Kaiko

MIGRATION GUIDE

Delta Surfaces Constant & Floating

Amberdata → Kaiko

2026

www.kaiko.com

1 At a glance

What this endpoint gives you: for crypto options on Deribit, OKX, Bybit, Bullish and Binance, this endpoint returns the **implied volatility at fixed option deltas** at each snapshot of the requested period, either for the constant maturities 1, 2, 3, 7, 14, 21, 30, 60, 90 and 180 days or for every listed expiry, together with the market references used (index price, forward price, open interest). The delta levels are the same 19 points as on Amberdata: absolute deltas from 0.05 to 0.45 on the call side and on the put side, the 0.50 delta, plus the at-the-money point. Amberdata's two endpoints, **Delta Surfaces Constant** and **Delta Surfaces Floating**, become one Kaiko endpoint, **Mark IV Delta Surfaces**, with a `maturity_type` parameter:

Amberdata endpoint	Kaiko request
`.../volatility/delta-surfaces/constant`	`/mark-iv-delta-surfaces?maturity_type=constant`
`.../volatility/delta-surfaces/floating`	`/mark-iv-delta-surfaces?maturity_type=floating`

What changes for you

- You will call a new endpoint, `/analytics/volatility/mark-iv-delta-surfaces`, using your Kaiko API key in the `X-Api-Key` header (§2).
- The maturity type is now chosen with `maturity_type`, which defaults to `constant`: if you used the floating endpoint, set `maturity_type=floating`, otherwise you will receive the constant maturities without any error (§3).
- The underlying is now expressed with two lowercase parameters: `currency=BTC` becomes `base_asset=btc` and `quote_asset=usd`. Exchange codes also change, for example `deribit` becomes `drbt` and `bybit` becomes `bbit` (§3, §6).
- `timeInterval` becomes `interval`, for example `hour` becomes `1h`. The `end_time` is now excluded, and a request covers at most 60 minutes at `1m`, 24 hours at `1h` and 366 days at `1d` (§3).
- The `daysToExpirationStart`, `daysToExpirationEnd` and `timeFormat` parameters are removed: you can filter the response on `days_to_expiry` instead (§3).
- Values are now returned as decimals, for example `0.4836` where Amberdata returned `48.36` (percent).
- Field names move to snake_case with the same delta convention, for example `deltaCall25` becomes `delta_call_25`, `deltaPut25` becomes `delta_put_25` and `delta50` becomes `delta_50`. The `atm` field keeps its name (§5).
- Kaiko now uses only the options quoted with both a bid and an ask implied volatility, and takes per-minute median index and forward prices: values change slightly (§7).

Coverage & distribution

Data type: Implied volatility at fixed call and put deltas, one row per snapshot and maturity

Constant: Fixed tenors of 1, 2, 3, 7, 14, 21, 30, 60, 90 and 180 days

Floating: Each listed expiry, including those expiring within the day

Model: Linear interpolation of the squared mark implied volatility in delta (in strike at the forward for `atm`), on the options quoted with a bid and an ask; across maturities for constant; never extrapolated

Snapshots: Every minute (`1m` , default), on each hour (`1h`) or at 00:00 UTC (`1d`)

Exchanges: Deribit, OKX, Bybit and Bullish options · 19 underlyings (§6)

History: From February 2021 at the earliest, later for some underlyings (§6)

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`
	`/volatility/delta-surfaces`
	`/constant or /floating`
		`/analytics/volatility`
		`/mark-iv-delta-surfaces`
		`+ maturity_type`

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

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

3 Request parameters

Both Amberdata endpoints take the same parameters.

Amberdata param	Kaiko param	Change	Notes
Path `/constant` or `/floating`	`maturity_type` (optional)	NEW	`constant` (default) or `floating` . Replaces the end of the Amberdata path.
`exchange` (required)	`exchange` (required)	RENAMED	Same name, 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	Included on both sides. ISO 8601 with a time zone.
`endDate` (optional)	`end_time` (optional)	RENAMED	**Excluded** at Kaiko. Amberdata also returned the snapshot stamped exactly at `endDate` .
`timeInterval` (optional)	`interval` (optional)	RENAMED	`minute` → `1m` (default on both), `hour` → `1h` , `day` → `1d` .

