

Republic of Korea

1. ATM-tailored MET Information and Services

To improve the safety of air-navigation and the efficiency of ATFM, the Ministry of Land, Infrastructure and Transport (MOLIT) of the Republic of Korea has been operating the Air Traffic Command Center (ATCC) at the Air Traffic Management Office (ATMO) since July 2017. The Aviation Meteorological Office (AMO) of the Korea Meteorological Administration (KMA) works 24 hours a day at the ATCC to support decision-making for ATFM. The AMO participates in the CMD to provide weather information for domestic airports, as well as significant weather information for foreign airports, airspace and air routes.

1.1 CDM Meeting

The ATCC regularly holds a CDM meeting once a day (0700 UTC). At the meeting, the AMO provides a weather briefing to the CDM members. Whenever a weather event that may have a significant impact on aircraft operation occurs, or is expected to occur within a few hours, a non-regular CDM meeting will be held and the AMO will provide a weather briefing.

1.1.1 CDM on heavy snow

Snow causes aircraft de/anti-icing and runway snow removal, affecting airport capacity and air traffic flow. When snow is expected to be more than 3cm, a CDM will be held prior to the regular CDM, and will be joined by the AMO, ATCC, airport operators and airlines to share weather information and analyze the impact on air traffic flow.

1.2 Weather Briefing

1.2.1 Weather briefing for ATCC

The AMO provides a weather briefing for ATCC twice a day (0000 and 0900 UTC). The weather briefing is offered during the shift of air traffic flow managers, and describes the expected weather conditions at domestic and foreign airports and airspace, which could affect ATFM during on their duty.

1.2.2 Weather briefing for ACC

The AMO provides a weather briefing for Incheon and Daegu ACC once or twice a day. The weather briefing is provided during shifts of air traffic controllers, and describes the expected weather conditions (such as upper-level winds, convective clouds, etc.) at domestic airports and airspace during their duty.

1.3 Weather Analysis (Meteorological Information) to Support ATFM

The AMO provides weather analysis to support ATFM twice a day (0000 and 0700 UTC) (Fig 1). The format of the analysis was determined in November 2020, in cooperation with MOLIT. The analysis offers quantitative figures to strengthen the support for decision-making for ATFM.

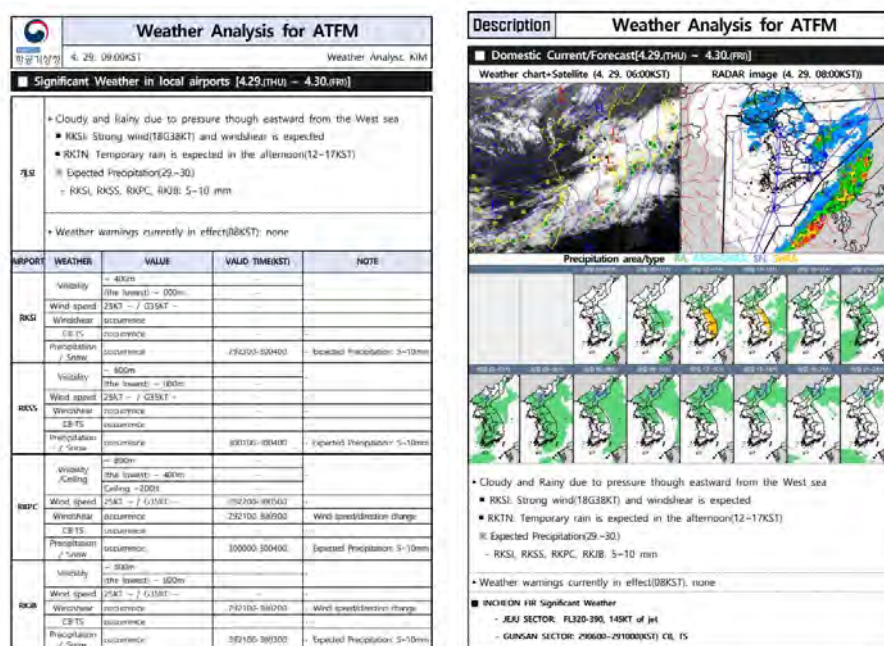


Fig 1. Weather analysis provided by AMO (twice a day) includes i) significant weather forecasts for each airport and ii) weather charts

- Target: Major domestic and foreign airports, Incheon FIR, and neighboring FIR
- Issue time: 0000 UTC and 0700 UTC (twice a day)
- Means of provision: Flow Management Terminal (FMT) System (operated by MOLIT)
- Content: Information on meteorological conditions expected to affect ATFM within 24 hours
 - 1) Detailed information for major airports (low visibility, strong wind, windshear, CB, precipitation/snow, etc.)
 - 2) Satellite images, radar images, volcanic ash information, etc.
 - 3) Weather charts of numerical model, WINTEN, etc.

