

Aéroports de Paris

2015-2016
winter season



AÉROPORTS DE PARIS



We won't be able to stop snow falling in Winter...



*...but Aéroports de Paris
does all it can to make sure
your travel plans go smoothly...*

Press kit

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Key figures

Paris-Charles de Gaulle

- ▶ **63.8 million** passengers handled in 2014
- ▶ Largest airport in France, **2nd** largest airport in Europe, **8th** worldwide,
- ▶ **6,5 million** m² of airside surfaces
- ▶ **314 aircraft** parking stands
- ▶ **100 kilometres** of aircraft taxiways
- ▶ **80 kilometres** of service roads
- ▶ **4 runways**: two long (4,200 metres) and two short (2,700 metres) runways
- ▶ Surface area: **3,257 ha**
- ▶ **177** snow-clearing vehicles
- ▶ **20 aircraft de-icing areas**
- ▶ **50** de-icers
- ▶ **2,400 m³ of glycol stocks** for the coming winter season

Paris-Orly

- ▶ **28.9 million** passengers handled in 2013
- ▶ **2nd** largest airport in France and **13th** largest in Europe
- ▶ **91 aircraft** parking stands
- ▶ **18 km** of taxiways
- ▶ **3 runways**: 3,600 metres, 3,300 metres and 2,400 metres long
- ▶ Surface area: **1,540 ha**
- ▶ **62** snow-clearing vehicles
- ▶ **540 m³ of glycol** stock



15 October - 15 April

Implementation of the Aéroports de Paris snow plan



During the winter period, Aéroports de Paris constantly monitors the weather forecasts, working closely with the staff of Météo France, the French weather forecast service. The snow plan is activated as soon as any weather-related risks become apparent. An emergency committee comprising representatives of Aéroports de Paris, the

French civil aviation authority (DGAC), the airlines and Météo France convenes to decide what resources will need to be mobilised, both in terms of manpower and machinery. This group, which is known as the CDM (Collaborative Decision Making) carries out a key coordination role and each of its members plays a part.

Who does what?

Météo France is constantly updating and publishing weather forecasts, which are passed on to the various players. At Paris-Charles de Gaulle and Paris-Orly, a dedicated Météo France team is based within the airport grounds.

The Direction Générale de l'Aviation Civile (DGAC) is the French civil aviation authority in charge of air traffic control (aircraft movements on the ground and in the air). It defines the airport capacity, based on weather conditions and the number of available runways (the number of aircraft authorised to land and take off per hour), and if necessary will request the airlines to adapt their flight schedule in line with the meteorological data. The DGAC grants aircraft permission to take off and land, and if necessary, it can suspend air traffic operations altogether.

Aéroports de Paris clears runways, taxiways and aircraft parking stands when they are unoccupied. If parking stands are occupied, the airlines themselves must clear the snow. At Paris-Charles de Gaulle, Aéroports de Paris is responsible for aircraft de-icing operations, which are performed by service-providers within dedicated areas. At Paris-Orly, however, the airlines themselves are responsible for aircraft de-icing operations, via service-providers.

Aéroports de Paris also helps to keep passengers informed, by relaying the information it receives from the airlines (delays, cancellations, etc.). If necessary, Aéroports de Paris can also attend to passengers whose airlines have been unable to find them accommodation in nearby hotels, and who therefore find themselves stranded in the airport terminals.

Airlines adapt their flight schedules, provide information and assistance for their customers and look after them if flights are delayed or cancelled. If necessary, airlines will provide hotel accommodation for their passengers. Airlines may also experience flight delays and cancellations due to weather conditions at airports where inbound flights originated, and not just due to weather conditions in the local Paris region.

Working together with our partners enables us to anticipate and cope as smoothly as possible with any forecast disruption and thus to guarantee optimum safety conditions.



