



# NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION  
400 MARYLAND AVENUE, SW, WASHINGTON 25, D.C.  
TELEPHONES: WORTH 2-4155 — WORTH 3-6925

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## U.S. Standard Atmosphere,

### 1962 Announced

A detailed description of the earth's atmosphere--intended to meet the needs of space age research and operations--now is available in a new 278-page report.

The "U.S. Standard Atmosphere, 1962" was prepared under the joint sponsorship of the U.S. Air Force, the National Aeronautics and Space Administration and the U.S. Weather Bureau, and it reflects the combined effort of 29 scientific and engineering organizations.

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~~Code book only~~  
~~George~~ Copy # 1

The document is dedicated to the late Dr. Harry Wexler, who until his death on August 11, 1962, was Director of Meteorological Research for the U.S. Weather Bureau and Co-chairman to the Committee on Extension to the Standard Atmosphere, (COESA), which prepared the new report, and he had led other similar efforts for nearly 15 years.

The "U.S. Standard Atmosphere, 1962" is intended for widespread practical application such as including aircraft altimeter calibration, aircraft and rocket design, aeronomy and space research. All data are presented in both metric and English units in anticipation of very wide scientific and engineering usage in the United States and in other countries.

The report provides, in systematic tabular form and at regular intervals from five kilometers below sea level to 700 kilometers above sea level (minus three to plus 435 miles) such basic atmospheric parameters as temperature, pressure, density, sound speed, particle speed, particle collision frequency, molecular weight, etc., and basic equations and curves for these properties also are given.

The atmospheric model arrived at in the U.S. Standard Atmosphere, 1962, is an idealized, middle latitude one (45 Degrees, North Latitude) under medium solar conditions between times of maximum and minimum sunspot activity.

The new work is divided into four altitude regions. The first, from -5 to +20 kilometers (-3.1 to +12.4 miles) is designated standard. The second region, from 20 to 32 kilometers (12.4 to 19.9 miles) is designated proposed standard. The third region, from 32 to 90 kilometers (19.9 to 55.9 miles) is called tentative, and the fourth region, from 90 to 700 kilometers (55.9 to 435 miles) is labeled speculative.

Although a similar "standard atmosphere" was published in 1958 by this same organization, COESA, the wealth of information recently acquired from rocket and satellite data pointed to a need for revision. In 1960, a review of existing tables in the light of orbital data from Sputnik I indicated that densities at higher altitudes were in error by more than an order of magnitude (tenfold).

A COESA Working Group was re-established in January 1960, and spent the next year studying new data and theories resulting from later satellite flights. Extreme altitude data were provided mainly by United States satellites and from tracking of Soviet satellites. Several years of observations at satellite altitudes also led to increased understanding of the effects of solar activity and sun position. Hundreds of rocket firings provided data above balloon altitudes, where many thousands of measurements were made.

The U.S. Standard Atmosphere, 1962, may be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington 25, D.C. The price is \$3.50.

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## Participating organizations included:

Aeronautical Systems Division, AFSC  
Air Force Deputy Commander Aerospace Systems, AFSC  
Air Weather Service, USAF  
Applied Physics Laboratory, The Johns Hopkins University  
Army Ballistic Missile Agency  
Army Signal Research and Development Laboratory  
Ballistic Research Laboratories (Aberdeen Proving Ground)  
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