A Alpha

abbreviated briefing	An updated weather briefing for pilots who need only a little additional weather data information to give them an accurate weather picture for their final flight planning.
absolute altitude	Actual height above the surface of the earth, either land or water.
AC (Advisory Circular)	Statements that are issued by the National Weather Service for probable weather situations of inconvenience that do not carry the danger of warning criteria but, if not observed, could lead to hazardous situations.
accelerometer	(1) A device for sensing or measuring acceleration and converting it to an electric signal. (2) An inertial device for measuring acceleration, usually in three orthogonal axes (lateral X, longitudinal Y, and vertical Z); accelerometers usually consist of a mass, spring, and damper; accelerometers are usually included in inertial sensors, such as AHRS (Attitude Heading Reference System) and INS (Inertial Navigation System).
ADF (Automatic Direction Finder)	Radio compass which gives a relative bearing to the non-directional radio beacon to which it is tuned.
ADS-B (Automatic Dependent Surveillance-Broadcast)	Technology developed by NASA to be used along with the autonomous Airborne Information for Lateral Spacing (AILS) technology. This on-board equipment will automatically broadcast data to transceivers on the ground. The data will consist of airspeed, altitude and include whether the aircraft is turning, climbing or descending. The data will then appear on the controller's computer screen and also on a display screen within the cockpit. The cockpit display will allow the pilot to track other aircraft in the vicinity. Implementation will be in three stages beginning in 2006 and continuing to 2020.
advection fog	A type of fog formed when warm, moist air moves ?horizontally over a cold surface and the air is consequently cooled to below its dew point; this is found especially along a coastline where the temperature of land and the temperature of water markedly differ.
aerobatics	Flight that commonly involves barrel rolls, spins, and other high-performance maneuvers.
aerodynamics	(1) A field of fluid dynamics that studies how gases, including air, flow and how forces act upon objects moving through air. (2) A general term for the properties and performance of an airfoil or other body with respect to the forces acting upon it as it moves through air and other gaseous fluids.
aeronautical chart	A map used in air navigation containing all or part of the following: topographical features, hazards and obstructions, navigation aids, navigation routes, designated airspace, and airports. Aeronautical charts are regularly revised to provide current information.
aeronautics	The study of flight and the science of designing, construction and operation of an aircraft.
aerosol	the suspension of very fine particles of a solid or droplets of a liquid in a gaseous medium. Fog, smoke, and volcanic dust are naturally occurring examples of aerosols.
affirmative	Aviation term for "yes"; to declare or confirm that something is true.
AFSS (Automated Flight Service Stations)	These are a network of 61 facilities across the United States operated by the United States Department of Transportation and the FAA. These stations are a part of the FAA air traffic system and are staffed by uniquely trained air traffic control specialists. The primary role of an AFSS is to provide weather briefing and flight planning services to pilots. AFSSs also coordinate Visual Flight Rules (VFR) search and rescue services, provide orientation service to lost aircraft, maintain continuous weather broadcasts on selected Navigational Aids (NAVAIDs), and issue and cancel Notices To Airmen (NOTAMs). The general aviation community makes up the lion's share of traffic at these facilities; however, military and commercial pilots are also frequent customers.
AGL (Above Ground Level)	Height, usually in feet, above the surface of the earth.
ailerons	Control surfaces on the trailing edge of each wing that are used to make the aircraft roll. When flying straight and level, moving the control stick to the right will raise the aileron on the right wing and lower the aileron on the left wing. This will cause the aircraft to roll to the right.
AILS (Airborne Information for Lateral Spacing)	Technology developed by NASA and industry. This procedures-based concept uses existing or near-term flight-deck technology. AILS allows airplanes to safely land more closely

	together than is currently allowed in instrument conditions. An AILS display in the cockpits shows each pilot the nearby traffic.
air density	The density of the air in terms of mass per unit volume.
air mass	An extensive body of air in a horizontal plane having fairly uniform properties of temperature and moisture.
air pressure	(1) The force created by air pushing on a surface. (2) The weight of the atmosphere over a particular point, also called barometric pressure. Average air exerts approximately 14.7 pounds (6.8 kg) of force on every square inch (or 101,325 newtons on every square meter) at sea level.
air traffic controller	A person at an air traffic control tower or radar approach control facility who coordinates the safe, orderly, and expeditious flow of air traffic within designated airspace.
air traffic management system	see TMS.
airborne	Supported only by aerodynamic forces; aloft or flying.
aircraft	A machine used for flying. Airplanes, helicopters, airships, and jets are all aircraft.
airflow	The motion of air molecules as they flow around an object, such as a wing.
airfoil	An object with a special shape that is designed to produce lift efficiently when the object is moved through the air. For example, the cross-section of a wing is an airfoil.
airframe	The structure of an aircraft, as opposed to its engine and accessories, including the fuselage, wings, empennage, landing gear (minus tires), and engine mounts.
airliner	A passenger-carrying aircraft operated by an airline. Also known as a commercial transport.
AIRMET (AIRman's METeorological information)	Inflight weather advisory concerning moderate icing, moderate turbulence, sustained winds of 30 knots or more at the surface, and wide spread areas of ceilings of less than 1,000 feet and/or visibility less than 3 miles.
airplane	An aircraft that uses the force of air on its wings (called lift) to fly.
airport	An area of land or water that is used or intended to be used for the landing and takeoff of aircraft, and includes its building and facilities if any.
airport capacity	The maximum number of aircraft operations that can be safely accomplished at an airport.
airport facility directory	A reference for determining detail data not found on aeronautical charts for a specific airport. Seven geographic areas of the United States, Puerto Rico, and the Virgin Islands are each covered by a directory and updated every eight weeks.
airport identifier	A specific combination of four letters or a combination of letters and numbers, assigned by the FAA, to each airport as a recognition sign.
airspace	Space in the air above the surface of the earth or a particular portion of such space, usually defined by the boundaries of an area on the surface projected upward.
airspeed	The speed of an aircraft relative to its surrounding air mass. The unqualified term "airspeed" means one of the following: (1) Indicated airspeed
airstrip	A synonym for "runway".
airway	A path or a continuous designated space of air through which aircraft are directed to fly by air traffic control. Called a jetway at altitudes above 18,000 feet.
airworthy	The state of being capable of flight, usually referring to an airplane's mechanical condition.
Alpha	Designator for the letter "A" in the International Phonetic Alphabet.
altimeter	The instrument that indicates flight altitude (in feet), by sensing pressure changes.
altimetry	The science or practice of measuring altitudes, as with an altimeter.

altitude	Height expressed in units of distance above a reference plane, usually above mean sea level or above ground.
altocumulus	White or gray layers or patches of cloud, often with a waved appearance; cloud elements appear as rounded masses or rolls; composed liquid water droplets which may be supercooled; may contain ice crystals at subfreezing temperatures.
altostratus	An extended cloud formation of bluish or gray sheets or layers.
aneroid barometer	A barometer which operates on the principle of having changing atmospheric pressure bend a metallic surface which, in turn, moves a pointer across a scale graduated in units of pressure.
angle of attack	The angle of a wing to the oncoming airflow. A pilot pulls back on the control stick to raise the elevator. This causes the aircraft to pitch which increases the angle of attack.
antenna	An arrangement of wire, metal rods, etc. used in sending or receiving electromagnetic waves.
approach	The flight phase during which an aircraft has its landing gear extended and is descending and slowing its speed for landing.
approach controller	The air traffic control personnel responsible for all movement of incoming aircraft before arriving at the final approach fix.
arrival traffic	Incoming aircraft to an airport
ARTCC (Air Route Traffic Control Center)	A facility established to provide air traffic control service to aircraft operating on IFR (Instrument Flight Rules) flight plans within controlled airspace, principally during the en route phase of flight.
ARTCC controller	The air traffic control personnel responsible for all movement of aircraft along the en route portion of the flight between the departure controller and the approach controller.
ascend	To move upward in a flight vehicle, often directly upward in a near-vertical trajectory, as opposed to the more gradual trajectory of a climb.
ASDE (Automated Surface Detection Equipment)	A tool used by local controllers at an airport that displays all ground traffic movement even during inclement weather.
associate controller	A person who assists the radar controller.
ATA (Air Transportation Association)	Founded in 1936, it was the first, and today remains the only, trade organization for the principal U.S. airlines. The purpose of the ATA is to support and assist its members by promoting the air transport industry and the safety, cost effectiveness, and technological advancement of its operations; advocating common industry positions before state and local governments; conducting designated industry-wide programs; and assuring governmental and public understanding of all aspects of air transport.
ATC (Air Traffic Control)	A service operated by appropriate authority to monitor and regulate all air traffic departing and arriving in the United States, as well as all ground traffic within immediate airport boundaries.
ATCSCC (Air Traffic Control System Command Center)	Operated by the FAA, the role of ATCSCC is to manage the flow of air traffic within the continental United States. The ATCSCC has been operational since 1994 and is located in Herndon, VA, in one of the largest and most sophisticated facilities of its kind.
ATCT (Airport Traffic Control Tower)	A central operations facility in the terminal air traffic control system, consisting of a tower cab structure, including an associated IFR room if radar equipped, using air/ground communications and/or radar, visual signaling and other devices, to provide safe and expeditious movement of terminal air traffic. Also known as "Local Control" or the control tower at an airport.
ATIS (Automatic Terminal Information Service)	The continuous broadcast of recorded non-control information (such as weather and airport operations) in selected terminal areas. Its purpose is to improve controller effectiveness and to relieve frequency congestion by automating the repetitive transmission of essential but routine information.

