

## INTRODUCTION TO WEATHER OPERATIONS

Last Updated: 28 October 2020

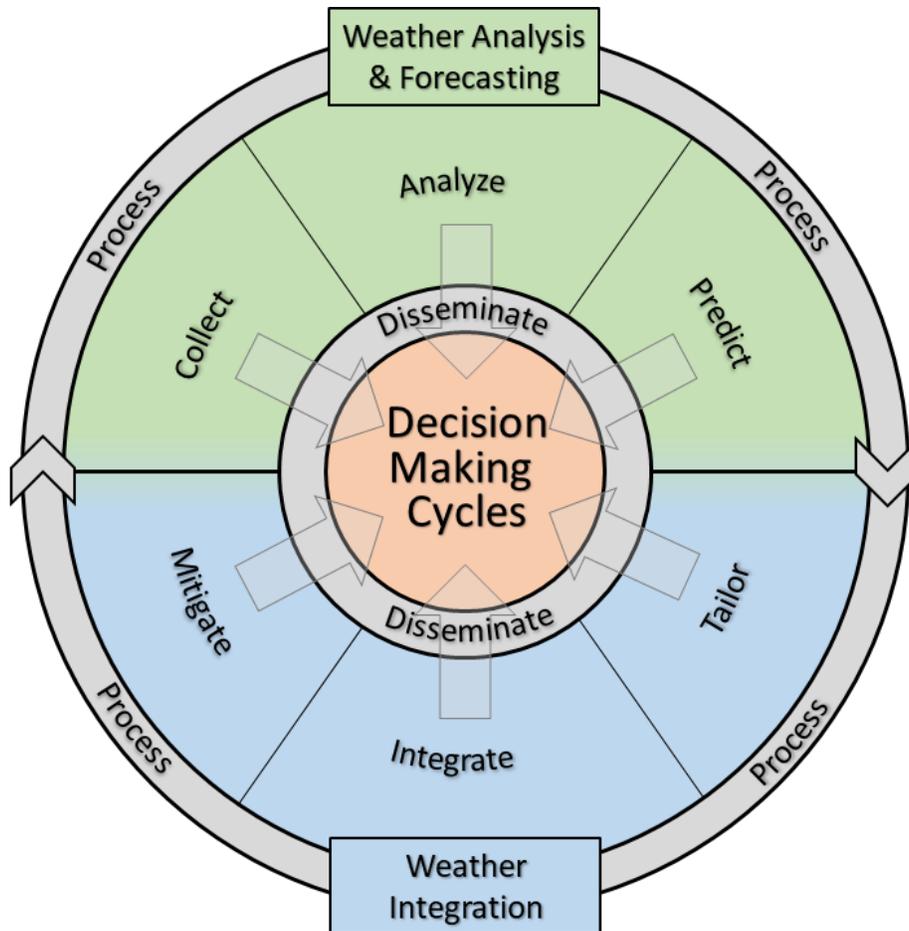
Air Force weather operations directly support conventional and special operations forces of the Department of the Air Force (DAF) and Army.<sup>1</sup> When designated, DAF weather forces also support joint, multinational, and other national agency operations. Weather operations provide a critical piece of situational awareness when a commander is building battlespace awareness of the assigned operational area, throughout the [competition continuum](#). Though information about environmental conditions and its effects (referred to throughout this AFDP as weather and weather effects information) can be applied throughout theater and across the range of operations, weather forces to the military operation being executed, whether at the strategic, operational, or tactical level, should always be tailored.

For the purposes of DAF doctrine, weather is defined as **the physical conditions of the terrestrial and space environment. These conditions include any environmental factors from the surface of the earth up to the ionosphere and outward into space.** Examples include volcanic ash, dust, icing, turbulence, solar flares, and coronal mass ejections. This definition was adapted from Joint Publication 3-59, [Meteorological and Oceanographic Operations](#).

The enduring principles of weather operations are **accuracy, consistency, relevancy, and timeliness.** Effective weather operations are executed through these overarching principles, along with the functions and processes depicted in the “conceptual model of weather operations.” The top half of the figure shows how weather forces **analyze and forecast** the environment through the **collection, analysis, and prediction** of weather data from both Department of Defense (DOD) and non-DOD sources. This weather data and information, used to predict the future state of the environment, are stored in net-centric repositories accessible through end-user systems and web-based interfaces.

---

<sup>1</sup> Direct weather support to the Army was established via inter-service support agreement based on the National Security Act of 1947. See Air Force Instruction 15-157 / Army Regulation 115-10, [Weather Support and Services for the US Army](#).



**Figure 1. Conceptual model of weather operations**

The bottom half of figure 1 depicts how the weather community **tailors** and **integrates** information from a net-centric data repositories into decision-making processes at the strategic, operational, and tactical levels. Weather personnel, either through [reachback](#) or being embedded with operational units, command and control facilities, and intelligence centers, use tailored weather information to advise decision makers on how to **mitigate** and exploit the effects of weather for friendly forces. Throughout weather operations, weather data and information undergoes **processing** and **dissemination**. These processes culminate into the **integration** of environmental effects of decision-making cycles, allowing leaders to make effective decisions to exploit the effects of weather.

DAF weather forces and those supporting Army operations deploy under the air expeditionary task force construct. DAF weather personnel provide support through a combination of on-site and reachback operations. Supported forces include [air operations centers](#), Air Force expeditionary units, Army modular force echelons, Air Force and Army special operations forces, unmanned aircraft systems, and joint force headquarters.

Information on environmental effects should be integrated into the planning, execution, and assessment of all military operations. Environmental support is most effective when weather personnel know unit mission, organization, capabilities, plans, doctrine, and procedures. To the greatest extent possible, Air Force weather forces “train like they fight,” performing the same tasks in garrison as when deployed.

---