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Introduction

This draft standard is based on national and international discussions. Your comments on this draft are invited and will assist in the preparation of the consequent standard.

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Template for comments and secretariat observations

Date: xx/xx/20xx	Document: ISO/DIS xxxx
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1	2	(3)	4	5	(6)	7
MB	Clause No./ Subclause No./Annex (e.g. 3.1)	Paragraph/ Figure/Table/Note	Type of comment	Comment (justification for change) by the MB	Proposed change by the MB	Secretariat observations on each comment submitted
	3.1	Definition 1	ed	Definition is ambiguous and needs clarifying.	Amend to read '...so that the mains connector to which no connection...'	
	6.4	Paragraph 2	te	The use of the UV photometer as an alternative cannot be supported as serious problems have been encountered in its use in the UK.	Delete reference to UV photometer.	



DRAFT International Standard

ISO/DIS 2533

Standard atmosphere

Atmosphère type

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ISO/TC 20/SC 6

Secretariat: **GOST R**

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

The committee responsible for this document is ISO/TC 20, *Aircraft and space vehicles*, 6, *Standard atmosphere*.

This second edition of ISO 2533 cancels and replaces [ISO 2533:1975](#) (and its Errata), [ISO 2533:1975/Add 1:1985](#) and [ISO 2533:1975/Add 2:1997](#).

The major changes from the first edition are:

- The ISO 2533:1975 Errata has been incorporated;
- Hypsometrical tables with pressure unit mbar/hPa from [ISO 2533:1975/Add 1:1985](#) have been incorporated and extended;
- All content from [ISO 2533:1975/Add 2:1997](#), namely the extended lower range of altitude (– 5 km), and the tables that provide lookup using the non-SI measurement unit “feet”, have been incorporated;
- [Table 18](#), which represents barometric pressure as a function of geometrical altitude, has been added;
- Values of the data tables have been recalculated using modern computational methods and improved accuracy, with some values in the atmospheric tables now corrected to reflect the latest results. The reference software used to calculate has been made available in open-source.

NOTE The hypsometrical tables from [ISO 2533:1975/Add 1:1985](#) that utilize the non-SI unit for pressure, mmHg, are not incorporated.

Introduction

The ISO Standard Atmosphere (ISA) defined by this document, first published in 1975, has been widely adopted internationally, including in fields such as aviation, aerospace engineering, meteorology, and environmental sciences.

Now at its 50th anniversary, the ISA model continues to be a fundamental reference for atmospheric conditions, providing a consistent resource for calculating and comparing atmospheric parameters.

The ISA defines a model atmosphere that represents the average characteristics of Earth's atmosphere at sea level and at various altitudes. It specifies the expected values of atmospheric parameters, including temperature, pressure, density, and viscosity, at different altitudes up to 80 km and 252 500 ft above sea level. It takes into account the average solar radiation, geographical variations, and seasonal changes to provide a comprehensive representation of Earth's atmosphere.

This document provides the mathematical definition of the ISA model to determine the atmospheric properties at specific altitudes, and provides reference tables for the purpose of easy lookups when the underlying software for performing ISA algorithmic calculations is unavailable.

The ISA model considers atmospheric conditions across a wide range of altitudes, from sea level to the upper limits of the troposphere, stratosphere, mesosphere, and lower thermosphere.

The concept of a standard atmosphere is crucial for numerous applications. It provides a reference point for performance evaluations, design considerations, and simulations involving aircraft, spacecraft, weather forecasting, and atmospheric research.

- Reference framework: The establishment of a standard atmosphere provides a fundamental reference framework for consistent and reliable characterization of atmospheric conditions. This framework enables accurate calculations, simulations, and assessments in various industries and scientific disciplines.
- Interoperability and comparability: A standard atmosphere facilitates interoperability and comparability by providing a common basis for atmospheric data exchange and analysis. It ensures that measurements, models, and simulations from different sources can be effectively compared, promoting harmonization and consistency across international boundaries.
- Performance evaluation and design optimization: By utilizing a standard atmosphere, performance evaluation of systems interacting with the atmosphere, such as aircraft and weather forecasting models, becomes more robust and objective. The standard atmosphere allows for the assessment of system efficiency, accuracy, and safety, supporting design optimization and improvement efforts.
- Safety compliance and risk mitigation: Adherence to the standard atmosphere is crucial for maintaining safety standards in various operations, particularly in aviation and aerospace industries. Compliance ensures that systems and procedures are adequately designed and operated to withstand expected atmospheric conditions, thereby mitigating risks and enhancing safety.
- International collaboration and knowledge sharing: The concept of a standard atmosphere promotes international collaboration and knowledge sharing among professionals and organizations. By adopting a common reference, researchers, scientists, and practitioners from different countries can communicate findings, exchange data, and collectively advance the understanding of atmospheric phenomena.

The ISA model was developed by ISO/TC 20/SC 6 through the adoption of cutting-edge atmospheric research performed by international experts and standards published by ISO member bodies.

In this latest edition of the document, the data tables provided have been recalculated using modern computational methods and improved accuracy.

This document includes information from the following sources:

- a) [GOST 3295-73](#) Hypsometrical tables for geopotential altitudes up to 50 000 m — Characteristics;
- b) the tables of geopotential altitudes versus atmospheric pressure taken from [8].

Standard atmosphere

1 Scope

This document defines the “ISO Standard Atmosphere” (ISA) and specifies its characteristics. The ISA is a model of the atmosphere that represents the characteristics of Earth’s atmosphere at various altitudes.

The model provides a consistent reference for atmospheric conditions and establishes a framework for calculating and comparing parameters such as temperature, pressure, density, and other related properties.

It is intended for use in calculations and design of flying vehicles, to present the test results of flying vehicles and their components under identical conditions, and to allow unification in the field of development and calibration of instruments. Its use is also recommended in the processing of data from geophysical and meteorological observations.

Data tables of the ISA are provided for reference and easy lookup, including:

- Atmospheric tables
 - Atmospheric attributes by geometric and geopotential altitude
- Hypsometric tables
 - Geometric and geopotential altitudes by pressure
 - Pressure by geometric and geopotential altitudes

This document covers the geometric and geopotential altitudes of the model from – 5 km to 80 km, and – 16 500 ft to 262 500 ft.

2 Normative references

There are no normative references in this document.

3 Terms, definitions and symbols

3.1 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org>

3.1.1

atmosphere

layer of gases that surround a celestial body

3.1.2

altitude

vertical distance measured from a reference point

3.1.3**geometric altitude**

altitude (3.1.2) where the reference point is the Earth's surface

3.1.4**geopotential altitude**

altitude (3.1.2) where the reference point is Earth's gravitational potential, which takes into account the variation of gravity with altitude

3.1.5**standard atmosphere**

reference model or framework that defines a set of atmospheric conditions at different *altitudes* (3.1.2)

3.1.6**ISO standard atmosphere**

ISA

standard atmosphere (3.1.5) defined by ISO 2533, which specifies the average characteristics of the Earth's atmosphere at *mean sea level* (3.1.7) and at various *altitudes* (3.1.2)

3.1.7**mean sea level**

MSL

average height of the ocean's surface, used as a standard reference point for measuring *altitude* (3.1.2) and atmospheric conditions

3.1.8**hypsoetry**

measurement of the elevation and depth of features of Earth's surface relative to *mean sea level* (3.1.7)

3.2 Symbols

g_n standard acceleration of free fall. It conforms with latitude $\varphi = 46^\circ 32' 33''$ using Lambert's equation of the acceleration of free fall as a function of latitude φ [6]:

$$g_\varphi = 9,806\,16 \left(1 - 0,002\,637\,3 \cos 2\varphi + 0,000\,005\,9 \cos^2 2\varphi \right)$$

H geopotential altitude

h geometric altitude

M air molar mass at sea level, as obtained from the perfect gas law (4.2, Formula (2)) when introducing the adopted values p_n , ρ_n , T_n , R^* (see Table 1)

N_A Avogadro constant, $6,022\,140\,76 \times 10^{-23} \text{ mol}^{-1}$ as defined in the [BIPM SI Brochure](#).

p_n standard air pressure

R specific gas constant

R^* universal gas constant

ρ_n standard air density

S and β_s Sutherland's empirical coefficients in the equation for dynamic viscosity

T_n standard thermodynamic air temperature at mean sea level

T_0 thermodynamic ice-point temperature, at mean sea level

t_n	standard Celsius air temperature at mean sea level
t_o	Celsius ice-point temperature at mean sea level
$\kappa = \frac{c_p}{c_v}$	adiabatic index, the ratio of the specific heat of air at constant pressure to its specific heat at constant volume
σ	effective collision diameter of an air molecule; taken as constant with altitude.

4 Basic principles and formulae

4.1 Primary constants and characteristics

The ISO Standard Atmosphere model is defined by a set of defined constants and formulae.

The model makes the following assumptions:

- the air is assumed to be a perfect gas free from moisture and dust;
- conventional initial values of temperature, pressure and density of the air for mean sea level, are used.

NOTE The definition of the ISO Standard Atmosphere has not changed from its original definition given in [ISO 2533:1975](#). The changes in data table values in this document only originate from improved computational methods and calculation accuracy.

The following constants and characteristics are used for calculations and their numerical values are given in [Table 1](#).

Table 1 — Main constants and characteristics adopted for the calculation of the ISO Standard Atmosphere

Symbol	Value	Unit of measurement	Description
g_n	9,806 65	ms^{-2}	standard acceleration of free fall
M	28,964 42	kg kmol^{-1}	molar mass of dry air at sea level
N_A	6,022 140 76 -23	mol^{-1}	Avogadro constant
p_n	1 013,25	hPa	standard air pressure at sea level
R^*	8 314,32	$\text{J K}^{-1} \text{kmol}^{-1}$ or $\text{kg m}^2 \text{s}^{-2} \text{K}^{-1} \text{kmol}^{-1}$	universal gas constant
R	287,052 87	$\text{J K}^{-1} \text{kg}^{-1}$ or $\text{m}^2 \text{K}^{-1} \text{s}^{-2}$	specific gas constant
S	110,4	K	Sutherland's empirical coefficient in the equation for dynamic viscosity
T_o	273,15	K	thermodynamic ice-point temperature, at mean sea level
T_n	288,15	K	standard thermodynamic air temperature at mean sea level
t_o	0,0	$^{\circ}\text{C}$	Celsius ice-point temperature at mean sea level
t_n	15,0	$^{\circ}\text{C}$	standard Celsius air temperature at mean sea level
β_s	0,000 001 468	$\text{kg m}^{-1} \text{s}^{-1} \text{K}^{-1/2}$	Sutherland's empirical coefficient in the equation for dynamic viscosity
κ	1,4	dimensionless	adiabatic index, the ratio of the specific heat of air at constant pressure to its specific heat at constant volume
ρ_n	1,225	kg m^{-3}	standard air density
σ	3,650 -10	m	effective collision diameter of an air molecule; taken as constant with altitude.

4.2 The equation of the static atmosphere and the perfect gas law

Being static with respect to the earth, the atmosphere is subject to gravity. The conditions of air static equilibrium are determined by the equation of the static atmosphere which relates air pressure p , density ρ , acceleration of free fall g and altitude h described by [Formula \(1\)](#).

$$-dp = \rho g dh \quad (1)$$

where

- p is the air pressure, expressed in pascals (Pa);
- ρ is the air density, expressed in kilograms per cubic metre (kgm⁻³);
- g is the acceleration of free fall, expressed in metres per second squared (ms⁻²);
- h is the geometric altitude, expressed in metres (m).

The perfect gas law relates air pressure to density and temperature is described by [Formula \(2\)](#).

$$p = \frac{\rho R^* T}{M} \quad (2)$$

where

- p is the air pressure, expressed in pascals (Pa);
- ρ is the air density, expressed in kilograms per cubic metre (kgm⁻³);
- R^* is the universal gas constant, expressed in joules per kelvin per kilomole, of 8,314 462 Jmol⁻¹K⁻¹;
- T is the temperature, expressed in kelvins (K);
- M is the air molar mass, expressed in kilograms per kilomole (kgkmol⁻¹).

At the altitudes considered in this document, $\frac{R^*}{M} = \text{constant} = R$. The relationship is hence simplified to [Formula \(3\)](#).

$$p = \rho RT \quad (3)$$

where

- p is the air pressure, expressed in pascals (Pa);
- ρ is the air density, expressed in kilograms per cubic metre (kgm⁻³);
- R is the specific gas constant at the altitudes considered in this document, expressed in joules per kilogram per kelvin (Jkg⁻¹K⁻¹);
- T is the temperature, expressed in kelvins (K).

4.3 Geopotential and geometric altitudes; acceleration of free fall

In considering pressure distribution in the atmosphere it is convenient to introduce the gravity potential or geopotential Φ , which characterizes the potential energy of an air particle at a given point.

Any point with x, y, z co-ordinates may be characterized by a single value of gravity potential $\Phi(x, y, z)$ in it.

The surface defined by the equation [Formula \(4\)](#) is of the same potential in all points and is called an isopotential or geopotential surface.

$$\Phi(x, y, z) = \text{constant} \quad (4)$$

When moving along an external normal from any point on the surface Φ_1 , to the infinitely close point where the value of the potential is $\Phi_2 = \Phi_1 + d\Phi$ the work performed for shifting a unit mass from the first surface to the second one will be [Formula \(5\)](#).

$$d\Phi = g(h)dh \quad (5)$$

where

- Φ is the geopotential defined as in [4.3, Formula \(6\)](#), expressed in joules per kilogram (Jkg^{-1});
- $g(h)$ is the acceleration of free fall at the geometric altitude h , expressed in metres per second squared (ms^{-2});
- h is the geometric altitude, expressed in metres (m).

$$\Phi = \int_0^h g(h)dh \quad (6)$$

where

- Φ is the geopotential, expressed in joules per kilogram (Jkg^{-1});
- $g(h)$ is the acceleration of free fall at the geometric altitude h , expressed in metres per second squared (ms^{-2});
- h is the geometric altitude, expressed in metres (m).

By dividing the geopotential Φ by the standard acceleration of free fall g_n , one obtains the value of a length dimension which, symbolized as H , is called geopotential altitude. It is as defined in [Formula \(7\)](#).

$$H = \frac{\Phi}{g_n} = \frac{1}{g_n} \int_0^h g(h)dh \quad (7)$$

where

- H is the geopotential altitude, expressed in metres (m);
- Φ is the geopotential, expressed in joules per kilogram (Jkg^{-1});
- g_n is the standard acceleration of free fall at mean sea level, expressed in metres per second squared (ms^{-2});
- $g(h)$ is the acceleration of free fall at the geometric altitude h , expressed in metres per second squared (ms^{-2});
- h is the geometric altitude, expressed in metres (m).

The value H is numerically equal to the geopotential altitude, which in meteorology is measured in so-called standard geopotential metres¹⁾; hence, this value will be called geopotential altitude. The mean sea level is taken as a reference for readings for both geopotential and geometrical altitudes.

1) The standard geopotential metre (m') which is equal to $9,806\,65\,\text{m}^2\text{s}^{-2}$ has been adopted by the World Meteorological Organization (see Technical Regulations, WMO, No. 49, vol. I, ed. 1971 Appendix C) and from the 1st July 1972 replaces the geopotential metre formerly in use. Its value was $1\text{gpm} = 9,8\,\text{m}^2\text{s}^{-2}$.

From [Formula \(7\)](#) it can be seen that, in order to relate geopotential and geometric altitudes, it is necessary first to find a relation between acceleration of free fall g and geometric altitude h .

It is known that gravity is a vectorial summation of the gravitational attraction and the centrifugal force induced by the earth's rotation; it is therefore a complex function of a latitude and a radial distance from the earth's centre and the expression for acceleration of free fall is generally awkward and unpractical for use. However, the acceleration g may be obtained with sufficient accuracy for the purpose of this standard atmosphere by formally neglecting centrifugal acceleration and using only Newton's gravitation law.

The relationship between the acceleration of free fall and the distance from the earth's centre is given by [Formula \(8\)](#).

$$g = g_n \left(\frac{r}{r+h} \right)^2 \quad (8)$$

where

- g is the acceleration of free fall, expressed in metres per second squared (ms^{-2});
- g_n is the standard acceleration of free fall at mean sea level, expressed in metres per second squared (ms^{-2});
- r is the nominal earth's radius [\[6\]](#) of 6 356 766 m;
- h is the geometric altitude, expressed in metres (m).

In [Formula \(8\)](#) it can be seen that acceleration of free fall and the vertical gradient of acceleration at mean sea level are very close to true values at the latitude 45 °32 ' 33 ''.

The values of g as calculated using the simplified [Formula \(8\)](#) with $g_n = 9,806\,65\,\text{ms}^{-2}$ for the altitude of 60 000 m does not differ by more than 0,001% from the values calculated using the more accurate equation of [\[8\]](#).

;Integration of [Formula \(7\)](#), substituting for g with its function from [Formula \(8\)](#), gives the following relationship between geopotential altitude in; [Formula \(9\)](#) and geometric altitude in [Formula \(10\)](#)..

$$H = \frac{r h}{r + h} \quad (9)$$

where

- H is the geopotential altitude, expressed in metres (m);
- h is the geometric altitude, expressed in metres (m);
- r is the nominal earth's radius [\[6\]](#), expressed in metres, of 6 356 766 m.

$$h = \frac{r H}{r - H} \quad (10)$$

where

- h is the geometric altitude, expressed in metres (m);
- H is the geopotential altitude, expressed in metres (m);
- r is the nominal earth's radius [\[6\]](#), expressed in metres, of 6 356 766 m.

4.4 Atmospheric composition and air molar mass

The atmosphere is a mixture of gases, mainly nitrogen (~78%) and oxygen (~21%) with smaller amounts of trace gases, which can nevertheless have important effects, e.g. water vapour, carbon dioxide and ozone. Aerosols that are suspended in the atmosphere can also have important effects. Concentrations of trace gases and aerosols may vary considerably.

The water vapour content undergoes the greatest variations; its concentration at the earth's surface may reach 4% under high temperature conditions and abruptly diminishes when altitude increases and temperature decreases.

Dry clean air composition up to altitudes of 90 km to 95 km remains practically constant and corresponds to that given in [Table 2](#) [8].

The air molar mass is determined from the perfect gas law [4.2, Formula \(2\)](#) using the adopted standard values of pressure p_n , density ρ_n , and temperature T_n for mean sea level, as well as the universal gas constant R^* .

Table 2 — Dry clean air composition near sea level

Gas	Content of volume %	Molar mass M , kgkmol ⁻¹
Nitrogen (N ₂)	78,084	28,013 4
Oxygen (O ₂)	20,947 6	31,998 8
Argon (Ar)	0,934	39,948
Carbon dioxide (CO ₂)	0,031 4	44,009 95
Neon (Ne)	0,001 818	20,183
Helium (He)	0,000 524	4,002 6
Krypton (Kr)	0,000 114	83,8
Xenon (Xe)	0,000 008 7	131,3
Hydrogen (H ₂)	0,000 05	2,015 94
Nitrogen monoxide (N ₂ O)	0,000 05 ^a	44,012 8
Methane (CH ₄)	0,000 2	16,043 03
Ozone (O ₃)	in summer: up to 0,000 007 ^a	in winter: up to 0,000 002 ^a
	47,998 22	47,998 2
Sulphur dioxide (SO ₂)	up to 0,000 1 ^a	64,062 8
Nitrogen dioxide (NO ₂)	up to 0,000 002 ^a	46,005 5
Iodine (I ₂)	up to 0,000 001 ^a	253,808 8
Air	100	28,964 42 ^b
^a The content of the gas may undergo significant variations from time to time or from place to place.		
^b This value is obtained from the perfect gas law 4.2, Formula (2) .		

4.5 Physical characteristics of the atmosphere at mean sea level

For the calculation of the ISO Standard Atmosphere, the mean sea level is defined as zero altitude for which the initial characteristics g_n , p_n , ρ_n , and T_n given in [Table 1](#) apply.

The remaining characteristics have been calculated using the initial ones as a basis and are presented in [Table 3](#).

Table 3 — Physical characteristics of the atmosphere at mean sea level

Symbol	Value	Unit of measurement	Description
a_n	340,294	ms ⁻¹	speed of sound
H_{pn}	8 434,5	m	pressure scale height
I_n	6,632 8 -8	m	mean free path of air particles
n_n	2,547 1 +25	m ⁻³	air number density
$\bar{v}_n$	458,94	ms ⁻¹	mean air-particle speed
γ_n	12,013	Nm ⁻³	specific weight

Table 3 (continued)

Symbol	Value	Unit of measurement	Description
ν_n	0,000 014 607	m^2s^{-1}	kinematic viscosity
λ_n	0,025 343	$\text{Wm}^{-1}\text{K}^{-1}$	thermal conductivity
μ_n	0,000 017 894	Pas	dynamic viscosity
ω_n	6 919 300 000	s^{-1}	air-particle collision frequency

4.6 Temperature and vertical temperature gradient

Thermodynamic temperature for the melting point of ice under a pressure of 101 325,0 Pa is taken as $T_o = 273,15$ K. Thermodynamic temperature T (in kelvins, K) is described in [Formula \(11\)](#).

$$T = T_o + t \quad (11)$$

where

T_o is the thermodynamic temperature at the melting point of ice, expressed in Kelvins (K);

t is the Celsius temperature, expressed in degrees Celsius (°C).

According to the temperature variations with altitude, the atmosphere is divided into several layers.

For calculating a standard atmosphere, the temperature of each layer is taken as a linear function of geopotential altitude. The relationship between temperature and geopotential altitude is given by the equation [Formula \(12\)](#).

$$T = T_b + \beta(H - H_b) \quad (12)$$

where

T is the temperature, expressed in Kelvins (K);

T_b is the temperature at the lower boundary of the layer concerned, expressed in Kelvins (K);

H is the geopotential altitude, expressed in metres (m);

H_b is the geopotential altitude at the lower boundary of the layer concerned, expressed in metres (m);

β is the vertical temperature gradient, $\beta = \frac{dT}{dH}$.

The values of temperature and its Vertical gradients adopted for the ISO Standard Atmosphere are given in [Table 4](#).

Table 4 — Temperatures and vertical temperature gradients

Geopotential altitude H , km	Temperature T , K	Temperature gradient β , Kkm^{-1}
-2,0	301,15	-6,5
0,0	288,15	-6,5
11,0	216,65	0,0
20,0	216,65	+1,0
32,0	228,65	+2,8
47,0	270,65	0,0
51,0	270,65	-2,8
71,0	214,65	-2,0

Table 4 (continued)

Geopotential altitude H , km	Temperature T , K	Temperature gradient β , Kkm ⁻¹
80,0	196,65	

4.7 Pressure

Assuming a linear variation of the temperature with geopotential altitude, the simultaneous solution of the equation of static atmosphere [4.2, Formula \(1\)](#) and the perfect gas law [4.2, Formula \(2\)](#) yields the expressions for pressure [Formula \(13\)](#) and [Formula \(14\)](#).

For $\beta \neq 0$:

$$\ln p = \ln p_b - \frac{g_n}{\beta R} \frac{\ln(T_b + \beta(H - H_b))}{T_b} \text{ or } p = p_b \left[1 + \frac{\beta}{T_b} (H - H_b) \right]^{-g_n/\beta R} \quad (13)$$

where

- p is the pressure, expressed in pascals (Pa);
- p_b is the pressure at the lower boundary of the layer concerned, expressed in pascals (Pa);
- g_n is the standard acceleration of free fall, expressed in metres per second squared (ms⁻²);
- β is the vertical temperature gradient, expressed in Kelvins per metre (Km⁻¹);
- R is the specific gas constant, expressed in joules per kilogram per Kelvin (Jkg⁻¹K⁻¹);
- T_b is the temperature at the lower boundary of the layer concerned, expressed in Kelvins (K);
- H is the geopotential altitude, expressed in metres (m);
- H_b is the geopotential altitude at the lower boundary of the layer concerned, expressed in metres (m).

For $\beta = 0$:

$$\ln p = \ln p_b - \frac{g_n}{RT} (H - H_b) \text{ or } p = p_b \exp \left[- \frac{g_n}{RT} (H - H_b) \right] \quad (14)$$

Here subscript $_b$ refers the values of the pertinent characteristics to the lower limit of the layer concerned.

