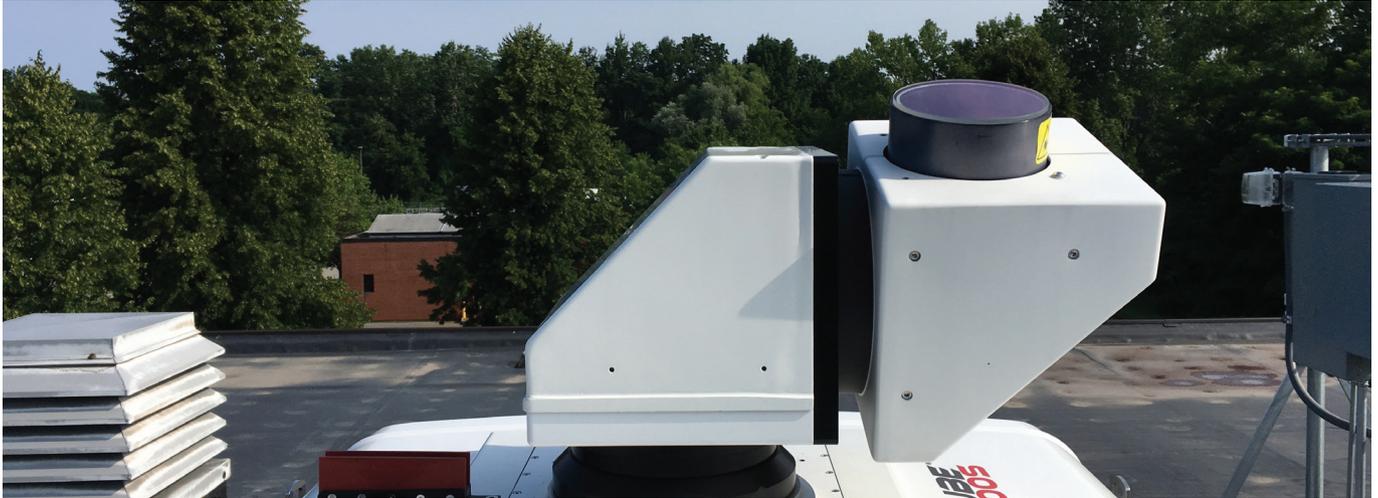


## Facing an uncertain climate future: New York deploys a statewide mesonet



### **The challenge:** Address changing weather patterns, improve forecasting, and protect the public

In New York, several decades of trend data show that adverse weather events are more frequent and severe. The state is especially vulnerable because of its coastal location, high population density, and large urban centers.

Governor Andrew Cuomo put it bluntly: “There is a frequency of extreme weather like we have never seen before.”

When officials noted “serious gaps” in existing meteorological observations, the state initiated the New York State Mesonet. Its primary purpose is to provide early warning and actionable intelligence using high-density weather observations. Vaisala’s WindCube lidar is a critical component.

### **The solution:** Build a best-in-class, statewide mesonet using WindCube lidar

The mesonet is run by scientists at the State University of New York at Albany, in partnership with the National Weather Service and the New York State Department of Homeland Security and Emergency Services. It includes a network of 180 weather stations, 17 of which are profiler sites equipped with a WindCube lidar and a radiometer. All counties and municipalities are covered by this expansive network infrastructure, making it one of the most ambitious mesonets ever built.

The mesonet uses WindCube Scan 100S lidar units to measure wind profiles, Planetary Boundary Layer (PBL) height, and aerosol backscatter. Due in part to the lidar data, the network provides previously impossible

**The client:**  
New York State

**Industry:**  
State government

**Vaisala provided:**  
WindCube Scan 100S

refresh rates (every 5 minutes) and resolution (0-2km in the case of wind profiling). Just as importantly, it allows for 24/7 monitoring of high convection from the surface to the top of the mixing layer — a previously unobserved region of weather activity.

**The benefits:  
Better forecasts,  
improved safety, and  
international leadership**

The New York State Mesonet provides drastically improved, real-time weather information for agencies, industries, and researchers across the state. Most importantly, it enables much more effective, location-specific disaster response — the network’s primary goal, as explained by Governor Cuomo.

System planners also expect to save millions of dollars in state resources and promote sizeable economic gains to trucking, energy, aviation, and other industries through sharing the new weather data.

As governments adapt to an uncertain climate future, New Yorkers hope that their mesonet will be used as an example for effectiveness, integration, and value over time.

*“The technology that we’re using is best in class ... That’s important because [the boundary layer] is where a lot of weather takes place.”*

**Dr. Everett Joseph**  
*Director, Atmospheric Sciences  
Research Center*



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