1.3.1 Significant Weather Scenarios

When a typhoon, heavy snow, or low visibility, which has a significant impact on ATFM is expected to occur, the AMO provides weather scenarios with the aim of supporting not only ATFM but also flight decisions of airlines and airport operations.

- 1.3.1.1 For typhoons, similar typhoons in the past and impact-based forecasts for airports and airspace (FIX, airways) are provided. They are used to manage the air traffic volume according to the decisions on detour air route and to determine whether the aircraft should be operated or not (Fig 2).
- 1.3.1.2 For heavy snow, dry/wet snow information and hourly forecasts are provided to predict delays in aircraft due to de/anti-icing, and are utilized for ATFM.
- 1.3.1.3 For low visibility, the lowest visibility is additionally provided to minimize aircraft holding and to utilize for the low visibility operational procedures at airports.

Major Airports' Expected Wind(9. 6. 19KST valid)

TIME(KST)	9.6.	9.7.	9.8.
AIRPORT	18 21 00 03 06 09 12 15 18 21 00 03 06 09 12 15		
RKPC	030 20G35 20G35 25G40 35G55 40G60 40G60 20G40 20G35	040 20G35 20G45 30G50 35G60 40G60 25G40 20G35	
RKPY	020 20G35 20G45 30G50 35G60 40G60 25G40 20G35	010 20G35 20G45 30G50 35G60 40G60 25G40 20G35	
RKPK	010 20G35 20G45 30G50 35G60 40G60 25G40 20G35	000 20G35 20G45 30G50 35G60 40G60 25G40 20G35	
RKPU	000 20G35 20G45 30G50 35G60 40G60 25G40 20G35	235 20G35 20G45 30G50 35G60 40G60 25G40 20G35	
RKJB	235 20G35 20G45 30G50 35G60 40G60 25G40 20G35	225 20G35 20G45 30G50 35G60 40G60 25G40 20G35	
RKQY	225 20G35 20G45 30G50 35G60 40G60 25G40 20G35	215 20G35 20G45 30G50 35G60 40G60 25G40 20G35	
RKSS	215 20G35 20G45 30G50 35G60 40G60 25G40 20G35	205 20G35 20G45 30G50 35G60 40G60 25G40 20G35	
RKSS	205 20G35 20G45 30G50 35G60 40G60 25G40 20G35	195 20G35 20G45 30G50 35G60 40G60 25G40 20G35	

more than 25G35KT more than GUST 60KT Cross wind

CASE1. Similar Typhoon(2020-09 Maysak/ 9.2.~9.3.)

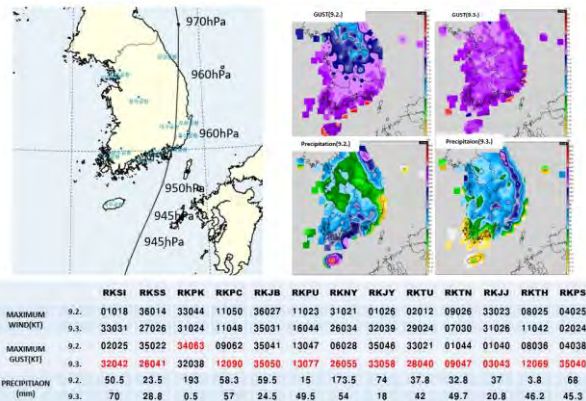


Fig 2. i) Significant Weather (Typhoon) Scenario and ii) similar typhoons in the past

1.4 Terminal Area Weather Service

1.4.1 Monitoring and prediction of hazardous convection

In cooperation with the Korea Weather Radar Center, the AMO has developed a hazardous convection monitoring and prediction system for the terminal area (Fig 2) to provide hazardous convection monitoring and prediction service. The service offers real-time observation information such as on precipitation echo, lightning, wind data by altitude, precipitation type, and hail. It provides information on precipitation echoes and atmospheric bodies with a radius of 15 kilometers around the runway and a vertical length of 10 kilometers. It also gives very short-term precipitation information within the next two hours, based on radar observations.