4.8 Density and specific weight

The density ρ is calculated from the pressure and the temperature using the perfect gas law in [Formula \(15\)](#).

$$\rho = \frac{p}{RT} \quad (15)$$

where

- ρ is the density, expressed in kilograms per cubic metre (kgm⁻³);
- p is the pressure, expressed in pascals (Pa);
- R is the specific gas constant, expressed in joules per kilogram per Kelvin (Jkg⁻¹K⁻¹);
- T is the temperature in kelvins, expressed in Kelvins (K).

The specific weight γ is the weight per unit volume of air defined in [Formula \(16\)](#).

$$\gamma = \rho g \quad (16)$$

where

- γ is the specific weight, expressed in newtons per cubic metre (Nm⁻³);
- ρ is the density, expressed in kilograms per cubic metre (kgm⁻³);
- g is the acceleration of free fall, expressed in metres per second squared (ms⁻²).

4.9 Pressure scale height

Pressure scale height H_p is determined by [Formula \(17\)](#).

$$H_p = \frac{R^*}{M} \cdot \frac{T}{g} = \frac{RT}{g} \quad (17)$$

where

- H_p is the pressure scale height, expressed in metres (m);
- R^* is the universal gas constant, expressed in joules per kelvin per kilomole, of 8,314 462 Jmol⁻¹K⁻¹;
- M is the molar mass of dry air at sea level, expressed in kilograms per mole (kgmol⁻¹);
- T is the temperature in kelvins, expressed in Kelvins (K);
- g is the acceleration of free fall, expressed in metres per second squared (ms⁻²);
- R is the specific gas constant, expressed in joules per kilogram per Kelvin (Jkg⁻¹K⁻¹).

4.10 Air number density

The air number density n , i.e. the number of neutral air particles per unit volume, is given by [Formula \(18\)](#).

$$n = \frac{N_A p}{R^* T} \quad (18)$$

where

- n is the air number density, expressed in particles per cubic metre (1m⁻³);
- N_A is the Avogadro constant, expressed in particles per mole (1mol⁻¹);
- p is the pressure, expressed in pascals (Pa);
- R^* is the universal gas constant, expressed in joules per kelvin per kilomole, of 8,314 462 Jmol⁻¹K⁻¹;
- T is the temperature in kelvins, expressed in Kelvins (K).

4.11 Mean air-particle speed

The mean air-particle speed $\bar{v}$ is defined as the arithmetic average of air-particle speeds obtained from Maxwell's distribution of molecular speeds in the monatomic perfect gas under thermodynamical equilibrium conditions disregarding any exterior force, as expressed in [Formula \(19\)](#).

$$\bar{v} = \left(\frac{8}{\pi} RT \right)^{1/2} \cong 1,595\,769 \sqrt{RT} \quad (19)$$

where

- $\bar{v}$ is the mean air-particle speed, expressed in metres per second (ms⁻¹);
- R is the specific gas constant, expressed in joules per kilogram per Kelvin (Jkg⁻¹K⁻¹);
- T is the temperature in kelvins, expressed in Kelvins (K).

4.12 Mean free path of air particles

An air particle between two successive collisions moves uniformly along a straight line, passing a certain average distance l called a mean free path of air particles. Taking into account the distribution of relative speeds of colliding particles, the mean free path of air particles is defined by the expression [Formula \(20\)](#).

$$l = \frac{R^*}{\sqrt{2} \pi N_A \sigma^2} \cdot \frac{T}{p} = \frac{1}{\sqrt{2} \pi \sigma^2 n} \quad (20)$$

where

- l is the mean free path of air particles, expressed in metres (m);
- R^* is the universal gas constant, expressed in joules per kelvin per kilomole, of 8,314 462 Jmol⁻¹K⁻¹;
- N_A is the Avogadro constant, expressed in particles per mole (1mol⁻¹);
- σ is the effective collision diameter of an air molecule, expressed in metres (m);
- p is the pressure, expressed in pascals (Pa);
- T is the temperature in kelvins, expressed in Kelvins (K);
- n is the air number density, expressed in particles per cubic metre (1m⁻³).

4.13 Air-particle collision frequency

The air-particle collision frequency ω is the mean air-particle speed divided by the mean free path of air particles at the same altitude, i.e. $\omega = \frac{\bar{v}}{l}$.

Hence, taking into account [4.11, Formula \(19\)](#) and [4.12, Formula \(20\)](#), the equation is rewritten as [Formula \(21\)](#).

$$\omega = 4\sigma^2 N_A \left(\frac{\pi}{R^* M} \right)^{1/2} \cdot \frac{p}{T^{1/2}} = 0,944\,541 \times 10^{-18} n \sqrt{RT} \quad (21)$$

where

- ω is the air-particle collision frequency, expressed in hertz (1s⁻¹);
- σ is the effective collision diameter of an air molecule, expressed in metres (m);
- N_A is the Avogadro constant, expressed in particles per mole (1mol⁻¹);
- R^* is the universal gas constant, expressed in joules per kelvin per kilomole, of 8,314 462 Jmol⁻¹K⁻¹;
- M is the molar mass of dry air at sea level, expressed in kilograms per kilomole (kgkmol⁻¹);
- p is the pressure, expressed in pascals (Pa);

- T is the temperature in kelvins, expressed in Kelvins (K);
- n is the air number density, expressed in particles per cubic metre (1m^{-3}).

4.14 Speed of sound

The speed of sound a is given by the expression

$$a = (\kappa RT)^{1/2} = 20,046\,76\sqrt{T} \quad (22)$$

where

- a speed of sound, expressed in metres per second (ms^{-1});
- κ adiabatic index, where $\kappa = \frac{c_p}{c_v} = 1,4$.

[Formula \(22\)](#) presents the speed of propagation of an infinitesimal perturbation in a gas. That is why this formula may not be used for calculation, for example, of the speed of propagation of shock waves induced by blast, detonation, body motion in the air at supersonic speed, etc.

The concept of speed of sound loses its meaning with very intensive attenuation of sound pulses which occurs above the altitude limits considered for the ISO Standard Atmosphere.

4.15 Dynamic viscosity

The dynamic viscosity μ is defined as the value of internal friction between two neighbouring layers of air moving at different speeds. The tables are established using [Formula \(23\)](#) based on the kinetic theory with, however, constants derived from experiments.

$$\mu = \frac{\beta_s T^{3/2}}{T + S} \quad (23)$$

where

- μ is the dynamic viscosity, expressed in pascal-seconds (Pas);
- β_s is a Sutherland empirical coefficient, see [Table 1](#);
- S is a Sutherland empirical coefficient, see [Table 1](#);
- T is the temperature in kelvins, expressed in Kelvins (K).

[Formula \(23\)](#) is invalid for very high or very low temperatures and under conditions occurring at altitudes above 90 km.

4.16 Kinematic viscosity

The kinematic viscosity ν is defined as the ratio of the air dynamic viscosity to the air density given by [Formula \(24\)](#).

$$\nu = \frac{\mu}{\rho} \quad (24)$$

where

- ν is the kinematic viscosity, expressed in square metres per second (m^2s^{-1});
- μ is the dynamic viscosity, expressed in pascal-seconds (Pas);

ρ is the density, expressed in kilograms per cubic metre (kgm^{-3}).

The limits for the use of this equation are similar to those of the dynamic viscosity.

4.17 Thermal conductivity

The thermal conductivity λ is calculated from the empirical formula [Formula \(25\)](#).

$$\lambda = \frac{2,648\,151 \times 10^{-3} \cdot T^{3/2}}{T + [245,4 \times 10^{-(12/T)}]} \quad (25)$$

where

λ is the thermal conductivity, expressed in watts per metre-kelvin ($\text{Wm}^{-1}\text{K}^{-1}$);

T is the temperature in kelvins, expressed in Kelvins (K).

λ is expressed in the units $\text{Wm}^{-1}\text{K}^{-1}$.

5 Data tables

5.1 General

The following tables were calculated using the constants, coefficients and equations given in [Clause 4](#).

A reference implementation of the ISA model has been developed and now made available as the “atmospheric” open-source software [\[7\]](#).

5.2 Calculation of tables

The calculations of tables were performed using the “atmospheric” library. Detailed documentation on the generation of such tables is described at the corresponding repository.

While the tables in this document provide a convenient reference for altitude and pressure look-up, the tables are not meant to be exhaustive and to cover all possible input values.

Values in the tables slightly differ from those in the first edition of this document, due to the difference in computing architecture and an improved precision. A number of values in the tables have been corrected from the first edition of the document.

The calculations of the tables in this document were performed in a single step with validated equivalence on 64-bit computing architectures (amd64, arm64) and on multiple operating systems (Linux, macOS).

NOTE The calculations of the first edition in 1975 were performed on a Minsk-22 digital computer with a 24-bit word length, and with calculation of separate control points was made on other machines. Its tables were established by digital printing devices on the computers and were reproduced by duplicating machines in order to reduce the possibility of errors to a minimum.

5.3 Number format

In the tables, numbers with a trailing plus or minus sign with digits indicate the exponent of ten by which the number should be multiplied.

EXAMPLE 1 The number “2,996 50 +2” means $299,650 \times 10^2 = 299,650$.

EXAMPLE 2 The number “9,728 581 -1” means $9,728\,581 \times 10^{-1} = 0,972\,858\,1$.

5.4 SI unit usage

Data in the tables are given in SI units except in:

- [Table 5](#), [Table 6](#), [Table 11](#), [Table 12](#) where temperatures are also given in Celsius degrees;
- tables of [Clause 7](#), where the feet unit is used.

5.5 Precision and machine usage

For machine usage purposes, the tables are available in XML and YAML formats. The XML schema for the tables is provided in [Annex A](#).

Higher precision values and altitudes in between steps can be calculated directly using software libraries that implement the ISA model, such as the “atmospheric” library.

EXAMPLE The atmosphere attributes of geopotential altitude of $-5\,012\text{ m}$ is not covered by the tables in this document. However, the “atmospheric” library allows calculation of the attributes at this altitude.

Applications that require the use of the ISA model for dynamic atmospheric calculations would benefit from direct integration with a software library that implements the ISA model, such as the “atmospheric” library.

6 Standard atmosphere (meters)

6.1 General

The calculations of the following attributes associated with the atmosphere are provided, available for lookup by the geometric or geopotential altitude.

The attributes at a particular altitude are split into 3 separate groups, with each group represented by one table, due to the large number of attributes.

a) Group one ([Table 5](#), [Table 6](#)):

- 1) temperature (T) expressed in Kelvin (K)
- 2) temperature (t) expressed in Celsius (°C)
- 3) pressure (p) expressed in hPa (hPa)
- 4) density (ρ) expressed in kg/m^3 (kgm^{-3})
- 5) acceleration of free fall (g) expressed in m/s^2 (ms^{-2})

b) Group two ([Table 7](#), [Table 8](#)):

- 1) pressure ratio (p/p_n), expressed as a dimensionless ratio
- 2) density ratio (ρ/ρ_n), expressed as a dimensionless ratio
- 3) square root of density ratio ($\sqrt{\rho/\rho_n}$), expressed as a dimensionless ratio
- 4) speed of sound (a), expressed in metres per second (ms^{-1})
- 5) dynamic viscosity (μ), expressed in pascal-seconds (Pas)
- 6) kinematic viscosity (ν), expressed in square metres per second (m^2s^{-1})
- 7) thermal conductivity (λ), expressed in watts per metre-kelvin ($\text{Wm}^{-1}\text{K}^{-1}$)

c) Group three ([Table 9](#), [Table 10](#)):

- 1) pressure scale height (H_p), expressed in metres (m)
- 2) specific weight (γ), expressed in newtons per cubic metre (Nm^{-3})

- 3) air number density (n), expressed in inverse cubic metres (m^{-3})
- 4) mean air-particle speed ($\bar{v}$), expressed in metres per second (ms^{-1})
- 5) air-particle collision frequency (ω), expressed in inverse seconds (s^{-1})
- 6) mean free path of air particles (l), expressed in metres (m)

For each group, tables are divided into two types:

- By geometric altitude, in [Table 5](#), [Table 7](#), [Table 9](#)
- By geopotential altitude, in [Table 6](#), [Table 8](#), [Table 10](#)

The range covered is the combination of:

- -5 000 m to 31 950 m with a step of 50 m
- 32 000 m to 50 900 m with a step of 100 m
- 51 000 m to 80 000 m with a step of 200 m

6.2 Temperature, pressure, density and acceleration of free fall by altitude

6.2.1 By geometric altitude

Table 5 — Temperature (T and t), Pressure (p), Density (ρ) and Acceleration of free fall (g) in terms of geometrical altitude (h , m)

Values in terms of geometrical altitude.

h m M	H m M	T K	t °C	p mbar rPa	ρ kgm^{-3} $\text{kg} \cdot \text{m}^{-3}$	g ms^{-2} $\text{m} \cdot \text{s}^{-2}$
-5 000	-5 004	3,206 76 +2	4,752 6 +1	1,777 62 +3	1,931 12 +0	9,822 1 +0
-4 950	-4 954	3,30 +2	4,400 +1	1,768 15 +3	1,922 79 +0	9,821 9 +0
-4 900	-4 904	3,200 25 +2	4,687 5 +1	1,758 73 +3	1,914 49 +0	9,821 8 +0
-4 850	-4 854	3,196 99 +2	4,654 9 +1	1,749 35 +3	1,906 22 +0	9,821 6 +0
-4 800	-4 804	3,193 74 +2	4,622 4 +1	1,740 01 +3	1,897 97 +0	9,821 5 +0
-4 750	-4 754	3,190 48 +2	4,589 8 +1	1,730 71 +3	1,889 76 +0	9,821 3 +0
-4 700	-4 703	3,187 23 +2	4,557 3 +1	1,721 45 +3	1,881 56 +0	9,821 2 +0
-4 650	-4 653	3,183 97 +2	4,524 7 +1	1,712 23 +3	1,10 +0	9,90 +0
-4 600	-4 603	3,180 72 +2	4,492 2 +1	1,703 05 +3	1,865 26 +0	9,820 9 +0
-4 550	-4 553	3,177 46 +2	4,459 6 +1	1,693 91 +3	1,857 15 +0	9,820 7 +0
-4 500	-4 503	3,174 21 +2	4,427 1 +1	1,684 81 +3	1,849 07 +0	9,820 5 +0
-4 450	-4 453	3,170 95 +2	4,394 5 +1	1,675 75 +3	1,841 02 +0	9,820 4 +0
-4 400	-4 403	3,30 +2	4,40 +1	1,666 73 +3	1,832 99 +0	9,820 2 +0
-4 350	-4 353	3,164 44 +2	4,329 4 +1	1,657 75 +3	1,824 99 +0	9,820 1 +0
-4 300	-4 303	3,161 19 +2	4,296 9 +1	1,648 81 +3	1,817 01 +0	9,819 9 +0
-4 250	-4 253	3,157 93 +2	4,264 3 +1	1,639 91 +3	1,809 07 +0	9,819 8 +0
-4 200	-4 203	3,154 68 +2	4,231 8 +1	1,631 04 +3	1,801 14 +0	9,819 6 +0
-4 150	-4 153	3,151 43 +2	4,199 3 +1	1,622 22 +3	1,793 25 +0	9,819 5 +0
-4 100	-4 103	3,148 17 +2	4,166 7 +1	1,613 44 +3	1,785 38 +0	9,819 3 +0
-4 050	-4 053	3,144 92 +2	4,134 2 +1	1,604 69 +3	1,777 54 +0	9,819 2 +0
-4 000	-4 003	3,141 66 +2	4,101 6 +1	1,595 98 +3	1,769 73 +0	9,90 +0
-3 950	-3 952	3,138 41 +2	4,069 1 +1	1,587 31 +3	1,761 94 +0	9,818 8 +0
-3 900	-3 902	3,135 16 +2	4,036 6 +1	1,578 68 +3	1,754 18 +0	9,818 7 +0
-3 850	-3 852	3,30 +2	4,40 +1	1,570 09 +3	1,746 44 +0	9,818 5 +0

Table 5 (continued)

Values in terms of geometrical altitude.

h m M	H m M	T K	t °C	p mbar rPa	ρ kgm ⁻³ kg · m ⁻³	g ms ⁻² m · s ⁻²
-3 800	-3 802	3,128 65 +2	3,971 5 +1	1,561 53 +3	1,738 73 +0	9,818 4 +0
-3 750	-3 752	3,125 39 +2	3,938 9 +1	1,553 02 +3	1,731 05 +0	9,818 2 +0
-3 700	-3 702	3,122 14 +2	3,906 4 +1	1,544 54 +3	1,723 39 +0	9,818 1 +0
-3 650	-3 652	3,118 89 +2	3,873 9 +1	1,10 +3	1,715 76 +0	9,817 9 +0
-3 600	-3 602	3,115 63 +2	3,841 3 +1	1,527 69 +3	1,708 16 +0	9,817 8 +0
-3 550	-3 552	3,112 38 +2	3,808 8 +1	1,519 33 +3	1,700 58 +0	9,817 6 +0
-3 500	-3 502	3,109 13 +2	3,776 3 +1	1,100 +3	1,693 03 +0	9,817 5 +0
-3 450	-3 452	3,105 87 +2	3,743 7 +1	1,502 71 +3	1,10 +0	9,817 3 +0
-3 400	-3 402	3,102 62 +2	3,711 2 +1	1,494 45 +3	1,100 +0	9,817 1 +0
-3 350	-3 352	3,099 36 +2	3,678 6 +1	1,486 23 +3	1,670 52 +0	9,90 +0
-3 300	-3 302	3,096 11 +2	3,646 1 +1	1,478 05 +3	1,663 07 +0	9,816 8 +0
-3 250	-3 252	3,092 86 +2	3,613 6 +1	1,469 91 +3	1,655 65 +0	9,816 7 +0
-3 200	-3 202	3,30 +2	3,30 +1	1,10 +3	1,648 25 +0	9,816 5 +0
-3 150	-3 152	3,086 35 +2	3,548 5 +1	1,453 73 +3	1,640 87 +0	9,816 4 +0
-3 100	-3 102	3,30 +2	3,30 +1	1,445 69 +3	1,633 53 +0	9,816 2 +0
-3 050	-3 051	3,079 85 +2	3,483 5 +1	1,437 69 +3	1,10 +0	9,816 1 +0
-3 000	-3 001	3,076 59 +2	3,450 9 +1	1,429 73 +3	1,618 91 +0	9,815 9 +0
-2 950	-2 951	3,073 34 +2	3,418 4 +1	1,10 +3	1,611 63 +0	9,815 8 +0
-2 900	-2 901	3,070 09 +2	3,385 9 +1	1,413 91 +3	1,604 39 +0	9,815 6 +0
-2 850	-2 851	3,066 83 +2	3,353 3 +1	1,406 05 +3	1,597 16 +0	9,815 4 +0
-2 800	-2 801	3,063 58 +2	3,320 8 +1	1,398 23 +3	1,589 97 +0	9,815 3 +0
-2 750	-2 751	3,060 33 +2	3,288 3 +1	1,390 45 +3	1,582 79 +0	9,815 1 +0
-2 700	-2 701	3,057 07 +2	3,255 7 +1	1,10 +3	1,575 65 +0	9,90 +0
-2 650	-2 651	3,053 82 +2	3,223 2 +1	1,374 98 +3	1,568 52 +0	9,814 8 +0
-2 600	-2 601	3,050 57 +2	3,190 7 +1	1,10 +3	1,561 43 +0	9,814 7 +0
-2 550	-2 551	3,047 32 +2	3,158 2 +1	1,359 66 +3	1,554 35 +0	9,814 5 +0
-2 500	-2 501	3,044 06 +2	3,125 6 +1	1,352 05 +3	1,10 +0	9,814 4 +0
-2 450	-2 451	3,040 81 +2	3,093 1 +1	1,344 47 +3	1,540 28 +0	9,814 2 +0
-2 400	-2 401	3,037 56 +2	3,060 6 +1	1,336 93 +3	1,533 28 +0	9,814 1 +0
-2 350	-2 351	3,034 31 +2	3,028 1 +1	1,329 42 +3	1,526 31 +0	9,813 9 +0
-2 300	-2 301	3,031 05 +2	2,995 5 +1	1,321 95 +3	1,519 36 +0	9,813 8 +0
-2 250	-2 251	3,30 +2	2,20 +1	1,314 51 +3	1,512 43 +0	9,813 6 +0
-2 200	-2 201	3,024 55 +2	2,930 5 +1	1,307 11 +3	1,505 53 +0	9,813 4 +0
-2 150	-2 151	3,30 +2	2,20 +1	1,299 74 +3	1,498 65 +0	9,813 3 +0
-2 100	-2 101	3,018 05 +2	2,865 5 +1	1,10 +3	1,10 +0	9,813 1 +0
-2 050	-2 051	3,014 79 +2	2,832 9 +1	1,10 +3	1,484 97 +0	9,90 +0
-2 000	-2 001	3,011 54 +2	2,800 4 +1	1,277 83 +3	1,478 16 +0	9,812 8 +0
-1 950	-1 951	3,008 29 +2	2,767 9 +1	1,270 59 +3	1,471 38 +0	9,812 7 +0
-1 900	-1 901	3,005 04 +2	2,735 4 +1	1,263 39 +3	1,464 62 +0	9,812 5 +0
-1 850	-1 851	3,001 79 +2	2,702 9 +1	1,256 22 +3	1,457 89 +0	9,812 4 +0
-1 800	-1 801	2,998 53 +2	2,670 3 +1	1,249 08 +3	1,451 18 +0	9,812 2 +0
-1 750	-1 750	2,995 28 +2	2,637 8 +1	1,241 98 +3	1,444 49 +0	9,812 1 +0
-1 700	-1 700	2,992 03 +2	2,605 3 +1	1,234 91 +3	1,437 83 +0	9,811 9 +0
-1 650	-1 650	2,988 78 +2	2,572 8 +1	1,227 87 +3	1,431 19 +0	9,811 7 +0
-1 600	-1 600	2,985 53 +2	2,540 3 +1	1,220 87 +3	1,424 58 +0	9,811 6 +0
-1 550	-1 550	2,982 27 +2	2,507 7 +1	1,10 +3	1,417 99 +0	9,811 4 +0

Table 5 (continued)

Values in terms of geometrical altitude.

