

# ALFVÉN WAVES AND OTHER WAVES IN THE SOLAR CHROMOSPHERE

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We analyze high-resolution images of the solar chromosphere obtained with the Solar Optical Telescope (SOT) onboard Hinode to show that Alfvén waves with strong amplitudes of order 10-25 km/s and periods of 150-400 s permeate the magnetized chromosphere. Our time sequences obtained at the solar limb in the chromospheric Ca II 3968 Å line reveal that the magnetized chromosphere is dominated by a multitude of long and thin short-lived jets that are aligned with the magnetic field. We find that most of these jets undergo significant swaying motions with transverse displacements of order 500-1,000 km. Such motions are compatible with the presence of ubiquitous Alfvén waves in the chromosphere. Estimates of the energy flux carried by these strong Alfvén waves and comparisons to advanced radiative MHD simulations indicate that these waves can play a significant role in the acceleration of the solar wind, and possibly the heating of the quiet Sun corona. We will discuss the generation of these waves and their relation to other chromospheric dynamics on the basis of the observations and numerical simulations.