

## Correction to: Improved Helioseismic Analysis of Medium- $\ell$ Data from the *Michelson Doppler Imager*

Timothy P. Larson<sup>1</sup>  · Jesper Schou<sup>2</sup> 

© The author(s) ●●●●

Abstract N/A

**Correction to: Solar Physics (2015) 290:3221–3256 (Article I)**  
<https://doi.org/10.1007/s11207-015-0792-y>

In Section 3.3 it is stated that we use  $\Delta m = m - m'$  in the range  $\pm 15$ . A code inspection has revealed that a range of  $\pm 10$  was used.

A code inspection has revealed that the default regularization used by the inversion code includes weighting terms. This is not properly reflected in Equation 28. The corrected equation should read

$$\sum_{n\ell s} \left[ \frac{1}{\sigma_{2s+1}(n, \ell)} \left( \int_0^R \int_0^\pi K_{n\ell s}(r, \theta) \bar{\Omega}(r, \theta) d\theta dr - a_{2s+1}(n, \ell) \right) \right]^2 + \mu_r \int_0^R \int_0^\pi r \left( \frac{d^2 \bar{\Omega}}{dr^2} \right)^2 d\theta dr + \mu_\theta \int_0^R \int_0^\pi \frac{1}{r^4} \left( \frac{d^2 \bar{\Omega}}{d\theta^2} \right)^2 d\theta dr, \quad (28)$$

where  $R$  is the maximum radius at which the kernels are given and both  $r$  and  $R$  have been normalized by the solar radius  $R_\odot$ . The integrals in Equation 26 are over the same range.

With these changes the relevant parts of the analysis performed in Article I are now correctly described.

---

✉ J. Schou  
[schou@mps.mpg.de](mailto:schou@mps.mpg.de)  
 T.P. Larson  
[tplarson@sun.stanford.edu](mailto:tplarson@sun.stanford.edu)

<sup>1</sup> Formerly at Stanford University, Stanford, California, USA

<sup>2</sup> Max-Planck-Institut für Sonnensystemforschung, Göttingen, Germany

We note that Article II (Larson and Schou, 2018) refers back to Article I and that the same inaccuracies are thus indirectly present there.

Finally we wish to call the reader's attention to the fact that a small fraction of the fitted modes appear to be affected by a systematic error during the times when MDI had a low duty cycle (A. Kosovichev and K. Mandal, private communication, 2023). In particular, the series with starting days of 3952, 4096, 4168, and 4240 show apparent artifacts for a number of modes within about  $300 \mu\text{Hz}$  of  $3500 \mu\text{Hz}$  for  $\ell \geq 30$ . The problem appears to be due to an unusual gap structure that is not being filled correctly. As the exact cause is not understood, caution is warranted for all modes in any timeseries where the gap-filling results in a substantially increased duty cycle (see Table 1 of Article I), which also includes the series starting on day 6472.

## References

- Larson, T.P., Schou, J.: 2015, Improved Helioseismic Analysis of Medium- $\ell$  Data from the Michelson Doppler Imager (Article I). *Solar Phys.* **290**, 3221. DOI. ADS.
- Larson, T.P., Schou, J.: 2018, Global-Mode Analysis of Full-Disk Data from the Michelson Doppler Imager and the Helioseismic and Magnetic Imager (Article II). *Solar Phys.* **293**, 29. DOI. ADS.