

Section 14

TURBULENCE LOCATIONS, CONVERSION AND DENSITY ALTITUDE TABLES, CONTRACTIONS AND ACRONYMS, SCHEDULE OF PRODUCTS, NATIONAL WEATHER SERVICE STATION IDENTIFIERS, WSR-88D SITES, AND INTERNET ADDRESSES

This section provides text, graphs, and tables that can be used by the pilot to further understand the weather. Information included covers:

1. Locations of probable turbulence
2. Standard conversions table
3. Density altitude and chart
4. Contractions and acronyms
5. Scheduled issuance and valid times of forecast products
6. National Weather Service station identifiers and WSR-88D sites
7. Internet addresses

LOCATIONS OF PROBABLE TURBULENCE

Turbulence occurs due to either terrain features or weather phenomenon which can produce intensities from light to extreme. The type and intensity of the turbulence will depend on the situations as described in the following paragraphs.

LIGHT TURBULENCE

Light turbulence can be caused by obstruction of the wind in hilly or mountainous terrain. Even with light winds, there can be enough displacement of the wind to produce small-scale eddies or turbulence.

Weather conditions that can cause light turbulence are associated with clear-air convective currents over a heated surface or near and in small cumulus clouds. Weak wind shear in the vicinity of troughs aloft, lows aloft, jet streams, or the tropopause can cause light turbulence. Also in the lower 5,000 feet of the atmosphere, light turbulence can occur when winds are near 15 knots or where the air is colder than the underlying surfaces.

MODERATE TURBULENCE

Moderate turbulence will be reported in mountainous areas with a wind component of 25 to 50 knots perpendicular to and near the level of the ridge. The turbulence will be located at all levels from the surface to 5,000 feet above the tropopause. The areas most likely to have moderate turbulence is within 5,000 feet of the ridge level, at the base of relatively stable layers below the base of the tropopause, or within the tropopause layer. The turbulence will extend downstream from the lee of the ridge for 150 to 300 miles.

Also, moderate turbulence can be encountered in and near towering cumuliform clouds and thunderstorms (in the dissipating stage).

Moderate turbulence can occur in the lower 5,000 feet of the troposphere when surface winds are 30 knots or more, where heating of the underlying surface is unusually strong, where there is an invasion of very cold air, or in fronts aloft.

December 1999

Wind shear in the vertical direction that exceeds 6 knots per 1,000 feet and/or horizontal wind shear that exceeds 18 knots per 150 miles will produce moderate turbulence.

SEVERE TURBULENCE

Severe turbulence is likely in mountainous areas with a wind component exceeding 50 knots perpendicular to and near the level of the ridge. The location of the severe turbulence will be in 5,000-foot layers at and below the ridge level in rotor clouds or rotor action, at the tropopause, and sometimes at the base of other stable layers below the tropopause. The severe turbulence will extend downstream from the lee of the ridge for 50 to 150 miles.

Severe turbulence can be encountered in and near growing and mature thunderstorms and occasionally in other towering cumuliform clouds.

Severe turbulence will also occur 50 to 100 miles on the cold side of the center of the jet stream, in troughs aloft, and in lows aloft where vertical wind shear exceeds 10 knots per 1,000 feet, and horizontal wind shear exceeds 40 knots per 150 miles.

EXTREME TURBULENCE

Extreme turbulence will be found in mountain wave situations. The turbulence will be located in and below the level of well-developed rotor clouds. Sometimes the turbulence extends to the ground.

Besides mountain wave situations, extreme turbulence will occur in severe thunderstorms. A severe thunderstorm is indicated by large hailstones (diameter $\frac{3}{4}$ inch or greater), strong radar echoes, or continuous lightning.

STANDARD CONVERSION TABLE

This table can be used as a quick reference for conversion between metric and English units.

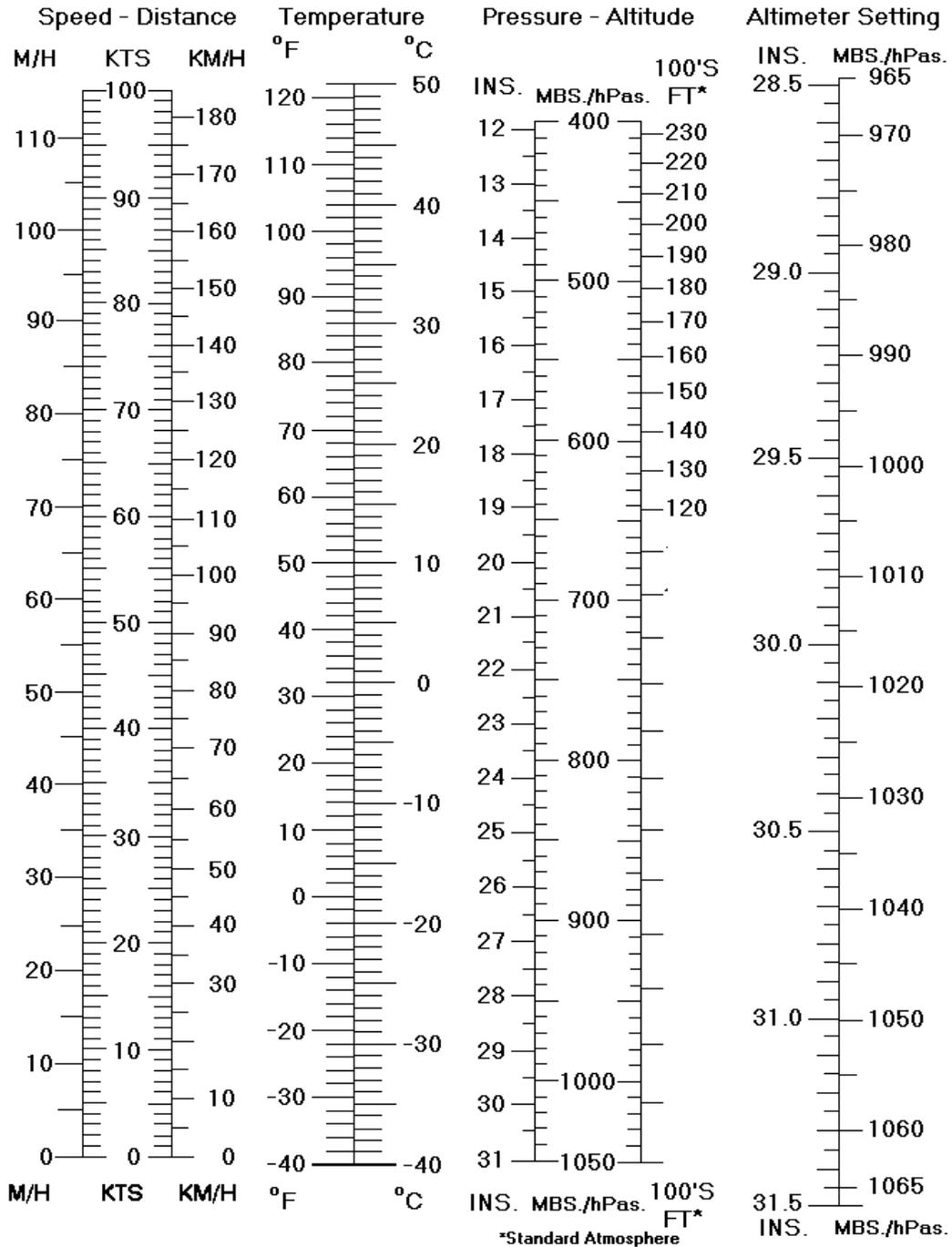


Figure 14-1. Standard Conversion Table.

DENSITY ALTITUDE

Density altitude can affect the takeoff, climb, and landing performance of any aircraft. The distance required to take off and land and the rate of climb are affected by density altitude.

