Current understanding of the upper atmosphere of Mars

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The upper atmosphere of Mars has been observed by several missions. It is expected that structure and dynamics of the ionosphere of Mars are significantly affected by the solar wind interaction with the Martian ionosphere. The Mars Global Surveyor detected a fairly strong (B~400 nT) but localized magnetic field which is likely to be of crust origin. It was also found that the global magnetic field of core origin is smaller than about 5 nT at the Martian surface. The upper atmosphere of Mars might be also influenced by the lower atmospheric processes through heating, gravity waves and tidal waves. A number of theoretical studies have also been done using various kinds of numerical models. Current understanding of the upper atmosphere of Mars is reviewed, and future prospects of theoretical modeling and observations are discussed.