WEATHER DATA FOR SOUND RANGING

For use of this form, see FM 6-15; the proponent agency is TRADOC.

STATION	LOCATION	RELEASE TIME		DATE	HOUR	FLIGHT NO
			LST			
			GMT			

WIND DATA

SOUND RANGING LAYER LIMIT (meters)	TIME AT LAYER LIMIT (minutes and seconds)			ELEVATION ANGLE (degrees and tenths)	AZIMUTH ANGLE (degrees and tenths)	HORIZONTAL DISTANCE (meters)	HORIZONTAL TRAVEL IN LAYER (meters)	TIME IN LAYER (minutes and tenths)	LAYER WIND DATA		WEIGHTED WIND DATA	
	30-GRAM BALLOON	RADIOSONDE							DIRECTION (tens of mils)	SPEED (knots)	DIRECTION (tens of mils)	SPEED (knots)
		PRESSURE M3 AT LAYER LIMITS	TIME MINUTES AND TENTHS									
SUR	0:15											
200	0:54											
400	1:54											
600	2:54											
800	3:54											
									EFFECTIVE WIND (TOTALS)			

TEMPERATURE DATA

SURFACE OBSERVATION

DRY BULB _____ °C _____ °C

WET BULB _____ °C

DEPRESSION _____ °C

VIRTUAL _____ °C x 3 = _____ °C = _____ °C
4

TIME OF DAY CORRECTION _____ °C

EFFECTIVE TEMPERATURE _____ °C

PERIOD OF DAY AND TEMPERATURE CORRECTION (Check one)

NIGHT	+1.3°C	TRANSITION		
AFTERNOON	−1.3°C	− 0.6°	± 0.0°	+0.6°

RADIOSONDE OBSERVATION

VIRTUAL _____ °C x 3 _____

THERMISTER _____ °C = _____ °C
4 (effective temperature)

WIND WEIGHING FACTORS

400-METER LAYER WIND SPEED IS: (Check one)

SOUND RANGING LAYER	☐ 1 TO 2 TIMES 200-METER LAYER	☐ OVER 2 TIMES 200-METER LAYER	☐ LESS THAN 200-METER LAYER AND WITHIN 2 KNOTS OF SURFACE	☐ LESS THAN 200-METER LAYER AND NOT WITHIN 2 KNOTS OF SURFACE
	NORMAL STRUCTURE	STRUCTURE 2	STRUCTURE 3	STRUCTURE 4
SURFACE	0.2	0.4	0	0
200 METER	0.5	0	1.0	0
400 METER	0.15	0.3	0	1.0
600 METER	0.075	0.15	0	0
800 METER	0.075	0.15	0	0

DATA REPORTED TO SOUND RANGING SECTION

EFFECTIVE TEMPERATURE NEAREST 1/10°C

_____ °C

EFFECTIVE WIND

DIRECTION (tens of mils)	SPEED (knots)

RELEASE TIME

_____ GMT

DELIVER TO	DELIVERY TIME

TIME OF SUNRISE	TIME OF SUNSET	OBSERVER	RECORDER	PLOTTER	CHECKER

Computations for sound ranging effective temperature using the pilot balloon method

Effective temperature: $T_S = (3\,T_V + T_t)/4$

T_S = Sound ranging effective temperature
T_V = Surface virtual temperature
T_t = Surface dry-bulb temperature

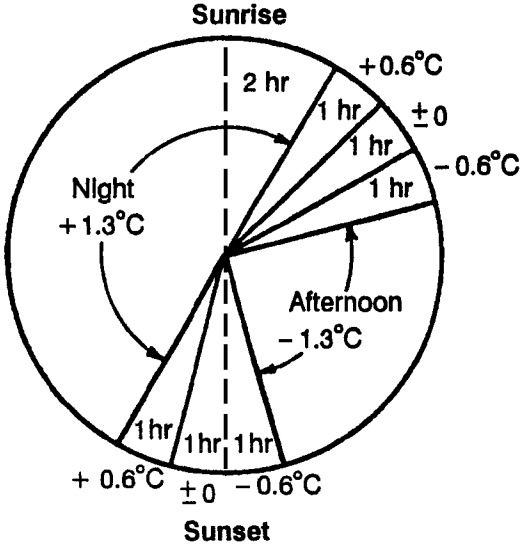
1. Subtract wet-bulb reading from dry-bulb reading to obtain wet-bulb depression.

2. Obtain surface virtual temperature (T_V) from FM 6-16-1, Table 3-1 using dry-bulb reading and wet-bulb depression as arguments.

Example:

Dry-bulb	28.0°C	28.0°C
Wet-bulb	25.2°C	
Depression	2.8°C	
Virtual temperature 32°C x 3 =		96.0°C
		124.0°C/4 = 31 °C
Time of day correction (Night for this example)		+1.3°C
Effective temperature		32.3°C

Met day for sound ranging



1. When SUR wind exceeds 15 knots, use Afternoon (–1.3°C).
2. In rain, drizzle, and fog, use no correction.
3. When SUR wind is 5–15 knots and sky is half to total overcast, use Afternoon (-1.3°C).
4. Otherwise use met day