

WEATHER FUNCTIONS

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The two functions of weather operations are characterization and exploitation. Characterization describes past, present, and future weather conditions. Exploitation enables decision-makers to adjust and maximize operations based on weather and weather effects information. The figure, “Comparison between the Weather Functions,” compares the main features of characterization and exploitation as used by weather forces.

Weather Characterization	Weather Exploitation
<ul style="list-style-type: none"> • Produces actionable weather information primarily for the weather community • Fixed locations • Reachback provider • Requires data processing • Geographic focused 	<ul style="list-style-type: none"> • Produces actionable weather information primarily for decision-makers • Mobile, deployable • Reachback user • Requires information processing • Operator focused

Comparison between the Weather Functions

Characterization

Characterization is the ability to collect accurate data and process this data into usable information in order to “analyze that data, and to use the results to produce a coherent picture of the past, present and/or future state of the air and space environment.”¹ Characterization encompasses the weather process of *collection*, as well as elements of the processes of *analysis, prediction, and tailoring*. Air Force weather operations provide actionable situational awareness to commanders covering past, present, and future states of the atmosphere and space environment in order to improve operational outcomes. Air Force weather operations collect and

¹ Air Force Manual (AFMAN) 15-129, Volume 1, [Air and Space Weather Operations - Characterization](#).

analyze data on the state of the atmosphere through the use of polar orbiting and geostationary satellites, and through the employment of a complex network of ground-based, airborne, and maritime sensors. The data is processed to predict the future state of the atmosphere by applying the art and science of meteorology and by using complex atmospheric computer models.

Exploitation

Weather exploitation is “the ability to minimize the impact of weather threats to friendly forces while simultaneously capitalizing on weather conditions that maximize the operational advantage over enemy forces.”² It requires weather personnel to *analyze, tailor, integrate, and mitigate* weather data and effects.

Knowledge of the weather and how it affects both friendly and adversary operations is a key component of battlespace awareness. Accurate, consistent, and relevant characterization of the weather, integrated into operational planning in a timely manner, can provide friendly forces with the meteorological knowledge necessary to anticipate and exploit the best window of opportunity to plan, execute, support, and sustain specific operations.

² AFMAN 15-129, Volume 2, [Air and Space Weather Operations—Exploitation](#).