



RAIN AND FOG DROPLET SPECTROMETER



Introduction

The Rain and Fog Droplet Spectrometer developed by Zhice Yunlian is a sensor that automatically and continuously monitors precipitation particle spectra and precipitation weather phenomena. Its working principle: it actively emits an infrared light band. By measuring the change of received light energy when precipitation particles pass through the light band, it calculates the fall velocity and size spectrum distribution of raindrops. It automatically identifies and outputs precipitation weather phenomena based on empirical models of raindrop spectra.

Features

This spectrometer adopts an integrated design with compact size and easy installation, featuring stable performance, accurate data and strong environmental adaptability.

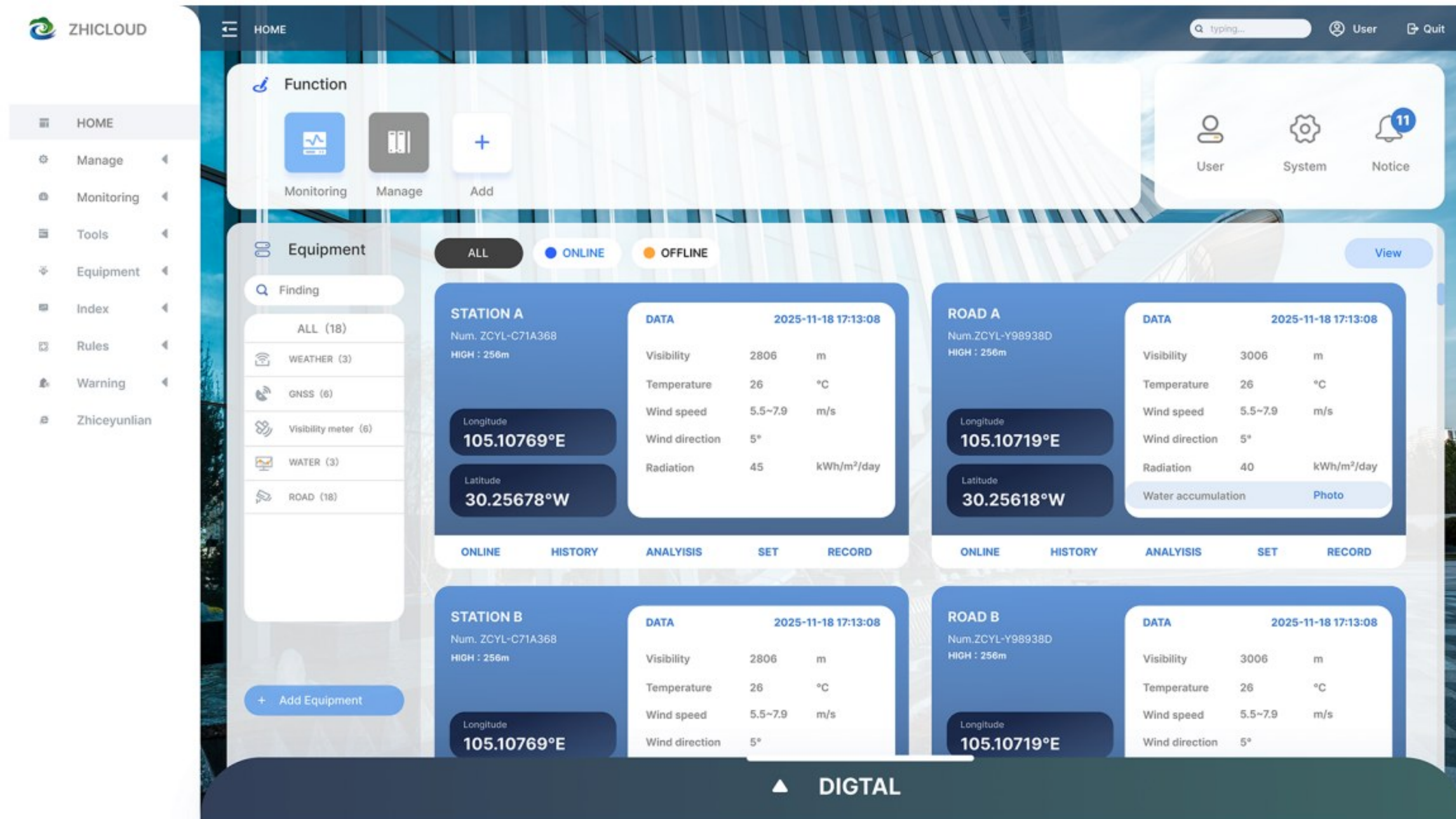
The transmitter and receiver ends are equipped with unique splash-proof hoods to effectively prevent precipitation splashing into the sampling area. Optional professional application software receives instrument observation results and visually displays droplet spectra; a calibration device is also optional.



