MCP SERVER | NO CODE | CLOUD HOSTED

OpenWeather Agro MCP

Analyze field risk and predict crop cycles instantly.

OpenWeather Agro provides instant access to advanced agricultural data, including NDVI, EVI, soil temperature, and evapotranspiration rates from satellite imagery. Your AI client uses this MCP to analyze crop health scores, predict frost danger, and calculate precise water needs for targeted irrigation planning.

A+ Quality Score 100/100

ndvi | satellite-imagery | soil-moisture | precision-farming | crop-monitoring | evapotranspiration

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vinkius.com/mcp/openweather-agro

SCAN TO VIEW

The connectivity layer between AI and the world's software.

Vinkius sits between AI and every application. All communication passes through Vinkius Cloud via the Model Context Protocol (MCP) — with governance, observability, and security at every layer.

Your AI Connections Run Through Vinkius Cloud

The world's largest managed MCP catalog

Vinkius is the connectivity layer where AI connects to the software your business already runs. We handle the hosting, the security, the credentials, the uptime — you get agents that actually do things.

We operate the world's largest managed MCP catalog. Major SaaS platforms, CRMs, databases, and cloud providers — running, monitored, production-ready. This MCP server is hosted and maintained by the Vinkius Cloud for AI Agents.

> *The agent doesn't manage credentials, doesn't manage uptime, doesn't manage security. Vinkius does.*
>
> — Architecture principle

Four Pillars of the Vinkius Runtime

01 — Security by design

Credentials stay encrypted at rest via AES-256. The AI agent never touches raw keys — they're injected into a sandboxed V8 isolate at runtime. Actions are logged, and connections have an emergency kill switch.

02 — Built on MCP Fusion

This MCP server was built with **MCP Fusion**, the open-source framework (Apache 2.0) that powers the entire Vinkius catalog. Schema-as-firewall strips undeclared fields, compiled PII redaction runs at zero overhead, and cryptographic lockfiles produce git-diffable audit trails.

03 — Deterministic observability

Eight immutable metrics per endpoint: request volume, p95 latency, error rate, active connections, cost attribution. A live payload feed logs every tool call with mutation detection.

04 — Autonomous operations

Servers are deployed, monitored, and patched autonomously. New capabilities and security patches ship weekly. Zero-downtime deployments ensure continuous availability across all managed MCP servers.

AES-256	Ed25519	24h TTL	V8 Isolate
Encryption at rest	PKI vault signatures	Ephemeral session keys	Sandboxed execution

One Token. Instant Access.

Every MCP server on Vinkius is accessed through a **Connection Token**. Tokens are generated in the cloud dashboard and produce a unique MCP endpoint URL. Paste this URL into any MCP-compatible client — no SDK required.

A single token can serve **multiple AI clients simultaneously**, or you can issue separate tokens per client for granular access control. Each token tracks its own request count, last activity timestamp, and can be individually enabled or revoked.

MCP ENDPOINT

```
https://edge.vinkius.com/{token}/mcp
```

Claude · Cursor · VS Code · Windsurf · Grok · Gemini

Security Is the Architecture

Security in Vinkius is not a feature — it's the foundation of the runtime. The gateway enforces multiple independent protection layers between AI agents and third-party APIs.

01 — Ed25519 PKI Vault

Every workspace has an Ed25519 Master Key. Session keys are generated ephemerally (24h TTL) and signed by the Master Key. Credentials never leave the vault boundary.

02 — V8 Isolate Sandboxing

Tool code runs inside isolated-vm V8 isolates with 64 MB memory caps and per-request timeouts. No filesystem access, no network access except through the SSRF-guarded fetch bridge.

03 — SSRF Guard

All outbound HTTP requests are DNS-resolved and validated before execution. Private IP ranges (10.x, 172.16-31.x, 192.168.x, AWS metadata 169.254.x) are blocked at the network layer.

04 — DLP & PII Redaction

A ResponseGuard pipeline intercepts every tool response. Configurable redaction patterns strip sensitive fields (emails, SSNs, card numbers) before data reaches the AI agent.

05 — Cryptographic Audit Trail

Every request is signed into a SHA-256 hash chain with Ed25519 signatures. Events form a tamper-proof, SIEM-exportable forensic record.

06 — Honeytoken Trap System

Phantom credentials are injected into isolated environments. If a honeytoken is used outside Vinkius infrastructure, the server is quarantined instantly.

