

**Air traffic control.** The primary functions of air traffic control in the Department of Transport are to prevent collisions between aircraft operating within controlled airspace and between aircraft and obstructions on the manoeuvring area of controlled airports, and to expedite and maintain a safe, orderly flow of air traffic. These functions are carried out by air traffic controllers in airport control towers, terminal control units and area control centres.

Airport control service is provided to aircraft operating on the manoeuvring area or in the close vicinity, five to 10 nautical-mile radius (9 to 19 km), of civil airports where the volume and complexity of air traffic indicate its need in the interest of flight safety. Service is also provided to other traffic, such as vehicles and maintenance equipment, on the manoeuvring area of an airport. Radio is the prime means of communication although light signals may be used where radio is not available. Airport control towers are in operation at: Gander International and St. John's, Nfld.; Halifax International and Sydney, NS; Charlottetown, PEI; Moncton and Saint John, NB; Baie-Comeau, Dorval International, Mirabel International, Quebec, Saint-Honoré, Saint-Hubert, Saint-Jean, Sept-Îles and Val d'Or, Que.; Buttonville, Hamilton, London, North Bay, Oshawa, Ottawa International, Sault Ste Marie, St. Catharines, Sudbury, Thunder Bay, Toronto International, Toronto Island and Windsor, Ont.; Brandon, St. Andrew's, Thompson and Winnipeg International, Man.; Regina and Saskatoon, Sask.; Calgary International, Edmonton International, Edmonton Municipal, Grande Prairie, Lethbridge and Springbank, Alta.; Abbotsford, Castlegar, Fort St. John, Kamloops, Kelowna, Langley, Penticton, Pitt Meadows, Prince George, Vancouver International and Victoria International, BC; Whitehorse, YT; Inuvik and Yellowknife, NWT. Temporary control service is provided at Vancouver Harbour. Site preparation and construction has been started at Goose Bay for a new tower and operations building. A transportable tower has been purchased for use where required in the North, and is in storage in Edmonton. Each region has a mobile control tower for use with air shows.

Terminal control service is provided to aircraft which are "climbing out", after departure from, or "letting down" for a landing at an airport. It is a service provided to flights operating in accordance with the instrument flight rules in order to separate them from one another and from en route aircraft operating through the terminal area which normally is an airspace within 30-50 nautical miles (56-93 km) of an airport and which, in some cases, may encompass more than one airport. Radar is normally used, in conjunction with direct controller-pilot radio communication. Procedural means are used at some remote locations where radar is not yet available. The service is provided from all area control centres but separate terminal control units are installed at high-traffic-density airports at Halifax, Quebec City, North Bay, Ottawa, Thunder Bay, Regina, Saskatoon and Calgary, where no area control centre is located.

Area control service is essentially an aircraft separation and flight-following service provided to aircraft operating en route between airports. All flights that elect to file flight plans are given flight-following service and separation is provided to all aircraft operating according to the rules for instrument flight or controlled visual flight within designated controlled airspace. Designated controlled airspace consists of (1) high level airspace, i.e. the Southern Control Area, at and above 18,000 ft (5 486 m) above sea level (asl); the Northern Control Area, at and above flight level 230; and the Arctic Control Area, at and above flight level 290; and (2) low level airspace, i.e. all airways, terminal control areas and control area extensions in airspace below the high level airspace. In addition, separation is provided to aircraft operating above 5,500 ft (1 676 m) asl over almost all of the western half of the North Atlantic Ocean. Separation is provided using both radar and procedural means, with direct and indirect communication between controller and pilot. An extensive land line communication system links an area control centre with all affiliated airport control towers, terminal control units and communication stations and with adjacent area control