Amberdata param	Kaiko param	Change	Notes
`daysToExpirationStart` (optional)	None	REMOVED	Kept the maturities at or above this number of days. Filter the response on `days_to_expiry` instead.
`daysToExpirationEnd` (optional)	None	REMOVED	Upper bound of the same filter. Filter the response on `days_to_expiry` instead.
`timeFormat` (optional)	None	REMOVED	Kaiko times are always ISO 8601 strings, Amberdata's default format here.
None	`sort` (optional)	NEW	`desc` (default, newest first, as on Amberdata) or `asc`. Maturities ascending within a snapshot.
None	`api_version` (optional)	NEW	Pins the response format. Default `2026-10-01`.

Window, sampling and limits

- **Boundary:** the window is `[start_time, end_time)`, so the snapshot at `start_time` is included and the one at `end_time` is not. Amberdata included both: a request from 12:00 to 13:00 at `hour` returned the 12:00 and the 13:00 snapshots, while Kaiko returns the 12:00 snapshot only.
- **Sampling, as on Amberdata:** `1m` returns every minute, `1h` the snapshot on each hour (`hh:00`) and `1d` the one at 00:00 UTC.
- **Defaults:** if you include no dates, you receive the latest snapshot, as on Amberdata. With only `start_time`, the window runs until now. With only `end_time`, you receive the one `interval` before it. A `start_time` equal to `end_time` returns a 400 error.
- **Limits:** a request covers up to 60 minutes at `1m` (Amberdata: 1 day), 24 hours at `1h` (Amberdata: 90 days) and 366 days at `1d` (Amberdata: 3,660 days). A wider window returns a 400 error naming the cap, so you can simply split a longer history into several requests. The whole window comes in one response, without pagination.
- **Time format:** ISO 8601 with a time zone and at most millisecond precision, for example `2026-10-29T12:00:00.000Z`. Amberdata also accepted a time without a zone; Kaiko returns a 400 error in that case, and for a precision finer than the millisecond.

4 Response envelope & metadata

The fields around the data, 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	Use the HTTP status code (200).
`title`	None	REMOVED	No equivalent on success.
`description`	None	REMOVED	No equivalent on success.
`payload.data`	`data`	RENAMED	Top level. **Array**, one row per snapshot and maturity.
`payload.metadata`	`meta`	RENAMED	Top level.

Amberdata field	Kaiko field	Change	Notes
`api-version`	`api_version`	RENAMED	`2026-10-01` (Amberdata: `2023-09-30`).
None	`count`	NEW	Rows in `data`.
None	`next_url`	NEW	Always `null` (one page).
None	`url`	NEW	Your request URL, with `api_version`.

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

Errors and empty results

- **Underlying not served on the exchange:** Amberdata returned a 200 response with an empty `data` array, while Kaiko returns a **404** error with the code `unknown_instrument` (for example "drbt does not serve doge-usd").
- **Uppercase values or Amberdata codes:** Amberdata accepted any case, while Kaiko returns a **400** error (for example for `BTC`, `deribit`, `interval=hour` or `maturity_type=FLOATING`).
- **No snapshot in the window:** both APIs return a 200 response with an empty `data` array.
- **Missing key:** Kaiko returns a **401** error with the code `missing_api_key`.
- **Missing or invalid parameter:** both APIs return a 400 error. Kaiko errors are `application/problem+json` (RFC 9457) bodies with `status`, `title`, a `detail` message naming the parameter, and the code `invalid_parameter`.

5 Response data fields

Both maturity types return the same fields; only their meaning differs where noted. You get one row per snapshot and constant maturity (constant), or per snapshot and listed expiry (floating).