Emergency Kill Switch

EU AI Act Art. 14(1) Compliant

The kill switch is an **emergency halt** mechanism — not a simple toggle. When triggered, it executes three actions atomically:

01 — Server deactivated

The MCP server is immediately taken offline across the entire cluster.

02 — All tokens revoked

Every connection token is invalidated. Total lockout — reconnection blocked until new tokens are issued.

03 — WebSocket connections killed

Active connections terminated via Redis pubsub broadcast. Propagates to every runtime node in the cluster.

Full Visibility. Zero Guesswork.

The Vinkius cloud dashboard includes a full MCP Governance suite — real-time analytics and security controls for production AI operations.

Control Plane

KPI dashboard with request volume, latency, success rate, token consumption, and AI-generated operational briefings.

Agent Activity

Which AI clients are connecting, how often, and what they're doing — real-time session tracking.

FinOps

Cost tracking per tool, payload compression savings, budget optimization signals, and consumption trends.

Tool Health

Slowest and most error-prone tools, with actionable root-cause insights and performance baselines.

Firewall & DLP

PII redaction activity, sensitive data protection counters, and security event timeline.

Incident Log

Error trends, failure rates, status-code breakdowns, and forensic audit trail access.

> Get started at **cloud.vinkius.com** — connect your AI agent in under 60 seconds.

OpenWeather Agro MCP

12 tools available
Cloud-hosted on Vinkius

Connecting OpenWeather Agro lets your agent act like a full-time agronomist with its own dashboard. You stop manually checking weather APIs or interpreting complex satellite maps in different programs. Instead, you talk to your AI client and get actionable data immediately. Need to know if the soil is warm enough for seeds? Just ask. Want to compare this year's crop health against last season's trends? It handles that historical analysis too. Everything from calculating Growing Degree Days (GDD) to assessing frost risk happens through natural conversation. When you connect OpenWeather Agro via Vinkius, your AI client gets a single source of truth for every piece of data required in precision farming, letting you make decisions faster than ever before.

Core Capabilities

01 — Assess overall crop health

The MCP calculates a simple score that gives an immediate overview of how healthy the field is.

02 — Monitor plant vigor and canopy density

It provides enhanced vegetation indices (NDVI and EVI) to track specific aspects of crop growth, even in dense areas.

03 — Determine water requirements

The system calculates evapotranspiration rates, telling you exactly how much water the crops are using right now.

04 — Forecast environmental risks

You can check for signs of frost danger or track accumulated heat units (GDD) to predict development stages.

05 — Get historical data trends

The MCP retrieves past weather and vegetation indices, allowing you to compare current performance against previous years.

One Click on Vinkius — From Prompt to Execution

Available at **vinkius.com/mcp/openweather-agro** — connect your AI agent in three steps.

01 Subscribe to this MCP on Vinkius and input your OpenWeather API key.

02 Direct your AI client to the connected OpenWeather Agro tools in a natural conversation.

03 The agent calls the relevant function, processes the satellite and weather data, and gives you an immediate recommendation.

The bottom line is that your AI acts as a dedicated field analyst, synthesizing complex data into simple, actionable answers.

Built For

Agronomists who spend hours piecing together soil reports and satellite maps are the primary users. Anyone who needs to make timely decisions about irrigation, spraying, or harvest timing benefits from this MCP.

Agronomist

Uses the MCP daily to analyze NDVI trends and calculate Growing Degree Days for variety selection and crop management advice.

Farm Manager

Checks for current weather conditions and frost risk every morning to plan labor, spraying schedules, and protect crops.

Agricultural Consultant

Provides data-driven reports by pulling historical NDVI values and analyzing multi-day forecasts for client planning meetings.

What Changes When You Connect

01 You get immediate crop status checks by using the `get_crop_health_index` tool, replacing generalized guesswork with a single, clear metric for stakeholders.

02 Instead of guessing when to water or spray, use `get_evapotranspiration` to calculate exact water loss rates, ensuring you only irrigate what's necessary for maximum efficiency.

03 Planning is safer and smarter. The MCP lets you check `get_frost_risk` instantly, giving you the warning window needed to activate protective measures before damage occurs.

04 You can track development stages accurately by running `get_growing_degree_days`, which tells you exactly when a crop will hit its next milestone, like heading or tillering.

05 Field monitoring becomes visual. Use `get_satellite_imagery` to pull up the latest view of your property without needing to log into three different mapping portals.

