

EDUCATION

B.S. Physical Geography (Atmospheric Science emphasis), Oregon State University, 1993
Graduate Studies (Meteorology), University of Utah, 1994

PROFESSIONAL CERTIFICATIONS AND SOCIETIES

- ALERT Users Group
- American Meteorological Society
- National Weather Association
- World Meteorological Organization (WMO) extreme precipitation evaluation committee
- National Hydrologic Warning Council
- Association of State Dam Safety Officials
- Certified Geographic Information Systems Professional (GISP)

CAREER SUMMARY

Mr. Parzybok is President and Chief Meteorologist of METSTAT, Inc in Windsor, Colorado. He has 20+ years of GIS and meteorological/climatological experience and is a Certified GIS Professional (GISP). Author of "Weather Extremes of the West" as well as numerous other technical articles, Mr. Parzybok is an established professional meteorologist. His expertise in spatial interpolation, GIS, meteorology/climatology and quality control have played key roles in several major projects for the National Center for Atmospheric Research (NCAR), National Climatic Data Center (NCDC), USDA Natural Resources Conservation Service (NRCS), National Forest Service and NOAA's National Weather Service (NOAA/NWS). He played an integral role in the development of NOAA Atlas 14 (Precipitation Frequency Estimates for the U.S.). Mr. Parzybok has a long history of supplying the necessary meteorological information to improve hydrologic modeling, optimize hydrologic design, facilitate water management and monitor rainfall, and is uniquely qualified in providing the necessary components of probable maximum precipitation (PMP) studies. Given Mr. Parzybok's comprehensive precipitation expertise, he is on the WMO extreme precipitation evaluation committee for assessing the potentially new world record rainfall intensities.

EXPERIENCE

METSTAT, Inc.

President and Chief Meteorologist

Windsor, CO

1994 – present

Provide detailed precipitation analysis, real-time gauge-adjusted radar rainfall products, weather frequency analysis, weather event reconstructions, forensic meteorology and spatial interpolation of meteorological and climatological variables. Develop accurate, innovative and detailed meteorological and hydrometeorological information to help engineers, hydrologists and hydrometeorologists optimize the design and operation of infrastructure. These services have been preformed for: NOAA/National Weather Service, Riverside Technologies, Inc, Riverside County Flood Control District, Borton-Lawson, Climate Source, Inc, AlexTronix, Inc., Tetra-Tech, Inc., Applied Weather Associates, Wyle Information Systems, Inc. Wood Rodgers, Inc., Flood Control District of Maricopa County Arizona. Manage, manipulate, create, interpret and document large meteorological datasets with differing formats through the use of LINUX/UNIX scripts and programming. Operate the Storm Precipitation System in Real-Time (SPASRT) for a number of areas across the United States as well as analyze historical rainfall events using the legacy Storm Precipitation Analysis System (SPAS). Develop weather frequency statistics and re-construct weather events using to support a wide variety of purposes, including legal, insurance, modeling and design. Instructor for UCAR's COMET Advanced Hydrologic Sciences Course and Frontier Academy, a public charter school in Greeley, Colorado.

NOAA's National Weather Service Office of Hydrologic Development

Precipitation Frequency Support Analyst

Silver Spring, MD

1999 – 2010

The technical lead for the spatial interpolation of precipitation frequency estimates for NOAA Atlas 14 through the design, development and implantation of the Cascade, Residual Add-back (CRAB) methodology. Also played a key role in the temporal distribution and seasonality analyses, documentation and QA/QC. Developed an efficient, statistical tool to QA/QC the annual maximum precipitation time series. Lead NOAA's U.S. Areal Reduction Factor (ARF) update project (2007-2009). Designed and maintained the NOAA/NWS Precipitation Frequency Data Server (<http://hdsc.nws.noaa.gov/hdsc/pfds/>)

Weather Decision Technology, Inc.

