

Updates from Boston University

Mars Upper Atmosphere Network
Meeting #3

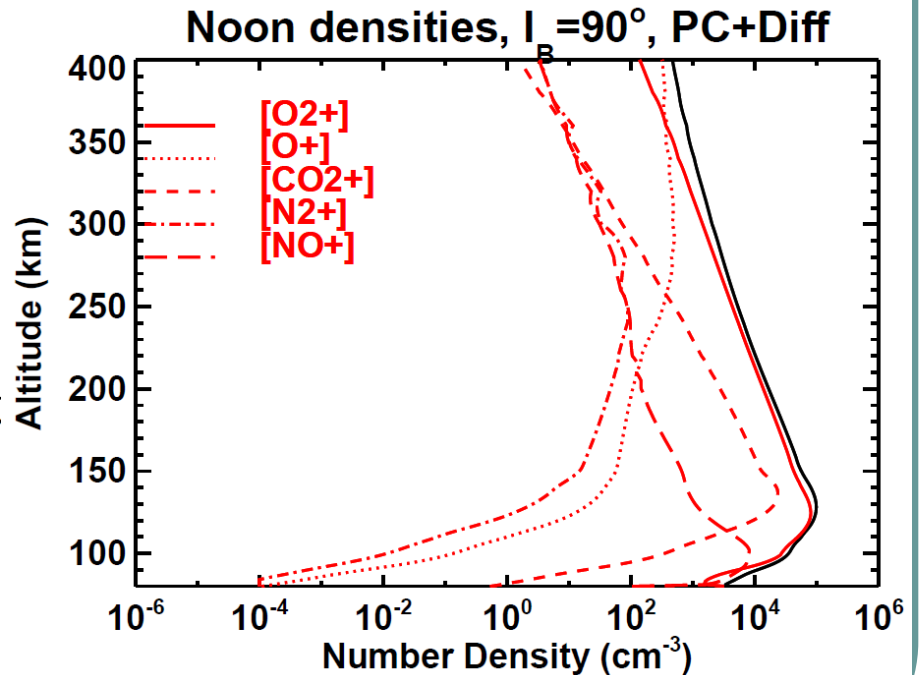
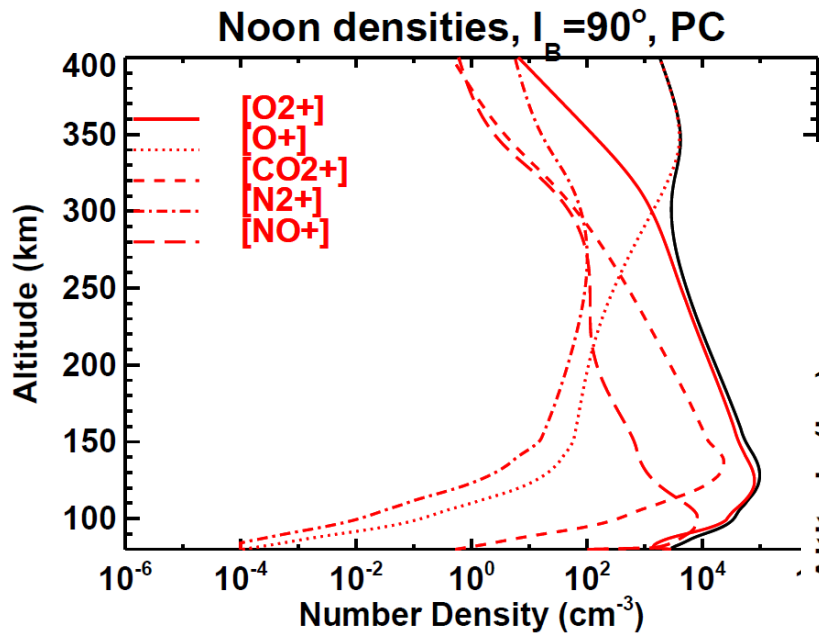
Italy, Sept 16-17

