

APPENDIX H

WEATHER EFFECTS ON LIGHT INFANTRY

Infantry operations are influenced primarily by those weather elements that degrade trafficability and visibility. The effect may be significant for infantry operations, but weather elements have similar impacts on other units. The following contains other weather effects that are not contained in the WTDA tables.

CLOUDS AND SKY COVER. Low overcast clouds limit the effectiveness of aerial illumination devices. Overcast clouds limit heating of inactive targets and lower target detection range for thermal sights. NVD are limited by clouds blocking natural moonlight or starlight. CAS and aerial resupply missions are hampered by low clouds.

HUMIDITY. When coupled with high temperatures, humidity decreases the effectiveness of crews in closed vehicles.

ILLUMINATION. The use of most NVDs requires about a quarter (23 percent) of the moon, 30 degrees above the horizon, scattered clouds, and the sun more than 5 degrees below the horizon. See Appendix F for weather products dealing with E-O devices.

PRECIPITATION. Rain and snow degrade trafficability, limit visibility, and affect certain target acquisition and NVD.

STATE-OF-THE-GROUND. Ground state affects trafficability and movement rates. Frozen ground improves mobility and will increase the time available for preparing fighting positions.

SURFACE WIND. Trajectory data and first round hit capability are degraded by high crosswinds.

TEMPERATURE. High and low temperatures influence the type of lubricants used, engine warm-up periods, and sustained rates of fire for weapons. High temperatures decrease the time soldiers can remain in vehicles and increase water consumption. Low temperatures degrade the ballistics of main guns, require frequent starting of engines, increase maintenance problems, and increase possible detection by the enemy. Extreme low temperatures reduce personnel effectiveness, and decrease availability of water due to freezing.

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VISIBILITY. Poor visibility affects visual sighting, laser range finding, and E-O target acquisition systems. Poor visibility increases the survivability of infantry units.

WINDCHILL. See Appendix L for a discussion on windchill.

Table H-2. Weather effects from reduced visibility.

WEATHER VALUE (METERS)	SEVERE DEGRADATION		MODERATE DEGRADATION	
	SYSTEM/EVENT	REMARKS	SYSTEM/EVENT	REMARKS
LT 200	FO		LAW NVG (PVS-5) Infrared aiming light (PAQ-4)	
LT 400			NVS (PVS-2)	
LT 500	DRAGON		FO	
LT 600			NVS (PVS-4)	
LT 1,000	TOW		DRAGON DRAGON thermal sight (TAS-5) 106-mm recoilless rifle M-60 machine gun	
LT 1,200			NVS (TVS-2 and TVS-5)	
LT 1,600	CAS	See app E	60-mm mortar (non-HE round) .50-cal machine gun	
LT 2,000			NVS (TVS-4)	
LT 3,200			TOW thermal sight (UAS-12) Handheld thermal viewer (PAS-7) Thermal night observation device (UAS-11) CAS 60-mm mortar (HE round)	See app E
LT 4,500			81-mm mortar	
LT 5,000			120-mm mortar	

Table H-3. Weather effects from surface wind.

WEATHER VALUE (KNOTS)	SEVERE DEGRADATION		MODERATE DEGRADATION	
	SYSTEM/EVENT	REMARKS	SYSTEM/EVENT	REMARKS
LT 25			Incendiaries	
GT 7			GSR	Increased noise
GT 10			Chemical emplacement	Less effective
GT 13			Airborne DZ limit	Less effective
GT 15			Acoustic sensors	Less effective
GT 15 cross-wind			TOW	Impacts tracking
GT 18	RAP			
GT 20	GSR	Increased noise	Communications antennas NOE	
GT 25			Personnel	See app L
GT 30	Helicopters	May cancel mission See app E		
GT 40	Personnel	See app L		
GT 45	Acoustic sensors	Less effective		
GT 50	Communications antennas			

Table H-4. Weather effects from temperature.

WEATHER VALUE (°F/°C)	SEVERE DEGRADATION		MODERATE DEGRADATION	
	SYSTEM/EVENT	REMARKS	SYSTEM/EVENT	REMARKS
LT -25/-32	TOW DRAGON Rocket launcher (M202A1) Handheld infrared thermal viewer (PAS-7) Dry cell battery Personnel	Only 20% effective	Generators	wo arctic kit
LT -20/-28			NVS (PVS-4) Maintenance	wo Low temp adapter Takes five times longer
LT 0/-18			Wheeled vehicles Dry cell battery	wo winter kit Only 40% effective
LT 20/6			Thermal night observation device (UAS-11) Platoon early warning system (TRS-2) DRAGON	wo Arctic kit wo BA3090 battery Need low temp adapter
LT 32/0			NVG (PVS-5) Personnel Small arms and machine guns	wo Arctic kit See app L for wind-chill Effectiveness reduced
GT 85/29			Personnel	See app L for heat effects
GT 95/35	Personnel	See app L for water consump	Dry cell battery	Will not hold charge

Table H-5. Weather effects from precipitation.

WEATHER CONDITION	SEVERE DEGRADATION		MODERATE DEGRADATION	
	SYSTEM/EVENT	REMARKS	SYSTEM/EVENT	REMARKS
Light rain or snow			Mortar operations Wheeled vehicles	Sight glass fogs up
Moderate rain or snow	Wheeled vehicles		LOS Personnel movement Target acquisition Platoon warning system (TRS-2) GSR Acoustic systems Equipment storage Laser systems	
Heavy rain or snow	Mortar operations Personnel movement Laser systems LOS communications Target acquisition			
Thunderstorm/lightning	GSR		Ammunition Refueling Communications Equipment storage	Safety Interference
Light freezing rain			Personnel Wheeled vehicles	
Moderate freezing rain	Personnel Wheeled vehicles			
SNOW DEPTH (INCHES)				
GT 3			Personnel movement	
GT 6	Personnel movement		20-mm and 40-mm ammunition Wheeled vehicles	
GT 12	Wheeled vehicles			
GT 20			Tracked vehicles	
GT 30	Tracked vehicles			