MCP SERVER | NO CODE | CLOUD HOSTED

NCDC Climate Data Online MCP

Access decades of historical weather metrics.

NCDC Climate Data Online lets you pull massive amounts of authoritative historical weather and climate data directly from NOAA's National Climatic Data Center. You can ask your agent for records—like daily temperature or precipitation totals—for specific locations across defined date ranges, no matter how complex the query gets. This MCP gives you access to discovery tools that let you list available datasets, find exact stations globally, and categorize data types like snowfall versus max temperature, all in one place.

A+ Quality Score 100/100

climate-data | historical-weather | meteorology | environmental-monitoring | data-archiving

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vinkius.com/mcp/ncdc-climate-data-online

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.

NCDC Climate Data Online MCP

10 tools available
Cloud-hosted on Vinkius

You can use this connection to pull deep historical climate records using natural language conversation. Instead of navigating complex government websites, your agent talks directly to the National Climatic Data Center API, giving you access to a vast archive of weather history.

Need to know how much rain fell in Asheville back in 2018? You ask for it. Want to compare average maximum temperatures across three different states over twenty years? Your agent handles the data gathering and retrieval. The MCP lets you look up specific stations globally, trace datasets like Global Historical Climatology Network Daily (GHCND), or filter by location type—city, country, county—to narrow down your scope.

If you're finding yourself jumping between multiple APIs just to get a full picture of environmental trends, this MCP simplifies that. Vinkius organizes these complex data sources so you connect once and gain access to the entire NCDC catalog from any compatible client.

Core Capabilities

01 — Retrieve specific historical records

Pull actual climate measurements—like temperature or rainfall totals—for a defined location and date range.

02 — Discover available datasets

List and inspect the full catalog of climatic data sets, including global summaries and daily records.

03 — Identify weather stations globally

Locate specific monitoring stations worldwide and retrieve their full metadata details.

04 — Filter by location type

Browse pre-defined categories—like Country, State, or City—to scope down your data queries efficiently.

05 — Define data metrics and timeframes

List what kinds of data are available (e.g., Max Temperature, Snowfall) and how granular you need the results to be (hourly, monthly).

One Click on Vinkius — From Prompt to Execution

Available at **vinkius.com/mcp/ncdc-climate-data-online** — connect your AI agent in three steps.

01 Subscribe to this MCP on Vinkius and enter your NCDC API Token from NOAA.

02 Your agent sends a natural language request, specifying what data you want and where.

03 The MCP translates that request into the necessary calls to the NCDC API and returns the structured climate records.

The bottom line is you talk to your AI client like you're talking to a human researcher, and it handles all the complex data connection steps behind the scenes.

Built For

This MCP is essential for environmental scientists, climate modelers, and insurance analysts who rely on accurate, historical weather metrics. Stop spending hours manually cross-referencing NOAA documentation just to find a data point.

Climate Scientist

Using this MCP, you gather multi-decade temperature trends by querying specific datasets like GHCND across multiple global locations for model training.

Environmental Consultant

You pull historical precipitation and snowfall data to assess site risks or measure the impact of policy changes in a given region.

Data Analyst (Energy/Insurance)

You automate the gathering of weather loss metrics by querying station metadata and specific climate records for claims reporting.

What Changes When You Connect

01 Automate data discovery: Instead of reading manuals, you use list_datasets and list_data_categories to quickly scope the exact climate datasets (like GHCND) needed for your project.

02 Pinpoint stations anywhere: Use list_stations and get_station to find metadata for a specific monitoring point globally. You'll know exactly what data coverage area you're working with.

03 Structure complex queries: Need annual averages of Max Temperature? First, use list_data_types and then run get_climate_data, letting your agent handle the date range and metric selection automatically.

04 Understand location boundaries: Use list_location_categories and list_locations to define a query by city or county ID, eliminating guesswork when pulling regional data.

05 Handle temporal flexibility: The MCP lets you shift between hourly, daily, and monthly records using list_data_classes without rewriting your logic. You just change the time frame in your request.

Real-World Applications

Modeling extreme weather events

A climate scientist needs to model a flood risk from 20 years ago. They ask their agent to pull data for 'river gauge XYZ, State A' using list_stations and then use get_climate_data to retrieve precipitation records over the necessary time window.

Assessing agricultural crop yield

An agronomist needs to compare historical growing seasons. They first run list_location_categories to confirm 'County' is a valid filter, then use get_climate_data to pull temperature and precipitation records for several counties in sequence.

Analyzing insurance loss potential

An analyst must determine if a specific region was prone to deep freezes. They ask the agent to list_data_types for 'Minimum Temperature' and then use get_climate_data, specifying the location ID retrieved via list_locations.

Completing an academic paper

A student needs global summary data. They run list_datasets to find GHCND, then prompt for 'daily temperature averages in Southeast Asia' which uses get_climate_data after the agent handles all filtering.

Patterns to Avoid

Trying to search by vague terms

✗ AVOID

Asking your agent, 'Tell me about bad weather patterns.' This is too broad; it gives no structure and yields unhelpful general text.

✓ INSTEAD

Start specific. First, use list_data_categories to narrow the focus (like Temperature). Then, use list_stations or list_locations to define the geographical scope before running get_climate_data.