Aéroports de Paris clears snow from runways and aircraft parking stands



In the event of snowfall or icy conditions, it is absolutely vital to ensure that aircraft runways and taxiways are properly cleared. During take-off and landing, an aircraft reaches speeds of 200 km/hour so it is imperative that runways are cleared, to ensure the safety of passengers and crew.

This is when Aéroports de Paris deploys its "snow train", consisting of various vehicles used simultaneously to clear the runways as quickly as possible.

How many vehicles does a "snow train" consist of?

The composition of a "snow train" at Paris-Charles de Gaulle Airport varies according to several criteria: the type of snow, the amount of snow cover, the temperature on the ground, the wind direction and the specific area to be treated.

The "snow train" is made up of 17 vehicles: a command vehicle followed by 11 high-performance snow-clearers, two salt spreaders and two snow blowers.

A runway friction measuring equipment is positioned at the back, and is used to measure the skid resistance. The results obtained are immediately sent to the French civil aviation authority, the sole authority competent to approve aircraft take-offs and landings. A mobile escort vehicle is also present. It checks that the "snow train" is properly lined up and makes sure it is operating correctly.

To provide additional information, probes are positioned at three locations along the runways so that the condition of the runways can be checked in real time and interventions carried out, if necessary, to treat them.

How long does it take to clear snow from a runway?

The average time depends on the runway length. 4,200 metre runways are cleared in 20 minutes at Paris-Charles de Gaulle, 30 minutes at Paris-Orly, whereas the shorter 2,700 metre runways take around 15 minutes to be clean. These figures are obviously an average and actual time may vary according to weather conditions.

During snow removal operations, traffic on the runway is suspended and the airport's capacities are reduced, which may lead to delays in airline flight schedules.

How is snow cleared from taxiways?

In addition to the runways used for take-off and landing (4 at Paris-Charles de Gaulle and 3 at Paris-Orly), the Aéroports de Paris teams also clear and treat the surfaces of dozens of kilometres of taxiways, so that aircraft can safely taxi to their runways or parking stands.

What about aircraft parking stands?

Paris-Charles de Gaulle Airport has 314 aircraft parking stands, and Paris-Orly has 91. Aéroports de Paris clears these parking stands when they are unoccupied. However, if these stands are occupied by an aircraft, it is the airline, or its support contractor, who removes the snow. In 2011, Aéroports de Paris acquired lighter vehicles for clearing snow from cramped spaces. Some of these vehicles have been made available to the airlines.

Why does the time taken to clear snow sometimes vary?

Each snow episode is different. Wet and sticky snow is often harder to deal with. Consequently, it is not so much the thickness of the layer of snow as the type of snow that is the main factor to be taken into consideration when clearing a runway.

Frequent spells of freezing rain in the winter months also create a need for runways to be treated rapidly and at frequent intervals.

Did you know?

6.5 million m²:

the equivalent of the airside surface areas to be treated at Paris-Charles de Gaulle.

60 metres:

the width of a runway, i.e. 6 times the width of a 2-lane motorway.

113 football pitches:

this is the total surface area of the runways to be cleared of snow at Paris-Charles de Gaulle.

236 vehicles:

the snow removal fleet at Aéroports de Paris.

Airside winter operations programme

runway snow removal

RUNWAY SNOW REMOVAL

177 snow removal machines at Paris-Charles de Gaulle



64 snow removal machines at Paris-Orly

About 20 minutes to clear a 4,200m runway

About 15 minutes to clear a 2,700m runway

17 vehicles make up the snow train



2 snow blowers



2 salt spreaders

1 vehicle to monitor runway friction



This information helps pilots adjust their take-offs and landings.



11 high-performance snow ploughs



1 command vehicle

+ de 1050 staff members and partners involved in snow removal operations at Paris-Charles de Gaulle and Paris-Orly



Régis Lacote,

General Manager of Airside Operations & Facilities at Paris-Charles de Gaulle Airport



Régis Lacote is General Manager of Airside Operations and Facilities at Paris-Charles de Gaulle Airport. All year long, he and his teams prepare for the next winter so that aircraft can safely take off and land.

