A QUICK REFERENCE GUIDE FOR OPERATIONAL FORECASTING PAPERS

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I. INTRODUCTION

There has been a cornucopia of **operational** forecasting papers written on a wide variety of topics in recent years. It is very arduous for the operational forecaster to keep track of scattered binders, pamphlets, journals, and notebooks of meteorological and hydrological papers and studies within the individual's office. This is the first revision of the paper that was originally published as Central Region TSP 98-01. Due to many requests, the manuscript now has been consolidated to include both hyperlinked texts and non-hyperlinked texts. Many topics have been expanded, such as CSI, MCS, tornadoes, and the WSR-88D. In addition, many new topics, such as microphysics, dynamic cooling, gust fronts, and several case studies have been added.

This guide will help fill the gap for the operational forecaster by indexing the various topics by season and author. Older rules of thumb and techniques were included, such as the Magic Chart (Chaston 1989), Forecasting Ground Blizzards (Van Ess 1985), and Improving Over MOS Guidance (Hendrickson 1983). Additional references are included on newer operational techniques, such as Estimating the VIL of the Day (Wilken 1994), Heavy Rain Forecasting Techniques (Funk, 1993), and Rotational Shear Nomograms (Falk, 1998).

II. SOURCES OF INFORMATION

Scientific Services Divisions (SSD) from Central, Eastern, Southern, and Western regions provided indices for all Technical Attachments (TA), Applied Research Papers (ARP), and Technical Memoranda (TM) for the last 10 years. In addition, various internet home pages were perused, both civilian and military, for more material. Finally, conference preprints and post-prints were obtained to complete this guide. This guide is by no means a complete list of the various subjects, but rather attempts to give the forecaster several perspectives from different authors.

This guide is separated by subject matter, and attempts to cover most weather phenomena that affect the operational field forecaster. A few of the authors topics are listed under two different subject titles. For example, "Composite 500 mb Arctic Outbreak Patterns" by Van Ess, is listed under both ARCTIC and 500 MB.

The material can be used in two ways. If the forecaster wants to prepare for an upcoming weather season, he or she can look through the references on a particular subject. Secondly, if a forecaster is writing a paper or forecast study, they have a quick and easy list of references right at their fingertips from which to begin. Due to large number of subjects, the guide has been broken down into five parts: spring, summer, fall, winter, and general topics. The links provided in this document will take the reader to those papers that are available online. For a paper that is

not available online, the link will connect you to the bibliography line. It is hoped that this guide will help you to become a better operational forecaster.

III. SPRING SEASON and THUNDERSTORMS

ADAP - Byrd (1994), Bothwell (1988), Waldstreicher (1988),

BOOKEND VORTEX - Pfost and Gerard (1997)

BOUNDARIES - Atkins and Weisman (1998), Markowski et al., (1998), Maddox et al., (1980)

BOW ECHO - Przybylinski (1995)

BOW ECHO: CASE STUDIES - Gerard (1997), Przybylinski and Schmocker (1993)

BOW ECHO: METEOROLOGICAL CONDITIONS - Johns (1993)

BOW ECHO: OBSERVATIONS - Klimowski et al., (2000), Weisman (1993)

CAPE VERSUS HELICITY - Evans (1997), Mead (1995), Johns et al., (1990)

CAPPING INVERSION & THUNDERSTORMS - Emlaw (1991)

CHECKLIST - Gordon and Albert (2000), Miller (1972)

DERECHO: SPRING CASE STUDIES - Rose and Troutman (1998)

DERECHO: WSR-88D CASE STUDY - Small (1996)

DOWNBURSTS - Ladd (1992)

DRY MICROBURST - Vasiloff et al., (1998), Vasiloff (1997), Wakimoto (1984)

EHI - Davies (1993)

ELEVATED CONVECTION: EVALUATING WIND SHEAR - Jungbluth and Kula (1997)