Real-World Applications

Determining optimal spray timing

A farm manager asks, 'Should I spray pesticides this afternoon?' The agent checks `get_current_weather` and reviews the 5-day forecast using `get_weather_forecast`. It responds that conditions are ideal for application within the next four hours.

Comparing season performance

An agronomist needs to advise a client on long-term health. They use `get_historical_ndvi` to generate a trend line, showing that while this year's early growth was slow, the latest numbers indicate recovery.

Planning for wet vs. dry cycles

A consultant needs to assess drought impact. They pull `get_evapotranspiration` data and compare it against historical rainfall patterns using `get_weather_history`, generating a precise risk report.

Assessing planting readiness

Before sowing, the agent checks both `get_soil_temperature` and `get_frost_risk`. It advises that while temperatures are adequate for germination, there is still moderate frost danger overnight, requiring a delay.

Patterns to Avoid

Relying on single data points

✗ AVOID

Someone only asks 'What is the NDVI today?' and gets a number (e.g., 0.5). They then assume everything is fine, missing seasonal context.

✓ INSTEAD

Don't stop at just `get_ndvi`. Always follow up by comparing it to previous years using `get_historical_ndvi` or check the overall score with `get_crop_health_index` for a complete picture.

Forgetting the time factor

✗ AVOID

A user checks 'What is the weather?' and only gets today's forecast, which doesn't help them plan planting over the next week.

✓ INSTEAD

Always use `get_weather_forecast` to look ahead. This gives you multi-day planning windows for irrigation or harvest prep.

Ignoring soil conditions

✗ AVOID

Assuming that because the air temperature is fine, the seeds are ready to sprout. They neglect the ground truth.

✓ INSTEAD

Before planting, always run `get_soil_temperature`. This tells you if the ground itself has reached the necessary warmth for germination.

The Right Fit

Use this MCP when your decision hinges on synthesizing multiple data streams: weather history, satellite imagery (NDVI/EVI), and soil metrics. If you only need a simple 'yes or no' answer, like checking if rain is expected in the next two hours, then `get_current_weather` works fine. But if you are planning anything that requires context—like knowing *why* the vegetation health changed, or whether the change was due to drought vs. disease—you need this deep capability. Don't use it just because you have a satellite view; make sure your question requires comparing `get_historical_ndvi` trends against current measurements for real value.

The daily grind of manual field analysis is exhausting.

Today, planning an irrigation cycle means logging into a weather service, downloading a separate satellite map to check NDVI levels, and cross-referencing that with soil moisture reports. You spend hours piecing together these disparate dashboards just to confirm if the fields are ready for harvest or if you need to delay planting.

With this MCP, your AI agent handles all those tabs and downloads automatically. You ask one question—for example, 'Should I schedule irrigation?'—and it pulls in `get_evapotranspiration` rates, current weather data, and historical trends, giving you one clear answer instead of five separate reports.

OpenWeather Agro provides immediate crop condition scores.

You no longer have to manually interpret what a range of NDVI values (like 0.6-0.9) means, or calculate the cumulative heat units needed for growth stage predictions. The MCP handles all that interpretation using tools like `get_ndvi` and `get_growing_degree_days`.

What's different now is that you get instant, expert-level analysis without lifting a finger. It just works.

OpenWeather Agro: 12 Field Data Analysis Tools

Use these tools to pull granular data points on everything from soil temperature to historical vegetation indices for complete field monitoring.

#	TOOL	DESCRIPTION
01	`get_crop_health_index`	Calculates a simple overall crop condition score for quick field status checks.
02	`get_current_weather`	Retrieves real-time weather data needed for immediate farming decisions like spraying or harvesting.
03	`get_evi`	Provides an enhanced vegetation index ideal for monitoring dense canopies and high-biomass crops.
04	`get_soil_temperature`	Checks the thermal conditions of the soil, which is vital for seed germination timing and root activity assessment.
05	`get_weather_forecast`	Delivers a multi-day weather forecast to help plan planting schedules or anticipate harvest windows.
06	`get_evapotranspiration`	Calculates the rate of crop water use, ensuring precision irrigation scheduling and efficient water management.
07	`get_frost_risk`	Assesses frost danger levels and predicts timing, recommending protection measures for vulnerable crops.
08	`get_growing_degree_days`	Tracks the accumulated heat units necessary to predict crop development stages accurately.
09	`get_historical_ndvi`	Retrieves time-series NDVI data, allowing you to compare vegetation health across entire growing seasons.
10	`get_ndvi`	Gets a specific Normalized Difference Vegetation Index value for immediate crop health assessment on any given date.
11	`get_satellite_imagery`	Accesses imagery metadata and URLs for visual field checks, boundary verification, or damage detection.
12	`get_weather_history`	Pulls past weather data to compare current conditions with historical patterns for yield analysis.

