URSI Commission G
Report

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experimental:

rocket-borne plasma density measurements (wave propagation [Faraday rotation, absorption], electrostatic probe)

participation in recent sounding rocket campaigns:

ECOMA-7, 8 & 9, December 2010, Andøya
PHOCUS, July 2011, ESRANGE

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theoretical:

study the size, charge and composition of meteoric dust in the mesosphere (a.k.a. *D*-region)

assess the relevance of meteoric dust for the charge balance in the *D*-region

model the disturbed ionosphere by extending the model IMAZ

derive time constants of the ionosphere

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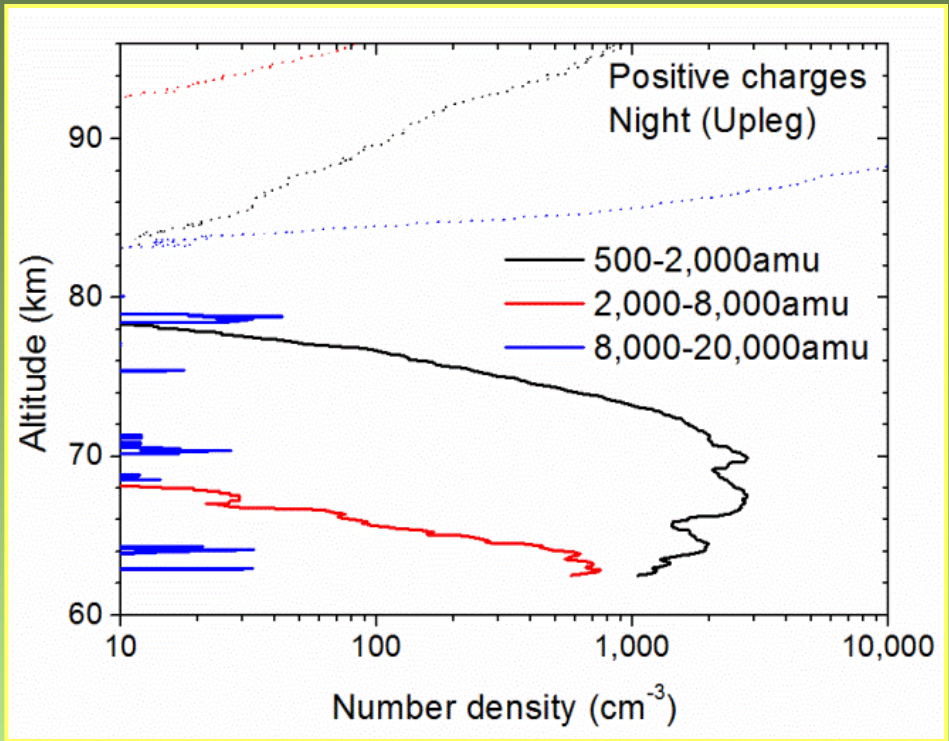