Real-time Data Provider

Norman, OK

2010 – present

Developed and implemented real-time quality control software for screening 1-hour gauge precipitation data for use in U.S. radar-adjusted quantitative precipitation estimates (QPEs). Provide real-time gridded average recurrence interval (probability) of rainfall in an objective, timely, and accurate manner so users can make appropriate decisions, confirm the severity of events and/or activate emergency plans.

Applied Weather Associates, LLC

Colorado Springs, CO

PMP Support Analyst

1994 – present

Lead developer of the Storm Precipitation Analysis System (SPAS), which is used for conducting in-depth storm precipitation studies for purposes of developing depth-area-duration (DAD) plots for PMP studies. Provide complete data analysis and hydrometeorological support for probable maximum precipitation (PMP) studies. Conduct extreme storm searches, dew point frequency analyses and sea surface temperature climatologies.

The PRISM Group, Oregon State University

Corvallis, OR

Research Scientist/GIS Analyst

1996 – 1999

Managed, manipulated, created, interpreted and documented large datasets with differing formats, including the on-line datasets (digital maps & climate data), through use of UNIX scripts and programming. Derived climate maps of snowfall, freeze dates, degree days, extreme precipitation and ~40 other variables using algorithms and GIS for the new National Climatic Data Center (NCDC) Climate Atlas of the United States. Quality checked, manipulated and created 102 years (1985-1996) of high resolution, sequential temperature and precipitation maps for the United States as part of the NOAA/NASA Climate and Global Change Project. Served as a guest lecturer for weather/climate-related topics and conducted weather map discussions for college-level atmospheric science course. Supervised undergraduate/graduate students conducting GIS and data related tasks. Author of several technical reports, monthly summaries, special reports, and storm summaries. Studied climate/weather patterns and helped make long-range weather outlooks for Oregon.

WeatherBank, Inc.

Salt Lake City, UT

Operational Meteorologist/Forecaster

1994 – 1995

Provided and generated site-specific weather forecasts and warnings for a variety of U.S. clients. Streamlined a method for tracking, recording and utilizing incoming real-time weather observations. Served as the staff climate expert responsible for handling climate-related requests, questions or information.

University of Utah, Meteorology Department

Salt Lake City, UT

Graduate Research Assistant

1993 – 1994

Conducted meteorological research on the great Mid-West flood of 1993 through statistical analysis. Aided in mid-level cloud research to improve the accuracy of Global Circulation Models (GCM's). Lead daily synoptic weather discussion.

Oregon Climate Service, Oregon State University

Corvallis, OR

Undergraduate Research Assistant/GIS Technician

1992 – 1993

Contributed research, technical writing and computer skills to several climate reports/studies. Established groundwork for a major "map-typing" study. Developed spreadsheets to track and correlate climate trends and atmospheric indices.

Colorado Climate Center/CIRA , Colorado State University

Fort Collins, CO

Research Assistant

1987 – 1990

Completed various studies on hailstorms, map typing, Doswell days (severe weather) and precipitation.

PUBLICATIONS, PRESENTATIONS AND JOURNAL ARTICLES (chronological order)

- **Parzybok, Tye, W** and Brent Shaw, 2012: [Forecast Average Recurrence Interval Precipitation Maps for the United States: A New Way of Communicating the Location and Magnitude of High Impact Precipitation Events](#), In Proc. Of 92nd American Meteorological Society Annual Meeting, New Orleans, LA, January 22-26, 2012.
- **Parzybok, Tye, W**, Beth Clarke, and Doug M. Hultstrand, 2010: Average Recurrence Interval of Rainfall in Real-Time, In Proc. Of the ASCE World Environmental and Water Resources Congress 2011, Palm Springs, CA, May 2011.
- **Parzybok, Tye W.**, Doug Beth Clarke, and Doug M. Hultstrand, 2010: Real-Time Average Recurrence Interval Rainfall Maps for the U.S.. In Proc. Of the 39th Conference on Broadcast Meteorology/The Conference on Weather Warnings and Communication, Oklahoma City, OK, June 23, 2010.
- **Parzybok, Tye W.**, Doug Beth Clarke, and Doug M. Hultstrand, 2010: Average Recurrence Interval of Extreme Rainfall in Real-time, EarthZine original article, posted on April 19th, 2011 in Articles, Disasters, Extreme Weather, <http://www.earthzine.org/2011/04/19/average-recurrence-interval-of-extreme-rainfall-in-real-time/>.