Aircraft will perform better in low density altitude conditions. Low density altitude conditions exist when the air is dense. This occurs when the temperature is cold combined with a high pressure system. The air is the most dense in this situation and the aircraft will perform as if it were at a lower altitude. For example, a plane is at an airport with a station elevation of 7,000 feet MSL. The atmospheric conditions at that airport indicate a low density altitude situation. The density altitude is calculated to be 5,500 feet MSL. The plane will perform as if it were at 5,500 feet MSL instead of 7,000 feet MSL. This low density altitude situation will decrease takeoff and landing roll while increasing the initial rate of climb.

While low density altitude increases aircraft performance, high density altitude can lead to an aircraft accident. High density altitude situations are more prevalent at higher elevations. High temperatures combined with a low pressure system will produce a high density altitude situation. (The air is least dense in this situation.) Airports in mountainous terrain are more susceptible to high density altitude situations because they already have a high station elevation. The combination of a high station elevation, high temperatures, and low pressure will produce a very high density altitude situation. For example, a plane is at an airport with a station elevation of 7,000 feet MSL. Using the values of station elevation, temperature, and pressure, the density altitude is calculated to be 12,000 feet MSL. Any aircraft taking off or landing at that airport will perform as if it were at an airport with a station elevation of 12,000 MSL. For some aircraft, a high density altitude situation will indicate an altitude higher than the service ceiling of that specific aircraft. In that case, if a pilot attempts to take off during a high density situation, the aircraft will not be able to gain altitude but stay in ground effect and possibly crash.

Use Figure 14-2 to find density altitude either on the ground or aloft. Set the aircraft's altimeter at 29.92 inches. The altimeter will indicate pressure altitude. Read the outside air temperature. Enter the graph at the pressure altitude value and move horizontally to the temperature value. Read the density altitude from the sloping lines.

Examples:

Density altitude in flight: Pressure altitude is 9,500 feet and the temperature is -8 degrees C. Find 9,500 feet on the left of the chart and move to -8 degrees C. Density altitude is 9,000 feet. See dot on the chart that is labeled number 1.

Density altitude for takeoff: Pressure altitude is 4,950 feet and the temperature is 97 degrees F. Enter the graph at 4,950 feet and move across to 97 degrees F. Density altitude is 8,200 feet. See dot on the chart that is labeled number 2.

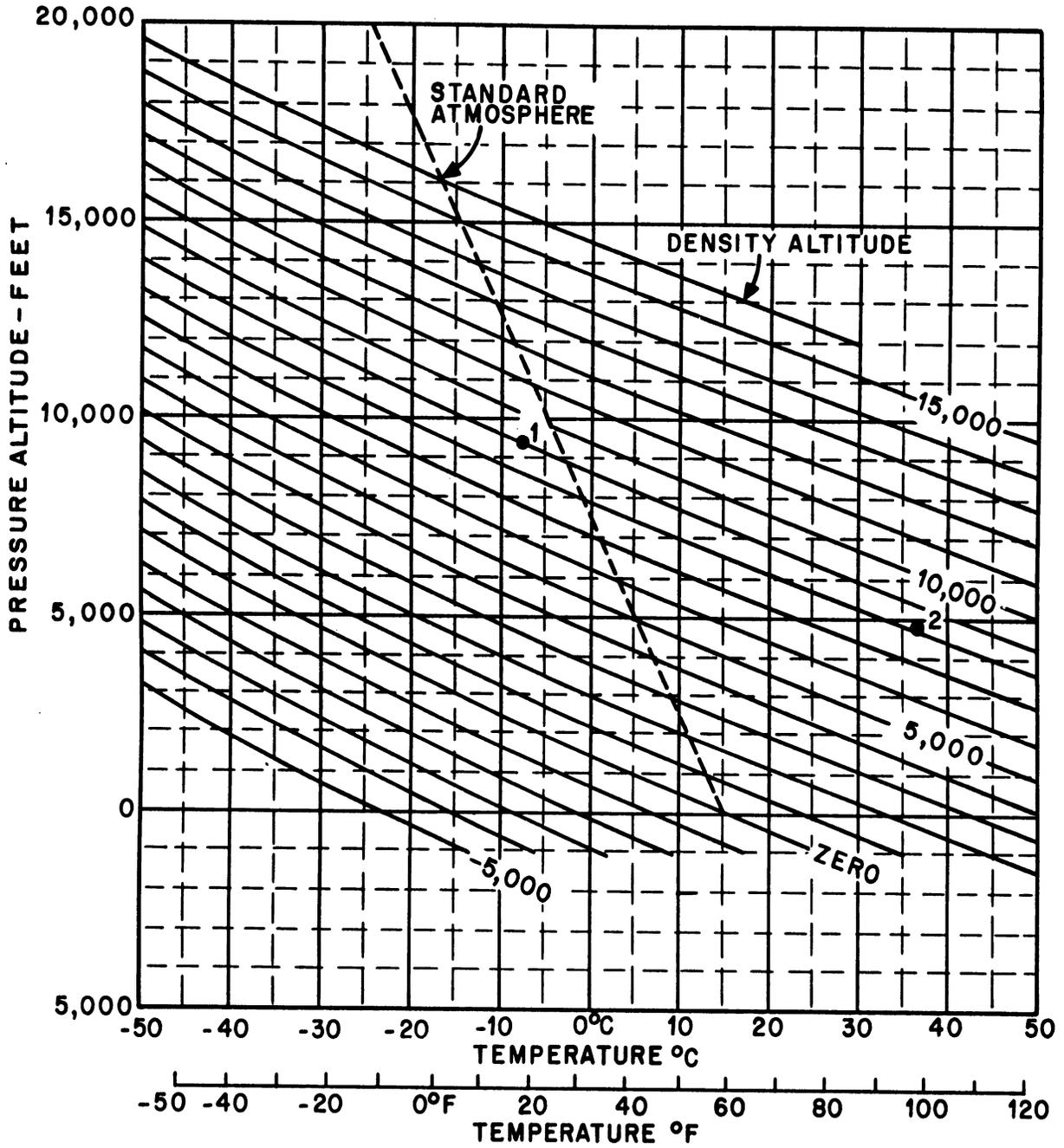


Figure 14-2. Density Altitude Computation Chart.

CONTRACTIONS AND ACRONYMS

Contractions and acronyms are used extensively in surface reports, pilot reports, and forecasts.

A

AAWU – Alaskan Aviation Weather Unit
ABNDT - Abundant
ABNML - Abnormal
ABT - About
ABV - Above
AC - Convective outlook or altocumulus
ACC - Altocumulus castellanus
ACCUM - Accumulate
ACFT - Aircraft
ACLT - Accelerate
ACLTD - Accelerated
ACLTG - Accelerating
ACLTS - Accelerates
ACPY - Accompany
ACRS - Across
ACSL - Altocumulus standing lenticular
ACTV - Active
ACTVTY - Activity
ACYC - Anticyclone
ADJ - Adjacent
ADL - Additional
ADQT - Adequate
ADQTLY - Adequately
ADRNDCK - Adirondack
ADVCT - Advect
ADVCTD - Advected
ADVCTG - Advecting
ADVCTN - Advection
ADVCTS - Advects
ADVN - Advance
ADVNG - Advancing
ADVY - Advisory
ADVYS - Advisories
AFCT - Affect
AFCTD - Affected
AFCTG - Affecting
AFDK - After dark
AFOS - Automated Field Operations System
AFSS - Automated Flight Service Station
AFT - After
AFTN - Afternoon
AGL - Above ground level
AGN - Again

