DESSERT STORMS: SAND AND DUST

Journalists embedded with American and British forces during Operation Iraqi Freedom repeatedly documented sand and dust storms that affected the troops and their machinery. Such storms are common in desert regions around the world.

Sandstorms and dust storms are one and the same. They are caused by windstorms and the lifting power of wind associated with cold fronts and squall lines. As an active line of wind moves along the surface in the desert, drag develops at ground level creating a rolling dust cloud.

Sand particles that are dislodged from the desert floor during such winds are moved along by a process called saltation, whereby they bounce along downwind. Just as sand moves on the beach on a windy day, most sand particles do not rise very high above the ground. Smaller silt and clay particles, however, are lighter than sand and can become airborne for considerable heights and distances. These are the particles that create the appearance of a rolling dust cloud.

Near the ground in the open desert, therefore, one might experience this phenomenon as a sandstorm, as sand blasts every exposed surface. At sea or in areas protected from the salutation of sand particles, the same storm would be experienced as a dust storm.

This author experienced a typical desert storms in mid-afternoon in Damascus, Syria, 20 years ago. The storm appeared as a dark and ominous bank of dust, more than 2,000 feet (610 m.) in height, rolling over the city from the north. Wind velocity increased as the dust reached the city, air temperature dropped, and the streets became almost dark. Then a fine desert dust infiltrated everything, necessitating handkerchiefs over our faces as we sought shelter. The worst of the storm was over in less than an hour, but dust continued to settle on everything throughout the night.

Late spring is the height of sandstorm season. Most desert windstorms in Southwest Asia come from northeasts winds regionally called shamals. When an international dispute over the invasion of Iraq threatened to push the war until late spring of 2003, military planners became concerned. They worried that blowing sand and airborne dust could take a heavy toll on their machinery, as it did during the first Gulf War in 1991.

Numerous reports of sand and dust storms came in from embedded journalists during the recent Iraqi Freedom conflict. A storm blanketed the flight deck of the Carrier Kitty Hawk on March 13 and shut down operations (Mark D. Faram, New York Times). Kimberly Hefling, Associated Press, reported from Kuwait that “...the most immediate problem for the soldiers of the 101st Airborne Division is just getting around in the storms...(requiring)...sand barriers, or berms,...to prevent disoriented soldiers from veering into the desert.”

Chantal Escoto with The (Clarksville) Leaf-Chronicle reported one soldier saying, “When we first came to the desert, some things didn’t cross our minds, like sandstorms... I had to shovel myself out of the sand when I woke up.”

Lessons about desert dust and sand encouraged the U.S. military to develop new filtration systems for its internal combustion engines, according to Dee DePass, Star Tribune. New semi-self-cleaning air-filters were added to M-1 tanks, Bradley Fighting Vehicles, armored personnel carriers, Humvees, helicopters, and Marine amphibious landing craft. And even B-52 bombers.

American, British and Australian troops have learned to protect themselves and their equipment, but windstorms remain one of the largest threats to desert warfare.

And that is Geography in the News. May 2, 2003. #674.

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