

**WRMS**

CLIMATE & AGRICULTURE RISK

AUTOMATIC WEATHER STATION NETWORK

# SecuSense

**Harness the power of real-time weather data.**

Proprietary, high-quality climate data captured by a network of 10,000+ automatic weather stations — built, deployed and maintained end-to-end by WRMS.



Manufactured & serviced by **INGEN**  
Technologies · WRMS

## ABOUT US

# Climate & agriculture risk, managed with data.

WRMS is a climate & agriculture risk-management company that leverages data, technology and financial innovation to help clients achieve better returns from their investments.

**10M**

Beneficiaries served

**\$5B**

Crop insurance portfolio serviced

**30+**

Countries of presence

**12+**

Types of IoT devices

**40**

Institutional partnerships

**5+**

Countries — parametric-insurance pioneer

**10,000+**

Weather stations installed

**50 yrs**

Agro-climatic data at village level

**100K**

IoT's successfully installed

## GLOBAL DATA STACK

# Solving the data problem on a big-data framework.

A proprietary, high-quality data stack — recalibrated, downscaled and enhanced using in-house algorithms, built on the foundation of a surface weather-station network.

## ● Surface Weather Data

- 50,000 stations' observational data from 1970 onwards — 15,000 built & installed by WRMS
- Coverage across 50 countries

## ● Agriculture Yield Data

- Yield datasets across 10 countries from 2000 onwards
- Continuously expanding, with modelled yield data

## ● Remote Sensed Data

- 10 m to 250 m resolution global vegetation & water-stress data

## ● Gridded Climate Data

- Global gridded data from 15 different sources
- 4 km to 100 km grid resolution
- 30 million daily data points gathered

## BUILT ON

● AI-enabled data cleaning

● NoSQL data layer

● Scalable cloud architecture

● Blockchain-enabled platform

● Geospatial visualization

SENSING HARDWARE

# Multi-sensor AWS, capturing every parameter.

A single station streams every meteorological and agronomic variable to the INGEN Cloud in real time — archived, validated and turned into forecasts, alerts and advisories.



- Air Temperature
- Relative Humidity
- Precipitation
- Barometric Pressure
- Wind Speed & Direction
- Soil Moisture
- Soil Temperature
- Dew Point
- Sunlight Intensity
- Solar Radiation (SW/LW)

<b>1 sec</b> SAMPLING	<b>&gt;90%</b> UPTIME	<b>IMD-WMO</b> COMPLIANT
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## AWS SENSORS

## PART 1 — ATMOSPHERIC &amp; WIND

# Technical specifications.

## Air Temperature

iTMS101

TYPE	Band gap
RANGE	-40 to +75 °C
RESOLUTION	0.1 °C
ACCURACY	± 0.1 °C

## Relative Humidity

iHMS101

TYPE	Solid state / Capacitive
RANGE	0 to 100 %
RESOLUTION	0.1 % RH
ACCURACY	± 2 % RH

## Precipitation

iRMS101

TYPE	TBRG - ABS / Steel
RANGE	0.2 to 450 mm/hr
RESOLUTION	0.5 mm or better
ACCURACY	± 2 %

## Barometric Pressure

iBMS101

TYPE	Solid state - Digital
RANGE	600 to 1100 hPa
RESOLUTION	0.1 hPa
ACCURACY	± 0.2 hPa

## Wind Speed

iWMS2011

TYPE	Ultrasonic
RANGE	0 to 80 m/sec
RESOLUTION	0.1 m/s
ACCURACY	± 2 % (≤50 m/s)

## Wind Direction

iWMS2011

TYPE	Ultrasonic
RANGE	0 to 359°
RESOLUTION	1°
ACCURACY	± 3°

AWS SENSORS

PART 2 — RADIATION & SOIL

# Technical specifications.

## Pyranometer 1

iSRMS201

TYPE	Photodiode
RANGE	0–1800 W/m <sup>2</sup>
RESOLUTION	1 W/m <sup>2</sup>
ACCURACY	± 3 %
DETAIL	Spectral 300–1100 nm

