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The influence of systematic errors in the MDI-Dopplergrams on time-distance helioseismology of active regions

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MDI Dopplergrams are produced onboard SOHO by measuring four filtergrams which are sensitive to intensity fluctuations in the wings of the Ni I absorption line at 6768 Å. The line of sight velocity on the Sun's surface is obtained from a lookup table which is based on the line's shape in the quiet sun. In magnetic regions, however, the line shape changes drastically and molecular absorption lines appear close to the line's wavelength. Based on high spectral resolution images of a magnetic region obtained by the ASP (Advanced Stokes Polarimeter) instrument we show that the MDI Doppler velocities are systematically underestimated in magnetic regions. We investigate the systematic errors carried over to the travel times of acoustic waves measured in time-distance helioseismology and to the inverted sound speeds.