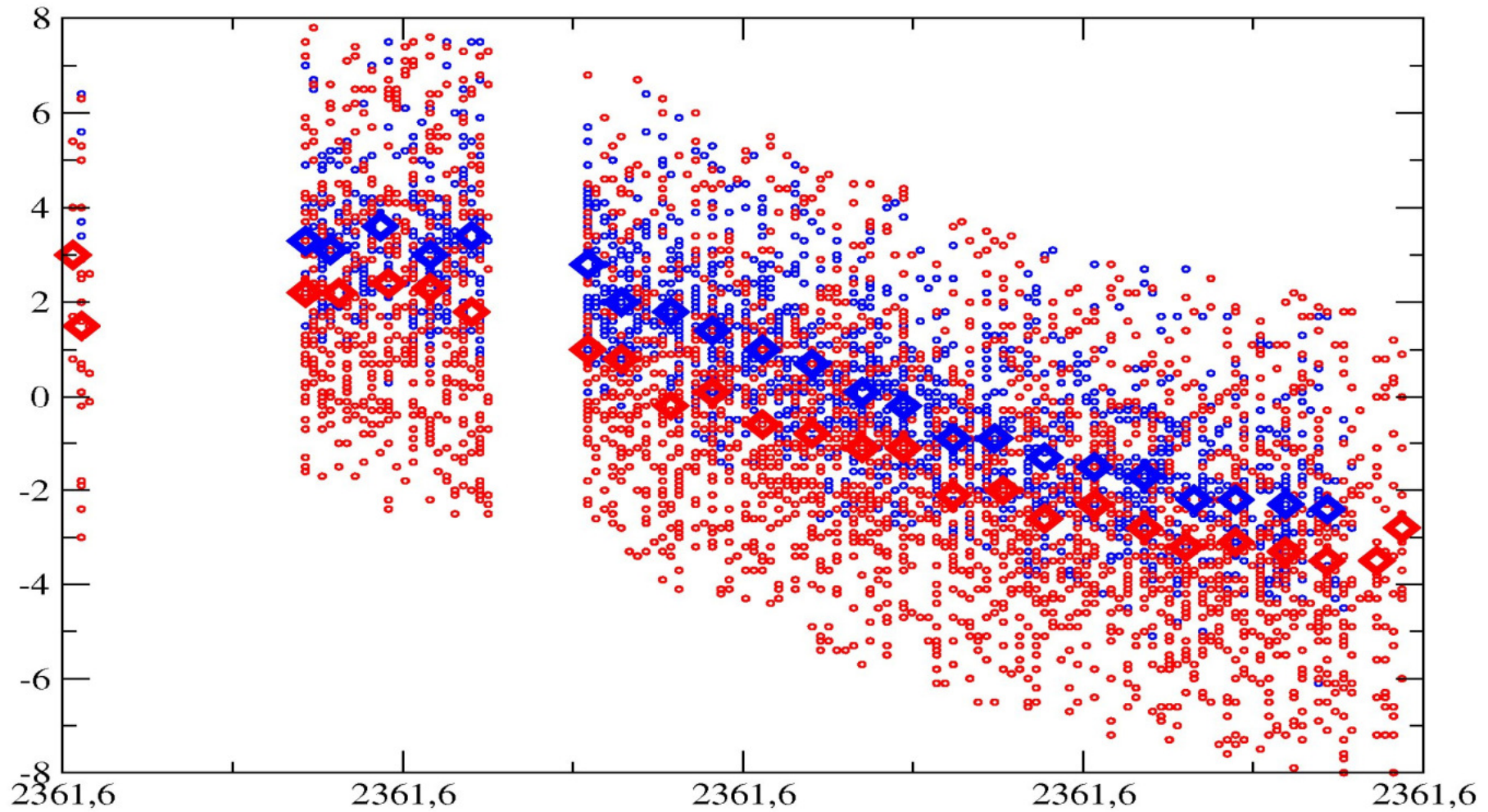


Number of full rate data available



Fullrate data

Example of 2 fullrate data passes for Zimmerwald

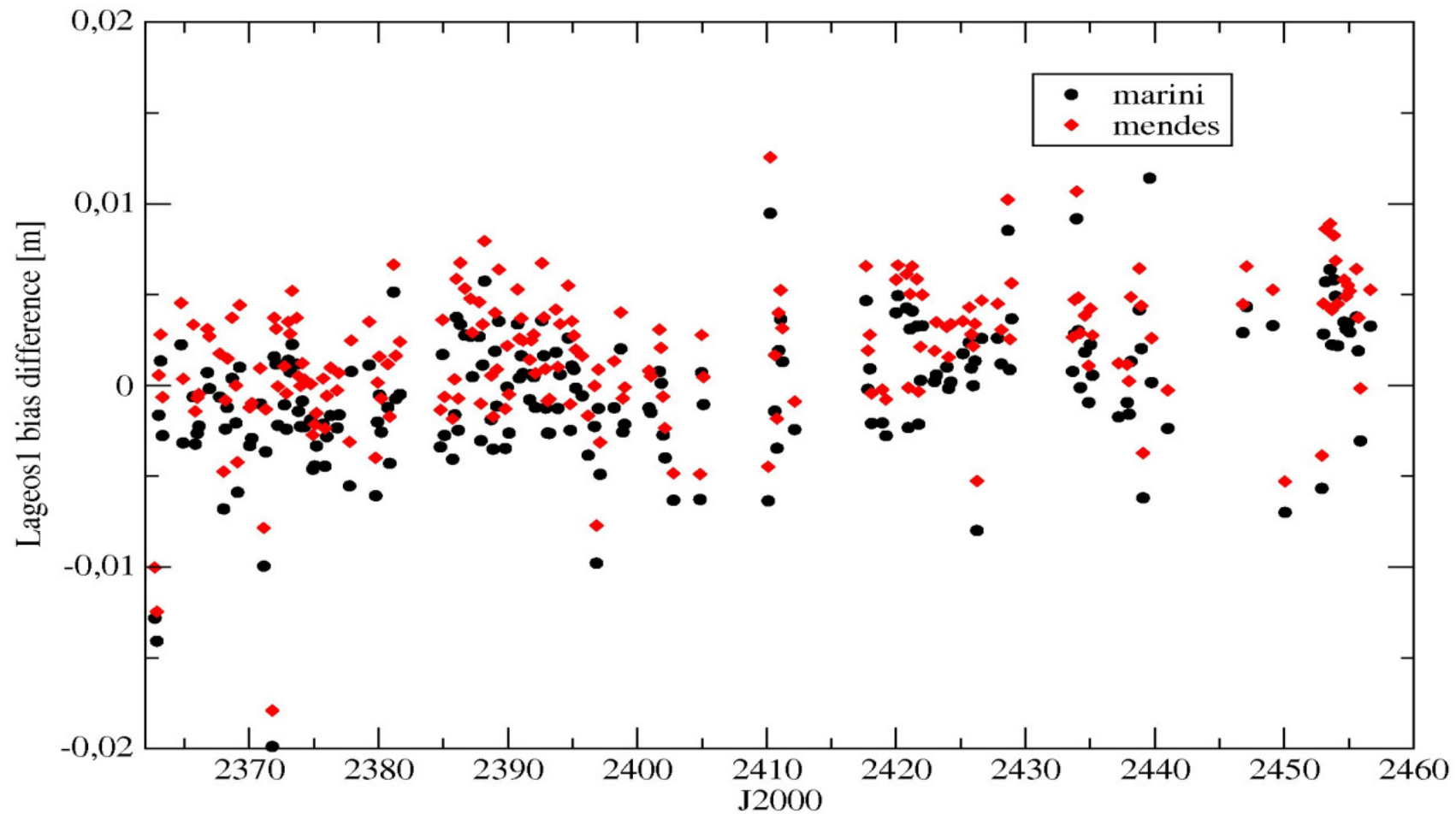


Remarks

- Full rate observations are not available for all passes
- Normal points give a good representation of the full rate observations (reprocessing with precise orbit gave only minor discrepancies).
- Relative biases from full rate data were similar to those from normal point data.
- Precision of relative biases not sufficient for troposphere studies. No correlation between bias difference and temperature resp. pressure.
- Generation of simultaneous pseudo observations did not improve the result.

