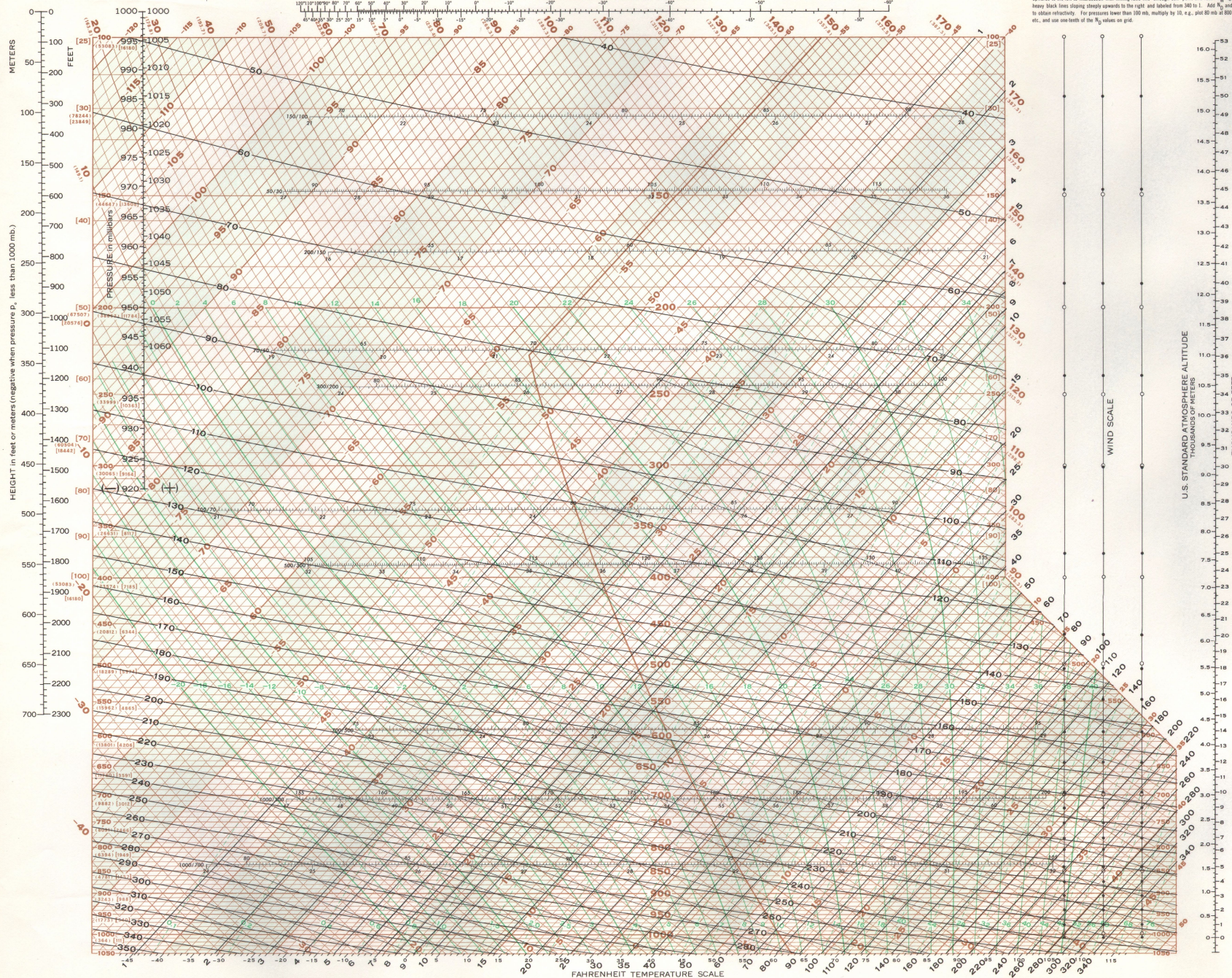


DEPARTMENT OF DEFENSE

USAF SKEW T, LOG P DIAGRAM WITH REFRACTIVITY OVERPRINT

Form: DOD-WPC 9-16-2

TEMPERATURE IN DEGREES FAHRENHEIT AND CELSIUS



The black grid computes refractivity from the formula $N = P_0 + P_0 \cdot 77.5 / T + 37256 / T^2$ where P_0 is real or dry-bulb temperature against heavy black lines running down to the right and labeled from 250 to 40. To find N , go from dry-bulb temperature along light black lines sloping upwards to the left to intersection with mixing ratio line through dew point and read N against heavy black lines sloping steeply upwards to the right and labeled from 360 to 1. Add N_0 and N_1 to obtain refractivity. For pressures less than 100 mb, multiply by 10, e.g., plot 80 mb at 800 mb, etc., and use one-half of the N_0 values on grid.