## Pyranometer 2

iSRMS202

TYPE	Thermopile
RANGE	0–2000 W/m <sup>2</sup>
RESOLUTION	1 W/m <sup>2</sup>
ACCURACY	± 3 %
DETAIL	Spectral 300–2800 nm

## PAR Sensor

iPARS201

TYPE	Photodiode
RANGE	0–4000 µmol/m <sup>2</sup> /s
RESOLUTION	0.1 µmol/m <sup>2</sup> /s
ACCURACY	± 5 %
DETAIL	Spectral 300–800 nm

## Evaporation Sensor

iEVPS201

TYPE	Float / Shaft encoder
RANGE	0–100 mm/day
RESOLUTION	1 mm
ACCURACY	± 1 %
DETAIL	PAN dia 1200 mm

## Soil Temperature

iST101

TYPE	RTD Class B / Thermistor
RANGE	-10 to +70 °C
RESOLUTION	0.1 °C
ACCURACY	± 0.3 °C

## Soil Moisture

iSM101

TYPE	FDR
RANGE	0 to 100 % VWC
RESOLUTION	0.1 VWC
ACCURACY	± 3 %

AWS APPLICATIONS

# From raw weather data to decisions.

01

### Weather Forecasting & Data

Historical and real-time weather intelligence from a proprietary station network.

02

### Agri Advisory — SecuFarm

Location- and crop-specific advisory powered by IoT, remote sensing and AI/ML models.

03

### Risk & Insurance

Granular, high-quality data that lowers basis risk for parametric and index insurance.

WHY IT WORKS

**COMPLIANT**

Built to IMD and WMO meteorological standards.

**MEASURES**

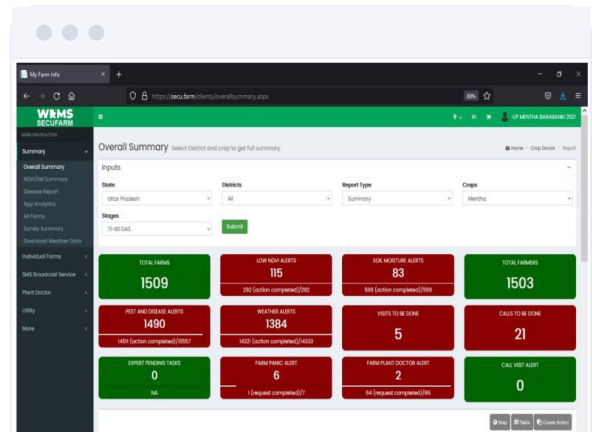
Temperature, humidity, rainfall, wind & solar — every second.

**MANUFACTURES**

More than 2,500 AWS produced every month.

**DELIVERS**

Real-time data with validation & monitoring.



**SecuFarm**  
Ag-tech advisory & monitoring platform

OUR SOLUTIONS

# Three weather services, one network.

## Weather Data Services

- Leading manufacturer of AWS and Agri-IoT
- Large network in India, exported to Bangladesh, Cambodia, Tanzania & Sri Lanka
- Historical data spanning more than 30 years

## Weather Forecasting

- Short- and medium-term forecasting using GFS and WRF models
- Calibration against ground stations for high accuracy
- CFS model for extended-range forecasting

## Crop Health Monitoring

- Crop-specific advisory from IoT, RS, weather data & AI/ML
- Pest and disease forecasting
- Irrigation, nutrient and chemical advisory

### COMPLIANT

Built to IMD and WMO meteorological standards.

### MEASURES

Temperature, humidity, rainfall, wind & solar — every second.

### MANUFACTURES

More than 2,500 AWS produced every month.

### DELIVERS

Real-time data with validation & monitoring.

