



## **Reformulating and enhancing the NRLMSIS atmospheric model**

Douglas Drob (1), Michael Picone (2,3), John Emmert (1), and David Siskind (1)

(1) US Naval Research Laboratory, Space Science Division, Washington, United States (douglas.drob@nrl.navy.mil), (2) Department of Physics and Astronomy, George Mason University, (3) Emeritus, Naval Research Laboratory

We report recent progress toward a major revision of the Mass Spectrometer Incoherent Scatter (MSIS) empirical reference model. The new model will incorporate more than 25 recent satellite- and ground-based data sets. This new database, encompassing temperature, density, and composition measurements of the upper-mesosphere and thermosphere, contains almost 100 times the number of observations as the current version's database (NRLMSISE-00). The model's mathematical formulation is also being renovated to improve the physical selfconsistency among the state variables, enable increased spatiotemporal resolution, and improve the computational efficiency of the end-user client subroutine.

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