AGR - Agreed
AGRS - Agrees
AGRMT - Agreement
AHD - Ahead
AK - Alaska
AL - Alabama
ALF - Aloft
ALG - Along
ALGHNY - Allegheny
ALQDS - All quadrants
ALSTG - Altimeter setting
ALT - Altitude
ALTA - Alberta
ALTHO - Although
ALTM - Altimeter
ALUTN - Aleutian
AMD - Amend
AMDD - Amended
AMDG - Amending
AMDT - Amendment
AMP - Amplify
AMPG - Amplifying
AMPLTD - Amplitude
AMS - Air mass
AMT - Amount
ANLYS - Analysis
ANS - Answer
AOA - At or above
AOB - At or below
AP - Anomalous Propagation
APCH - Approach
APCHG - Approaching
APCHS - Approaches
APLCN - Appalachian
APLCNS - Appalachians
APPR - Appear
APPRG - Appearing
APPRS - Appears
APRNT - Apparent
APRNTLY - Apparently
APRX - Approximate
APRXLY - Approximately
AR - Arkansas
ARL – Air Resources Lab
ARND - Around
ARPT - Airport

ASAP - As soon as possible
 ASSOCD - Associated
 ASSOCN - Association
 ATLC - Atlantic
 ATTM - At this time
 ATTN - Attention
 AVBL - Available
 AVG - Average
 AVN - Aviation model
 AWC - Aviation Weather Center
 AWT - Awaiting
 AZ - Arizona
 AZM - Azimuth

BR - Branch
 BRF - Brief
 BRK - Break
 BRKG - Breaking
 BRKHIC - Breaks in higher clouds
 BRKS - Breaks
 BRKSHR - Berkshire
 BRM - Barometer
 BS - Blowing snow
 BTWN - Between
 BYD - Beyond

C

B

BACLIN - Baroclinic
 BAJA - Baja, California
 BATROP - Barotropic
 BC - British Columbia
 BCH - Beach
 BCKG - Backing
 BCM - Become
 BCMG - Becoming
 BCMS - Becomes
 BDA - Bermuda
 BDRY - Boundary
 BFDK - Before dark
 BFR - Before
 BGN - Begin
 BGNG - Beginning
 BGNS - Begins
 BHND - Behind
 BINOVC - Breaks in overcast
 BKN - Broken
 BLD - Build
 BLDG - Building
 BLDUP - Buildup
 BLKHLS - Black Hills
 BLKT - Blanket
 BLKTG - Blanketing
 BLKTS - Blankets
 BLO - Below clouds
 BLW - Below
 BLZD - Blizzard
 BN - Blowing sand
 BND - Bound
 BNDRY - Boundary
 BNDRYS - Boundaries
 BNTH - Beneath
 BOOTHEEL - Bootheel

C - Celsius
 CA - California
 CAA - Cold air advection
 CARIB - Caribbean
 CASCDS - Cascades
 CB - Cumulonimbus
 CC - Cirrocumulus
 CCLDS - Clear of clouds
 CCLKWS - Counterclockwise
 CCSL - Cirrocumulus standing lenticular
 CDFNT - Cold front
 CFP - Cold front passage
 CHC - Chance
 CHCS - Chances
 CHG - Change
 CHGD - Changed
 CHGG - Changing
 CHGS - Changes
 CHSPK - Chesapeake
 CI - Cirrus
 CIG - Ceiling
 CIGS - Ceilings
 CLD - Cloud
 CLDNS - Cloudiness
 CLDS - Clouds
 CLKWS - Clockwise
 CLR - Clear
 CLRG - Clearing
 CLRS - Clears
 CMPLX - Complex
 CNCL - Cancel
 CNCLD - Canceled
 CNCLG - Canceling
 CNCLS - Cancels
 CNDN - Canadian
 CNTR - Center
 CNTRD - Centered

CNTRL - Central
CNTY - County
CNTYS - Counties
CNVG - Converge
CNVGG - Converging
CNVGGC - Convergence
CNVTN - Convection
CNVTV - Convective
CNVTVLY - Convectively
CONFDC - Confidence
CO - Colorado
COMPR - Compare
COMPRG - Comparing
COMPRD - Compared
COMPRS - Compares
COND - Condition
CONT - Continue
CONTD - Continued
CONTLY - Continually
CONTG - Continuing
CONTRAILS - Condensation trails
CONTS - Continues
CONTDVD - Continental Divide
CONUS - Continental U.S.
COORD - Coordinate
COR - Correction
CPBL - Capable
CRC - Circle
CRLC - Circulate
CRLN - Circulation
CRNR - Corner
CRNRS - Corners
CRS - Course
CS - Cirrostratus
CSDR - Consider
CSDRBL - Considerable
CST - Coast
CSTL - Coastal
CT - Connecticut
CTGY - Category
CTSKLS - Catskills
CU - Cumulus
CUFRA - Cumulus fractus
CVR - Cover
CVRD - Covered
CVRG - Covering
CVRS - Covers
CWSU - Center Weather Service Units
CYC - Cyclonic
CYCLGN - Cyclogenesis

D

DABRK - Daybreak
DALGT - Daylight
DBL - Double
DC - District of Columbia
DCR - Decrease
DCRD - Decreased
DCRG - Decreasing
DCRGLY - Decreasingly
DCRS - Decreases
DE - Delaware
DEG - Degree
DEGS - Degrees
DELMARVA - Delaware-Maryland-Virginia
DFCLT - Difficult
DFCLTY - Difficulty
DFNT - Definite
DFNTLY - Definitely
DFRS - Differs
DFUS - Diffuse
DGNL - Diagonal
DGNLLY - Diagonally
DIGG - Digging
DIR - Direction
DISC - Discontinue
DISCD - Discontinued
DISCG - Discontinuing
DISRE - Disregard
DISRED - Disregarded
DISREG - Disregarding
DKTS - Dakotas
DLA - Delay
DLAD - Delayed
DLT - Delete
DLTD - Deleted
DLTG - Deleting
DLY - Daily
DMG - Damage
DMGD - Damaged
DMGG - Damaging
DMNT - Dominant
DMSH - Diminish
DMSHD - Diminished
DMSHG - Diminishing
DMSHS - Diminishes
DNS - Dense
DNSLP - Downslope
DNSTRM - Downstream
DNWND - Downwind
DP - Deep

DPND - Deepened
 DPNG - Deepening
 DPNS - Deepens
 DPR - Deeper
 DPTH - Depth
 DRFT - Drift
 DRFTD - Drifted
 DRFTG - Drifting
 DRFTS - Drifts
 DRZL - Drizzle
 DSCNT - Descent
 DSIPT - Dissipate
 DSIPTD - Dissipated
 DSIPTG - Dissipating
 DSIPTN - Dissipation
 DSIPTS - Dissipates
 DSND - Descend
 DSNDG - Descending
 DSNDS - Descends
 DSNT - Distant
 DSTBLZ - Destabilize
 DSTBLZD - Destabilized
 DSTBLZG - Destabilizing
 DSTBLZS - Destabilizes
 DSTBLZN - Destabilization
 DSTC - Distance
 DTRT - Deteriorate
 DTRTD - Deteriorated
 DTRTG - Deteriorating
 DTRTS - Deteriorates
 DURC - During climb
 DURD - During descent
 DURG - During
 DURN - Duration
 DVLP - Develop
 DVLPD - Developed
 DVLPG - Developing
 DVLPMT - Development
 DVLPS - Develops
 DVRG - Diverge
 DVRGG - Diverging
 DVRGNC - Divergence
 DVRGS - Diverges
 DVV - Downward vertical velocity
 DWNDFTS - Downdrafts
 DWPNT - Dew point
 DWPNTS - Dew points