atmosphere	The gaseous or air portion of the physical environment that encircles a planet. In the case of the earth, it is held more or less near the surface by the earth's gravitational attraction. The divisions of the atmosphere include the troposphere, the stratosphere, the mesosphere, the ionosphere, and the exosphere.
atmospheric pressure	The amount of force exerted over a surface area, caused by the weight of air molecules above it. As elevation increases, fewer air molecules are present. Therefore, atmospheric pressure always decreases with increasing height. A column of air, 1 square inch in cross section, measured from sea level to the top of the atmosphere would weigh approximately 14.7 lb/in2. The standard value for atmospheric pressure at sea level is: 29.92 inches or 760 mm of mercury 1013.25 millibars (mb) or 101,325 pascals (pa).
attitude	The position of an aircraft as determined by the relationship between its axes and some reference object such as the horizon.
Attitude Heading Reference System (AHRS) ñ a three-axis sensor that provides heading, attitude, and yaw information for aircraft.	
automated system	Performance of an operation by a mechanical or computerized method.
autonomously	self-governing or capable of being done without supervision or permission from superiors.
aviation	The operation of heavier-than-air aircraft also considered to be the design, development, and manufacture of aircraft. There are three types of aviation: general, commercial, and military.
Aviation Operation System	NASA research and technology on ground, satellite, and aerospace vehicle systems and human operations to improve the operational safety, efficiency, and capacity of aerospace vehicles operating in the air transportation system.
Aviation Systems Capacity Program	A NASA program whose original goal was to provide enabling technologies to safely triple the nation's aviation system capacity, in all weather conditions, by the year 2007. Elements of this program have been adopted into a more recent Federal Aviation Administration (FAA) national aviation system effort called NextGen.
avionics	a general term for the development and production of electrical and electronic equipment for use in aircraft, spacecraft, and missiles.
AVOSS (Aircraft VOrtex Spacing System)	Designed by NASA researchers, this system predicts aircraft wake turbulence on final approach, so airliners can be spaced more safely and efficiently. AVOSS determines how winds and other atmospheric conditions affect the wake vortex patterns of different types of aircraft. The system uses laser radar, or lidar technology, to confirm the accuracy of those forecasts. This information is processed by computers, which can then provide safe spacing criteria automatically.
axis	An imaginary line, through the center of gravity, around which an aircraft rotates. For example, an aircraft rolls around its longitudinal axis, which is an imaginary line that runs through the center of the aircraft from the nose to the tail.
B Bravo	
balanced forces	Opposing forces that are pushing or pulling against each other with equal force. For example, if you and a friend pull on a rope, in the opposite direction with the same force, neither of you will move. This is because the forces are balanced.
barometer	An instrument for measuring atmospheric pressure, used in forecasting the weather.
base leg	A flight path at right angles to the landing runway off its approach end that extends from the downwind leg to the intersection of the extended runway centerline.
Bernoulli's Principle	Daniel Bernoulli explained that the faster the molecules within a fluid move, the less pressure they exert on objects around them. This applies to all fluids, including water, air and gases. For example, the water in a pond will exert more pressure on the pond's bottom, than a flowing stream with the same amount of water will exert on the streambed.
biplane	An airplane having two wings on each side of the fuselage, one usually slightly forward and above the other.
blunder	An aviation occurrence (usually pilot error or a mechanical failure) that is totally unexpected

	by an air traffic controller and leads to potentially unsafe results, such as a pilot navigating an approach to the wrong runway.
boarding gate	The entrance to the jetway ramp that leads to a passenger's aircraft.
Bravo	Designator for the letter "B" in the International Phonetic Alphabet.
briefer	An air traffic control position that provides pilots with information such as weather conditions and other flight data prior to the pilot's flight.
broken	A weather description for clouds that are segmented or are collections of cloud formations that are non-continuous.
C Charlie	
camber	(1) The curvature of an airfoil section relative to its chord; usually expressed as the ratio of the height of the curved line (mean line) between the leading and trailing edges to the length of a straight line between the same two points. (2) An inclination of landing wheels away from the vertical plane.
capacity	(1) The largest number of passengers an aircraft can safely transport under a given set of circumstances. (2) The total number of aircraft handled by an airport under a given set of circumstances.
carbon dioxide	CO2; A gaseous byproduct caused by burning fossil fuels.
CARF (Central Altitude Reservation Function)	CARF supports United States peace and war plan objectives and other special activities. The CARF is responsible for coordinating military and civilian altitude reservations for operations within the NAS.
Category I	According to the FARs, this is a category applied to aircraft that distinguishes each according to size, weight and propulsion. This category refers to light-weight, single-engine, propeller-driven aircraft.
Category II	According to the FARs, this is a category applied to aircraft that distinguishes each according to size, weight and propulsion. This category refers to light-weight, twin-engine aircraft weighing 12,500 pounds or less.
Category III	According to the FARs, this is a category applied to aircraft that distinguishes each according to size, weight and propulsion. This category refers to basically all remaining aircraft: high-performance, single-engine, propeller airplanes, large multi-engine propeller aircraft and all turbine-powered aircraft.
CDI (Course Deviation Indicator)	The vertical needle of a VOR indicator which shows the aircraft's relative to the selected VOR radio.
CDM (Collaborative Decision Making)	A philosophy on how to conduct business between various components of aviation transportation within both government and industry.
ceiling	(1) The clarity of the air for looking upward, as in "ceiling and visibility unlimited." (2) The maximum altitude at which a given aircraft can be operated safely. (3) The maximum height at which a vehicle or its crew can fly under given conditions. (4[WS1][WS2]) The height above the earth's surface of the lowest layer of clouds or obscuring phenomena that is reported as "broken", "overcast", or "obscuration", and not classified as "thin" or "partial".
center of gravity	The force of gravity acts on every individual part of an object, like an airplane. It is the point of balance. On an airplane it is the point at which all weight is considered to be concentrated. This center point is located along the longitudinal centerline. Its exact location is affected by such things as the amount of fuel it is holding, where its load is placed and the load's weight. A shift in the aircraft's center of gravity during flight will have an effect on the aircraft's stability and performance.
Charlie	Designator for the letter "C" in the International Phonetic Alphabet.
chord line	An imaginary line connecting an airfoil's leading edge with its trailing edge.
cirrus	High-level clouds (16,000 feet or more), composed of ice crystals appearing in the form of white, delicate filaments or white or mostly white patches or narrow bands.

cirrocumulus	Clouds appearing as small white puffs resembling flakes or patches of cotton without shadows.
cirrostratus	A uniform layer of dark veiled clouds.
Class "B" airspace	That airspace from the surface to 10,000 feet MSL surrounding the nation's busiest airports in terms of airport operations or passenger enplanements. The configuration of each Class B airspace area is individually tailored and consists of a surface area and two or more layers (some Class B airspace areas resemble upside-down wedding cakes), and is designed to contain all published instrument procedures once an aircraft enters the airspace. An ATC clearance is required for all aircraft to operate in the area, and all aircraft that are so cleared receive separation services within the airspace. The cloud clearance requirement for VFR operations is "clear of clouds."
Class "C" airspace	That airspace from the surface to 4,000 feet above the airport elevation (charted in MSL) surrounding those airports that have an operational control tower, are serviced by a radar approach control, and that have a certain number of IFR operations or passenger enplanements. Although the configuration of each Class C area is individually tailored, the airspace usually consists of a surface area with a 5 nautical mile (NM) radius, an outer circle with a 10NM radius that extends from 1,200 feet to 4,000 feet above the airport elevation and an outer area. Each person must establish two-way radio communications the ATC facility providing air traffic services prior to entering the airspace and thereafter ?maintain those communications while within the airspace. VFR aircraft are only separated from IFR aircraft within the airspace.
clearance	An authorization by air traffic control for an aircraft to proceed under specified conditions within controlled airspace. Before a pilot is allowed to execute a maneuver, the pilot must receive clearance (permission) from air traffic control.
clearance delivery	The controller stationed at the ATCT who gives to pilots the approval of their flight plan, then hands them off to the local controller for push-back and taxiing procedures.
climb rate	The rate of ascent in feet per nautical mile. Usually the optimum speed and angle of attack at which a certain type of aircraft can safely ascend.
clouds	A visible collection of minute particle matter, such as water droplets and/or ice crystals, in the free air. A cloud forms in the atmosphere as a result of condensation of water vapor. Condensation nuclei, such as in smoke or dust particles, form a surface upon which water vapor can condense.
cockpit	A compartment in the front of the airplane where the flight crew performs their job of flying the aircraft.
commercial aviation	The business of operating aircraft that carry passengers by commercial companies. Airline companies such as American Airlines, United Airlines and many others are examples of commercial aviation.
commuter aircraft	Small aircraft with a passenger capacity of 30 or less .
commuter	An air carrier operator operating under 14 CFR 135 that carries passengers on at least five round trips per week on at least one route between two or more points according to its published flight schedules that specify the times, day of the week, and places between which these flights are performed. The aircraft that a commuter operates has 30 or fewer passenger seats and a payload capability of 7,500 pounds or less.
commuter flights	Usually short flights to and/or from small airports.
compass	A device used to discover geographic direction, usually having a magnetic needle(s) that is horizontally mounted or suspended and free to pivot until aligned with the magnetic field of the earth.
compressibility	The ability of air (or a substance) to have its molecules reduced in size or volume by pressure.
Computational Fluid Dynamics (CFD)	The science of using computers to solve complex mathematical equations that predict how an object like an aircraft responds to the air flowing around it. CFD is a tool of aeronautics that enables engineers to "fly an aircraft in a computer".

