IOSR Journal Of Applied Physics (IOSR-JAP)
e-ISSN: 2278-4861.Volume 12, Issue 5 Ser. II (Sep. – Oct 2020), PP 34-35
www.Iosrjournals.Org

Ionosphere of Mars

Mrityujay kumar Thakur
(At Nandani ,po Sivaisinghpur , Dist Samastipur , Bihar)

Abstract
We have studied theoretical models for ionosphere of Mars it was found that Mars is currently a major focus of solor system exploration. Recent mission have demonstrated that the martion environment constitutes a tightly coupled system in which the properties and behavior of one component of the system can influence even the most distant component.
Key words:- *photoinization , solor zenith angle*

Date of Submission: 12-09-2020 Date of Acceptance: 29-09-2020

I. Introduction

The soure of most plasma in the Martion dayside ionosphere is the photoinization of co2 by solor photons at have length shorter then 90nm(Lide 1994, schunk and nage 2000) photoinization of other species such as O2 is only inprotent at alititud several scale height above the main ionospheric peak relaitre to photoionization influxes of charged particles typically do not cause substantial impact ionization on the dayside (kallio and jhahusen 2001)

Since plasma is produced by photoinization the plasma densities depend on the photoionization rate and the vertical distribution of plasma depends on the vertical distribution of photoinoztion the maxmum photoinization rate for a given have length occurs where the optical depth is unity. Fox and yeager (2006) calculated the altitude as a function of

