Kaiko

MIGRATION GUIDE

Implied vs Realized

Amberdata → Kaiko

2026

www.kaiko.com

1 At a glance

What this endpoint gives you: for the underlying of an option, one row per hour with the at-the-money implied volatility at the **7, 30, 60, 90 and 180-day** constant maturities, next to the index price, its hourly log return, and the **trailing 7 and 30-day realized volatility**. It shows how options price volatility against the volatility actually realized.

What changes for you

- You will call a new endpoint, `/analytics/volatility/implied-vs-realized`, using your Kaiko API key in the `X-Api-Key` header (§2).
- The underlying is split into two lowercase parameters: `currency=BTC` becomes `base_asset=btc` and `quote_asset=usd`. Exchange codes also change, for example `deribit` becomes `drbt` (§3, §6).
- `startDate` and `endDate` become `start_time` and `end_time`. The window, the 366-day default and the limit stay the same, but times now need a time zone, for example `2026-09-01T00:00:00Z` (§3).
- Volatilities are now returned as decimals, for example `0.3539` where Amberdata returned `35.39` (percent). To keep Amberdata's scale, simply multiply by 100.
- Field names now use snake_case, for example `atm30` becomes `atm_30` and `realizedVolatility7` becomes `realized_volatility_7`. `timestamp` becomes `value_time`, an ISO 8601 string (§5).
- The methodology stays the same, and history starts in October 2024 at the earliest (§6).

Coverage & distribution

Data type: Hourly series, one row per hour (on the hour), newest first

Implied leg: ATM implied volatility at the 7, 30, 60, 90 and 180-day constant maturities

Realized leg: Close-to-close on the hourly index, over the last 7 and 30 days, annualised by √8760

Exchanges: Deribit, OKX and Bybit options · 18 underlyings (§6)

Range: Up to 366 days per request · the last 366 days by default

Distribution: REST API

2 Endpoint & authentication

	Amberdata (today)	Kaiko (new)
Method	GET	GET
Base URL	`https://api.amberdata.com`	`https://api.kaiko.io`

Path	`/markets/derivatives/analytics`
	`/realized-volatility`
	`/implied-vs-realized`
		`/analytics/volatility`
		`/implied-vs-realized`

Auth	API key header `x-api-key`	API key header `X-Api-Key` (your Kaiko key)

Header names are not case-sensitive, so `x-api-key` and `X-Api-Key` refer to the same header: only the key itself changes. **Versioning:** Amberdata reported its version in `payload.metadata.api-version` (`2023-09-30`). Kaiko accepts an optional `api_version` query parameter (the default and current version is `2026-10-01`) and returns it in `meta.api_version`.

3 Request parameters

Amberdata param	Kaiko param	Change	Notes
`exchange` (required)	`exchange` (required)	RENAMED	Same name, now with Kaiko codes (§6): `deribit` → `drbt`, `bybit` → `bbit`. Lowercase only.
`currency` (required)	`base_asset` + `quote_asset` (both required)	RENAMED	`BTC` → `btc` + `usd`, `BTC_USDC` → `btc` + `usdc` (§6). Lowercase only.
`startDate` (optional)	`start_time` (optional)	RENAMED	Inclusive. ISO 8601 with a time zone.
`endDate` (optional)	`end_time` (optional)	RENAMED	Exclusive. ISO 8601 with a time zone.
`timeFormat` (optional)	None	REMOVED	Kaiko times are always ISO 8601 strings, the same as Amberdata's `timeFormat=iso`. You can simply remove it from your requests.
None	`sort` (optional)	NEW	`desc` (default, newest first, as Amberdata) or `asc`.
None	`api_version` (optional)	NEW	Lets you pin the response format. The default is `2026-10-01`.

Window and limits

- **Window:** `[start_time, end_time)`, the same as Amberdata: a one-day window returns 24 rows, from 00:00 to 23:00. Rows sit on the hour, so a start at 00:30 returns 01:00 first.
- **Defaults, the same as Amberdata:** without dates, you get the 366 days before now. With only `start_time`, the window runs until now. With only `end_time`, it covers the 366 days before it.
- **Limit:** Amberdata and Kaiko both allow up to 366 days per request, and a wider window returns a 400 error. The whole window comes in one response, without pagination.
- **Time format:** please use ISO 8601 with a time zone, for example `2026-09-01T00:00:00.000Z`. Amberdata also accepted a date alone or a time without zone, but Kaiko returns a 400 error for both.
- **History:** from October 2024 at the earliest, later for some underlyings (§6).

4 Response envelope & metadata

These are the fields around the data, in other words the wrapper your parser reads before reaching the numbers. This envelope is **identical on every Amberdata endpoint**.