- Clarke, Beth, **T. W. Parzybok**, D. M. Hultstrand, B. D. Kappel, and E. Tomlinson, 2010: Improving Hydrologic Analysis and Applications in the U.S. and Canada Using Quality Controlled Radar Data and the Storm Precipitation Analysis System, Poster at 91st American Meteorological Society Annual Meeting, Paper183501, Seattle, WA, January 2010. <http://ams.confex.com/ams/91Annual/webprogram/Paper183501.html>
- **Parzybok, Tye W**, Doug Hultstrand, Edward M. Tomlinson and Bill Kappel, 2010: Improving Hydrologic Analysis and Applications Through The Use of Quality Controlled Radar Data and the Storm Precipitation Analysis System, Midwest Hydro Users Group, Fall Meeting, Wausau, WI, November 4, 2010.
- Perica, S. Dietz, S. Heim, L. Hiner, K., Maitaria, D. Martin, S. Pavlovic, I. Roy, C., Trypaluk, D. Unruh, F. Yan, M. Yekta, T. Zhao, G. Bonnin, D. Brewer, L. Chen, **T. Parzybok**, J. Yarchoan, 2010: NOAA Atlas 14 Volume 6, Precipitation-Frequency Atlas of the United States, California. NOAA, National Weather Service, Silver Spring, MD.
- **Parzybok, Tye**, Doug Hultstrand, Beth Clarke, Edward M. Tomlinson and Bill Kappel, 2010: The Storm Precipitation Analysis System in Real-Time, Presentation at the National Flood Workshop, Houston, Texas, October 24-26, 2010.
- **Parzybok, Tye W**, Doug Hultstrand, Beth Clarke, Edward M. Tomlinson and Bill Kappel, 2010: Improving Hydrologic Analysis and Applications Through The Use of Quality Controlled Radar Data and the Storm Precipitation Analysis System, In Proc., 2010 Canadian Dam Association Annual Conference, Niagara Falls, Ontario, October 3-7, 2010.
- **Parzybok, Tye W**, Doug Hultstrand, Bill Kappel and Edward M. Tomlinson, 2010: Average Recurrence Interval of Event Precipitation in Real-Time, In Proc., 2010 ADSDO Annual Dam Safety Conference, Seattle, Washington, Sept. 18-23, 2010.
- Tomlinson, E. M., Kappel, W.D., **T.W. Parzybok**, D.M. Hultstrand and Michael Johnson, 2010: Temporal Distribution of PMP Rainfall as a Function of Area Size, In Proc., 2010 ADSDO Annual Dam Safety Conference, Seattle, WA, Sept. 18-23, 2010.
- **Parzybok, T.W.**, Hultstrand, D.M., B. Clarke, W.D. Kappel and E.M. Tomlinson: 2010. The Use of Gauge Data, Radar Reflectivity and the Storm Precipitation Analysis System for Deriving Accurate Precipitation in Complex Terrain. In Proc. of the ALERT Users Group 23rd Flood Warning Systems Training Conference and Exposition, Palm Springs, CA, May 4-7, 2010.
- Tomlinson, E. M., Kappel, W.D., and **Tye W. Parzybok**, December 2009: Extreme Storm Analysis and Hydraulic Model Input Meteorological Parameter Analysis for the Northern Sierra, CA.
- Perica, S., B. Lin, D. Martin, F. Yan, D. Brewer, C. Trypaluk, M. Yekta, L. Hiner, S. Heim, S. Dietz, **T. Parzybok**, L.-C. Chen, K. Maitaria, R. Chen, I. Roy, D. Unruh, T. Zhao, J. Yarchoan, G. Bonnin, 2009b: NOAA Atlas 14 Volume 5, Precipitation-Frequency Atlas of the United States, Selected Pacific Islands. NOAA, National Weather Service, Silver Spring, MD.
