



Impact of strikes on European Aviation

Between 1 March and 9 April 2023, there were **34 days with industrial action** impacting air transport in Europe, mostly in France but also, to a lesser extent, in Germany. As context, for the whole of 2022, there were 5 days of industrial action in France.

The 34 days of strikes in 2023 **potentially impacted 237,000 flights** (flights to, from or across the countries mentioned above, mainly France). By comparison, the airspace closures in Europe resulting from the eruption of the Eyjafjallajökull volcano in 2010 (15-22 April) led to the disruption of some 100,000 flights.

Impact of strikes on the network as a whole

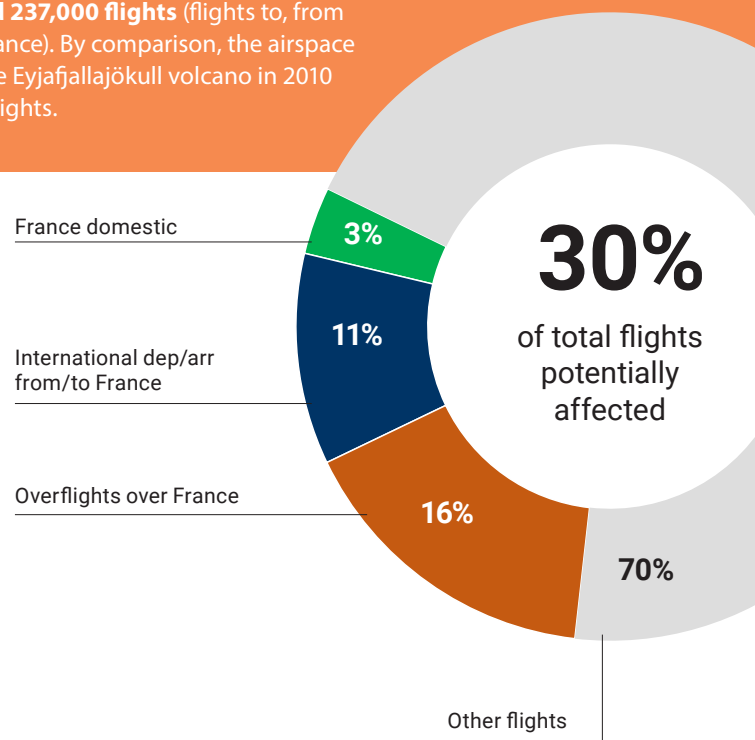
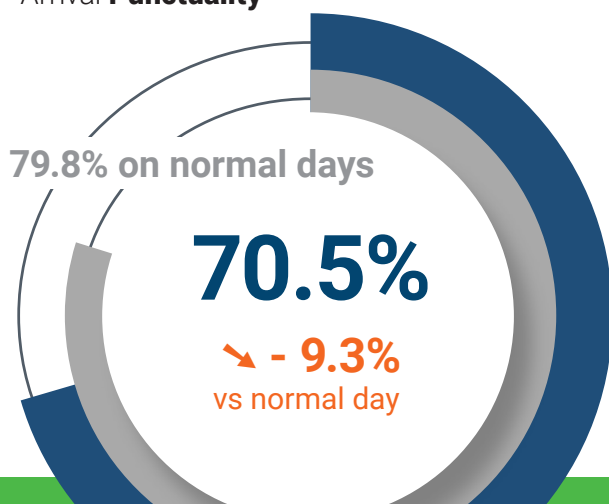
On average, in the first three months of 2023, 3,300 flights¹ took off or landed in France each day (including 800 domestic flights) and an additional 3,700 passed through French airspace. With an average of 23,000 flights a day in Europe as a whole, **this means that 30% of daily European flights were potentially impacted by industrial action in France.**

As a result of the application of the industrial action, **many flights were either delayed or cancelled², affecting millions of passengers.**

The following figures summarise the effect of the strikes in France in **March and April 2023³ at Network level:**

- **More than 10 million passengers were affected** by the French strikes.
- On a typical strike day, approximately **64,000 passengers were unable to fly as they intended** as a result of cancellations.

