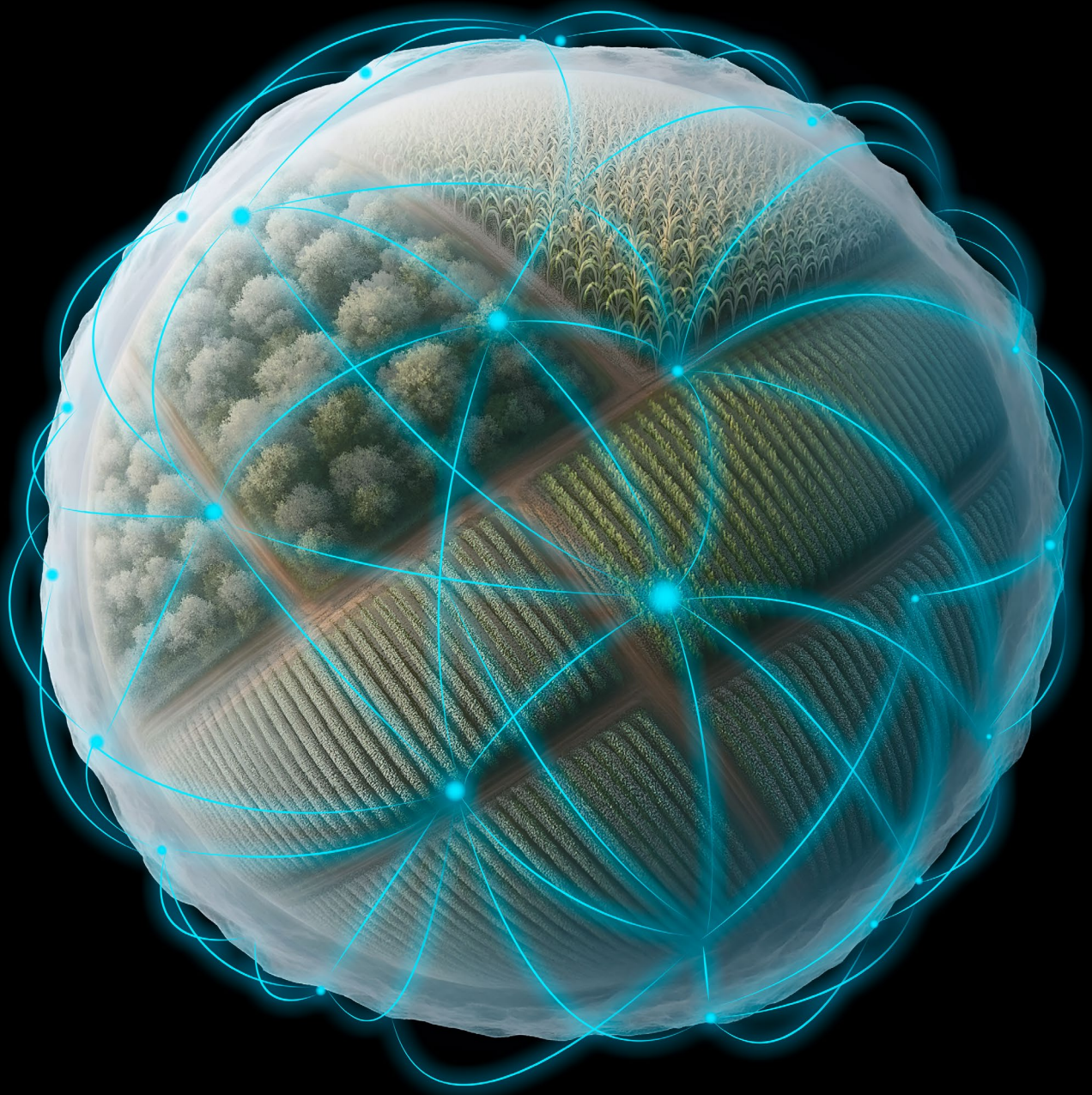
HydroMet



datasphere

Frost Risk Decision Support Module.

KISTERS

Empowering decisions of tomorrow

Protect your crops from the hidden threat of frost.

When temperatures drop, your growing season and profits are at risk. KISTERS datasphere – environmental intelligence, connected and simplified – provides you with the critical tools to detect, anticipate, and act before frost causes damage.

Stay one step ahead of frost.

Plan preventive measures up to 72 hours in advance using high-resolution regional and global models.

Pinpoint risk zones with visualised risk maps and overlays of your sensor locations.

Receive crop-specific forecasts adapted to variety, phenological stage, and cultivar sensitivity.

Trigger faster responses with configurable alerts based on your own frost damage thresholds.

