



Contribution ID: 115

Type: Poster

## Peak magnetic field in sunspots: a comparison between the CrAO and SDO/HMI data

*Tuesday, 7 September 2021 11:26 (13 minutes)*

We performed a digitization of maximum magnetic field measurements in sunspots. The original data were acquired as drawings at the Crimean Astrophysical Observatory of the Russian Academy of Sciences (CrAO RAS). About 1000 sunspots observed in 2014 were analyzed. The data were compared to the corresponding measurements from the SDO/HMI instrument. For the same sunspot, the maximum modulus of the magnetic field derived at CrAO was compared to the corresponding value from HMI. The Crimean data and the space-based data were found to be in direct proportion to each other. A linear approximation over the entire range of measurements (1–4) kilogauss (kG) shows a Pearson correlation coefficient of 0.71 (with the 95 % confidence boundaries of 0.68–0.74) and a slope of linear regression of  $0.65 \pm 0.02$ . A linear approximation over the range of strong fields  $B(\text{CrAO}) > 1.8$  kG gives a similar correlation, however the slope of linear regression is far closer to unity and constitutes 0.90. In the range of weak fields  $B(\text{CrAO}) < 1.8$  kG, a non-linear deviation (exceeding) of the space-based data is observed. Non-linearity can be explained, in part, by a specific routine of the magnetic field measurements at CrAO, however further investigations are needed to explore sources of possible non-linearity in the HMI data. The Crimean measurements of the maximum magnetic field in sunspots are concluded to be in good agreement with the corresponding SDO/HMI measurements, and therefore they can be used for scientific purposes.

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**Session Classification:** Poster Session 4.1

**Track Classification:** Session 1 - Solar Interior, Dynamo, Large-Scale Flows and the Solar Cycle