E

E - East

EBND - Eastbound
 EFCT - Effect
 ELNGT - Elongate
 ELNGTD - Elongated
 ELSW - Elsewhere
 EMBDD - Embedded
 EMERG - Emergency
 ENCTR - Encounter
 ENDG - Ending
 ENE - East-northeast
 ENELY - East-northeasterly
 ENERN - East-northeastern
 ENEWD - East-northeastward
 ENHNC - Enhance
 ENHNCD - Enhanced
 ENHNCG - Enhancing
 ENHNCS - Enhances
 ENHNCMNT - Enhancement
 ENTR - Entire
 ERN - Eastern
 ERY - Early
 ERYR - Earlier
 ESE - East-southeast
 ESELY - East-southeasterly
 ESERN - East-southeastern
 ESEWD - East-southeastward
 ESNTL - Essential
 ESTAB - Establish
 EST - Estimate
 ETA - Estimated time of arrival or ETA model
 ETC - Et cetera
 ETIM - Elapsed time
 EVE - Evening
 EWD - Eastward
 EXCLV - Exclusive
 EXCLVLY - Exclusively
 EXCP - Except
 EXPC - Expect
 EXPCD - Expected
 EXPCG - Expecting
 EXTDD - Extend
 EXTDD - Extended
 EXTDDG - Extending
 EXTDS - Extends
 EXTN - Extension
 EXTRAP - Extrapolate
 EXTRAPD - Extrapolated
 EXTRM - Extreme
 EXTRMLY - Extremely
 EXTSV - Extensive

F

F - Fahrenheit
FA - Aviation area forecast
FAM - Familiar
FCST - Forecast
FCSTD - Forecasted
FCSTG - Forecasting
FCSTR - Forecaster
FCSTS - Forecasts
FIG - Figure
FILG - Filling
FIR – Flight information region
FIRAV - First available
FL - Florida or flight level
FLG - Falling
FLRY - Flurry
FLRYS - Flurries
FLT - Flight
FLW - Follow
FLWG - Following
FM - From
FMT - Format
FNCTN - Function
FNT - Front
FNTL - Frontal
FNTS - Fronts
FNTGNS - Frontogenesis
FNTLYS - Frontolysis
FORNN - Forenoon
FPM - Feet per minute
FQT - Frequent
FQTLY - Frequently
FRM - Form
FRMG - Forming
FRMN - Formation
FROPA - Frontal passage
FROSFC - Frontal surface
FRST - Frost
FRWF - Forecast wind factor
FRZ - Freeze
FRZLVL - Freezing level
FRZN - Frozen
FRZG - Freezing
FT - Feet
FTHR - Further
FVRBL - Favorable
FWD - Forward
FYI - For your information

G

G - Gust
GA - Georgia
GEN - General
GENLY - Generally
GEO - Geographic
GEOREF - Geographical reference
GF - Fog
GICG - Glaze icing
GLFALSK - Gulf of Alaska
GLFCAL - Gulf of California
GLFMEX - Gulf of Mexico
GLFSTLAWR - Gulf of St. Lawrence
GND - Ground
GRAD - Gradient
GRDL - Gradual
GRDLY - Gradually
GRT - Great
GRTLY - Greatly
GRTLKS - Great Lakes
GSTS - Gusts
GSTY - Gusty
GTS – Global Telecommunication System

H

HAZ - Hazard
HDFRZ - Hard freeze
HDSVLY - Hudson Valley
HDWND - Head wind
HGT - Height
HI - High
HI - Hawaii
HIER - Higher
HIFOR - High level forecast
HLF - Half
HLTP - Hilltop
HLSTO - Hailstones
HND - Hundred
HPC – Hydrometeorological Prediction Center
HR - Hour
HRS - Hours
HRZN - Horizon
HTG - Heating
HURCN - Hurricane
HUREP - Hurricane report
HV - Have
HVY - Heavy
HVYR - Heavier
HVYST - Heaviest
HWVR - However

HWY - Highway

I

IA - Iowa

IC - Ice (in PIREPs only)

ICAO - International Civil Aviation Organization

ICG - Icing

ICGIC - Icing in clouds

ICGICIP - Icing in clouds and in precipitation

ICGIP - Icing in precipitation

ID - Idaho

IFR - Instrument flight rules

IL - Illinois

IMDT - Immediate

IMDTLY - Immediately

IMPL - Impulse

IMPLS - Impulses

IMPT - Important

INCL - Include

INCLD - Included

INCLG - Including

INCLS - Includes

INCR - Increase

INCRD - Increased

INCRG - Increasing

INCRGLY - Increasingly

INCRS - Increases

INDC - Indicate

INDCD - Indicated

INDCG - Indicating

INDCS - Indicates

INDEF - Indefinite

INFO - Information

INLD - Inland

INSTBY - Instability

INTCNTL - Intercontinental

INTL - International

INTMD - Intermediate

INTMT - Intermittent

INTMTLY - Intermittently

INTR - Interior

INTRMTRGN - Intermountain region

INTS - Intense

INTSFCN - Intensification

INTSFY - Intensify

INTSFYD - Intensified

INTSFYG - Intensifying

INTSFYS - Intensifies

INTSTY - Intensity

INTVL - Interval

INVRN - Inversion

IOVC - In overcast

INVOF - In vicinity of

IP - Ice pellets

IPV - Improve

IPVG - Improving

ISOL - Isolate

ISOLD - Isolated

J

JCTN - Junction

JTSTR - Jet stream

K

KFRST - Killing frost

KLYR - Smoke layer aloft

KOCTY - Smoke over city

KS - Kansas

KT - Knots

KY - Kentucky

L

LA - Louisiana

LABRDR - Labrador

LAT - Latitude

LAWRS - Limited aviation weather reporting station

LCL - Local

LCLY - Locally

LCTD - Located

LCTN - Location

LCTMP - Little change in temperature

LEVEL - Level

LFTG - Lifting

LGRNG - Long-range

LGT - Light

LGTR - Lighter

LGWV - Long wave

LI - Lifted Index

LIS - Lifted Indices

LK - Lake

LKS - Lakes

LKLY - Likely

LLJ - Low level jet

LLWAS - Low-level wind shear alert system

LLWS - Low-level wind shear

LMTD - Limited

LMTG - Limiting
LMTS - Limits
LN - Line
LO - Low
LONG - Longitude
LONGL - Longitudinal
LRG - Large
LRGLY - Largely
LRGR - Larger
LRGST - Largest
LST - Local standard time
LTD - Limited
LTG - Lightning
LTGCC - Lightning cloud-to-cloud
LTGCG - Lightning cloud-to-ground
LTGCCCCG - Lightning cloud-to-cloud cloud-to-ground
LTGCW - Lightning cloud-to-water
LTGIC - Lightning in cloud
LTL - Little
LTLCG - Little change
LTR - Later
LTST - Latest
LV - Leaving
LVL - Level
LVLS - Levels
LWR - Lower
LWRD - Lowered
LWRG - Lowering
LYR - Layer
LYRD - Layered
LYRS - Layers

M

MA - Massachusetts
MAN - Manitoba
MAX - Maximum
MB - Millibars
MCD - Mesoscale discussion
MD - Maryland
MDFY - Modify
MDFYD - Modified
MDFYG - Modifying
MDL - Model
MDLS - Models
MDT - Moderate
MDTLY - Moderately
ME - Maine
MED - Medium
MEGG - Merging

MESO - Mesoscale
MET - Meteorological
METAR - Aviation routine weather report
METRO - Metropolitan
MEX - Mexico
MHKVLV - Mohawk Valley
MI - Michigan
MID - Middle
MIDN - Midnight
MIL - Military
MIN - Minimum
MISG - Missing
MLTLVL - Melting level
MN - Minnesota
MNLD - Mainland
MNLY - Mainly
MO - Missouri
MOGR - Moderate or greater
MOV - Move
MOVD - Moved
MOVG - Moving
MOVMT - Movement
MOVS - Moves
MPH - Miles per hour
MRGL - Marginal
MRGLLY - Marginally
MRNG - Morning
MRTM - Maritime
MS - Mississippi
MSG - Message
MSL - Mean sea level
MST - Most
MSTLY - Mostly
MSTR - Moisture
MT - Montana
MTN - Mountain
MTNS - Mountains
MULT - Multiple
MULTILVL - Multilevel
MWO – Meteorological Watch Office
MXD - Mixed