contrails	A white trail of condensed water vapor that sometimes forms in the wake of an aircraft; vapor trail.
control surfaces	Parts of an aircraft that are activated by the controls to change the airflow around the surfaces of the aircraft. Examples of control surfaces are: ailerons, elevators and rudders. The changes in airflow cause the aircraft to roll, pitch, or yaw.
controls	Devices which allow the pilot to direct the movements of an aircraft. Examples of controls are: rudder pedals that control the rudders and cause the airplane to yaw; throttles that control the engines which generate thrust for the airplane; and the control stick that controls the ailerons and elevators which cause the airplane to roll and pitch.
control tower	See ATCT (Airport Traffic Control Tower)
convection (process)	The rising of warm air and the sinking of cool air. Heat mixes and moves air. When a layer of air receives enough heat from the earth's surface, it expands and moves upward. Colder, heavier air flows under it which is then warmed, expands, and rises. The warm rising air cools as it reaches higher, cooler regions of the atmosphere and begins to sink. Convection causes local breezes.
Convective SIGMET	see WST
corridor	A defined route through a country's airspace which is permissible for foreign aircraft to use.
course	The intended direction of flight in the horizontal plane, measured in degrees from north.
course line	(1) a line extending in the direction of the course. (2) a line of position on or parallel to the course.
crabbing	A common course correction technique of turning into the wind in order to establish and maintain flight along a straight track or bearing.
crosswind leg	A flight path at right angles to the runway off its takeoff end.
CTAS	Center-TRACON Automation System, sophisticated software developed by NASA and the FAA that uses complex algorithms to produce many flight predictions for incoming aircraft. CTAS assists controllers in efficiently producing a safe and expeditious flow of traffic.
cumulonimbus	A heavy dense cloud with considerable vertical extent in the form of massive towers.
cumulus	A cloud in the form of individual detached domes or towers which are usually dense and well defined.
D Delta	
data	Information that is collected from an experiment. For example, an engineer in a wind tunnel may collect data about how much lift is created by a certain wing shape.
data block	The information sent by an aircraft's transponder to an air traffic controller's radar scope that moves adjacent to the aircraft's image on the screen. Blocks include the aircraft's call sign, altitude, computer ID number and its speed.
datalink	The continuous transmission of the most recent data to/from the airborne and ground systems.
DA (drift angle)	The horizontal angle between the longitudinal axis of an aircraft and its path relative to the ground.
dead reckoning	See deductive reckoning
decelerate	To slow down. When an airplane comes in to land, it decelerates and rolls to a stop.
decibels (dB)	A logarithmic unit for expressing relative difference in power, usually between acoustic or electric signals.
decision support tools	Software programs that very quickly collect and analyze a massive amount of data about the airspace and aircraft within it.
deductive reckoning	The navigation of an airplane solely by means of computations based on airspeed, course,

	heading, wind direction, and speed, groundspeed, and elapsed time. Also called dead reckoning.
delay	In aviation, a delay is considered any action taken by a controller that prevents an aircraft from proceeding normally to its destination for an interval of 15 minutes or more.
Delta	Designator for the letter "D" in the International Phonetic Alphabet.
delta wing	A sweepback wing that looks like a triangle from above. The trailing edge of the wing is the base of the triangle. The XB-70A is an example of an airplane that has a delta wing.
density altitude	The altitude in the standard atmosphere at which the air has the same density as the air at the point in question.
depart	The exit of an aircraft by taking off.
departure controller	The air traffic control personnel responsible for monitoring all departing flights and for guiding departing aircraft to their initial navigational fix.
departure leg	The flight path which begins after takeoff and continues straight ahead along the runway centerline.
deplane	The process of passengers exiting the aircraft.
descend	To come down under control from a higher to a lower altitude.
descent	The action carried out in flying an aircraft from a higher to lower altitude.
descent control	The air traffic control operation that directs aircraft from the end of their en route flight phase to their approach phase by instructing pilots from a higher to a lower altitude.
destination airport	The airport to which an aircraft is flying.
dew point	The temperature to which air must be cooled to become saturated, thus going from water vapor condensing into water
DGPS (Differential Global Position System)	This system uses a ground station to correct the code received from satellite for a 5 meter accuracy.
dihedral angle	The upward angle of the wings that is formed where the wings connect to the fuselage.
diurnal variation	Pertaining to actions or events that occur during a twenty-four hour cycle or recurs every twenty-four hours. Meteorological elements that are measured diurnally include clouds, precipitation, pressure, relative humidity, temperature and wind.
DME (Distance Measuring Equipment)	A combination of ground and airborne transponder equipment which gives a continuous slant range distance-from-station readout by measuring time-lapse of a UHF signal transmitted by the aircraft to the station and responded back. DMEs can also provide groundspeed and time-to-station readouts by differentiation.
downdraft	A sudden descent of cool or cold air to the ground, usually with precipitation, and associated with a thunderstorm or shower.
downwind leg	A flight path parallel to the landing runway in the opposite direction of landing.
drag	The force that resists the motion of the aircraft through the air. One type of drag is caused by air molecules. As the aircraft flies through the molecules, they resist the motion of the aircraft. This resistance is due to friction between the air molecules and the surface of the aircraft. Airplanes are streamlined to decrease the drag force.
DTK (Desired TracK)	The planned or intended track between two waypoints. It is measured in degrees from either magnetic or true north. The instantaneous angle may change from point to point along the great circle track between waypoints.
dust devil	A small vigorous whirlwind, usually of short duration, rendered visible by dust, sand, and debris picked up from the ground.
dust storm	A severe weather condition characterized by strong winds and dust-filled air over a large area.

E Echo	
Echo	Designator for the letter "E" in the International Phonetic Alphabet.
elevators	Control surfaces on the horizontal part of the tail that are used to make the airplane pitch. Pulling back on the control stick will raise the elevators. This causes the aircraft to pitch and increase the angle of attack.
emissions	The gas given off when an engine burns fossil fuels during combustion.
EFAS (En Route Flight Advisory Service)	Commonly known as Flight Watch, this services "real-time" weather advisories from an aircraft's actual position and altitude to the destination.
empennage	The parts of the airplane located at the tail end. This includes the horizontal stabilizer, the vertical stabilizer, and elevators.
en route	French for "on the way". It is the flight phase during which an aircraft is cruising at its highest altitude. This phase of flight can last from a few minutes to many hours.
en route chart	(1) Chart of air routes in specific areas that shows the exact location of electronic aids to navigation, such as radio-direction-finder stations, radio- and radar-marker beacons, and radio-range stations. (2) aeronautical chart that is designed to be used between terminal areas. The two classes of such charts are En Route Low-Altitude Charts and En Route High-Altitude Charts.
En Route Flight Advisory Service	See EFAS.
En Route High Altitude Charts	These charts provide aeronautical information for en route instrument navigation (IFR) in the high altitude stratum. Information includes the portrayal of jet routes, identification and frequencies of radio aids, selected airports, distances, time zones, special use airspace, and related information.
engineer	Someone who designs and builds mechanical or electrical devices. For example, an aeronautical engineer designs aircraft. To do this, an aeronautical engineer must study aeronautics and understand fluid dynamics and aerodynamics.
enplane	The process of passengers boarding an aircraft.
ETA (Estimated Time of Arrival)	The time the flight is estimated to arrive at the gate or its actual touchdown time.
ETD (Estimated Time of Departure)	The time the flight is estimated to depart from the gate, or its actual takeoff time.
ETE (Estimated Time En Route)	The estimated flying time from departure point to destination (takeoff to landing).
ETMS (Enhanced Traffic Management System)	ETMS is a computer network used to collect and display domestic and foreign flight data, plus weather information, to flight planners at the FAA National Traffic Control Center, and to regional air traffic control facilities and commercial airlines. ETMS is the FAA's chief tool for managing air traffic flow and maximizing use of the National Airspace System.
error	An aviation occurrence that deviates from what is expected and is easily and safely corrected.
experiment	A set of controlled procedures designed to test an idea or hypothesis. For example, a flight simulation engineer will design an experiment to test whether or not a pilot can control an airplane with a new wing design.
F Foxtrot	
FA (Area Forecast)	A forecast of VFR clouds and weather condition over an area as large as the size of several states.
FAA (Federal Aviation Administration)	As part of the Department of Transportation, this government agency oversees all aviation within the United States. The FAA controls airport safety, air traffic control, licensing of pilots, inspection of aircraft, and investigates aviation mishaps.

FAF (Final Approach Fix)	The geographical position determined by visual reference to the surface, reference to one or more radio NAVAIDS, celestial plotting, and/or by another navigational device, from which the final approach (IFR) to an airport is executed and which identifies the beginning of the final approach segment.
FARs (Federal Aviation Regulations)	The regulations that govern all aspects of aviation in the United States. These regulations are broken up into separate parts (1-187) for ease of reference.
FAST (Final Approach Spacing Tool)	A computer software program that gives air traffic controllers a picture on how to most efficiently space aircraft for an approach to an airport, as well as alternate solutions for air traffic control problems.
FBO (Fixed Base Operations)	A commercial operation supplying fuel, maintenance, aircraft sales, rental, flight training, handling and other general aviation services at an airport.
FD (Winds and Temperatures Aloft Forecast)	Computer prepared forecast containing wind direction and speed as well as temperatures at predetermined altitudes.
Federal Airway Routes	Also known as Victor (V) routes, this airspace (below FL 180) established in the form of a corridor, the center line of which is defined by particular radials off radio navigational aids.
Federal Aviation Administration	see FAA
fin	Another word for the vertical stabilizer.
final approach	The point in an aircraft's flight when the pilot has been directed to a flight path and trajectory in preparation for landing
final approach fix	see FAF
fix	A geographical position determined by visual reference to the surface, by reference to one or more radio NAVAIDS, by celestial plotting or by another navigational device. Or, a certain point through which an aircraft is directed to fly by an air traffic controller.
FL (Flight Level)	A level of constant atmospheric pressure related to a reference datum of 29.92 inches of mercury. Each is stated in 3 digits that represent hundreds of feet. For example, FL250 (flight level two-five-zero) represents a barometric altimeter indication of 25,000 feet. Flight Levels are FL180 and above. Below 180 (transition altitude), aircraft altimeters are set to the closest ground station altimeter reading and altitudes are in thousands of feet. e.g.; 170 (one seven thousand, 17,000 feet).
flaps	Moveable parts of the trailing edge of a wing that are used to increase lift at slower air speeds. Flaps increase lift by changing the shape of the airfoil. A pilot will extend the flaps when the airplane is landing. By extending the flaps, the pilot is increasing the camber of the wing, the size of the wing and the wing's angle of attack. All of these actions will cause lift to decrease so the airplane can land more slowly.
flight characteristic	In aviation, a distinguishing feature of a flight vehicle relating to its predisposition to stall or yaw, or its ability to remain stable or controllable at a given speed.
flight computer	A manual slide rule or electronic calculator used to determine wind correction, fuel consumption, airspeed, and other performance calculations during flight planning.
flight data controller	An air traffic control position located in Local Control (airport control tower) whose job is to review flight plans, issue approval to pilots and generate the flight data strip before handing the pilot off to Local Control for pushback and taxiing instructions.
flight log	A flight planning document in which a pilot calculates factors such as speed, course, altitude, and fuel consumption for an upcoming flight.
flight plan	A pilot's intended routing and schedule for a flight, giving the pilot and aircraft identification; course, speed, and altitude to be flown; and estimated times of arrival at intermediate stops and the destination; submitted, orally or in writing, to air traffic control or a flight service station. flight planning
flight profile	The phases of a typical flight that usually consists of the following: preflight, takeoff,