Amberdata field	Kaiko field	Type	Change
`timestamp`	`value_time`	string	RENAMED
`exchange`	None	string	REMOVED
`currency`	None	string	REMOVED
`expirationTimestamp` (floating only)	`expiry`	string or null	RENAMED
`daysToExpiration`	`days_to_expiry`	number	RENAMED
`indexPrice`	`index_price`	number or null	RENAMED
`underlyingPrice`	`underlying_price`	number or null	RENAMED
`openInterest`	`open_interest`	number or null	RENAMED
`multiplier`	`multiplier`	number or null	IDENTICAL
`atm`	`atm`	number or null	IDENTICAL

Amberdata field	Kaiko field	Type	Change
`deltaCall05` … `deltaCall45` (9 fields)	`delta_call_05` … `delta_call_45`	number or null	RENAMED
`delta50`	`delta_50`	number or null	RENAMED
`deltaPut05` … `deltaPut45` (9 fields)	`delta_put_05` … `delta_put_45`	number or null	RENAMED

- **value_time:** the snapshot time, in ISO 8601 (`"2026-10-29T12:00:00.000Z"`), the same format as Amberdata's default here. The surface uses the market data of the minute before it, `[t - 1 min, t)` , while Amberdata used the minute starting at its `timestamp` , `[t, t + 1 min)` .
- **exchange, currency:** these are no longer repeated in the rows. They are in your request and in `meta.url` , together with `maturity_type` . If you store or merge rows from several requests, you can add them yourself (`maturity_type` also tells you what `open_interest` covers).
- **expiry:** the listed expiry on floating rows (ISO 8601, `"2026-10-30T08:00:00.000Z"`). On constant rows it is `null` , because a tenor is not a listed expiry, and Amberdata did not return the field there.
- **days_to_expiry:** the tenor on constant rows (`1` to `180`), and the fractional days from `value_time` to `expiry` on floating rows (for example `0.8333`), below 1 for an expiry within the day.
- **index_price:** the index (spot) price in `quote_asset` , now the median of the index prices reported across the options within the minute.
- **underlying_price:** the forward price in `quote_asset` . On floating rows, it is the forward of the expiry, now the median of the underlying prices reported across its options within the minute. On constant rows, it is interpolated linearly in time to maturity between the forwards of the two surrounding listed expiries (Amberdata interpolated the squared forward).
- **open_interest:** in contracts. On constant rows, it is the total over every listed expiry, the same on every tenor of a snapshot. On floating rows, it is the open interest of the listed expiry, summed over its options. It is `null` when not reported (a zero is reported as `null` too).
- **delta_call_XX, delta_put_XX, delta_50:** these keep Amberdata's convention, an absolute delta with the side in the name, where XX = 100 × |delta|. For example, `delta_call_25` is the call with delta 0.25, `delta_put_25` the put with delta -0.25 (Amberdata's `deltaPut25`), and `delta_50` the 0.50 delta where the call and put sides meet. `atm` is interpolated in strike at the forward. A level or tenor outside the options quoted with both a bid and an ask is `null` , since nothing is extrapolated.

Units: volatilities are annualized. Amberdata used percent (`48.36` = 48.36%), while Kaiko uses decimals (`0.4836` = 48.36%): divide Amberdata's values by 100, or multiply Kaiko's by 100. `index_price` , `underlying_price` , `open_interest` and `multiplier` keep their units.

