



**Scott Ganson** CCM  
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**Experience:**

*April 2023 - Present:* Owner of Ganson Weather Group, LLC  
Lee's Summit, MO

*December 2023 - March 2023:* Principal Product Architect for Verisk Weather Solutions  
Lexington, MA (remote in Lee's Summit, MO)

Professional Responsibilities:

- Liaison between software engineering teams and science teams
- Prototype and develop new products leveraging research-to-operations
- Participate and present state-of-the-science research to the scientific community both internal and external to Verisk

*January 2021 - December 2023:* Director of Software Engineering for Verisk Weather Solutions.  
Lexington, MA (remote in Lee's Summit, MO)

Professional Responsibilities:

- Manage a working group of 12 team members
- Research to operations work to develop new meteorological algorithms including hail impact energy and more automated tornado identification
- Work closely with Verisk Weather Solutions (VWS) science team, specifically in the areas of polarimetric radar algorithm development
- Increase team camaraderie
- Oversee implementation and development of software design processes
- Hold yearly performance reviews for all team members

*September 2018 - January 2021:* Senior Software Engineer for Verisk Weather Solutions. Lexington, MA (remote in Lee's Summit, MO)

Professional Responsibilities:

- Research to operations work to implement various severe weather peril identification algorithms including:
  - hail size, hail probability, wind speed/gust, hurricane wind speed/gust and snow depth
- Design highly-distributed cloud applications to run various meteorological algorithms
- Presented, both oral and poster, at the 39th AMS Radar Conference in Nara, Japan regarding our work in distributed radar processing, specifically to design hail size estimation algorithms

*November 2015 - August 2018:* Senior Software Engineer for Garmin International. Olathe, KS

Professional Responsibilities:

- Embedded system radar algorithm design
- Lead radar data quality initiatives to improve base-moment estimation
- Polarimetric weather radar Subject Matter Expert
- Meteorological Subject Matter Expert
- Support global flight operations through aviation forecasting for both Garmin and its customers
- Onboard flight test engineer for operations involving airborne weather radar
- Intern mentor (intern went on to win best intern of the year at Garmin)

*September 2012 - October 2015:* Software Engineer (GS 12-4) for the NEXRAD Radar Operations Center

(ROC). Norman, OK

Professional Responsibilities:

- Supplemental Product Generator (SPG) lead engineer
- Radar Product Generator (RPG) engineer
- Polarimetric radar algorithm development
- Radar Operations Center Supplemental Tabulation and Reporting (ROCSTAR) lead engineer

Awards:

- Employee of the Quarter October 2013

*January 2011 - September 2012: Software Engineer for Centuria Corporation, contractor for the NEXRAD Radar Operations Center (ROC). Norman, OK*

Professional Responsibilities:

- Supported development of the Radar Product Generator (RPG)
- Radar Operations Center Supplemental Tabulation and Reporting (ROCSTAR) lead engineer

Awards:

- Team Member of the Quarter January 2012

*April 2008 - December 2012: Research Assistant to Dr. Alexander Rzyhkov for the Cooperative Institute for Mesoscale Meteorological Studies (CIMMS). Norman, OK*

Professional Responsibilities:

- Modeled the interaction of large, inhomogeneous scatterers (namely melting hail) in the presence of polarized electromagnetic waves at S, C and X bands
- Interpreted dual-pol weather radar data to derive microphysical relationships to present algorithms to the applied meteorological community

*February 2006 - January 2011: Sr. Software Engineer for Weather Decision Technologies, Inc. Norman, OK*

Professional Responsibilities:

- Develop framework for dual-pol algorithms for company products
- Create custom python bindings using the Boost Python C++ libraries around the Weather Decision Support System II (WDSSII)
- Develop a distributed data dissemination system for a plethora of GIS-based data as well as numerous meteorological data sets with primary focuses:
  - low-latency
  - high-volume

*May 2005 - August 2005: Meteorological Software Developer Intern for Accuweather. State College, PA*

Sub-professional Responsibilities:

- Developed thermodynamic libraries based on the Advanced Weather Interactive Processing System (AWIPS) specifications for use in statistical forecast models

### **Education:**

University of Oklahoma: *M.S. in Meteorology*. Studied under Dr. Alexander Rzyhkov

University of Oklahoma: *B.S. in Meteorology* with a minor in mathematics

Longview Community College: *Associates degree*

### **Skills, Expertise and Qualifications:**

- American Meteorological Society (AMS) Certified Consulting Meteorologist (CCM)
- Polarimetric weather radar interpretation and algorithm development

- Distributed and parallel computing using cloud-native design as well as massively parallel systems such as onboard Graphical Processor Units (GPUs)
- Embedded software design using C
- Proficient at numerous object-oriented and functional programming languages, specifically C++, Go and Python
- Proficient with meteorological data formats such as: GRIB (1 and 2), NetCDF, NEXRAD Level II and Level III
- Experience interpreting and creating forecasts tailored exclusively for flight operations including certification flight tests for avionics
- Extensive OpenGL 2+ and WebGL 1+ experience
- Experience with multiple versioning control systems including subversion (svn) and git
- Infrastructure API development
- Fluid dynamics simulation
- Team-oriented developer and leader with experience in weather radar systems, meteorological data, and overcoming many varieties of software engineering challenges
- Multi-platform development including Windows, Mac OS, and Linux/Unix
- A working proficiency in reading, writing and speaking Spanish
- Passed Physiological Training certification from Civil Aerospace Medical Institute (CAMI) at the Mike Monroney Aeronautical Center in Oklahoma City, OK
- Member of the American Meteorological Society