	departure, en route, descent, approach and landing.
flight progress strips	See flight tracking strip
flight simulation	A tool of aeronautics in which a flight simulator on the ground is used to create an environment where a pilot sees, hears and feels like he or she is in a real aircraft. Flight simulation is used to investigate how an aircraft responds to a pilot's movement of the controls.
flight test	A tool of aeronautics in which a real aircraft is flown to gather data which will accurately describe the capabilities of that aircraft. Flight test is used to investigate how fast, how far and how high an aircraft can go, and how it handles and performs.
flight route	The path or course taken by the aircraft in order to reach its destination.
flight time	The time from the moment an aircraft first moves under its own power for the purpose of flight until the moment it comes to rest at the next point of landing.
flight tracking strip	A strip of paper which contains a computer print-out of an aircraft's abbreviated flight plan that is used by air traffic controllers to monitor an aircraft's flight.
fluid dynamics	The study of how fluids move. Fluids include water and gases (such as air).
fog	A cloud that forms just above the ground. Numerous minute water droplets small enough to be suspended in the earth's atmosphere
force	A push or a pull in a certain direction, that can be measured. Examples of forces are your hand pushing on a doorknob, and a propeller pulling an airplane through the air.
forward sweep wing	A wing that is swept toward the front of the airplane, unlike most fast airplanes which have wings that are swept toward the back of the airplane. The X-29 aircraft is an example of a supersonic jet that has forward sweep wings.
Foxtrot	Designator for the letter "F" in the International Phonetic Alphabet.
Free Flight	A proposed change in the airspace system being investigated by the FAA. In this system, flights would fly directly to the destination airport without having to use federal airways.
frequency	The number of periodic oscillation, vibrations or waves per unit of time; usually expressed in hertz. In meteorology, it is the turbulent resistance of the earth on the atmosphere. Considered as the resistance of fluids (air and water) to the relative motion of a solid body. The amount is dependent on the size and shape of the body.
front	The meteorological boundary between two different air masses.
frost	Ice crystal deposits formed of gaseous water when temperature and dew point are below freezing.
FSS (Flight Service Station)	Air traffic service facilities that provide a variety of services to pilots, including weather briefings, opening and closing flight plans, and search and rescue operations.
FT (Terminal Forecast)	Predictions of future weather (up to 24 hours) at a particular airport.
fuselage	The part of the airplane to which the empennage and wings are attached. The fuselage is where the passengers and cargo are located. It is streamlined so that it produces the least possible drag.
FutureFlight Central	A full-scale, one-of-a-kind air traffic control simulation facility located at NASA's Ames Research Center. A real-time environment where air traffic controllers and pilots can test and evaluate safety and operational procedures. The facility is also dedicated to solving the present and emerging capacity problems of the nation's airports.
G Golf	
g force	The acceleration of gravity (g), which is approximately 9.81 meters/second2 . G or g is also used as a stress measurement for bodies undergoing acceleration., or the "loads" imposed on an aircraft or pilot. Loads may be centrifugal and aerodynamic due to maneuvering, usually expressed as g, i.e. 7 g is a load 7 times the weight of the aircraft.

GA	See general aviation
GAP (General Aviation Propulsion)	The goal of NASA's GAP Program is to help revitalize the U.S. General Aviation Industry through the development of revolutionary affordable propulsion systems for general aviation light aircraft. gate
general aviation	A term denoting all civil (nonmilitary) aviation other than common commercial transport; includes personal flying, business flying, instructional flying, and commercial flying such as aerial photography and agricultural spraying.
general aviation aircraft	General aviation flights range from gliders and powered parachutes to large, non-scheduled cargo jet flights. As a result, the majority of the world's air traffic falls into this category, and most of the world's airports serve general aviation exclusively.
glide slope	(1) The angle between the local horizontal and the glide path of an aircraft. (2) provides vertical guidance for aircraft during approach and landing, either using visual ground aids or onboard electronic components.
?glide slope beam	A directed radio wave emanating from a glideslope transmitter located near the approach end of the runway of an instrumented airport to provide an indication of the minimum approach angle that will clear all obstacles to the runway.
Golf	Designator for the letter "G" in the International Phonetic Alphabet.
GPS (Global Positioning System)	An array of stationary satellites that allows users to locate their exact position on the earth. Developed at first for military use, then widespread on commercial and private aircraft, GPS now provides another simple and accurate tool for pilots to use for aircraft location verification.
gravity	The natural force that pulls an object toward the earth. We experience gravity as weight. An airplane must generate enough lift to counteract the weight of an aircraft.
ground controller	An operator in the Tower that is responsible for directing and approving the movement of aircraft and ground vehicles on the airport surface.
ground incursions	Any occurrence at an airport involving an aircraft, vehicle, person, or object on the ground that creates a collision hazard or results in loss of safe operation with an aircraft taking off or landing.
ground speed	The speed of an aircraft relative to the surface of the Earth.
ground traffic	All vehicles that move along the runways, taxiways and pathways of an airport.
GS	see ground speed
gyroscope	A comparatively heavy wheel mounted on a spinning axis which is free to rotate about one or both of two axes perpendicular to each other and to the spinning axis. The gyroscope is used to sense directional changes and to develop signals for operating automatic pilots and inertial guidance systems.
gyro-compass	A compass consisting of a motor-operated gyroscope whose rotating axis, kept in a horizontal plane, takes a position parallel to the earth's rotation and thus points to the geographical north pole instead of the magnetic pole.
H Hotel	
hand-off	An action taken to transfer the radar identification and radio communications of an aircraft from one controller to another as an aircraft enters the receiving controller's airspace. hangar
heading	The direction in which the longitudinal axis of the airplane points with respect to true or magnetic north. Heading is equal to course plus or minus any wind correction angle.
heavy aircraft (or heavies)	A class of aircraft capable of takeoff weights of 300,000 pounds or more whether or not they are operating at this weight during a particular phase of flight.
hecto pascals	A unit of stress or pressure equal to one newton per square meter times one hundred

heliport	An area of land, water, or structure used for the landing and takeoff of helicopters. hemisphere
homing	The procedure of using the direction-finding equipment of one radio station with the emission of another radio station, where at least one of the stations is mobile, and whereby the mobile station proceeds continuously towards the other station.
horizontal stabilizer	The horizontal part of the tail. The horizontal stabilizer helps to increase the stability of the aircraft. It is also known as a tailplane.
Hotel	Designator for the letter "H" in the International Phonetic Alphabet.
hub	An airline's base of operations. An airline's hub is at an airport that houses a large number of its aircraft each night and is the origin of a large number of the airline's connecting flights.
hub-and-spoke system	A system established by the major airlines routing flights through their hub(s). This eases maintenance of their fleet, but compromises safety.
human factors	The interaction between people and machine or the interaction among people that adds the real-time element to any simulated operation.
hypersonic	Velocity greater than five times the speed of sound.
hypothesis	A proposed explanation for an observable phenomenon. An important step within the ìscientific method.î I think we need to leave in the relevant definition of hypothesis or take it out all together.BPhypoxia
I India	
ICAO	International Civil Aeronautical Organization (ICAO)
icing	Any deposit of ice forming on an aircraft. This can alter the aircraft's weight and flight characteristics.
IFR (Instrument Flight Rules)	Refers to the general weather conditions pilots can expect at the surface and applies to the weather situations at an airport during which a pilot must use instruments to assist take off and landing. IFR conditions for fixed wing aircraft means the minimum cloud ceiling is greater than 500 feet and less than 1,000 feet and/or visibility is greater than 1 mile and less than 3 miles. When weather conditions are below the minimum prescribed for VFR, only instrument-rated pilots may fly in accordance with IFR.
ILS (Instrument Landing System)	Located at most major airports, this navigational equipment employs two separate antennae to provide pilots with vertical and horizontal guidance to the runway.
IM (Inner Marker)	A marker beacon used with an ILS (CAT II) precision approach located between the middle marker and the end of the ILS runway. It transmits a radiation pattern keyed at six dots per second. It indicates to the pilot, both aurally and visually, that the aircraft is at the designated decision height (DH), normally 100 feet above the touchdown zone elevation, on the ILS CAT II approach. It also marks progress during a CAT III approach.
IMC (Instrument Meteorological Conditions)	Meteorological conditions expressed in terms of visibility, distance from clouds, and ceiling less than the minimum specified for Visual Meteorological Conditions (VMC).
inclement weather	Rough, severe or stormy weather.
incursions	See runway incursions
India	Designator for the letter "I" in the International Phonetic Alphabet.
indicated altitude	The altitude reading obtained from an altimeter, especially from a pressure altimeter adjusted to the aircraft's estimated height above mean sea level, but uncorrected for instrument error or variation from standard atmospheric conditions.
INS (Inertial Navigation System)	A self-contained navigation system. It consists of gyroscopes and accelerometers to provide attitude, heading, position, attitude, body/inertial velocity, and acceleration information. A primary navigation data source. INS loses accuracy with time due to drift of gyroscopes. Inertial Navigation Systems are moderately accurate over land, not good over water.

