

Moving Magnetic Features around a Pore

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Abstract. Moving magnetic features (MMFs) are small-scale magnetic elements observed to move radially outward from sunspots. Some studies have reported the presence of MMFs around pores as well. We analyzed data from SunriseII/IMaX observations obtained on 2013 June 12 between 23:39:10 and 23:55:37 UT. IMaX scanned the Fe I 5250.225 Å spectral line at eight wavelength positions and recorded the full Stokes vector at each of these positions. The field of view covered a large pore ($\mu = 0.93$) with pixel scale of 0".055. MMFs of opposite (positive) and same (negative) polarity as the pore were observed to stream from the pore boundary. We carried out a statistical analysis of the physical properties of MMFs and the main results are: 1) the number of opposite polarity MMFs within 1.5 Mm from the pore border, when they were first identified, is twice that of the same polarity MMFs. 2) Only 11% of the chosen MMFs appear to be monopolar and they all have the same polarity as the pore. 3) Majority of MMFs of both polarities move away from the pore border with an average speed of 1.5 km/s. However, they do not always follow a smooth radial track and some of them even move in tangential direction to the pore. 4) MMFs of opposite polarity show a preferential up-flow whereas those of the same polarity do not show any preference. 5) MMFs of both polarities are characterized by inclined fields.

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References

Kaithakkal, A. J., Riethmüller, T. L., Solanki, S. K., et al. 2017, *ApJS*, 229, 13