6 Exchange & venue names

For this endpoint the venue is an **options exchange**. Map the exchange and the currency you send as follows (the same for constant and floating):

Amberdata exchange	Amberdata currency	Kaiko exchange	base_asset	quote_asset	History from
deribit	BTC	drbt	btc	usd	Feb 2021
deribit	ETH	drbt	eth	usd	Feb 2021
deribit	BTC_USDC	drbt	btc	usdc	Aug 2025
deribit	ETH_USDC	drbt	eth	usdc	Aug 2025

Amberdata exchange	Amberdata currency	Kaiko exchange	base_asset	quote_asset	History from
deribit	SOL_USDC	drbt	sol	usdc	Feb 2024
deribit	XRP_USDC	drbt	xrp	usdc	Mar 2024
deribit	AVAX_USDC	drbt	avax	usdc	Aug 2025
deribit	TRX_USDC	drbt	trx	usdc	Aug 2025
deribit	HYPE_USDC	drbt	hype	usdc	Jun 2026
okex	BTC	okex	btc	usd	Apr 2024
okex	ETH	okex	eth	usd	Apr 2024
bybit	BTC_USDT	bbit	btc	usdt	Feb 2025
bybit	ETH_USDT	bbit	eth	usdt	Feb 2025
bybit	SOL_USDT	bbit	sol	usdt	Feb 2025
bybit	XRP	bbit	xrp	usdt	Mar 2026
bybit	DOGE	bbit	doge	usdt	Mar 2026
bybit	MNT	bbit	mnt	usdt	Mar 2026
bybit	XAUT	bbit	xaut	usdt	Jun 2026
bullish	BTC_USDC	bull	btc	usdc	May 2026

These are Kaiko's **options** exchange codes: Bybit is `bbit` here, not the spot code `bbsp`. Amberdata's codes (for example `deribit`) return a 400 error. History: the start dates apply to both maturity types. The longest constant tenors are `null` when the options only list shorter expiries, since the surface is not extrapolated.

Binance: Kaiko also serves Binance options. Amberdata's `binance` with `BTC_USDT`, `ETH_USDT`, `SOL_USDT`, `BNB_USDT`, `XRP_USDT` or `DOGE_USDT` becomes `bopt`, with the matching `base_asset` and `quote_asset` `usdt`. History starts in January 2023 for btc, eth and bnb, May 2023 for xrp, August 2023 for doge and November 2024 for sol. Only btc and eth are priced on every constant tenor up to 180 days: on sol, bnb and xrp the tenors of 30 days and more are `null` on most snapshots.

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

Yes, slightly. The interpolation scheme is Amberdata's, but Kaiko only uses the options quoted with both a bid and an ask implied volatility, `delta_50` is a single interpolation between the closest out-of-the-money call and put, the index and forward prices are per-minute medians, and volatilities are decimals instead of percent.

- **Option filter (new):** before any interpolation, Kaiko keeps only the options that have both a bid and an ask implied volatility. An option with a missing or zero bid or ask is set aside, even if the exchange reports a mark implied volatility for it, whereas Amberdata interpolated the mark implied volatilities of all listed options. This is the same filter as in Kaiko's other mark implied volatility products (moneyness surfaces, SVI parameters). As a

result, the deep wings can be `null` more often: a target delta beyond the last option quoted on both sides is not interpolated.

- **Same interpolation:** for each listed expiry, the squared mark implied volatility is interpolated linearly in delta between the two options around the target delta, then the square root is taken. `atm` is the squared mark implied volatility interpolated linearly in strike, at the forward. Nothing is extrapolated: a target outside the range of the options is `null`.
- **Constant maturities:** the per-expiry values are interpolated linearly in variance across the surrounding listed expiries, in calendar days. The forward of a constant maturity is interpolated linearly in time to maturity between the forwards of the two surrounding listed expiries, whereas Amberdata interpolated the squared forward. A tenor below the closest or above the farthest listed expiry is `null`. Floating rows are the listed expiries themselves, with no interpolation across maturities.
- **The 0.50 delta:** each put delta is mapped to a call delta (put delta + 1), which puts calls and puts on one axis, and only out-of-the-money options are used. `delta_50` is therefore interpolated directly at 0.50 between the closest out-of-the-money call and put, whereas Amberdata averaged its call and put values at 0.50.
- **Exchange deltas:** deltas are the Black-Scholes deltas provided by the exchange. OKX publishes a premium-adjusted delta, so Kaiko adds back the option mark price to get the Black-Scholes delta.
- **Index and forward prices:** within a minute, the exchange reports slightly different index and underlying (future) prices from one option to another. Kaiko takes their median within the minute, across all options for the index and per expiry for the forward. `atm` is evaluated at that median forward.
- **Units:** volatilities are decimals instead of percent, so `48.36` becomes `0.4836`.