ELEVATED MIXED LAYER: PREDICTING SEVERE STORMS - Lanicci and Warner (1991a), Lanicci and Warner (1991b), Lanicci and Warner (1991c), Lanicci (1985)

EQUILIBRIUM LEVEL - Liles (1983)

FORECASTING - Jungbluth (1996), Johns and Doswell (1992), Maddox and Doswell (1982)

GUST FRONT - Chapman and Holmes (1998)

HAIL - Smith (1996), Moore and Pino (1990), Shanklin (1989)

HAIL & THE WSR-88D VIL - Edwards and Thompson (1998)

HELICITY - Mead (1995), Craven (1992), Davies-Jones et al., (1990)

HELMHOLTZ INSTABILITY - Kingsmill (1993)

HORIZONTAL CONVECTIVE ROLL - Edwards et al., (2000)

HP SUPERCELLS - Moller and Przybylinski (1990)

HP SUPERCELLS: WSR-88D - Przybylinski et al., (1993)

JET STREAM - Glass (1993), Uccellini (1990)

LEFT MOVER SEVERE THUNDERSTORM - Phillips (1994)

LIGHTNING: FORECASTING CONVECTIVE WEATHER - Lewis (1989)

LIGHTNING: RADAR OBSERVATIONS - Elson and Margraf (1996)

LIGHTNING: TORNADIC SUPERCELL - Perez et al., (1995), Kane and LaPenta (1991)

LOW TOPPED THUNDERSTORMS - Boyne (1995), Murphy and Woods (1992)

MACROBURST ON RADAR - Achtemeier et al., (1993)

MESOSCALE PREDICTION - Fujita (1992)

MICROBURST - Byrd (1990), Ellis and Oakland (1989)

MIXING RATIO - Weinbrecht (1987)

MOISTURE COVERGENCE - Bothwell (1986)

NOCTURNAL JET - Belles (1993)

NOCTURNAL SEVERE OUTBREAKS - Fike (1996)

NON-SUPERCELL TORNADOES - Britt and Miller (1999), Smith (1996)

NORTHWEST FLOW - Johns (1984)

OUTBREAKS: BOW ECHOES VERSUS SUPERCELLS - Johns and Hart (1993)

OUTBREAKS: COLD CORE - Goetsch (1988)

PROFILER - Rich (1992)

REAR FLANK DOWNDRAFT - Pfost et al., (1997), Lemon and Doswell (1979)

SATELLITE - Goetsch (1987), Purdom (1986)

SATELLITE: COMMA CLOUDS - Millard and Carr (1982)

SATELLITE: ENHANCED V SIGNATURE - McCann (1981)

SATELLITE: IR - Byrd (1987)

SATELLITE: TRAINING CASE STUDY - Weaver et al., (1999)

SATELLITE: WATER VAPOR - Ellrod (1990)

SEVERE PULSE THUNDERSTORMS - Konvicka (1989)

SINGLE THUNDERSTORM POTENTIAL - Falk et al., (1998)

SMALL/MINI SUPERCELLS - Grant and Prentice (1996), Davies (1993)

SPLITTING THUNDERSTORMS -Graham and Staudenmaier Jr. (1997), McCann (1983),

SQUALL LINES - Schafer (1996), Bluestein and Jain (1985)

STORM RELATIVE WIND - Thompson (1998)

SUPERCELLS - Moller et al., (1994)

SUPERCELLS: SOUNDINGS - Edwards and Thompson (2000)

SUPERCELLS: HODOGRAPHS - Bunkers et al., (2000), Brown (1990)

TORNADIC SQUALL LINE - Wolf (2000)

TORNADO - Branick (1995), Doswell et al., (1993), Johns and Sammler (1989)

TORNADO: ANTECEDENT SURFACE CONDITIONS - Livingston and Wilson (1986)

TORNADO: ANTICYCLONIC - Monteverdi et al., (2000)