Mixing up location identifiers

✗ AVOID

Manually entering a mix of city names and state abbreviations into a query. The system rejects it because it needs structured IDs.

✓ INSTEAD

Always confirm your scope first. Run list_location_categories, then use list_locations to get the official ID you must provide when requesting data.

Forgetting temporal requirements

✗ AVOID

Asking for 'temperature in 2023' without specifying if you mean daily, monthly, or yearly averages. The agent doesn't know which tool to use.

✓ INSTEAD

Use list_data_classes first. This forces the system to acknowledge the required time granularity (e.g., Daily) before running get_climate_data.

The Right Fit

Use this MCP if your job involves querying structured, authoritative historical data points—specifically weather and climate metrics—from a known source like NOAA. You need to know *what* data is available (using list_datasets) before you can pull it. Don't use this if you are trying to analyze raw text reports or predict future outcomes; for that, you might need an advanced forecasting model connector. If your goal is simply finding the name of a station, running list_stations is enough. But if you need the actual measurement records—the numbers themselves—you must follow the discovery path: use list_data_categories to know *what* metric exists, then list_stations to know *where* it was measured, and finally get_climate_data to pull the result.

Sifting Through Climate Data is a Time Sink

Right now, pulling historical climate data means jumping through hoops. You're on NOAA's main site, you find the right API documentation, you manually check what datasets exist (GHCND? GSOD?), and then you write complex queries just to get a list of valid station IDs or location codes. It’s tedious copy-pasting across three different tabs.

With this MCP, your agent handles all that bureaucratic friction. You simply ask for the data—'Give me the average rainfall for Miami in 2015.' The system uses list_stations, checks dataset availability with get_dataset, and pulls the final record using get_climate_data. It’s immediate.

NCDC Climate Data Online Gives You Structured Records

You no longer have to manually check if a dataset is appropriate for your time frame or location type. The MCP automatically handles this validation by letting you list available data classes (hourly, daily, monthly) and confirming which location IDs are active.

The result is clean, structured data ready for analysis. You get the metrics, not a mountain of documentation. Period.

NCDC Climate Data Online: 10 Tools

These ten tools allow you to discover, locate, and retrieve specific historical weather and climate records from the National Climatic Data Center.

#	TOOL	DESCRIPTION
01	`get_climate_data`	Pulls actual historical climate measurements like temperature or precipitation totals.
02	`get_dataset`	Fetches detailed information about a specific climate dataset available from NCDC.
03	`get_station`	Retrieves complete metadata and coverage details for a single weather monitoring station.
04	`list_data_categories`	Lists all major types of data available, such as temperature and precipitation.
05	`list_data_classes`	Shows the time granularity options for data, like hourly or monthly summaries.
06	`list_data_types`	Lists specific metrics you can track, such as Max Temperature or Snowfall depth.
07	`list_datasets`	Retrieves a list of all available NCDC climate datasets (e.g., GHCND, GSOD).
08	`list_location_categories`	Shows the types of geographic boundaries you can query, like City or Country.
09	`list_locations`	Provides a list and ID for specific physical locations (e.g., New York City).
10	`list_stations`	Lists all active weather stations within a defined geographical area.

See It in Action

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

U List all weather stations in the city of Asheville, NC.

I've retrieved the weather stations for Asheville, NC. There are several active stations, including 'ASHEVILLE REGIONAL AIRPORT, NC US' (GHCND:USW00003812) and 'ASHEVILLE 13 S, NC US'. Would you like the detailed metadata for the airport station?

U Get daily temperature data for station GHCND:USW00003812 for January 2023.

Fetching climate records... For January 2023 at Asheville Regional Airport, the average maximum temperature was 52°F (11°C) and the minimum was 34°F (1°C). There were 15 days with recorded precipitation. Shall I provide the full daily breakdown?

U What climate datasets are available for global daily summaries?

Retrieving datasets... For daily summaries, the primary datasets are GHCND (Global Historical Climatology Network Daily) and GSOD (Global Summary of the Day). GHCND is generally recommended for its extensive station coverage. Would you like more info on GHCND?

Frequently Asked Questions

01 **How do I find out what kinds of data I can analyze with NCDC Climate Data Online MCP?**

You start by running list_data_categories to see the main groups, and then use list_data_types to get specific metrics like 'Snowfall' or 'Max Temperature'.

02 **Do I need a location ID before using NCDC Climate Data Online MCP?**

Yes. Use list_location_categories first, and then use list_locations to retrieve the exact required ID for your query.

03 **What is the best way to find nearby weather stations?**

First, you run list_stations to get a general list, or if you know an area, you can use list_locations and then ask your agent to pull all associated station details using get_station.

04 **Can I compare different climate datasets?**

Yes. You first run list_datasets to identify the specific dataset names (like GHCND) you need, and then use get_climate_data to pull comparable records from each one.

05 **How does NCDC Climate Data Online MCP handle date ranges?**

The agent manages the temporal flexibility. You specify the start and end dates in your query, and it handles fetching data across various time classes (hourly, daily, monthly).

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 `"ncdc-climate-data-online": { "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

NCDC Climate Data Online 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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