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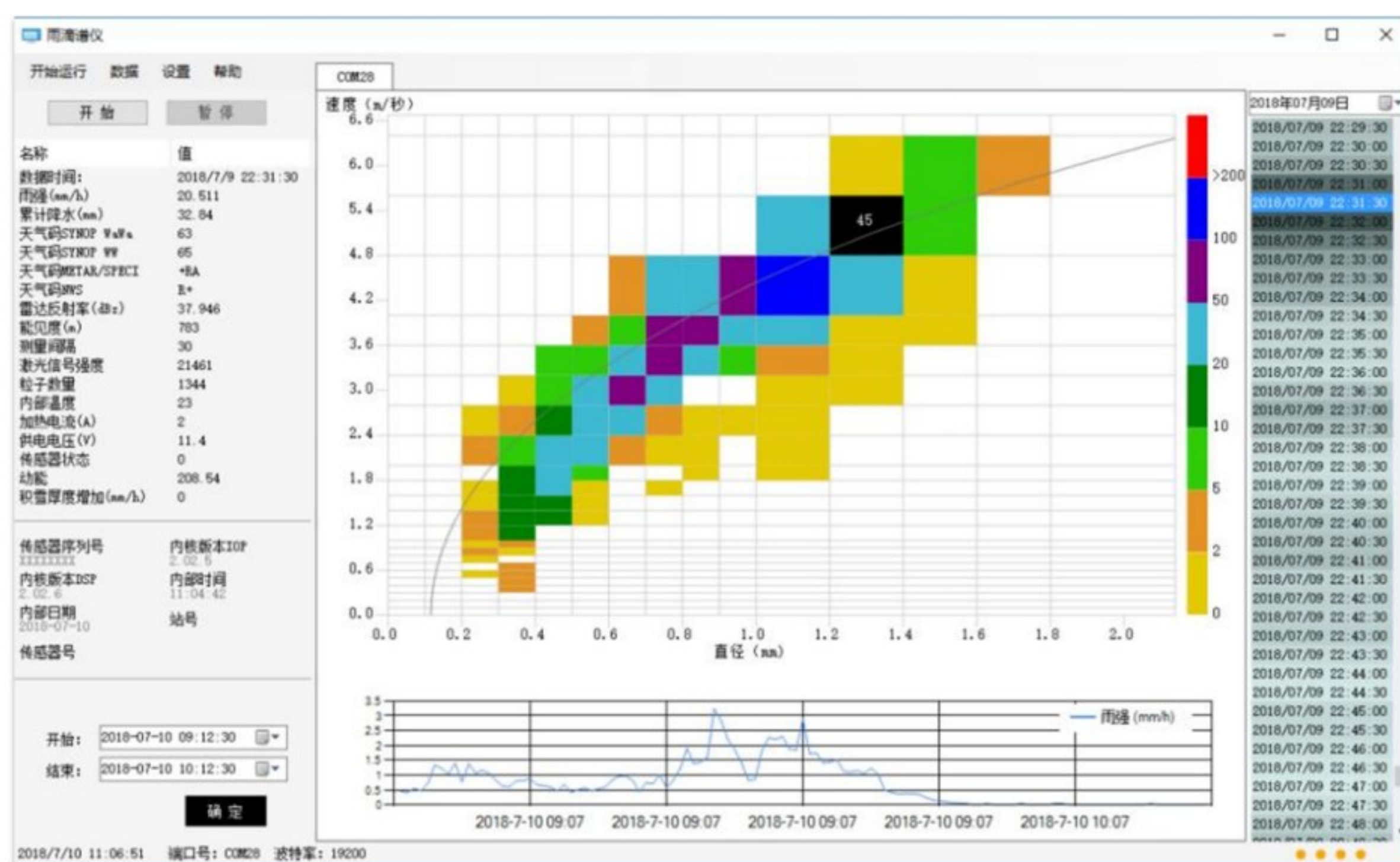
Specifications & Parameters

Category	Parameter Item	Specification Description
Physical Specifications	Dimension (L×W×H)	(660±10) mm × (450±10) mm × (120±10) mm
	Weight	≤ 7kg
Measurement Range	Liquid Particle Diameter	0.2~5mm
	Solid Particle Diameter	0.2~25mm
	Fall Velocity	0.2~20m/s
	Measurement Error	±5% (liquid particles), ±20% (solid particles)
	Particle Size Classification	32 diameter grades & 32 velocity grades
	Precipitation Types	Drizzle, rain, sleet, snow, hail, with distinguishable intensity grades
	Precipitation Identification Accuracy	Automatic recognition rate > 90%
	Precipitation Intensity	0~999mm/h
	Output Weather Code	WMO 4680 (default), optional WMO 4677 or NWS
Electrical Performance	Weather Code Output Interval	60s (default), adjustable from 10s to 60min
	Power Supply	DC 12~24V
	Power Consumption	≤ 3W @24V (without heating); ≤ 100W @24V (heating enabled)
Environmental Adaptability	Communication Interface	RS232 / RS485
	Operating Temperature	-45~55℃
	Operating Humidity	0~100%RH
	Storage Temperature	-50~60℃
	Storage Humidity	0~100%RH
	Protection Grade	IP66, IP67 optional



ZhiCloud Cloud Platform

Centrally manages all types of monitoring equipment . It displays real-time data and location information of all IoT devices on site. It also supports equipment status monitoring, historical data query, curve analysis and other functions, helping users remotely grasp environmental and equipment conditions of all monitoring points.



Real-time Monitoring Interface

Different color blocks intuitively show the number density of precipitation particles.

The left data panel displays key parameters including precipitation intensity, weather code and particle velocity in real time.

The trend chart at the bottom presents the variation of precipitation intensity over time.

The right timeline supports switching historical data for comparative analysis of precipitation evolution. The professional integrated interface is an essential tool for meteorological research and refined precipitation observation.