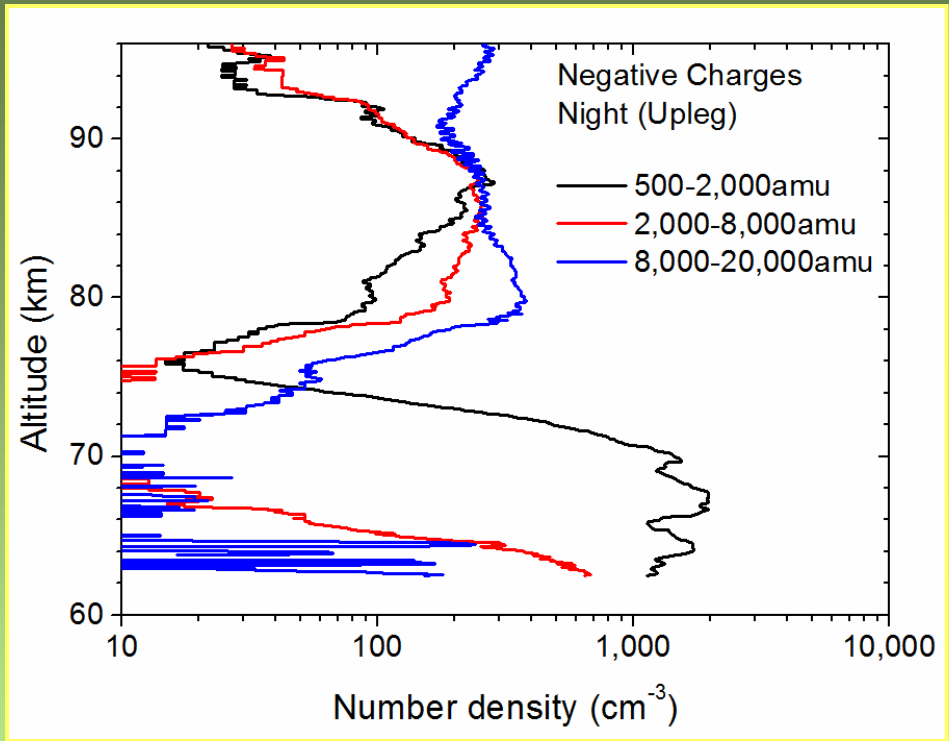

- there is another layer of charged particles in the lower mesosphere
- the heaviest particles only occur in the upper layer
- in the upper layer the dust is negatively charged

Robertson *et al.*, 2013

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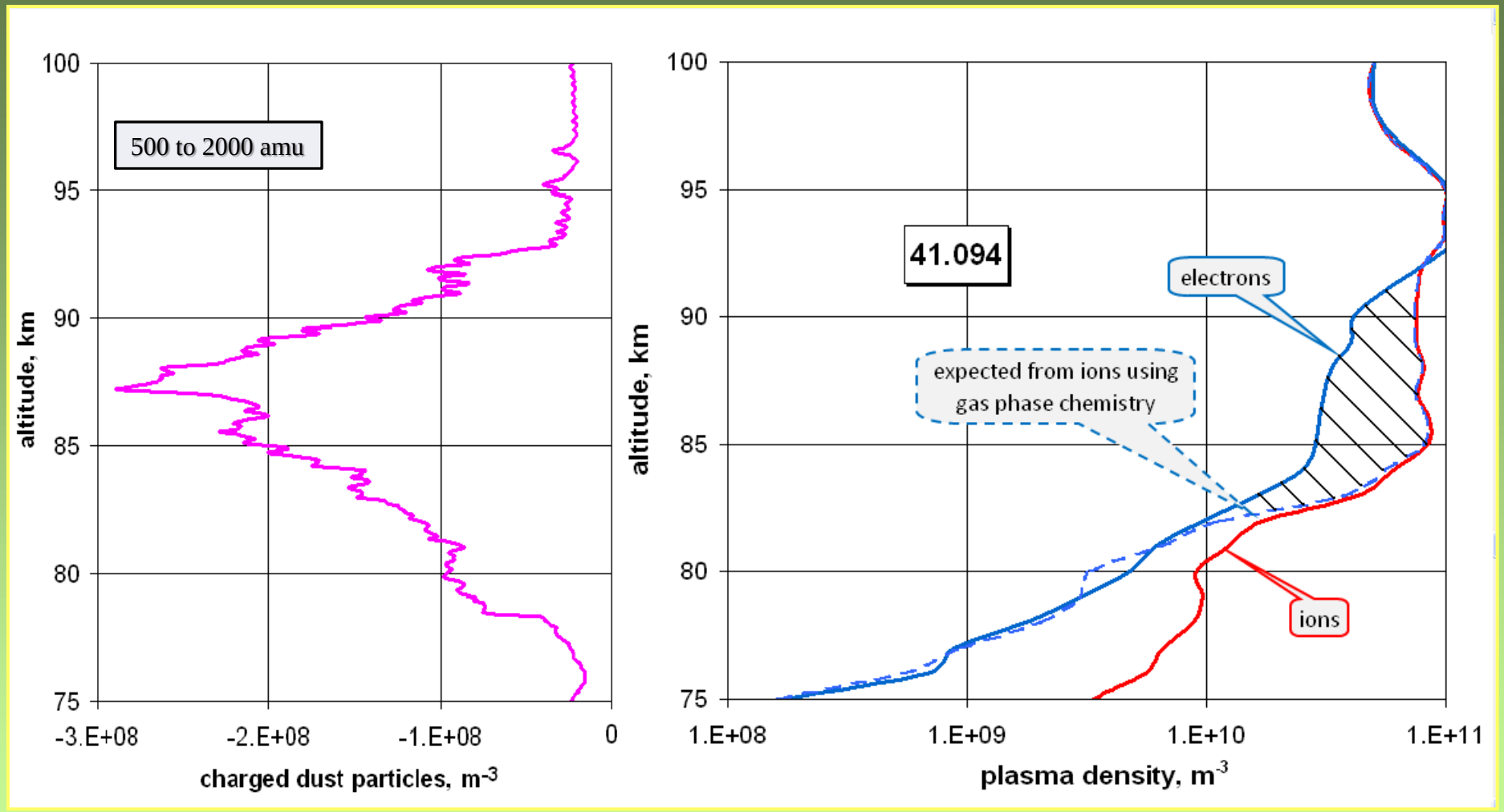