TORNADO CASE STUDY: JARRELL, TX 5/27/97 - Corfidi (1998)

TORNADO CASE STUDY: LAWRENCE COUNTY, TN 4/16/98 - Gordon et al., (2000)

TORNADO CASE STUDY: LOWER OHIO VALLEY 6/2/90 - Manuel and Delisi (1993)

TORNADO CASE STUDY: MISSISSIPPI 11/27/94 - Pfost et al., (1995)

TORNADO CASE STUDY: OKLAHOMA OUTBREAK 5/3/99 - Thompson and Edwards (2000)

TORNADO CASE STUDY: PLAINFIELD, IL 8/28/90 - Fujita (1991)

TORNADO: EXITING TROPICAL CYCLONES - Edwards (1998)

TORNADO: FORECASTING SHEAR MAGNITUDES AND HODOGRAPHS - Davies (1989)

TORNADO: MOUNTAINS - Evans and Johns (1996), Fujita (1989)

TORNADO: PREPAREDNESS, SPOTTERS, MEDIA, & WSR-88D - Foster et al., (1995)

TORNADO: RAPID SCAN - Purdom and Weaver (1992)

VARIABILITY OF STORM RELATIVE HELICITY - Markowski et al., (1998), Davies-Jones (1993)

VERY LARGE HAIL (4" & GREATER) - Polston (1996)

VIL DENSITY - Amburn and Wolf (1995), Wilken (1994)

WET BULB ZERO - Shanklin (1989)

WET MICROBURST - Atkins and Wakimoto (1991)

WIND AND INSTABILITY - Davies (1993)

WIND GUSTS - Frazier (1994)

WINDEX - McCann (1994)

WSR-88D: BOW ECHO - Gerard (1997)

WSR-88D: DEEP CONVERGENCE ZONE - Lemon and Burgess (1993)

WSR-88D: ELEVATED CONVECTION - Labas (1995)

WSR-88D: LRM PRODUCTS - Turner (1995)

WSR-88D: MARC SIGNATURE - Wally (1998)

WSR-88D: MESOCYCLONE CHARACTERISTICS DURING AN OUTBREAK - Turnage et al., (2000)

WSR-88D: NOMOGRAMS - Brown (1997)

WSR-88D: NON-SUPERCELLULAR TORNADO - Lemon and Quoetone (1995) Amburn and Piltz (1993)

WSR-88D: PREDICTING TORNADO TOUCHDOWNS - Lewis (1998)

WSR-88D: SHEAR PRODUCTS - Falk and Parker (1998), Wilken (1997)

WSR-88D: SPECTRUM WIDTH - Buller and Mentzer (1998)

WSR-88D: TVS - Trapp and Mitchell (1995b)

WSR-88D: TVS: DESCENDING & NONDESCENDING - Trapp et al., (1999)

WSR-88D: VIL VERSUS ROTATIONAL RELOCITY - Murphy et al., (1994)

WSR-88D: WARNING DECISION TECHNIQUES - Falk (1997), Quoetone et al., (1999)

700-500 MB LAPSE RATE - Craven (2000), Doswell III et al., (1985)

IV. SUMMER SEASON

CONVECTIVELY INDUCED VORTICITY CENTER (CIVC) - Imy (1985)

DERECHOS - Johns et al., (1990)

DERECHO: SUMMER CASE STUDY - Miller and Johns (2000)

FLASH FLOOD DECISION TREE - Johnson and Moser (1993)

FLASH FLOOD FORECASTING - Doswell et al., (1995)

HAZE - Corfidi (1996)

HEAT CHECKLIST - Falk and Christmas (1989)

HEAT INDEX - Rothfusz (1990)

HEAVY RAINFALL FORECASTING - Funk (1993), Junker (1992)

HEAVY RAINFALL & FLASH FLOOD FORECASTING - Maddox (1979b), Maddox et al., (1979)