h m M	H m M	T K	t °C	p mbar rPa	ρ kgm ⁻³ kg · m ⁻³	g ms ⁻² m · s ⁻²
-1 500	-1 500	2,979 02 +2	2,475 2 +1	1,206 96 +3	1,411 42 +0	9,811 3 +0
-1 450	-1 450	2,975 77 +2	2,442 7 +1	1,200 05 +3	1,404 87 +0	9,811 1 +0
-1 400	-1 400	2,972 52 +2	2,410 2 +1	1,193 17 +3	1,398 35 +0	9,90 +0
-1 350	-1 350	2,969 27 +2	2,377 7 +1	1,186 33 +3	1,391 85 +0	9,810 8 +0
-1 300	-1 300	2,966 02 +2	2,345 2 +1	1,179 52 +3	1,385 38 +0	9,810 7 +0
-1 250	-1 250	2,962 77 +2	2,312 7 +1	1,172 74 +3	1,378 93 +0	9,810 5 +0
-1 200	-1 200	2,959 51 +2	2,280 1 +1	1,165 99 +3	1,10 +0	9,810 4 +0
-1 150	-1 150	2,956 26 +2	2,247 6 +1	1,159 27 +3	1,366 09 +0	9,810 2 +0
-1 100	-1 100	2,953 01 +2	2,215 1 +1	1,152 59 +3	1,359 71 +0	9,900 +0
-1 050	-1 050	2,949 76 +2	2,182 6 +1	1,145 93 +3	1,353 35 +0	9,809 9 +0
-1 000	-1 000	2,946 51 +2	2,150 1 +1	1,139 31 +3	1,347 02 +0	9,809 7 +0
-950	-950	2,943 26 +2	2,117 6 +1	1,132 72 +3	1,10 +0	9,809 6 +0
-900	-900	2,940 01 +2	2,085 1 +1	1,126 16 +3	1,334 41 +0	9,809 4 +0
-850	-850	2,936 76 +2	2,052 6 +1	1,119 63 +3	1,328 14 +0	9,809 3 +0
-800	-800	2,933 51 +2	2,020 1 +1	1,113 13 +3	1,10 +0	9,809 1 +0
-750	-750	2,930 26 +2	1,987 6 +1	1,106 66 +3	1,315 67 +0	9,90 +0
-700	-700	2,927 01 +2	1,955 1 +1	1,100 23 +3	1,309 47 +0	9,808 8 +0
-650	-650	2,923 75 +2	1,922 5 +1	1,093 82 +3	1,10 +0	9,808 7 +0
-600	-600	2,20 +2	1,100 +1	1,087 44 +3	1,297 14 +0	9,808 5 +0
-550	-550	2,917 25 +2	1,857 5 +1	1,10 +3	1,291 01 +0	9,808 3 +0
-500	-500	2,200 +2	1,10 +1	1,074 78 +3	1,10 +0	9,808 2 +0
-450	-450	2,910 75 +2	1,792 5 +1	1,068 49 +3	1,278 81 +0	9,90 +0
-400	-400	2,20 +2	1,100 +1	1,062 24 +3	1,272 74 +0	9,807 9 +0
-350	-350	2,904 25 +2	1,727 5 +1	1,056 01 +3	1,10 +0	9,807 7 +0
-300	-300	2,200 +2	1,10 +1	1,049 81 +3	1,260 67 +0	9,807 6 +0
-250	-250	2,897 75 +2	1,662 5 +1	1,043 65 +3	1,254 67 +0	9,807 4 +0
-200	-200	2,20 +2	1,100 +1	1,037 51 +3	1,248 69 +0	9,807 3 +0
-150	-150	2,891 25 +2	1,597 5 +1	1,10 +3	1,242 74 +0	9,807 1 +0
-100	-100	2,200 +2	1,10 +1	1,025 32 +3	1,10 +0	9,90 +0
-50	-50	2,884 75 +2	1,532 5 +1	1,019 27 +3	1,230 89 +0	9,806 8 +0
0,0	0,0	2,881 50 +2	1,500 0 +1	1,013 25 +3	1,225 00 +0	9,806 7 +0
50	50	2,878 25 +2	1,467 5 +1	1,007 26 +3	1,219 13 +0	9,806 5 +0
100	100	2,200 +2	1,10 +1	1,001 29 +3	1,213 28 +0	9,806 3 +0
150	150	2,871 75 +2	1,402 5 +1	9,90 +2	1,207 46 +0	9,806 2 +0
200	200	2,20 +2	1,100 +1	9,894 54 +2	1,201 65 +0	9,90 +0
250	250	2,865 25 +2	1,337 5 +1	9,835 76 +2	1,195 87 +0	9,805 9 +0
300	300	2,200 +2	1,10 +1	9,777 27 +2	1,190 11 +0	9,805 7 +0
350	350	2,858 75 +2	1,272 5 +1	9,719 07 +2	1,184 37 +0	9,805 6 +0
400	400	2,20 +2	1,100 +1	9,661 14 +2	1,178 65 +0	9,805 4 +0
450	450	2,852 25 +2	1,207 5 +1	9,603 49 +2	1,172 95 +0	9,805 3 +0
500	500	2,200 +2	1,10 +1	9,546 13 +2	1,167 27 +0	9,805 1 +0
550	550	2,845 75 +2	1,142 5 +1	9,489 04 +2	1,161 62 +0	9,90 +0
600	600	2,20 +2	1,100 +1	9,432 23 +2	1,155 98 +0	9,804 8 +0
650	650	2,839 25 +2	1,077 5 +1	9,90 +2	1,150 37 +0	9,804 6 +0
700	700	2,836 01 +2	1,045 1 +1	9,319 44 +2	1,144 78 +0	9,804 5 +0
750	750	2,832 76 +2	1,012 6 +1	9,263 46 +2	1,139 21 +0	9,804 3 +0

Table 5 (continued)

Values in terms of geometrical altitude.

h m M	H m M	T K	t °C	p mbar rPa	ρ kgm ⁻³ kg · m ⁻³	g ms ⁻² m · s ⁻²
800	800	2,829 51 +2	9,800 7 +0	9,207 75 +2	1,133 66 +0	9,804 2 +0
850	850	2,826 26 +2	9,475 7 +0	9,152 31 +2	1,128 13 +0	9,90 +0
900	900	2,823 01 +2	9,150 8 +0	9,097 15 +2	1,122 62 +0	9,803 9 +0
950	950	2,819 76 +2	8,825 9 +0	9,042 25 +2	1,117 13 +0	9,803 7 +0
1 000	1 000	2,816 51 +2	8,80 +0	8,987 63 +2	1,111 66 +0	9,803 6 +0
1 050	1 050	2,813 26 +2	8,176 1 +0	8,933 27 +2	1,106 21 +0	9,803 4 +0
1 100	1 100	2,810 01 +2	7,851 2 +0	8,879 18 +2	1,100 79 +0	9,803 3 +0
1 150	1 150	2,806 76 +2	7,526 4 +0	8,825 36 +2	1,095 38 +0	9,803 1 +0
1 200	1 200	2,803 51 +2	7,201 5 +0	8,80 +2	1,089 99 +0	9,802 9 +0
1 250	1 250	2,800 27 +2	6,876 6 +0	8,718 51 +2	1,084 63 +0	9,802 8 +0
1 300	1 300	2,797 02 +2	6,551 7 +0	8,665 48 +2	1,079 28 +0	9,802 6 +0
1 350	1 350	2,793 77 +2	6,226 9 +0	8,612 71 +2	1,073 96 +0	9,802 5 +0
1 400	1 400	2,790 52 +2	5,50 +0	8,80 +2	1,068 65 +0	9,802 3 +0
1 450	1 450	2,787 27 +2	5,577 1 +0	8,507 95 +2	1,063 37 +0	9,802 2 +0
1 500	1 500	2,784 02 +2	5,252 3 +0	8,455 97 +2	1,10 +0	9,90 +0
1 550	1 550	2,780 77 +2	4,927 5 +0	8,404 24 +2	1,052 86 +0	9,801 9 +0
1 600	1 600	2,777 53 +2	4,602 6 +0	8,352 77 +2	1,047 64 +0	9,801 7 +0
1 650	1 650	2,774 28 +2	4,277 8 +0	8,301 55 +2	1,042 43 +0	9,801 6 +0
1 700	1 700	2,771 03 +2	3,30 +0	8,250 59 +2	1,037 25 +0	9,801 4 +0
1 750	1 750	2,767 78 +2	3,628 1 +0	8,199 89 +2	1,032 08 +0	9,801 3 +0
1 800	1 799	2,764 53 +2	3,303 3 +0	8,149 43 +2	1,026 94 +0	9,801 1 +0
1 850	1 849	2,761 28 +2	2,978 5 +0	8,099 23 +2	1,021 81 +0	9,800 9 +0
1 900	1 899	2,758 04 +2	2,653 7 +0	8,049 29 +2	1,016 71 +0	9,800 8 +0
1 950	1 949	2,754 79 +2	2,328 9 +0	7,999 59 +2	1,011 62 +0	9,800 6 +0
2 000	1 999	2,751 54 +2	2,004 1 +0	7,950 14 +2	1,006 55 +0	9,800 5 +0
2 050	2 049	2,748 29 +2	1,679 3 +0	7,900 94 +2	1,001 51 +0	9,800 3 +0
2 100	2 099	2,745 05 +2	1,354 5 +0	7,851 99 +2	9,964 79 -1	9,800 2 +0
2 150	2 149	2,20 +2	1,029 7 +0	7,803 28 +2	9,914 71 -1	9,900 0 +0
2 200	2 199	2,738 55 +2	7,049 5 -1	7,754 83 +2	9,864 83 -1	9,799 9 +0
2 250	2 249	2,20 +2	3,801 7 -1	7,706 61 +2	9,815 13 -1	9,799 7 +0
2 300	2 299	2,732 05 +2	5,540 7 -2	7,658 64 +2	9,765 63 -1	9,799 6 +0
2 350	2 349	2,728 81 +2	-2,693 6 -1	7,610 91 +2	9,716 32 -1	9,799 4 +0
2 400	2 399	2,725 56 +2	-5,941 1 -1	7,563 42 +2	9,667 21 -1	9,799 2 +0
2 450	2 449	2,722 31 +2	-9,188 6 -1	7,516 18 +2	9,618 28 -1	9,799 1 +0
2 500	2 499	2,719 06 +2	-1,243 6 +0	7,469 17 +2	9,569 54 -1	9,798 9 +0
2 550	2 549	2,715 82 +2	-1,568 4 +0	7,422 41 +2	9,900 -1	9,798 8 +0
2 600	2 599	2,712 57 +2	-1,893 1 +0	7,375 88 +2	9,472 64 -1	9,798 6 +0
2 650	2 649	2,709 32 +2	-2,217 8 +0	7,329 59 +2	9,424 47 -1	9,798 5 +0
2 700	2 699	2,706 07 +2	-2,542 5 +0	7,283 53 +2	9,376 49 -1	9,798 3 +0
2 750	2 749	2,702 83 +2	-2,867 3 +0	7,237 71 +2	9,90 -1	9,798 2 +0
2 800	2 799	2,699 58 +2	-3,30 +0	7,192 13 +2	9,90 -1	9,90 +0
2 850	2 849	2,696 33 +2	-3,516 7 +0	7,146 78 +2	9,233 68 -1	9,797 9 +0
2 900	2 899	2,693 09 +2	-3,841 4 +0	7,101 66 +2	9,186 45 -1	9,797 7 +0
2 950	2 949	2,689 84 +2	-4,166 1 +0	7,056 77 +2	9,90 -1	9,797 6 +0
3 000	2 999	2,686 59 +2	-4,490 8 +0	7,012 11 +2	9,092 54 -1	9,797 4 +0
3 050	3 049	2,683 35 +2	-4,815 5 +0	6,967 69 +2	9,045 87 -1	9,797 2 +0

Table 5 (continued)

Values in terms of geometrical altitude.

h m M	H m M	T K	t °C	p mbar rPa	ρ kgm ⁻³ kg · m ⁻³	g ms ⁻² m · s ⁻²
3 100	3 098	2,20 +2	-5,140 2 +0	6,923 49 +2	8,999 38 -1	9,797 1 +0
3 150	3 148	2,676 85 +2	-5,464 9 +0	6,879 52 +2	8,953 07 -1	9,796 9 +0
3 200	3 198	2,20 +2	-5,789 5 +0	6,835 78 +2	8,906 95 -1	9,796 8 +0
3 250	3 248	2,670 36 +2	-6,114 2 +0	6,792 26 +2	8,800 -1	9,796 6 +0
3 300	3 298	2,667 11 +2	-6,438 9 +0	6,748 97 +2	8,815 24 -1	9,796 5 +0
3 350	3 348	2,663 86 +2	-6,763 5 +0	6,60 +2	8,769 67 -1	9,796 3 +0
3 400	3 398	2,660 62 +2	-7,088 2 +0	6,663 06 +2	8,724 27 -1	9,796 2 +0
3 450	3 448	2,657 37 +2	-7,412 8 +0	6,620 44 +2	8,679 05 -1	9,90 +0
3 500	3 498	2,654 13 +2	-7,737 5 +0	6,578 04 +2	8,634 02 -1	9,795 9 +0
3 550	3 548	2,650 88 +2	-8,062 1 +0	6,535 86 +2	8,589 16 -1	9,795 7 +0
3 600	3 598	2,647 63 +2	-8,386 8 +0	6,60 +2	8,544 49 -1	9,795 6 +0
3 650	3 648	2,644 39 +2	-8,711 4 +0	6,452 16 +2	8,499 99 -1	9,795 4 +0
3 700	3 698	2,641 14 +2	-9,90 +0	6,410 64 +2	8,455 67 -1	9,795 2 +0
3 750	3 748	2,637 89 +2	-9,360 6 +0	6,369 33 +2	8,411 53 -1	9,795 1 +0
3 800	3 798	2,634 65 +2	-9,685 2 +0	6,328 25 +2	8,367 56 -1	9,794 9 +0
3 850	3 848	2,20 +2	-1,10 +1	6,287 37 +2	8,323 77 -1	9,794 8 +0
3 900	3 898	2,628 16 +2	-1,033 4 +1	6,246 72 +2	8,280 16 -1	9,794 6 +0
3 950	3 948	2,624 91 +2	-1,065 9 +1	6,206 27 +2	8,236 73 -1	9,794 5 +0
4 000	3 997	2,621 66 +2	-1,098 4 +1	6,166 04 +2	8,193 47 -1	9,794 3 +0
4 050	4 047	2,618 42 +2	-1,130 8 +1	6,126 02 +2	8,150 38 -1	9,794 2 +0
4 100	4 097	2,615 17 +2	-1,163 3 +1	6,086 22 +2	8,107 47 -1	9,90 +0
4 150	4 147	2,611 93 +2	-1,195 7 +1	6,046 62 +2	8,064 73 -1	9,793 9 +0
4 200	4 197	2,608 68 +2	-1,228 2 +1	6,007 23 +2	8,022 16 -1	9,793 7 +0
4 250	4 247	2,605 43 +2	-1,260 7 +1	5,968 05 +2	7,979 77 -1	9,793 6 +0
4 300	4 297	2,602 19 +2	-1,293 1 +1	5,929 08 +2	7,937 55 -1	9,793 4 +0
4 350	4 347	2,598 94 +2	-1,325 6 +1	5,890 32 +2	7,70 -1	9,793 2 +0
4 400	4 397	2,20 +2	-1,10 +1	5,851 76 +2	7,853 63 -1	9,793 1 +0
4 450	4 447	2,592 45 +2	-1,390 5 +1	5,50 +2	7,811 92 -1	9,792 9 +0
4 500	4 497	2,589 21 +2	-1,422 9 +1	5,775 26 +2	7,770 38 -1	9,792 8 +0
4 550	4 547	2,585 96 +2	-1,455 4 +1	5,737 31 +2	7,729 02 -1	9,792 6 +0
4 600	4 597	2,582 72 +2	-1,487 8 +1	5,699 57 +2	7,687 82 -1	9,792 5 +0
4 650	4 647	2,579 47 +2	-1,520 3 +1	5,662 03 +2	7,646 79 -1	9,792 3 +0
4 700	4 697	2,576 23 +2	-1,552 7 +1	5,624 69 +2	7,605 93 -1	9,792 2 +0
4 750	4 746	2,572 98 +2	-1,585 2 +1	5,587 55 +2	7,565 24 -1	9,90 +0
4 800	4 796	2,569 74 +2	-1,617 6 +1	5,550 61 +2	7,524 72 -1	9,791 9 +0
4 850	4 846	2,566 49 +2	-1,650 1 +1	5,513 87 +2	7,484 36 -1	9,791 7 +0
4 900	4 896	2,563 25 +2	-1,682 5 +1	5,477 32 +2	7,444 17 -1	9,791 5 +0
4 950	4 946	2,200 0 +2	-1,10 +1	5,440 98 +2	7,404 15 -1	9,791 4 +0
5 000	4 996	2,556 76 +2	-1,747 4 +1	5,404 83 +2	7,364 29 -1	9,791 2 +0
5 050	5 046	2,553 51 +2	-1,779 9 +1	5,368 87 +2	7,324 59 -1	9,791 1 +0
5 100	5 096	2,550 27 +2	-1,812 3 +1	5,333 11 +2	7,285 06 -1	9,790 9 +0
5 150	5 146	2,547 02 +2	-1,844 8 +1	5,297 54 +2	7,70 -1	9,790 8 +0
5 200	5 196	2,543 78 +2	-1,877 2 +1	5,262 17 +2	7,206 49 -1	9,790 6 +0
5 250	5 246	2,540 53 +2	-1,909 7 +1	5,226 99 +2	7,167 45 -1	9,790 5 +0
5 300	5 296	2,537 29 +2	-1,942 1 +1	5,500 +2	7,128 58 -1	9,790 3 +0
5 350	5 346	2,534 04 +2	-1,974 6 +1	5,50 +2	7,089 86 -1	9,790 2 +0

Table 5 (continued)

Values in terms of geometrical altitude.

h m M	H m M	T K	t °C	p mbar rPa	ρ kgm ⁻³ kg · m ⁻³	g ms ⁻² m · s ⁻²
5 400	5 395	2,20 +2	-2,20 +1	5,122 58 +2	7,051 31 -1	9,900 +0
5 450	5 445	2,527 55 +2	-2,039 5 +1	5,088 16 +2	7,012 92 -1	9,789 9 +0
5 500	5 495	2,524 31 +2	-2,071 9 +1	5,053 93 +2	6,974 69 -1	9,789 7 +0
5 550	5 545	2,521 06 +2	-2,104 4 +1	5,019 88 +2	6,936 62 -1	9,789 5 +0
5 600	5 595	2,517 82 +2	-2,136 8 +1	4,986 02 +2	6,898 71 -1	9,789 4 +0
5 650	5 645	2,514 58 +2	-2,169 2 +1	4,952 35 +2	6,860 95 -1	9,789 2 +0
5 700	5 695	2,511 33 +2	-2,201 7 +1	4,918 86 +2	6,823 36 -1	9,789 1 +0
5 750	5 745	2,508 09 +2	-2,234 1 +1	4,885 55 +2	6,785 93 -1	9,788 9 +0
5 800	5 795	2,504 84 +2	-2,266 6 +1	4,852 43 +2	6,748 65 -1	9,788 8 +0
5 850	5 845	2,20 +2	-2,20 +1	4,819 49 +2	6,711 53 -1	9,788 6 +0
5 900	5 895	2,498 36 +2	-2,331 4 +1	4,786 73 +2	6,674 57 -1	9,788 5 +0
5 950	5 944	2,495 11 +2	-2,363 9 +1	4,754 16 +2	6,637 76 -1	9,788 3 +0
6 000	5 994	2,491 87 +2	-2,396 3 +1	4,721 76 +2	6,601 11 -1	9,788 2 +0
6 050	6 044	2,488 62 +2	-2,428 8 +1	4,689 54 +2	6,564 62 -1	9,90 +0
6 100	6 094	2,485 38 +2	-2,461 2 +1	4,657 51 +2	6,528 28 -1	9,787 9 +0
6 150	6 144	2,482 14 +2	-2,493 6 +1	4,625 65 +2	6,60 -1	9,787 7 +0
6 200	6 194	2,478 89 +2	-2,526 1 +1	4,593 96 +2	6,456 07 -1	9,787 5 +0
6 250	6 244	2,475 65 +2	-2,558 5 +1	4,562 46 +2	6,420 19 -1	9,787 4 +0
6 300	6 294	2,472 41 +2	-2,590 9 +1	4,531 13 +2	6,384 47 -1	9,787 2 +0
6 350	6 344	2,469 16 +2	-2,623 4 +1	4,499 97 +2	6,60 -1	9,787 1 +0
6 400	6 394	2,465 92 +2	-2,655 8 +1	4,468 99 +2	6,313 48 -1	9,786 9 +0
6 450	6 443	2,462 67 +2	-2,688 3 +1	4,438 18 +2	6,278 21 -1	9,786 8 +0
6 500	6 493	2,459 43 +2	-2,720 7 +1	4,407 55 +2	6,60 -1	9,786 6 +0
6 550	6 543	2,456 19 +2	-2,753 1 +1	4,377 08 +2	6,208 13 -1	9,786 5 +0
6 600	6 593	2,452 94 +2	-2,785 6 +1	4,346 79 +2	6,173 32 -1	9,786 3 +0
6 650	6 643	2,20 +2	-2,20 +1	4,316 67 +2	6,138 66 -1	9,786 2 +0
6 700	6 693	2,446 46 +2	-2,850 4 +1	4,286 72 +2	6,104 15 -1	9,90 +0
6 750	6 743	2,443 22 +2	-2,882 8 +1	4,256 93 +2	6,069 78 -1	9,785 9 +0
6 800	6 793	2,439 97 +2	-2,915 3 +1	4,227 32 +2	6,035 57 -1	9,785 7 +0
6 850	6 843	2,436 73 +2	-2,947 7 +1	4,197 87 +2	6,60 -1	9,785 5 +0
6 900	6 893	2,433 49 +2	-2,980 1 +1	4,168 59 +2	5,967 58 -1	9,785 4 +0
6 950	6 942	2,430 24 +2	-3,012 6 +1	4,139 47 +2	5,933 81 -1	9,785 2 +0
7 000	6 992	2,200 +2	-3,30 +1	4,110 53 +2	5,900 18 -1	9,785 1 +0
7 050	7 042	2,423 76 +2	-3,077 4 +1	4,081 74 +2	5,866 71 -1	9,784 9 +0
7 100	7 092	2,420 51 +2	-3,109 9 +1	4,053 12 +2	5,833 37 -1	9,784 8 +0
7 150	7 142	2,417 27 +2	-3,142 3 +1	4,024 66 +2	5,800 19 -1	9,784 6 +0
7 200	7 192	2,414 03 +2	-3,174 7 +1	3,996 37 +2	5,767 14 -1	9,784 5 +0
7 250	7 242	2,410 79 +2	-3,207 1 +1	3,968 23 +2	5,734 25 -1	9,784 3 +0
7 300	7 292	2,407 54 +2	-3,239 6 +1	3,940 26 +2	5,50 -1	9,784 2 +0
7 350	7 342	2,20 +2	-3,30 +1	3,912 45 +2	5,668 89 -1	9,90 +0
7 400	7 391	2,401 06 +2	-3,304 4 +1	3,30 +2	5,636 42 -1	9,783 9 +0
7 450	7 441	2,397 82 +2	-3,336 8 +1	3,30 +2	5,50 -1	9,783 7 +0
7 500	7 491	2,394 57 +2	-3,369 3 +1	3,829 97 +2	5,571 92 -1	9,783 6 +0
7 550	7 541	2,391 33 +2	-3,401 7 +1	3,802 79 +2	5,539 88 -1	9,783 4 +0
7 600	7 591	2,388 09 +2	-3,434 1 +1	3,775 77 +2	5,507 98 -1	9,783 2 +0
7 650	7 641	2,384 85 +2	-3,466 5 +1	3,30 +2	5,476 23 -1	9,783 1 +0

Table 5 (continued)

Values in terms of geometrical altitude.

