



INTEGRATED CLOUD PROFILER

Introduction

The Integrated Cloud Profiler developed by Zhice Yunlian images the sky in visible light and infrared (8~14μm) wavebands, and measures atmospheric backscattering signals via active infrared laser. It can automatically observe and record cloud cover, cloud shape, cloud distribution and sky conditions around the clock continuously.

The device fully automatically records all-sky cloud cover distribution data, and converts it into cloud fraction and cloud base height data with advanced cloud detection algorithms. The system application software supports real-time display, storage and analysis of observation data from the instrument.

Features

1. Integrated design, supporting long-term unattended operation
2. All-weather all-sky continuous automatic observation of full cloud parameters
3. Built-in laser cloud height meter for comprehensive processing of observation data
4. Advanced cloud detection algorithm & professional system application software
5. Real-time infrared radiation calibration function
6. Measurement of environmental parameters: temperature, humidity and air pressure
7. Positioning & timing function available





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Structure

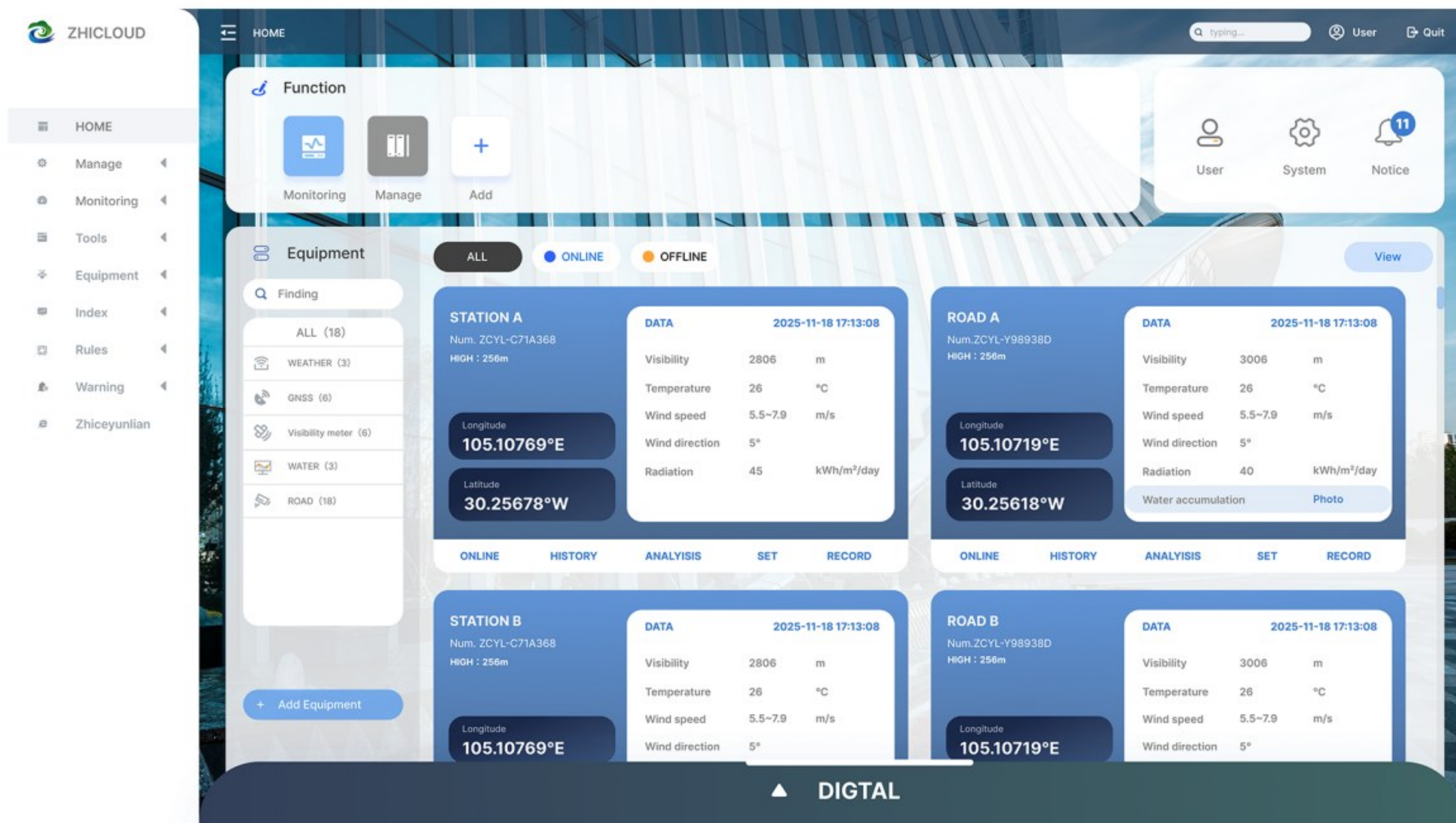