instrument approach procedures	A series of predetermined maneuvers using flight instruments with specified protection from obstacles beginning at the initial approach fix to a point from which a landing can be completed and thereafter, if a landing is not completed.
instrument flight	A flight solely by reference to the cockpit instruments during low visibility or bad weather.
instrument landing	The use of navigational equipment to direct and land an aircraft usually used during inclement weather.
instrument weather conditions	Weather conditions that include reduced visibility and cloud ceilings that require a pilot to fly by reference to his or her cockpit instruments.
instruments	Tools used to observe, measure and control. For example, pilots use instruments to measure and observe the altitude, speed and direction of an aircraft.
intermodality	The integrated use of multiple transportation systems such as rail and aircraft.
International Phonetic Alphabet	A system of words identifying the letters of the alphabet and numbers. The system was reached through international agreement, and uses words chosen for their ease of pronunciation by people of all language backgrounds.
isogonic lines	Lines of equal magnetic declination for a given time. The difference between true and magnetic north. Shown on most aeronautical charts as broken red lines, these lines connect points of equal magnetic variation.
J Juliette	
jet engine	An engine that works by creating a high-velocity jet of air to propel the engine forward.
jet propulsion system	A method of propelling aircraft that uses the reaction force created when compressed outside air and hot exhaust gases are forced through a jet nozzle.
jet stream	A migrating stream of winds with 50 knots or greater, present at high altitudes moving generally from west to east.
jetliners	A commercial jet aircraft for carrying passengers and/or cargo.
Juliette	Designator for the letter "J" in the International Phonetic Alphabet.
K Kilo	
Kilo	Designator for the letter "K" in the International Phonetic Alphabet.
knot	A nautical unit of speed equal to the velocity at which one nautical mile is traveled in one hour. Used primarily by marine interests and in weather observations. A knot is equivalent to 1.151 statute miles per hour or 1.852 kilometers per hour.
L Lima	
land breeze	A coastal breeze blowing from land to sea, usually at night when the sea surface is warmer than the adjacent land.
landing gear	Another word for undercarriage. The collection of devices including wheels, skis, and floats that enable a flight vehicle to land and move about on land, water or other surfaces. The landing gear is often retractable
landing roll	the distance from the point of touchdown to the point where the aircraft can be brought to a stop or exit the runway.
landing sequence	The order in which aircraft are positioned in flight for landing.
landmark	An object on land which is easily seen and recognizable by the pilot during flight.
lateral axis	The axis extending through the center of gravity of an aircraft, and parallel to a line connecting the tips of the wings. The lateral axis is sometimes called the "y" axis. Pitch is a motion around the lateral axis
latitude	Linear or angular distance that is measured north or south of the equator in degrees, minutes and seconds.

leading edge	The front edge of an airfoil. The leading edge is normally rounded and thicker than the trailing edge.
lidar	A meteorological instrument using transmitted and reflected laser light for detecting atmospheric particles, as pollutants, and determining their elevation, concentration, etc.
lift	The upward force generated by air passing over and under an aircraft's wings, resulting in air pressure above the wing decreasing in relation to the air pressure below the wing. In normal, forward flight, the lift force " lifts" the aircraft into the air. Engineers design airplanes so that the lift created by the wings opposes the weight force.
Lima	Designator for the letter "L" in the International Phonetic Alphabet.
local control	The control tower at each airport.
local controller	The controller stationed at the control tower who gives pilots taxiing and runway directions as well as clearance for takeoffs and landings. (also known as the "Tower Controller").
local winds	The movement of air across the land that are particular for that region and occur regularly.
localizer beam	An instrument landing system (ILS) navigation facility located near an airport's runway that provides horizontal guidance to the runway centerline for aircraft during approach and landing. It does this by radiating a directional pattern of VHF radio waves modulated by two signals that, when received with equal intensity, are displayed in the cockpit as an "on-course" indication. When the two signals are received with unequal intensity, they are displayed in the cockpit as an "off-course" indication.
logbook	A register book that lists a pilot's flight time, instructor endorsements, and completed training topics.
longitude	Linear or angular distance that is measured west or east of the Prime Meridian in degrees, minutes and seconds.
longitudinal axis	The axis extending through the center of the fuselage from the nose to the tail. The longitudinal axis is sometimes called the "x" axis. Roll is a motion around the longitudinal axis
LOP (Line Of Position)	A line drawn on a chart indicating an aircraft's flight path and that the aircraft's position is located somewhere along that line. This line is determined by comparing 2 navigational signals from different positions.
LORAN-C (LOng RAnge Navigation)	The third of four versions developed since WWII, a radio navigation system utilizing master and slave stations transmitting timed pulses. The time difference in reception of pulses from several stations establishes a hyperbolic line of position which may be identified on a LORAN chart. By utilizing signals from two pairs of stations, a fix in position is obtained. Loran-C operates in the 100-110 kHz frequency band.
low and middle frequency (L/MF) band	A radio frequency between 30
low level significant weather prognostic chart (prog chart)	A chart used in aviation that forecasts significant weather of a given area up to 24,000 feet. It is issued 4 times a day and provides a 12
M Mike	
M/A (Monitor-Alert)	A function of the Enhanced Traffic Management System that provides traffic management personnel with a tool for predicting potential capacity problems in individual operational sectors. The M/A is an indication that traffic management personnel need to analyze a particular sector for actual activity and to determine the required action(s), if any, needed to control the demand.
magnetic field	A space where magnetic lines of force exist.
magnetic heading	The direction in which the longitudinal axis of the airplane is pointing according to a magnetic compass.
magnetic variation	Difference between true north and magnetic north, varying with position; magnetic variation drifts with time.

magneto	A small generator of alternating current with permanent magnets, used in the ignition system of most modern aircraft engines because it produces a hotter spark at high engine speeds than a typical automobile battery system, and it does not depend on an external source of energy.
main gear	The landing gear underneath the fuselage of an aircraft.
marker beacons	A radio navigation aid used in the approach zone of an instrumented airport. As the airplane crosses over each of three marker beacon transmitters, the pilot receives an accurate indication of the airplane's distance from the runway through the medium of a flashing light an aural signal.
mean sea level	The average height of the surface of the sea for all stages of tide.
meridian	In geography, a line of longitude that passes through Greenwich, England, established as 0 degrees. Also called the Prime Meridian.METAR (METeorological Aerodrome Report)
meter	A method of time-regulating arrival traffic flow into a terminal area so as not to exceed a predetermined terminal acceptance rate.
MHz	Megahertz, One million cycles per second, used especially as a radio frequency unit.
microsecond	One millionth of a second.
Mike	Designator for the letter "M" in the International Phonetic Alphabet.
military aviation	The operation of aircraft that belong to the Armed Forces.
MM (Middle Marker)	Marker beacon located where the center of the glideslope is at the point of decision (200 feet above the runway). The signal is received both aurally and visually by cockpit equipment (compatible airborne equipment).
molecule	The absolute tiniest part of a substance , that can still be called by that name. For example, two hydrogen atoms and one oxygen atom make up one molecule of water.
monoplane	An airplane with one set of wings. Most aircraft built today have only one set of wings and are classified as monoplanes.
mountain wind	Cool, heavy air that sinks and flows down a mountain slope.
N November	
National Aeronautics and Space Administration (NASA)	In 1958, NASA was created as a government agency to replace NACA. NASA's charter is to expand frontiers in air and space, to inspire and serve America, and to benefit the quality of life on Earth.
National Airspace System	The common network of US airspace; air navigation facilities, equipment and services, airports or landing areas; aeronautical charts, information and services; rules, regulations and procedures, technical information, and human resources and material. Included are system components shared jointly with the military.
National Weather Service(NWS)	A primary branch of the National Oceanic and Atmospheric Administration, it is responsible for all aspects of observing and forecasting atmospheric conditions and their consequences, including severe weather and flood warnings.
nautical miles	A unit of length used in sea and air navigation, based on the length of one minute of arc of a great circle. Nautical miles were established in 1929 to equal to 1852 meters, or 1.15078 U.S. miles.
navigational fix	A geographical position determined by visual reference to the surface, by reference to one or more radio NAVAIDS, by celestial plotting or by another navigational device. Or, a certain point through which an aircraft is directed to fly by an air traffic controller.
NDBs (Non-Directional Beacons)	A medium-frequency navigational aid which transmits non-directional signals, superimposed with a Morse-code identifier and received by an aircraft's automatic directional finder..
negative	Aviation term for "no"; expressing or implying a denial or refusal.

nimbostratus	A principal cloud type, gray colored, often dark, the appearance of which is rendered diffuse by more or less continuously falling rain or snow, which in most cases reaches the ground.
niner	The International Phonetic Numeral for the number "nine".
nitrogen oxides	NO and NO2: gaseous pollutants produced by the combustion of fossil fuels.
nm	Newton-meter: a unit of energy or work also known as a joule (J). It is the work done when the force of one unit acts through the distance of one meter.
nmph	Newton-meter per hour: a unit of power. In aeronautical terms, power is the product of thrust times velocity. The power of aircraft engines varies widely with their velocities.
noise abatement procedures	A course of action taken in order to reduce aircraft engine noise over populated areas.
non-towered airport	An airport not directed by air traffic control; pilots fly into and out of these airport using standard operating procedures to avoid one another.
nose gear	The landing gear nearest the nose of the aircraft; usually under the cockpit.
NOTAM (Notice to Airmen)	A notice containing information concerning establishment, condition, or any component in the NAS of which the timely knowledge is essential to personnel concerned with flight operations. November
O Oscar	
obscuration	Any phenomena in the atmosphere, excluding precipitation, that reduces horizontal visibility. Some of the obstructions to visibility include blowing and widespread dust, fog (including freezing fog and patchy fog), haze, mist, sand and blowing sand, smoke, blowing spray, and volcanic ash. It is reported as "X" in an observation and on the METAR.
opposing forces	Forces that are pushing or pulling in the opposite direction. For example, lift is perpendicular to the airflow around an aircraft. If the aircraft is flying straight and level, the lift force (which is pulling up) will be opposing the weight force (which is pulling the aircraft toward the earth).
Oscar	Designator for the letter "O" in the International Phonetic Alphabet.
outer marker (OM)	A marker beacon at or near the glideslope intercept altitude of an ILS approach. The OM is normally located four to seven miles from the runway threshold on the extended centerline of the runway. It is keyed to transmit two dashes per second on a 400 Hz tone, which is received aurally and visually by compatible airborne equipment.
outlook briefing	A weather briefing requested by a pilot six or more hours prior to departure, that provides the pilot with weather information pertinent to the proposed flight that serves to help the pilot determine the feasibility of the flight.
over flights	A flight over a given area, especially a flight of military aircraft over foreign territory.
ozone	O3, a triatomic form of oxygen; a pungent, unstable blue gas that in the upper atmosphere forms a protective layer against excess ultraviolet radiation, and is also an ingredient of photochemical smog in the lower atmosphere. Earthís protective ozone layer is regarded as subject to depletion by industrial pollutants, such as fluorocarbons from aerosol sprays.
P Papa	
Papa	Designator for the letter "P" in the International Phonetic Alphabet.
parallel runways	Runways that are the same distance apart from each other at all points.
particulate	Dust and very small particles of matter.?, usually airborne.
PATWAS (Pilots Automatic Telephone Weather Answering Service)	A recording that summarizes weather data within 50 nautical miles of the flight facility.
payload	Anything that a flight vehicle carries beyond what is required for its operation during flight.
PDR (Preferential Departure Route)	A predetermined airway that leads from an airport's airspace out to jetways that are used to expedite aircrafts toward the en route phase.

