THE ATMOSPHERICRESERVOIR
Examining the Atmosphere and Atmospheric Resource Management

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The DOG DAYS OF SUMMER

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The origins of weather folklore and stories about the constellations and planets in the sky are sometimes related. Take the common phrase *"the dog days of summer,"* which many of us associate with being *"dog tired"* due to the summer heat. During summer, the brightest star in our sky, Sirius, rises early morning next to our own Sun. The Ancient Romans believed that the two stars worked together somehow to intensify the heat that they were enduring. Sirius is part of the constellation Canis Major or the Great Dog, thus getting its name The Dog Star.

Another popular weather phrase that would've been used before our modern-day weather apps were invented is *"clear moon, frost soon."* This phrase is important to farmers and gardeners when they observe a clear sky at night in the late summer or early fall. Sometimes under these conditions, the air temperature drops significantly due to radiational cooling and a frost can occur. Cloud cover acts as a blanket to insulate the Earth and trap some of its outgoing radiation. Even a thin layer of clouds that only partially blocks or obscures the moon can keep the air temperature high enough to prevent a frost or freeze. Frost is even more likely to occur when the air is dry because dry air cools more rapidly than moist air.

What about the saying, *"a ring around the moon means rain soon?"* There's some truth to this phrase and it has to do with high, wispy cirrus clouds that contain ice crystals, refracting the moon's light. Moonlight passing through the ice crystals is refracted at a 22-degree angle, what is also referred to as the "22-degree ring." Cirrus clouds oftentimes precede lower-level storm systems that can bring precipitation, thus giving some validation to our weather phrase.

Weather folklore wouldn't be complete without mention of the saying, *"red sky at night, sailor's delight; red sky in the morning, sailors take warning."* There's actually a reference to this in the Bible and it's one of the oldest adages for weather observing and forecasting. In order for this saying to verify, it's important that we use it for geographic locations such as North Dakota within the mid-latitudes. Weather systems in the mid-latitudes normally move from west to east, so middle and high-level clouds that precede a low-level storm system can produce red sunrises, warning of approaching precipitation and storminess from the west during the day. If red skies are seen at sunset, this can indicate that high pressure and calmer conditions are either present or moving into the area. When our sun's angle is low in the sky, its light has to travel through more of the Earth's atmosphere, providing increased scattering of the light. The lower layers of the atmosphere contain a greater concentration of particles and aerosols that scatter the sunlight as well. The shorter wavelengths of light including the blue spectrum are scattered the most, leaving longer wavelengths like red to dominate the sky around sunrise and sunset.

Whether you've observed the *dog days of summer* or red skies at night, our atmosphere is constantly giving us clues to better understand it. Some of these clues are complex and require modern computing technologies, while others are simple and only require us to use our eyes.

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