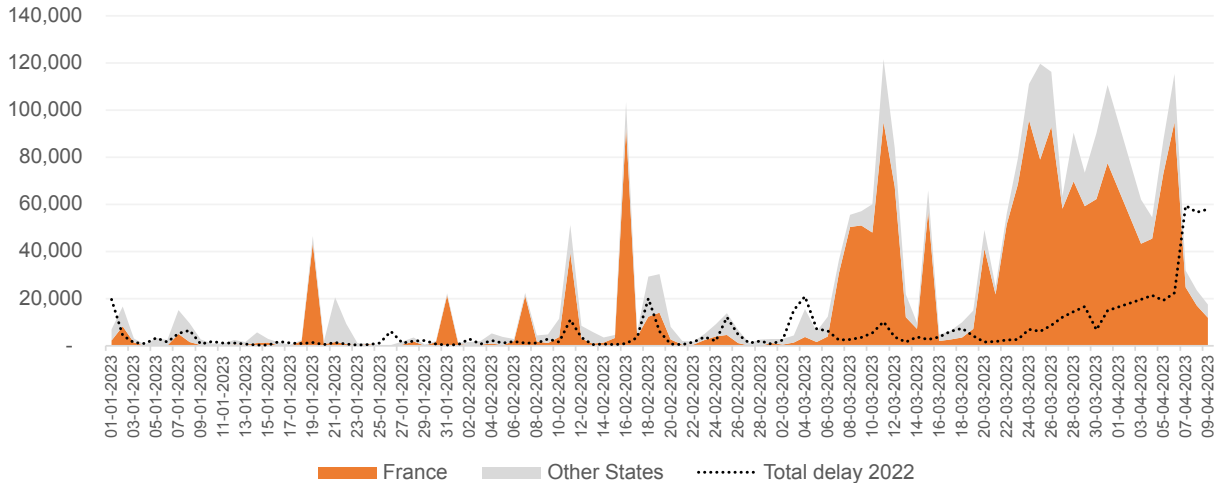
Arrival Punctuality



- **Daily cancellations increased by 37%.** When compared to a normal day⁴, on strike days in France, there were on average **485 additional cancellations, of which 25% were overflights.**⁵
- **Punctuality decreased by 9 percentage points.** Arrival **punctuality** at Network level deteriorated **from 80% on a normal day to 71%** on strike days. For those flights that were not cancelled, flights arrived on average 17 minutes later than scheduled, **6 minutes more delay** than on a normal day.
- For the flights arriving in, or departing from, France, the arrival punctuality dropped from **80% to 61%** and the delay increased from **11 to 23 minutes** on average.
- **Severe impact in other countries.** Strikes in France had a severe impact on traffic not only in France but also in other countries, in particular its neighbours.

■ **En-route ATFM delay** (the time that an aircraft is held on the ground by the EUROCONTROL Network Manager because of a lack of ATC capacity along its route) up to 9 April 2023 was **four times higher than in 2022**, with France representing 74% of the total.

En-route ATFM delays in minutes



Impact on States

In **France**, the impact of strikes was substantial. Almost **a third of flights departing France were delayed** as a direct result of the strikes.

Strikes in France also have a severe impact on traffic in other countries, in particular its neighbours. **Spain** had 394 daily departing flights delayed as a direct result of the strikes, followed by the **UK** (209) and **Italy** (152). However, in terms of share of departing flights affected by the strike, **Belgium** was the most impacted with 20%, followed by **Portugal** (16%), **Spain** (15%) and **Morocco** (15%).

Most of these affected flights were not flying to France but were overflying France en-route to another country. For Spain this was 88% of its affected flights (345 out of 394), whereas for the other States between 66% and 77% of their impacted flights were overflights rather than flights to France.

The average ATFM delay per delayed flight for those flights departing from the impacted states was between 19 and 27 minutes with an average of 23 minutes.

