CHARLES BELL

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SENIOR METEOROLOGIST & AI-ENABLED DECISION SUPPORT

Meteorologist | Program Leader | Technical Advisor

Senior meteorologist and program leader with 20+ years of experience spanning operational forecasting, aviation and hydrologic decision support, leadership development, and applied risk analytics. Currently focused on extreme rainfall and flash-flood risk analysis, integrating ensemble guidance, AI-based global models, and historical analogs into actionable decision-support tools for interdisciplinary teams and public audiences.

APPLIED FLOOD RISK & ANALYTICS PROJECTS (2025–Present)

Project ENKI – Texas Hill Country Flood Risk

- **Lead Meteorological Analyst** spearheading extreme rainfall and flash-flood risk assessments across the Llano, Blanco, Pedernales, and Guadalupe River basins.
- **Engineered "Human-in-the-Loop" interpretive frameworks** to provide expert analysis of forecast uncertainty and ensemble precipitation distributions, ensuring AI-driven signals are grounded in physical hydrologic context.
- **Synthesized antecedent conditions and basin response metrics** to provide impact-focused risk assessments for high-vulnerability regions.
- **Translated high-dimensional meteorological data** into clear narratives for non-technical stakeholders to improve community resilience.

Founder & Principal Analyst – projects.charlesbell.ai

- **Architected real-time flood-risk dashboards** integrating NWS guidance, ensemble percentiles, and AI-driven global model output into a unified visualization suite.
- **Prioritized Explainable AI (XAI) principles** by focusing on transparency, interpretability, and practical risk communication.
- **Developed probabilistic "flood ingredients" frameworks** that quantify the relationship between rainfall intensity, forecast spread, and historical analog events.

- **Automated web-based decision-support tools** to streamline situational awareness for emergency management planning and post-event analysis.

PROFESSIONAL EXPERIENCE

National Oceanic and Atmospheric Administration (NOAA) Senior Human Resources Specialist | 2022–2025

- **Designed and spearheaded the Foundational Leadership Development Program (FLDP)** to build technical leadership capacity for 120+ employees across 10 scientific and operational divisions.
- **Led Management Skills for New Supervisors program** (~100 supervisors annually) and co-directed NOAA Leadership Seminar for 2,000+ attendees.
- **Served as COR Level I**, managing contracts and improving HR data consulting capabilities.
- **Recipient of Silver Sherman Award (2024)** for superior service and leadership impact.

National Weather Service (NOAA) Aviation Decision Support Services Coordinator (GS-13) | 2020–2022

- **Program manager** for technical and administrative coordination supporting ~90 operational aviation meteorologists embedded at FAA facilities.
- **Reduced production time for nationally used aviation weather graphics by 50%** by integrating scientific and technological advances into operations.
- **Primary liaison for NWS-FAA Interagency Agreement**, leading development of graphical Center Weather Advisory tools to improve accuracy.

Program Coordination Officer & Executive Officer to the Director (GS-13) | 2018–2020

- **Principal liaison and advisor to the Director of the NWS**, managing priorities, tasking, and executive-level briefings across the agency.
- **Prepared decision documents** on weather, water, aviation, and climate programs for political and career officials.
- **Supported international engagements**, including World Meteorological Organization (WMO) activities.

Operational Meteorology Experience (GS-9 to 13) | 2002–2018

- **Senior Meteorologist (WFO San Francisco Bay Area / Monterey, CA)**: Shift supervisor who led development of automated decision-support web tools; awarded Isaac Cline Award for leadership.
- **Meteorologist (WFO Las Vegas, NV & WFO Anchorage, AK)**: Operational forecaster for 10+ years.

TECHNICAL EXPERTISE & EDUCATION

- **Specialties:** Extreme rainfall & flash-flood analysis, ensemble interpretation, AI-driven weather model guidance.
- **Tools:** Automated data visualization, web-based tools, and Risk Communication (technical/non-technical).
- M.S. & B.S., Atmospheric Science – University of North Dakota.