HEAVY RAINFALL: BIG THOMPSON CANYON, CO (7/76), & RAPID CITY, SD (6/72) - Maddox et al., (1978)

HEAVY RAINFALL: CASE STUDIES - Glass et al., (1995), Capriola (1993)

HEAVY RAINFALL: CHEYENNE, WY 8/1/95 - Glancy and Daseler (1986)

HEAVY RAINFALL: CLIMATOLOGICAL FAVORED THICKNESS - Rose et al., (1999)

HEAVY RAINFALL: GREAT FLOOD OF 1993 - Junker et al., (1995)

HEAVY RAINFALL: JOHNSTOWN, PA 7/19/77 - 7/20/77 - US Department of Commerce (1977)

HEAVY RAINFALL: HODOGRAPHS & CHECKLIST - Hendricksen (1993)

HEAVY RAINFALL: USING PROFILER & SATELLITE DATA - Smith (1993)

HP SUPERCELL: FLASH FLOOD - Moore et al., (1995)

MCS - Daly (1998a), Daly (1998b), Maddox (1980)

MCS: DAYTIME SURFACE GEOSTROPHIC WIND MAXIMUM - Augustine (1992)

MCS: DISSIPATION - Gale et al., (2000)

MCS: ELEVATED - Rochette et al., (1996)

MCS: LATE AFTERNOON TROPOSPHERIC SIGNALS - Augustine and Caracena (1993)

MCS: MARC - Schmocker et al., (1996)

MCS: MOVEMENT - Corfidi (1998), Corfidi et al., (1995)

MCS: POTENTIAL VORTICITY STREAMER - Tollerud et al., (2000)

MONSOONAL CHECKLIST - Haro (1998)

MVC - Schmidt (2000)

SATELLITE - Thiao et al., (1995), Goetsch (1982)

TROPICAL CYCLONE: TORNADO ENVIRONMENTS - Vescio et al., (1996), McCaul Jr. (1991), Weiss (1985)

TROPICAL CYCLONE: COASTAL FRONT TORNADOES - Hudgins and Frederick (1997)

WESTERN USA THUNDERSTORM GUST POTENTIAL - McDonald (1976)

WSR-88D HEAVY RAIN CASE STUDY - Egger and Vasiloff (1998)

WSR-88D MESO-VORTICES IN HURRICANE BERTHA (1996) - Wright and Bennett (1997)

V. COOL SEASON

COLD AIR FUNNELS - Cooley (1978)

COLD CORE THUNDERSTORMS - Grant (1995)

CLOUDS - Walawender (1994)

ELEVATED CONVECTION - Banitt (1999), Colman (1990a), Colman (1990b)

FOG - Croft et al., (1997), Logan and Hunter (1997), Naistat (1988), Feldt and Hughes (1979)

INDICES - Rogash (1994)

LIGHTNING AND TORNADO RELATIONSHIP - Carle and Orville (1995)

POPS - Lulofs (1994)

SATELLITE FOG PRODUCT - Canepa and Strobin (2000)

TORNADO - BENTONIA, MS 12/10/99 - Gerard et al., (2000)

TORNADO - COOL SEASON CONDITIONS - Vescio and Thompson (1998)

TORNADO - NORTHERN CALIFORNIA - Blier and Batten (1993)

TORNADO - RALEIGH, NC 11/28/88 - Gonski et al., (1989)

WSR-88D SUPERCELL - Calianese et al., (1996)

VI. WINTER SEASON

ARCTIC - Van Ess (1997), Van Ess (1985)

BLIZZARD CASE STUDY - Holsten and Hendricks (1997), Sykes (1966)

CHECKLIST - Gordon (1997)

COMPOSITE CHART - Janish et al., (1996)

COUPLED JET CASE STUDY - Shea and Przybylinski (1995)

CSI: CASE STUDIES - Mann (1997), Browning and Foster (1995), Colman (1992)