Amberdata field	Kaiko field	Change	Notes
`status`	None	REMOVED	Please use the HTTP status code (200) instead.
`title`	None	REMOVED	There is no equivalent on success.
`description`	None	REMOVED	There is no equivalent on success.

Amberdata field	Kaiko field	Change	Notes
`payload.data`	`data`	RENAMED	Now at the top level. An **array** with one row per hour.
`payload.metadata`	`meta`	RENAMED	Now at the top level.
`api-version`	`api_version`	RENAMED	`2026-10-01` (Amberdata: `2023-09-30`).
None	`count`	NEW	The number of rows in `data` (hours).
None	`next_url`	NEW	Always `null`, since there is a single page.
None	`url`	NEW	Your request URL, including `api_version`.

On Amberdata, `api-version` sits inside `payload.metadata`. On Kaiko, `api_version`, `count`, `next_url` and `url` all sit inside `meta`.

Errors and empty results

- **Underlying not listed on the exchange:** Amberdata returned a 200 response with an empty `data` array. Kaiko returns a **404** error with the code `unknown_instrument` (for example "drbt does not serve doge-usd").
- **Uppercase or Amberdata codes:** Amberdata accepted any case. Kaiko returns a **400** error (for example `DRBT`, `BTC`, `deribit`).
- **Start equal to or after end:** Amberdata returned a 200 response with an empty `data` array. Kaiko returns a **400** error.
- **No data in the window:** both APIs return a 200 response with an empty `data` array.
- **Missing or invalid parameter:** both APIs return a 400 error. Kaiko errors are `application/problem+json` (RFC 9457) bodies that include `status`, `title`, a `detail` message naming the parameter, and the code `invalid_parameter`.

5 Response data fields

Amberdata field	Kaiko field	Type	Change
`timestamp`	`value_time`	string	RENAMED
`exchange`	None	string	REMOVED
`currency`	None	string	REMOVED
`atm7`	`atm_7`	number	RENAMED
`atm30`	`atm_30`	number	RENAMED
`atm60`	`atm_60`	number	RENAMED
`atm90`	`atm_90`	number	RENAMED
`atm180`	`atm_180`	number	RENAMED

Amberdata field	Kaiko field	Type	Change
`indexPrice`	`index_price`	number	RENAMED
`lnReturn`	`ln_return`	number	RENAMED
`realizedVolatility7`	`realized_volatility_7`	number	RENAMED
`realizedVolatility30`	`realized_volatility_30`	number	RENAMED

- **value_time** is the hour, as an ISO 8601 string (`"2026-09-01T02:00:00.000Z"`), whereas Amberdata returned a number of milliseconds by default.
- **exchange and currency** are no longer repeated in the rows: they are in your request and in `meta.url`.
- **atm_*** is `null` when no listed expiry reaches that maturity: the surface is never extrapolated (for example `atm_180` on an underlying without 180-day expiries).
- **ln_return** is `ln(index_price / previous index_price)`. It is `null` on the first hour of a series, on an hour without index and on the hour after it.
- **realized_volatility_7, _30** are the sample standard deviation of the last 168 or 720 hourly `ln_return`, annualised by √8760. They are `null` with fewer than two returns, and in the first 7 or 30 days of a series they use the returns available so far. These are hourly close-to-close values, not the daily Parkinson `realized_volatility_7d` of the Volatility Cones endpoint.

Units: implied and realized volatilities are annualised. Amberdata expressed them in percent (`35.39` = 35.39%), while Kaiko uses decimals (`0.3539` = 35.39%). `index_price` is in the quote asset, and `ln_return` has no unit.

6 Exchange & venue names

For this endpoint, the venue is an **options exchange**. Please map the exchange and the currency you send:

Amberdata exchange	Amberdata currency	Kaiko exchange	base_asset	quote_asset	History from
deribit	BTC	drbt	btc	usd	Oct 2024
deribit	ETH	drbt	eth	usd	Oct 2024
deribit	BTC_USDC	drbt	btc	usdc	Aug 2025
deribit	ETH_USDC	drbt	eth	usdc	Aug 2025
deribit	SOL_USDC	drbt	sol	usdc	Oct 2024
deribit	XRP_USDC	drbt	xrp	usdc	Oct 2024
deribit	AVAX_USDC	drbt	avax	usdc	Jan 2026
deribit	TRX_USDC	drbt	trx	usdc	Jan 2026
deribit	HYPE_USDC	drbt	hype	usdc	Jun 2026
okex	BTC	okex	btc	usd	Oct 2024
okex	ETH	okex	eth	usd	Oct 2024
bybit	BTC_USDT	bbit	btc	usdt	Jun 2025