No.	Country	Avg departure flights delayed by French strikes	Of which, flying to France	Overflying France	% of all departure flights	ATFM delay per delayed flight by French strikes	Additional daily cancellations vs normal days*
1.	France	634	252	382	30%	25.7'	↑ +131 (+158%)
2.	Spain	394	49	345	15%	23.2'	↑ +63 (+61%)
3.	United Kingdom	209	69	140	8%	23.9'	↑ +62 (+50%)
4.	Italy	152	48	104	8%	19.0'	↑ +24 (+41%)
5.	Germany	145	42	103	6%	24.7'	↑ +95 (+81%)
6.	Portugal	97	25	72	16%	24.4'	↑ +19 (+96%)
7.	Switzerland	80	19	61	13%	20.2'	↑ +8 (+25%)
8.	Belgium	77	18	60	20%	21.0'	↑ +6 (+23%)
9.	Netherlands	46	15	30	6%	21.4'	↑ +9 (+32%)
10.	Morocco	45	19	26	15%	27.3'	↑ +8 (+146%)

* Departing flights only; includes also the effect of the industrial action at German airports on 27 March

This table does not take into account the knock-on effect of ATFM delays on later flights by the same aircraft; as a result, the actual percentage of flights departing later than 15 minutes of their scheduled time on strike days was much higher, between 49% and 31% for the countries in the list.











In order to provide an estimate of the number of cancellations attributable to industrial action, we gather data on flights that were cancelled close to their scheduled time of operation (within two days).

Compared to a normal day, there were 2.5 times as many cancelled flights in France. In Portugal they almost doubled whereas in Germany, also due to the effect of industrial action at some German airports on 27 March, cancellations increased by 80% on average over the whole period analysed (see³). For the rest of most affected States, cancellations increased between 23% and 61% compared to a normal day.

Impact on aircraft operators

Individual aircraft operators are also impacted by strike action in different ways depending on their routes and specific city pairs. In terms of the number of delayed flights, the most affected by the French strikes was **Ryanair** with a daily average of 332 flights delayed (i.e. with an ATFM delay attributed to industrial action), followed by **Air**

France (277) and **easyJet** (256). **Air France** had the highest share of flights delayed by the strikes with almost a third, followed by **easyJet** (19%) and **Vueling** (17%). The average **delay** per delayed flight for the airlines below due to the strikes was **22 minutes**.




No.	Aircraft operator	Avg departure flights delayed by French strikes	% of all departure flights	ATFM delay per delayed flight by French strikes
1.	 Ryanair Group	332	13%	25.5'
2.	 Air France Group	277	31%	19.1'
3.	 easyJet Group	256	19%	25.0'
4.	 Vueling	94	17%	21.3'
5.	 British Airways Group	56	7%	24.0'
6.	 Eurowings Group	56	14%	23.8'
7.	 KLM Group	49	5%	19.3'
8.	 Lufthansa Airlines	49	7%	18.3'
9.	 Iberia Group	44	12%	19.0'
10.	 Wizz Air Group	44	6%	22.9'

As for States, these ATFM delays do not reflect other impacts of the strike, such as knock-on delays and longer flying times caused by avoiding French airspace. Overall, these airlines suffered a reduction in punctuality of between 6% and 24%.

Environmental and financial impact

In addition to the impact on passengers, **strikes can also have a large environmental footprint**. EUROCONTROL estimates, that between 7 March and 9 April 2023, **additional 96,000 km** were flown each strike day, with an **average additional 386 tons of fuel burnt and more than 1,200 tons of CO₂ emissions**.

The **cost to aircraft operators** of cancellations between 7 March and 9 April 2023 was **8M€ per day** on average. The costs of delays were an additional **6M€ per day** on average.