N

N - North
NAB - Not above
NAT - North Atlantic
NATL - National
NAV - Navigation
NB - New Brunswick

NBND - Northbound
 NBRHD - Neighborhood
 NC - North Carolina
 NCEP - National Center of Environmental
 Prediction
 NCO – NCEP Central Operations
 NCWX - No change in weather
 ND - North Dakota
 NE - Northeast
 NEB - Nebraska
 NEC - Necessary
 NEG - Negative
 NEGLY - Negatively
 NELY - Northeasterly
 NERN - Northeastern
 NEWD - Northeastward
 NEW ENG - New England
 NFLD - Newfoundland
 NGM - Nested grid model
 NGT - Night
 NH - New Hampshire
 NIL - None
 NJ - New Jersey
 NL - No layers
 NLT - Not later than
 NLY - Northerly
 NM - New Mexico
 NMBR - Number
 NMBRS - Numbers
 NML - Normal
 NMRS - Numerous
 NNE - North-northeast
 NNELY - North-northeasterly
 NNERN - North-northeastern
 NNEWD - North-northeastward
 NNW - North-northwest
 NNWLY - North-northwesterly
 NNWRN - North-northwestern
 NNWWD - North-northwestward
 NNNN - End of message
 NOAA - National Oceanic and Atmospheric
 Administration
 NOPAC - Northern Pacific
 NPRS - Nonpersistent
 NR - Near
 NRLY - Nearly
 NRN - Northern
 NRW - Narrow
 NS - Nova Scotia
 NTFY - Notify
 NTFYD - Notified

NV - Nevada
 NVA - Negative vorticity advection
 NW - Northwest
 NWD - Northward
 NWLY - Northwesterly
 NWRN - Northwestern
 NWS - National Weather Service
 NY - New York
 NXT - Next

O

OAT - Outside air temperature
 OBND - Outbound
 OBS - Observation
 OBSC - Obscure
 OBSCD - Obscured
 OBSCG - Obscuring
 OCFNT - Occluded front
 OCLD - Occlude
 OCLDS - Occludes
 OCLDD - Occluded
 OCLDG - Occluding
 OCLN - Occlusion
 OCNL - Occasional
 OCNLY - Occasionally
 OCR - Occur
 OCRD - Occurred
 OCRG - Occurring
 OCRS - Occurs
 OFC - Office
 OFP - Occluded frontal passage
 OFSHR - Offshore
 OH - Ohio
 OK - Oklahoma
 OMTNS - Over mountains
 ONSHR - On shore
 OR - Oregon
 ORGPHC - Orographic
 ORIG - Original
 OSV - Ocean station vessel
 OTLK - Outlook
 OTP - On top
 OTR - Other
 OTRW - Otherwise
 OUTFLO - Outflow
 OVC - Overcast
 OVHD - Overhead
 OVNGT - Overnight
 OVR - Over
 OVRN - Overrun

OVRNG - Overrunning
OVTK - Overtake
OVTKG - Overtaking
OVTKS - Overtakes

P

PA - Pennsylvania
PAC - Pacific
PATWAS - Pilot's automatic telephone weather
answering service
PBL - Planetary boundary layer
PCPN - Precipitation
PD - Period
PDMT - Predominant
PEN - Peninsula
PERM - Permanent
PGTSND - Puget Sound
PHYS - Physical
PIBAL - Pilot balloon observation
PIREP - Pilot weather report
PL - Ice pellets
PLNS - Plains
PLS - Please
PLTO - Plateau
PM - Postmeridian
PNHDL - Panhandle
POS - Positive
POSLY - Positively
PPINA - Radar weather report not available
PPINE - Radar weather report no echoes
observed
PPSN - Present position
PRBL - Probable
PRBLY - Probably
PRBLTY - Probability
PRECD - Precede
PRECDD - Preceded
PRECDG - Preceding
PRECDS - Precedes
PRES - Pressure
PRESFR - Pressure falling rapidly
PRESRR - Pressure rising rapidly
PRIM - Primary
PRIN - Principal
PRIND - Present indications are
PRJMP - Pressure jump
PROB - Probability
PROC - Procedure
PROD - Produce
PRODG - Producing

PROG - Forecast
PROGD - Forecasted
PROGS - Forecasts
PRSNT - Present
PRSNTLY - Presently
PRST - Persist
PRSTS - Persists
PRSTNC - Persistence
PRSTNT - Persistent
PRVD - Provide
PRVDD - Provided
PRVDG - Providing
PRVDS - Provides
PS - Plus
PSBL - Possible
PSBLY - Possibly
PSBLTY - Possibility
PSG - Passage
PSN - Position
PSND - Positioned
PTCHY - Patchy
PTLY - Partly
PTNL - Potential
PTNLY - Potentially
PTNS - Portions
PUGET - Puget Sound
PVA - Positive vorticity advection
PVL - Prevail
PVLG - Prevailed
PVLG - Prevailing
PVLS - Prevails
PVLT - Prevalent
PWB - Pilot weather briefing
PWR - Power

Q

QN - Question
QSTNRY - Quasistationary
QTR - Quarter
QUAD - Quadrant
QUE - Quebec

R

R - Rain
RADAT - Radiosonde additional data
RAOB - Radiosonde observation
RCH - Reach

RCHD - Reached
 RCHG - Reaching
 RCHS - Reaches
 RCKY - Rocky
 RCKYS - Rockies
 RCMD - Recommend
 RCMDD - Recommended
 RCMDG - Recommending
 RCMDS - Recommends
 RCRD - Record
 RCRDS - Records
 RCV - Receive
 RCVD - Received
 RCVG - Receiving
 RCVS - Receives
 RDC - Reduce
 RDGG - Ridging
 RDVLP - Redevelop
 RDVLPG - Redeveloping
 RDVLPMT - Redevelopment
 RE - Regard
 RECON - Reconnaissance
 REF - Reference
 RES - Reserve
 REPL - Replace
 REPLD - Replaced
 REPLG - Replacing
 REPLS - Replaces
 REQ - Request
 REQS - Requests
 REQSTD - Requested
 RESP - Response
 RESTR - Restrict
 RGD - Ragged
 RGL - Regional model
 RGLR - Regular
 RGN - Region
 RGNS - Regions
 RGT - Right
 RH - Relative humidity
 RI - Rhode Island
 RIOGD - Rio Grande
 RLBL - Reliable
 RLTV - Relative
 RLTVLY - Relatively
 RMK - Remark
 RMN - Remain
 RMND - Remained
 RMNDR - Remainder
 RMNG - Remaining
 RMNS - Remains

RNFL - Rainfall
 ROT - Rotate
 ROTD - Rotated
 ROTG - Rotating
 ROTS - Rotates
 RPD - Rapid
 RPDLY - Rapidly
 RPLC - Replace
 RPLCD - Replaced
 RPLCG - Replacing
 RPLCS - Replaces
 RPRT - Report
 RPRTD - Reported
 RPRTG - Reporting
 RPRTS - Reports
 RPT - Repeat
 RPTG - Repeating
 RPTS - Repeats
 RQR - Require
 RQRD - Required
 RQRG - Requiring
 RQRS - Requires
 RSG - Rising
 RSN - Reason
 RSNG - Reasoning
 RSNS - Reasons
 RSTR - Restrict
 RSTRD - Restricted
 RSTRG - Restricting
 RSTRS - Restricts
 RTRN - Return
 RTRND - Returned
 RTRNG - Returning
 RTRNS - Returns
 RUF - Rough
 RUFLY - Roughly
 RVS - Revise
 RVSD - Revised
 RVSG - Revising
 RVSS - Revises
 RWY - Runway