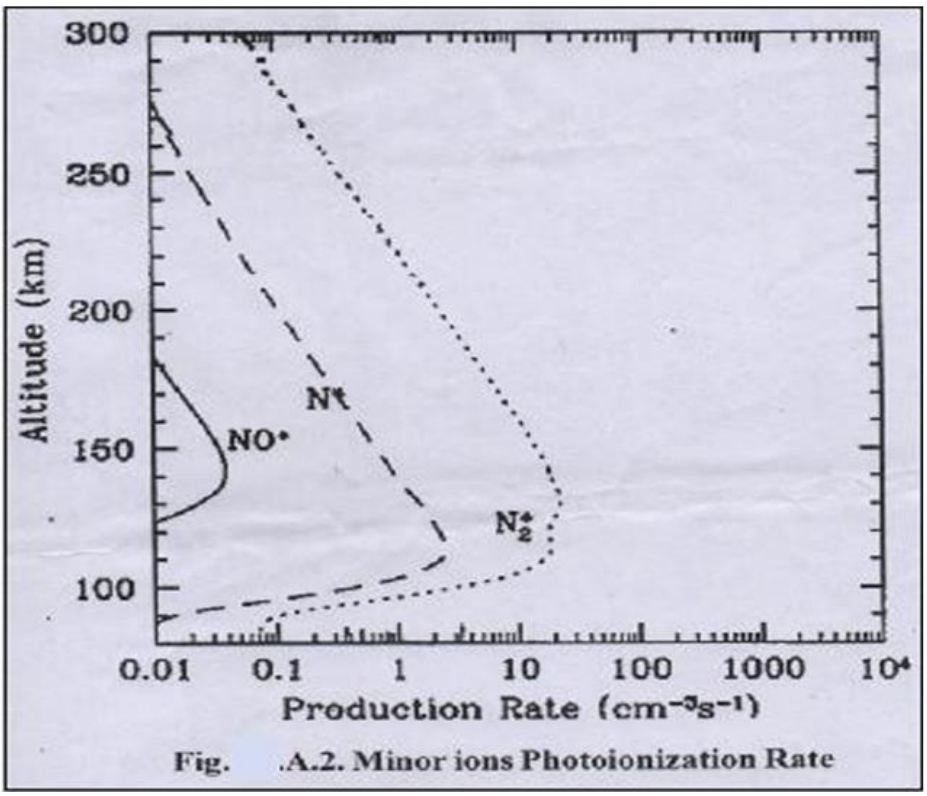

Fig. .A.2. Minor ions Photoionization Rate

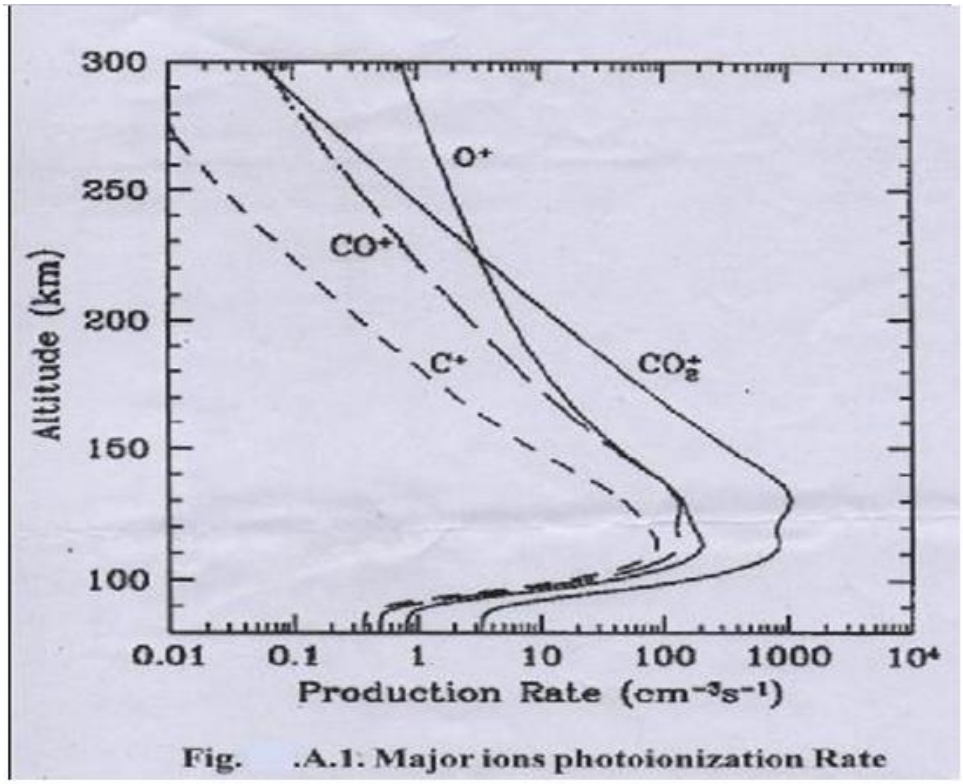

Fig. .A.1. Major ions photoionization Rate

wave length for solor zenith angle (SZA) of 60^0 and 90^0 the altitude at which optical depth equal unity approximately uniform for wave length between 20nm and 90nm and it is approximately 140 km at SZA= 60^0 . The lack of dependence on wave length arises because the ionization photoionization cross- section for co2 isapproximately uniform at 3x 10^{-17} cm^2 for these wave length (schunk and Nagy 2000). So this portion of the ionizing spectrun can be considered to be effective monochromatic .

II. Result And Conclusion

We have calculted the photoionization rates the production of different ions by photoionization along have been shown in fig.1 and fig.2 show the photoionization for major ions CO^+ CO^+ O^+ and C^+ while fig2 show in photoionization for minor ions N^+ ,N^+ and NO^+. The photoionization production at altitude 250 km and above is therefore wholly controlled by natural concentration of concerned constituent. Except photoionization the production rate by energetic photoelectron and secondry electron impact also take place .

References

[1]. Johnsen R and M.A Biondi,1980 Geo Phys. Res. Left 7,401
[2]. Nage A.F, T.E cravens, 1980 J. Geo Phys. Res. 85,7795
[3]. Schunk R.W and A.F Nagy ,1980 Rev. Geo Phys. 18,813
[4]. Kliore A.J I.R patel 1979 Science 205,99
[5]. Lindinger 1981 , phys Rev A, 23,2319

Mrityujay kumar Thakur. "Ionosphere of Mars." *IOSR Journal of Applied Physics (IOSR-JAP)*, 12(5), 2020, pp. 34-35.