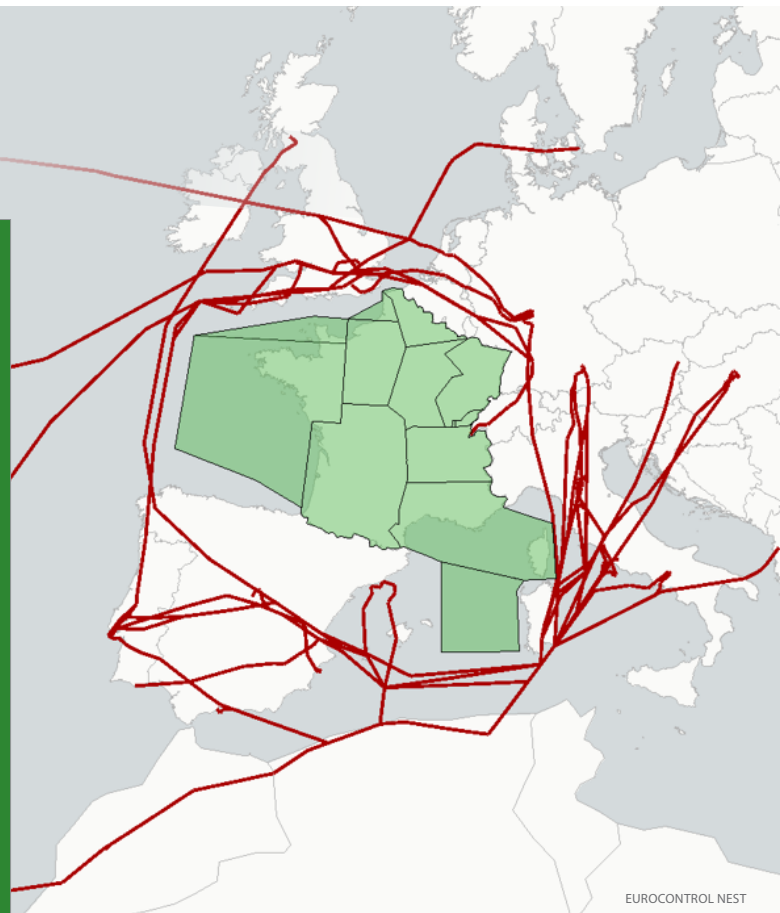
Each Strike Day (during 7 March - 9 April)	
	96,000 additional km flown
	386 tons of additional fuel burnt
	1,200 additional tons of CO ₂ emissions

As an example, on 12 March, around 40 flights had to **extend their path by at least 200 nautical miles (370 km)** in order to avoid French airspace⁶ (when compared to their flight plans on 5 March, a non-strike day).

Conclusions

The strikes in France in the first quarter of 2023 impacted up to 30% of flights across the continent, showing the **disproportionate impact that disruptions in one country can have on the European Network as a whole**. The impact was felt not only on flights arriving in or departing from France but also on flights to and from neighbouring countries. The knock-on effect of delays and cancellations (including those related to the strikes in Germany) was also felt far beyond France itself. **Millions of passengers were affected**.

Although France does have minimum service provisions, preventing the complete closure of its ATC operations, these do not protect overflights. Minimum service regulations across Europe that protect overflights (such as are seen in, for example, Italy and Spain) would go some way to protect the flying public from the disruption described in this paper.



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1- In the context of this paper, flights should be understood as IFR movements.
 2- In this document, cancellation or cancelled flights refer to the non-operated scheduled flights by comparing the schedules on D-2 (two days before the expected flight) with the flights which actually flew. This provides an approximation of the number of cancellations but does not, for example, capture a flight cancelled three or more days before it was due to take place. For this reason, the figures in this document cannot be used in the context of the Regulation (EC) No 261/2004 of the European Parliament and of the Council.
 3- The strike period considered is from 7 March to 9 April 2023. Note that these were days of industrial action in France but also on 27 March there was industrial action in some German airports. During this period, the change from winter to summer schedules took also place.
 4- A 'normal day', contrary to a 'strike day', is calculated as a weighted average of the number of flights on a matched day before and a day after the day of strike.
 5- This can be attributed to the flight reduction programme set up by France (in response to the strikes), to airlines cancelling flights in order to avoid long delays/flying times related to strikes or to flights not operated by airlines for other reasons.
 6- Based on FIR (Flight Information Region).