S

S - South
 SAB – Satellite Analysis Branch
 SASK - Saskatchewan
 SATFY - Satisfactory
 SBND - Southbound
 SBSB - Subside

December 1999

SBSDD - Subsided	SM - Statute mile
SBSDNC - Subsidence	SML - Small
SBSDS - Subsides	SMLR - Smaller
SC - South Carolina or stratocumulus	SMRY - Summary
SCND - Second	SMTH - Smooth
SCNDRY - Secondary	SMTHR - Smoother
SCSL -Stratocumulus standing lenticular	SMTHST - Smoothest
SCT - Scatter	SMTM - Sometime
SCTD - Scattered	SMWHT - Somewhat
SCTR - Sector	SN - Snow
SD - South Dakota	SNBNK - Snowbank
SE - Southeast	SNFLK - Snowflake
SEC - Second	SNGL - Single
SELY - Southeasterly	SNOINCR - Snow increase
SEPN - Separation	SNOINCRG - Snow increasing
SEQ - Sequence	SNST - Sunset
SERN - Southeastern	SOP - Standard operating procedure
SEV - Severe	SPC – Storm Prediction Center
SEWD -Southeastward	SPCLY - Especially
SFC - Surface	SPD - Speed
SG - Snow grains	SPKL - Sprinkle
SGFNT - Significant	SPLNS - Southern Plains
SGFNTLY - Significantly	SPRD - Spread
SHFT - Shift	SPRDG - Spreading
SHFTD - Shifted	SPRDS - Spreads
SHFTG - Shifting	SPRL - Spiral
SHFTS - Shifts	SQ - Squall
SHLD - Shield	SQLN - Squall line
SHLW - Shallow	SR - Sunrise
SHRT - Short	SRN - Southern
SHRTLY - Shortly	SRND - Surround
SHRTWV - Shortwave	SRNDD - Surrounded
SHUD - Should	SRNDG - Surrounding
SHWR - Shower	SRNDS - Surrounds
SIERNEV - Sierra Nevada	SS - Sunset
SIG - Signature	SSE - South-southeast
SIGMET - Significant meteorological information	SSELY - South-southeasterly
SIMUL - Simultaneous	SSERN - South-southeastern
SKC - Sky clear	SSEWD - South-southeastward
SKED - Schedule	SSW - South-southwest
SLD - Solid	SSWLY - South-southwesterly
SLGT - Slight	SSWRN - South-southwestern
SLGTLY - Slightly	SSWWD - South-southwestward
SLO - Slow	ST - Stratus
SLOLY - Slowly	STAGN - Stagnation
SLOR - Slower	STBL - Stable
SLP - Slope	STBLTY - Stability
SLPG - Sloping	STD - Standard
SLW - Slow	STDY - Steady
SLY - Southerly	STFR - Stratus fractus
	STFRM - Stratiform

STG - Strong
 STGLY - Strongly
 STGR - Stronger
 STGST - Strongest
 STM - Storm
 STMS - Storms
 STN - Station
 STNRY - Stationary
 SUB - Substitute
 SUBTRPCL - Subtropical
 SUF - Sufficient
 SUFLY - Sufficiently
 SUG - Suggest
 SUGG - Suggesting
 SUGS - Suggests
 SUP - Supply
 SUPG - Supplying
 SUPR - Superior
 SUPSD - Supersede
 SUPSDG - Superseding
 SUPSDS - Supersedes
 SVG - Serving
 SVRL - Several
 SW - Southwest
 SWD - Southward
 SWWD - Southwestward
 SWLY - Southwesterly
 SWRN - Southwestern
 SX - Stability index
 SXN - Section
 SYNOP - Synoptic
 SYNS - Synopsis
 SYS - System

T

TAF - Aviation terminal forecast
 TCNTL - Transcontinental
 TCU - Towering cumulus
 TDA - Today
 TEMP - Temperature
 THK - Thick
 THKNG - Thickening
 THKNS - Thickness
 THKR - Thicker
 THKST - Thickest
 THN - Thin
 THNG - Thinning
 THNR - Thinner
 THNST - Thinnest
 THR - Threshold

THRFTR - Thereafter
 THRU - Through
 THRUT - Throughout
 THSD - Thousand
 THTN - Threaten
 THTND - Threatened
 THTNG - Threatening
 THTNS - Threatens
 TIL - Until
 TMPRY - Temporary
 TMPRYLY - Temporarily
 TMW - Tomorrow
 TN - Tennessee
 TNDCY - Tendency
 TNDCYS - Tendencies
 TNGT - Tonight
 TNTV - Tentative
 TNTVLY - Tentatively
 TOPS - Tops
 TOVC - Top of overcast
 TPG - Topping
 TRBL - Trouble
 TRIB - Tributary
 TRKG - Tracking
 TRML - Terminal
 TRMT - Terminate
 TRMTD - Terminated
 TRMTG - Terminating
 TRMTS - Terminates
 TRNSP - Transport
 TRNSPG - Transporting
 TROF - Trough
 TROFS - Troughs
 TROP - Tropopause
 TRPCD - Tropical continental air mass
 TRPCL - Tropical
 TRRN - Terrain
 TRSN - Transition
 TS - Thunderstorm
 TSFR - Transfer
 TSFRD - Transferred
 TSFRG - Transferring
 TSFRS - Transfers
 TSNT - Transient
 TURBC - Turbulence
 TURBT - Turbulent
 TWD - Toward
 TWDS - Towards
 TWI - Twilight
 TWRG - Towering
 TX - Texas

U

UA - Pilot weather reports
UDDF - Up- and downdrafts
UN - Unable
UNAVBL - Unavailable
UNEC - Unnecessary
UNKN - Unknown
UNL - Unlimited
UNRELBL - Unreliable
UNRSTD - Unrestricted
UNSATFY - Unsatisfactory
UNSBL - Unseasonable
UNSTBL - Unstable
UNSTDY - Unsteady
UNSTL - Unsettle
UNSTLD - Unsettled
UNUSBL - Unusable
UPDFTS - Updrafts
UPR - Upper
UPSLP - Upslope
UPSTRM - Upstream
URG - Urgent
USBL - Usable
UT - Utah
UTC – Universal Time Coordinate
UVV - Upward vertical velocity
UWNDS - Upper winds

V

VA - Virginia
VAAC – Volcanic Ash Advisory Center
VAAS – Volcanic Ash Advisory Statement
VAL - Valley
VARN - Variation
VCNTY - Vicinity
VCOT - VFR conditions on top
VCTR - Vector
VFR - Visual flight rules
VFY - Verify
VFYD - Verified
VFYG - Verifying
VFYS - Verifies
VLCTY - Velocity
VLCTYS - Velocities
VLNT - Violent
VLNTLY - Violently

VMC - Visual meteorological conditions
VOL - Volume
VORT - Vorticity
VR - Veer
VRG - Veering
VRBL - Variable
VRISL - Vancouver Island, BC
VRS - Veers
VRT MOTN - Vertical motion
VRY - Very
VSB - Visible
VSBY - Visibility
VSBYDR - Visibility decreasing rapidly
VSBYIR - Visibility increasing rapidly
VT - Vermont
VV - Vertical velocity

W

W - West
WA - Washington
WAA - Warm air advection
WAFS – Word Area Forecast System
WBND - Westbound
WDLY - Widely
WDSPRD - Widespread
WEA - Weather
WFO - Weather Forecast Office
WFSO - Weather Forecast Service Office
WFP - Warm front passage
WI - Wisconsin
WIBIS - Will be issued
WINT - Winter
WK - Weak
WKDAY - Weekday
WKEND - Weekend
WKNG - Weakening
WKNS - Weakens
WKR - Weaker
WKST - Weakest
WKN - Weaken
WL - Will
WLY - Westerly
WND - Wind
WNDS - Winds
WNW - West-northwest
WNWLY - West-northwesterly
WNWRN - West-northwestern
WNWWD - West-northwestward
WO - Without
WPLTO - Western Plateau

