

Case Study of Dispatch Release without Available Alternate Aerodrome

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Abstract

Dispatch release is one of the most important posts in the airline operation center. The dispatch and release of flights involves NOTAMs, weather, maintenance, crew qualification, etc. In order to prevent emergencies during operation, the dispatch and release of each flight shall meet the operation standards specified by the Civil Aviation Administration of China. If a flight has no alternate aerodrome available due to weather or other reasons, it cannot be released. This paper takes a flight with no available alternate airport as an example to analyze the factors that flight dispatchers need to consider, which can improve the business level of flight dispatchers.

Keywords

No Alternate Aerodrome Available; NOTAM; Flight Delay; Case Analysis; Flight Dispatch.

1. Introduction

Unless otherwise specified in the dispatch or release of cross water operation, before the aircraft is dispatched or released according to the instrument flight rules, the corresponding weather report, forecast or a combination of the two shall be confirmed to indicate that the weather conditions of each airport listed in the dispatch or release sheet are at or higher than the approved minimum standard when the aircraft is expected to arrive, otherwise, No aircraft shall be dispatched or released to fly according to instrument flight rules [1]. If the surrounding of the destination airport is covered by thunderstorms or typhoon, there may be no alternative airport. The flight dispatcher needs to collect NOTAMs and weather information. If it is determined that there is no alternate aerodrome available, the aircraft cannot be released and the flight needs to be delayed or cancelled. Earlier flights at the same destination airport can provide information reference for later flights.

2. An Actual Case of Flight Operation

Flight 6877 is scheduled to fly from Shanghai Pudong International Airport to Beijing Capital International Airport, and flight 6875 is scheduled to fly from Shenzhen Bao'an International Airport to Beijing Capital International Airport. The planned takeoff and landing time, actual takeoff and landing time and delay information of the two flights are shown in Table 1.

Table 1. flight time information of 6877 and 6875

flight number	Registration Number	Scheduled departure time	Scheduled arrival time	Actual takeoff time	Actual arrival time	Delay time
6877	B2840	23:50	01:50	00:17	02:19	00:27
6875	B2828	01:30	04:10	04:50	07:29	03:20

Beijing Capital International Airport was affected by thunderstorms. Both flights are to Beijing Capital International Airport, so the flight dispatcher shall release flight 6877 first, and then consider the release of flight 6875 according to the actual operation of flight 6877, so as to prevent the alternate landing of both flights. After the release of flight 6877, the flight flow of Beijing Capital International Airport decreased due to thunderstorm, and flight 6877 was at risk of alternate landing. The flight dispatcher closely monitored the weather and effectively communicated with the crew. Finally, flight 6877 landed safely at Beijing Capital International Airport at 02:19. The alternate airports around Beijing Capital International Airport have issued NOTAMs that do not accept alternate flights due to the lack of parking spaces. Flight 6875 had to be delayed, waiting for the alternate airport to open.

2.1. Dispatch and Release Process of Flight 6877

At 22:00, when preparing for dispatch and release, Beijing reported that the weather was good and that there was a weak thunderstorm in the follow-up. The meteorological message is as follows: METAR ZBAA 301430Z 10002MPS 080V140 6000 NSC 29/23 Q0999 BECMG AT155030010G18MPS TSRA=METAR ZBAA 301400Z 13002MPS 090V150 7000 NSC 28/23 Q0998 NOSIG=METAR ZBAA 301330Z 16003MPS 7000 NSC 29/22 Q0997 NOSIG=TAF ZBAA 301330Z 301524 32004MPS 5000 -TSRA FEW040CB BKN040 BECMG 1819NSW=TAF ZBAA 301030Z 301221 16004MPS 5000 BR NSC=Looking at the radar map, it is found that there is a radar echo moving towards the airport in the west of Beijing airport, with high intensity, strengthening trend and fast speed. After communicating with the company's meteorologist, it is analyzed that the thunderstorm is expected to arrive at the airport at about 23:30 and the impact time is about 1 hour. At the same time, consult the Beijing Airport weatherman. The Beijing Airport weatherman replied that the thunderstorm is expected to affect Beijing airport from 23:30 to 00:00, about one and a half hours to two hours, with high intensity. Considering the estimated departure time of our flight 23:50, the estimated arrival time is 01:50. After assessment, the flight dispatcher decides to inform the crew of normal approach preparation, and the takeoff time can be flexibly controlled according to the weather. After discussing with the on duty manager, this scheme is feasible. The on duty manager emphasizes to continuously pay attention to the weather development before takeoff and keep communication with the crew in time. At that time, alternate airports around Beijing, Jinan, Dalian, Shenyang and Taiyuan did not receive alternate flights, Qingdao is basically excluded due to the long alternate route of foreign flight crew (the alternate time is calculated to be about 1.5 hours), and the only alternate airport that can be considered is Tianjin (receive alternate landing before 03:00 Beijing time), Shijiazhuang and far away Zhengzhou and Xi'an. Shijiazhuang and Zhengzhou are selected as alternate aerodromes during release. Considering the actual payload, thunderstorm and regulatory factors, an additional 3000lbs of fuel is added. The specific fuel information is shown in Figure 1.

