MCP SERVER | NO CODE | CLOUD HOSTED

Moon Phase Calculator MCP for AI Agents

Accurately Predicting Lunar Cycles and Celestial Events

The Moon Phase Calculator gives you precise astronomical data for any date. It accurately determines the moon's current phase name and how much of its disk is visible, using established lunar algorithms. You can generate full monthly calendars, compare the brightness between two dates, or quickly check a specific day's exact lunar details.

A+ Quality Score 100/100

moon | lunar | astronomy | calendar | science

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vinkius.com/mcp/moon-phase-calculator

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.

Moon Phase Calculator MCP

3 tools available
Cloud-hosted on Vinkius

Need accurate lunar cycle data for research, photography planning, or writing? This MCP calculates high-precision astronomical figures based on known celestial math. Instead of hunting through external APIs or complex spreadsheets, your AI client handles the calculations automatically.

It tells you if the moon is in a Waxing Crescent or Full Moon and gives you the exact percentage of illumination for any date you pick. You can ask it to generate an entire calendar view for a specific month, listing every major lunar event. Or maybe you need to know which night will give you the best shot? Use the tool to compare the brightness between two dates instantly.

Connecting this MCP through Vinkius means your AI agent has instant access to these deep astronomical calculations without needing complicated setup or worrying about external service downtime. It's reliable, accurate data when you need it most.

Core Capabilities

01 — Determine Moon Phase and Brightness

Get the specific name (like First Quarter) and illumination percentage for any given date.

02 — Generate Full Lunar Calendars

Request a comprehensive list of all major lunar events and phases for an entire month.

03 — Compare Lunar Brightness Across Dates

Figure out which of two specific dates features the more brightly illuminated moon.

One Click on Vinkius — From Prompt to Execution

Available at **vinkius.com/mcp/moon-phase-calculator** — connect your AI agent in three steps.

01 Tell your AI client what you want to know, for example: 'What is the lunar phase on October 15th?'

02 The MCP runs its astronomical calculations using established algorithms and returns the specific name of the phase and the precise illumination percentage.

03 Your agent presents a clean summary of the data, giving you clear details about the moon's appearance for that date.

The bottom line is you ask your AI client a question about lunar cycles or dates, and it uses this MCP to calculate and deliver accurate astronomical results instantly.

Built For

Anyone who works with celestial data or needs precise cyclical timing—astronomers, astrophotographers, writers of sci-fi/fantasy content, or science educators. If your work relies on knowing exactly when the moon will be full or new, this MCP saves you hours of research.

Amateur Astronomer

Uses it to plan observing sessions, checking lunar cycles and predicting optimal viewing windows for specific phases.

Astrophotographer

Calculates the best dates and moon phases needed to get perfect shots without the moon being too bright or too faint.

Science Writer/Educator

Retrieves accurate, verifiable data on lunar cycles for articles, presentations, or educational content creation.

What Changes When You Connect

01 Plan shoots with confidence. Use `compare_brightness` to ensure your target date has the optimal moon illumination level.

02 Stop manual research. Generate a complete cycle overview for any month using `generate_monthly_schedule`, giving you an entire year's worth of timing data in one go.

03 Get immediate details on demand. Quickly find out the exact phase name and brightness percentage for a single date with `calculate_phase`.

04 Eliminate guesswork. No more relying on generalized calendars; this tool uses high-precision astronomical math, giving you reliable numbers every time.

05 Focus on your art, not your data. Let your AI agent handle complex calculations that used to take hours of cross-referencing.

Real-World Applications

Planning a Stellar Photography Shoot

An astrophotographer needs to know if their planned shoot date is ideal. They ask the agent, 'Which date in September will be brightest?' The agent uses `compare_brightness` and tells them that Sept 12th offers superior illumination compared to Sept 3rd.

Writing a Sci-Fi Novel

A fantasy writer needs the exact lunar phases for their story's setting. They prompt the agent to 'Show me the full schedule for Year X, Month Y.' The agent uses `generate_monthly_schedule` and provides accurate phase names (e.g., Waning Gibbous) for historical consistency.

Educational Presentation Prep

A science teacher needs to demonstrate lunar cycles on a specific day. They ask the agent, 'What is the moon status on June 21st?' The agent uses `calculate_phase` and returns the precise details (e.g., Full Moon, 99% illumination) instantly.

Event Timing Logistics

An outdoor event planner needs to schedule a festival around a major lunar event. They ask the agent to compare two potential dates using `compare_brightness`, allowing them to choose the spot with maximum natural light contrast.

Patterns to Avoid

Using vague calendar tools

✗ AVOID

Relying on general weather websites or basic online calendars that only show 'Full Moon' without giving specific illumination percentages.

✓ INSTEAD

Use the `calculate_phase` tool. It doesn't just say 'Full Moon'; it gives you the exact percentage of visible light, which is crucial for planning.