What distinguishes snow removal operations at an airport such as Paris-Charles de Gaulle?

Paris-Charles de Gaulle Airport covers over 3,257 hectares. Removing snow from the four runways alone means dealing with an area equivalent to 113 football pitches. On top of that, there are about 100 km of roads and over 314 aircraft stands. So you can easily imagine the challenge posed by snow removal at an airport like ours.

It takes an average of 20 minutes to remove snow from a 4,200-metre runway and 15 minutes for shorter, 2,700-metre runways. Runway snow removal handles a swath 60 metres wide. That's four times the width of a two-lane motorway.

Snow is ploughed and swept aside by a team of 1,000 horsepower vehicles deployed across the whole width of the runway by a team of 1,000 horsepower vehicles deployed across the whole width of the runway, and it must be moved as far from the edge as possible to avoid forming drifts, which are potentially dangerous obstacles for aircraft engines.

Snow removal is a ballet brilliantly choreographed by our teams.

Can runway snow removal be compared with normal roadway snow removal?

No, they have nothing in common! For obvious safety reasons, we cannot have planes take off from or land on runways covered in snow or glazed over with ice making them slippery.

In a car, if the road is covered with snow or ice, you slow down. In aviation, it's more complicated because aircraft are moving at over 200 km/h during take-off or landing. So we need to

act fast using mechanical and chemical means to make sure runways are not slippery. On a normal road we use salt – sodium chloride – but that's not an option for runways as it could damage aircraft. liquid potassium formate or solid sodium formate instead.

What technical means do you have at your disposal at Paris-Charles de Gaulle?

Since the winter of 2010, which was particularly harsh, Aéroports de Paris benefits from a significantly enhanced snow removal system. That's especially true for Paris-Charles de Gaulle Airport which is currently equipped with 177 snow-clearing vehicles in 2015.

In the same way, we have 2,400m³ stocks of glycol in 2015, which ensures that we have about a ten day supply, in the event of the heavy snowfall at the airport. We have also 50 de-icers in 2015.

Finally, we have designated new aircraft de-icing zones. Paris-Charles de Gaulle now has 20 of them.

And to operate all these vehicles, there are more than 750 employees and partners for snow removal and close to 300 for de-icing. That's about more than 1,000 male and female employees of Aéroports de Paris or partner companies who are assigned to Paris-Charles de Gaulle winter operations.

They receive training all year long to be ready when the snow falls or the temperature drops, creating icy conditions.



Managers of winter operations :

Profiles of **Michel Landelle** and **Christophe Grandsart**



Michel Landelle
Manager of winter operations
at Paris-Charles de Gaulle



Christophe Grandsart
Manager of winter operations
at Paris-Orly

Their mission is to plan and coordinate winter operations at Paris-Charles de Gaulle and Paris-Orly in order to guarantee and ensure the continued flow of traffic, while maintaining the optimal level of safety. Despite two snow-free winters, the Aéroports de Paris winter service team remains more than ever on alert, and has invested in higher performance equipment for this new season.

What new equipment has been rolled-out for the 2015/2016 winter season?

To complete our runway clearing operations at Paris-Charles de Gaulle, we have acquired two additional heavy salt spreaders, which means we can treat the surfaces of both sets of parallel runways in a row without needing to reload.

Used in tandem with our liquid spreaders, we obtain a greater period of protection.

We now also have two high-performance snow blowers : essential additions in order to envisage treating the surface of the entire width of our runways, of around 60 metres.

At Paris-Orly, we have also completed our fleet of equipment with a high-performance snow blower.

Thanks to this new equipment, we will be able to remove snow on the runway.

Our priority is to ensure that the level of safety on take off and landing remains identical to that of normal operating conditions.

What are the benefits of this new equipment?