pilotage	A method of navigation in which the pilot, flying at low altitudes, uses visual references and compares symbols on aeronautical charts with surface features on the ground in order to navigate.
pilot heads-up display	A cockpit visual display that shows the pilot the directed procedure of roll-out, turn-off, and taxiing.
pilot weather briefers	Employees of Flight Service Stations who provide pilots with weather briefings.
PIREPs (PIlot REPorts)	A report of in-flight weather by an aircraft pilot or a crew member. Often referred to as a PIREP.
pitch	A rotational motion in which an airplane turns about its lateral axis. Pushing forward on the control stick will lower the elevators, which forces the tail upward. The pilot will then see the nose of the aircraft fall or pitch.
POH (Pilot's Operating Handbook)	An aircraft's "owner's manual".
point-to-point flights	Flights using smaller commercial aircraft, flying from one small city to another.
precipitation	Any or all forms of water particles, whether liquid or solid, that fall from the atmosphere and reach the surface.
preflight	The check and preparation of the aircraft before takeoff.
preflight briefings	Updated weather and flight information that a pilot must receive prior to filing a flight plan and taking off.
pressure	A force being exerted on part of a surface. When you stand, your feet put pressure on the ground. Air pressure refers to air molecules pressing against a surface, like the bottom of a wing.
pressure altimeter	An barometer calibrated to indicate altitude in feet instead of units of pressure. It is read accurately only in a standard atmosphere and when the correct altimeter setting is used.
pressure altitude	The altitude in standard atmosphere at which a given pressure will be observed. It is the indicated altitude of a pressure altimeter at an altitude setting of 29.92 inches of mercury, and is therefore the indicated altitude above the 29.92 constant pressure surface.
pressure gradient	The amount of pressure change that occurs over a fixed distance at a fixed altitude.
pressure jump	A sudden increase in the observed atmospheric pressure or station pressure.
prevailing winds	Direction from which the wind blows most frequently during a given period in a specific area or region.
private pilot	A pilot who has completed the Federal Aviation Administration's requirements for the private certificate, including a minimum of 40 hours of flight time and passing a knowledge exam and flight test.
propeller	A device on an aircraft, consisting typically of two or more blades twisted to describe a helical path as they rotate with the hub in which they are mounted, and serving to propel the aircraft by the backward thrust of air. The amount of thrust can be controlled by changing the speed of the propellers.
propulsion system	A mechanism on an aircraft used to propel the aircraft through the air by providing thrust. It consists of a type of propeller or jet engine.
pull	To use force to bring something closer. The force of gravity pulls objects closer to the earth.
push	To use force to move something ahead or to the side. During takeoff the thrust force, created by the engines, pushes an airplane along the runway. pushback
push times	A span of time during an airport's operations that many flights are arriving and departing within the same time frame.
Q Quebec	

Quebec	Designator for the letter "Q" in the International Phonetic Alphabet.
R Romeo	
reconnaissance	In aviation, to fly over and look closely at an area below to gather information about it.
RADAR (Radio Detection And Ranging)	An object tracking system that uses electromagnetic waves (via echo and Doppler shift) to identify the range, altitude, direction, or speed of both moving and fixed objects such as aircraft, motor vehicles, weather formations, and terrain. radar controller
radar feeds	Electronic data transmitted at regular intervals to a radar scope or system.
radar hand-off controller	A person who supports the radar and associate controllers during peak air traffic flow.
radar surveillance	The radar observation of a given geographical area for the purpose of performing some radar function.
radial	A magnetic bearing extending from a VOR/VORTAC navigation facility.
radiation fog	Fog characteristically resulting when radiational cooling of the earth's surface lowers the air temperature near the ground to or below its initial dew point on calm, clear nights.
radio frequency	A frequency that is useful for radio usually between 10 kHz and 300,000 MHz.
ramp	In aviation, a defined area on an airport or heliport intended to accommodate aircraft for purposes of loading or unloading passengers or cargo, refueling, parking, or maintenance.
rampers	Ramp personnel at an airport who service an aircraft upon its arrival and during pushback.
range	see RGE
RAREP (Radar Weather Report)	This weather report issued each hour describes areas of precipitation along with information on the type of precipitation, the precipitation's intensity, and its direction and speed of movement.
read-back	Repeating a message in order to confirm its correctness.
regimes of flight	A way of placing aircraft into different categories based on their speeds. The regimes of flight are subsonic, transonic, supersonic and hypersonic.
regional airline	A commuter airline.
relative humidity	The ratio of the existing amount of water vapor in the air at a given temperature to the maximum amount that could exist at that temperature; usually expressed as a percent.
RGE (range)	(1) The total distance an aircraft can fly using a given rate of fuel consumption. (2)he total distance a signal can be received via radio communications.
roll	A rotational motion in which the aircraft turns around its longitudinal axis. Pushing the control stick to the left will raise the aileron on the left wing and lower the aileron on the right wing. This will cause the airplane to roll to the left. The pilot will see the left wing tip fall and the right wing tip rise.
Romeo	Designator for the letter "R" in the International Phonetic Alphabet.
rotational motion	The turning of an object, like an airplane, around an axis, or a propeller around a hub. Pitch, roll and yaw are the rotational motions of an airplane around the lateral, longitudinal and vertical axes.
rotor waves	An altocumulus cloud formation that can be found in the lee of a mountain or similar barrier. The air rotates around a horizontal axis, creating turbulence.
RVR (Runway Visual Range)	RVR is horizontal visual range, not slant visual range. It is based on the measurement of a transmissometer made near the touchdown point of the instrument runway and is reported in hundreds of feet.
rudder	A control surface on the trailing edge of the vertical part of the tail that is used to make the aircraft yaw. The rudder is controlled by rudder pedals. Pushing the left rudder pedal will tilt the rudder to the left. This will cause the nose of the aircraft to turn to the left.

run-up area	An area located just before the takeoff line of a runway where aircraft await clearance.
runway	A defined rectangular area on a land airport prepared for the landing and takeoff run of aircraft along its length.
runway capacity	The maximum number of operations that can be handled on a particular runway.
runway configuration	The arrangement of approach and takeoff runways.
runway incursion	Any occurrence at an airport involving an aircraft, vehicle, person, or object on the ground that creates a collision hazard or results in loss of separation with an aircraft taking off, intending to take off, landing or intending to land.
S Sierra	
SA (Surface Aviation Weather Reports)	A report that provides pilots with an observation of surface weather and includes the following information: station reporting, time of report, sky condition and ceiling, visibility, weather obstructions, pressure, temperature and dewpoint, wind information and altimeter setting.
sand storm	A strong wind carrying sand particles through the air. They are low level occurrences, usually only ten feet in height to not more than fifty feet above the surface. Due to the frequent winds created by surface heating, they are most predominant during the day and out in the night. Visibility is reduced to between 5/8ths and 6/16ths statute miles, and if less than 5/16ths, then the storm is considered a heavy sandstorm. It is reported as "SS" in an observation and on the METAR.
Santa Ana Winds	The hot, dry winds, generally from the east, that funnel through the Santa Ana river valley south of the San Gabriel and San Bernardino Mountains in southern California, including the Los Angeles basin. Classified as katabatic, it occurs most often during the winter and it is an example of a foehn wind.
satellite	Any object that orbits a celestial body, such as a moon. However, the term is often used in reference to the manufactured objects that orbit the earth, either in a geostationary or a polar manner. Some of the information that is gathered by weather satellites, such as GOES9, includes upper air temperatures and humidity, recording the temperatures of cloud tops, land, and ocean, monitoring the movement of clouds to determine upper level wind speeds, tracing the movement of water vapor, monitoring the sun and solar activity, and relaying data from weather instruments around the world.
SATS (Small Aircraft Transportation System)	A proposed plan by NASA to develop technology that will provide a new framework for the national transportation system.
saturate	To treat or charge something to the point where no more can be absorbed, dissolved, or retained. In meteorology, it is used when discussing the amount of water vapor in a volume of air.
saturation point	The point when the water vapor in the atmosphere is at its maximum level for the existing temperature.
scattered	The amount of sky cover for a cloud layer between 3/8ths and 4/8ths, based on the summation layer amount for that layer.
scientific method	A systematic way of solving a problem or answering a question using observation and measurement. The six steps of the scientific method are: state the problem, create a hypothesis, design an experiment, perform the experiment, organize and analyze the data, draw ?conclusions.
sea breeze	A coastal breeze blowing from sea to land, caused by temperature difference when the land surface is warmer than the sea surface.
sea fog	A type of advection fog which forms in warm moist air cooled to saturation as the air moves across cold water.
sea level	The height or level of the sea surface at any time. It is used as a reference for elevations above and below.
sectional chart	An aeronautical chart designed for visual navigation of slow or medium speed aircraft.

