

Aviation and the Global Atmosphere

Annex C. Acronyms, Abbreviations, and Units

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INTERGOVERNMENTAL PANEL
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Annex C: Acronyms, Abbreviations, and Units

1-D One-Dimensional

2-D Two-Dimensional

3-D Three-Dimensional

ACAC Arab Civil Aviation Commission

ADS Automatic Dependent Surveillance

AEA Association of European Airlines

AEAP Atmosphere Effects of Aviation Project

AER Atmospheric and Environmental Research, Inc.

AESA Atmospheric Effects of Stratospheric Aircraft

AFCAC African Civil Aviation Commission

AMIP Atmospheric Model Intercomparison Project

ANCAT Abatement of Noises Caused by Air Transport

ANDES Aircraft Noise Design Effects Study

API American Petroleum Institute

APU Auxiliary Power Unit

ASK Available Seat-Kilometers

ASM Air Space Management

AST Advanced Subsonic Technology

ATC Air Traffic Control

ATFM Air Traffic Flow Management

ATM Air Traffic Management

ATP Advanced Turboprop

ATR Air Traffic Region

ATS Air Traffic Services

ATTAS Advanced Technology Testing Aircraft System

AVHRR Advanced Very High-Resolution Radiometer

BC Black Carbon

BWB Blended Wing Body

CAEP Committee on Aviation Environmental Protection

CCM3 Community Climate Model 3
CE Centre for Energy Conservation and Environmental Technology
CFC Chlorofluorocarbon
CFD Computational Fluid Dynamics
CGCM Coupled General Circulation Model
CI Chemi-Ion
CN Condensation Nucleus
CNS/ATM Communications, Navigation, and Surveillance
CSIRO Commonwealth Scientific and Industrial Research Organization
CTM Chemical Transport Model
DAC Dual Annular Combustor
DEF STAN Defence Standards
DERA Defence Evaluation and Research Agency
DISORT Discrete Ordinate Radiative Transfer
DJF December-January-February
DLR Deutsches Zentrum für Luft- und Raumfahrt
DOT Department of Transportation
DTI Department of Trade and Industry
DTR Diurnal Surface Temperature Range
DU Dobson Unit
EASG Economic Analysis Subgroup
EATMS European ATM System
ECMWF European Centre for Medium-Range Weather Forecasts
ECON Most Efficient Cruise Speed
ECS Engine Control System
EDF Environmental Defense Fund
EEI Effective Emissions Index
EI Emissions Index
EIDG Emissions Inventory Database Group
EISG Emissions Inventory Sub-Group
ENSO El Niño Southern Oscillation
ERAA European Regions Airline Association
ETOPs Extended Twin Operations
EUROCONTROL European Organisation for Safety and Navigation
FADEC Full Authority Digital Engine Control
FANS Future Air Navigation System
FEMs Finite Element Models
FESG Forecast and Economics Sub-Group

FIR Flight Information Region
FLEM Flights and Emissions model
FMS Flight Management System
FPC Focal Point on Charges
FSU Former Soviet Union
FUA Flexible Use of Airspace
GAMA General Aviation Manufacturers Association
GCM General Circulation Model
GDP Gross Domestic Product
GFDC Geophysical Fluid Dynamics Laboratory
GISS Goddard Institute for Space Studies
GNBS Global Navigation Satellite System
GOES Geostationary Operational Environmental Satellite
GPS Global Positioning System
GSFC Goddard Space Flight Center
GWP Global Warming Potential
HALOE Halogen Occultation Experiment
HC Hydrocarbon
HCFC Hydrochlorofluorocarbon
HF High Frequency
HFC Hydrofluorocarbon
HIRS High-Resolution Infrared Radiation Sounder
HSCT High Speed Civil Transport
HYPR Supersonic/Hypersonic Transport
IATA International Air Transport Association
ICAO International Civil Aviation Organization
ICAS International Council on Aeronautical Sciences
ICCAIA International Coordinating Council of Aerospace Industries Association
IFR Instrument Flight Rule
IHPTET Integrated High Performance Turbine Engine
IMC Instrument Meteorological Conditions
IPCC Intergovernmental Panel on Climate Change
IR Infrared
IS92a IPCC Scenarios 1992a
ISA International Standard Atmosphere
ISCCP International Satellite Cloud Climatology Project
IWC Ice-Water Content
IWP Ice-Water Path