#### **Seminars and Presentations:**

- Presentation at the University of Oklahoma computer science department on applying computer science to real world problems through distributed and performance computing
- Ganson, S., J. T. Johnson, 2008: Challenges of displaying dynamic weather content in interactive mapping solutions. 88th Annual Conf, New Orleans, LA, Amer. Met. Soc.
- Ganson, S. M., M. R. Kumjian, 2015: Quantifying the relationship between the ZDR arc signature and low-level vertical wind shear. 37th Conf. on Radar Meteorology, Norman, OK, Amer. Met. Soc., 13B.6.
- Guy, N., S. M. Ganson, 2019: Research to operations: Establishing a next generation hail size estimation algorithm. 39th Intl. Conf. on Radar Meteorology, Nara, Japan, Amer. Met. Soc., 7A-04.

#### **Publications and Abstracts:**

- Ganson, S. M., 2012: Investigations of polarimetric radar characteristics using advanced T-matrix computations. M.S. thesis, School of Meteorology, The University of Oklahoma, 73 pp.
- Kumjian, M. R., A.V. Ryzhkov, J. Krause, J.C. Picca, and S. M. Ganson, 2011: Hail size discrimination for polarimetric WSR-88D radars. Extended Abstracts, 27th Conf. on Interactive Information Processing Systems, Seattle, WA, Amer. Met. Soc., 14.2.
- Kumjian, M. R., A. V. Ryzhkov, S. Ganson, A. Khain, 2011: Quantification of errors in polarimetric radar variables simulated from bulk microphysics parameterizations. 35th Conf. on Radar Meteorology, Pittsburgh, PA, Amer. Met. Soc., 8A.6.
- Kumjian, M., J. Picca, S. Ganson, A. Ryzhkov, D. Zrnić: Three-body scattering signatures in polarimetric radar data. NSSL Tech. Note, 12pp.
- Kumjian, M. R., S. M. Ganson, and A. V. Ryzhkov, 2012: Freezing of raindrops in deep convective updrafts: Polarimetric and microphysical model. J. Atmos. Sci., 69, 3471–3490.
- Kumjian, M. R., S. M. Ganson, A. V. Ryzhkov, 2010: Polarimetric characteristics of freezing drops: Theoretical model and observations. 6th Eur. Conf. On Radar Meteorology and Hydrology, Sibiu, Romania, [https://www.erad2010.com/pdf/oral/friday/micro/07\\_ERAD2010\\_0159.pdf](https://www.erad2010.com/pdf/oral/friday/micro/07_ERAD2010_0159.pdf).

- Kumjian, M. R., S. M. Ganson, J. Krause, J. C. Picca, and A. V. Ryzhkov, 2010: Polarimetric radar characteristics of large hail. 25th Conf. on Severe Local Storms, Denver, CO, Amer. Met. Soc., 11.2.
- Porter, C. W., S. Ganson, W. Ladwig, B. Clarke, 2011: Implementation of a hydrometeor classification algorithm for consumer-oriented dual-polarization radar products. Extended Abstracts, 27th Conf. on Interactive Information Processing Systems, Seattle, WA, Amer. Met. Soc., 14.6.
- Ryzhkov, A., D. Zrnich, J. Krause, M. Kumjian, S. Ganson: Discrimination between large and small hail. NSSL Tech. Note, 18pp.
- Ryzhkov, A. V., M. R. Kumjian, S. M. Ganson, A. P. Khain, 2013a: Polarimetric radar characteristics of melting hail. Part I: Theoretical simulations using spectral microphysical modeling. J. Appl. Meteor. Climatol., 52, 2849–2870.
- Ryzhkov, A. V., M. R. Kumjian, S. M. Ganson, and P. Zhang, 2013b: Polarimetric radar characteristics of melting hail. Part II: Practical implications. J. Appl. Meteor. Climatol., 52, 2871–2886, doi:10.1175/JAMC-D-13-074.1.
- Ryzhkov, A. V., S. Ganson, A. Khain, M. Pinsky, and A. Pokrovsky, 2009: Polarimetric characteristics of melting hail at S and C bands. Preprints, 34th Conf. on Radar Meteorology, Williamsburg, VA, Amer. Meteor. Soc., 4A.6. [Available online at <http://ams.confex.com/ams/pdfpapers/155571.pdf>.]
- Ryzhkov, A. V., S. Ganson, M. Kumjian, R. Kaltenboeck, 2012: Polarimetric characteristics of dry and melting hail at different radar wavelengths. Preprints, 7th Eur. Conf. on Radar Meteorology and Hydrology, Toulouse, France.
- VandenHeuvel, D., C. Goering, C. Barrere, S. Ganson, W. Ladwig, M. Eilts, and B. Shaw, 2011: SWARM: A highly-scalable WMS and tile-based weather image solution. 27 th Conf. on Interactive Information Processing Systems, Seattle, WA, Amer. Met. Soc., 12A.4.