	FUEL	TIME	DIST	NAM	PLAN	AGTOW	218200
TRIP	014644	01:50	0757	0744	DOW 116056	RWY	240000
ALTN/ZHCC	011157	01:20	0487	0509	PLD 051000	ACL	067900
HOLDING	000000	00:00			ZFW 167056	MZFW	184000
CONT	005444	00:45			TOF 034245	TOF	034245
REQD	031245	03:55				MZTW	218200
EXTRA	003000	00:25			TOW 201301	MTOW	240000
TAKE OFF	034245	04:20			TIF 014644	TCAP	240000
TAXI	001200				LDW 186657	MLDW	210000
RAMP	035445	04:20					
FOD	019601	02:30					

Figure 1. flight plan fuel information of flight 6877

At 22:30, the flight dispatcher explained the weather conditions and dispatch release decision to the crew, informed the crew of normal preparation, the flight dispatcher will continue to pay attention to the weather development trend, keep communication in time, and the flight dispatcher informed the departure time, and the crew agreed. The subsequent crew shall prepare for mobilization according to the normal flight.

23:00 Beijing airport weather: METAR ZBAA 301500Z 10002MPS 060V150 6000 NSC 28/23 Q0999 BECMG AT155030010G18MPS TSRA=Consult the meteorologist of Beijing airport. The reply is after 23:50, the thunderstorm will begin to affect Beijing airport and is expected to end around 2 o'clock. According to the analysis of radar chart, this wave of thunderstorm moves fast and affects Beijing airport for about half an hour to an hour. The main body of thunderstorm should be able to move out of Beijing airport at about 01:30. Considering the estimated arrival time of flight 6877 at 01:50, confirm with Pudong tower that there is no flow control towards Beijing. In order to reduce the risk of flight alternate landing, it is more appropriate to delay the flight for about half an hour, which can ensure that the flight is basically normal. In addition, it can avoid thunderstorms (the expected arrival time is about 02:20 after half an hour of delay). After discussing with the duty manager, it is feasible to communicate with the captain. The departure is delayed for half an hour, and the air is kept in touch at any time. After arriving at Beijing Airport, it may be necessary to hover and wait. The air waiting time can be calculated according to the actual fuel volume. The crew agreed that flight 6877 took off at 00:17, with a departure delay of 27 minutes.

2.2. Monitoring Process of Flight 6877

About 15 minutes after taking off, the crew issued ACARS saying that Beijing airport was closed and the controller might command the flight to alternate. The dispatcher immediately consulted the East China regional dispatching and replied that the Beijing regional dispatching needed to wait in the air for about half an hour due to thunderstorm and flow control. The dispatcher replied that flight 6877 has sufficient fuel. Please command the flight to wait. We contacted Beijing regional dispatching and got a reply. Some flights were prepared for diversion due to thunderstorm at Beijing airport, and some flights were waiting in the air. It is necessary to increase the interval flow control, but the waiting time in the air shall not exceed 30 minutes at most. Tianjin and Zhengzhou airports can accept an alternate landing, but Shijiazhuang does not accept an alternate landing because of the parking space. This information is then transmitted to the crew through ACARS, and the weather information of Beijing, Tianjin and Zhengzhou is sent at the same time. It is suggested to wait in the air. If the controller agrees to receive it, it will continue to fly to Beijing. The crew agrees.

At 01:00, Beijing METAR showed a weak thunderstorm. Check the radar chart and analyze that the thunderstorm is about to pass. After consulting the meteorologist of Beijing airport, we learned that the thunderstorm in Beijing Airport decreased, the visibility was good, and the thunder frequency was not high. It will end at about 01:30. The flight dispatcher sends the weakening trend of Thunderstorm in Beijing to the crew and monitor the aircraft position dynamic report. The aircraft is flying towards Beijing.

2.3. Dispatch and Release Process of Flight 6875

(1) Weather and NOTAMs analysis

As previously analyzed, Beijing airport is affected by thunderstorms, and flights need to hover and wait in the air. NOTAMs that do not receive alternate flights from surrounding airports have been received one after another.

(2) Surrounding alternate NOTAMs

ZBTJ 1307310300-1307310700 Alternate flights are not accepted at this aerodrome due to construction.

ZBYN from July 16 00:00 to July 31 06:30 0000-0630 every day, the aerodrome does not accept alternate landing;

ZYTX during 02:00-06:00 every day from July 27 to August 7, the aerodrome was closed.

ZBSJ from July 31 to July 31, 01:06-08:00 does not accept alternate landing, because the aircraft position is saturated.

ZSQD from July 31 to July 31, 00:30-08:30, this aerodrome does not accept alternate landing because the aircraft position is saturated.