See It in Action

Real prompts you can use once this MCP is connected to your AI agent through Vinkius Cloud.

U What is the NDVI for my corn field at coordinates 41.8780, -93.0977 on April 1st?

Fetching NDVI data for Iowa corn field (41.8780, -93.0977) on 2026-04-01... NDVI value: 0.28 (low vegetation cover, expected for early season). This indicates bare soil or very early emergence stage. Historical comparison: Same date last year was 0.25, so emergence is slightly ahead. Recommendation: Continue monitoring weekly as canopy develops. Target NDVI for mid-season corn is 0.75-0.85. Would you like historical NDVI trends to compare this season's progress?

U Calculate the growing degree days for my wheat field from March 1 to today.

Calculating Growing Degree Days (GDD) for wheat field (base 0C)... Period: March 1 to April 7, 2026. Total accumulated GDD: 285. Wheat development stage: Tillering to early stem extension. Average daily GDD: 7.5. Comparison to normal: 12% above average for this period. At this rate, heading stage expected around May 15. Recommendation: Apply nitrogen top-dressing now to support stem development. Monitor for early pest emergence due to warmer than normal accumulation.

U Is there frost risk for my vineyard tonight? I need to know if I should turn on the wind machines.

Checking frost risk for your vineyard location... FROST RISK: HIGH tonight. Predicted low temperature: -1.8°C (28.8°F) around 5:00 AM. Soil temperature: 4.2°C. Wind speed: 2 km/h (calm conditions increase frost risk). Dew point: -3.1°C. Recommendation: Activate frost protection measures immediately. Wind machines should be turned on by 3:00 AM (before temperature drops below critical threshold). If available, supplement with irrigation for additional 1-2°C protection. Monitor conditions hourly through dawn.

Frequently Asked Questions

01 **How do I check my field's overall health score using OpenWeather Agro MCP?**

You use the `get_crop_health_index` tool. This function processes multiple data points to give you a single, easy-to-understand metric for your whole field.

02 **Can I compare this year's growth to last year using OpenWeather Agro MCP?**

Yes, use `get_historical_ndvi`. This tool pulls time-series data, letting you graph and compare vegetation health across entire growing seasons.

03 **What is the difference between NDVI and EVI with OpenWeather Agro MCP?**

EVI (`get_evi`) is better for very dense crops or tropical areas because it's less affected by atmospheric conditions than standard NDVI, which you get using `get_ndvi`.

04 **How far ahead can I plan with OpenWeather Agro MCP?**

You use `get_weather_forecast`. This provides a multi-day outlook perfect for planning planting or harvest windows up to five days out.

05 **Does OpenWeather Agro MCP help me know when to plant seeds?**

Yes, you check two tools: `get_soil_temperature` and `get_frost_risk`. The agent advises on planting only when both conditions are safe and optimal.

Go Live in 60 Seconds

Get your connection token from **cloud.vinkius.com**, then paste the endpoint URL into any MCP-compatible client.

YOUR MCP ENDPOINT

```
https://edge.vinkius.com/[TOKEN]/mcp
```

CLIENT	WHERE TO CONFIGURE
Claude AI	Profile → Customize → Connectors → "+" → Add custom connector → Paste endpoint
Cursor	Settings → Features → MCP Servers → "+ Add New MCP Server" → Type: SSE → Paste endpoint
VS Code	Ctrl/Cmd+Shift+P → "MCP: Add Server" → add `"openweather-agro": { "url": "…" }`
Windsurf	MCP Settings → `mcp_settings.json` → Add endpoint URL
ChatGPT	Settings → Tools & plugins → Add MCP server → Paste endpoint
Gemini	Extensions → Add MCP Server → Paste endpoint URL

ASK AN AI ABOUT THIS

Let your preferred AI explain this MCP server

- Ask ChatGPT
- Ask Claude
- Ask Perplexity
- Ask Gemini
- Ask Grok

READY TO CONNECT

OpenWeather Agro is live on Vinkius Cloud.

Get your connection token, paste it into your AI agent, and start building. No SDK. No deployment. Just results.

Start at cloud.vinkius.com →

vinkius.com · support@vinkius.com

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