

# Fact Sheet

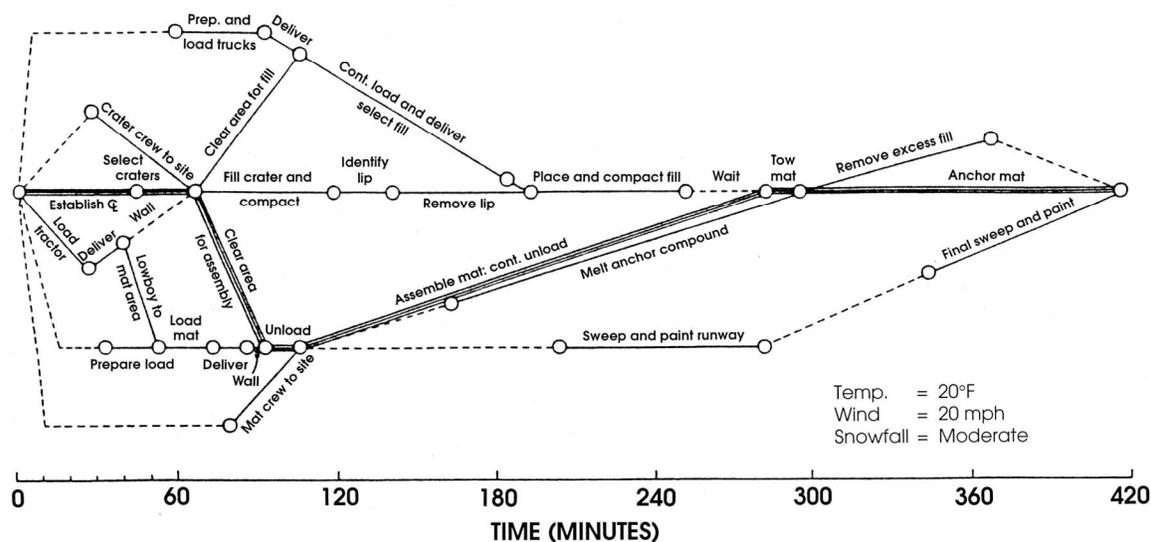
## COLD WEATHER EFFECTS ON MILITARY OPERATIONS

### PROBLEM

Cold weather has many serious, and in extreme cases debilitating, effects on both the soldiers and equipment necessary for military operations in winter. The effects on soldiers include increased time to perform tasks, reduced dexterity and accuracy, reduced grip strength, and failure to achieve adequate concentration on the task at hand. If simulation technology used by the military in advanced concept studies, training and exercises, and simulation-based procurement does not account for cold climate effects on soldiers and materiel, erroneous simulation outcomes will result.

### SOLUTION

Although precise representation of cold weather effects on every aspect of military operations in cold climates is unrealistic, models that break military operations down into fundamental tasks provide one method of accounting for many of the cold climate effects. The Program Evaluation Review Technique (PERT) diagram below shows a rapid runway repair process per Air Force Regulation 93-2 in winter. Under ideal (summer) conditions with a motivated crew, the task would take a minimum of 230 minutes if the critical path were followed. However, if reasonable allowances are made for cold weather impacts on soldiers and equipment, as could be expected for a snowy, windy, 20°F day, the critical path time is increased to 415 minutes, as indicated in the diagram. The 80% increase in time needed to complete the rapid runway repair task under these mild winter conditions illustrates the danger in ignoring the cold climate effect.



### POINT OF CONTACT

Dr. Gary E. Phetteplace  
603-646-4248  
Fax: 603-646-4640  
E-mail: [gephet@crrel.usace.army.mil](mailto:gephet@crrel.usace.army.mil)

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