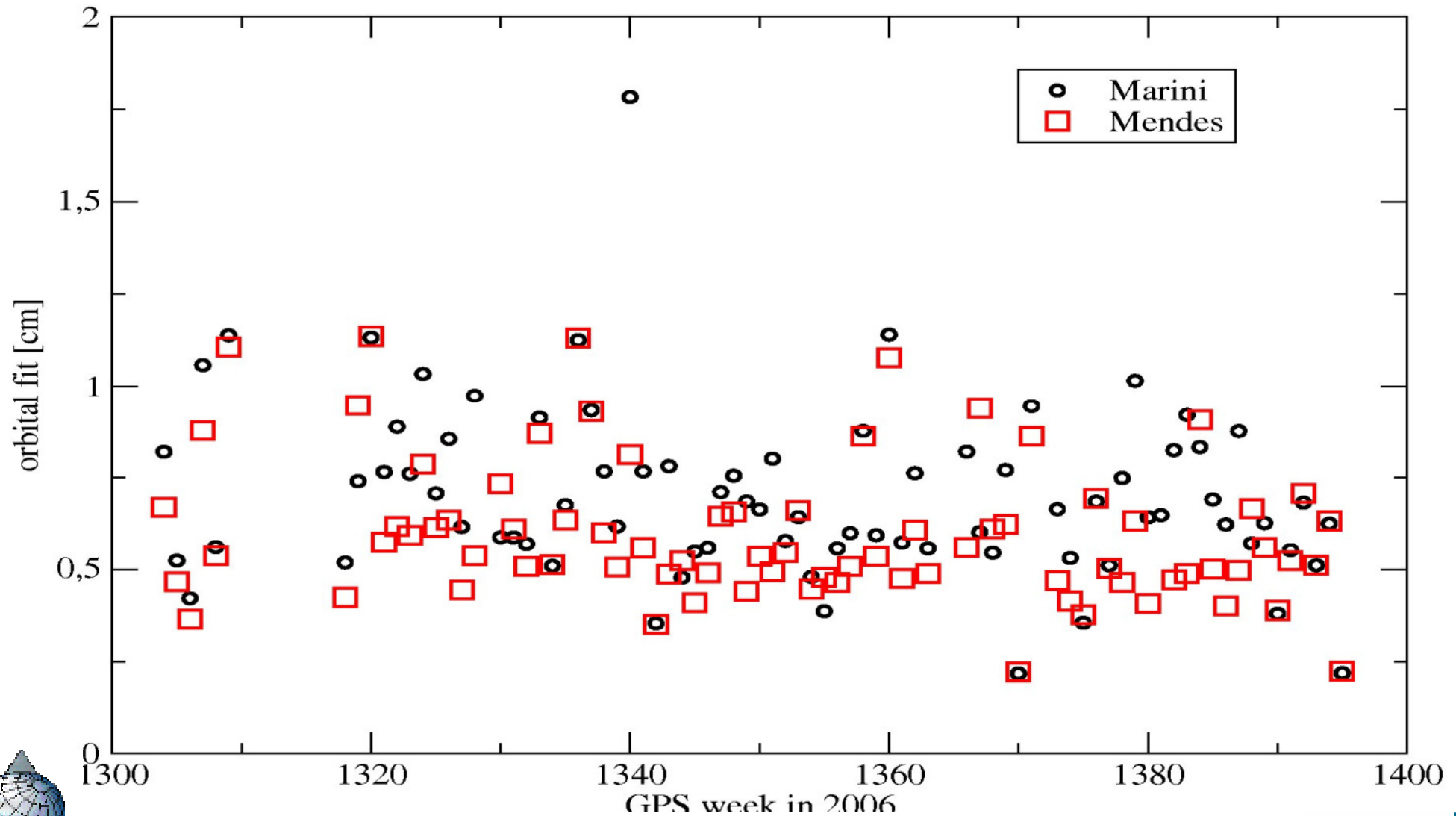
Comparison of tropospheric delay models

Relative range bias Lageos1, Zimmerwald, new calibration



Comparison of tropospheric delay models

Orbital fit for Zimmerwald, Lageos2 orbit (range bias solved)



Conclusion

- The new calibration scheme for Zimmerwald gives significant better results
- Bias differences are similar with normal points and full rate data
- Concepcion had problems with the two colours
- The new tropospheric refraction model from Mendepavlis is better than the old Marini model.