The characteristics of -OH/H_2O in plagioclase by solar wind implantation simulate

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The possibility of -OH/H_2O formation in the lunar surface has been supposed to the interaction between the proton from solar wind and the oxygen in the regolith [1, 2, 3]. The polished thin sample of plagioclase has implanted with 7 keV H^+ at the fluences of 10^{17} ions/cm^2. FTIR analyses has showed the obvious increased hydroxyl and H_2O peak about 3622 cm^{-1} (2.76 μm) and about 3356 cm^{-1} (2.98 μm) after ion implantation respectively, compared with small OH and H_2O absorption before ion implantation. The estimated increased contents of OH and H_2O in plagioclase after ion implantation are 941 ppm and 794 ppm respectively.

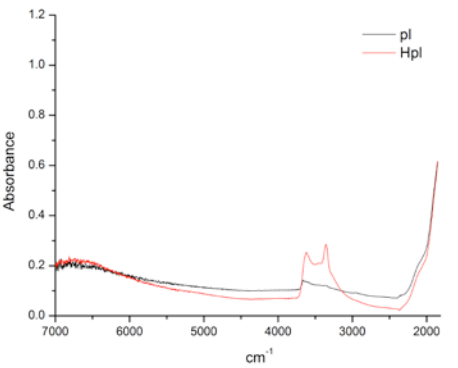

Figure 1: The infrared spectra of plagioclase before and after ion implantation experiment

[1] Pieters et al. (2009) *Science* 326, 568-572. [2] Sunshine et al. □2009□ *Science* 326, 565-568. [3] Clark (2009) *Science* 326, 562-564.