h m M	H m M	T K	t °C	p mbar rPa	ρ kgm ⁻³ kg · m ⁻³	g ms ⁻² m · s ⁻²
7 700	7 691	2,381 61 +2	-3,498 9 +1	3,722 19 +2	5,444 61 -1	9,782 9 +0
7 750	7 741	2,378 36 +2	-3,531 4 +1	3,695 64 +2	5,413 14 -1	9,782 8 +0
7 800	7 790	2,375 12 +2	-3,563 8 +1	3,669 24 +2	5,381 81 -1	9,782 6 +0
7 850	7 840	2,371 88 +2	-3,596 2 +1	3,642 99 +2	5,350 61 -1	9,782 5 +0
7 900	7 890	2,368 64 +2	-3,628 6 +1	3,616 89 +2	5,319 56 -1	9,782 3 +0
7 950	7 940	2,20 +2	-3,30 +1	3,590 95 +2	5,288 64 -1	9,782 2 +0
8 000	7 990	2,362 15 +2	-3,693 5 +1	3,565 16 +2	5,257 86 -1	9,90 +0
8 050	8 040	2,358 91 +2	-3,725 9 +1	3,539 52 +2	5,227 22 -1	9,781 9 +0
8 100	8 090	2,355 67 +2	-3,758 3 +1	3,514 03 +2	5,196 71 -1	9,781 7 +0
8 150	8 140	2,352 43 +2	-3,790 7 +1	3,488 69 +2	5,166 35 -1	9,781 6 +0
8 200	8 189	2,349 19 +2	-3,823 1 +1	3,463 49 +2	5,136 12 -1	9,781 4 +0
8 250	8 239	2,345 95 +2	-3,855 5 +1	3,438 45 +2	5,106 02 -1	9,781 2 +0
8 300	8 289	2,20 +2	-3,30 +1	3,413 55 +2	5,076 06 -1	9,781 1 +0
8 350	8 339	2,339 46 +2	-3,920 4 +1	3,30 +2	5,046 24 -1	9,780 9 +0
8 400	8 389	2,336 22 +2	-3,952 8 +1	3,364 19 +2	5,016 55 -1	9,780 8 +0
8 450	8 439	2,332 98 +2	-3,985 2 +1	3,339 73 +2	4,986 99 -1	9,780 6 +0
8 500	8 489	2,329 74 +2	-4,017 6 +1	3,315 42 +2	4,957 57 -1	9,780 5 +0
8 550	8 539	2,20 +2	-4,400 +1	3,291 24 +2	4,928 29 -1	9,780 3 +0
8 600	8 588	2,323 26 +2	-4,082 4 +1	3,267 22 +2	4,899 13 -1	9,780 2 +0
8 650	8 638	2,320 01 +2	-4,114 9 +1	3,243 33 +2	4,870 11 -1	9,900 +0
8 700	8 688	2,316 77 +2	-4,147 3 +1	3,219 59 +2	4,841 22 -1	9,779 9 +0
8 750	8 738	2,313 53 +2	-4,179 7 +1	3,195 98 +2	4,812 46 -1	9,779 7 +0
8 800	8 788	2,310 29 +2	-4,212 1 +1	3,172 52 +2	4,783 83 -1	9,779 6 +0
8 850	8 838	2,307 05 +2	-4,244 5 +1	3,30 +2	4,755 34 -1	9,779 4 +0
8 900	8 888	2,303 81 +2	-4,276 9 +1	3,126 02 +2	4,726 97 -1	9,779 2 +0
8 950	8 937	2,300 57 +2	-4,309 3 +1	3,102 97 +2	4,698 74 -1	9,779 1 +0
9 000	8 987	2,297 33 +2	-4,341 7 +1	3,080 07 +2	4,670 63 -1	9,778 9 +0
9 050	9 037	2,294 09 +2	-4,374 1 +1	3,30 +2	4,642 65 -1	9,778 8 +0
9 100	9 087	2,290 85 +2	-4,406 5 +1	3,034 67 +2	4,614 81 -1	9,778 6 +0
9 150	9 137	2,20 +2	-4,40 +1	3,012 17 +2	4,587 09 -1	9,778 5 +0
9 200	9 187	2,284 36 +2	-4,471 4 +1	2,989 81 +2	4,559 49 -1	9,778 3 +0
9 250	9 237	2,281 12 +2	-4,503 8 +1	2,967 59 +2	4,532 03 -1	9,778 2 +0
9 300	9 286	2,277 88 +2	-4,536 2 +1	2,20 +2	4,504 69 -1	9,90 +0
9 350	9 336	2,274 64 +2	-4,568 6 +1	2,923 54 +2	4,477 48 -1	9,777 9 +0
9 400	9 386	2,20 +2	-4,40 +1	2,901 72 +2	4,40 -1	9,777 7 +0
9 450	9 436	2,268 16 +2	-4,633 4 +1	2,880 03 +2	4,423 44 -1	9,777 6 +0
9 500	9 486	2,264 92 +2	-4,665 8 +1	2,858 47 +2	4,396 61 -1	9,777 4 +0
9 550	9 536	2,261 68 +2	-4,698 2 +1	2,837 04 +2	4,40 -1	9,777 3 +0
9 600	9 586	2,258 44 +2	-4,730 6 +1	2,815 74 +2	4,343 32 -1	9,777 1 +0
9 650	9 635	2,20 +2	-4,40 +1	2,794 57 +2	4,316 86 -1	9,776 9 +0
9 700	9 685	2,251 96 +2	-4,795 4 +1	2,773 53 +2	4,290 53 -1	9,776 8 +0
9 750	9 735	2,248 72 +2	-4,827 8 +1	2,752 62 +2	4,264 32 -1	9,776 6 +0
9 800	9 785	2,245 48 +2	-4,860 2 +1	2,731 84 +2	4,238 23 -1	9,776 5 +0
9 850	9 835	2,242 24 +2	-4,892 6 +1	2,711 19 +2	4,212 27 -1	9,776 3 +0
9 900	9 885	2,200 +2	-4,40 +1	2,690 66 +2	4,186 42 -1	9,776 2 +0
9 950	9 934	2,235 76 +2	-4,957 4 +1	2,670 26 +2	4,40 -1	9,90 +0

Table 5 (continued)

Values in terms of geometrical altitude.

h m M	H m M	T K	t °C	p mbar rPa	ρ kgm ⁻³ kg · m ⁻³	g ms ⁻² m · s ⁻²
10 000	9 984	2,232 52 +2	-4,989 8 +1	2,649 99 +2	4,40 -1	9,775 9 +0
10 050	10 034	2,229 28 +2	-5,022 2 +1	2,629 84 +2	4,109 63 -1	9,775 7 +0
10 100	10 084	2,226 04 +2	-5,054 6 +1	2,609 81 +2	4,084 27 -1	9,775 6 +0
10 150	10 134	2,20 +2	-5,50 +1	2,589 91 +2	4,059 03 -1	9,775 4 +0
10 200	10 184	2,219 56 +2	-5,119 4 +1	2,570 13 +2	4,033 91 -1	9,775 3 +0
10 250	10 233	2,216 32 +2	-5,151 8 +1	2,550 48 +2	4,008 92 -1	9,775 1 +0
10 300	10 283	2,213 08 +2	-5,184 2 +1	2,530 95 +2	3,984 04 -1	9,774 9 +0
10 350	10 333	2,209 84 +2	-5,216 6 +1	2,511 53 +2	3,959 28 -1	9,774 8 +0
10 400	10 383	2,20 +2	-5,50 +1	2,492 24 +2	3,934 63 -1	9,774 6 +0
10 450	10 433	2,203 36 +2	-5,281 4 +1	2,473 08 +2	3,910 11 -1	9,774 5 +0
10 500	10 483	2,200 13 +2	-5,313 7 +1	2,454 03 +2	3,30 -1	9,774 3 +0
10 550	10 533	2,196 89 +2	-5,346 1 +1	2,435 09 +2	3,861 41 -1	9,774 2 +0
10 600	10 582	2,193 65 +2	-5,378 5 +1	2,416 28 +2	3,837 24 -1	9,90 +0
10 650	10 632	2,190 41 +2	-5,410 9 +1	2,397 59 +2	3,813 19 -1	9,773 9 +0
10 700	10 682	2,187 17 +2	-5,443 3 +1	2,379 01 +2	3,789 24 -1	9,773 7 +0
10 750	10 732	2,183 93 +2	-5,475 7 +1	2,360 55 +2	3,765 42 -1	9,773 6 +0
10 800	10 782	2,180 69 +2	-5,508 1 +1	2,342 21 +2	3,741 71 -1	9,773 4 +0
10 850	10 832	2,177 45 +2	-5,540 5 +1	2,323 98 +2	3,718 11 -1	9,773 3 +0
10 900	10 881	2,174 21 +2	-5,572 9 +1	2,305 87 +2	3,694 63 -1	9,773 1 +0
10 950	10 931	2,170 97 +2	-5,605 3 +1	2,287 88 +2	3,671 27 -1	9,90 +0
11 000	10 981	2,167 74 +2	-5,637 6 +1	2,269 99 +2	3,648 01 -1	9,772 8 +0
11 050	11 031	2,166 50 +2	-5,650 0 +1	2,252 23 +2	3,621 53 -1	9,772 6 +0
11 100	11 081	2,166 50 +2	-5,650 0 +1	2,20 +2	3,593 19 -1	9,772 5 +0
11 150	11 130	2,166 50 +2	-5,650 0 +1	2,217 12 +2	3,565 07 -1	9,772 3 +0
11 200	11 180	2,166 50 +2	-5,650 0 +1	2,199 76 +2	3,537 17 -1	9,772 2 +0
11 250	11 230	2,166 50 +2	-5,650 0 +1	2,182 55 +2	3,509 49 -1	9,90 +0
11 300	11 280	2,166 50 +2	-5,650 0 +1	2,165 47 +2	3,482 02 -1	9,771 9 +0
11 350	11 330	2,166 50 +2	-5,650 0 +1	2,148 52 +2	3,454 77 -1	9,771 7 +0
11 400	11 380	2,166 50 +2	-5,650 0 +1	2,131 71 +2	3,427 74 -1	9,771 6 +0
11 450	11 429	2,166 50 +2	-5,650 0 +1	2,115 03 +2	3,400 91 -1	9,771 4 +0
11 500	11 479	2,166 50 +2	-5,650 0 +1	2,098 48 +2	3,30 -1	9,771 3 +0
11 550	11 529	2,166 50 +2	-5,650 0 +1	2,082 06 +2	3,30 -1	9,771 1 +0
11 600	11 579	2,166 50 +2	-5,650 0 +1	2,065 76 +2	3,30 -1	9,90 +0
11 650	11 629	2,166 50 +2	-5,650 0 +1	2,20 +2	3,295 71 -1	9,770 8 +0
11 700	11 679	2,166 50 +2	-5,650 0 +1	2,033 56 +2	3,269 92 -1	9,770 6 +0
11 750	11 728	2,166 50 +2	-5,650 0 +1	2,017 65 +2	3,244 33 -1	9,770 5 +0
11 800	11 778	2,166 50 +2	-5,650 0 +1	2,001 86 +2	3,218 95 -1	9,770 3 +0
11 850	11 828	2,166 50 +2	-5,650 0 +1	1,10 +2	3,193 76 -1	9,770 2 +0
11 900	11 878	2,166 50 +2	-5,650 0 +1	1,970 66 +2	3,168 77 -1	9,900 +0
11 950	11 928	2,166 50 +2	-5,650 0 +1	1,955 24 +2	3,143 98 -1	9,769 9 +0
12 000	11 977	2,166 50 +2	-5,650 0 +1	1,939 94 +2	3,119 38 -1	9,769 7 +0
12 050	12 027	2,166 50 +2	-5,650 0 +1	1,924 76 +2	3,094 97 -1	9,769 6 +0
12 100	12 077	2,166 50 +2	-5,650 0 +1	1,909 71 +2	3,070 76 -1	9,769 4 +0
12 150	12 127	2,166 50 +2	-5,650 0 +1	1,894 76 +2	3,046 74 -1	9,769 3 +0
12 200	12 177	2,166 50 +2	-5,650 0 +1	1,879 94 +2	3,30 -1	9,769 1 +0
12 250	12 226	2,166 50 +2	-5,650 0 +1	1,865 23 +2	2,999 25 -1	9,90 +0

Table 5 (continued)

Values in terms of geometrical altitude.

h m M	H m M	T K	t °C	p mbar rPa	ρ kgm ⁻³ kg · m ⁻³	g ms ⁻² m · s ⁻²
12 300	12 276	2,166 50 +2	-5,650 0 +1	1,850 64 +2	2,975 79 -1	9,768 8 +0
12 350	12 326	2,166 50 +2	-5,650 0 +1	1,836 16 +2	2,952 51 -1	9,768 7 +0
12 400	12 376	2,166 50 +2	-5,650 0 +1	1,10 +2	2,929 41 -1	9,768 5 +0
12 450	12 426	2,166 50 +2	-5,650 0 +1	1,807 55 +2	2,906 49 -1	9,768 3 +0
12 500	12 475	2,166 50 +2	-5,650 0 +1	1,793 41 +2	2,883 75 -1	9,768 2 +0
12 550	12 525	2,166 50 +2	-5,650 0 +1	1,779 38 +2	2,20 -1	9,90 +0
12 600	12 575	2,166 50 +2	-5,650 0 +1	1,765 46 +2	2,838 81 -1	9,767 9 +0
12 650	12 625	2,166 50 +2	-5,650 0 +1	1,751 65 +2	2,816 61 -1	9,767 7 +0
12 700	12 675	2,166 50 +2	-5,650 0 +1	1,737 95 +2	2,794 57 -1	9,767 6 +0
12 750	12 724	2,166 50 +2	-5,650 0 +1	1,724 35 +2	2,772 72 -1	9,767 4 +0
12 800	12 774	2,166 50 +2	-5,650 0 +1	1,710 86 +2	2,751 03 -1	9,767 3 +0
12 850	12 824	2,166 50 +2	-5,650 0 +1	1,697 48 +2	2,729 51 -1	9,767 1 +0
12 900	12 874	2,166 50 +2	-5,650 0 +1	1,10 +2	2,708 16 -1	9,90 +0
12 950	12 924	2,166 50 +2	-5,650 0 +1	1,671 03 +2	2,686 98 -1	9,766 8 +0
13 000	12 973	2,166 50 +2	-5,650 0 +1	1,657 96 +2	2,665 96 -1	9,766 7 +0
13 050	13 023	2,166 50 +2	-5,650 0 +1	1,644 99 +2	2,645 11 -1	9,766 5 +0
13 100	13 073	2,166 50 +2	-5,650 0 +1	1,632 13 +2	2,624 42 -1	9,766 4 +0
13 150	13 123	2,166 50 +2	-5,650 0 +1	1,619 36 +2	2,603 89 -1	9,766 2 +0
13 200	13 173	2,166 50 +2	-5,650 0 +1	1,10 +2	2,583 53 -1	9,90 +0
13 250	13 222	2,166 50 +2	-5,650 0 +1	1,594 13 +2	2,563 32 -1	9,765 9 +0
13 300	13 272	2,166 50 +2	-5,650 0 +1	1,581 66 +2	2,543 28 -1	9,765 7 +0
13 350	13 322	2,166 50 +2	-5,650 0 +1	1,569 29 +2	2,523 38 -1	9,765 6 +0
13 400	13 372	2,166 50 +2	-5,650 0 +1	1,557 02 +2	2,503 65 -1	9,765 4 +0
13 450	13 422	2,166 50 +2	-5,650 0 +1	1,544 84 +2	2,484 07 -1	9,765 3 +0
13 500	13 471	2,166 50 +2	-5,650 0 +1	1,532 76 +2	2,464 64 -1	9,765 1 +0
13 550	13 521	2,166 50 +2	-5,650 0 +1	1,520 78 +2	2,445 37 -1	9,90 +0
13 600	13 571	2,166 50 +2	-5,650 0 +1	1,508 88 +2	2,426 25 -1	9,764 8 +0
13 650	13 621	2,166 50 +2	-5,650 0 +1	1,497 08 +2	2,407 27 -1	9,764 7 +0
13 700	13 671	2,166 50 +2	-5,650 0 +1	1,485 38 +2	2,388 45 -1	9,764 5 +0
13 750	13 720	2,166 50 +2	-5,650 0 +1	1,473 76 +2	2,369 77 -1	9,764 4 +0
13 800	13 770	2,166 50 +2	-5,650 0 +1	1,462 24 +2	2,351 24 -1	9,764 2 +0
13 850	13 820	2,166 50 +2	-5,650 0 +1	1,10 +2	2,332 86 -1	9,764 1 +0
13 900	13 870	2,166 50 +2	-5,650 0 +1	1,439 46 +2	2,314 61 -1	9,763 9 +0
13 950	13 919	2,166 50 +2	-5,650 0 +1	1,10 +2	2,296 52 -1	9,763 7 +0
14 000	13 969	2,166 50 +2	-5,650 0 +1	1,417 04 +2	2,278 56 -1	9,763 6 +0
14 050	14 019	2,166 50 +2	-5,650 0 +1	1,405 96 +2	2,260 74 -1	9,763 4 +0
14 100	14 069	2,166 50 +2	-5,650 0 +1	1,394 96 +2	2,243 07 -1	9,763 3 +0
14 150	14 119	2,166 50 +2	-5,650 0 +1	1,384 06 +2	2,225 53 -1	9,763 1 +0
14 200	14 168	2,166 50 +2	-5,650 0 +1	1,373 23 +2	2,208 13 -1	9,90 +0
14 250	14 218	2,166 50 +2	-5,650 0 +1	1,10 +2	2,190 86 -1	9,762 8 +0
14 300	14 268	2,166 50 +2	-5,650 0 +1	1,351 85 +2	2,173 73 -1	9,762 7 +0
14 350	14 318	2,166 50 +2	-5,650 0 +1	1,341 28 +2	2,156 74 -1	9,762 5 +0
14 400	14 367	2,166 50 +2	-5,650 0 +1	1,330 79 +2	2,139 88 -1	9,762 4 +0
14 450	14 417	2,166 50 +2	-5,650 0 +1	1,320 39 +2	2,123 15 -1	9,762 2 +0
14 500	14 467	2,166 50 +2	-5,650 0 +1	1,310 06 +2	2,106 55 -1	9,762 1 +0
14 550	14 517	2,166 50 +2	-5,650 0 +1	1,299 82 +2	2,090 08 -1	9,761 9 +0

Table 5 (continued)

Values in terms of geometrical altitude.

h m M	H m M	T K	t °C	p mbar rPa	ρ kgm ⁻³ kg · m ⁻³	g ms ⁻² m · s ⁻²
14 600	14 567	2,166 50 +2	-5,650 0 +1	1,289 66 +2	2,073 74 -1	9,761 8 +0
14 650	14 616	2,166 50 +2	-5,650 0 +1	1,279 58 +2	2,057 53 -1	9,761 6 +0
14 700	14 666	2,166 50 +2	-5,650 0 +1	1,269 57 +2	2,041 45 -1	9,761 5 +0
14 750	14 716	2,166 50 +2	-5,650 0 +1	1,259 65 +2	2,025 49 -1	9,761 3 +0
14 800	14 766	2,166 50 +2	-5,650 0 +1	1,10 +2	2,009 65 -1	9,761 1 +0
14 850	14 815	2,166 50 +2	-5,650 0 +1	1,240 03 +2	1,993 94 -1	9,90 +0
14 900	14 865	2,166 50 +2	-5,650 0 +1	1,230 34 +2	1,978 36 -1	9,760 8 +0
14 950	14 915	2,166 50 +2	-5,650 0 +1	1,220 72 +2	1,962 89 -1	9,760 7 +0
15 000	14 965	2,166 50 +2	-5,650 0 +1	1,211 18 +2	1,947 55 -1	9,760 5 +0
15 050	15 014	2,166 50 +2	-5,650 0 +1	1,201 71 +2	1,932 33 -1	9,760 4 +0
15 100	15 064	2,166 50 +2	-5,650 0 +1	1,192 32 +2	1,917 22 -1	9,760 2 +0
15 150	15 114	2,166 50 +2	-5,650 0 +1	1,100 +2	1,902 24 -1	9,760 1 +0
15 200	15 164	2,166 50 +2	-5,650 0 +1	1,173 75 +2	1,887 37 -1	9,759 9 +0
15 250	15 214	2,166 50 +2	-5,650 0 +1	1,164 58 +2	1,872 62 -1	9,759 8 +0
15 300	15 263	2,166 50 +2	-5,650 0 +1	1,155 48 +2	1,857 98 -1	9,759 6 +0
15 350	15 313	2,166 50 +2	-5,650 0 +1	1,146 45 +2	1,843 46 -1	9,759 5 +0
15 400	15 363	2,166 50 +2	-5,650 0 +1	1,137 49 +2	1,829 05 -1	9,759 3 +0
15 450	15 413	2,166 50 +2	-5,650 0 +1	1,10 +2	1,814 76 -1	9,759 2 +0
15 500	15 462	2,166 50 +2	-5,650 0 +1	1,119 78 +2	1,800 57 -1	9,90 +0
15 550	15 512	2,166 50 +2	-5,650 0 +1	1,111 02 +2	1,10 -1	9,758 8 +0
15 600	15 562	2,166 50 +2	-5,650 0 +1	1,102 34 +2	1,772 54 -1	9,758 7 +0
15 650	15 612	2,166 50 +2	-5,650 0 +1	1,093 73 +2	1,758 69 -1	9,758 5 +0
15 700	15 661	2,166 50 +2	-5,650 0 +1	1,085 18 +2	1,744 94 -1	9,758 4 +0
15 750	15 711	2,166 50 +2	-5,650 0 +1	1,10 +2	1,10 -1	9,758 2 +0
15 800	15 761	2,166 50 +2	-5,650 0 +1	1,068 28 +2	1,717 77 -1	9,758 1 +0
15 850	15 811	2,166 50 +2	-5,650 0 +1	1,059 94 +2	1,704 35 -1	9,757 9 +0
15 900	15 860	2,166 50 +2	-5,650 0 +1	1,051 65 +2	1,691 03 -1	9,757 8 +0
15 950	15 910	2,166 50 +2	-5,650 0 +1	1,043 44 +2	1,677 82 -1	9,757 6 +0
16 000	15 960	2,166 50 +2	-5,650 0 +1	1,035 28 +2	1,664 71 -1	9,757 5 +0
16 050	16 010	2,166 50 +2	-5,650 0 +1	1,027 19 +2	1,10 -1	9,757 3 +0
16 100	16 059	2,166 50 +2	-5,650 0 +1	1,019 17 +2	1,638 79 -1	9,757 2 +0
16 150	16 109	2,166 50 +2	-5,650 0 +1	1,10 +2	1,625 99 -1	9,90 +0
16 200	16 159	2,166 50 +2	-5,650 0 +1	1,10 +2	1,613 28 -1	9,756 9 +0
16 250	16 209	2,166 50 +2	-5,650 0 +1	9,954 61 +1	1,600 68 -1	9,756 7 +0
16 300	16 258	2,166 50 +2	-5,650 0 +1	9,876 83 +1	1,588 17 -1	9,756 6 +0
16 350	16 308	2,166 50 +2	-5,650 0 +1	9,799 66 +1	1,575 76 -1	9,756 4 +0
16 400	16 358	2,166 50 +2	-5,650 0 +1	9,723 09 +1	1,563 45 -1	9,756 2 +0
16 450	16 408	2,166 50 +2	-5,650 0 +1	9,647 12 +1	1,551 23 -1	9,756 1 +0
16 500	16 457	2,166 50 +2	-5,650 0 +1	9,571 75 +1	1,539 11 -1	9,755 9 +0
16 550	16 507	2,166 50 +2	-5,650 0 +1	9,496 96 +1	1,527 09 -1	9,755 8 +0
16 600	16 557	2,166 50 +2	-5,650 0 +1	9,422 77 +1	1,515 16 -1	9,755 6 +0
16 650	16 607	2,166 50 +2	-5,650 0 +1	9,349 15 +1	1,503 32 -1	9,755 5 +0
16 700	16 656	2,166 50 +2	-5,650 0 +1	9,276 11 +1	1,491 58 -1	9,755 3 +0
16 750	16 706	2,166 50 +2	-5,650 0 +1	9,203 64 +1	1,479 92 -1	9,755 2 +0
16 800	16 756	2,166 50 +2	-5,650 0 +1	9,131 74 +1	1,468 36 -1	9,90 +0
16 850	16 805	2,166 50 +2	-5,650 0 +1	9,90 +1	1,456 89 -1	9,754 9 +0

Table 5 (continued)

Values in terms of geometrical altitude.