Paul Withers, **Majd Matta**

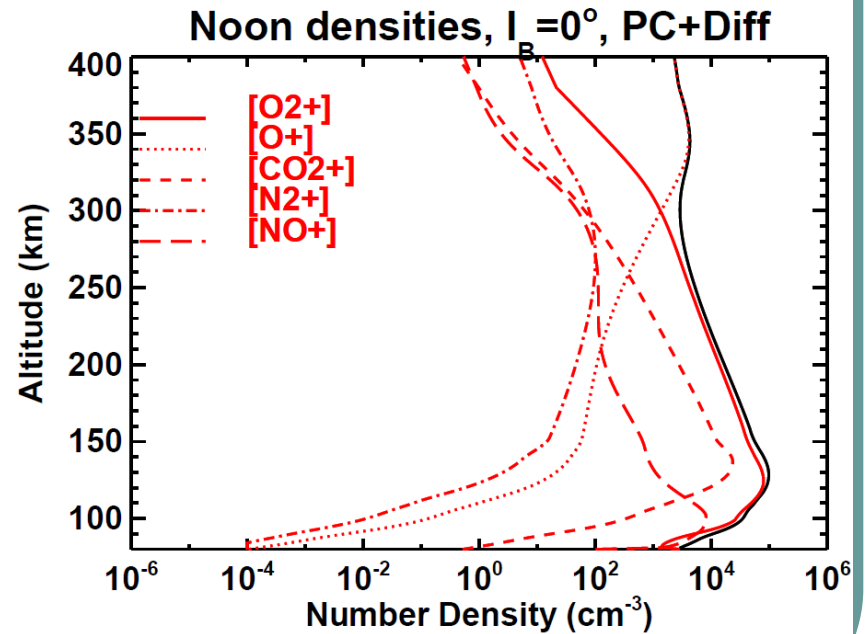
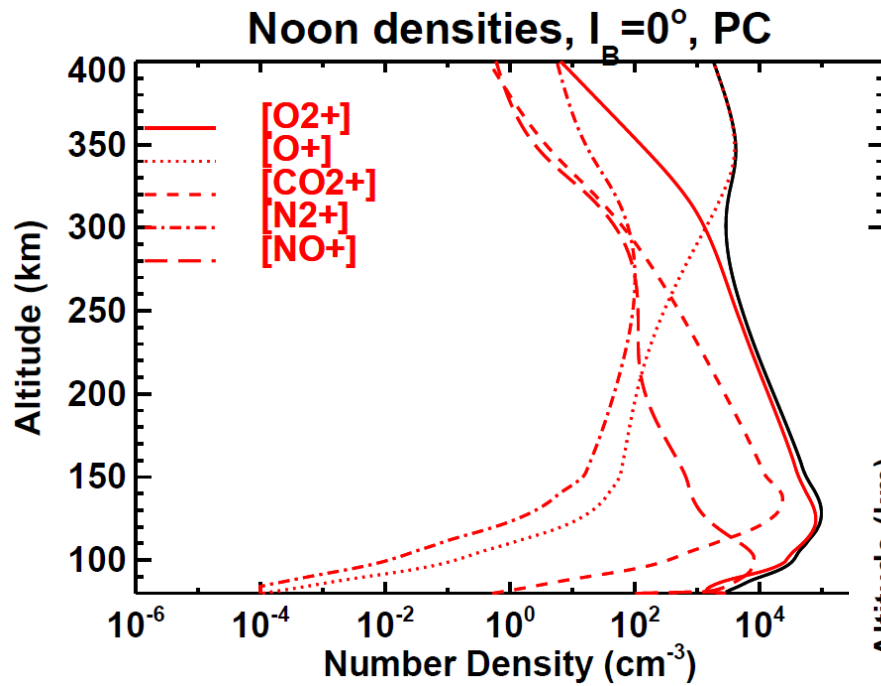
2D Model Basic Concept & Description:

- Model the generation of [O_2^+ , O^+ , CO_2^+ , N_2^+ and NO^+] ions and electrons in the Martian ionosphere between 80-400 km.
- Apply PC+Transport (vertical, horizontal) with a 2nd dimension large enough to include a characteristic crustal magnetic field ($\sim 10^0$).