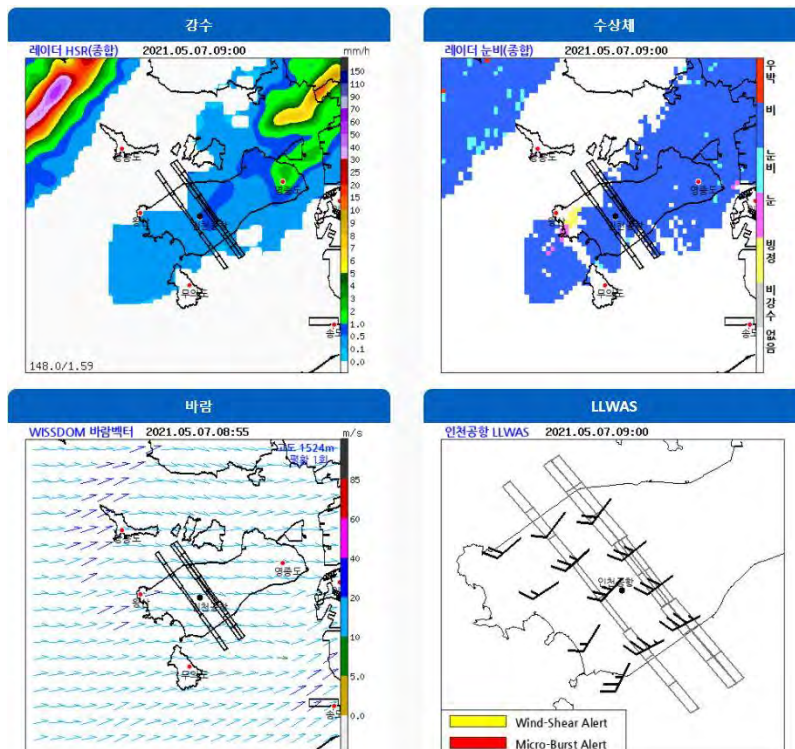


Fig 2. Significant convection monitoring and forecast for the terminal at Incheon international airport

1.4.2. Windshear forecast information

In order to provide information on the occurrence of windshear affecting aircraft, the AMO has developed windshear forecast information based on the numerical model (100 m resolution) in 2020, in cooperation with the National Institute of Meteorological Sciences (NIMS). The windshear forecast information provides windshear altitude, maximum value, and three levels of risk (in green, yellow and red) on the board (Fig 3) to help recognize windshear prediction information at a glance.

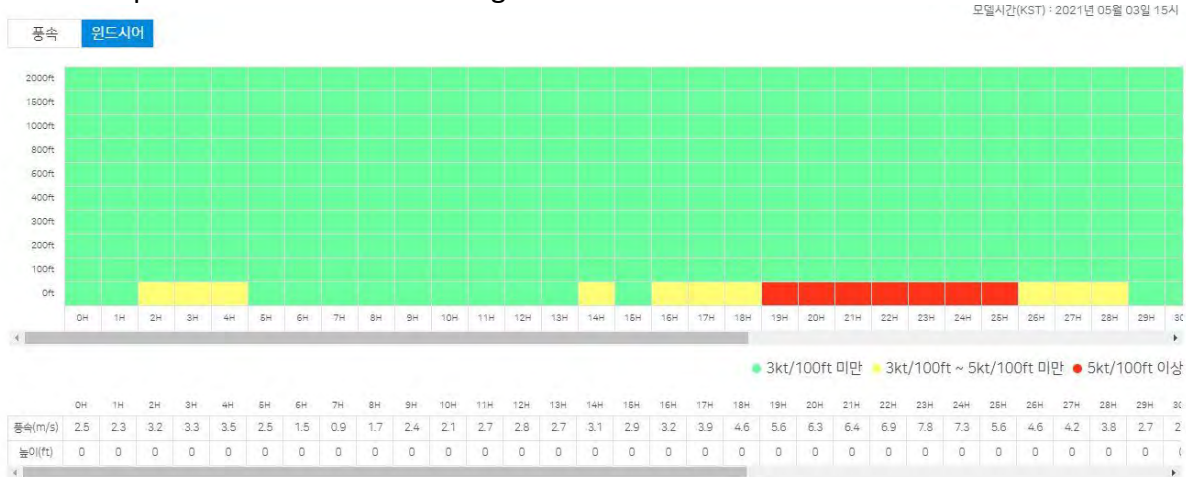


Fig 3. Display screen showing windshear information for Jeju Airport

2. Means of Provision

2.1. Flow Management Terminal (FMT) System

Real-time weather information such as radar images, satellite images, TAFs and METAR are provided by the FMT system operated by MOLIT.

2.2. Website

All MET information released by the AMO is available on the websites of the AMO, the Weather Radar Center, and the Weather Resources Map. It will be provided on an integrated platform in the future.