negatively charged dust, assumed to cause the electron scavenging

hatched area: electron loss by attachment to meteor dust

Friedrich *et al.*, 2012

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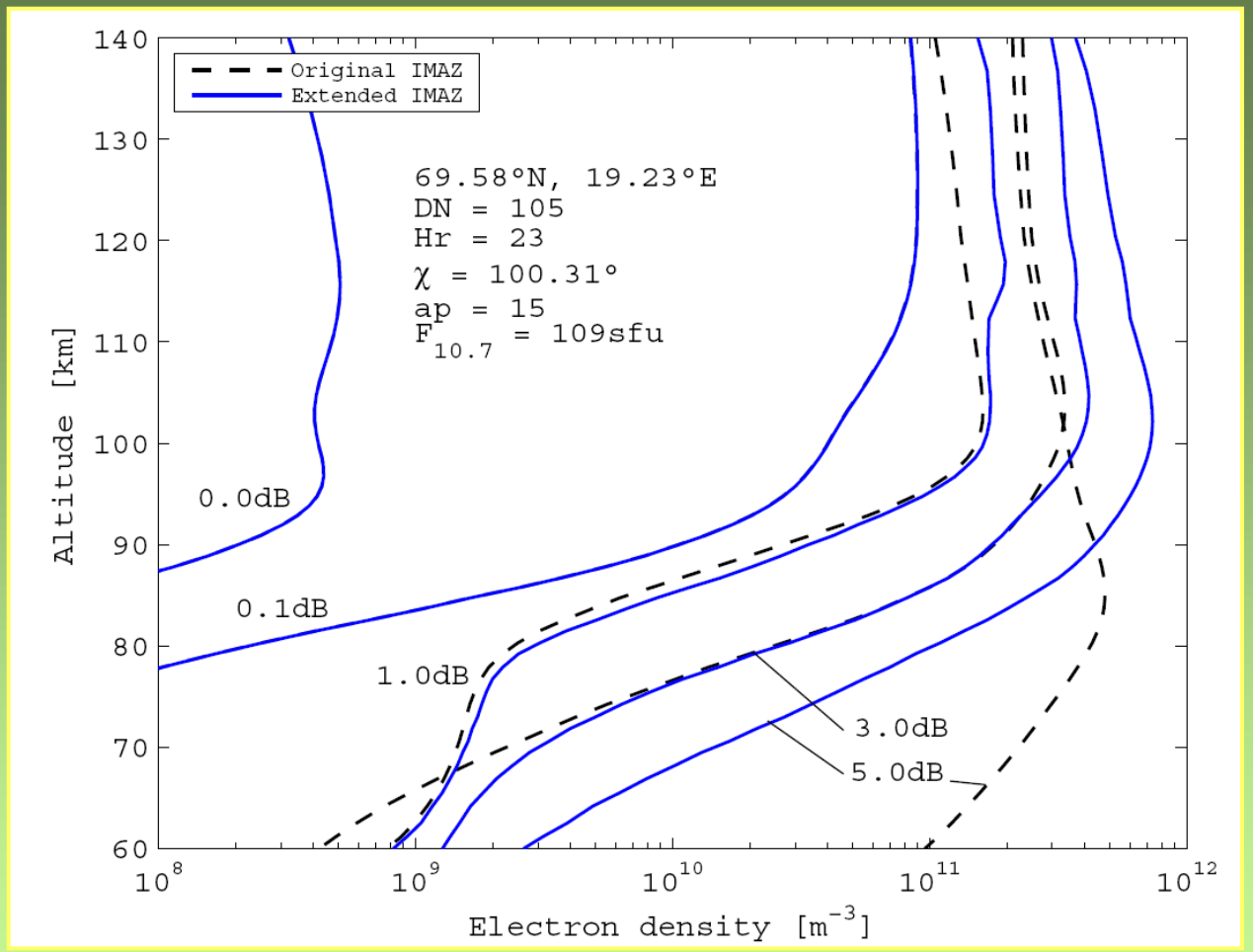

extrapolating from realistic Neural Network values leads to more reasonable profiles for large riometer absorption (≥3 dB) than interrogating the NN for data from outside the input space