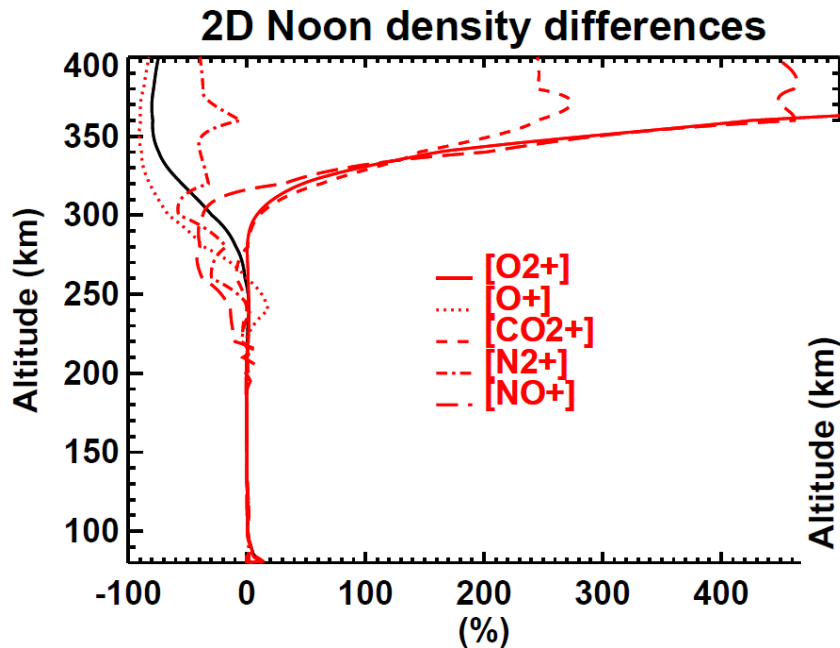
2D Model, Preliminary Results



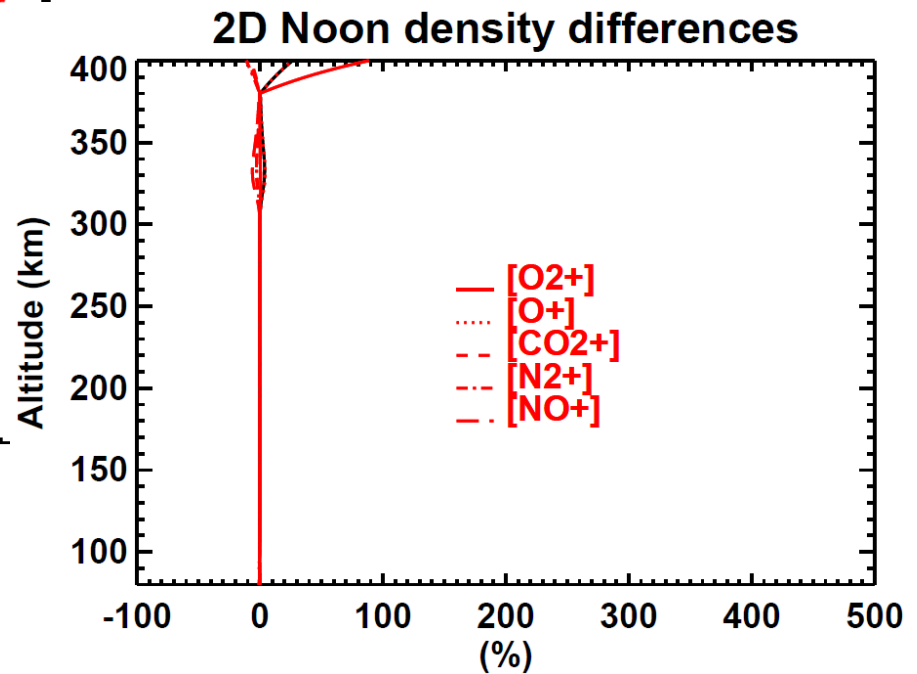
More Preliminaries



More Preliminaries + Future Work:

