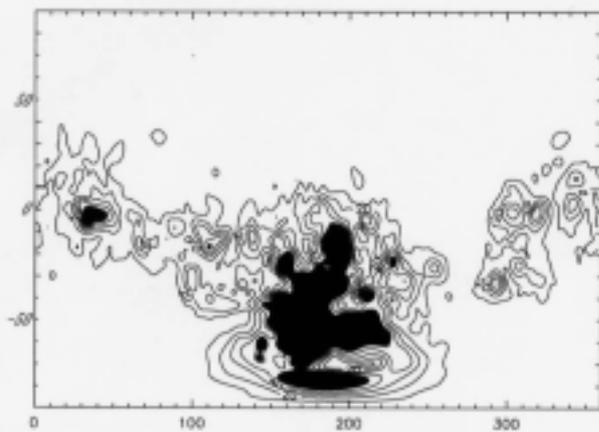


## Effect of the Martian crustal magnetization on the interaction between the solar wind and Mars

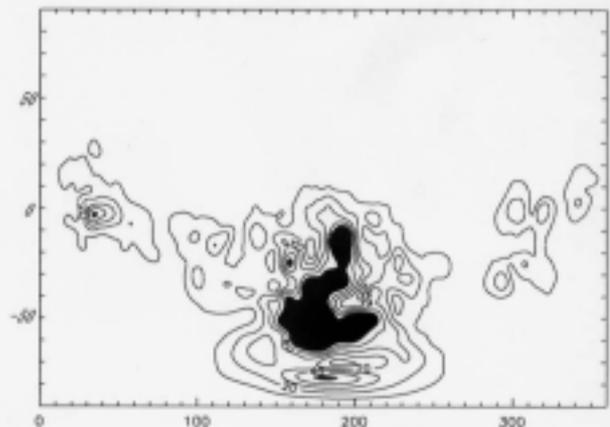
# Yasubumi Kubota[1], Kiyoshi Maezawa[1]

[1] ISAS

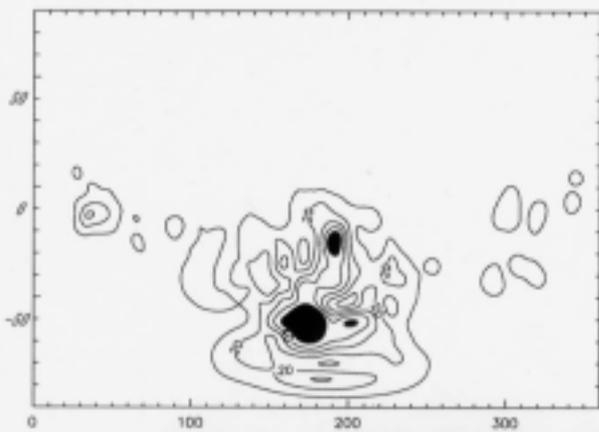
The magnetic dipole moment of Mars is known to be very weak and hence the magnetic field of Mars has often been neglected in the models of interaction between the solar wind and Mars. However Mars Global Surveyor spacecraft (MGS) reported that there was a significant crustal magnetization on Mars. We have made a three-dimensional model of the crustal magnetization using spherical harmonics and estimated the crustal magnetization effect in the interaction between the solar wind and the martian ionosphere. The data used are from the MGS magnetometer from March, 1999 through August, 2000, covering the whole spherical surface at the height level of 370-438 km. Assuming the internal nature of the magnetization, we expanded spherical harmonics up to 60 degrees and estimated the distribution of field magnitudes at each altitude level. The result shows that, at the high level of 400 km, the crustal magnetization strongly affects the interaction between the solar wind and the ionosphere, and even at the level of 700 km, the solar wind would locally interact with the magnetic field of crustal origin.



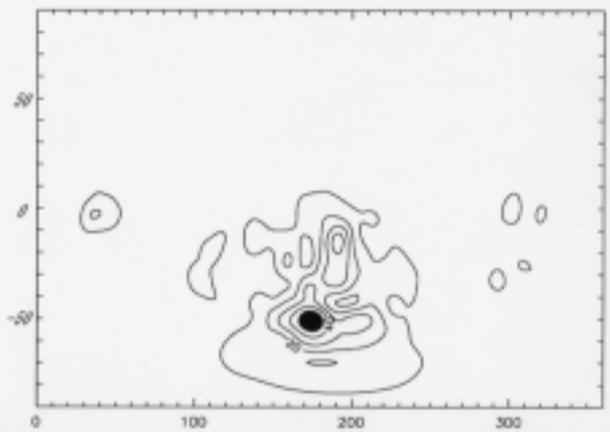
*altitude 400 km*



*altitude 500 km*



*altitude 600 km*



*altitude 700 km*