h m M	H m M	T K	t °C	p mbar rPa	ρ kgm ⁻³ kg · m ⁻³	g ms ⁻² m · s ⁻²
16 900	16 855	2,166 50 +2	-5,650 0 +1	8,989 62 +1	1,445 51 -1	9,754 7 +0
16 950	16 905	2,166 50 +2	-5,650 0 +1	8,919 39 +1	1,434 22 -1	9,754 6 +0
17 000	16 955	2,166 50 +2	-5,650 0 +1	8,849 72 +1	1,423 01 -1	9,754 4 +0
17 050	17 004	2,166 50 +2	-5,650 0 +1	8,780 59 +1	1,10 -1	9,754 3 +0
17 100	17 054	2,166 50 +2	-5,650 0 +1	8,800 +1	1,400 87 -1	9,754 1 +0
17 150	17 104	2,166 50 +2	-5,650 0 +1	8,643 94 +1	1,389 92 -1	9,753 9 +0
17 200	17 154	2,166 50 +2	-5,650 0 +1	8,576 42 +1	1,379 07 -1	9,753 8 +0
17 250	17 203	2,166 50 +2	-5,650 0 +1	8,509 43 +1	1,10 -1	9,753 6 +0
17 300	17 253	2,166 50 +2	-5,650 0 +1	8,442 96 +1	1,357 61 -1	9,753 5 +0
17 350	17 303	2,166 50 +2	-5,650 0 +1	8,377 01 +1	1,100 -1	9,753 3 +0
17 400	17 353	2,166 50 +2	-5,650 0 +1	8,311 58 +1	1,336 48 -1	9,753 2 +0
17 450	17 402	2,166 50 +2	-5,650 0 +1	8,246 66 +1	1,326 04 -1	9,90 +0
17 500	17 452	2,166 50 +2	-5,650 0 +1	8,182 25 +1	1,315 69 -1	9,752 9 +0
17 550	17 502	2,166 50 +2	-5,650 0 +1	8,118 34 +1	1,305 41 -1	9,752 7 +0
17 600	17 551	2,166 50 +2	-5,650 0 +1	8,054 94 +1	1,295 21 -1	9,752 6 +0
17 650	17 601	2,166 50 +2	-5,650 0 +1	7,992 03 +1	1,10 -1	9,752 4 +0
17 700	17 651	2,166 50 +2	-5,650 0 +1	7,929 61 +1	1,275 06 -1	9,752 3 +0
17 750	17 701	2,166 50 +2	-5,650 0 +1	7,867 68 +1	1,10 -1	9,752 1 +0
17 800	17 750	2,166 50 +2	-5,650 0 +1	7,806 23 +1	1,255 22 -1	9,90 +0
17 850	17 800	2,166 50 +2	-5,650 0 +1	7,745 27 +1	1,245 42 -1	9,751 8 +0
17 900	17 850	2,166 50 +2	-5,650 0 +1	7,684 78 +1	1,235 69 -1	9,751 7 +0
17 950	17 899	2,166 50 +2	-5,650 0 +1	7,624 77 +1	1,226 04 -1	9,751 5 +0
18 000	17 949	2,166 50 +2	-5,650 0 +1	7,565 22 +1	1,216 47 -1	9,751 3 +0
18 050	17 999	2,166 50 +2	-5,650 0 +1	7,506 14 +1	1,206 97 -1	9,751 2 +0
18 100	18 049	2,166 50 +2	-5,650 0 +1	7,447 53 +1	1,197 54 -1	9,90 +0
18 150	18 098	2,166 50 +2	-5,650 0 +1	7,389 37 +1	1,188 19 -1	9,750 9 +0
18 200	18 148	2,166 50 +2	-5,650 0 +1	7,331 67 +1	1,178 91 -1	9,750 7 +0
18 250	18 198	2,166 50 +2	-5,650 0 +1	7,274 41 +1	1,169 71 -1	9,750 6 +0
18 300	18 247	2,166 50 +2	-5,650 0 +1	7,217 61 +1	1,160 57 -1	9,750 4 +0
18 350	18 297	2,166 50 +2	-5,650 0 +1	7,161 25 +1	1,151 51 -1	9,750 3 +0
18 400	18 347	2,166 50 +2	-5,650 0 +1	7,105 33 +1	1,142 52 -1	9,750 1 +0
18 450	18 397	2,166 50 +2	-5,650 0 +1	7,049 85 +1	1,10 -1	9,900 +0
18 500	18 446	2,166 50 +2	-5,650 0 +1	6,994 81 +1	1,124 75 -1	9,749 8 +0
18 550	18 496	2,166 50 +2	-5,650 0 +1	6,940 19 +1	1,115 97 -1	9,749 7 +0
18 600	18 546	2,166 50 +2	-5,650 0 +1	6,600 +1	1,107 25 -1	9,749 5 +0
18 650	18 595	2,166 50 +2	-5,650 0 +1	6,832 24 +1	1,098 61 -1	9,749 4 +0
18 700	18 645	2,166 50 +2	-5,650 0 +1	6,60 +1	1,090 03 -1	9,749 2 +0
18 750	18 695	2,166 50 +2	-5,650 0 +1	6,725 97 +1	1,081 52 -1	9,749 1 +0
18 800	18 745	2,166 50 +2	-5,650 0 +1	6,673 46 +1	1,073 08 -1	9,748 9 +0
18 850	18 794	2,166 50 +2	-5,650 0 +1	6,621 35 +1	1,10 -1	9,748 7 +0
18 900	18 844	2,166 50 +2	-5,650 0 +1	6,569 66 +1	1,056 39 -1	9,748 6 +0
18 950	18 894	2,166 50 +2	-5,650 0 +1	6,518 37 +1	1,048 14 -1	9,748 4 +0
19 000	18 943	2,166 50 +2	-5,650 0 +1	6,467 48 +1	1,039 96 -1	9,748 3 +0
19 050	18 993	2,166 50 +2	-5,650 0 +1	6,416 99 +1	1,031 84 -1	9,748 1 +0
19 100	19 043	2,166 50 +2	-5,650 0 +1	6,60 +1	1,023 78 -1	9,90 +0
19 150	19 092	2,166 50 +2	-5,650 0 +1	6,317 19 +1	1,015 79 -1	9,747 8 +0

Table 5 (continued)

Values in terms of geometrical altitude.

h m M	H m M	T K	t °C	p mbar rPa	ρ kgm ⁻³ kg · m ⁻³	g ms ⁻² m · s ⁻²
19 200	19 142	2,166 50 +2	-5,650 0 +1	6,267 88 +1	1,007 86 -1	9,747 7 +0
19 250	19 192	2,166 50 +2	-5,650 0 +1	6,218 95 +1	9,999 92 -2	9,747 5 +0
19 300	19 242	2,166 50 +2	-5,650 0 +1	6,60 +1	9,921 86 -2	9,747 4 +0
19 350	19 291	2,166 50 +2	-5,650 0 +1	6,122 24 +1	9,90 -2	9,747 2 +0
19 400	19 341	2,166 50 +2	-5,650 0 +1	6,074 45 +1	9,767 56 -2	9,747 1 +0
19 450	19 391	2,166 50 +2	-5,650 0 +1	6,027 03 +1	9,691 32 -2	9,746 9 +0
19 500	19 440	2,166 50 +2	-5,650 0 +1	5,979 98 +1	9,615 67 -2	9,746 8 +0
19 550	19 490	2,166 50 +2	-5,650 0 +1	5,933 31 +1	9,540 61 -2	9,746 6 +0
19 600	19 540	2,166 50 +2	-5,650 0 +1	5,886 99 +1	9,466 14 -2	9,746 5 +0
19 650	19 589	2,166 50 +2	-5,650 0 +1	5,841 04 +1	9,392 26 -2	9,746 3 +0
19 700	19 639	2,166 50 +2	-5,650 0 +1	5,795 45 +1	9,318 95 -2	9,746 1 +0
19 750	19 689	2,166 50 +2	-5,650 0 +1	5,750 22 +1	9,246 21 -2	9,90 +0
19 800	19 739	2,166 50 +2	-5,650 0 +1	5,705 34 +1	9,174 05 -2	9,745 8 +0
19 850	19 788	2,166 50 +2	-5,650 0 +1	5,660 81 +1	9,102 44 -2	9,745 7 +0
19 900	19 838	2,166 50 +2	-5,650 0 +1	5,616 63 +1	9,90 -2	9,745 5 +0
19 950	19 888	2,166 50 +2	-5,650 0 +1	5,572 79 +1	8,960 92 -2	9,745 4 +0
20 000	19 937	2,166 50 +2	-5,650 0 +1	5,50 +1	8,890 98 -2	9,745 2 +0
20 050	19 987	2,166 50 +2	-5,650 0 +1	5,486 15 +1	8,821 59 -2	9,745 1 +0
20 100	20 037	2,166 87 +2	-5,646 3 +1	5,443 34 +1	8,751 27 -2	9,744 9 +0
20 150	20 086	2,167 36 +2	-5,641 4 +1	5,400 87 +1	8,800 -2	9,744 8 +0
20 200	20 136	2,167 86 +2	-5,636 4 +1	5,358 74 +1	8,611 32 -2	9,744 6 +0
20 250	20 186	2,168 36 +2	-5,631 4 +1	5,316 95 +1	8,542 21 -2	9,744 5 +0
20 300	20 235	2,168 85 +2	-5,626 5 +1	5,50 +1	8,473 67 -2	9,744 3 +0
20 350	20 285	2,169 35 +2	-5,621 5 +1	5,234 38 +1	8,80 -2	9,744 2 +0
20 400	20 335	2,169 85 +2	-5,616 5 +1	5,193 59 +1	8,338 29 -2	9,90 +0
20 450	20 384	2,170 34 +2	-5,611 6 +1	5,153 13 +1	8,271 43 -2	9,743 9 +0
20 500	20 434	2,170 84 +2	-5,606 6 +1	5,500 +1	8,205 13 -2	9,743 7 +0
20 550	20 484	2,171 34 +2	-5,601 6 +1	5,073 18 +1	8,139 38 -2	9,743 6 +0
20 600	20 533	2,171 83 +2	-5,596 7 +1	5,033 69 +1	8,074 17 -2	9,743 4 +0
20 650	20 583	2,172 33 +2	-5,591 7 +1	4,994 51 +1	8,009 49 -2	9,743 2 +0
20 700	20 633	2,172 83 +2	-5,586 7 +1	4,955 65 +1	7,945 35 -2	9,743 1 +0
20 750	20 682	2,173 32 +2	-5,581 8 +1	4,40 +1	7,881 74 -2	9,742 9 +0
20 800	20 732	2,173 82 +2	-5,576 8 +1	4,878 86 +1	7,818 66 -2	9,742 8 +0
20 850	20 782	2,174 32 +2	-5,571 8 +1	4,840 92 +1	7,756 09 -2	9,742 6 +0
20 900	20 832	2,174 82 +2	-5,566 8 +1	4,803 29 +1	7,694 04 -2	9,742 5 +0
20 950	20 881	2,175 31 +2	-5,561 9 +1	4,765 96 +1	7,632 51 -2	9,742 3 +0
21 000	20 931	2,175 81 +2	-5,556 9 +1	4,728 93 +1	7,571 48 -2	9,742 2 +0
21 050	20 981	2,176 31 +2	-5,551 9 +1	4,40 +1	7,510 95 -2	9,90 +0
21 100	21 030	2,20 +2	-5,50 +1	4,655 76 +1	7,450 92 -2	9,741 9 +0
21 150	21 080	2,20 +2	-5,50 +1	4,619 61 +1	7,391 38 -2	9,741 7 +0
21 200	21 130	2,20 +2	-5,50 +1	4,583 75 +1	7,332 34 -2	9,741 6 +0
21 250	21 179	2,178 29 +2	-5,532 1 +1	4,548 18 +1	7,273 78 -2	9,741 4 +0
21 300	21 229	2,178 79 +2	-5,527 1 +1	4,40 +1	7,70 -2	9,741 3 +0
21 350	21 279	2,179 29 +2	-5,522 1 +1	4,477 89 +1	7,70 -2	9,741 1 +0
21 400	21 328	2,179 78 +2	-5,517 2 +1	4,443 17 +1	7,100 97 -2	9,90 +0
21 450	21 378	2,180 28 +2	-5,512 2 +1	4,408 72 +1	7,044 31 -2	9,740 8 +0

Table 5 (continued)

Values in terms of geometrical altitude.

h m M	H m M	T K	t °C	p mbar rPa	ρ kgm ⁻³ kg · m ⁻³	g ms ⁻² m · s ⁻²
21 500	21 428	2,180 78 +2	-5,507 2 +1	4,374 55 +1	6,988 12 -2	9,740 6 +0
21 550	21 477	2,181 27 +2	-5,502 3 +1	4,340 65 +1	6,932 39 -2	9,740 5 +0
21 600	21 527	2,181 77 +2	-5,497 3 +1	4,307 02 +1	6,877 12 -2	9,740 3 +0
21 650	21 577	2,182 27 +2	-5,492 3 +1	4,273 67 +1	6,60 -2	9,740 2 +0
21 700	21 626	2,182 76 +2	-5,487 4 +1	4,240 57 +1	6,767 94 -2	9,900 +0
21 750	21 676	2,183 26 +2	-5,482 4 +1	4,207 74 +1	6,714 02 -2	9,739 9 +0
21 800	21 725	2,183 75 +2	-5,477 5 +1	4,175 18 +1	6,660 54 -2	9,739 7 +0
21 850	21 775	2,184 25 +2	-5,472 5 +1	4,142 87 +1	6,60 -2	9,739 6 +0
21 900	21 825	2,184 75 +2	-5,467 5 +1	4,110 82 +1	6,554 89 -2	9,739 4 +0
21 950	21 874	2,185 24 +2	-5,462 6 +1	4,079 03 +1	6,502 72 -2	9,739 3 +0
22 000	21 924	2,185 74 +2	-5,457 6 +1	4,047 49 +1	6,450 97 -2	9,739 1 +0
22 050	21 974	2,186 24 +2	-5,452 6 +1	4,40 +1	6,399 65 -2	9,90 +0
22 100	22 023	2,186 73 +2	-5,447 7 +1	3,985 16 +1	6,348 75 -2	9,738 8 +0
22 150	22 073	2,187 23 +2	-5,442 7 +1	3,954 37 +1	6,298 27 -2	9,738 7 +0
22 200	22 123	2,187 73 +2	-5,437 7 +1	3,923 83 +1	6,60 -2	9,738 5 +0
22 250	22 172	2,188 22 +2	-5,432 8 +1	3,893 52 +1	6,198 54 -2	9,738 4 +0
22 300	22 222	2,188 72 +2	-5,427 8 +1	3,863 46 +1	6,149 28 -2	9,738 2 +0
22 350	22 272	2,189 22 +2	-5,422 8 +1	3,833 64 +1	6,100 43 -2	9,738 1 +0
22 400	22 321	2,189 71 +2	-5,417 9 +1	3,804 06 +1	6,051 98 -2	9,737 9 +0
22 450	22 371	2,190 21 +2	-5,412 9 +1	3,774 71 +1	6,003 93 -2	9,737 7 +0
22 500	22 421	2,190 71 +2	-5,407 9 +1	3,745 59 +1	5,956 27 -2	9,737 6 +0
22 550	22 470	2,20 +2	-5,50 +1	3,716 71 +1	5,500 -2	9,737 4 +0
22 600	22 520	2,20 +2	-5,50 +1	3,688 05 +1	5,862 11 -2	9,737 3 +0
22 650	22 570	2,20 +2	-5,50 +1	3,659 62 +1	5,815 61 -2	9,737 1 +0
22 700	22 619	2,192 69 +2	-5,388 1 +1	3,631 42 +1	5,769 49 -2	9,90 +0
22 750	22 669	2,193 19 +2	-5,383 1 +1	3,603 45 +1	5,723 74 -2	9,736 8 +0
22 800	22 719	2,193 69 +2	-5,378 1 +1	3,575 69 +1	5,678 37 -2	9,736 7 +0
22 850	22 768	2,194 18 +2	-5,373 2 +1	3,548 16 +1	5,633 37 -2	9,736 5 +0
22 900	22 818	2,194 68 +2	-5,368 2 +1	3,520 84 +1	5,588 74 -2	9,736 4 +0
22 950	22 867	2,195 17 +2	-5,363 3 +1	3,493 74 +1	5,544 47 -2	9,736 2 +0
23 000	22 917	2,195 67 +2	-5,358 3 +1	3,466 86 +1	5,500 56 -2	9,736 1 +0
23 050	22 967	2,196 17 +2	-5,353 3 +1	3,440 19 +1	5,457 01 -2	9,735 9 +0
23 100	23 016	2,196 66 +2	-5,348 4 +1	3,413 73 +1	5,413 82 -2	9,735 8 +0
23 150	23 066	2,197 16 +2	-5,343 4 +1	3,387 48 +1	5,370 98 -2	9,735 6 +0
23 200	23 116	2,197 66 +2	-5,338 4 +1	3,361 44 +1	5,328 48 -2	9,735 5 +0
23 250	23 165	2,198 15 +2	-5,333 5 +1	3,30 +1	5,286 34 -2	9,735 3 +0
23 300	23 215	2,198 65 +2	-5,328 5 +1	3,309 97 +1	5,244 53 -2	9,735 2 +0
23 350	23 265	2,199 15 +2	-5,323 5 +1	3,284 55 +1	5,203 07 -2	9,90 +0
23 400	23 314	2,199 64 +2	-5,318 6 +1	3,259 32 +1	5,161 94 -2	9,734 8 +0
23 450	23 364	2,200 14 +2	-5,313 6 +1	3,30 +1	5,121 15 -2	9,734 7 +0
23 500	23 413	2,200 63 +2	-5,308 7 +1	3,209 47 +1	5,50 -2	9,734 5 +0
23 550	23 463	2,201 13 +2	-5,303 7 +1	3,184 84 +1	5,040 57 -2	9,734 4 +0
23 600	23 513	2,201 63 +2	-5,298 7 +1	3,30 +1	5,000 77 -2	9,734 2 +0
23 650	23 562	2,202 12 +2	-5,293 8 +1	3,136 16 +1	4,961 29 -2	9,734 1 +0
23 700	23 612	2,202 62 +2	-5,288 8 +1	3,112 11 +1	4,922 13 -2	9,733 9 +0
23 750	23 662	2,203 12 +2	-5,283 8 +1	3,088 25 +1	4,883 29 -2	9,733 8 +0

Table 5 (continued)

Values in terms of geometrical altitude.

h m M	H m M	T K	t °C	p mbar rPa	ρ kgm ⁻³ kg · m ⁻³	g ms ⁻² m · s ⁻²
23 800	23 711	2,203 61 +2	-5,278 9 +1	3,064 57 +1	4,844 77 -2	9,733 6 +0
23 850	23 761	2,204 11 +2	-5,273 9 +1	3,041 09 +1	4,806 56 -2	9,733 5 +0
23 900	23 810	2,20 +2	-5,50 +1	3,017 79 +1	4,768 66 -2	9,733 3 +0
23 950	23 860	2,20 +2	-5,50 +1	2,994 67 +1	4,731 07 -2	9,733 2 +0
24 000	23 910	2,20 +2	-5,50 +1	2,971 74 +1	4,693 78 -2	9,90 +0
24 050	23 959	2,206 09 +2	-5,254 1 +1	2,948 99 +1	4,656 79 -2	9,732 9 +0
24 100	24 009	2,206 59 +2	-5,249 1 +1	2,926 42 +1	4,620 11 -2	9,732 7 +0
24 150	24 059	2,207 09 +2	-5,244 1 +1	2,904 02 +1	4,583 73 -2	9,732 6 +0
24 200	24 108	2,207 58 +2	-5,239 2 +1	2,20 +1	4,547 63 -2	9,732 4 +0
24 250	24 158	2,208 08 +2	-5,234 2 +1	2,859 76 +1	4,511 84 -2	9,732 3 +0
24 300	24 207	2,208 57 +2	-5,229 3 +1	2,837 89 +1	4,476 33 -2	9,732 1 +0
24 350	24 257	2,209 07 +2	-5,224 3 +1	2,20 +1	4,441 11 -2	9,731 9 +0
24 400	24 307	2,209 57 +2	-5,219 3 +1	2,794 67 +1	4,406 17 -2	9,731 8 +0
24 450	24 356	2,210 06 +2	-5,214 4 +1	2,773 32 +1	4,371 52 -2	9,731 6 +0
24 500	24 406	2,210 56 +2	-5,209 4 +1	2,752 13 +1	4,337 15 -2	9,731 5 +0
24 550	24 456	2,211 06 +2	-5,204 4 +1	2,731 11 +1	4,303 06 -2	9,731 3 +0
24 600	24 505	2,211 55 +2	-5,199 5 +1	2,710 25 +1	4,269 24 -2	9,731 2 +0
24 650	24 555	2,212 05 +2	-5,194 5 +1	2,689 56 +1	4,40 -2	9,90 +0
24 700	24 604	2,212 54 +2	-5,189 6 +1	2,669 04 +1	4,202 43 -2	9,730 9 +0
24 750	24 654	2,213 04 +2	-5,184 6 +1	2,648 67 +1	4,169 43 -2	9,730 7 +0
24 800	24 704	2,213 54 +2	-5,179 6 +1	2,628 46 +1	4,136 69 -2	9,730 6 +0
24 850	24 753	2,214 03 +2	-5,174 7 +1	2,608 42 +1	4,104 22 -2	9,730 4 +0
24 900	24 803	2,214 53 +2	-5,169 7 +1	2,588 53 +1	4,072 02 -2	9,730 3 +0
24 950	24 852	2,215 02 +2	-5,164 8 +1	2,568 79 +1	4,040 07 -2	9,730 1 +0
25 000	24 902	2,215 52 +2	-5,159 8 +1	2,549 22 +1	4,008 38 -2	9,900 +0
25 050	24 952	2,216 02 +2	-5,154 8 +1	2,529 79 +1	3,976 95 -2	9,729 8 +0
25 100	25 001	2,216 51 +2	-5,149 9 +1	2,510 52 +1	3,945 77 -2	9,729 7 +0
25 150	25 051	2,217 01 +2	-5,144 9 +1	2,20 +1	3,914 84 -2	9,729 5 +0
25 200	25 100	2,20 +2	-5,500 +1	2,472 43 +1	3,884 17 -2	9,729 4 +0
25 250	25 150	2,200 +2	-5,50 +1	2,453 61 +1	3,853 74 -2	9,729 2 +0
25 300	25 200	2,20 +2	-5,500 +1	2,434 94 +1	3,823 55 -2	9,729 1 +0
25 350	25 249	2,218 99 +2	-5,125 1 +1	2,416 41 +1	3,793 61 -2	9,728 9 +0
25 400	25 299	2,219 49 +2	-5,120 1 +1	2,398 03 +1	3,763 91 -2	9,728 7 +0
25 450	25 349	2,219 99 +2	-5,115 1 +1	2,379 79 +1	3,734 45 -2	9,728 6 +0
25 500	25 398	2,220 48 +2	-5,110 2 +1	2,20 +1	3,705 23 -2	9,728 4 +0
25 550	25 448	2,220 98 +2	-5,105 2 +1	2,343 75 +1	3,676 24 -2	9,728 3 +0
25 600	25 497	2,221 47 +2	-5,100 3 +1	2,325 93 +1	3,647 49 -2	9,728 1 +0
25 650	25 547	2,221 97 +2	-5,095 3 +1	2,308 26 +1	3,618 97 -2	9,90 +0
25 700	25 597	2,222 47 +2	-5,090 3 +1	2,290 73 +1	3,590 68 -2	9,727 8 +0
25 750	25 646	2,222 96 +2	-5,085 4 +1	2,273 33 +1	3,562 62 -2	9,727 7 +0
25 800	25 696	2,223 46 +2	-5,080 4 +1	2,256 07 +1	3,534 78 -2	9,727 5 +0
25 850	25 745	2,223 95 +2	-5,075 5 +1	2,238 95 +1	3,507 17 -2	9,727 4 +0
25 900	25 795	2,224 45 +2	-5,070 5 +1	2,221 96 +1	3,479 77 -2	9,727 2 +0
25 950	25 844	2,224 94 +2	-5,065 6 +1	2,20 +1	3,30 -2	9,727 1 +0
26 000	25 894	2,225 44 +2	-5,060 6 +1	2,188 37 +1	3,425 65 -2	9,726 9 +0
26 050	25 944	2,225 94 +2	-5,055 6 +1	2,171 78 +1	3,398 92 -2	9,726 8 +0

Table 5 (continued)

Values in terms of geometrical altitude.