Copy-pasting raw data

✗ AVOID

Downloading massive CSV files from academic sites and having to manually search through them for specific dates or phase comparisons.

✓ INSTEAD

Instead, tell your agent to run `generate_monthly_schedule` for the whole month. It handles the filtering and presenting of only the relevant events.

Guessing celestial timings

✗ AVOID

Assuming that if a date is near a known event (like New Moon), it must be at peak brightness, leading to inaccurate planning.

✓ INSTEAD

Always use `compare_brightness` when comparing two dates. It checks the actual calculated illumination for both points in time, giving you definitive proof.

The Right Fit

Use this MCP if your project requires verifiable astronomical data—specifically lunar phases or brightness comparisons. If you need to know what phase and how bright it is on a specific date, `calculate_phase` is your go-to. If you're planning over weeks or months, use `generate_monthly_schedule`. Use `compare_brightness` when the choice between two dates depends entirely on lunar illumination levels.

Don't use this if you just need to know that a date exists; it’s for deep data dives. Don't try to use this MCP to predict eclipses, as its focus is strictly on the monthly phase cycle and general brightness comparison. For simple 'Is today a full moon?' checks, `calculate_phase` handles it perfectly.

Moon Phase Calculator: Solving Lunar Timing Problems for Astronomers

Astronomy requires precision that basic online calendars just can't deliver. Today, planning a shoot means cross-referencing multiple sources—checking general phase guides, then finding illumination percentages elsewhere, and finally compiling a schedule across several tabs. It’s time-consuming manual data aggregation.

With this MCP, you simply ask your agent for the information. Need to know when the moon will be at its peak visibility during October? Just let it run `generate_monthly_schedule`. The result is clean, accurate, and instantly ready for use in your project.

Moon Phase Calculator: Comparing Lunar Brightness for Astrophotography

Before this tool, deciding between two potential shooting nights meant guessing which one would be better. You'd check general brightness ratings and hope they were accurate enough to justify the travel time.

Now, you prompt your AI client to `compare_brightness`. It runs a direct comparison using high-precision math, telling you exactly why one date is superior—whether it’s due to higher illumination or simply better timing. The guesswork is gone.

3 Tools for Precise Lunar Cycles and Astronomical Data

Use these tools to check specific moon phases, compare brightness between two dates, or map out entire months of celestial events.

#	TOOL	DESCRIPTION
01	`compare_brightness`	Compares two given dates to tell you which one has a more brightly lit moon.
02	`generate_monthly_schedule`	Creates a full calendar detailing all the major lunar events and phases for an entire month and year.
03	`calculate_phase`	Retrieves the exact name of the moon's phase and its current brightness percentage for a specified date.

See It in Action

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

U What's the moon status on July 4th next year?

Lunar Phase Report: July 4, 2025

- **Phase:** First Quarter
- **Illumination:** Approximately 51%
- **Notes:** The moon will be visible and steadily increasing in brightness that week. Great for landscape shots.

(Data accurate to the nearest percentage point.)

U I'm comparing two dates: Nov 10th and Dec 5th.

Comparing illumination levels:

DATE	PHASE NAME	ILLUMINATION %
Nov 10	Waxing Gibbous	78%
Dec 5	Full Moon	99%

Conclusion: December 5th will be significantly brighter and more fully illuminated. You'll need to adjust your camera settings accordingly.

U Generate the lunar schedule for March.

Lunar Schedule: March 2025

- Mar 1 (New Moon): Minimal light.
- Mar 13 (First Quarter): ~50% illumination.
- Mar 20 (Full Moon): Peak visibility, ~98% illumination.
- Mar 27 (Last Quarter): Fading brightness.

Frequently Asked Questions

01 **How accurate is the Moon Phase Calculator for AI Agents?**

It uses high-precision astronomical algorithms, making the data highly reliable. You get exact phase names and illumination percentages, which is far better than general estimates found online.

02 **Can I use the Moon Phase Calculator to plan a photography trip?**

Yes. If you need to compare two dates for the best lighting conditions, let your AI client run `compare_brightness`. It tells you exactly which date will provide optimal visibility.

03 **Does this MCP handle lunar cycles beyond just full and new moons?**

Absolutely. The system calculates all phases, like Waxing Crescent or Last Quarter. You get the specific name and a percentage of illumination for any date you check.

04 **What if I need to know about multiple months? Is it possible with Moon Phase Calculator?**

You can generate full monthly schedules using `generate_monthly_schedule`. This gives you a comprehensive calendar view of all major lunar events for any given month and year.

05 **Is this better than just searching Google for 'moon phase'?**

Yes. Searching Google yields general articles, but this MCP gives you calculated data. You get verifiable results about illumination percentages and specific phases that are ready to use in your writing or planning.

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 `"moon-phase-calculator": { "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

Moon Phase 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

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Platform	Vinkius Cloud for AI Agents
Endpoint	`https://edge.vinkius.com/{token}/mcp`

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