WRM - Warm	XPC - Expect	
WRMG - Warming	XPCD - Expected	
WRN - Western	XPCG - Expecting	
WRMR - Warmer	XPCS - Expects	
WRMST - Warmest	XPLOS - Explosive	
WRMFNT - Warm front	XTND - Extend	
WRMFNTL - Warm frontal	XTNDD - Extended	
WRNG - Warning	XTNDG - Extending	
WRS - Worse	XTRM - Extreme	
WS - Wind shear	XTRMLY - Extremely	
WSHFT - Windshift		
WSFO - Weather Service Forecast Office		Y
WSTCH - Wasatch Range		
WSW - West-southwest	YDA - Yesterday	
WSWLY - West-southwesterly	YKN - Yukon	
WSWRN - West-southwestern	YLSTN - Yellowstone	
WSWWD - West-southwestward		
WTR - Water		
WTSPT - Waterspout		Z
WUD - Would		
WV - West Virginia	ZN - Zone	
WVS - Waves	ZNS - Zones	
WW - Severe weather watch		
WWD - Westward		
WX - Weather		
WY - Wyoming		
		X
XCP - Except		

SCHEDULED ISSUANCE AND VALID TIMES OF FORECAST PRODUCTS

Table 14-1 shows scheduled issuance and valid times of the TAFs. All times are UTC.

Table 14-1 Scheduled Issuance and Valid Times of TAFs

Scheduled Issuance Times	Valid Period	Transmission Period
00	00-00	2320-2340
06	06-06	0520-0540
12	12-12	1120-1140
18	18-18	1720-1740

The Table 14-2 has scheduled issuance and valid times of the TWEBs. All times are UTC.

Table 14-2 Scheduled Issuance and Valid Times of TWEBs

Scheduled Issuance Times	Valid Period	Transmission Period
02	02-14	0130-0140
08	08-20	0730-0740
14	14-02	1330-1340
20	20-08	1930-1940

Table 14-3 shows the scheduled issuance times of the FAs for their respective areas. The FA is valid 1 hour after issuance time. All times are UTC. The times the FA is issued depends on whether the FA area is in local standard or local daylight time.

Table 14-3 Scheduled Issuance Times of FAs

Area Forecast (FA)	Boston and Miami (LDT/LST)	Chicago and Ft. Worth (LDT/LST)	San Francisco and Salt Lake City (LDT/LST)	Alaska (LDT/LST)	Hawaii
1st issuance	0845/0945	0945/1045	1045/1145	0145/0245	0345
2nd issuance	1745/1845	1845/1945	1945/2045	0745/0845	0945
3rd issuance	0045/0145	0145/0245	0245/0345	1345/1445	1545
4th issuance				1945/2045	2145

Table 14-4 shows the scheduled issuance times of the Gulf of Mexico FA. All times are UTC.

Table 14-4 Scheduled Issuance Times of the Gulf of Mexico FA

Gulf of Mexico FA	Issuance Times (LDT/LST)
1st issuance	1040/1140
2nd issuance	1740/1840

NATIONAL WEATHER SERVICE STATION IDENTIFIERS**NORTHEAST REGION**

AKQ - Norfolk/Wakefield, VA
 ALY - Albany/East Berne, NY
 BGM - Binghamton, NY
 BOX - Boston/Taunton, MA
 BTV - Burlington, VT
 BUF - Buffalo, NY
 CLE - Cleveland, OH
 CTP - State College, PA
 GYX - Portland/Gray, ME
 ILN - Cincinnati/Wilmington, OH
 LWX - Washington, DC/Sterling, VA
 OKX - New York City/Brookhaven, NY
 PBZ - Pittsburgh/Coraopolis, PA
 PHI - Philadelphia, PA/Mount Holly, NJ
 RLX - Charleston/Ruthdale, WV
 RNK - Roanoke/Blacksburg, VA

SOUTHCENTRAL REGION

AMA - Amarillo, TX
 BMX - Birmingham, AL
 BRO - Brownsville, TX
 CRP - Corpus Christi, TX
 EPZ - El Paso, TX/Santa Theresa, NM
 EWX - Austin/San Antonio, TX
 FWD - Dallas/Forth Worth, TX
 HGX - Houston/Dickinson, TX
 JAN - Jackson, MS
 LCH - Lake Charles, LA
 LIX - New Orleans/Slidell, LA
 LUB - Lubbock, TX
 LZK - North Little Rock, AR
 MAF - Midland, TX
 MEG - Memphis/Germantown, TN
 MOB - Mobile, MS
 MRX - Knoxville/Tri Cities, TN
 OHX - Nashville/Old Hickory, TN
 OUN - Oklahoma City/Norman, OK
 SHV - Shreveport, LA
 SJT - San Angelo, TX
 TSA - Tulsa, OK

SOUTHEAST REGION

CAE - Columbia, SC
 CHS - Charleston, SC
 FFC - Atlanta/Peachtree City, GA
 GSP - Greenville-Spartanburg/Greer, SC
 ILM - Wilmington, NC
 JAX - Jacksonville, FL
 MFL - Miami, FL
 MHX - Morehead City/Newport, NC
 MLB - Melbourne, FL
 RAH - Raleigh/Durham, NC
 TAE - Tallahassee, FL
 TBW - Tampa/Ruskin, FL
 TJSJ - San Juan, PR

MOUNTAIN REGION

ABQ - Albuquerque, NM
 BIL - Billings, MT
 BOI - Boise, ID
 BOU - Denver/Boulder, CO
 CYS - Cheyenne, WY
 FGZ - Flagstaff/Bellefont, AZ
 GGW - Glasgow, MT
 GJT - Grand Junction, CO
 LKN - Elko, NV
 MSO - Missoula, MT
 PIH - Pocatello, ID
 PSR - Phoenix, AZ
 PUB - Pueblo, CO
 REV - Reno, NV
 RIW - Riverton, WY
 SLC - Salt Lake City, UT
 TFX - Great Falls, MT
 TWC - Tucson, AZ
 VEF - Las Vegas, NV

NORTHCENTRAL REGION

ABR - Aberdeen, SD
 APX - Alpena/Gaylord, MI
 ARX - La Crosse, WI
 BIS - Bismarck, ND
 DDC - Dodge City, KS
 DLH - Duluth, MN
 DMX - Des Moines/Johnston, IA
 DTX - Detroit/Pontiac, MI
 DVN - Quad Cities/Davenport, IA

December 1999

FGF - Fargo/Grand Forks, ND
EAX - Kansas City/Pleasant Hill, MO
FSD - Sioux Falls, SD
GID - Hastings, NE
GLD - Goodland, KS
GRB - Green Bay, WI
GRR - Grand Rapids, MI
ICT - Wichita, KS
ILX - Lincoln, IL
IND - Indianapolis, IN
JKL - Jackson/Noctor, KY
LBF - North Platte, NE
LMK - Louisville, KY
LOT - Chicago/Romeoville, IL
LSX - St Louis, MO
MPX - Minneapolis/Chanhassen, MN
MKX - Milwaukee/Dousman, WI
MQT - Marquette, MI
OAX - Omaha/Valley, NE
PAH - Paducah, KY
SGF - Springfield, MO
TOP - Topeka, KS
UNR - Rapid City, SD

PHFO - Honolulu, HI

WEST COAST REGION

EKA - Eureka, CA
HNX - Hanford, CA
LOX - Los Angeles/Oxnard, CA
MFR - Medford, OR
MTR - San Francisco/Monterey, CA
OTX - Spokane, WA
PDT - Pendleton, OR
PQR - Portland, OR
SEW - Seattle, WA
SGX - San Diego, CA
STO - Sacramento, CA