h m M	H m M	T K	t °C	p mbar rPa	ρ kgm ⁻³ kg · m ⁻³	g ms ⁻² m · s ⁻²
26 100	25 993	2,226 43 +2	-5,050 7 +1	2,155 31 +1	3,30 -2	9,726 6 +0
26 150	26 043	2,226 93 +2	-5,045 7 +1	2,138 97 +1	3,346 09 -2	9,726 5 +0
26 200	26 092	2,227 42 +2	-5,040 8 +1	2,122 76 +1	3,319 99 -2	9,726 3 +0
26 250	26 142	2,227 92 +2	-5,035 8 +1	2,106 68 +1	3,294 11 -2	9,726 2 +0
26 300	26 192	2,228 42 +2	-5,030 8 +1	2,090 73 +1	3,268 43 -2	9,90 +0
26 350	26 241	2,228 91 +2	-5,025 9 +1	2,074 89 +1	3,242 95 -2	9,725 9 +0
26 400	26 291	2,229 41 +2	-5,020 9 +1	2,059 18 +1	3,217 69 -2	9,725 7 +0
26 450	26 340	2,20 +2	-5,50 +1	2,20 +1	3,192 62 -2	9,725 5 +0
26 500	26 390	2,20 +2	-5,50 +1	2,028 13 +1	3,167 76 -2	9,725 4 +0
26 550	26 440	2,20 +2	-5,50 +1	2,012 79 +1	3,143 09 -2	9,725 2 +0
26 600	26 489	2,231 39 +2	-5,001 1 +1	1,997 57 +1	3,118 63 -2	9,725 1 +0
26 650	26 539	2,231 89 +2	-4,996 1 +1	1,982 46 +1	3,094 36 -2	9,724 9 +0
26 700	26 588	2,232 38 +2	-4,991 2 +1	1,967 47 +1	3,070 28 -2	9,724 8 +0
26 750	26 638	2,232 88 +2	-4,986 2 +1	1,10 +1	3,30 -2	9,724 6 +0
26 800	26 687	2,233 37 +2	-4,981 3 +1	1,937 85 +1	3,022 71 -2	9,724 5 +0
26 850	26 737	2,233 87 +2	-4,976 3 +1	1,923 21 +1	2,999 21 -2	9,724 3 +0
26 900	26 787	2,234 37 +2	-4,971 3 +1	1,908 68 +1	2,975 89 -2	9,724 2 +0
26 950	26 836	2,234 86 +2	-4,966 4 +1	1,894 27 +1	2,952 77 -2	9,90 +0
27 000	26 886	2,235 36 +2	-4,961 4 +1	1,879 97 +1	2,929 83 -2	9,723 9 +0
27 050	26 935	2,235 85 +2	-4,956 5 +1	1,865 78 +1	2,907 07 -2	9,723 7 +0
27 100	26 985	2,236 35 +2	-4,951 5 +1	1,10 +1	2,884 49 -2	9,723 6 +0
27 150	27 035	2,236 85 +2	-4,946 5 +1	1,837 73 +1	2,20 -2	9,723 4 +0
27 200	27 084	2,237 34 +2	-4,941 6 +1	1,823 87 +1	2,839 88 -2	9,723 3 +0
27 250	27 134	2,237 84 +2	-4,936 6 +1	1,810 12 +1	2,817 84 -2	9,723 1 +0
27 300	27 183	2,238 33 +2	-4,931 7 +1	1,796 47 +1	2,795 98 -2	9,90 +0
27 350	27 233	2,238 83 +2	-4,926 7 +1	1,782 93 +1	2,774 29 -2	9,722 8 +0
27 400	27 282	2,239 32 +2	-4,921 8 +1	1,10 +1	2,752 78 -2	9,722 7 +0
27 450	27 332	2,239 82 +2	-4,916 8 +1	1,756 17 +1	2,731 44 -2	9,722 5 +0
27 500	27 382	2,240 32 +2	-4,911 8 +1	1,742 94 +1	2,710 27 -2	9,722 3 +0
27 550	27 431	2,240 81 +2	-4,906 9 +1	1,729 82 +1	2,689 26 -2	9,722 2 +0
27 600	27 481	2,241 31 +2	-4,901 9 +1	1,10 +1	2,668 43 -2	9,90 +0
27 650	27 530	2,20 +2	-4,40 +1	1,703 88 +1	2,647 76 -2	9,721 9 +0
27 700	27 580	2,20 +2	-4,40 +1	1,691 06 +1	2,627 26 -2	9,721 7 +0
27 750	27 629	2,242 79 +2	-4,887 1 +1	1,678 33 +1	2,606 92 -2	9,721 6 +0
27 800	27 679	2,243 29 +2	-4,882 1 +1	1,665 71 +1	2,586 74 -2	9,721 4 +0
27 850	27 729	2,243 79 +2	-4,877 1 +1	1,653 19 +1	2,566 72 -2	9,721 3 +0
27 900	27 778	2,244 28 +2	-4,872 2 +1	1,640 76 +1	2,546 87 -2	9,721 1 +0
27 950	27 828	2,244 78 +2	-4,867 2 +1	1,628 43 +1	2,527 17 -2	9,90 +0
28 000	27 877	2,245 27 +2	-4,862 3 +1	1,616 19 +1	2,507 62 -2	9,720 8 +0
28 050	27 927	2,245 77 +2	-4,857 3 +1	1,604 05 +1	2,488 24 -2	9,720 7 +0
28 100	27 976	2,246 26 +2	-4,852 4 +1	1,592 01 +1	2,469 01 -2	9,720 5 +0
28 150	28 026	2,246 76 +2	-4,847 4 +1	1,580 05 +1	2,449 93 -2	9,720 4 +0
28 200	28 075	2,247 25 +2	-4,842 5 +1	1,568 19 +1	2,200 -2	9,720 2 +0
28 250	28 125	2,247 75 +2	-4,837 5 +1	1,556 42 +1	2,412 22 -2	9,720 1 +0
28 300	28 175	2,248 25 +2	-4,832 5 +1	1,544 74 +1	2,20 -2	9,719 9 +0
28 350	28 224	2,248 74 +2	-4,827 6 +1	1,533 16 +1	2,375 12 -2	9,719 8 +0

Table 5 (continued)

Values in terms of geometrical altitude.

h m M	H m M	T K	t °C	p mbar rPa	ρ kgm ⁻³ kg · m ⁻³	g ms ⁻² m · s ⁻²
28 400	28 274	2,249 24 +2	-4,822 6 +1	1,521 66 +1	2,356 79 -2	9,719 6 +0
28 450	28 323	2,249 73 +2	-4,817 7 +1	1,510 25 +1	2,20 -2	9,719 5 +0
28 500	28 373	2,250 23 +2	-4,812 7 +1	1,498 93 +1	2,320 56 -2	9,719 3 +0
28 550	28 422	2,250 72 +2	-4,807 8 +1	1,487 69 +1	2,302 66 -2	9,719 2 +0
28 600	28 472	2,251 22 +2	-4,802 8 +1	1,476 55 +1	2,20 -2	9,90 +0
28 650	28 521	2,251 71 +2	-4,797 9 +1	1,465 49 +1	2,267 29 -2	9,718 8 +0
28 700	28 571	2,252 21 +2	-4,792 9 +1	1,454 51 +1	2,249 81 -2	9,718 7 +0
28 750	28 621	2,252 71 +2	-4,787 9 +1	1,443 62 +1	2,232 48 -2	9,718 5 +0
28 800	28 670	2,20 +2	-4,40 +1	1,432 82 +1	2,215 28 -2	9,718 4 +0
28 850	28 720	2,20 +2	-4,40 +1	1,422 09 +1	2,198 22 -2	9,718 2 +0
28 900	28 769	2,254 19 +2	-4,773 1 +1	1,411 45 +1	2,181 29 -2	9,718 1 +0
28 950	28 819	2,254 69 +2	-4,768 1 +1	1,400 89 +1	2,20 -2	9,717 9 +0
29 000	28 868	2,255 18 +2	-4,763 2 +1	1,390 42 +1	2,147 84 -2	9,717 8 +0
29 050	28 918	2,255 68 +2	-4,758 2 +1	1,380 02 +1	2,131 31 -2	9,717 6 +0
29 100	28 967	2,256 17 +2	-4,753 3 +1	1,369 71 +1	2,114 92 -2	9,717 5 +0
29 150	29 017	2,256 67 +2	-4,748 3 +1	1,359 47 +1	2,098 65 -2	9,717 3 +0
29 200	29 066	2,257 16 +2	-4,743 4 +1	1,349 31 +1	2,082 51 -2	9,717 2 +0
29 250	29 116	2,257 66 +2	-4,738 4 +1	1,339 23 +1	2,20 -2	9,90 +0
29 300	29 166	2,258 16 +2	-4,733 4 +1	1,329 23 +1	2,050 62 -2	9,716 9 +0
29 350	29 215	2,258 65 +2	-4,728 5 +1	1,319 31 +1	2,034 86 -2	9,716 7 +0
29 400	29 265	2,259 15 +2	-4,723 5 +1	1,309 46 +1	2,019 23 -2	9,716 6 +0
29 450	29 314	2,259 64 +2	-4,718 6 +1	1,299 69 +1	2,003 72 -2	9,716 4 +0
29 500	29 364	2,260 14 +2	-4,713 6 +1	1,289 99 +1	1,988 34 -2	9,716 3 +0
29 550	29 413	2,260 63 +2	-4,708 7 +1	1,280 37 +1	1,973 07 -2	9,716 1 +0
29 600	29 463	2,261 13 +2	-4,703 7 +1	1,270 82 +1	1,957 93 -2	9,90 +0
29 650	29 512	2,261 62 +2	-4,698 8 +1	1,261 35 +1	1,942 91 -2	9,715 8 +0
29 700	29 562	2,262 12 +2	-4,693 8 +1	1,251 94 +1	1,100 -2	9,715 7 +0
29 750	29 611	2,262 61 +2	-4,688 9 +1	1,242 61 +1	1,913 21 -2	9,715 5 +0
29 800	29 661	2,263 11 +2	-4,683 9 +1	1,233 35 +1	1,898 54 -2	9,715 3 +0
29 850	29 710	2,20 +2	-4,40 +1	1,224 17 +1	1,883 99 -2	9,715 2 +0
29 900	29 760	2,20 +2	-4,40 +1	1,215 05 +1	1,869 55 -2	9,90 +0
29 950	29 810	2,20 +2	-4,40 +1	1,100 +1	1,855 22 -2	9,714 9 +0
30 000	29 859	2,265 09 +2	-4,664 1 +1	1,197 03 +1	1,841 01 -2	9,714 7 +0
30 050	29 909	2,265 59 +2	-4,659 1 +1	1,188 12 +1	1,826 91 -2	9,714 6 +0
30 100	29 958	2,266 08 +2	-4,654 2 +1	1,179 28 +1	1,812 92 -2	9,714 4 +0
30 150	30 008	2,266 58 +2	-4,649 2 +1	1,170 51 +1	1,799 05 -2	9,714 3 +0
30 200	30 057	2,267 07 +2	-4,644 3 +1	1,10 +1	1,785 28 -2	9,714 1 +0
30 250	30 107	2,267 57 +2	-4,639 3 +1	1,153 17 +1	1,771 62 -2	9,90 +0
30 300	30 156	2,268 06 +2	-4,634 4 +1	1,144 59 +1	1,758 06 -2	9,713 8 +0
30 350	30 206	2,268 56 +2	-4,629 4 +1	1,136 09 +1	1,744 62 -2	9,713 7 +0
30 400	30 255	2,269 05 +2	-4,624 5 +1	1,127 65 +1	1,731 28 -2	9,713 5 +0
30 450	30 305	2,269 55 +2	-4,619 5 +1	1,119 27 +1	1,718 04 -2	9,713 4 +0
30 500	30 354	2,270 04 +2	-4,614 6 +1	1,110 96 +1	1,704 91 -2	9,713 2 +0
30 550	30 404	2,270 54 +2	-4,609 6 +1	1,102 71 +1	1,691 88 -2	9,713 1 +0
30 600	30 453	2,271 03 +2	-4,604 7 +1	1,094 53 +1	1,678 96 -2	9,712 9 +0
30 650	30 503	2,271 53 +2	-4,599 7 +1	1,10 +1	1,666 14 -2	9,712 8 +0

Table 5 (continued)

Values in terms of geometrical altitude.

h m M	H m M	T K	t °C	p mbar rPa	ρ kgm ⁻³ kg · m ⁻³	g ms ⁻² m · s ⁻²
30 700	30 552	2,272 02 +2	-4,594 8 +1	1,078 34 +1	1,653 41 -2	9,712 6 +0
30 750	30 602	2,272 52 +2	-4,589 8 +1	1,070 34 +1	1,640 79 -2	9,712 5 +0
30 800	30 651	2,273 01 +2	-4,584 9 +1	1,062 41 +1	1,628 27 -2	9,712 3 +0
30 850	30 701	2,273 51 +2	-4,579 9 +1	1,054 53 +1	1,615 85 -2	9,712 2 +0
30 900	30 751	2,274 01 +2	-4,574 9 +1	1,046 71 +1	1,603 52 -2	9,90 +0
30 950	30 800	2,20 +2	-4,400 +1	1,038 96 +1	1,591 29 -2	9,711 8 +0
31 000	30 850	2,200 +2	-4,40 +1	1,031 26 +1	1,579 16 -2	9,711 7 +0
31 050	30 899	2,275 49 +2	-4,560 1 +1	1,023 62 +1	1,567 12 -2	9,711 5 +0
31 100	30 949	2,275 99 +2	-4,555 1 +1	1,016 04 +1	1,555 17 -2	9,711 4 +0
31 150	30 998	2,276 48 +2	-4,550 2 +1	1,008 52 +1	1,543 32 -2	9,711 2 +0
31 200	31 048	2,276 98 +2	-4,545 2 +1	1,001 05 +1	1,531 57 -2	9,711 1 +0
31 250	31 097	2,277 47 +2	-4,540 3 +1	9,936 43 +0	1,10 -2	9,710 9 +0
31 300	31 147	2,277 97 +2	-4,535 3 +1	9,862 91 +0	1,508 33 -2	9,710 8 +0
31 350	31 196	2,278 46 +2	-4,530 4 +1	9,789 96 +0	1,496 85 -2	9,710 6 +0
31 400	31 246	2,278 96 +2	-4,525 4 +1	9,717 56 +0	1,485 45 -2	9,710 5 +0
31 450	31 295	2,279 45 +2	-4,520 5 +1	9,645 71 +0	1,474 15 -2	9,710 3 +0
31 500	31 345	2,279 95 +2	-4,515 5 +1	9,574 41 +0	1,462 94 -2	9,710 2 +0
31 550	31 394	2,280 44 +2	-4,510 6 +1	9,503 66 +0	1,451 81 -2	9,900 +0
31 600	31 444	2,280 94 +2	-4,505 6 +1	9,433 44 +0	1,440 77 -2	9,709 9 +0
31 650	31 493	2,281 43 +2	-4,500 7 +1	9,363 76 +0	1,429 82 -2	9,709 7 +0
31 700	31 543	2,281 93 +2	-4,495 7 +1	9,294 61 +0	1,418 95 -2	9,709 6 +0
31 750	31 592	2,282 42 +2	-4,490 8 +1	9,225 98 +0	1,408 17 -2	9,709 4 +0
31 800	31 642	2,282 92 +2	-4,485 8 +1	9,157 88 +0	1,397 47 -2	9,709 3 +0
31 850	31 691	2,283 41 +2	-4,480 9 +1	9,90 +0	1,386 86 -2	9,709 1 +0
31 900	31 741	2,283 91 +2	-4,475 9 +1	9,023 23 +0	1,376 33 -2	9,90 +0
31 950	31 790	2,20 +2	-4,40 +1	8,956 67 +0	1,365 88 -2	9,708 8 +0
32 000	31 840	2,20 +2	-4,40 +1	8,890 62 +0	1,355 51 -2	9,708 7 +0
32 100	31 939	2,285 89 +2	-4,456 1 +1	8,760 01 +0	1,335 02 -2	9,708 4 +0
32 200	32 038	2,287 56 +2	-4,439 4 +1	8,631 39 +0	1,314 46 -2	9,90 +0
32 300	32 137	2,290 33 +2	-4,411 7 +1	8,80 +0	1,293 61 -2	9,707 7 +0
32 400	32 236	2,20 +2	-4,40 +1	8,380 22 +0	1,273 12 -2	9,707 4 +0
32 500	32 335	2,295 87 +2	-4,356 3 +1	8,257 62 +0	1,252 98 -2	9,707 1 +0
32 600	32 434	2,298 64 +2	-4,328 6 +1	8,136 95 +0	1,233 19 -2	9,706 8 +0
32 700	32 533	2,301 41 +2	-4,300 9 +1	8,80 +0	1,213 72 -2	9,706 5 +0
32 800	32 632	2,304 19 +2	-4,273 1 +1	7,901 32 +0	1,194 59 -2	9,706 2 +0
32 900	32 731	2,306 96 +2	-4,245 4 +1	7,786 29 +0	1,175 79 -2	9,705 9 +0
33 000	32 830	2,309 73 +2	-4,217 7 +1	7,673 07 +0	1,10 -2	9,705 6 +0
33 100	32 929	2,20 +2	-4,400 +1	7,561 63 +0	1,139 13 -2	9,705 3 +0
33 200	33 028	2,315 27 +2	-4,162 3 +1	7,451 95 +0	1,121 26 -2	9,90 +0
33 300	33 126	2,318 04 +2	-4,134 6 +1	7,343 99 +0	1,103 69 -2	9,704 7 +0
33 400	33 225	2,320 81 +2	-4,106 9 +1	7,237 72 +0	1,086 42 -2	9,704 4 +0
33 500	33 324	2,323 58 +2	-4,079 2 +1	7,133 11 +0	1,069 45 -2	9,704 1 +0
33 600	33 423	2,326 35 +2	-4,051 5 +1	7,030 15 +0	1,052 75 -2	9,703 8 +0
33 700	33 522	2,329 12 +2	-4,023 8 +1	6,928 79 +0	1,036 34 -2	9,703 5 +0
33 800	33 621	2,331 89 +2	-3,996 1 +1	6,829 02 +0	1,10 -2	9,703 2 +0
33 900	33 720	2,334 66 +2	-3,968 4 +1	6,60 +0	1,004 34 -2	9,702 9 +0

Table 5 (continued)

Values in terms of geometrical altitude.

h m M	H m M	T K	t °C	p mbar rPa	ρ kgm ⁻³ kg · m ⁻³	g ms ⁻² m · s ⁻²
34 000	33 819	2,337 44 +2	-3,940 6 +1	6,634 11 +0	9,887 38 -3	9,702 6 +0
34 100	33 918	2,340 21 +2	-3,912 9 +1	6,538 92 +0	9,733 98 -3	9,702 3 +0
34 200	34 017	2,342 98 +2	-3,885 2 +1	6,445 22 +0	9,583 14 -3	9,90 +0
34 300	34 116	2,345 75 +2	-3,857 5 +1	6,352 96 +0	9,434 82 -3	9,701 7 +0
34 400	34 215	2,348 52 +2	-3,829 8 +1	6,262 14 +0	9,288 97 -3	9,701 4 +0
34 500	34 314	2,351 29 +2	-3,802 1 +1	6,172 72 +0	9,145 54 -3	9,701 1 +0
34 600	34 413	2,354 06 +2	-3,774 4 +1	6,084 69 +0	9,004 51 -3	9,700 8 +0
34 700	34 512	2,356 83 +2	-3,746 7 +1	5,998 02 +0	8,865 81 -3	9,700 5 +0
34 800	34 611	2,359 59 +2	-3,719 1 +1	5,912 68 +0	8,729 41 -3	9,700 2 +0
34 900	34 709	2,362 36 +2	-3,691 4 +1	5,828 65 +0	8,595 27 -3	9,699 8 +0
35 000	34 808	2,365 13 +2	-3,663 7 +1	5,745 92 +0	8,463 35 -3	9,699 5 +0
35 100	34 907	2,20 +2	-3,30 +1	5,664 47 +0	8,333 61 -3	9,699 2 +0
35 200	35 006	2,370 67 +2	-3,608 3 +1	5,584 26 +0	8,206 01 -3	9,698 9 +0
35 300	35 105	2,373 44 +2	-3,580 6 +1	5,505 28 +0	8,080 51 -3	9,698 6 +0
35 400	35 204	2,376 21 +2	-3,552 9 +1	5,427 51 +0	7,957 08 -3	9,698 3 +0
35 500	35 303	2,378 98 +2	-3,525 2 +1	5,350 93 +0	7,835 68 -3	9,90 +0
35 600	35 402	2,381 75 +2	-3,497 5 +1	5,275 52 +0	7,716 28 -3	9,697 7 +0
35 700	35 501	2,384 52 +2	-3,469 8 +1	5,201 27 +0	7,598 83 -3	9,697 4 +0
35 800	35 600	2,387 29 +2	-3,442 1 +1	5,128 14 +0	7,70 -3	9,697 1 +0
35 900	35 698	2,390 05 +2	-3,414 5 +1	5,056 13 +0	7,369 67 -3	9,696 8 +0
36 000	35 797	2,392 82 +2	-3,386 8 +1	4,985 21 +0	7,70 -3	9,696 5 +0
36 100	35 896	2,395 59 +2	-3,359 1 +1	4,915 37 +0	7,147 95 -3	9,696 2 +0
36 200	35 995	2,398 36 +2	-3,331 4 +1	4,846 59 +0	7,039 79 -3	9,695 9 +0
36 300	36 094	2,401 13 +2	-3,303 7 +1	4,778 85 +0	6,933 39 -3	9,695 6 +0
36 400	36 193	2,20 +2	-3,30 +1	4,712 13 +0	6,828 73 -3	9,695 3 +0
36 500	36 292	2,406 67 +2	-3,248 3 +1	4,646 43 +0	6,725 77 -3	9,90 +0
36 600	36 390	2,409 43 +2	-3,220 7 +1	4,581 72 +0	6,624 47 -3	9,694 7 +0
36 700	36 489	2,20 +2	-3,30 +1	4,517 98 +0	6,524 82 -3	9,694 4 +0
36 800	36 588	2,414 97 +2	-3,165 3 +1	4,40 +0	6,426 79 -3	9,694 1 +0
36 900	36 687	2,417 74 +2	-3,137 6 +1	4,393 37 +0	6,330 34 -3	9,693 8 +0
37 000	36 786	2,20 +2	-3,300 +1	4,332 47 +0	6,235 45 -3	9,693 5 +0
37 100	36 885	2,423 27 +2	-3,082 3 +1	4,272 48 +0	6,142 09 -3	9,693 2 +0
37 200	36 984	2,426 04 +2	-3,054 6 +1	4,213 39 +0	6,050 23 -3	9,692 9 +0
37 300	37 082	2,428 81 +2	-3,026 9 +1	4,155 19 +0	5,959 85 -3	9,692 6 +0
37 400	37 181	2,431 57 +2	-2,999 3 +1	4,097 85 +0	5,870 93 -3	9,692 3 +0
37 500	37 280	2,434 34 +2	-2,971 6 +1	4,041 38 +0	5,783 43 -3	9,90 +0
37 600	37 379	2,437 11 +2	-2,943 9 +1	3,985 74 +0	5,697 34 -3	9,691 7 +0
37 700	37 478	2,439 88 +2	-2,916 2 +1	3,930 94 +0	5,612 63 -3	9,691 4 +0
37 800	37 577	2,442 64 +2	-2,888 6 +1	3,876 95 +0	5,529 28 -3	9,691 1 +0
37 900	37 675	2,445 41 +2	-2,860 9 +1	3,823 77 +0	5,447 25 -3	9,690 8 +0
38 000	37 774	2,448 18 +2	-2,833 2 +1	3,771 37 +0	5,366 54 -3	9,690 4 +0
38 100	37 873	2,450 94 +2	-2,805 6 +1	3,719 75 +0	5,287 12 -3	9,690 1 +0
38 200	37 972	2,453 71 +2	-2,777 9 +1	3,30 +0	5,208 96 -3	9,689 8 +0
38 300	38 071	2,456 48 +2	-2,750 2 +1	3,30 +0	5,132 04 -3	9,689 5 +0
38 400	38 169	2,459 24 +2	-2,722 6 +1	3,569 44 +0	5,056 35 -3	9,689 2 +0
38 500	38 268	2,462 01 +2	-2,694 9 +1	3,520 81 +0	4,981 86 -3	9,688 9 +0

Table 5 (continued)

Values in terms of geometrical altitude.