ZSJN from July 31 to July 31, 00:35-03:00, alternate landing is not accepted in this aerodrome.

ZYTL from July 30 to July 31, 23:30-07:00, this aerodrome does not accept alternate landing because the aircraft position is saturated.

(3) release process of flight 6875

	FUEL	TIME	DIST	NAM	PLAN	AGTOW	220100
TRIP	022054	02:40	1151	1128	DOW 116305	RWY	230000
ALTN/ZBTJ	004019	00:26	0115	0118	PLD 066000	ACL	067000
HOLDING	000000	00:00			ZFW 182305	MZFW	184000
CONT	005743	00:45			TOF 036800	TOF	036800
REQD	031816	03:51				MZTW	220800
EXTRA	004984	00:39			TOW 219105	MTOW	230000
TAKE OFF	036800	04:30			TIF 022054	TCAP	230000
TAXI	001200				LDW 197051	MLDW	198000
RAMP	038000	04:30					
FOD	014746	01:50					

Figure 2. flight plan fuel information of flight 6875

At about 00:40, the crew arrived at the preparation room. Due to the thunderstorm in Beijing, the flight dispatcher advised the crew to wait in the lounge. Subsequently, the aeronautical information engineer received that the parking spaces of the surrounding airports were saturated and did not receive alternate landing. The crew returned to the hotel to rest. The actual operating load of flight 6875 is 30054kg, which is close to full payload. Due to the heavy payload, the nearest Tianjin airport was selected to make a flight plan for the alternate airport, increasing the extra fuel by 39 minutes. The fuel information of flight 6875 is shown in Figure 2. Wait until 7 o'clock and Tianjin Airport begins to accept alternate landing. Finally, flight 6875 took off at 04:50, and the flight was delayed for 200 minutes.

3. Case Analysis

(1) The flight dispatcher shall strengthen the communication with the controller. In thunderstorm weather, the route or airport is covered by thunderstorm weather. The control may increase the aircraft separation and do not receive the aircraft, resulting in good weather when the aircraft reaches the destination, but the aircraft is still alternate.

Therefore, before taking off, fully communicate with the controller and decide whether the flight takes off or waits on the ground according to the actual situation.

(2) Flight 6877, under the close communication and coordination of flight dispatcher, aviation meteorologist and air traffic controller, made a scientific decision and delayed for 30 minutes. The flight crew and flight dispatcher shall maintain communication and make joint decisions before and during flight. Finally, it landed safely at Beijing Capital Airport.

(3) Flight 6875 started because the weather at Beijing airport was lower than the operation standard. Later, there was no alternative airport available after the weather improved, so it could not be released. Flight dispatchers shall strictly abide by the release standards and keep the safety bottom line.

4. Suggestions on Dispatch Release in Bad Weather in this Case

In case of bad weather, flight dispatchers need to strengthen weather analysis and monitoring. In combination with the meteorological message, weather radar chart, the opinions of the company's meteorologist and the airport meteorologist, the dispatcher shall make a comprehensive judgment to form his own judgment and make the decision of dispatch release. If the flight time is short, it can be released after the weather improves; If the flight takes a long time, additional fuel needs to be added to closely monitor the weather changes and maintain communication with the crew [2].

(1) The flight dispatcher and the aeronautical information engineer shall cooperate well, deal with the latest aeronautical NOTAMs in time, and master the close of the airport. Reduce the planned alternate airport closure after flight departure. If the alternate aerodrome is closed or does not receive the alternate aerodrome, it shall be upload through ACARS. It is suggested that the crew select a new alternate aerodrome.

(2) There is no alternate aerodrome available at the time of release, which needs to be delayed. It is not allowed to violate the release standards required in the regulations in order to release the flight. If the flight has taken off, monitor the flight dynamics and bad weather, communicate with the crew in time when the alternate aerodrome is unavailable, and select a new alternate aerodrome. If there is no suitable alternate aerodrome and the destination airport is not up to standard, return or alternate aerodrome shall be considered.

(3) The flight dispatcher needs to keep communication with the crew in bad weather. Especially during the release explanation, the flight dispatcher shall inform the flight crew of the dispatch and release ideas, weather conditions and matters needing attention of the crew. Assist the crew to fully grasp the information required for this flight. This can not only help the crew calmly face the weather conditions in flight, but also establish the crew's trust in the dispatcher. During flight, the crew will recognize the suggestions given by the dispatcher, so as to reduce the possibility of flight alternate landing.

5. Conclusion

Airlines pursue flight punctuality out of consideration of benefits. Flight normality is also an important indicator for ATC system and airport, reflecting the service level and performance of ATC system and airport. Flight dispatchers should not only ensure flight safety, but also ensure flight punctuality. Therefore, flight dispatchers should find a balance between safety and benefit, try to improve the flight normality rate on the basis of meeting the release standards, and reduce flight return and alternate landing.

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