	Topographic information on these charts features the portrayal of relief and a judicious selection of visual checkpoints for VFR flight. Aeronautical information includes visual and radio aids to navigation, airports, controlled airspace, restricted areas, obstructions, and related data.
sector	Airspace that is split up into small manageable pieces that have vertical as well as horizontal boundaries.
sequencing	A method of efficiently placing aircraft safely into a line of smoothly flowing air traffic.
severe weather	Generally, any destructive weather event, but usually applies to localized storms, such as blizzards, intense thunderstorms, or tornadoes.
severe thunderstorm	A thunderstorm with winds measuring 50 knots (58 mph) or greater, 3/4 inch hail or larger, or tornadoes. Severe thunderstorms may also produce torrential rain and frequent lightning.
shear zone	The area in which a wind shear occurs usually between two wind currents moving at different speeds and/or in opposite directions.
Sierra	Designator for the letter "S" in the International Phonetic Alphabet.
SIGMET (SIGnificant METeorological information)	In-flight advisory concerning severe icing, severe and extreme turbulence, widespread dust storms, or volcanic ash lowering visibility to less than 3 miles.
simulation	The use of a computer to calculate and visualize the effects of a given process.
simulator	A device that creates an environment that is as close as possible to reality. In flight simulators, engineers create a cockpit environment identical to the one in a real airplane. In a flight simulator a pilot will see, hear and feel like he or she is in a real aircraft.
skids	A runner used on an aircraft landing gear instead of tires.
sky cover	The amount of the celestial dome that is hidden by clouds and/or obscurations.
slant range	Direct line distance, not along the ground.
sleet	Also known as ice pellets, it is winter precipitation in the form of small bits or pellets of ice that rebound after striking the ground or any other hard surface. It is reported as "PE" in an observation and on the METAR.
SMA (Surface Movement Advisor)	A joint FAA and NASA project to help current airport facilities operate more efficiently.
smog	A low-lying perceptible layer of polluted air. The word was coined to mean a noxious mixture of smoke and fog.
smoke	Small particles produced by combustion that are suspended in the air. A transition to haze may occur when the smoke particles have traveled great distance (25 to 100 miles or more), and when the larger particles have settled out. The remaining particles become widely scattered through the atmosphere. It is reported as "FU" in an observation and on the METAR.
snow	Frozen precipitation in the form of white or translucent ice crystals in complex branched hexagonal form. It most often falls from stratiform clouds, but can fall as snow showers from cumuliform ones. It usually appears clustered into snowflakes. It is reported as "SN" in an observation and on the METAR.
snow banner	A plume of snow blown off a mountain crest, resembling smoke blowing from a volcano.
snow devil	A small, rotating wind that picks up loose snow instead of dirt (like a dust devil) or water (like a waterspout). Formed mechanically by the convergence of local air currents. May be called a snowspout.
snow shower	Frozen precipitation in the form of snow, characterized by its sudden beginning and ending. It is reported as "SHSN" in an observation and on the METAR.
solar radiation	The electromagnetic radiation (energy) emitted by the sun.

speed of sound	The speed at which sound waves travel. In dry air at 20 ∞C (68 ∞F), the speed of sound is 343 meters per second (1,125 ft/s). This equates to 1,236 kilometers per hour (768 mph).If you stand a distance away from a friend and say something , the sound waves of your voice will travel very quickly to the ear of your friend. The speed of sound is the speed at which those waves traveled.
spoiler	A device, normally located on the top of the wing, for changing the airflow around a wing to reduce lift. Pilots deploy spoilers when they land so that the airplane is no longer "lifted" into the air.
squall	A sudden onset of strong winds with speeds increasing to at least 16 knots (18 miles per hour) and sustained at 22 or more knots (25 miles per hour) for at least one minute. The intensity and duration is longer than that of a gust. It is reported as "SQ" in an observation and on the METAR.
squall line	A narrow band or line of active thunderstorms that is not associated with a cold front. It may form from an outflow boundary or the leading edge of a mesohigh.
stable air	Occurs when a rising air parcel becomes denser than the surrounding air. It will then return to its original position. When the density of the air parcel remains the same as the surrounding air after being lifted, it is also considered stable, since it does not have the tendency to rise or sink further.
stabilizer	A surface that helps to provide stability for an aircraft. An airplane has two stabilizers: a vertical stabilizer and a horizontal stabilizer. Stabilizers are like the feathers on an arrow, which keep the arrow pointed in the right direction.
stall	A condition in which an improper angle of attack and a lack of airspeed combine to disrupt the airflow around an airfoil enough to result in the loss of lift which forces the aircraft to drop.
standard atmosphere	A standard atmosphere has been defined by the International Civil Aeronautical Organization (ICAO). It assumes a mean sea level temperature of 15∞C a standard sea level pressure of 1,013.25 millibars or 29.92 inches of mercury, and a temperature lapse rate of 0.65∞C per 100 meters up to 11 kilometers in the atmosphere.
standard atmospheric pressure	For aviation purposes, 29.92 in. Hg (1013.2 hPa).
standard briefing	A complete and concise weather report including preparatory instructions and /or advice, NOTAMS, military activities, flow control information, and other items as requested.
standard temperature	For aviation purposes, 59∞F (15∞C).
STAR (Standard Terminal Arrival Route)	A preplanned instrument flight rule (IFR) ATC arrival procedure published for pilot use in graphic and textual form. STARs provide transition from the en route structure to an outer fix or an instrument approach fix/arrival waypoint in the terminal area
station	structure on the ground, perhaps containing VOR or TACAN.
station model	A symbolic illustration used on a surface analysis chart that represents and reflects the weather occurring at a given weather reporting point.
statute miles	A unit of linear measure (5280 feet). There are 0.87 nautical miles in one statute mile and 1.15 statute miles in one nautical mile.
straight wing	A wing that sticks straight out (approximately perpendicular) from the fuselage
stratocumulus	A low cloud of predominantly horizontal development in gray and/or whitish patches or layers.
stratosphere	The atmospheric layer above the tropopause which is very stable and characterized by low moisture content and absence of clouds.
stratus	A low, gray cloud layer with a fairly uniform base.
streamline	To shape an object so that it creates less drag and moves smoothly and easily through the air. Airfoils are streamlined, as is the fuselage.

strips	See flight progress strips.
subsonic	Velocity less than the speed of sound. supercomputer
supercooled water	water that has been cooled below the freezing point, but is still in a liquid state.
supersonic	Velocity greater than the speed of sound. The SR-71 is characterized as a supersonic aircraft because it travels from three to four times the speed of sound. A supersonic aircraft can fly from New York to ?London in less than two hours.
Surface Analysis Chart (SA)	An aviation weather chart used to show air pressure patterns, high and low pressure areas, fronts, and station models
Surface Weather Chart	see Surface Analysis Chart. sweepback wing
T Tango	
TAF (Terminal Airport Forecast)	A weather report generated at a particular airport and issued 4 times a day that predicts the weather conditions at that airport. It usually includes the following: wind direction and speed, visibility, sky conditions, cloud cover and cloud type, wind shear indications and altitude location, and precipitation.
tail numbers	The registration number of an aircraft, often painted on its tail.
tailplane	Another word for a horizontal stabilizer.
takeoff	The process of using the thrust of the engines to accelerate an airplane down a runway until enough lift is generated so that the aircraft breaks contact with the ground.
takeoff roll	The portion of takeoff during which the aircraft's landing gear is still in contact with the ground.
Tango	Designator for the letter "T" in the International Phonetic Alphabet.
target	An aircraft appearing on an air traffic controllers radar scope.
taxi	(1) The movement of an airplane under its own power on the surface of an airport. (2) Also describes the surface movement of helicopters with wheels.
taxiway	The paved airport surfaces which allow aircraft to travel between runways and other airport locations such as the hangars or terminals.
technology	The science or study of the practical or industrial arts, applied sciences, etc.
temperature	The degree of hotness or coldness on a definite scale by means of a thermometer.
temperature-dew point spread	The difference between air temperature and dew point temperature. As the spread becomes less, relative humidity increases, and it is 100% when the temperature and the dew point are the same. Surface temperature and dew point spread are important in anticipating the formation of fog.
terminal	A building or buildings designed to accommodate the enplaning and deplaning activities of air carrier passengers.
terrain	A tract of ground regarding its topographical features or fitness for some use.
terrestrial radiation	The total infrared radiation emitted by the earth and its atmosphere.
test pilot	A pilot that is specially trained to test aircraft. Test pilots must be exceptional pilots, have a complete understanding of aeronautics and aerodynamics, and be able to accurately write and speak about what they see, feel and hear during the testing of an aircraft.
throughput	The amount of aircraft flying through the National Airspace System in a given period.
thrust	The force generated when air is pushed rearward by jet engines or propellers, thus pushing an aircraft forward.
tiltrotor	A rotor that is tilted from a horizontal alignment (as a helicopter) for takeoff and landing, to a vertical alignment (as an airplane) for level flight. Tiltrotor aircraft typically have the tiltrotors

	mounted on the tips of airplane-like wings and achieve the flight characteristics of both airplanes and helicopters.
TMS (Traffic Management System)	A data management system and method that enables acquisition, integration and management of real-time data generated at different rates, by multiple, heterogeneous incompatible data sources. The system achieves this functionality by using an expert system to fuse data from a variety of airline, airport operations, ramp control, and air traffic control tower sources, to establish and update reference data values for every aircraft surface operation. The system may be configured as a real-time airport surface traffic management system (TMS) that electronically interconnects air traffic control, airline data and airport operations data to facilitate information sharing and improve taxi queuing.
topographical	Maps and charts accurately representing surface features of a region.
touchdown zone	(1) For fixed wing aircraft, the first 3000 feet of runway, beginning at the threshold. (2) For rotary wings and vectored thrust aircraft, the portion of the helicopter landing area or runway used for landing.
tower	A terminal facility that uses air/ground communications, visual signaling, and other devices to provide ATC services to aircraft operating in the vicinity of an airport or on the movement area. Authorizes aircraft to land or takeoff at the airport controlled by the tower or to transit the class D airspace area regardless of flight plan or weather conditions (IFR or VFR).
tower controller	the personnel responsible for issuing takeoff and landing clearances and for monitoring all traffic within a five-mile radius and up to an altitude of 2500 feet.
towering cumulus	Rapidly growing cumulus in which height exceeds width.
track	The actual flight path of an aircraft over the surface of the earth.
TRACON (Terminal Radar Approach CONtrol)	An air traffic control facility that monitors and directs air traffic through the departure and descent phases of flight.
traffic pattern	The traffic flow that is prescribed for aircraft landing at, taxiing on, or taking off from an airport. The components of a typical traffic pattern are upwind leg, crosswind leg, downwind leg, base leg, and final approach. trailing edge
trajectory synthesis	Software that gives the controller a four dimensional view of how the many lines of incoming aircraft can be positioned into one line of arrival aircraft.
translational motion	Motion along a straight line, such as an axis. The translational motions of an aircraft are forward and back along the longitudinal axis, side to side along the lateral axis, and up and down along the vertical axis.
transmissometer	A device for automatically measuring visibility, used to find Runway Visual Range (RVR). Most modern instruments consist of a light source and a separate detector at a set distance away.
transonic	Velocity between nine tenths (.9) and one and four tenths (1.4) times the speed of sound.
transponder	An electronic device aboard the airplane that enhances an aircraft's identity on an ATC radar screen.
triangulation	The process of determining the distance between points on the earth's surface, or the relative positions of points, by dividing up a large area into a series of connected triangles measuring a base line between two points, and then locating a third point by computing both the size of the angles made by lines from this point to each end of the base line and the lengths of these lines.
TRK (TRacK)	The projection on the earth's surface of the path of an aircraft, the direction of which path at any point is usually expressed in degrees from North (True, Magnetic, or Grid).
tropopause	The boundary between the troposphere and the stratosphere (about 8 km in polar regions and about 15 km in tropical regions), usually characterized by an abrupt change of lapse rate. The regions above the troposphere have increased atmospheric stability than those below. The tropopause marks the vertical limit of most clouds and storms.
troposphere	The lower atmosphere, to a height of 8-15 km above Earth, where temperature generally