h m M	H m M	T K	t °C	p mbar rPa	ρ kgm ⁻³ kg · m ⁻³	g ms ⁻² m · s ⁻²
38 600	38 367	2,464 78 +2	-2,667 2 +1	3,30 +0	4,908 55 -3	9,688 6 +0
38 700	38 466	2,467 54 +2	-2,639 6 +1	3,30 +0	4,40 -3	9,688 3 +0
38 800	38 565	2,470 31 +2	-2,611 9 +1	3,379 18 +0	4,765 39 -3	9,90 +0
38 900	38 663	2,473 08 +2	-2,584 2 +1	3,333 36 +0	4,695 51 -3	9,687 7 +0
39 000	38 762	2,475 84 +2	-2,556 6 +1	3,30 +0	4,626 73 -3	9,687 4 +0
39 100	38 861	2,478 61 +2	-2,528 9 +1	3,243 71 +0	4,559 03 -3	9,687 1 +0
39 200	38 960	2,481 37 +2	-2,501 3 +1	3,199 87 +0	4,40 -3	9,686 8 +0
39 300	39 059	2,484 14 +2	-2,473 6 +1	3,156 67 +0	4,426 82 -3	9,686 5 +0
39 400	39 157	2,20 +2	-2,20 +1	3,114 11 +0	4,362 27 -3	9,686 2 +0
39 500	39 256	2,489 67 +2	-2,418 3 +1	3,072 16 +0	4,298 73 -3	9,685 9 +0
39 600	39 355	2,492 44 +2	-2,390 6 +1	3,030 83 +0	4,236 19 -3	9,685 6 +0
39 700	39 454	2,20 +2	-2,20 +1	2,20 +0	4,174 63 -3	9,685 3 +0
39 800	39 552	2,497 97 +2	-2,335 3 +1	2,949 96 +0	4,114 03 -3	9,90 +0
39 900	39 651	2,500 73 +2	-2,307 7 +1	2,910 41 +0	4,054 38 -3	9,684 7 +0
40 000	39 750	2,20 +2	-2,200 +1	2,871 43 +0	3,995 66 -3	9,684 4 +0
40 100	39 849	2,506 26 +2	-2,252 4 +1	2,833 01 +0	3,937 86 -3	9,684 1 +0
40 200	39 947	2,509 03 +2	-2,224 7 +1	2,795 16 +0	3,880 96 -3	9,683 8 +0
40 300	40 046	2,511 79 +2	-2,197 1 +1	2,757 85 +0	3,824 94 -3	9,683 5 +0
40 400	40 145	2,514 56 +2	-2,169 4 +1	2,721 08 +0	3,769 79 -3	9,683 2 +0
40 500	40 244	2,517 32 +2	-2,141 8 +1	2,684 84 +0	3,30 -3	9,682 9 +0
40 600	40 342	2,520 09 +2	-2,114 1 +1	2,649 12 +0	3,662 05 -3	9,682 6 +0
40 700	40 441	2,522 85 +2	-2,086 5 +1	2,613 92 +0	3,609 43 -3	9,682 3 +0
40 800	40 540	2,525 61 +2	-2,058 9 +1	2,579 22 +0	3,557 62 -3	9,90 +0
40 900	40 639	2,528 38 +2	-2,031 2 +1	2,545 03 +0	3,506 61 -3	9,681 7 +0
41 000	40 737	2,531 14 +2	-2,003 6 +1	2,511 32 +0	3,30 -3	9,681 4 +0
41 100	40 836	2,533 91 +2	-1,975 9 +1	2,20 +0	3,406 95 -3	9,681 1 +0
41 200	40 935	2,536 67 +2	-1,948 3 +1	2,445 35 +0	3,358 27 -3	9,680 8 +0
41 300	41 033	2,539 44 +2	-1,920 6 +1	2,413 07 +0	3,310 33 -3	9,680 5 +0
41 400	41 132	2,20 +2	-1,10 +1	2,381 26 +0	3,263 13 -3	9,680 2 +0
41 500	41 231	2,544 96 +2	-1,865 4 +1	2,20 +0	3,216 66 -3	9,679 8 +0
41 600	41 330	2,547 73 +2	-1,837 7 +1	2,318 98 +0	3,30 -3	9,679 5 +0
41 700	41 428	2,550 49 +2	-1,810 1 +1	2,288 51 +0	3,125 84 -3	9,679 2 +0
41 800	41 527	2,553 25 +2	-1,782 5 +1	2,258 47 +0	3,081 47 -3	9,678 9 +0
41 900	41 626	2,556 02 +2	-1,754 8 +1	2,228 86 +0	3,037 78 -3	9,678 6 +0
42 000	41 724	2,558 78 +2	-1,727 2 +1	2,199 66 +0	2,994 75 -3	9,678 3 +0
42 100	41 823	2,561 54 +2	-1,699 6 +1	2,170 88 +0	2,952 38 -3	9,90 +0
42 200	41 922	2,564 31 +2	-1,671 9 +1	2,142 51 +0	2,910 66 -3	9,677 7 +0
42 300	42 020	2,567 07 +2	-1,644 3 +1	2,114 55 +0	2,869 57 -3	9,677 4 +0
42 400	42 119	2,569 83 +2	-1,616 7 +1	2,086 97 +0	2,829 11 -3	9,677 1 +0
42 500	42 218	2,20 +2	-1,10 +1	2,059 79 +0	2,789 26 -3	9,676 8 +0
42 600	42 316	2,575 36 +2	-1,561 4 +1	2,032 99 +0	2,750 01 -3	9,676 5 +0
42 700	42 415	2,578 12 +2	-1,533 8 +1	2,006 57 +0	2,711 36 -3	9,676 2 +0
42 800	42 514	2,580 89 +2	-1,506 1 +1	1,980 51 +0	2,20 -3	9,675 9 +0
42 900	42 612	2,583 65 +2	-1,478 5 +1	1,954 83 +0	2,635 81 -3	9,675 6 +0
43 000	42 711	2,586 41 +2	-1,450 9 +1	1,929 51 +0	2,598 88 -3	9,675 3 +0
43 100	42 810	2,589 17 +2	-1,423 3 +1	1,904 54 +0	2,562 52 -3	9,90 +0

Table 5 (continued)

Values in terms of geometrical altitude.

h m M	H m M	T K	t °C	p mbar rPa	ρ kgm ⁻³ kg · m ⁻³	g ms ⁻² m · s ⁻²
43 200	42 908	2,591 94 +2	-1,395 6 +1	1,879 92 +0	2,20 -3	9,674 7 +0
43 300	43 007	2,20 +2	-1,10 +1	1,855 65 +0	2,491 42 -3	9,674 4 +0
43 400	43 106	2,597 46 +2	-1,340 4 +1	1,831 71 +0	2,456 67 -3	9,674 1 +0
43 500	43 204	2,600 22 +2	-1,312 8 +1	1,808 11 +0	2,422 44 -3	9,673 8 +0
43 600	43 303	2,602 98 +2	-1,285 2 +1	1,784 84 +0	2,388 73 -3	9,673 5 +0
43 700	43 402	2,605 75 +2	-1,257 5 +1	1,10 +0	2,355 52 -3	9,673 2 +0
43 800	43 500	2,608 51 +2	-1,229 9 +1	1,739 27 +0	2,322 81 -3	9,672 9 +0
43 900	43 599	2,611 27 +2	-1,202 3 +1	1,716 96 +0	2,290 58 -3	9,672 6 +0
44 000	43 698	2,614 03 +2	-1,174 7 +1	1,694 96 +0	2,258 84 -3	9,672 3 +0
44 100	43 796	2,616 79 +2	-1,147 1 +1	1,673 26 +0	2,227 57 -3	9,90 +0
44 200	43 895	2,619 55 +2	-1,119 5 +1	1,651 86 +0	2,196 77 -3	9,671 7 +0
44 300	43 993	2,622 32 +2	-1,091 8 +1	1,630 77 +0	2,166 43 -3	9,671 4 +0
44 400	44 092	2,625 08 +2	-1,064 2 +1	1,609 96 +0	2,136 54 -3	9,671 1 +0
44 500	44 191	2,627 84 +2	-1,036 6 +1	1,589 44 +0	2,107 09 -3	9,670 8 +0
44 600	44 289	2,20 +2	-1,10 +1	1,10 +0	2,078 08 -3	9,670 5 +0
44 700	44 388	2,633 36 +2	-9,90 +0	1,549 25 +0	2,20 -3	9,670 2 +0
44 800	44 486	2,636 12 +2	-9,537 9 +0	1,529 56 +0	2,021 34 -3	9,669 9 +0
44 900	44 585	2,638 88 +2	-9,261 8 +0	1,510 15 +0	1,10 -3	9,669 6 +0
45 000	44 684	2,641 64 +2	-8,985 7 +0	1,491 01 +0	1,966 27 -3	9,669 3 +0
45 100	44 782	2,20 +2	-8,709 6 +0	1,472 13 +0	1,939 35 -3	9,90 +0
45 200	44 881	2,647 16 +2	-8,433 6 +0	1,10 +0	1,912 82 -3	9,668 7 +0
45 300	44 979	2,649 93 +2	-8,157 5 +0	1,435 14 +0	1,886 68 -3	9,668 4 +0
45 400	45 078	2,652 69 +2	-7,881 5 +0	1,417 02 +0	1,860 92 -3	9,668 1 +0
45 500	45 177	2,655 45 +2	-7,605 4 +0	1,399 15 +0	1,835 55 -3	9,667 8 +0
45 600	45 275	2,658 21 +2	-7,329 4 +0	1,381 53 +0	1,810 54 -3	9,667 5 +0
45 700	45 374	2,660 97 +2	-7,053 4 +0	1,364 14 +0	1,785 91 -3	9,667 2 +0
45 800	45 472	2,663 73 +2	-6,777 3 +0	1,100 +0	1,761 63 -3	9,666 9 +0
45 900	45 571	2,666 49 +2	-6,501 3 +0	1,330 08 +0	1,737 71 -3	9,666 5 +0
46 000	45 670	2,669 25 +2	-6,225 4 +0	1,10 +0	1,714 14 -3	9,666 2 +0
46 100	45 768	2,672 01 +2	-5,949 4 +0	1,296 94 +0	1,690 92 -3	9,665 9 +0
46 200	45 867	2,674 77 +2	-5,673 4 +0	1,280 71 +0	1,668 03 -3	9,665 6 +0
46 300	45 965	2,677 53 +2	-5,397 4 +0	1,10 +0	1,645 47 -3	9,665 3 +0
46 400	46 064	2,680 29 +2	-5,121 5 +0	1,10 +0	1,623 25 -3	9,90 +0
46 500	46 162	2,683 04 +2	-4,845 5 +0	1,233 32 +0	1,601 35 -3	9,664 7 +0
46 600	46 261	2,20 +2	-4,569 6 +0	1,217 95 +0	1,579 76 -3	9,664 4 +0
46 700	46 359	2,688 56 +2	-4,293 6 +0	1,202 78 +0	1,558 49 -3	9,664 1 +0
46 800	46 458	2,691 32 +2	-4,017 7 +0	1,187 82 +0	1,537 53 -3	9,663 8 +0
46 900	46 557	2,694 08 +2	-3,741 8 +0	1,173 07 +0	1,516 87 -3	9,663 5 +0
47 000	46 655	2,696 84 +2	-3,465 9 +0	1,158 51 +0	1,496 51 -3	9,663 2 +0
47 100	46 754	2,20 +2	-3,300 +0	1,144 14 +0	1,476 45 -3	9,662 9 +0
47 200	46 852	2,702 36 +2	-2,914 1 +0	1,129 97 +0	1,456 67 -3	9,662 6 +0
47 300	46 951	2,705 12 +2	-2,638 2 +0	1,115 99 +0	1,437 18 -3	9,662 3 +0
47 400	47 049	2,706 50 +2	-2,500 0 +0	1,10 +0	1,418 69 -3	9,90 +0
47 500	47 148	2,706 50 +2	-2,500 0 +0	1,088 57 +0	1,401 16 -3	9,661 7 +0
47 600	47 246	2,706 50 +2	-2,500 0 +0	1,075 12 +0	1,383 84 -3	9,661 4 +0
47 700	47 345	2,706 50 +2	-2,500 0 +0	1,061 83 +0	1,366 74 -3	9,661 1 +0

Table 5 (continued)

Values in terms of geometrical altitude.

h m M	H m M	T K	t °C	p mbar rPa	ρ kgm ⁻³ kg · m ⁻³	g ms ⁻² m · s ⁻²
47 800	47 443	2,706 50 +2	-2,500 0 +0	1,048 71 +0	1,349 85 -3	9,660 8 +0
47 900	47 542	2,706 50 +2	-2,500 0 +0	1,035 75 +0	1,333 17 -3	9,660 5 +0
48 000	47 640	2,706 50 +2	-2,500 0 +0	1,022 95 +0	1,316 69 -3	9,660 2 +0
48 100	47 739	2,706 50 +2	-2,500 0 +0	1,010 31 +0	1,300 42 -3	9,659 9 +0
48 200	47 837	2,706 50 +2	-2,500 0 +0	9,978 27 -1	1,284 36 -3	9,659 6 +0
48 300	47 936	2,706 50 +2	-2,500 0 +0	9,854 97 -1	1,268 49 -3	9,659 3 +0
48 400	48 034	2,706 50 +2	-2,500 0 +0	9,733 21 -1	1,252 81 -3	9,90 +0
48 500	48 133	2,706 50 +2	-2,500 0 +0	9,612 95 -1	1,237 33 -3	9,658 7 +0
48 600	48 231	2,706 50 +2	-2,500 0 +0	9,494 18 -1	1,222 05 -3	9,658 4 +0
48 700	48 330	2,706 50 +2	-2,500 0 +0	9,376 88 -1	1,206 95 -3	9,658 1 +0
48 800	48 428	2,706 50 +2	-2,500 0 +0	9,261 04 -1	1,192 04 -3	9,657 8 +0
48 900	48 527	2,706 50 +2	-2,500 0 +0	9,146 63 -1	1,177 31 -3	9,657 5 +0
49 000	48 625	2,706 50 +2	-2,500 0 +0	9,033 64 -1	1,162 77 -3	9,657 2 +0
49 100	48 724	2,706 50 +2	-2,500 0 +0	8,922 04 -1	1,10 -3	9,656 9 +0
49 200	48 822	2,706 50 +2	-2,500 0 +0	8,811 83 -1	1,134 22 -3	9,656 6 +0
49 300	48 921	2,706 50 +2	-2,500 0 +0	8,702 98 -1	1,120 21 -3	9,656 3 +0
49 400	49 019	2,706 50 +2	-2,500 0 +0	8,595 48 -1	1,106 37 -3	9,90 +0
49 500	49 118	2,706 50 +2	-2,500 0 +0	8,489 32 -1	1,10 -3	9,655 7 +0
49 600	49 216	2,706 50 +2	-2,500 0 +0	8,384 46 -1	1,079 21 -3	9,655 4 +0
49 700	49 314	2,706 50 +2	-2,500 0 +0	8,280 91 -1	1,065 88 -3	9,655 1 +0
49 800	49 413	2,706 50 +2	-2,500 0 +0	8,178 63 -1	1,052 71 -3	9,654 8 +0
49 900	49 511	2,706 50 +2	-2,500 0 +0	8,077 63 -1	1,039 71 -3	9,654 5 +0
50 000	49 610	2,706 50 +2	-2,500 0 +0	7,977 87 -1	1,026 87 -3	9,654 2 +0
50 100	49 708	2,706 50 +2	-2,500 0 +0	7,879 35 -1	1,014 19 -3	9,653 9 +0
50 200	49 807	2,706 50 +2	-2,500 0 +0	7,782 05 -1	1,001 67 -3	9,653 6 +0
50 300	49 905	2,706 50 +2	-2,500 0 +0	7,685 95 -1	9,892 99 -4	9,653 3 +0
50 400	50 004	2,706 50 +2	-2,500 0 +0	7,591 04 -1	9,770 83 -4	9,90 +0
50 500	50 102	2,706 50 +2	-2,500 0 +0	7,497 31 -1	9,650 18 -4	9,652 7 +0
50 600	50 200	2,706 50 +2	-2,500 0 +0	7,404 74 -1	9,531 03 -4	9,652 4 +0
50 700	50 299	2,706 50 +2	-2,500 0 +0	7,313 31 -1	9,413 35 -4	9,652 1 +0
50 800	50 397	2,706 50 +2	-2,500 0 +0	7,223 02 -1	9,297 12 -4	9,651 8 +0
50 900	50 496	2,706 50 +2	-2,500 0 +0	7,133 84 -1	9,182 34 -4	9,651 5 +0
51 000	50 594	2,706 50 +2	-2,500 0 +0	7,045 77 -1	9,068 98 -4	9,651 2 +0
51 200	50 791	2,706 50 +2	-2,500 0 +0	6,872 88 -1	8,846 44 -4	9,650 6 +0
51 400	50 988	2,706 50 +2	-2,500 0 +0	6,704 24 -1	8,629 38 -4	9,900 +0
51 600	51 185	2,701 33 +2	-3,016 7 +0	6,60 -1	8,433 57 -4	9,649 4 +0
51 800	51 381	2,695 82 +2	-3,567 7 +0	6,60 -1	8,242 87 -4	9,648 8 +0
52 000	51 578	2,690 31 +2	-4,118 6 +0	6,221 44 -1	8,056 13 -4	9,648 2 +0
52 200	51 775	2,20 +2	-4,669 6 +0	6,067 76 -1	7,873 25 -4	9,647 6 +0
52 400	51 972	2,20 +2	-5,220 4 +0	5,917 59 -1	7,694 18 -4	9,90 +0
52 600	52 168	2,673 79 +2	-5,771 3 +0	5,770 84 -1	7,518 83 -4	9,646 3 +0
52 800	52 365	2,668 28 +2	-6,322 1 +0	5,627 45 -1	7,347 14 -4	9,645 7 +0
53 000	52 562	2,662 77 +2	-6,872 9 +0	5,487 34 -1	7,179 04 -4	9,645 1 +0
53 200	52 758	2,657 26 +2	-7,423 7 +0	5,350 45 -1	7,014 46 -4	9,644 5 +0
53 400	52 955	2,651 76 +2	-7,974 4 +0	5,216 71 -1	6,853 33 -4	9,643 9 +0
53 600	53 152	2,646 25 +2	-8,525 1 +0	5,086 06 -1	6,695 59 -4	9,643 3 +0

Table 5 (continued)

Values in terms of geometrical altitude.

h m M	H m M	T K	t °C	p mbar rPa	ρ kgm ⁻³ kg · m ⁻³	g ms ⁻² m · s ⁻²
53 800	53 348	2,640 74 +2	-9,075 8 +0	4,958 42 -1	6,541 17 -4	9,642 7 +0
54 000	53 545	2,635 24 +2	-9,626 4 +0	4,833 74 -1	6,390 01 -4	9,642 1 +0
54 200	53 742	2,629 73 +2	-1,017 7 +1	4,711 95 -1	6,242 05 -4	9,641 5 +0
54 400	53 938	2,624 22 +2	-1,072 8 +1	4,592 99 -1	6,097 23 -4	9,640 9 +0
54 600	54 135	2,618 72 +2	-1,127 8 +1	4,40 -1	5,955 47 -4	9,640 3 +0
54 800	54 332	2,613 21 +2	-1,182 9 +1	4,363 32 -1	5,816 74 -4	9,639 7 +0
55 000	54 528	2,607 71 +2	-1,237 9 +1	4,252 49 -1	5,680 96 -4	9,639 1 +0
55 200	54 725	2,602 21 +2	-1,292 9 +1	4,144 26 -1	5,548 09 -4	9,638 5 +0
55 400	54 921	2,20 +2	-1,10 +1	4,038 57 -1	5,418 06 -4	9,637 9 +0
55 600	55 118	2,20 +2	-1,10 +1	3,935 37 -1	5,290 81 -4	9,637 3 +0
55 800	55 314	2,20 +2	-1,10 +1	3,834 59 -1	5,166 31 -4	9,636 7 +0
56 000	55 511	2,580 19 +2	-1,513 1 +1	3,30 -1	5,044 48 -4	9,636 1 +0
56 200	55 707	2,574 69 +2	-1,568 1 +1	3,640 14 -1	4,925 28 -4	9,635 5 +0
56 400	55 904	2,569 19 +2	-1,623 1 +1	3,546 36 -1	4,808 66 -4	9,634 9 +0
56 600	56 100	2,563 69 +2	-1,678 1 +1	3,30 -1	4,694 57 -4	9,634 3 +0
56 800	56 297	2,558 18 +2	-1,733 2 +1	3,365 42 -1	4,582 96 -4	9,633 7 +0
57 000	56 493	2,552 68 +2	-1,788 2 +1	3,278 18 -1	4,473 77 -4	9,633 1 +0
57 200	56 690	2,547 18 +2	-1,843 2 +1	3,193 02 -1	4,366 97 -4	9,632 5 +0
57 400	56 886	2,541 68 +2	-1,898 2 +1	3,109 91 -1	4,40 -4	9,631 9 +0
57 600	57 083	2,536 18 +2	-1,953 2 +1	3,028 78 -1	4,160 31 -4	9,631 3 +0
57 800	57 279	2,530 68 +2	-2,008 2 +1	2,949 61 -1	4,060 37 -4	9,630 7 +0
58 000	57 476	2,525 18 +2	-2,063 2 +1	2,872 35 -1	3,962 62 -4	9,630 1 +0
58 200	57 672	2,519 68 +2	-2,118 2 +1	2,796 96 -1	3,867 03 -4	9,629 5 +0
58 400	57 868	2,514 19 +2	-2,173 1 +1	2,723 39 -1	3,773 55 -4	9,628 9 +0
58 600	58 065	2,508 69 +2	-2,228 1 +1	2,20 -1	3,682 14 -4	9,628 3 +0
58 800	58 261	2,503 19 +2	-2,283 1 +1	2,581 56 -1	3,592 75 -4	9,627 7 +0
59 000	58 457	2,497 69 +2	-2,338 1 +1	2,513 23 -1	3,505 35 -4	9,627 1 +0
59 200	58 654	2,492 19 +2	-2,393 1 +1	2,446 57 -1	3,30 -4	9,626 5 +0
59 400	58 850	2,20 +2	-2,20 +1	2,381 53 -1	3,336 35 -4	9,625 9 +0
59 600	59 046	2,20 +2	-2,20 +1	2,318 09 -1	3,254 67 -4	9,625 3 +0
59 800	59 243	2,20 +2	-2,20 +1	2,256 21 -1	3,174 82 -4	9,624 7 +0
60 000	59 439	2,470 21 +2	-2,612 9 +1	2,195 85 -1	3,096 76 -4	9,624 1 +0
60 200	59 635	2,464 71 +2	-2,667 9 +1	2,136 99 -1	3,020 46 -4	9,623 5 +0
60 400	59 831	2,459 22 +2	-2,722 8 +1	2,079 57 -1	2,945 88 -4	9,622 9 +0
60 600	60 028	2,453 72 +2	-2,777 8 +1	2,023 58 -1	2,872 99 -4	9,622 3 +0
60 800	60 224	2,448 23 +2	-2,832 7 +1	1,968 98 -1	2,801 74 -4	9,621 7 +0
61 000	60 420	2,442 73 +2	-2,887 7 +1	1,915 74 -1	2,732 11 -4	9,621 1 +0
61 200	60 616	2,437 24 +2	-2,942 6 +1	1,863 83 -1	2,664 07 -4	9,620 5 +0
61 400	60 813	2,431 75 +2	-2,997 5 +1	1,813 21 -1	2,597 58 -4	9,619 9 +0
61 600	61 009	2,426 25 +2	-3,052 5 +1	1,763 87 -1	2,20 -4	9,619 3 +0
61 800	61 205	2,420 76 +2	-3,107 4 +1	1,715 76 -1	2,469 12 -4	9,618 7 +0
62 000	61 401	2,415 27 +2	-3,162 3 +1	1,668 86 -1	2,407 09 -4	9,618 1 +0
62 200	61 597	2,409 78 +2	-3,217 2 +1	1,623 14 -1	2,346 48 -4	9,617 5 +0
62 400	61 793	2,404 28 +2	-3,272 2 +1	1,578 58 -1	2,287 28 -4	9,616 9 +0
62 600	61 990	2,398 79 +2	-3,327 1 +1	1,535 15 -1	2,229 44 -4	9,616 3 +0
62 800	62 186	2,20 +2	-3,30 +1	1,492 81 -1	2,172 93 -4	9,615 7 +0