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规格参数

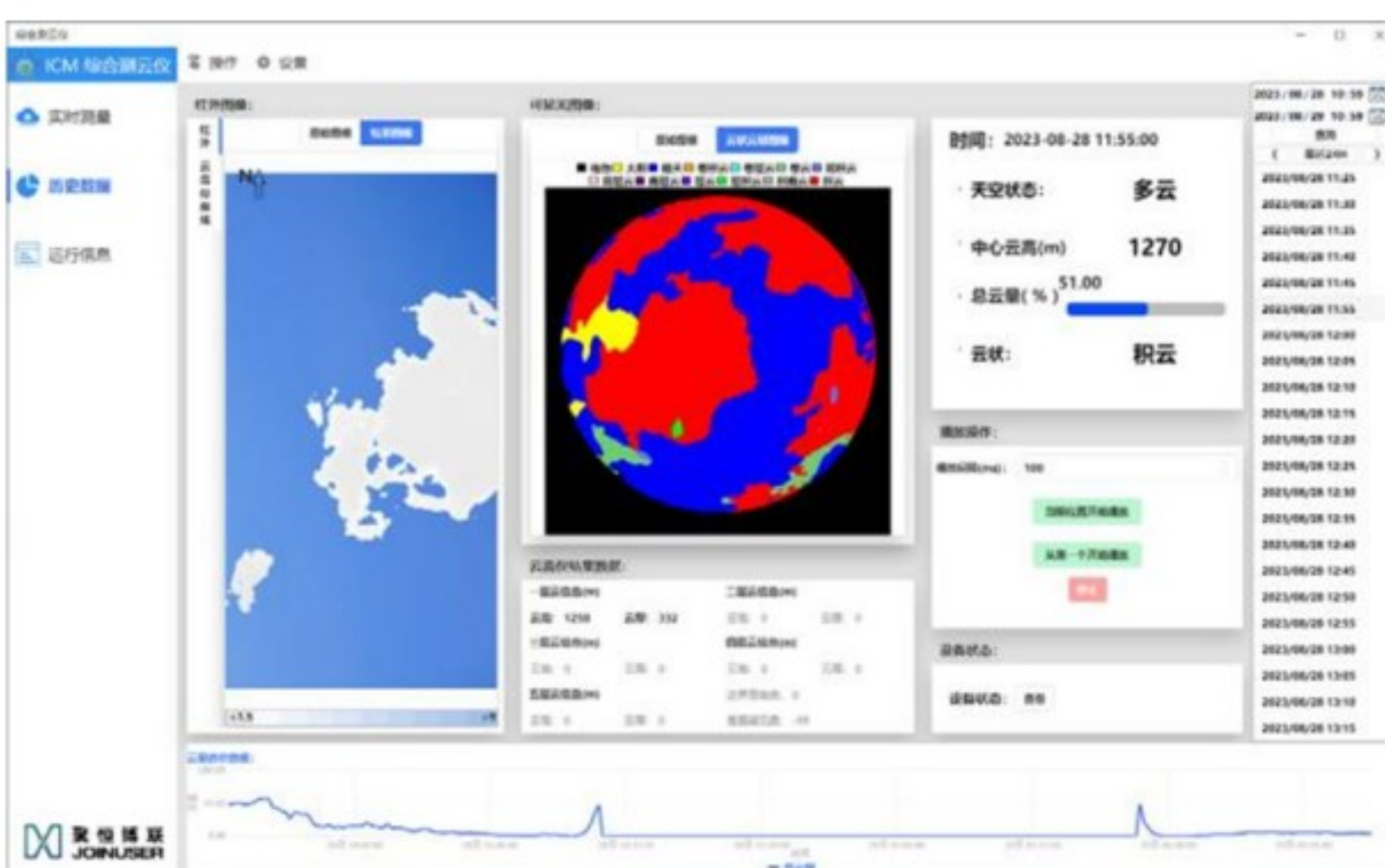
Category	Parameter Item	Specification Description
Measurement Performance	Output Data	Sky condition, cloud fraction, cloud shape, cloud spatial distribution
	Cloud Fraction Range	0–10 okta / 0–100%, configurable
	Cloud Fraction Resolution	0.1 okta / 1%
	Allowable Cloud Fraction Error	≤1 okta / ≤10%
	Recognizable Cloud Types	Stratus, stratocumulus, nimbostratus, altostratus, high-level clouds, altocumulus, cirrus, stratocirrus, lenticular cloud
	Cloud Shape Recognition Accuracy	No less than 70% of manual observation
	Cloud Distribution Coverage	8 azimuths + zenith
	Cloud Distribution Resolution	0.5 azimuth
	Cloud Distribution Error	≤0.5 azimuth
	Imaging Field of View	Visible light FOV (horizontal × vertical): 180° × 180°
	Data Output Interval	Adjustable 510min (standard data terminal); adjustable 110min (high-end data terminal)
Electrical Performance	Power Supply	AC 220V±15%, 50±2.5Hz
	Power Consumption	≤100W (main unit); ≤600W (data processing terminal)
	Communication Interface	10M/100M/1000M adaptive Ethernet port
Environmental Adaptability	Operating Environment	Temp: -45~55°C; Humidity: 0–100%RH
	Storage Environment	Temp: -50~60°C; Humidity: 0–100%RH
	Protection Grade	IP66 / IP67 optional

