



The local subsurface water and chlorine distributions evaluated by DAN/MSL in Curiosity observational campaigns

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The measurements with the Dynamic Albedo of Neutrons (DAN) instrument onboard the Mars Science Laboratory (MSL) Curiosity rover are presented and analyzed as a summary of observations acquired during several special observational campaigns at the Yellowknife Bay area (first discovery of habitability environment), at the striated units of Kimberley formation, at outcrops studied in Pahrump Hills (at the base of Mt Sharp) and in high silica area discovered in Marias Pass (Mudstone facies of the Murray formation). DAN data were analyzed to test local and global variability in the distribution of bulk hydrogen and neutron-absorbing elements, characterized as chlorine-equivalent concentration. Using multi instrument approach in the data analysis we have compared DAN estimations of subsurface H and Cl distributions with inhomogeneity of local geological context, top surface measurements of chlorine with APXS and with SAM measurements of absorbed H₂O extracted from the drilled samples based on low temperature evolved gas analysis.