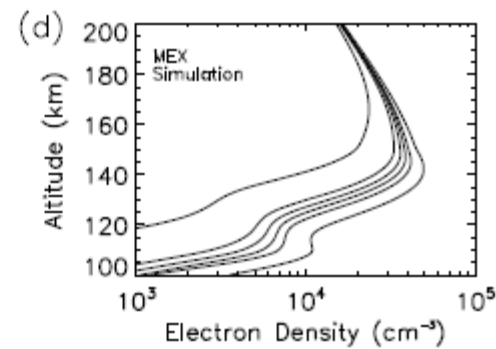
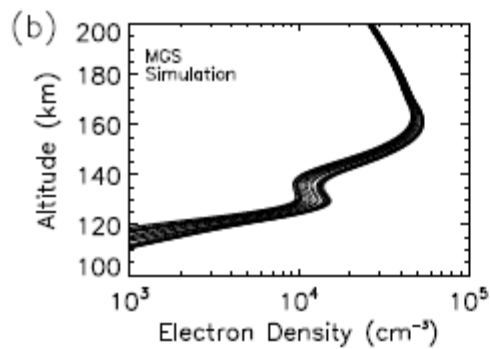
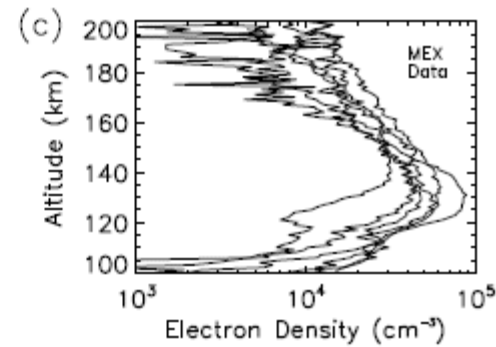
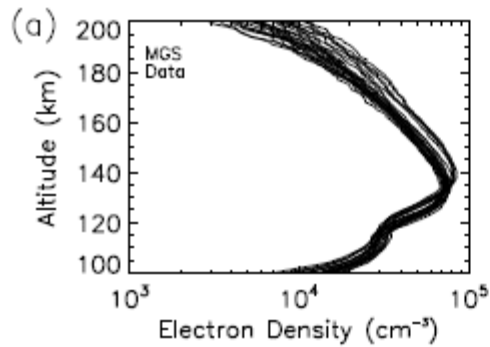


Difference between PC only
and PC+Diffusion
densities for $I_B=90^\circ$

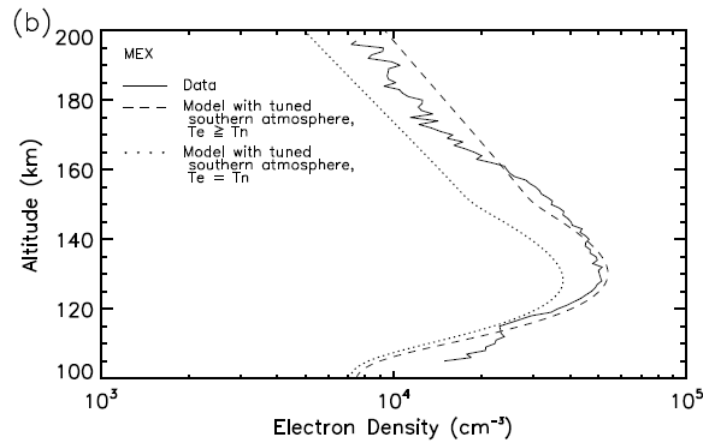
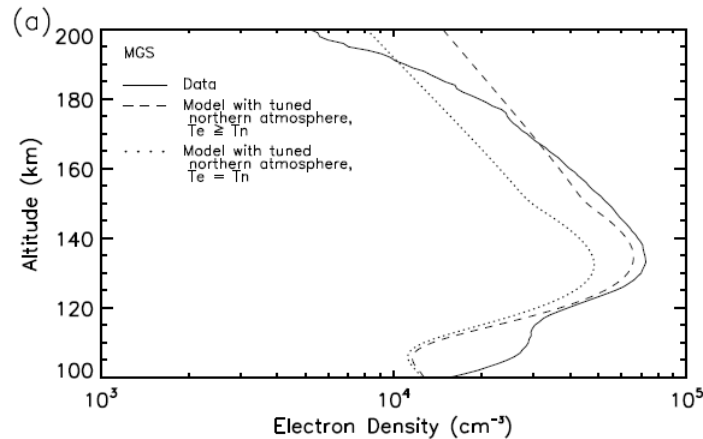