EXPLANATION

ISOBARS are straight, horizontal brown lines. The heights of the pressure surfaces in the U.S. Standard atmosphere, below the pressure values on the left, are in parentheses () for values in feet and brackets [] for meter values.

ISOTHERMS ($^{\circ}\text{C}$) are the straight, equidistant brown lines running diagonally upward from left to right.

DRY ADIABATS are the slightly curved brown lines that intersect the 1000 mb. isobar at intervals of 1°C , and run diagonally upward from right to left. The dry adiabats for the overlap portion of the pressure range are labeled with two values. (See below.)

SATURATION ADIABATS are the curved green lines that intersect the 1000 mb. isobar at intervals of 1°C , running upward and tending to become parallel to the dry adiabats. SATURATION MIXING RATIO (in gm. per kg.) is represented by dashed green lines. The values appear between the 1000 and 950 mb. lines.

THICKNESS (in hundreds of geopotential feet and meters) of the layers 1000-700, 1000-500, 700-500, 500-300, 300-200, 200-100, 100-70, 70-50, and 50-30 mb. is represented by numbers and a graduation along the middle of each layer. The thicknesses are obtained from the virtual temperature curve by the equal-area method, using any straight line as a dividing line.

HEIGHT of the 1000 mb. surface in geopotential feet (or meters) is obtained from the nomogram in the upper left-hand corner by drawing a straight line from the surface temperature (scale at top of diagram) through the mean sea level or station pressure on the pressure scale and reading height on the appropriate height scale.

U.S. STANDARD ATMOSPHERE SOUNDING is indicated by a thick brown line. The saturated adiabats and supplies of saturation mixing ratio are computed by use of vapor pressure over a plane water surface at all temperatures.

Extension of chart to 25 mb. has been accomplished by overlap with pressure indicated in brackets [] at 300 mb. and [] at 100 mb. Dry adiabats for the overlap are labeled in parentheses ().

APPROXIMATE VIRTUAL TEMPERATURE may be obtained from the formula $T_v = T + \frac{w}{P}$ where T_v is virtual temperature in $^{\circ}\text{C}$, T is free air temperature in $^{\circ}\text{C}$, and w is mixing ratio in gms/kg. For purposes of thickness computation, use the mean temperature of the layer for T and use the mean mixing ratio of the layer for w .

Black dot-dash wind scale line indicates the levels for which wind data are reported and plotted. The upper circles indicate the mandatory pressure levels at which wind data are also entered.

All heights used in this diagram are in geopotential feet and meters.

TIME		TIME	
KINEMATIC ANALYSIS			
TYPE	BOUNDARY	FT.	FT.
TYPE	BOUNDARY	FT.	FT.
TYPE	BOUNDARY	FT.	FT.
FREEZING LEVEL (in)			
INVERSIONS			
FRONTAL			
RADIATION			
SUBSIDENCE			
TROPOPAUSE			
L.C.L.			
L.C.L.			
L.C.L.			
SIGNIFICANT WIND			
MAX.			
MIN.			
LEVELS OF SHEAR			
INDEX			
TO			
TO			
TO			
CLOUDS			
TYPE			
AMOUNT			
BASES			
TOPS			
ICING			
TYPE			
SEVERITY			
BOUNDARIES			
PERSISTENCE			
HEIGHT			
DEGREE			
HEIGHT (in)			
MAX WIND GUST			
PAUL SIZE			
TEMPERATURES			
MAX.			
MIN.			
CUMULUS CLOUD FORMATION AT TEMP.			
DISSIPATION OF LOW LEVEL INVERSION AT			
REMARKS			
FORECASTER			

NUMBER	STATION
TIME (GCT)	DATE (GCT)
TIME (GCT)	DATE (GCT)
TIME (GCT)	DATE (GCT)
TIME (GCT)	DATE (GCT)

PREPARED AND PUBLISHED BY THE
DEFENSE MAPPING AGENCY AEROPACET CENTER
ST. LOUIS AIR FORCE STATION, MISSOURI 63118
EDITION 1

STOCK NO. WPCX091602

Users can assist in the improvement of DOD Weather Plotting Charts by reporting inaccuracies and omissions to the appropriate Headquarters, i.e., Hq. Air Weather Service or Director, Naval Oceanography and Meteorology.

Lithographed by DMAAC 8-80

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CHART CURRENT AS OF MAY 1968