



Overview of DAN/MSL water and chlorine measurements acquired in Gale area for four years of surface observations

maxim litvak

Space Research Institute, Laboratory, Moscow, Russian Federation (litvak@mx.iki.rssi.ru)

During more than 4 years MSL Curiosity rover (landed in Gale crater in August 2012) is traveling toward sedimentary layered mound deposited with phyllosilicates and hematite hydrated minerals. Curiosity already traversed more than 14 km and identified lacustrine deposits left from ancient lakes filled Gale area in early history of Mars. Along the traverse the Curiosity rover discovered unique signatures regarding how the Mars environment changed from ancient warm and wet conditions and probably habitable environment to the modern cold and dry climate.

We have summarized numerous measurements from the Dynamic Albedo of Neutron (DAN) instrument on Curiosity rover to overview variations of subsurface bound water distribution from the wet to the dry locations, compared it with other MSL measurements and with possible distribution of hydrated minerals and sequence of geological units travelled by Curiosity. We have also performed joint analysis of water and chlorine distributions and compared bulk (down to 0.5 m depth) equivalent chlorine concentrations measured by DAN throughout the Gale area and APXS observations of corresponding local surface targets and drill fines.