ALASKAN REGION

PAFC - Anchorage, AK
PAFG - Fairbanks, AK
PAJK - Juneau, AK

PACIFIC REGION

PGUA - Tiyan, GU

WSR-88D SITES

ABC Bethel, AK
 ABR Aberdeen, SD
 ABX Albuquerque, NM
 ACG Sitka/Biorka Island, AK
 AEC Nome, AK
 AHG Anchorage/Nikiski, AK
 AIH Middleton Island, AK
 AKC King Salmon, AK
 AKQ Norfolk/Wakefield, VA
 AMA Amarillo, TX
 AMX Miami, FL
 APD Fairbanks, AK
 APX Gaylord, MI
 ARX La Crosse, WI
 ATX Seattle-Tacoma/Camano Island, WA
 BBX Marysville/Beale AFB, CA
 BGM Binghamton, NY
 BHX Eureka/Bunker Hill, CA
 BIS Bismarck, ND
 BIX Keesler AFB, MS
 BLX Billings/Yellowstone County, MT
 BMX Birmingham/Alabaster, AL
 BOX Boston/Taunton, MA
 BRO Brownsville, TX
 BUF Buffalo/Cheektowaga, NY
 BYX Key West/Boca Chica Key, FL
 CAE Columbia, SC
 CBW Caribou/Hodgdon, ME
 CBX Boise/Ada County, ID
 CCX State College/Rush, PA
 CLE Cleveland, OH
 CLX Charleston/Grays, SC
 CRP Corpus Christi, TX
 CXX Burlington/Colchester, VT
 CYS Cheyenne, WY
 DAX Sacramento, CA
 DDC Dodge City, KS
 DFX Del Rio/Laughlin AFB, TX
 DIX Philadelphia, PA/Fort Dix, NJ
 DLH Duluth, MN
 DMX Des Moines/Johnston, IA
 DOX Dover AFB, DE
 DTX Detroit-Pontiac/White Lake, MI
 DVN Quad Cities/Davenport, IA
 DYX Abilene/Dyess AFB, TX
 EAX Kansas City/Pleasant Hill, MO
 EMX Tucson/Pima County, AZ
 ENX Albany/East Berne, NY
 EOX Fort Rucker, AL
 EPZ El Paso, TX/Santa Teresa, NM
 ESX Las Vegas/Nelson, NV
 EVX Red Bay/Eglin AFB, FL
 EWX Austin-San Antonio/New Braunfels, TX
 EYX Edwards AFB, CA
 FCX Roanoke/Coles Knob, VA
 FDR Frederick/Altus AFB, OK
 FDX Clovis/Cannon AFB, NM
 FFC Atlanta/Peachtree City, GA
 FSD Sioux Falls, SD
 FSX Flagstaff/Coconino, AZ
 FTG Denver/Boulder, CO
 FWS Dallas/Fort Worth, TX
 GGW Glasgow, MT
 GJX Grand Junction/Mesa, CO
 GLD Goodland, KS
 GRB Green Bay/Ashwaubenon, WI
 GRK Killeen/Fort hood, TX
 GRR Grand Rapids, MI
 GSP Greenville-Spartanburg/Greer, SC
 GUA Agana, GU
 GWX Columbus AFB, MS
 GYX Portland/Gray, ME
 HDX Alamogordo/Holloman AFB, NM
 HGX Houston-Galveston/Dickinson, TX
 HKI South Kauai/Numila, HI
 HKM Kamuela/Puu Mala, HI
 HMO Molokai/Kukui, HI
 HNX San Joaquin Valley/Hanford, CA
 HPX Fort Campbell, KY
 HTX Hytop, AL
 HWA South Hawaii/Naalehu, HI
 ICT Wichita, KS
 ICX Cedar City, UT
 ILN Cincinnati/Wilmington, OH
 ILX Lincoln, IL
 IND Indianapolis, IN
 INX Tulsa/Inola, OK
 IWA Phoenix/Mesa, AZ
 IWX North Webster, IN
 JAN Jackson, MS
 JAX Jacksonville, FL
 JGX Warner Robins/Robins AFB, GA
 JKL Jackson/Noctor, KY
 JUA San Juan/Cayey, PR
 LBB LUBBOCK, TX
 LCH Lake Charles, LA
 LIX New Orleans-Baton Rouge/Slidell, LA
 LNX North Platte/Theford, NE
 LOT Chicago/Romeoville, IL
 LRX Elko/Sheep Creek Mountain, NV

December 1999

LSX ST. Louis/Research Park, MO
LTX Wilmington/Charlotte, NC
LVX Louisville/Fort Knox, KY
LWX Baltimore, MD-Washington,
DC/Sterling, VA
LZK North Little Rock, AR
MAF Midland/Odessa, TX
MAX Medford/Mount Ashland, OR
MBX Minot AFB, ND
MHX Morehead City/Newport, NC
MKX Milwaukee/Dousman, WI
MLB Melbourne, FL
MOB Mobile, AL
MPX Minneapolis/Chanhausen, MN
MQT Marquette/Negaunee, MI
MRX Knoxville-Cities/Morristown, TN
MSX Missoula/Point Six Mountain, MT
MTX Salt Lake City/Promontory Point, UT
MUX San Francisco/Mount Umunhum, CA
MVX Fargo-Grand Forks/Mayville, ND
MXX Carrville/Maxwell AFB, AL
NKX San Diego/Miramar Nas, CA
NQA Memphis/Millington, TN
OAX Omaha/Valley, NE
OHX Nashville/Old Hickory, TN
OKX New York City/Upton, NY
OTX Spokane, WA
PAH Paducah, KY
PBZ Pittsburgh/Coraopolis, PA
PDT Pendleton, OR
POE Fort Polk, LA
PUX Pueblo, CO
RAX Raleigh-Durham/Clayton, NC
RGX Reno/Virginia Peak, NV
RIW Riverton, WY
RLX Charleston/Ruthdale, WV
RMX Rome/Griffiss AFB, NY
RTX Portland/Scappoose, OR
SFX Pocatello-Idaho Falls/Springfield, ID
SGF Springfield, MO
SHV Shreveport, LA
SJT San Angelo, TX
SOX Santa Ana Mountains/Orange County, CA
SRX Slatington Mountain, AR
TBW Tampa/Ruskin, FL
TFX Great Falls, MT
TLH Tallahassee, FL
TLX Oklahoma City/Norman, OK
TWX Topeka/Alma, KS
TYX Fort Drum, NY
UDX Rapid City/New Underwood, SD
UEX Hastings/Blue Hill, NE
VAX Valdosta/Moody AFB, GA
VBX Lompoc/Vandenberg AFB, CA
VNX Enid/Vance AFB, OK
VTX Los Angeles/Sulphur Mountain, CA
YUX Yuma, AZ

INTERNET ADDRESSES

NATIONAL WEATHER SERVICE HOME PAGE

<http://www.nws.noaa.gov>

INTERACTIVE WEATHER INFORMATION NETWORK (IWIN)

<http://weather.gov>

WEATHER CHARTS

<http://weather.noaa.gov/fax/graph.shtml>

or

<http://weather.noaa.gov/fax/nwsfax.shtml>

AVIATION DIGITAL DATA SERVICE

<http://adds.awc-kc.noaa.gov>

NWS NATIONAL CENTERS FOR ENVIRONMENTAL PREDICTION

<http://www.ncep.noaa.gov>

AVIATION WEATHER CENTER

<http://www.awc-kc.noaa.gov>

NWS LINKS

<http://nimbo.wrh.noaa.gov/wrhq/nwspage.html>

or

<http://www.nws.noaa.gov/regions.shtml>

ALASKAN AVIATION WEATHER UNIT

<http://www.alaska.net/~aawu/>