Difference between PC only
and PC+Diffusion
densities for $I_B=0^\circ$

Modeling Mars Twice:



Understanding Model Variability



Changed input parameters:

- neutral atmosphere
- electron temperature
- 2nd-ary ionization rate

and then compared with measurements

MUAN Online Forum @ BU:



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Moderator: withers Mark all topics read









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MUAN Website @ BU:

Mars Upper Atmosphere Network

The Mars Upper Atmosphere Network is a collaborative effort among US and European institutions where member scientists specifically interested in the upper atmosphere of Mars convene to network and share ideas across instruments and Martian satellites. If you are interested in participating, contact Paul Withers or Majd Matta.

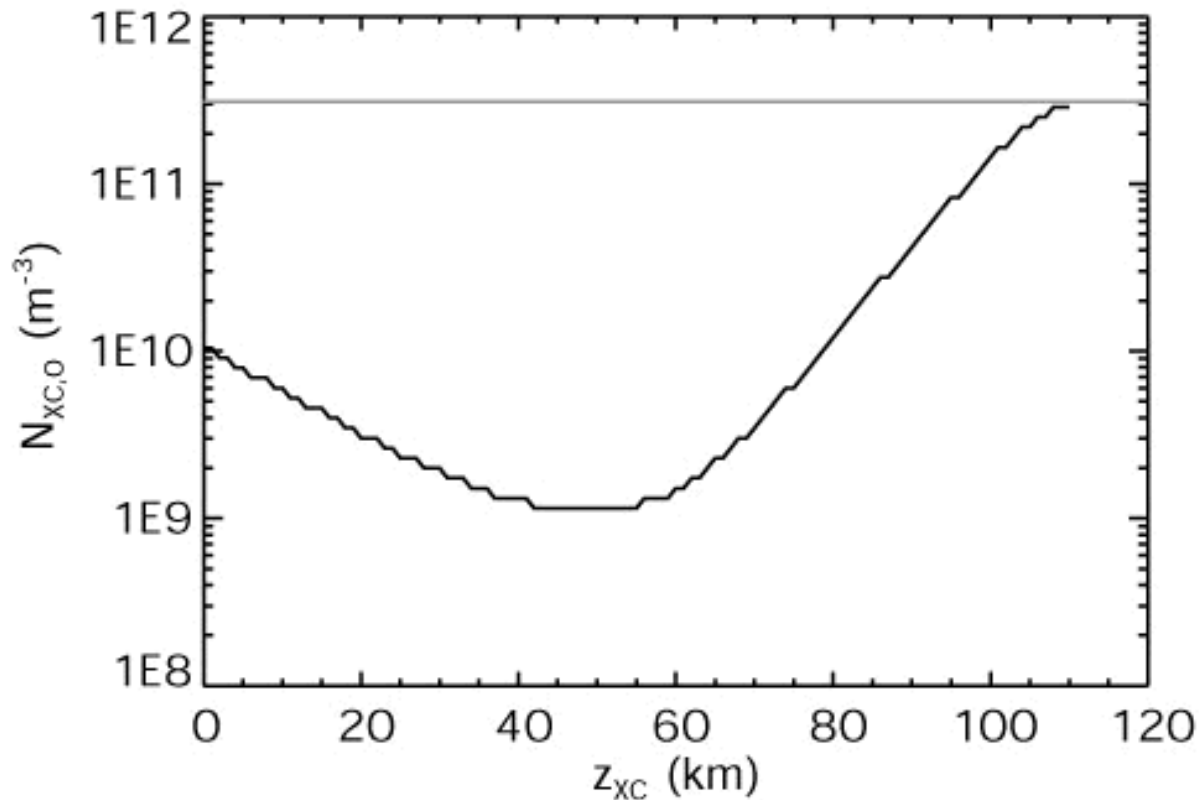
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To participate in the Mars Upper Atmosphere Network's discussion forum, click [here](#) and find the "Mars Upper Atmosphere Network" forum. A Boston University username and password are required for access; please contact [Paul Withers](#) to obtain one.