Table 5 (continued)

Values in terms of geometrical altitude.

h m M	H m M	T K	t °C	p mbar rPa	ρ kgm ⁻³ kg · m ⁻³	g ms ⁻² m · s ⁻²
63 000	62 382	2,387 81 +2	-3,436 9 +1	1,451 56 -1	2,117 74 -4	9,615 1 +0
63 200	62 578	2,382 32 +2	-3,491 8 +1	1,411 36 -1	2,063 83 -4	9,614 5 +0
63 400	62 774	2,376 83 +2	-3,546 7 +1	1,372 18 -1	2,011 18 -4	9,613 9 +0
63 600	62 970	2,371 34 +2	-3,601 6 +1	1,334 01 -1	1,959 76 -4	9,613 3 +0
63 800	63 166	2,365 85 +2	-3,656 5 +1	1,296 81 -1	1,909 54 -4	9,612 7 +0
64 000	63 362	2,360 36 +2	-3,711 4 +1	1,260 58 -1	1,10 -4	9,612 1 +0
64 200	63 558	2,354 87 +2	-3,766 3 +1	1,225 27 -1	1,812 61 -4	9,611 5 +0
64 400	63 754	2,349 38 +2	-3,821 2 +1	1,190 88 -1	1,765 84 -4	9,610 9 +0
64 600	63 950	2,20 +2	-3,30 +1	1,157 38 -1	1,720 19 -4	9,610 3 +0
64 800	64 146	2,338 41 +2	-3,930 9 +1	1,124 75 -1	1,675 61 -4	9,609 7 +0
65 000	64 342	2,332 92 +2	-3,985 8 +1	1,092 96 -1	1,632 09 -4	9,609 1 +0
65 200	64 538	2,327 43 +2	-4,040 7 +1	1,062 01 -1	1,10 -4	9,608 5 +0
65 400	64 734	2,321 95 +2	-4,095 5 +1	1,031 86 -1	1,548 13 -4	9,607 9 +0
65 600	64 930	2,316 46 +2	-4,150 4 +1	1,002 51 -1	1,507 65 -4	9,607 3 +0
65 800	65 126	2,310 98 +2	-4,205 2 +1	9,739 19 -2	1,468 13 -4	9,606 7 +0
66 000	65 322	2,305 49 +2	-4,260 1 +1	9,460 84 -2	1,429 57 -4	9,606 1 +0
66 200	65 518	2,200 00 +2	-4,40 +1	9,189 82 -2	1,391 93 -4	9,605 5 +0
66 400	65 714	2,294 52 +2	-4,369 8 +1	8,925 97 -2	1,10 -4	9,604 9 +0
66 600	65 909	2,289 03 +2	-4,424 7 +1	8,80 -2	1,319 35 -4	9,604 3 +0
66 800	66 105	2,283 55 +2	-4,479 5 +1	8,419 06 -2	1,284 37 -4	9,603 7 +0
67 000	66 301	2,278 07 +2	-4,534 3 +1	8,175 66 -2	1,250 24 -4	9,603 1 +0
67 200	66 497	2,272 58 +2	-4,589 2 +1	7,938 75 -2	1,216 94 -4	9,602 6 +0
67 400	66 693	2,20 +2	-4,40 +1	7,708 18 -2	1,184 46 -4	9,90 +0
67 600	66 889	2,261 62 +2	-4,698 8 +1	7,483 78 -2	1,152 76 -4	9,601 4 +0
67 800	67 084	2,256 13 +2	-4,753 7 +1	7,70 -2	1,121 84 -4	9,600 8 +0
68 000	67 280	2,250 65 +2	-4,808 5 +1	7,052 91 -2	1,091 69 -4	9,600 2 +0
68 200	67 476	2,245 17 +2	-4,863 3 +1	6,846 14 -2	1,062 27 -4	9,599 6 +0
68 400	67 672	2,239 69 +2	-4,918 1 +1	6,644 97 -2	1,033 58 -4	9,90 +0
68 600	67 868	2,234 21 +2	-4,972 9 +1	6,449 24 -2	1,10 -4	9,598 4 +0
68 800	68 063	2,228 73 +2	-5,027 7 +1	6,258 84 -2	9,783 07 -5	9,597 8 +0
69 000	68 259	2,223 25 +2	-5,082 5 +1	6,073 62 -2	9,516 96 -5	9,597 2 +0
69 200	68 455	2,217 77 +2	-5,137 3 +1	5,893 45 -2	9,257 47 -5	9,596 6 +0
69 400	68 651	2,212 29 +2	-5,192 1 +1	5,718 22 -2	9,004 45 -5	9,90 +0
69 600	68 846	2,206 81 +2	-5,246 9 +1	5,547 79 -2	8,757 77 -5	9,595 4 +0
69 800	69 042	2,201 33 +2	-5,301 7 +1	5,382 04 -2	8,517 27 -5	9,594 8 +0
70 000	69 238	2,195 85 +2	-5,356 5 +1	5,220 86 -2	8,282 81 -5	9,594 2 +0
70 200	69 433	2,190 37 +2	-5,411 3 +1	5,064 13 -2	8,054 26 -5	9,593 6 +0
70 400	69 629	2,184 89 +2	-5,466 1 +1	4,911 75 -2	7,831 49 -5	9,90 +0
70 600	69 825	2,179 41 +2	-5,520 9 +1	4,763 59 -2	7,614 35 -5	9,592 4 +0
70 800	70 020	2,173 94 +2	-5,575 6 +1	4,619 55 -2	7,402 72 -5	9,591 8 +0
71 000	70 216	2,168 46 +2	-5,630 4 +1	4,479 53 -2	7,196 47 -5	9,591 2 +0
71 200	70 411	2,162 98 +2	-5,685 2 +1	4,343 43 -2	6,995 48 -5	9,590 6 +0
71 400	70 607	2,157 51 +2	-5,739 9 +1	4,211 14 -2	6,799 63 -5	9,900 +0
71 600	70 803	2,152 03 +2	-5,794 7 +1	4,082 56 -2	6,60 -5	9,589 4 +0
71 800	70 998	2,146 55 +2	-5,849 5 +1	3,957 61 -2	6,422 87 -5	9,588 8 +0
72 000	71 194	2,142 63 +2	-5,888 7 +1	3,836 22 -2	6,237 28 -5	9,588 2 +0

Table 5 (continued)

Values in terms of geometrical altitude.

h m M	H m M	T K	t °C	p mbar rPa	ρ kgm ⁻³ kg · m ⁻³	g ms ⁻² m · s ⁻²
72 200	71 389	2,138 72 +2	-5,927 8 +1	3,718 36 -2	6,60 -5	9,587 6 +0
72 400	71 585	2,134 81 +2	-5,966 9 +1	3,603 91 -2	5,881 04 -5	9,90 +0
72 600	71 780	2,20 +2	-6,60 +1	3,30 -2	5,710 18 -5	9,586 4 +0
72 800	71 976	2,126 99 +2	-6,045 1 +1	3,384 92 -2	5,543 99 -5	9,585 8 +0
73 000	72 171	2,123 08 +2	-6,084 2 +1	3,280 19 -2	5,382 35 -5	9,585 2 +0
73 200	72 367	2,119 17 +2	-6,123 3 +1	3,178 53 -2	5,225 16 -5	9,584 6 +0
73 400	72 562	2,115 26 +2	-6,162 4 +1	3,079 84 -2	5,072 28 -5	9,90 +0
73 600	72 758	2,111 35 +2	-6,201 5 +1	2,984 05 -2	4,923 62 -5	9,583 4 +0
73 800	72 953	2,107 44 +2	-6,240 6 +1	2,891 07 -2	4,779 06 -5	9,582 9 +0
74 000	73 148	2,103 53 +2	-6,279 7 +1	2,800 84 -2	4,638 49 -5	9,582 3 +0
74 200	73 344	2,099 62 +2	-6,318 8 +1	2,713 26 -2	4,501 82 -5	9,581 7 +0
74 400	73 539	2,095 71 +2	-6,357 9 +1	2,628 27 -2	4,368 94 -5	9,581 1 +0
74 600	73 735	2,091 81 +2	-6,396 9 +1	2,20 -2	4,239 76 -5	9,580 5 +0
74 800	73 930	2,20 +2	-6,60 +1	2,465 77 -2	4,114 17 -5	9,579 9 +0
75 000	74 125	2,083 99 +2	-6,475 1 +1	2,388 13 -2	3,992 08 -5	9,579 3 +0
75 200	74 321	2,080 08 +2	-6,514 2 +1	2,312 79 -2	3,30 -5	9,578 7 +0
75 400	74 516	2,076 18 +2	-6,553 2 +1	2,20 -2	3,758 05 -5	9,578 1 +0
75 600	74 711	2,072 27 +2	-6,592 3 +1	2,168 79 -2	3,645 93 -5	9,577 5 +0
75 800	74 907	2,068 36 +2	-6,631 4 +1	2,200 00 -2	3,536 96 -5	9,576 9 +0
76 000	75 102	2,064 46 +2	-6,670 4 +1	2,033 27 -2	3,431 06 -5	9,576 3 +0
76 200	75 297	2,060 55 +2	-6,709 5 +1	1,968 55 -2	3,328 14 -5	9,575 7 +0
76 400	75 493	2,056 65 +2	-6,748 5 +1	1,905 78 -2	3,228 13 -5	9,575 1 +0
76 600	75 688	2,052 74 +2	-6,787 6 +1	1,10 -2	3,130 95 -5	9,574 5 +0
76 800	75 883	2,048 84 +2	-6,826 6 +1	1,785 85 -2	3,036 52 -5	9,573 9 +0
77 000	76 078	2,044 93 +2	-6,865 7 +1	1,728 59 -2	2,944 78 -5	9,573 3 +0
77 200	76 274	2,041 03 +2	-6,904 7 +1	1,673 07 -2	2,855 64 -5	9,572 7 +0
77 400	76 469	2,037 12 +2	-6,943 8 +1	1,619 23 -2	2,769 05 -5	9,572 1 +0
77 600	76 664	2,033 22 +2	-6,982 8 +1	1,567 03 -2	2,684 92 -5	9,571 5 +0
77 800	76 859	2,029 31 +2	-7,021 9 +1	1,516 42 -2	2,603 21 -5	9,570 9 +0
78 000	77 055	2,025 41 +2	-7,060 9 +1	1,467 36 -2	2,523 83 -5	9,570 3 +0
78 200	77 250	2,021 51 +2	-7,099 9 +1	1,419 79 -2	2,446 74 -5	9,569 8 +0
78 400	77 445	2,20 +2	-7,70 +1	1,373 68 -2	2,371 86 -5	9,569 2 +0
78 600	77 640	2,20 +2	-7,70 +1	1,328 99 -2	2,299 14 -5	9,568 6 +0
78 800	77 835	2,20 +2	-7,70 +1	1,285 67 -2	2,228 52 -5	9,90 +0
79 000	78 030	2,005 89 +2	-7,256 1 +1	1,243 69 -2	2,159 94 -5	9,567 4 +0
79 200	78 225	2,001 99 +2	-7,295 1 +1	1,100 -2	2,093 35 -5	9,566 8 +0
79 400	78 420	1,998 09 +2	-7,334 1 +1	1,163 57 -2	2,028 69 -5	9,566 2 +0
79 600	78 616	1,994 19 +2	-7,373 1 +1	1,125 36 -2	1,965 91 -5	9,565 6 +0
79 800	78 811	1,990 29 +2	-7,412 1 +1	1,088 34 -2	1,904 96 -5	9,90 +0
80 000	79 006	1,986 39 +2	-7,451 1 +1	1,052 47 -2	1,845 79 -5	9,564 4 +0

6.2.2 By geopotential altitude

Table 6 — Temperature (T and t), Pressure (p), Density (ρ) and Acceleration of free fall (g) in terms of geopotential altitude (H , m)

Values in terms of geopotential altitude.

H m M	h m M	T K	t °C	p mbar rPa	ρ kgm ⁻³ кг · м ⁻³	g ms ⁻² м · с ⁻²
-5 000	-4 996	3,206 50 +2	4,750 0 +1	1,776 87 +3	1,930 47 +0	9,822 1 +0
-4 950	-4 946	3,203 25 +2	4,717 5 +1	1,767 43 +3	1,922 15 +0	9,821 9 +0
-4 900	-4 896	3,200 00 +2	4,685 0 +1	1,758 02 +3	1,913 87 +0	9,821 8 +0
-4 850	-4 846	3,196 75 +2	4,652 5 +1	1,748 66 +3	1,905 61 +0	9,821 6 +0
-4 800	-4 796	3,193 50 +2	4,620 0 +1	1,739 33 +3	1,897 38 +0	9,821 5 +0
-4 750	-4 746	3,190 25 +2	4,587 5 +1	1,730 05 +3	1,889 17 +0	9,821 3 +0
-4 700	-4 697	3,187 00 +2	4,555 0 +1	1,720 81 +3	1,100 +0	9,821 2 +0
-4 650	-4 647	3,183 75 +2	4,522 5 +1	1,10 +3	1,872 85 +0	9,90 +0
-4 600	-4 597	3,180 50 +2	4,490 0 +1	1,702 44 +3	1,864 72 +0	9,820 8 +0
-4 550	-4 547	3,177 25 +2	4,457 5 +1	1,693 32 +3	1,856 63 +0	9,820 7 +0
-4 500	-4 497	3,174 00 +2	4,425 0 +1	1,684 23 +3	1,848 56 +0	9,820 5 +0
-4 450	-4 447	3,170 75 +2	4,392 5 +1	1,675 19 +3	1,840 52 +0	9,820 4 +0
-4 400	-4 397	3,167 50 +2	4,360 0 +1	1,666 18 +3	1,10 +0	9,820 2 +0
-4 350	-4 347	3,164 25 +2	4,327 5 +1	1,657 22 +3	1,824 51 +0	9,820 1 +0
-4 300	-4 297	3,161 00 +2	4,295 0 +1	1,648 29 +3	1,816 55 +0	9,819 9 +0
-4 250	-4 247	3,157 75 +2	4,262 5 +1	1,10 +3	1,808 61 +0	9,819 8 +0
-4 200	-4 197	3,154 50 +2	4,230 0 +1	1,630 55 +3	1,800 71 +0	9,819 6 +0
-4 150	-4 147	3,151 25 +2	4,197 5 +1	1,621 74 +3	1,792 82 +0	9,819 5 +0
-4 100	-4 097	3,148 00 +2	4,165 0 +1	1,612 97 +3	1,784 97 +0	9,819 3 +0
-4 050	-4 047	3,144 75 +2	4,132 5 +1	1,604 24 +3	1,777 14 +0	9,819 1 +0
-4 000	-3 997	3,141 50 +2	4,100 0 +1	1,595 54 +3	1,769 33 +0	9,90 +0
-3 950	-3 948	3,138 25 +2	4,067 5 +1	1,586 89 +3	1,761 56 +0	9,818 8 +0
-3 900	-3 898	3,135 00 +2	4,035 0 +1	1,578 27 +3	1,753 81 +0	9,818 7 +0
-3 850	-3 848	3,131 75 +2	4,002 5 +1	1,569 69 +3	1,746 08 +0	9,818 5 +0
-3 800	-3 798	3,128 50 +2	3,970 0 +1	1,561 15 +3	1,738 38 +0	9,818 4 +0
-3 750	-3 748	3,125 25 +2	3,937 5 +1	1,552 64 +3	1,730 71 +0	9,818 2 +0
-3 700	-3 698	3,122 00 +2	3,905 0 +1	1,544 17 +3	1,723 06 +0	9,818 1 +0
-3 650	-3 648	3,118 75 +2	3,872 5 +1	1,535 74 +3	1,715 44 +0	9,817 9 +0
-3 600	-3 598	3,115 50 +2	3,840 0 +1	1,527 35 +3	1,707 85 +0	9,817 8 +0
-3 550	-3 548	3,112 25 +2	3,807 5 +1	1,100 +3	1,700 28 +0	9,817 6 +0
-3 500	-3 498	3,109 00 +2	3,775 0 +1	1,510 68 +3	1,692 74 +0	9,817 5 +0
-3 450	-3 448	3,105 75 +2	3,742 5 +1	1,10 +3	1,685 22 +0	9,817 3 +0
-3 400	-3 398	3,102 50 +2	3,710 0 +1	1,494 15 +3	1,677 72 +0	9,817 1 +0
-3 350	-3 348	3,099 25 +2	3,677 5 +1	1,485 94 +3	1,670 26 +0	9,90 +0
-3 300	-3 298	3,096 00 +2	3,645 0 +1	1,477 77 +3	1,662 82 +0	9,816 8 +0
-3 250	-3 248	3,092 75 +2	3,612 5 +1	1,469 64 +3	1,10 +0	9,816 7 +0
-3 200	-3 198	3,089 50 +2	3,580 0 +1	1,461 54 +3	1,648 01 +0	9,816 5 +0
-3 150	-3 148	3,086 25 +2	3,547 5 +1	1,453 47 +3	1,640 64 +0	9,816 4 +0
-3 100	-3 098	3,083 00 +2	3,515 0 +1	1,445 45 +3	1,10 +0	9,816 2 +0
-3 050	-3 049	3,079 75 +2	3,482 5 +1	1,437 46 +3	1,625 99 +0	9,816 1 +0
-3 000	-2 999	3,076 50 +2	3,450 0 +1	1,10 +3	1,10 +0	9,815 9 +0
-2 950	-2 949	3,073 25 +2	3,417 5 +1	1,421 58 +3	1,611 43 +0	9,815 8 +0
-2 900	-2 899	3,070 00 +2	3,385 0 +1	1,10 +3	1,604 19 +0	9,815 6 +0
-2 850	-2 849	3,066 75 +2	3,352 5 +1	1,405 85 +3	1,596 98 +0	9,815 4 +0

Table 6 (continued)

Values in terms of geopotential altitude.

H m M	h m M	T K	t °C	p mbar rPa	ρ kgm ⁻³ кг · м ⁻³	g ms ⁻² м · с ⁻²
-2 800	-2 799	3,063 50 +2	3,320 0 +1	1,398 04 +3	1,589 79 +0	9,815 3 +0
-2 750	-2 749	3,060 25 +2	3,287 5 +1	1,390 26 +3	1,582 62 +0	9,815 1 +0
-2 700	-2 699	3,057 00 +2	3,255 0 +1	1,382 52 +3	1,575 48 +0	9,90 +0
-2 650	-2 649	3,053 75 +2	3,222 5 +1	1,374 81 +3	1,568 37 +0	9,814 8 +0
-2 600	-2 599	3,050 50 +2	3,190 0 +1	1,367 14 +3	1,561 27 +0	9,814 7 +0
-2 550	-2 549	3,047 25 +2	3,157 5 +1	1,10 +3	1,554 21 +0	9,814 5 +0
-2 500	-2 499	3,044 00 +2	3,125 0 +1	1,10 +3	1,547 17 +0	9,814 4 +0
-2 450	-2 449	3,040 75 +2	3,092 5 +1	1,344 33 +3	1,540 15 +0	9,814 2 +0
-2 400	-2 399	3,037 50 +2	3,060 0 +1	1,336 79 +3	1,533 15 +0	9,814 1 +0
-2 350	-2 349	3,034 25 +2	3,027 5 +1	1,329 29 +3	1,526 18 +0	9,813 9 +0
-2 300	-2 299	3,031 00 +2	2,995 0 +1	1,321 83 +3	1,519 24 +0	9,813 7 +0
-2 250	-2 249	3,027 75 +2	2,962 5 +1	1,314 39 +3	1,512 32 +0	9,813 6 +0
-2 200	-2 199	3,024 50 +2	2,930 0 +1	1,306 99 +3	1,505 42 +0	9,813 4 +0
-2 150	-2 149	3,021 25 +2	2,897 5 +1	1,299 63 +3	1,498 55 +0	9,813 3 +0
-2 100	-2 099	3,018 00 +2	2,865 0 +1	1,10 +3	1,10 +0	9,813 1 +0
-2 050	-2 049	3,014 75 +2	2,832 5 +1	1,100 +3	1,484 88 +0	9,90 +0
-2 000	-1 999	3,011 50 +2	2,800 0 +1	1,277 74 +3	1,478 08 +0	9,812 8 +0
-1 950	-1 949	3,008 25 +2	2,767 5 +1	1,270 51 +3	1,10 +0	9,812 7 +0
-1 900	-1 899	3,005 00 +2	2,735 0 +1	1,263 31 +3	1,464 55 +0	9,812 5 +0
-1 850	-1 849	3,001 75 +2	2,702 5 +1	1,256 14 +3	1,457 82 +0	9,812 4 +0
-1 800	-1 799	2,998 50 +2	2,670 0 +1	1,249 01 +3	1,451 11 +0	9,812 2 +0
-1 750	-1 750	2,995 25 +2	2,637 5 +1	1,241 91 +3	1,444 43 +0	9,812 1 +0
-1 700	-1 700	2,992 00 +2	2,605 0 +1	1,234 85 +3	1,437 77 +0	9,811 9 +0
-1 650	-1 650	2,988 75 +2	2,572 5 +1	1,227 81 +3	1,431 14 +0	9,811 7 +0
-1 600	-1 600	2,985 50 +2	2,540 0 +1	1,220 81 +3	1,424 52 +0	9,811 6 +0
-1 550	-1 550	2,982 25 +2	2,507 5 +1	1,213 84 +3	1,417 94 +0	9,811 4 +0
-1 500	-1 500	2,979 00 +2	2,475 0 +1	1,206 91 +3	1,411 37 +0	9,811 3 +0
-1 450	-1 450	2,975 75 +2	2,442 5 +1	1,100 00 +3	1,404 83 +0	9,811 1 +0
-1 400	-1 400	2,972 50 +2	2,410 0 +1	1,193 13 +3	1,398 31 +0	9,90 +0
-1 350	-1 350	2,969 25 +2	2,377 5 +1	1,186 29 +3	1,391 82 +0	9,810 8 +0
-1 300	-1 300	2,966 00 +2	2,345 0 +1	1,179 48 +3	1,385 35 +0	9,810 7 +0
-1 250	-1 250	2,962 75 +2	2,312 5 +1	1,10 +3	1,10 +0	9,810 5 +0
-1 200	-1 200	2,959 50 +2	2,280 0 +1	1,165 96 +3	1,372 47 +0	9,810 4 +0
-1 150	-1 150	2,956 25 +2	2,247 5 +1	1,159 25 +3	1,366 07 +0	9,810 2 +0
-1 100	-1 100	2,953 00 +2	2,215 0 +1	1,152 56 +3	1,359 69 +0	9,900 +0
-1 050	-1 050	2,949 75 +2	2,182 5 +1	1,145 91 +3	1,353 33 +0	9,809 9 +0
-1 000	-1 000	2,946 50 +2	2,150 0 +1	1,139 29 +3	1,100 +0	9,809 7 +0
-950	-950	2,943 25 +2	2,117 5 +1	1,10 +3	1,340 68 +0	9,809 6 +0
-900	-900	2,940 00 +2	2,085 0 +1	1,126 14 +3	1,10 +0	9,809 4 +0
-850	-850	2,936 75 +2	2,052 5 +1	1,119 62 +3	1,328 13 +0	9,809 3 +0
-800	-800	2,933 50 +2	2,020 0 +1	1,113 12 +3	1,321 88 +0	9,809 1 +0
-750	-750	2,930 25 +2	1,987 5 +1	1,106 65 +3	1,315 66 +0	9,90 +0
-700	-700	2,927 00 +2	1,955 0 +1	1,100 22 +3	1,309 46 +0	9,808 8 +0
-650	-650	2,923 75 +2	1,922 5 +1	1,093 81 +3	1,303 29 +0	9,808 7 +0
-600	-600	2,920 50 +2	1,890 0 +1	1,087 44 +3	1,297 13 +0	9,808 5 +0
-550	-550	2,917 25 +2	1,857 5 +1	1,081 09 +3	1,100 +0	9,808 3 +0