THE WATER TRACES AND STRUCTURAL LINEAMENTS ON MARTIAN MOONS

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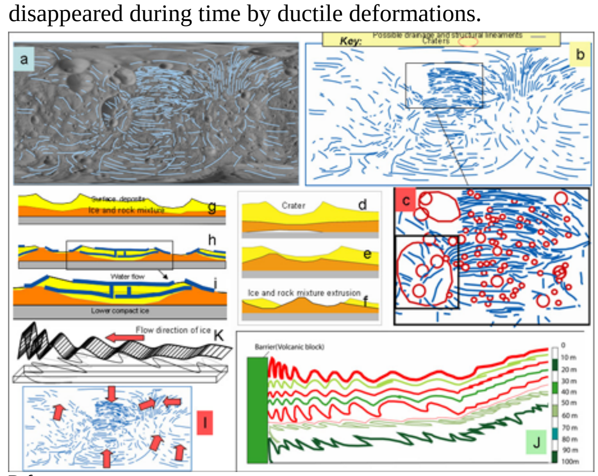
Mars has two very small satellites called Phobos and Deimos(Asaph Hall 1887 reviewed in[11]) with 22.2 and 12.6 km across respectively[14]which surfaced by hydrated and opaque materials[6] as a thick regolith or dust and with a significant interior ice[21,13]interstitial ice[4]and basalt articles and ice cement [12].The presence of streamers on Deimos make it different from what would occur with asteroids[18]and suggest a probable water content in present or past. Water is constantly in motion, called water cycling [9]. Increasing interest in the exploration of other worlds for water in our solar system implies the growing need for photo geology with combining with modeling. The photo geology by author on the picture prepared by NASA [10] suggest the water flow of the Pre impact period of the moon Phobos (Fig1g, h, i) on the structural lineaments. The flowing traces of water showed between the old and new craters (Figs b, c) which cross the lineaments on the surface. *A type of unknown depositions at the bottom of a craters suggesting that the bulk composition is inhomogeneous [11]and may water cycling resulted to form small scale lakes.* The size of craters analyzed are 0.8-2km,1.5-10 km, and 0.2-3.5 km in diameter respectively on Deimos,phobos and lunar[14].Two sets of craters distinguished by author which the older set is bigger(Fig c). The presence of a gas ring [15]suggest temperature increasing which may was important for the evaporation of water from the ice rock mixture of the crust in the impact time. The evaporation of pure liquid water (brines) and ice-water [20, 17] was as a function of temperature [19, 12]. A regolith barrier on top of the ice could extend the life time of an ice layer and enable the formation of liquid by slowing evaporation and warming the surface [8, 5, and 16]and thickened by folding(Figs j,k).In Mars position with Vapor pressure of about 1 milibar ice change to vapor straightly [11]. The geomagnetic surveys observed around the Martian moons [7]and structural pattern(Figs a,b) of the flow folds and fitted drainage may is related to a probable magnetic field formed by Hundreds of Auroras on Mars or by solar winds. The PDMS 36[23] suggested for modeling viscous materials like salt or ice [22, 2].The scaling models suggest that the sand and PDMS are good materials for the simulations of the Ice and basalt articles in the Martian moons. Other analogue modeling with 40 %sand and 60%PDMS showed that the mixture of ice and rock flow with rate lower than ice (subscribed). In the analogue modeling of the craters used a rock ball which felt artificially from the distance about 20-30 cm from above to the model by basal PDMS(ice) and cover deposits(sand).The model suggest that the ice beneath the impact crater thinned after few minutes but extruded after few hours. The extrusion ice in the crater is similar to the viscous extrusions on Earth (Figs d, e, and f)when the flowing material underneath extended and thinned and the cover depressed around the crater. The structure s in salt and ice (and ice rock mixture) is very similar [2], because they are viscous material (Figs j, k). The flow folds change from top to lower part of the flowing sheets similar to the salt glaciers on Earth (Figs j&k).The flowing material on Earth formed overturned to upright folds from the lower part to the surface(Fig j).However the similar traces may result in the folding of the surface soil by the movements of the underneath salt glacier on Earth(Figs j,k)which is applicable model for the ice and rock mixture, because the dirty ice flow but in very slow rate(subscribed).The water cycling and flow of the water was in relation with synformal-antiformarl axis. The antiforms later upraised but the flowing lines of the water content covered more rapidly with advantage of the flowing blind sheet of ice and rock mixture in the through of synforms depressions (Figs,j,l).The Experiments by author suggest that any channel in the flowing material can be hidden after a short time of spreading. The measurements suggest, decreasing in rate of flow by temperature fall [2]and daily cycle elsto-plastic kinematics[1, 3]which generated some thin skinned folds(Fig j).The photo geology showed that the streamers, craters and structures have a possible relationships in water cycling. The analogue and protype models (subscribed) confirm the finding and suggest that the ice and water cycling may exist on the Martian moons. The possible dirty ice or ice and rock mixture is below the 1 km thick folded deposits. Although the thermal conductivity may decrease the volume of ice(subscribed), but the traces may result in a thickened regolith barrier for evaporation in cycling system The Martian moons need robotic sampling and excavations for better understanding of these structural and morphological relationships. The best areas to reach to the ice are centre of the craters. The potential role of Phobos and Deimos in future human is very important, because the structural lineaments and probably drainage pattern which disappeared during time by ductile deformations.



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