## RELIABILITY

**>90% station uptime, by design.****PREVENTIVE**

- Maintenance every 3 months
- Sensor calibration twice per year
- Prioritized location visits each month
- Component replacement within life period
- Internal or 3rd-party system audits

**REPORTING**

- Daily & monthly automated uptime reports
- Purpose-built sensor MIS tool for the team
- Automated alert SMS to station supervisors

**CORRECTIVE**

- Resolution within 72 hrs of reporting
- Nearest field staff notified automatically
- Field visit with spares & equipment
- Rectification reported via Android app
- Cross-checked by senior engineers
- Data gaps reprocessed to guidelines

**VALIDATION OF FIELD VISITS**

Every visit form carries an authenticated IMEI and date-stamp, with a minimum of 5 geo-tagged images from the farm. Unavoidable data gaps are reprocessed per meteorological guidelines.

**72**

HRS TO RESOLVE

CASE STORIES

# Proven at national scale.

CASE STUDY 01

CHALLENGE

Minimizing the spatial basis risk of a government-subsidised Weather Index Insurance programme.

SOLUTION & IMPACT

A very granular weather-station network was established across India, with Automatic Rain Gauges and AWS installed in every 5x5 km grid.

**3,000**

Weather stations

**5x5 km**

Grid density

*Helps insurers settle claims with materially lower basis risk.*

CASE STUDY 02

CHALLENGE

Proving early-warning systems backed by high-quality, granular weather data and analysis.

SOLUTION & IMPACT

Automatic Rain Gauges and AWS deployed at scale to power agro-advisory and early-warning services for partners.

**3,604**

Automatic Rain Gauges

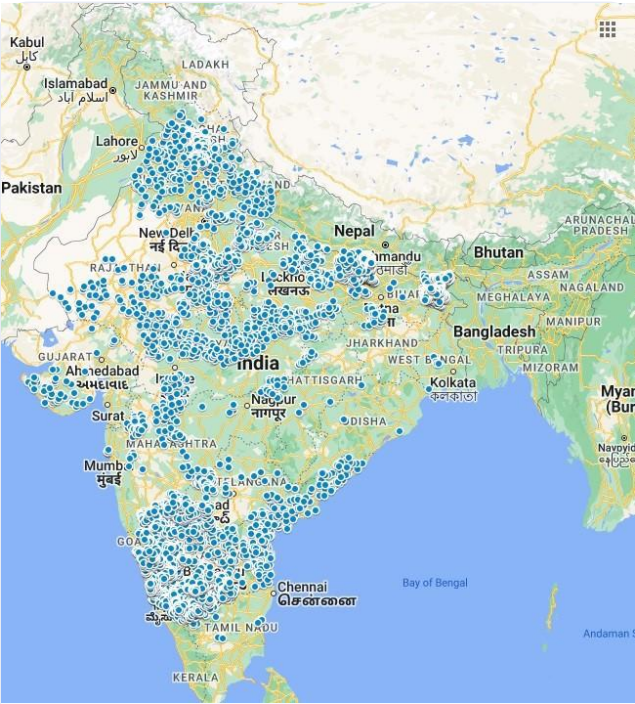
**5**

States covered

*Enabled high-quality agro-advisory and partner early-warning systems.*

PAN-INDIA DEPLOYMENT

# +10,000 AWS across India.



**10,000+**  
AWS & ARG stations deployed nationwide

**Karnataka**  
Network of 3,000 Automatic Rain Gauges

**Bihar**  
1,400 ARG and 27 AWS across 8 districts

**Andhra Pradesh**  
430 Automatic Weather Stations deployed

**Tamil Nadu**  
1,500 ARG & AWS for disaster planning (in progress)



QUALITY & COMPLIANCE

# Certified, calibrated, accountable.


Manufacturing and sensor calibration are certified to international standards — quality you can audit, from the production line to the field.



**ISO 9001:2015**  
Quality Management System




**Pressure Sensor**  
Calibration certificate



**Silicon Pyranometer**  
Calibration certificate



**Temp. & Humidity Sensor**  
Calibration certificate



**Tipping Bucket Rain Gauge**  
Calibration certificate



**Ultrasonic Wind Sensor**  
Calibration certificate

**WRMS**

# Thank you.

Let's build your weather-data network.

GET IN TOUCH

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