Chapter 1

Marines Against the Cold

1001. Objective

This reference publication serves to introduce small-unit leaders to unique tactics, techniques and procedures for shooting, moving and communicating in a cold weather environment (CWE). Through a combination of practical application, training, study and experience, the Marine leader can better prepare his unit for success on the cold weather battlefield. While primarily directed towards the infantry unit leader, the information contained herein is equally relevant to preparing leaders from combat support, combat service support and aviation combat element units.

1002. Types of Cold

Clauzewitz defines war as "Zweikampf," which literally translates to a "two-struggle"; he illustrates this concept by picturing two wrestlers locked in a fight, each attempting to impose their will on the other. [i] Operating in a CWE, however, is better represented by a "three-struggle": you, the enemy and the ENVIRONMENT. It is therefore imperative that leaders recognize the challenges imposed by cold weather. While the individual Marine is most interested in "wet cold" or "dry cold" conditions, logistical planners are more interested in "intense cold" and "extreme cold."

a. Wet Cold. Wet cold conditions occur where temperatures are near freezing and variations in the day and night temperatures cause alternate freezing and thawing. Wet snow and rain causing the ground to become mushy and muddy often accompany these conditions. With these conditions, Marines require clothing that consists of a waterproof or water repellent, wind resistant outer layer, and an inner layer with sufficient insulation to provide protection in moderately cold weather of 14 degrees F or above.

b. Dry Cold. Dry cold conditions occur when average temperatures are lower than 14 degrees F. The ground is usually frozen and the snow is dry. These low temperatures, plus wind, increase the need for protection of the entire body. For these conditions, Marines require clothing that will provide insulation for the body for a wind-chill factor of –80 degrees F. The inner layers of insulation must be protected by a water repellent, wind resistant outer layer.

c. Intense Cold. Intense cold air temperatures (-5 to –25 degrees F) are in the range where materials begin to change, adversely affecting operations. Fuels gel, back blast areas triple, artillery fires drop 100 per 1000 meters, water in containers freezes quickly. Appropriate protective clothing is required.

d. Extreme Cold. Extreme cold (below –25 degrees F) inhibits full-scale combat. Special fuels and lubricants are required, rubber becomes stiff and brittle, and close tolerances are affected. Operator personnel must have special protection from the elements.

1003. Wind Chill

When a high wind is blowing, Marines will feel much colder than when it is calm. Temperature alone does not, therefore, truly indicate the impact of the CWE. To effectively gauge it, some scale must be used; the most commonly used is the wind chill chart. Wind chill is a measure of the combined effects of wind and temperature. As shown in figure 1-2, the wind chill chart is a simple and practical guide showing when cold weather is dangerous and when exposed flesh is likely to freeze. The chart need not be memorized, but leaders must recognize that a temperature of 5 degrees F combined with a 20-mile-per-hour wind can be more dangerous than a calm day of –25 degrees F.

WIND SPEED		COOLING POWER OF WIND EXPRESSED AS "EQUIVALENT CHILL TEMPERATURE"																				
KNOTS	MPH	TEMPERATURE (°F)																				
CALM	CALM	40	35	30	25	20	15	10	5	0	5	10	15	20	25	30	35	40	45	50	55	60
		EQUIVALENT CHILL TEMPERATURE																				
3–6	5	35	30	25	20	15	10	5	0	5	10	15	20	25	30	35	40	45	50	55	60	70
7–10	10	30	20	15	10	5	0	10	15	20	25	35	40	45	50	60	65	70	75	80	90	95
11–15	15	25	15	10	0	5	10	20	25	30	40	45	50	60	65	70	80	85	90	100	105	110
16–19	20	20	10	5	0	10	15	25	30	35	45	50	60	65	75	80	85	95	100	110	115	120
20–23	25	15	10	0	5	15	20	30	35	45	50	60	65	75	80	90	95	105	110	120	125	135
24–28	30	10	5	0	10	20	25	30	40	50	55	65	70	80	85	95	100	110	115	125	130	140
29–32	35	10	5	5	10	20	30	35	40	50	60	65	75	80	90	100	105	115	120	130	135	145
33–36	40	10	0	5	10	20	30	35	45	55	60	70	75	85	95	100	110	115	125	130	140	150
WINDS ABOVE 40 HAVE LITTLE ADDITIONAL EFFECT		LITTLE DANGER					INCREASING DANGER (Flesh may freeze within 1 minute)						GREAT DANGER (Flesh may freeze within 30 seconds)									

1004. Preparing to Overcome the Cold

Operating in a CWE exposes the individual Marine to unfamiliar frictions, both physical and mental. While snow and frozen ground significantly impact combat operations, freezing temperatures will also sap the physical and moral strength of unprepared Marines. Prior individual and unit training is the key to maximizing unit efficiency and minimizing cold weather injuries. Erwin Rommel recognized this when he wrote:

