SkyWind Solutions

Actionable Water Intelligence for South Carolina Coastal Municipalities

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Recognition & Partnerships:

Featured in the Tampa Bay Regional Planning Council's newsletter for its role in advancing AI-powered flood forecasting for local governments.

Selected for Seaworthy Collective's sixth Ocean Enterprise Studio & Incubator cohort, part of a $14M NOAA partnership accelerating BlueTech startups to market.



The Data Gap Undermining Coastal Decision-Making

South Carolina’s $5.6 billion coastal economy operates with insufficient data.

- Water levels along South Carolina’s 187-mile coastline are measured by just eight tidal stations—roughly one every 23 miles.
- Most operators rely on the closest available gauge, even when it's miles away and fails to reflect actual on-site conditions
- Folly Beach’s Atlantic-facing shoreline shows greater water level variation than its closest tidal station, which is located in the sheltered Charleston Harbor.
- Astronomical tide forecasts follow sun–moon cycles but ignore local wind, weather, and geography
- Small changes in shoreline, seabed, or river flow can shift water height by feet — and timing by hours

The result: critical blind spots in flood planning, adaptation projects, and community safety.

Source: NOAA Office for Coastal Management, 2022.



Why It Matters Now

Rising flood risk calls for next-generation forecasting

Traditional estimates from tide gauge data underestimate storm surge extremes by at least 80%

In the Charleston region, “100-year” floods now happen every 20–30 years; for Folly Beach, water reaching 1.6 ft above the average higher daily tide could occur every year by 2050 under medium to fast sea-level rise scenarios

Over half of South Carolina’s 271 municipalities will be affected by 3.2 feet of sea-level rise, including major coastal centers like Charleston, North Myrtle Beach, Beaufort, and Georgetown

South Carolina is projected to see a 200–500% increase in tidal flood days per year by 2050; barrier island communities such as Isle of Palms, Edisto Beach, and Sullivan’s Island are among the most impacted

- “Sunny day flooding” now occurs more than 5–15 times per year in low-lying areas of Charleston, North Myrtle Beach, Hilton Head Island, and Edisto Beach, driven mostly by high tides and not rainstorms.

$24 billion in property value and 54,000 homes —mostly in Charleston and Beaufort Counties— sit on land less than 4 feet above the local high tide line and are therefore at risk from coastal flooding and sea level rise

- South Carolina’s ACE Basin and sections of the Waccamaw Neck coastline, covering over 200 miles between Beaufort and Georgetown, have critical gaps without dedicated, real-time NOAA tide gauges.

⏳ Legacy models ignore real-time climate volatility — and that's costly.



Our Solution

SkyWind Solutions, based in Boca Raton, Florida, delivers hyperlocal, AI-powered, total water level forecasts.

Hyperlocal, Site-Specific

Customized to your location, not just the nearest tidal gauge

Proprietary ML Models

Custom-trained with site-specific bias correction, learning from historical forecast errors

95% Confidence Intervals

Expected levels *plus* projected range of likely outcomes for better decision making

API-First Architecture

Easy plug-in for enterprise users

- Designed to support critical ops and under-served coastal regions
- Designed to ingest IoT sensor feeds where available



Scientific Firepower

Built by experts in numerical modeling, weather science, and coastal risk.



Bonnie Schneider

Former national TV meteorologist (NBC News, CNN, Bloomberg, Weather Channel). Author: *Extreme Weather* (Macmillan) and *Taking the Heat* (Simon & Schuster) and the *EcoTech Report*, advancing sustainability in technology. Graduate of Boston University.



Dr. Greg Rainwater

Applied mathematician and atmospheric scientist with a research focus on numerical methods and parallel computing for weather and climate models. A Native American researcher, Dr. Rainwater developed advanced time integration techniques during his Ph.D. at UC Merced and holds an M.S. in Mathematics from Portland State University.



Dr. Kevin Viner

Meteorologist specializing in numerical methods and dynamical systems for global atmospheric prediction. Dr. Viner spent over a decade at the U.S. Naval Research Laboratory advancing large-scale forecasting systems. Ph.D. in Atmospheric Sciences from Texas A&M University and an M.S. from Purdue University.

Extended Team:

The extended executive team includes senior-level scientists with doctoral degrees in meteorology, mathematics, and engineering.

Collectively, they lead initiatives in numerical weather prediction, high-performance computing, and advanced software architecture — bringing decades of specialized experience at the forefront of their fields.



3-Month Pilot Program

Risk-free onboarding. Real-world validation.

What We Offer:

✓ Site-specific forecasts calibrated to your exact location
✓ Continuous model improvement based on your operational feedback
✓ Performance evaluation and measurable value demonstration

> Our company provides daily, hyper-local water level forecasts tailored specifically for coastal communities. Using a proprietary AI/ML model, we generate accurate 7-day forecasts for individual locations.

Forecasts That Fit Your Workflow

- **Online Dashboard**: A user-friendly web interface that displays the full 7-day forecast and associated confidence ranges for your location.
- **API Access**: Forecasts and confidence data are also available via an API, enabling automated downloads.

Our Process:

1 **Discovery**

Understand your operational needs

2 **Customization**

Calibrate forecasts to your environment

3 **Delivery**

Provide hyperlocal tide predictions, up to 7 days in advance, with probability bands that show the range of likely outcomes, updated twice daily

Success Metrics:

Improved decision-making accuracy

Enhanced safety and flood response

Demonstrated value in reducing risk and cost

Let's Talk

Ready to replace guesswork with precision?

Book a short call to discuss your use case.



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