Amberdata exchange	Amberdata currency	Kaiko exchange	base_asset	quote_asset	History from
bybit	ETH_USDT	bbit	eth	usdt	Jun 2025
bybit	SOL_USDT	bbit	sol	usdt	Jun 2025
bybit	XRP	bbit	xrp	usdt	Sep 2026
bybit	DOGE	bbit	doge	usdt	Sep 2026
bybit	MNT	bbit	mnt	usdt	Sep 2026
bybit	XAUT	bbit	xaut	usdt	Sep 2026

These are Kaiko's **options** exchange codes: Bybit is `bbit` here, not the spot code `bbsp`. On Amberdata, Bybit's XRP, DOGE, MNT and XAUT had no `_USDT` suffix, but on Kaiko their `quote_asset` is `usdt`, like the other Bybit underlyings. Amberdata's codes (for example `deribit`) return a 400 error.

Coverage as of today: these are the underlyings served today, and our teams are working to extend this coverage.

7 Will your values change?

Short answer

The calculation is the same: once volatilities are divided by 100, the values are directly comparable with Amberdata's. Only the precision of the realized volatility differs.

- **Same methodology:** the implied leg is the ATM volatility of the constant-maturity delta surface at the top of each hour. The realized leg is close-to-close on the hourly index: the sample standard deviation of the last 168 or 720 returns, annualised by √8760. Both sides also use the 30 days before `start_time`, so the first row of a window is complete.
- **Precision:** Amberdata returned the realized volatilities in single precision (for example `36.266265869140625`) with a rounded annualisation constant, whereas Kaiko returns double precision with the exact √8760. The difference only appears around the seventh significant digit. The other fields have the same precision on both sides.

8 Before / after example

Request

Amberdata

```
GET https://api.amberdata.com
    /markets/derivatives/analytics
    /realized-volatility
    /implied-vs-realized
    ?exchange=deribit
    &currency=BTC
    &startDate=2026-09-01T00:00:00
    &endDate=2026-09-01T03:00:00
x-api-key: <your-amberdata-key>
```

Kaiko

```
GET https://api.kaiko.io
    /analytics/volatility
    /implied-vs-realized
    ?exchange=drbt
    &base_asset=btc
    &quote_asset=usd
    &start_time=2026-09-01T00:00:00.000Z
    &end_time=2026-09-01T03:00:00.000Z
X-Api-Key: <your-kaiko-key>
```

Response (real responses, two most recent hours; values rounded, fields reordered)

Amberdata


```
{
  "status": 200,
  "title": "OK",
  "description": "Successful request",
  "payload": {
    "data": [ {
      "timestamp": 1788228000000,
      "exchange": "deribit",
      "currency": "BTC",
      "atm7": 35.72,
      "atm30": 35.39,
      "atm60": 36.21,
      "atm90": 38.03,
      "atm180": 39.99,
      "indexPrice": 78375.02,
      "lnReturn": -0.003245,
      "realizedVolatility7": 33.77,
      "realizedVolatility30": 36.27
    }, {
      "timestamp": 1788224400000,
      "exchange": "deribit",
      "currency": "BTC",
      "atm7": 35.91,
      "atm30": 35.41,
      "atm60": 36.21,
      "atm90": 38.06,
      "atm180": 40.01,
      "indexPrice": 78629.77,
      "lnReturn": 0.000847,
      "realizedVolatility7": 33.70,
      "realizedVolatility30": 36.25
    },
    … 1 more hour (00:00)
    ],
    "metadata": {
      "api-version": "2023-09-30"
    }
  }
}
```


Kaiko


```
{
  "data": [ {
    "value_time": "2026-09-01T02:00:00.000Z",
    "atm_7": 0.3572,
    "atm_30": 0.3539,
    "atm_60": 0.3621,
    "atm_90": 0.3803,
    "atm_180": 0.3999,
    "index_price": 78375.02,
    "ln_return": -0.003245,
    "realized_volatility_7": 0.3377,
    "realized_volatility_30": 0.3627
  }, {
    "value_time": "2026-09-01T01:00:00.000Z",
    "atm_7": 0.3591,
    "atm_30": 0.3541,
    "atm_60": 0.3621,
    "atm_90": 0.3806,
    "atm_180": 0.4001,
    "index_price": 78629.77,
    "ln_return": 0.000847,
    "realized_volatility_7": 0.3370,
    "realized_volatility_30": 0.3625
  },
  … 1 more hour (00:00)
  ],
  "meta": {
    "api_version": "2026-10-01",
    "count": 3,
    "next_url": null,
    "url": "https://api.kaiko.io/analytics/
volatility/implied-vs-realized?
exchange=drbt&base_asset=btc&quote_asset=usd&start
_time=2026-09-01T00:00:00.000Z&end_time=2026-09-01
T03:00:00.000Z&api_version=2026-10-01"
  }
}
```