Friedrich and Landauer, 2011

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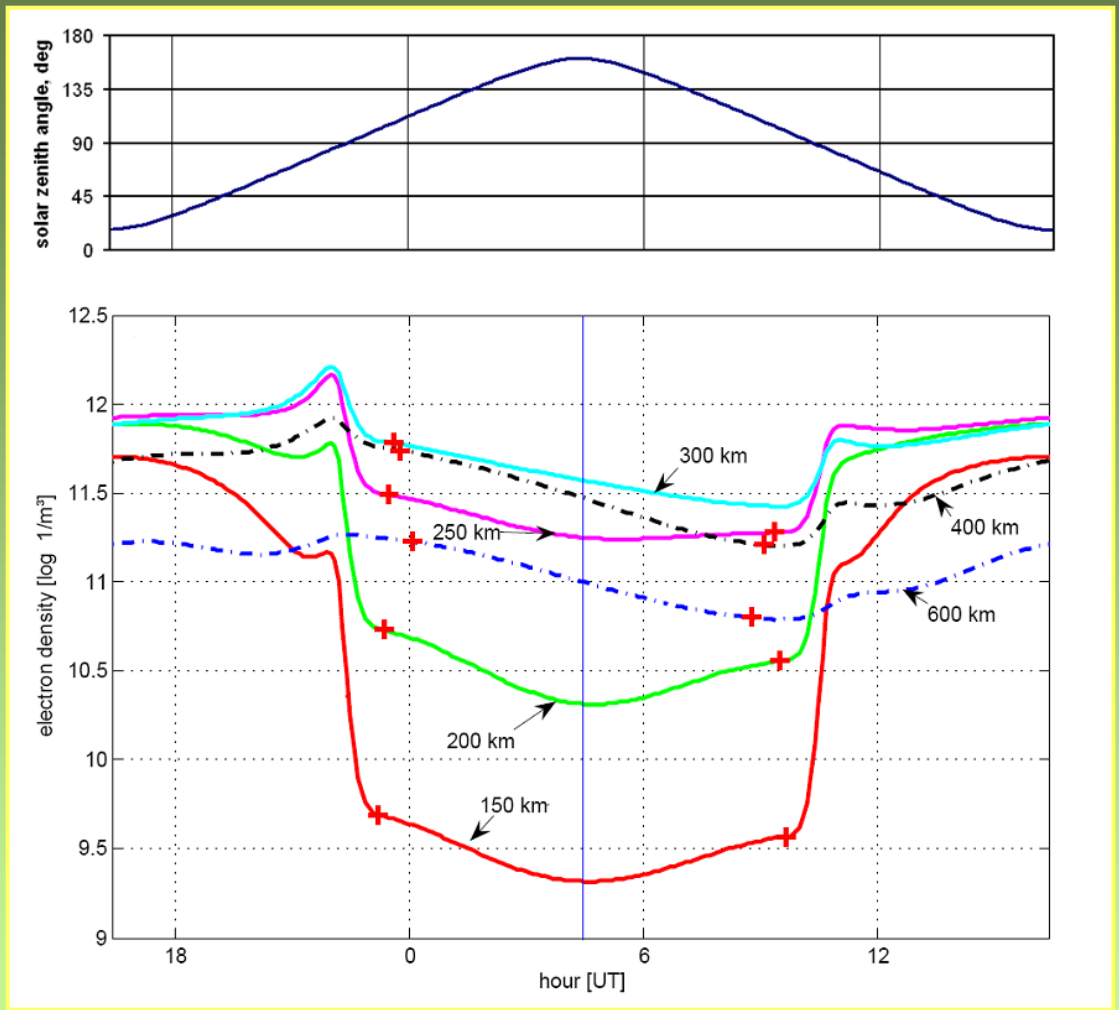

two processes are active at night: symmetric to midnight (at low altitudes), and an exponential decay after sundown (at higher altitudes)

time-dependent neural network model based on the Arecibo IS radar

Friedrich and Fankhauser, 2013

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experimental:

rocket-borne plasma density measurements (wave propagation [Faraday rotation, absorption], electrostatic probe, capacitance probe)

participation in coming sounding rocket campaigns:

WADIS-1, June/July 2013, Andøya
WADIS-2, January/February 2014, Andøya
MaxiDusty, Summer 2014, Andøya
MaxiDusty-2, 2015/16