The acquisition of this new equipment will allow both airports to significantly reduce snow-clearing operation times, and thus ensure continuity in traffic flow, whilst maintaining a high level of safety.

Drawing upon the experience acquired at Paris-Orly clearing the entire span of the runway of snow, the runway at Paris-Charles de Gaulle, that spans 60 metres, will now also be cleared

in its entirety. Up until last winter, it took two runs per runway to clear the entire span at Paris-Charles de Gaulle.

How do you ensure true efficiency among your teams in the event of snowfall ?

In addition to heavy equipment used for the winter season, the efficiency of our operations relies heavily on the mobilisation of large numbers of people. The small amount of snowfall in the past two winters, means that training and maintaining our staff's skills are key elements in this operation.

Starting in the summer and throughout the winter, staff needed during periods of snowfall undergo initial training if new to the teams, and further training if they already have experience.

This training is essential for maximum anticipation and reactivity of our teams during operations.

To ensure the best possible conditions of safety at Paris-Charles de Gaulle and Paris-Orly, our teams undergo specific training in a variety of scenarios, by day or by night, allowing them to maintain their skills.



Aéroports de Paris de-ices aircraft



In winter, the ice that builds up on an aircraft fuselage and wings will make it too heavy and therefore much harder to fly; this could in turn have serious consequences when taking off. For obvious safety reasons, the aircraft's captain may decide to request the de-icing of the aircraft.

- ▶ At Paris-Charles de Gaulle, Aéroports de Paris is responsible for operations within dedicated areas located close to the runways in order to minimise the time between completion of treatment operations and the aircraft take-off. This service is provided by contractors working for Aéroports de Paris.
- ▶ At Paris-Orly, aircraft are de-iced on their parking stand. The airlines are responsible for these operations, and have contracted this process to support companies providing this service. Aéroports de Paris supplies these service providers with glycol, except for Air France, which has its own stock.

How do you de-ice an aircraft?

Between two and six de-icing vehicles are required, depending on the aircraft type. Operators spray the plane's fuselage and wings with a mixture of glycol and water. Once the de-icing process is completed, the plane has a "protection time" in which it will be able to taxi to the runway from which it will take off. To prevent further build-up of ice on the plane, de-icing operations have to be synchronised with snow removal operations, so that aircraft can quickly take off from a clear runway and thus avoid a further trip to the de-icing area.

At Paris-Charles de Gaulle, we have 50 de-icing vehicles in 2015.

How long does it take to de-ice an aircraft?

The amount of time it takes to de-ice an aircraft varies both according to the aircraft type and the weather conditions at the time of de-icing operations. Usually, it takes at least 10 to 15 minutes to de-ice a medium-sized or wide-bodied aircraft. However, the process may take twice as long in sticky snow conditions.

What stocks of glycol are available for this winter?

To cope with the demands imposed by particularly severe and long winters like the one we had in 2010, Aéroports de Paris has decided to significantly increase its stocks of de-icing fluids (glycol). As a result, the supplies have more than doubled since last winter, boosting stocks to 2,400 m³ at Paris-Charles de Gaulle and to 540 m³ at Paris-Orly.

How many de-icing areas are there at Paris-Charles de Gaulle?

We have created five new de-icing areas in the past two years at Paris-Charles de Gaulle, which now numbers 20.

Did you know?

2,400 m³

glycol storage capacity at Paris-Charles de Gaulle for winter 2015/2016.

540 m³

glycol storage capacity at Paris-Orly for winter 2015/2016.

Airside winter operations programme

de-icing aircraft



An A320 for airport safety!



The Aéroports de Paris A320 is parked close to the Air France maintenance area and the FedEx hangars. On the fuselage it says "Here, our teams are training for your safety".

This aircraft, painted in the Aéroports de Paris livery, was configured in 2014 to enable the airport's firefighters and de-icing crews to train in real-life conditions in order to improve safety for passengers and airlines.