Software Interface



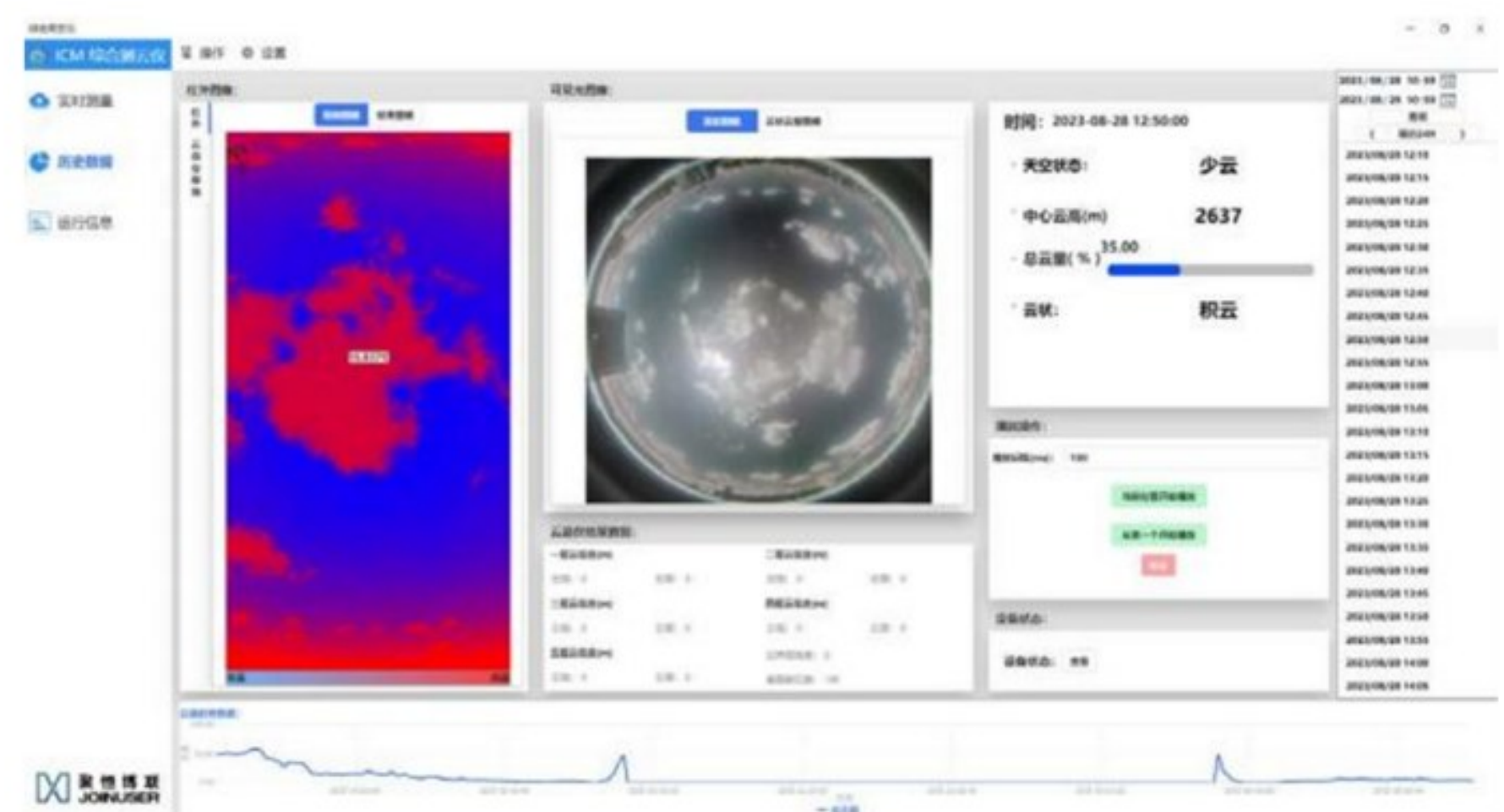
ZhiCloud Cloud Platform

Centrally manages all types of monitoring equipment (meteorological stations, environmental monitoring stations, etc.). It displays real-time data (visibility, temperature & humidity, waterlogging, etc.) 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

Core display of key data including cloud fraction, cloud shape and cloud distribution, paired with visualized charts to intuitively present cloud morphology.



Data Playback & Parameter

Concise layout focused on practical functions. The left panel supports viewing historical observation data and cloud variation trend curves, with comparison of data from different time periods available. The right configuration area allows adjustment of core parameters such as imaging field of view and data output interval, while synchronously displaying equipment calibration status.