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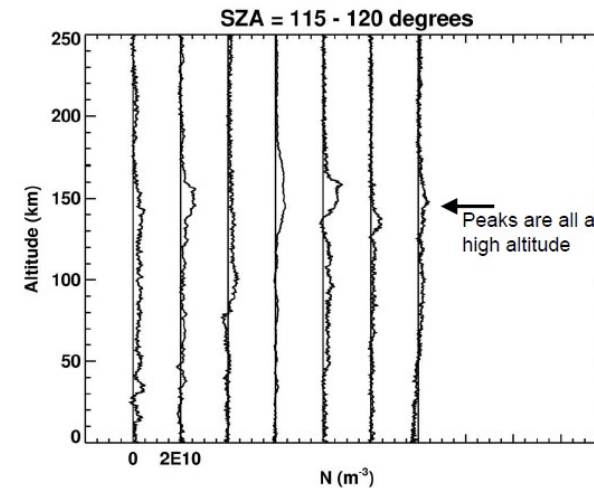
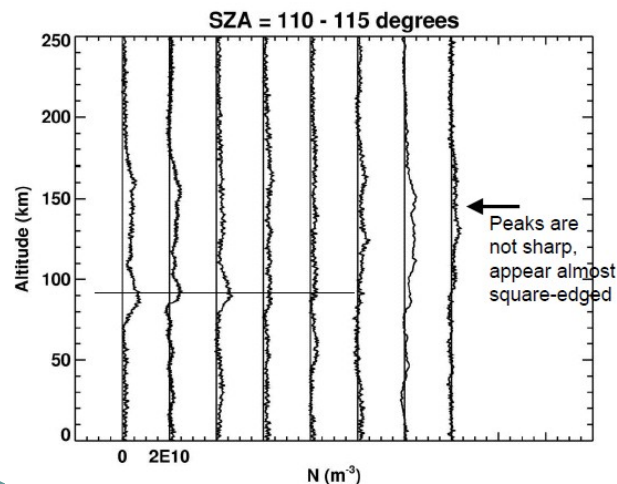
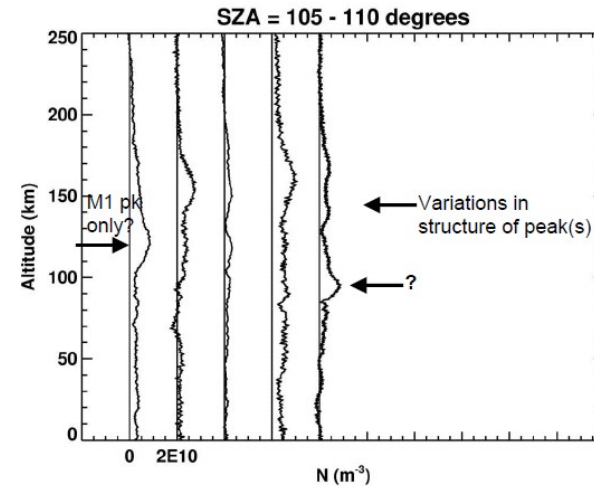
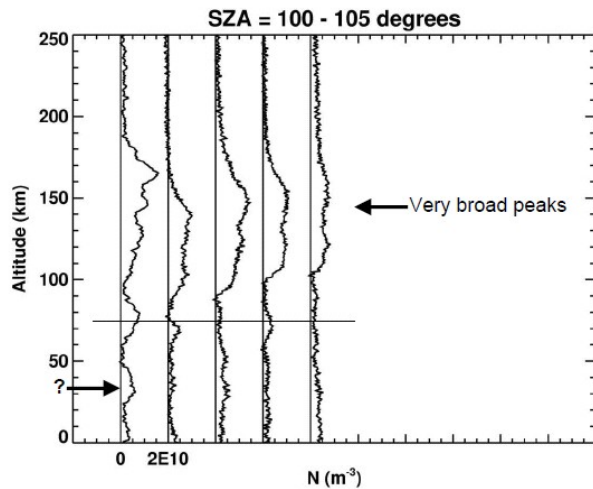
<http://www.bu.edu/csp/MUAN> (case sensitive)

Radio Signal Attenuation:



Withers, under review by Radio Science

Night-time Ionospheric Variabilities:



Unusual Ionospheric Features