CSI: EQUIVALENT POTENTIAL VORTICITY - Moore and Lambert (1993)

CSI: FORECAST TECHNIQUES - Snook (1992)

CSI: RELATIONSHIP TO THUNDER AND HEAVY SNOW - Bradshaw (1994)

CSI: WSR-88D - Grumm et al., (1994)

DYNAMIC COOLING - Steigerwaldt (1998)

EAST COAST SNOWSTORMS - Kocin and Uccellini (1984)

EVAPORATIVE COOLING - Matthews (1996), McNulty (1988)

EXPLOSIVE CYCLOGENESIS CHECKLIST - Gurka et al., (1995)

FLOOD - Naglic (1990)

FREEZING PRECIPITATION - Weber (1998), Cortinas Jr. and Crisp (1995)

FREEZING RAIN & ICE PELLETS - Johnson (1999), Weber (1998)

FREEZING RAIN & THE WSR-88D - Thomas and Marwitz (1995), Leduc (1992)

HEAVY RAINFALL - Moore and Gagan (2000)

HEAVY SNOW CASE STUDY - Cobb and Albright (1995)

HIGH WIND DECISION TREE FOR W TX & SE NM - Murdoch and Deberry (1999)

INSTABILITY BURST - Scofield and Robinson (1990), Scofield (1989)

INSTABILITY BURST: CASE STUDY - Medlin (1993)

ISENTROPIC - Garcia (1999), Wilken (1990)

JETS & QG - Hakim and Uccellini (1992), Wilken (1990), Uccellini and Kocin (1987)

LAKE EFFECT SNOW - Niziol et al., (1995), Niziol and Levan (1992), Niziol (1987)

LAKE EFFECT SNOW: HOURLY FORECAST SOUNDINGS - Niziol and Mahoney (1997)

LAKE EFFECT SNOW: 850 TEMP, 850/700 UVV, 850/700 RH - Evans (1996)

LIGHTNING - Hunter et al., (1998), Holle and Watson (1996)

LOW LEVEL WIND SHEAR - Faught and Rosemark (1992)

MAGIC CHART - Outlaw (1994), Kirkpatrick (1990)

MICROPHYSICS - Staudenmaier Jr. (1999), Baumgardt (1999)

MOISTURE FLUX CONVERGENCE - Bodner (1996)

PRECIPITATION TYPE - Czys et al., (1996), Mamrosh (1993), Ramer (1993), McNulty (1988)

PROFILERS - Schumacher (1993)

SATELLITE - Scofield and Robinson (1990), Beckman (1989)

SATELLITE (IR) & SNOW BAND WIDTH - Morrison (1989)

SATELLITE TECHNIQUES FOR FORECASTING HEAVY SNOW - Johnson (1995)

SEA FOG and STRATUS - Johnson and Graschel (1992)

SNOW ACCUMULATION VERSUS SOIL TEMPERATURE - Brown (1989)

SNOWSTORM: CENTRAL ROCKIES 12/98 - Jones et al., (1999)

SNOWSTORM: LOUISVILLE 1/94 - Funk and Moore (1993)

SNOWSTORM: STORM OF THE CENTURY (3/93) - Bradshaw (1994)

SQUALL LINE - Trayers and Riordan (1996)

STRATOCUMULUS - Bilke (1994)

SURPRISE SNOWSTORM - Gerard et al., (1998)

SYNOPTIC REGIMES - Mathewson and Nouhan (1999)

TEMPERATURE & SNOW COVER - Jensen (1997), Richardson (1990), CRH (1973)

TROPOPAUSE FOLD: STORM OF THE CENTURY (3/93) - Holiday and Smith (1995)

TORNADO - Herlad and Morgan (1998)

WINDEX - Lundstedt (1993)

WSR-88D BRIGHT BANDING - Bailey (1998), Somrek (1995)

WSR-88D FREEZING RAIN & OVERRUNNING - Prater and Borho (1992)

