

ERIK BECKER

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EXECUTIVE SUMMARY

I am a meteorologist and data scientist who designs and builds modern web-based dashboards and analytical tools that translate complex atmospheric and climate data into clear, actionable insight. By combining deep domain expertise in weather and climate science with robust software engineering and data-visualization practices, I develop intuitive platforms that enable rapid interpretation, scenario awareness, and confident decision-making. These tools are engineered not just to display data, but to support real-world operational and strategic decisions where timing, clarity, and accuracy matter.

CAREER SNAPSHOT

Organisation	Position Title	Period
RWE Supply & Trading Asia-Pacific	Meteorologist	Apr 2024 - Current
Centre for Climate Research Singapore (CCRS)	Senior Research Scientist	Mar 2018 – Mar 2024
University of Pretoria (UP)	Lecturer - Radar Meteorology Theory & Principles	Feb 2010 – June 2017
South African Weather Service (SAWS)	Research Scientist	Feb 2009 – Mar 2018

PROFESSIONAL DEVELOPMENT

ECMWF MOOC

Machine Learning in Weather and Climate (2023)

University of South Africa

C++, Java (2014 – 2015)

WMO/HKO Nowcasting Weather (2015)

HKO Aviation Weather Nowcasting (2016)

CMA Nowcasting Severe Convection Weather (2020)

National University of Singapore

Containers for Deploying and Scaling Apps (2019)

EDUCATION AND QUALIFICATIONS

MSEN, University of KwaZulu-Natal (UKZN)

(2012 – 2014)

BSc (Hons), University of Pretoria (UP)

Meteorology (2008)

BSc, University of Pretoria (UP)

Meteorology (2004 – 2007)

CORE COMPETENCIES

Weather & Forecasting	Radar, Satellite & Nowcasting
<ul style="list-style-type: none"> Operational forecasting - Australia, Southeast Asia, South Africa Global weather pattern and teleconnections analysis (ENSO, MJO, IOD, etc.) Numerical Weather Prediction (ECMWF, GFS, ACCESS, ICON, JMA, etc.) Multi-model and multi-ensemble interpretation Impact based forecasting Deterministic, probabilistic, and spatial forecast verification Analogue-based seasonal and subseasonal outlooks Tropical cyclone monitoring and risk assessment Floods, severe convection and thunderstorm monitoring & forecasting 	<ul style="list-style-type: none"> Weather radar and satellite theory Data Quality Control (QC) & compositing Quantitative Precipitation Estimation & Forecasting Radar-rain-gauge integration and geostatistical methods Object-based storm identification and tracking (LROSE) Optical-flow-based extrapolation and semi-Lagrangian methods (pySTEPS, S-PROG, SwirlsPy) Experience with geostationary satellite data (e.g. Himawari)
Data Science & Machine Learning	Programming, Data Science & ML
<ul style="list-style-type: none"> Regression Modelling Clustering Algorithms Keras, Tensorflow & PyTorch Deep learning architectures: DNN, CNN, U-Net, ConvLSTM, GAN Custom loss functions and domain-specific objective design Time-series modelling and forecasting Ensemble and probabilistic modelling workflows 	<ul style="list-style-type: none"> Python (expert), R, C++, Fortran, Java Git version control Linux and Bash scripting Object Oriented Programming Asynchronous programming Parallel computing on CPU and GPU architectures HPC environments and schedulers (PBS) Performance optimization for large-scale numerical workloads
Communication & Leadership	Web, Dashboards & Operational Tools
<ul style="list-style-type: none"> Presentations to traders, quantitative teams, and management Daily operational forecast briefings Clearly describe potential uncertainties and risks Technical communication with governmental partners Leadership of multi-disciplinary technical teams International scientific collaboration Scientific writing and documentation Lecturing, mentoring, and knowledge transfer 	<ul style="list-style-type: none"> Web frameworks and dashboards: Streamlit, RShiny, Flask Front-end technologies: HTML, CSS Development of operational monitoring and decision-support tools Containerization: Docker, Singularity Real-time data pipelines and automated monitoring systems Cloud and distributed data platforms (Databricks, Dremio)
Energy & Commodity Markets	Geospatial & Remote Sensing
<ul style="list-style-type: none"> Energy & Commodity Markets Power demand modelling, wind & solar generation forecasting Research links between weather patterns and power, LNG and agricultural market drivers Development of weather-driven trading indicators 	<ul style="list-style-type: none"> GIS and geospatial processing: GDAL, QGIS Radar and environmental data tools: wradlib, Py-ART Spatial data handling, analysis, and visualization Interpolation methods (IDW, Kriging)