Paris-Charles de Gaulle has thus become one of the few airports in the world to use a real aircraft to provide training. The majority of airports only use mock-ups. Nearly 300 employees of Aéroports de Paris and service providers will also be able to practice de-icing procedures using this aircraft. Before the A320 arrived, in addition to the regular use of a simulator, the training of de-icing operators was carried out on an aircraft wing.

The winter maintenance crews are able to de-ice 14 aircraft simultaneously and up to 50 aircraft an hour in severe weather conditions.

"This investment enables the airport's teams to continue to be ever more efficient in terms of firefighting capability, rescue and winter maintenance. The purchase of this aircraft confirms the priority Aéroports de Paris accords to the improvement of safety conditions at the airport. Today, the A320 represents almost half of the fleet operating out at Paris-Charles de Gaulle," stresses Franck Goldnadel, Managing Director of Paris-Charles de Gaulle Airport.

Did you know?

A320 de-icing test, under real-life conditions

4 vehicles are required for this operation, with 2 vehicles positioned at the front of the aircraft and 2 at the rear, on each side. The drivers of these de-icers are able to move the vehicles from inside the cherry picker, to get closer to the aircraft. De-icing is performed from top to bottom and from the front to the rear of the aircraft, using what is referred to as a "Type 1" product. De-icing is performed using a continuous jet. **Each de-icing vehicle has a capacity of 3,000 litres of this liquid.**

The second part of the process is **anti-icing**, which may be needed in cases of snowfall or freezing rain. This must be performed within **3 minutes of de-icing** in order to be effective. Anti-icing prolongs the time that the aircraft is protected and prevents frost from re-forming or snow from building up again.

Each de-icer has a storage **capacity of 1,000 litres** for this second "Type 4" product. This product is sprayed in the form of rain

Aéroports de Paris lends its assistance to airlines in providing information to passengers and dealing with their needs



Providing passenger information (flight times, delays, how to book another ticket, how to obtain a refund, etc.) and dealing with their needs, e.g. finding them overnight accommodation, are all tasks that are the airlines' responsibility. However, Aéroports de Paris stands by the airlines to help them discharge these responsibilities.

How do you update the flight information available in terminal buildings?

Aéroports de Paris is dependant on information updated and transmitted by the airlines in a shared IT tool. We must ensure that our extensive flight information display system in the terminals is fully operational, in order to pass this information on to the passengers. We have more than 3,300 display screens at Paris-Charles de Gaulle and 400 screens at Paris-Orly.

Since January 2012, we have also been deploying 400 new digital advertising panels, which can be used to supplement the conventional display panels. These can be mobilised to transmit messages or advice to passengers, in the event of a major disruption.

What other information channels does Aéroports de Paris use?

Airlines feed information into the same database, which is used to update all of our web and mobile applications in real time.

- ▶ By telephone: 39 50*
- ▶ Via the internet: www.aeroportsdeparis.fr
- ▶ New free email alert service: "My flight live"
- ▶ "My airport": an application to download free of charge to a smartphone
- ▶ Twitter: @AeroportsParis

*€ 0.34 incl. tax/min. from a land line in mainland France, operator-specific additional costs not included). From abroad, dial: +33 1 70 36 39 50



Our information number, **39 50**, receives a great many calls during periods of severe air traffic disruption: it received nearly 91,000 calls in December 2010, with daily peaks of over 13,600 calls.

The number of hits received by our website www.aeroportsdeparis.fr may increase from 300,000 per week to more than 1,700,000 hits, with peaks of over 400,000 visitors in a single day. Our website offers a new

free service, "My flight live", which provides an email alert when the airline issues a confirmation or changes to flight details (e.g. confirming it is on time, delayed, postponed, cancelled, changes terminals, etc.).

Most of the information on flight times and the advice prior to flying can also be accessed via our smartphone application. This can be downloaded free of charge: **My Airport**.

And in the event of disruption, we plan to make greater use of our Twitter account **@AeroportsParis** during this winter season.