- **Parzybok, Tye W.**, Douglas M. Hultstrand, Edward M. Tomlinson, Ph.D. and William D Kappel, 2009: Real-time Depth-Area-Duration Analysis for EAPs and Flood Warning Systems. In Proc., 2009 ADSDO Annual Dam Safety Conference, Hollywood, Florida, Sept. 27-Oct 1, 2009.
- Hultstrand, D.M., **T.W. Parzybok**, E.M. Tomlinson and W.D. Kappel: 2008. Advanced Spatial and Temporal Rainfall Analyses for Use in Watershed Models. In U.S. Geological Survey Scientific Investigations Report: Proc. of the 3rd Interagency Conference on Research in the Watersheds, Estes Park, CO, Sep 8-11 2008.
- Tomlinson, E.M. William D. Kappel, Michael Johnson, **Tye W. Parzybok** and Douglas M. Hultstrand: 2009. Arizona Statewide Probable Maximum Precipitation (PMP) - Improving HMR-49, In Proc., 2009 ADSDO Annual Dam Safety Conference, Hollywood, Florida, Sept. 27-Oct 1, 2009.
- Perica, S., D. Martin, B. Lin, **T. Parzybok**, D. Riley, M. Yekta, L. Hiner, L.-C. Chen, D. Brewer, F. Yan, K. Maitaria, C. Trypaluk, G. Bonnin, 2009a: NOAA Atlas 14 Volume 4, Pwww.recipitation-Frequency Atlas of the United States, Hawaiian Islands. NOAA, National Weather Service, Silver Spring, MD.
- E. M., Kappel, W.D., and **Tye W. Parzybok**, July 2009: Site-Specific Probable Maximum Precipitation (PMP) Study for the Scoggins Dam Drainage Basin, Oregon.
- **Parzybok, Tye W**, Doug Hultstrand, Edward M. Tomlinson and Bill Kappel, 2009: How Six Recent Extreme Pacific Northwest Storms Compare to Historical Storms in HMR57, In Proc., 2009 ADSDO West Region Conference, Coeur d'Alane, Idaho, May 4-7, 2009.
- Hultstrand, D.M., **T.W. Parzybok**, E.M. Tomlinson and W.B. Kappel: 2008. Advanced Spatial and Temporal Rainfall Analyses for Use in Watershed Models. In U.S. Geological Survey Scientific Investigations Report: Proceedings of the Third Interagency Conference on Research in the Watersheds, Estes Park, CO, September 8-11 2008 (in press).
- Tomlinson, E.M., W.B. Kappel, **T.W. Parzybok**, D.M. Hultstrand, and G. Muhlestein, 2008. Site-Specific Probable Maximum Precipitation (PMP) Study for the Florence Drainage Basin, AZ.
- Tomlinson, E.M., W.B. Kappel, **T.W. Parzybok**, D.M. Hultstrand, and G. Muhlestein, 2008. Site-Specific Probable Maximum Precipitation (PMP) Study for the Magma Drainage Basin, AZ.
- Tomlinson, E.M., W.B. Kappel, **T.W. Parzybok**, D.M. Hultstrand, and G. Muhlestein, 2008. Site-Specific Probable Maximum Precipitation (PMP) Study for Blenheim-Gilboa Drainage Basin, NY.
- Tomlinson, E.M., W.B. Kappel, P.J. Diederich, **T.W. Parzybok**, and D.M. Hultstrand, 2008. Nebraska Statewide Probable Maximum Precipitation (PMP) Study.
- Bonnin Geoffrey M., Deborah Martin, Bingzhang Lin, **Tye Parzybok**, Michael Yekta David Riley, Daniel Brewer, Lillian Hiner, 2007: Updates to NOAA Precipitation Frequency Atlases. World Environmental and Water Resources Congress, Tampa, Florida, May 15-19, 2007 hosted by the American Society of Civil Engineers.