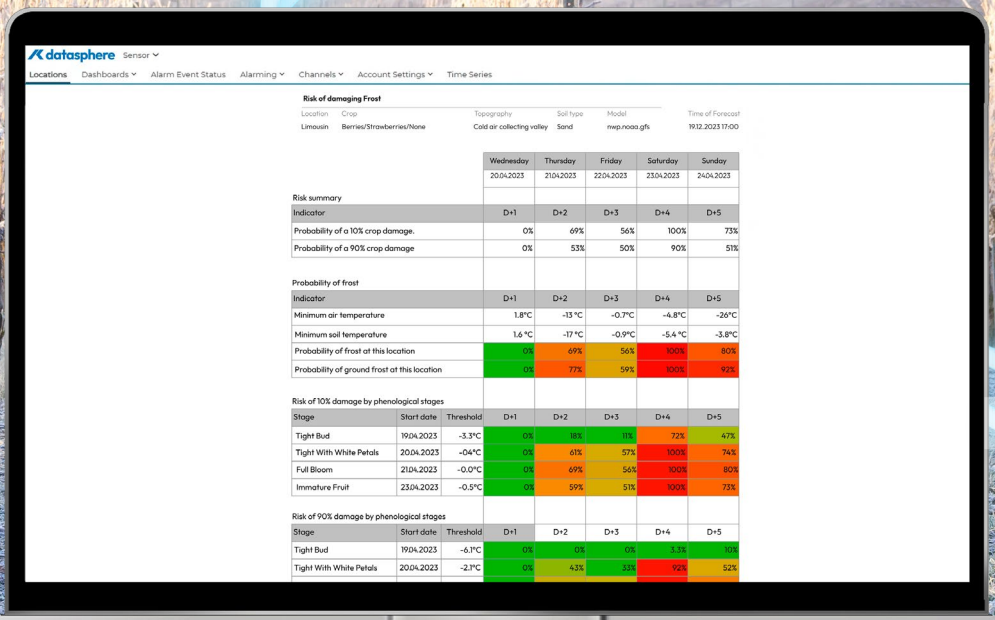
Built for global use with reliable assessments across growing regions.

Powered by datasphere

“

With climate change causing more frequent and unpredictable frost events, our Module empowers you to protect your crops before it’s too late. From predicting local risks to issuing timely alerts – this is decision support you can count on.

Johan Jaques
Chief Meteorologist & Frost Risk Solution Owner
KISTERS AG



Risk of damaging Frost

Location	Crop	Topography	Soil type	Model	Time of Forecast
Limousin	Berries/Strawberries/None	Cold air collecting valley	Sand	nwp.noaa.gfs	19.12.2023 17:00

	Wednesday	Thursday	Friday	Saturday	Sunday
	20.04.2023	21.04.2023	22.04.2023	23.04.2023	24.04.2023
Risk summary					
Indicator	D+1	D+2	D+3	D+4	D+5
Probability of a 10% crop damage.	0%	69%	56%	100%	73%
Probability of a 90% crop damage	0%	53%	50%	90%	51%
Probability of frost					
Indicator	D+1	D+2	D+3	D+4	D+5
Minimum air temperature	1.8°C	-13 °C	-0.7°C	-4.8°C	-26°C
Minimum soil temperature	1.6 °C	-17 °C	-0.9°C	-5.4 °C	-3.8°C
Probability of frost at this location	0%	69%	56%	100%	80%
Probability of ground frost at this location	0%	77%	59%	100%	92%

Risk of 10% damage by phenological stages

Stage	Start date	Threshold	D+1	D+2	D+3	D+4	D+5
Tight Bud	19.04.2023	-3.3°C	0%	18%	11%	72%	47%
Tight With White Petals	20.04.2023	-04°C	0%	61%	57%	100%	74%
Full Bloom	21.04.2023	-0.0°C	0%	69%	56%	100%	80%
Immature Fruit	23.04.2023	-0.5°C	0%	59%	51%	100%	73%

Risk of 90% damage by phenological stages

Stage	Start date	Threshold	D+1	D+2	D+3	D+4	D+5
Tight Bud	19.04.2023	-6.1°C	0%	0%	0%	3.3%	10%
Tight With White Petals	20.04.2023	-2.3°C	0%	43%	53%	92%	52%

Frost Risk Monitoring & Decision Support Module.

Includes:

Frost risk forecast software + Configurable Alarm Module

Highlights:

Crop-specific forecasts and risk based on local topography, soil type, growth stage, and microclimate.

Up to **5-day forecasts** using regional and global models.

Based on FAO thresholds, with full flexibility to customise for local experience.