Do you have back-up support if crowds of passengers are stuck at the airport?

Looking after passengers is one of the airlines' duties, but needless to say, our 450 customer care staff members are mobilised throughout the winter, to guide passengers, direct them to the right person to speak to and provide the latest available information on flight schedules.

In the event of large numbers of passengers congregating at our airports, all staff teams working at Paris-Charles de Gaulle and Paris-Orly are mobilised, and provide assistance within the terminals to meet passengers' needs (distributing snacks, passenger kits, equipping areas to accommodate families with children or elderly persons overnight, etc.).

Aéroports de Paris can also rely on a pool of volunteers, who are employed in jobs of a more administrative nature all year round, to provide back-up services.



What about overnight accommodation for stranded passengers? What night-time accommodations can stranded passengers expect?

Paris-Charles de Gaulle has over 2,700 folding beds, 18,000 blankets, and more than 23,500 "courtesy kits" – including inflatable cushions, sleeping masks, earplugs, and toiletries – at hand for passengers. Paris-Orly has over 1,300 folding beds and more than 5,500 blankets. We have also put together

"patience kits" specially aimed at families with children. Each contains a stuffed animal, a deck of cards, and colouring pencils.

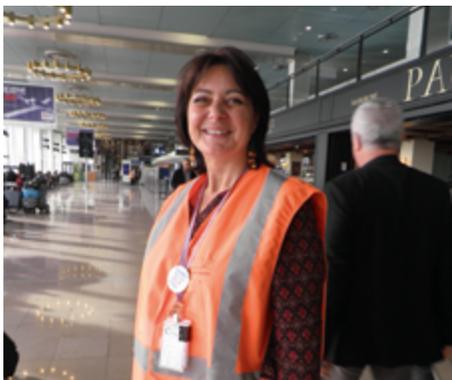
Did you know?

3,400 flight information screens in our terminals

91,000 calls to the 3950 hotline in December 2010, peaking at 13,600 per day

1,700 000 visitors per week to our website during periods of major traffic disruption, peaking at 400,000 visitors per day

Angélique Galice, "Happy to help you"



Angélique Galice joined Aéroports de Paris in 1991.

She is now in charge of centralising information regarding initiatives, projects or events linked to passenger satisfaction at Paris-Orly Airport.

This is not her only role, Angélique is also a volunteer for the winter service and an Airport Helper.

Interview.

Can you tell us more about what an Airport Helper does?

An Airport Helper is an employee who volunteers and who in addition to their usual role, informs passengers and assists them, particularly while we are making our way through the airport terminals.

Why did you commit to becoming an Airport Helper?

We don't become an Airport Helper, we are one!

This is why it seemed so obvious to me. Being an Airport Helper means being one of the links in a long chain that helps to put passengers at ease. This also allows me to increase my network of relations by wearing the "Happy to help you" badge. This badge makes us stand out among

passengers, and also among colleagues. Being an Airport Helper allows me to make my belonging to the big "airport family" a reality.

What is an Airport Helper's role in winter?

In addition to my commitment as an Airport Helper, I volunteer to help remove snow from the runways and taxiways. If snowfall is announced, I can be asked to drive one of the snow-clearing vehicles. If this doesn't happen, or another colleague is requested to do so, I put my Airport Helper hat back on and help passengers while making my way through the terminal. The winter period is a time when the weather can make passengers more vulnerable throughout their journey.

Airport Helpers are, thus, called upon for assistance more and more often.

What do you get from this?

Like many, I was strongly affected by the images in the media of people stranded in airports during snowy periods a few years ago. By becoming an Airport Helper, I felt able to approach passengers that seemed lost. It's nice and comforting to know that kindness and a smile changes everything, anywhere.

The Airport Helper community means that our passengers receive a warmer welcome and gives our airports a positive and friendly image. During my two volunteer missions, the most important thing is to assist the passenger and to ensure their safety.

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