"*War makes extremely heavy demands on the soldier's strength and nerves. For this reason make heavy demands on your men in peacetime exercises.*" [ii]

Using the information presented in this publication, a pre-environmental training regimen must focus on:

a. Cold Weather SOPs. In order to minimize the amount of time Marines are left out in the cold with nothing to do, units must design and rehearse SOPs. These "drills" will include everything from determining each Marine's team-equipment requirement, actions and routines during unit marches (especially during halts), and bivouac responsibilities. (Chapter 6, 12, 13)

b. Equipment. Marines will operate with unique equipment when working in a CWE. Examples include over-the-snow mobility assets (skis, snowshoes), bivouac equipment (stoves, tents) and clothing. Training must be conducted in order to familiarize Marines with their equipment such that they can use it with and confidence in the cold weather. (Chapter 2, 3, 8)

c. Physical Endurance. Operations in a CWE make increased demands on the Marine's stamina. Climactic conditions and cold weather equipment requires a unit to keep in shape, drink plenty of water and eat to keep fit (Chapter 4, 5)

1005. Core Values and Leadership Challenges

"One of the most important tenets of cold weather operations is that strong and consistent leadership is essential to survival and to minimize injuries"

-MCWP 3-35.1 "Cold Weather Operations"

The consequences of poor leadership in a temperate climate are significant; however, the consequences for poor leadership in a CWE will be multiplied as a result of extreme weather and terrain. Not only must pre-environmental training take place before a unit can be expected to succeed in a CWE, but positive leadership and the adherence to Core Values must be ever present in order to sustain the unit.

a. Environment. Most Marines, while varying in their proficiency, will at least learn to function adequately after a reasonable amount of exposure to cold weather (one to three weeks.) Training is not designed to teach Marines how to freeze; however, the mere conduct of field exercises under cold weather conditions will increase the Marine's confidence in his ability to survive.

b. Lead by Example. Initially, harsh and unfamiliar conditions tend to be frightening, and pose new challenges to Marine leaders. Junior Marines will automatically look to their leaders when conditions become harsh. If Marine leaders are visible and maintain a positive attitude, subordinates are more likely to follow their example.

c. Inspections. Personnel inspections must become routine within a unit. Incorrect or unserviceable equipment can have devastating effects; in the course of conducting inspections, the leadership not only gains confidence that his unit is properly outfitted, but demonstrates to the Marines that their leadership is concerned with their welfare.

d. Time. Everything in a CWE takes longer than in a temperate environment: waking up in the morning, preparing food, striking bivouac, movement. Leaders cannot set unrealistic time-standards for task accomplishment; a good tool to overcome this problem is to use "no earlier than" (NET) times. This minimizes the amount of time Marines are left in the cold waiting for others.

e. Psychological Defeat. The Marine leader can expect to encounter several cold weather unique situations that will require quick recognition and aggressive action in order to avoid.

(1) Cocoon-like Existence. Marines react to cold by bundling in layers of clothing and withdrawing from a unit. Typically, this is evident when a Marine dons his parka hood, becomes sluggish and limits contact with others.

(2) Hibernation. Individuals and groups, uncomfortable in the cold, withdraw to their tents and sleeping bags, or remain in heated vehicles. Security measures suffer.

The solution to these problems is to facilitate contact and communications among Marines. Keep the unit physically and mentally active. Review SOPs and maintain a sense of humor. Never accept cold weather as an excuse for not accomplishing the mission. Cold weather training will often resemble a camping trip unless dynamic leadership maintains the discipline to focus on the task at hand.

f. Core Values. As with the previously mentioned leadership challenges, a lack of honor, courage and commitment in a CWE will produce more catastrophic consequences than in a temperate environment. During the harsh winter breakout from Chosin Resevoir in 1950, Marines from Task Force Faith who were injured from battle injuries and the cold, were able not only to survive, but execute a successful operation by demonstrating *honor, courage and commitment*.[iii]

(1) Absent Honor: a unit cannot be confident that sentries are adequately performing their duties in harsh weather; unit cohesion breaks down.

(2) Absent Courage: Marines will allow their physical and mental misery to detract their focus away from the mission and the welfare of fellow Marines; cold weather injuries may result.

(3) Absent Commitment: leaders at all levels prioritize their own physical comfort ahead of assigned duties; unit readiness diminishes.

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[i] Carl Von Clausewitz, *On War*, trans. and ed. Michael Howard and Peter Paret (Princeton, NJ: Princeton University Press, 1984) p. 75.

[ii] Field Marsharl Erwin Rommel, *Attacks* (Provo, UT: Athena Press, Inc., 1979) p. 8.

[iii] Eric Hammel, *Chosin: Heroic Ordeal of the Korean War* (Novato, CA: Presidio Press, 1990) see Section Six "Breakout" for numerous examples.