- Bonnin, G., D. Martin, B. Lin, **T. Parzybok**, M. Yekta, and D. Riley, 2006: NOAA Atlas 14 Volume 2, Precipitation-Frequency Atlas of the United States, Delaware, District of Columbia, Illinois, Indiana, Kentucky, Maryland, New Jersey, North Carolina, Ohio, Pennsylvania, South Carolina, Tennessee, Virginia, West Virginia. NOAA, National Weather Service, Silver Spring, MD.
- Tomlinson, E.M., W.B. Kappel, T.W. Parzybok, D.M. Hultstrand, and G. Muhlestein, 2007. Site-Specific Probable Maximum Precipitation (PMP) Study for the Wanahoo Drainage Basin, Nebraska.
- Bonnin, G., D. Martin, B. Lin, **T. Parzybok**, M. Yekta, and D. Riley, 2006b: NOAA Atlas 14 Volume 3, Precipitation-Frequency Atlas of the United States, Puerto Rico and the U.S. Virgin Islands. NOAA, National Weather Service, Silver Spring, MD.
- Tomlinson, E.M., W.D. Kappel, **T.W. Parzybok**, B. Rappolt, 2006: Use of NEXRAD Weather Radar Data with the Storm Precipitation Analysis System (SPAS) to Provide High Spatial Resolution Hourly Rainfall Analyses for Runoff Model Calibration and Validation, ASDSO Annual Conference Presentation, Boston, MA.
- B. Lin, G. M. Bonnin, D. L. Martin, **T.W. Parzybok**, M. Yekta, and D. Riley, 2006: Regional Frequency Studies of Annual Extreme Precipitation in the United States Based on Regional L-Moments Analysis, 2006, World Environmental and Water Resources Congress, Omaha, Nebraska, May 21-26, 2006 hosted by the American Society of Civil Engineers.
- **Parzybok, Tye W.** and Edward M. Tomlinson, 2006: A New System for Analyzing Precipitation from Storms, HydroReview, Vol. XXV, No. 3, pp. 58-65.
- **Parzybok, Tye W.**, 2004: Weather Extremes of the West, Mountain Press, ISBN: 0-87842-473-3, 288 pages.
- Bonnin, G., D. Martin, B. Lin, **T. Parzybok**, M. Yekta, and D. Riley, 2004: NOAA Atlas 14 Volume 1, Precipitation-Frequency Atlas of the United States, Semiarid Southwest. NOAA, National Weather Service, Silver Spring, MD.
- Tomlinson, Edward M., and **T.W. Parzybok**, 2004: Storm Precipitation Analysis System (SPAS), Association of State Dam Safety Officials Annual Conference, Phoenix, Arizona, September 26-30, 2004
- **Parzybok, Tye W.** and Geoffrey M. Bonnin, 2004. Recent Updates To NOAA/NWS Precipitation Frequency Estimates. Annual Colorado Association of Stormwater and Floodplain Managers (CASFM) Conference, Glenwood Springs, CO, September 21-23, 2004.
- Tomlinson, Ed, **T.W. Parzybok**, Ross A. Williams, and Doug Trieste; Review of the Gladstone, Colorado Rainfall Observation, October 5, 1911, Prepared for the Colorado State Engineer Office, March, 2004
- Lin, B., G. Bonnin, D. Todd, **T. Parzybok**, M. Yekta, and D. Riley, 2004: Regional frequency studies of annual extreme precipitation in the United States using regional L-moments analysis. International Ocean-Atmosphere Conference, Chinese-American Oceanic and Atmospheric Association (COAA), Beijing, China, June 27-30, 2004.
