



### **3. C1XS results - First measurement of enhanced Sodium on the Lunar surface**

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We describe the first unambiguous evidence of enhanced sodium on the lunar surface revealed by the Chandrayaan-1 X-ray Spectrometer (C1XS). The C1XS on board the Chandrayaan-1 spacecraft was designed to map the surface elemental chemistry of the Moon using the X-ray fluorescence (XRF) technique. During the nine months of remote sensing observations (November 2008–August 2009), C1XS measured XRF emission from the Moon under several solar flare conditions. A summary of the entire C1XS observations and data selection methods are presented. Surface elemental abundances of major rock-forming elements viz., Mg, Al, Si and Ca as well as Na derived from C1XS data corresponding to certain nearside regions of the Moon are reported here. We also present a detailed description of the analysis techniques including derivation of XRF line fluxes and conversion to elemental abundances. The derived abundances of Na (2–3 wt%) are significantly higher than what has been known from earlier studies. We compare the surface chemistry of C1XS observed regions with the highly silicic compositions (intermediate plagioclase) measured by the Diviner Radiometer instrument on board Lunar Reconnaissance Orbiter (LRO) in those regions. Elemental maps of the nearside Lunar highlands are presented. The compositions determined from C1XS tend to support recent theories and findings of intermediate plagioclase on the Moon. However, precise Ca and Na abundance measurements are required on a global scale to address the evolution of the lunar surface.