JGR Journal of Geophysical Research
JJA June-July-August
LACAC Latin American Civil Aviation Commission
LaRC Langley Research Center
LBO Lean Blow Out
LES Large Eddy Simulation
LIDAR Light Detection and Ranging
LLNL Lawrence Livermore National Laboratory
LPP Lean Pre-Mixed Pre-Vaporized
LRC Long-Range Cruise
LS Lower Stratosphere
LTO Landing and Take-Off
LW Long-Wave
MD Mass Density
MIT Massachusetts Institute of Technology
MRC Maximum Range Cruise
MS Middle Stratosphere
NASA National Aeronautics and Space Administration
NAT Nitric Acid Trihydrate
NCAR National Center for Atmospheric Research
NCEP National Centers for Environmental Prediction
NSA Nitro Sulfuric Acid
NH Northern Hemisphere
NIPER National Institute for Petroleum and Energy Research
NMC National Meteorological Center
NMHC Non-Methane Hydrocarbons
NOA North Atlantic Oscillation
NOAA National Oceanic and Atmospheric Administration
NO_xAR Nitrogen Oxides and Ozone Measurements along Air Routes
NPRA National Petroleum Refiners Association
OA Objectively Analyzed
OAG Official Airline Guide
OECD Organisation for Economic Cooperation and Development
OEW Operating Empty Weight
OPMET Operational Meteorological
OPR Overall Pressure Ratio
PAI Propulsion/Airframe Integration

PAN Peroxyacetyl Nitrate
PIANO Project Interactive Analysis and Optimization
PMS Performance Management System
PNA Pacific North America
ppbv Parts per Billion by Volume
ppmm Parts per Million by Mass
ppmv Parts per Million by Volume
PSC Polar Stratospheric Cloud
PSC1 Type I Polar Stratospheric Cloud
PSC2 Type II Polar Stratospheric Cloud
RBQQ Rich Burn Quick Quench
RF Radiative Forcing
RFI Radiative Forcing Index
RH Relative Humidity
RNAV Area Navigation
RPK Revenue Passenger-Kilometer
RQL Rich Quench Lean
RVSM Reduced Vertical Separation
SAD Surface Area Density
SAGE Stratospheric Aerosol and Gas Experiment
SAM Stratospheric Aerosol Measurement
SAO Background Sulfate Surface Area Density
SARP Standard and Recommended Practice
SA1 Sulfate Surface Area Density Scenario based upon 500 HSCT Fleet with 50% Conversion of Fuel Sulfur to Particles
SA2 Sulfate Surface Area Density Scenario based upon 1000 HSCT Fleet with 50% Conversion of Fuel Sulfur to Particles
SA3 Sulfate Surface Area Density Scenario based upon 500 HSCT Fleet with 100% Conversion of Fuel Sulfur to Particles
SA4 Sulfate Surface Area Density Scenario based upon 1000 HSCT Fleet with 100% Conversion of Fuel Sulfur to Particles
SA5 Sulfate Surface Area Density Scenario based upon 500 HSCT Fleet with 10% Conversion of Fuel Sulfur to Particles
SA6 Sulfate Surface Area Density Scenario based upon 1000 HSCT Fleet with 10% Conversion of Fuel Sulfur to Particles
SA7 Sulfate Surface Area Density Scenario based upon 500 HSCT Fleet with 0% Conversion of Fuel Sulfur to Particles
SBSTA Subsidiary Body for Scientific and Technological Advice
SBUV Solar Backscatter Ultraviolet
SH Southern Hemisphere
T/W Thrust/Weight
UARS Upper Atmosphere Research Satellite
UDF Unducted Fan
UiO Universitet I Oslo
UKMO United Kingdom Meteorological Office

UN United Nations
 UNIVAQ Università degli Studi dell'Acquila
 UNEP United Nations Environment Programme
 UT Upper Troposphere
 UV Ultraviolet
 UV-B Ultraviolet-B
 UV_{ery} Erythemal Dose Rate
 VOC Volatile Organic Compound
 WAFS World Area Forecast System
 WCRP World Climate Research Programme
 WMO World Meteorological Organization
 WWF World Wide Fund for Nature

UNITS

SI (Système Internationale) Units

Physical Quantity	Name of Unit	Symbol
length	meter	m
mass	kilogram	kg
time	second	s
thermodynamic temperature	kelvin	K
amount of substance	mole	mol

Special Names and Symbols for Certain SI-Derived Units

Physical Quantity	Name of Unit	Symbol of Unit	Definition of Unit
force	newton	N	kg m s ⁻²

pressure	pascal	Pa	$\text{kg m}^{-1} \text{s}^{-2}$ (= Nm^{-2})
energy	joule	J	$\text{kg m}^2 \text{s}^{-2}$
power	watt	W	$\text{kg m}^2 \text{s}^{-3}$ (= Js^{-1})
frequency	hertz	Hz	s^{-1} (cycle per second)

Decimal Fractions and Multiples of SI Units Having Special Names

Physical Quantity	Name of Unit	Symbol of Unit	Definition of Unit
length	ångstrom	Å	$10^{-10} \text{ m} = 10^{-8} \text{ cm}$
length	micrometer	μm	$10^{-6} \text{ m} = \mu\text{m}$
area	hectare	ha	10^4 m^2
force	dyne	dyn	10^{-5} N
pressure	bar	bar	10^5 N m^{-2}
pressure	millibar	mb	1hPa
weight	ton	t	10^3 kg

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