

M C P S E R V E R

N O C O D E

C L O U D H O S T E D

Apparent Wind Calculator MCP

Get precise kite physics and wind vectors instantly.

Apparent Wind Calculator MCP handles the vector math required for kiteboarding. It lets your AI client calculate how true wind and board speed combine to create the wind you actually feel. You can use it to predict kite drive, check wind stability, or convert wind speeds between different units.

A+ Quality Score 100/100

kiteboarding

wind

vector-math

sailing

weather



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.

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.

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.

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

Encryption at rest

Ed25519

PKI vault signatures

24h TTL

Ephemeral session keys

V8 Isolate

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.

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.

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.

06 — Honeypot Trap System

Phantom credentials are injected into isolated environments. If a honeypot 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.

FinOps

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

Firewall & DLP

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

Agent Activity

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

Tool Health

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

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.

Apparent Wind Calculator MCP

4 tools available

Cloud-hosted on Vinkius

Kiteboarding physics isn't just about the wind blowing; it's about how you move through it. This MCP gives your AI client the math it needs to understand the relationship between true wind and your own velocity. Instead of guessing how much pull you'll feel, you can provide your agent with your heading and speed to get exact results.

It handles the heavy lifting of vector addition. You can determine the exact wind speed and direction hitting your kite, assess how much power you'll actually have for a jump or a tack, and check if the wind is stable enough for consistent riding. It also makes unit conversions easy so you don't have to manually switch between meters per second and knots. It's a specialized math engine for anyone who needs to translate wind data into actionable riding insights.

Core Capabilities

01 — Vector Math

Your agent combines true wind vectors with rider speed to find apparent wind.

02 — Power Prediction

The AI estimates kite drive based on wind speed and angle.

03 — Stability Analysis

Your client calculates a stability index to account for speed fluctuations.

04 — Unit Conversion

The agent switches between m/s and other wind speed units instantly.

One Click on Vinkius — From Prompt to Execution

Available at vinkius.com/en/ai-agent-connect/apparent-wind-calculator — connect your AI agent in three steps.

- 01 Connect the MCP to Claude, Cursor, or your preferred client via Vinkius.
- 02 Provide your true wind speed and direction to your agent.
- 03 Include your riding speed and heading.
- 04 The agent uses the tools to run the vector math and gives you the result.

Connect the MCP to your client and start asking for wind calculations.

Built For

This is built for people who need to translate weather data into physical riding conditions.

Kiteboarders

They hand off wind data to the AI to plan their session or gear choice.

Sailing Enthusiasts

They use the vector math to understand wind shifts and boat speed.

Weather Analysts

They use the tool to convert raw wind data into usable riding metrics.

What Changes When You Connect

- 01 Removes manual vector math from your planning process.
- 02 Provides immediate power assessments for kite control.
- 03 Standardizes wind measurements across different units.

Real-World Applications

Session Planning

Input true wind and your expected speed to see if the kite will have enough power.

Unit Conversion

Quickly change m/s to knots when comparing local forecasts to gear specs.

Safety Checks

Use the stability index to see if wind fluctuations might make riding difficult.

Performance Analysis

Calculate how your heading affects the wind you feel to optimize your line.

4 Tools Available

#	TOOL	DESCRIPTION
01	assess_power_potential	Use this to predict the amount of drive or power your kite will generate in current conditions.
02	calculate_apparent_wind	This tool calculates the specific wind speed, angle, and direction you feel based on true wind and your movement.
03	convert_wind_units	This tool changes wind speed measurements from meters per second to other common units.
04	get_wind_stability_index	This tool measures how much the apparent wind fluctuates relative to your speed.

See It in Action

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

U The true wind is 10 m/s from 0 degrees, and I am riding at 5 m/s heading 180 degrees. What is my apparent wind?



Your apparent wind speed is 11.18 m/s and the direction is from 350.4 degrees.

U My apparent wind speed is 15 m/s at an angle of 30 degrees. How much power will I have?



You can expect High power from your kite in these conditions.

U Convert 12 m/s to knots.



12 m/s is equal to 23.33 knots.

Frequently Asked Questions

01 What is apparent wind?

Apparent wind is the wind you actually feel while moving. It is the combination of the true wind and the wind created by your own motion.

02 How do I use this with Claude or Cursor?

You connect to the MCP through the Vinkius platform. Once connected, your AI client can automatically call the tools to perform calculations.

03 Can this help me predict kite power?

Yes, the `assess_power_potential` tool predicts the drive a kite can generate based on your wind conditions.

04 Does this support different wind units?

Yes, you can use the `convert_wind_units` tool to change speeds from m/s to other units.

05 Is this useful for sailing too?

Yes, the vector math used for kiteboarding is applicable to any wind-driven movement like sailing.

06 How do I use this to plan my session?

You can provide your current true wind speed and board speed to `'calculate_apparent_wind'` to understand the actual force acting on your kite.

07 Can I predict how much power my kite will have?

Yes, use `'assess_power_potential'` with your apparent wind speed and angle to get a categorical power level.

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 <code>"apparent-wind-calculator": { "url": "..." }</code>
 Windsurf	MCP Settings → <code>mcp_settings.json</code> → 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

Apparent Wind Calculator 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

INDEPENDENT PLATFORM DISCLAIMER

Vinkius is an independent platform and is not affiliated with, endorsed by, sponsored by, verified by, or otherwise authorized by Apparent Wind Calculator. All third-party trademarks, logos, and brand names are the property of their respective owners. Their use in this document is strictly for informational purposes to identify service compatibility and interoperability.

DOCUMENT INFORMATION

Generated	September 2026
MCP Server	Apparent Wind Calculator MCP
Server ID	01a07c39-4039-728c-bfc8-ba9c0602cb3f
Platform	Vinkius Cloud for AI Agents
Endpoint	<code>https://edge.vinkius.com/{token}/mcp</code>

LICENSE & USAGE

This document is generated automatically by the Vinkius PDF Engine. Content reflects the MCP server configuration at the time of generation and may change as updates are deployed. For the most current information, visit vinkius.com/en/ai-agent-connect/apparent-wind-calculator.