- Tomlinson, Edward M., Ph.D., Robert D. Jarrett, Ph.D., **Tye W. Parzybok**, and Douglas J. Trieste, P.H., 2004: "Reanalysis of a Colorado Extreme Rainfall Storm Using GIS, Paleoflood, and Rainfall-Runoff ", The Journal of Dam Safety, Winter 2004, 21-28.
- G.M. Bonnin, D. Todd, B. Lin, **T.W. Parzybok**, M. Yekta, and D. Riley, 2003: Precipitation-Frequency Atlas of the United States, NOAA Atlas 14 Volume 1, NOAA, National Weather Service, Silver Spring, Maryland, 2003.
- Tomlinson, Edward M., Ross A. Williams, and **T.W. Parzybok**, 2003: Site-Specific Probable Maximum Precipitation (PMP) Study for the Great Sacandaga Lake / Stewarts Bridge Drainage Basin, Prepared for Reliant Energy Corporation, Liverpool, New York, September, 2003
- Todd, T., G. M. Bonnin, B. Lin, **T.W. Parzybok**, M. Yekta, D. Riley, and E. Raynault, 2002: Updated precipitation frequencies for the Semiarid Southwest United States. Symposium on Observing and Understanding the Variability of Water in Weather and Climate, 83rd AMS Annual Meeting, Long Beach, California.
- Raynault, E., G. M. Bonnin, B. Lin, **T.W. Parzybok**, M. Yekta, D. Riley, and D. Todd, 2002: Updated Precipitation Frequencies for the Ohio River basin and surrounding states. Symposium on Observing and Understanding the Variability of Water in Weather and Climate, 83rd AMS Annual Meeting, Long Beach, California.
- Bonnin, Geoffrey M., Bingzhang Lin, and **T.W. Parzybok**, 2002: Updated NOAA/NWS Rainfall Frequency Atlases, Symposium on Observing and Understanding the Variability of Water in Weather and Climate, 83rd AMS Annual Meeting, Long Beach, California.
- **Parzybok, Tye W.** and M. Yekta, 2002: NOAA/NWS Precipitation Frequency Data Server. Session on Internet Applications And Web Portals Part III, 19th International Conference on Interactive Information Processing Systems (IIPS) for Meteorology, Oceanography, and Hydrology, Long Beach, California.
- Daly, Christopher, Timothy Kittel , Alan McNab, Andy Royle , Wayne Gibson, **T.W. Parzybok**, Nan Rosenbloom, George Taylor and Hank Fisher. 1999, Development of a 102-year High-Resolution Climate Data Set for the Conterminous United States. In print: Proc., 11th AMS Conference on Applied Climatology , Amer. Meteorological Soc., Dallas, TX, Jan 10-15, 1999.
- Daly, Christopher, George H. Taylor, Wayne Gibson, and **T.W. Parzybok** . 1998, Development of High-Quality Spatial Climate Datasets for the United States. In Proc., First International Conference on Geospatial Information in Agriculture and Forestry , Lake Buena Vista, FL, June 1-3, 1998.
- Boyal, James R., James E. Warila, Robert L. Beschta and **T.W. Parzybok** . 1997, Cumulative Effects of Forestry Practices: An Example Framework for Evaluation from Oregon, U.S.A.. Biomass and Bioenergy , 13, 223-245.
- **Parzybok, Tye W.**, Wayne Gibson, Christopher Daly and George H. Taylor. 1997, Quality Assurance of Climatological Data for the VEMAP Project . In Proc., 10th AMS Conference on Applied Climatology , pp. 215-216, Amer. Meteorological Soc., Reno, NV, Oct. 20-23, 1997.