Two risk levels: minor (P10) and major (P90) damage thresholds help prioritise actions.

Setup takes less than **5 minutes.**

Choose between daily or 3-hourly reports and your preferred weather model.

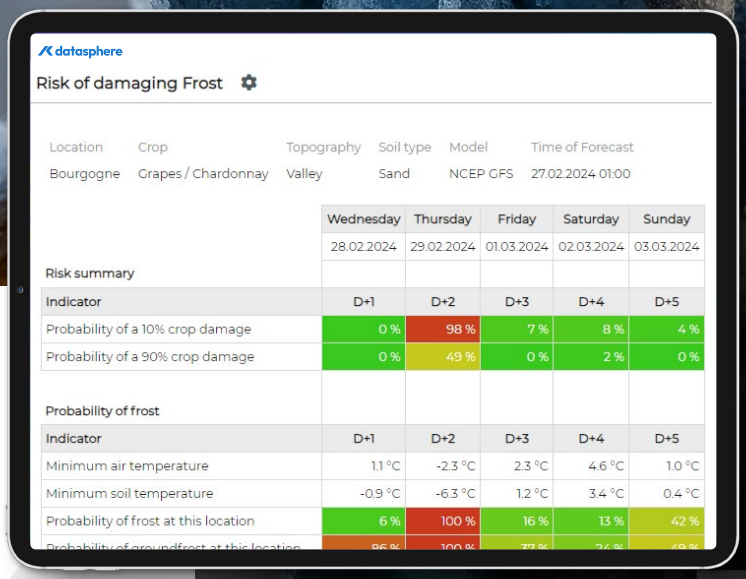
Supports from frost-resistant to highly sensitive crops.

Ideal for:

Farmers and cooperatives, agribusiness companies, crop insurers, high value crops like vineyards and orchards, and anyone responsible for frost-sensitive assets.

Discover the product

Configure your frost forecasts in minutes.



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Risk of damaging Frost

Location	Crop	Topography	Soil type	Model	Time of Forecast
Bourgogne	Grapes / Chardonnay	Valley	Sand	NCEP GFS	27.02.2024 01:00

	Wednesday	Thursday	Friday	Saturday	Sunday
	28.02.2024	29.02.2024	01.03.2024	02.03.2024	03.03.2024
Risk summary					
Indicator	D+1	D+2	D+3	D+4	D+5
Probability of a 10% crop damage	0 %	98 %	7 %	8 %	4 %
Probability of a 90% crop damage	0 %	49 %	0 %	2 %	0 %
Probability of frost					
Indicator	D+1	D+2	D+3	D+4	D+5
Minimum air temperature	1.1 °C	-2.3 °C	2.3 °C	4.6 °C	1.0 °C
Minimum soil temperature	-0.9 °C	-6.3 °C	1.2 °C	3.4 °C	0.4 °C
Probability of frost at this location	6 %	100 %	16 %	13 %	42 %
Probability of groundfrost at this location	86 %	100 %	77 %	24 %	49 %

Select your location
to refine the model with local soil and topography.

Input crop details
like crop variety and growth stage for personalised results.

Set frost damage thresholds –
custom or based on FAO standards.

See two risk levels –
10 % (P10) for minor and 90 % (P90) for major damage, to prioritise actions.

Choose your report format –

- Daily (up to 5 days) or 3-hourly forecasts.
- Select your preferred weather model.
- Get a personalised risk assessment for precise, crop-saving decisions.

With datasphere Frost Risk Module.

Other products of interest.

Irrigation Recommendation Module:

Discover the product

Frost alters crop water needs – pairing with an irrigation planning tool ensures your response stays efficient and aligned with plant recovery.

Includes:

Irrigation Forecast Software
+ ETa Sensor Integration
+ Configurable Alarm Module

ETa-based forecasts and crop-specific recommendations based on soil, growth stage, and irrigation method.

Simulate scenarios and reduce costs with real-time sensor data, dashboards, and alerts.

Compact weather sensors:

Discover the sensors

The KISTERS WS Series offers Single or all-in-one devices with up to 6 parameters.

Includes:

Wind speed
Wind direction
Temperature
Humidity
Air-pressure
Radiation

HydroMet

Make every growing season a success.

With datasphere Frost Risk Module.

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Who are we?

We're KISTERS – and for over 60 years, we've specialised in helping our customers collect, analyse and share the environmental data that will shape the future.

Through innovative, digitally-focused solutions, we develop advanced systems that enable our customers to capture and manage information at a higher quality than ever before. So they can make the solutions our world needs to thrive.

Watch recorded Demo

Contact Us

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KISTERS
Empowering decisions of tomorrow