	decreases with altitude, clouds form, precipitation occurs, and convection currents are active.
true altitude	The exact distance above mean sea level.
TSD (Traffic Situation Display)	A tool used by Traffic Management Specialists to monitor the position of air traffic and to determine the traffic demand on airports and sectors.
turbulence	The irregular and instantaneous motions of air which is made up of a number of small of eddies that travel in the general air current. Atmospheric turbulence is caused by random fluctuations in the wind flow. It can be caused by thermal or convective currents, differences in terrain and wind speed, along a frontal zone, or variation in temperature and pressure.
U Uniform	
UHF (Ultra High Frequency)	Radio frequencies between 300 and 3000 MHz.
undercarriage	The part of an aircraft that provides support while the aircraft is on the ground. It includes wheels, shock absorbers and support struts. There is an undercarriage unit under the nose of the aircraft as well as approximately midway back, under the fuselage. Undercarriage normally includes rubber tires, but may have skis for landing on snow or floats for landing on water.
Uniform	Designator for the letter "U" in the International Phonetic Alphabet.
unimproved airport	An airport with runways made of grass, dirt, or gravel, instead of concrete or asphalt.
unstable air	Occurs when a rising air parcel becomes less dense than the surrounding air. Since its temperature will not cool as rapidly as the surrounding environment, it will continue to rise on its own.
upwind leg	A flight path parallel to the runway in the direction of landing.
UTC	Coordinated Universal Time
V Victor	
valley wind	It is formed during the day by the heating of the valley floor. As the ground becomes warmer than the surrounding atmosphere, the lower levels of air heat and rise, flowing up the mountainsides. It blows in the opposite direction of a mountain breeze.
variable sweep wing	Wings that are hinged so they can be slanted forward or backward during flight. The F-14 aircraft is an example of a supersonic jet with variable sweep wings.
vector	A heading issued to an aircraft by ATC to provide navigational guidance by radar.
vector line	This is a course line that is predicted within a specified number of minutes assuming the aircraft's course is not changed.
velocity	The speed of an object, in a certain direction. The rate of change of position in relation to time.
vertical axis	The axis extending straight up and down through the center of gravity of an aircraft. The vertical axis is perpendicular to the longitudinal and lateral axes. The vertical axis is sometimes called the "z" axis. Yaw is a motion around the vertical axis.
vertical stabilizer	The vertical part of the tail. The vertical stabilizer helps to increase the stability of the aircraft. It is also known as a fin.
VFR (Visual Flight Rules)	Rules that govern the procedures for conducting flight in visual conditions. The term "VFR" is also used to indicate weather conditions that comply with specified VFR requirements.
Victor	Designator for the letter "V" in the International Phonetic Alphabet.
Victor airway	An airway system based on the use of VOR facilities. The north-south airways have odd numbers (Victor 11), and the east-west airways have even numbers (Victor 14).
visibility	A measure of the opacity of the atmosphere, and therefore, the greatest distance one can see prominent objects with normal eyesight. The National Weather Service has various

	terms for visibility. Surface visibility is the prevailing visibility determined from the usual point of observation. Prevailing visibility is considered representative of visibility conditions at the station. Sector visibility is the visibility in a specified direction that represents at least a 45 degree arc of the horizon circle. Tower visibility is the prevailing visibility determined from the airport traffic control tower (ATCT) at stations that also report surface visibility.
visual flight	A flight made by referencing the horizon and other outside landmarks.
VMC (Visual Meteorological Conditions)	Meteorological conditions expressed in terms of visibility, distance from clouds, and ceiling equal to or better than specified minimal.
VOR (Very high frequency Omni-directional Range)	A ground-based electronic navigation aid transmitting very high frequency navigation signals. These signals radiate out completely around 360 degrees in azimuth, oriented from magnetic north. VOR is used as the basis for navigation in the National Airspace System. The VOR periodically identifies itself by Morse Code and may have an additional voice identification feature. Voice features may be used by ATC or FSS for transmitting instructions/information to pilots.
VOR receiver	This cockpit device receives VOR signals and allows to pilots to select and maintain their magnetic compass course.
VOR station	A ground station that transmits VOR signals.
VORTAC	A navigational aid providing VOR azimuth (direction), TACAN azimuth, and distance measuring equipment (DME) at one site.
vortices	See wingtip vortices
VTOL (Vertical Take-Off and Landing)	Aircraft that have the capability of vertical takeoff and landing. VTOL aircraft are not limited to helicopters.
W Whiskey	
WA (AIRMET)	see AIRMET
WAC (World Aeronautical Charts)	These charts provide a standard series of aeronautical charts covering land areas of the world at a size and scale convenient for navigation by moderate speed aircraft. Topographic information includes cities and towns, principle roads, railroads, distinctive landmarks, drainage and relief. Aeronautical information includes visual and radio aids to navigation, airports, controlled airspace, restricted areas, obstructions, and pertinent data.
wake	Tumultuous currents of air trailing from the side and behind an aircraft in flight. Generally, the heavier the aircraft and the more concave the wing surfaces, the greater the wake turbulence. Wake turbulence is a threat to all aircraft flying behind other aircraft. The term includes vortices, thrust stream turbulence, jet blast, propeller wash, and rotor wash.
waypoint	A predetermined geographical position used for route/instrument approach definition, or progress reporting purposes, that is defined relative to a VORTAC station or in terms as latitude/longitude coordinates.
weather advisories	Updated weather reports available to pilots during the en route phase of a flight.
Weather Depiction Chart	A simplified version of a surface weather chart used for flight planning and determination of general weather conditions. It also helps pilots to quickly locate areas of adverse weather. This report is issued every 3 hours.
weight	The force of gravity acting on an object. The weight force pulls an aircraft toward the earth and must be overcome by a combination of lift and thrust.
Whiskey	Designator for the letter "W" in the International Phonetic Alphabet.
wind	Air in motion relative to the surface of the Earth.
wind direction	The direction from which the wind is blowing. For example, an easterly wind is blowing from the east, not toward the east. It is reported with reference to true north, or 360 degrees on the compass, and expressed to the nearest 10 degrees, or to one of the 16 points of the compass (N, NE, WNW, etc.).

wind shear	A sudden drastic change in wind speed, wind direction or both that may occur in the vertical or horizontal plane, resulting in a tearing or shearing affect. Wind shear is a very dangerous environment in which to fly aircraft.
wind shift	The term applied to a change in wind direction of 45 degrees or more, which takes place in less than 15 minutes. It may the result of a frontal passage, from winds, sea breezes, or thunderstorms, and in some instances, the change may be gradual or abrupt.
wind speed	The rate of the motion of the air on a unit of time. It can be measured in a number of ways. In observing, it is measured in knots, or nautical miles per hour.
wind tunnel	Tubular structure or passages in which high-speed movements of air or other gases are produced. Objects such as engines, aircraft, airfoils and rockets are placed inside the wind tunnel so researchers can investigate the airflow around them and the aerodynamic forces acting upon them.
wind tunnel testing	A tool of aeronautics that involves placing a model of an aircraft or part of an aircraft into a wind tunnel and using instruments to gather data while air is blown by the model. Wind tunnel testing is used to investigate and accurately describe the effects of airflow on an aircraft or part of an aircraft.
wing	A part of an airplane that is attached to the fuselage. Wings are shaped like airfoils and are used to provide lift for the airplane. There are four basic types of wings: straight, sweep, delta and variable sweep.
wingspan	On a fixed-wing aircraft, the span or straight-line distance between one wingtip and the other, including any projecting ailerons. (The term "wingspan" always refers to the tip-to-tip span of an entire wing; never to a wing half on just one side of a fuselage.)
wingtip vortices	Circular patterns of air created by the movement of an airfoil through the air when generating lift. As an airfoil moves through the atmosphere in sustained flight, an area of area of low pressure is created above it. The air flowing from the high pressure area to the low pressure area around and about the tips of the airfoil tends to roll up into two rapidly rotating vortices, cylindrical in shape. These vortices are the most predominant parts of aircraft wake turbulence and their rotational force is dependent upon the wing loading, gross weight, and speed of the generating aircraft. The vortices from medium to heavy aircraft can be of extremely high velocity and hazardous to smaller aircraft.
WS (SIGMET)	Standing for significant meteorological information, it is a weather report issued for hazardous weather that is considered significant to all aircraft. e.g.: severe icing, severe and extreme turbulence, and duststorms, sandstorms or volcanic ash, lowering visibility to less than 3 miles. See SIGMET
WST (Convective SIGMET)	In-flight weather advisory concerning tornadoes, lines of thunderstorms, embedded thunderstorms, areas of thunderstorms, and/or hail greater than or equal to 3/4 inch in diameter.
WW (Severe Weather Watch Bulletin)	An aviation weather report that identifies areas of possible severe thunderstorms or tornadoes.
X X-ray	
X-ray	Designator for the letter "X" in the International Phonetic Alphabet.
Y Yankee	
Yankee	Designator for the letter "Y" in the International Phonetic Alphabet.
yaw	A rotational motion in which the aircraft turns around its vertical axis. This causes the aircraft's nose to move to the pilot's right or left. Pushing the right rudder pedal will tilt the rudder to the right. The pilot will see the nose of the aircraft turn to the right.
Z Zulu	
Zulu	(1) Designator for the letter "Z" in the International Phonetic Alphabet. (2) Coordinated Universal Time (UTC) formerly known as Greenwich Mean Time (GMT).