WSR-88D & LIGHTNING - Gremillion and Harms (1999)

925 MB - Figurskey (1994)

500 MB - Van Ess (1997), Steigerwaldt (1991)

200 MB - Schumacher (1996)

VII. GENERAL TOPICS

ACARS - Martin (2000), Mamrosh (1993)

AVIATION: LOW LEVEL SHEAR - Johnson (1994)

AVIATION: "OCCASIONAL" - Felton (1993)

AVIATION: PIREPS - Arkell (1991)

AVIATION: PROFILER DATA - Thaler (1992)

BARNES OBJECTIVE ANALYSIS - Cook (1999), Cook (1999)

COASTAL FLOOD FORECASTING - Sobien and Paxton (1998)

CONVEYOR BELTS - Kubina (1997)

DAM FAILURE - Kane et al., (1996)

DEFORMATION ZONE - Steigerwaldt (1986), L. Funk (1982)

DOWNSLOPE WIND - Dunn (1999), Tesar and Keighton (1997)

FIRE WEATHER - Lyster and Murdoch (1999)

FORECAST STUDY - Nastrom (1990)

GOES SOUNDER - Schrab (1997)

GRAVITY WAVES - Koch et al., (1997), Abelman (1989)

HEAVY RAIN AND FLOODING: NWS EASTERN REGION - LaPenta et al., (1995), Optiz et al., (1995)

HYDROLOGY - Stewart (1991)

ISENTROPIC - Moore (2000), Hickman (1996), Truett (1987)

JETS & QG - Thaler (1991), Berry (1988)

LIGHTNING - Holle and Lopez (1993)

LOW LEVEL JET - Beckman (1995)

MESOHIGHS - Charney and Fritsch (1996)

MODEL BIASES - HPC (2000), Sullivan et al., (1993)

MODEL: MRF - Oravec (1995)

MODEL: RUC - Myers (1996)

MOS & TEMPERATURES - Ansuini (1996), SRH SSD (1994), Hendrickson (1983)

MOUNTAIN WAVE - WRH SSD (1985)

OROGRAPHIC - Huston (1990)

PATTERN RECOGNITION - Togstad (1989), Browning (1986)

PRECIPITABLE WATER - Schultz (1982)

PRESSURE - Leblang (1989), Sangster (1985)

PROFILER - Phillips and Baker (1993), Thaler (1989)

PUBLIC FORECASTING - Truett (1996)

QPF - Amburn (1994), Junker (1993)

SATELLITE: EXTRATROPICAL CYCLONES - Scofield and Spayd Jr. (1983)

SATELLITE: FORECAST FUNNEL - Scofield (1993)

SATELLITE: HEAVY PRECIP CONVECTIVE CATEGORIES - Scofield (1985)

SATELLITE: HEAVY PRECIP ESTIMATES - Scofield (1985)

SATELLITE: SUBTLE HEAVY RAINFALL SIGNATURES - Spayd Jr. and Scofield (1983)

SATELLITE: USERS MANUAL - Bader et al., (1992)

SKEW-T - Hart and Korotky (1991)

STATEMENTS - Smith (2000), Tipton and Hamen (1999)

THETA E - Baker (1992)

VORTICITY & UPPER LEVEL FRONTS - Gibson (1995)

WAKE LOW - Voelker (200)

WATERSPOUT FORECASTING - Brown and Rothfuss (1998)

WATER VAPOR PLUME - Scofield and Robinson (1990), Beckman (1987)

WSR-88D: CLUTTER SUPPRESSION - Haines (1996), Sanders and Vasiloff (1996), Lipe and Phillips (1996)

WSR-88D: MESOCYCLONES AT LONG RANGES - Glass and Przybylinski (1994)

WSR-88D: PRECIPITATION ESTIMATES - Sampson (1995)

WSR-88D: PRF - Phillips (1995)

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