8 Before / after examples

Constant: request

Amberdata

```
GET https://api.amberdata.com
    /markets/derivatives/analytics
    /volatility/delta-surfaces
    /constant
    ?exchange=deribit
    &currency=BTC
    &startDate=2026-10-29T12:00:00
    &endDate=2026-10-29T13:00:00
    &timeInterval=hour
x-api-key: <your-amberdata-key>
```

Kaiko

```
GET https://api.kaiko.io
    /analytics/volatility
    /mark-iv-delta-surfaces
    ?exchange=drbt
    &base_asset=btc
    &quote_asset=usd
    &start_time=2026-10-29T12:00:00.000Z
    &end_time=2026-10-29T13:00:00.000Z
    &interval=1h
    &api_version=2026-10-01
X-Api-Key: <your-kaiko-key>
```

No `maturity_type` here: `constant` is the default. You receive one row per snapshot and constant maturity. Amberdata returned the 12:00 and 13:00 snapshots (`endDate` included), while Kaiko returns the 12:00 snapshot only (`end_time` excluded).

Constant: response (real responses, 12:00 snapshot, 1-day tenor; values rounded, fields reordered)

Amberdata


```
{
  "status": 200,
  "title": "OK",
  "description": "Successful request",
  "payload": {
    "data": [
    … 10 rows stamped 13:00
      (endDate is included), then
    {
      "timestamp": "2026-10-29T12:00:00.000Z",
      "exchange": "deribit",
      "currency": "BTC",
      "daysToExpiration": 1,
      "indexPrice": 80062.92,
      "underlyingPrice": 80081.84,
      "openInterest": 398529.2,
      "multiplier": 1,
      "atm": 30.99,
      "deltaCall05": 32.77,
      "deltaCall10": 30.47,
      "deltaCall15": 29.72,
      "deltaCall20": 29.36,
      "deltaCall25": 29.42,
      "deltaCall30": 29.61,
      "deltaCall35": 29.82,
      "deltaCall40": 30.16,
      "deltaCall45": 30.56,
      "delta50": 30.97,
      "deltaPut45": 31.57,
      "deltaPut40": 32.45,
      "deltaPut35": 33.30,
      "deltaPut30": 34.30,
      "deltaPut25": 35.46,
      "deltaPut20": 36.94,
      "deltaPut15": 39.01,
      "deltaPut10": 41.89,
      "deltaPut05": 47.53
    },
    … 9 more tenors, 2 to 180 days
    ],
    "metadata": {
      "api-version": "2023-09-30"
    }
  }
}
```


Kaiko


```
{
  "data": [ {
    "value_time": "2026-10-29T12:00:00.000Z",
    "expiry": null,
    "days_to_expiry": 1,
    "index_price": 80062.64,
    "underlying_price": 80081.62,
    "open_interest": 398530.2,
    "multiplier": 1,
    "atm": 0.3099,
    "delta_call_05": 0.3277,
    "delta_call_10": 0.3046,
    "delta_call_15": 0.2972,
    "delta_call_20": 0.2936,
    "delta_call_25": 0.2942,
    "delta_call_30": 0.2961,
    "delta_call_35": 0.2981,
    "delta_call_40": 0.3015,
    "delta_call_45": 0.3056,
    "delta_50": 0.3097,
    "delta_put_45": 0.3157,
    "delta_put_40": 0.3245,
    "delta_put_35": 0.3330,
    "delta_put_30": 0.3430,
    "delta_put_25": 0.3546,
    "delta_put_20": 0.3694,
    "delta_put_15": 0.3901,
    "delta_put_10": 0.4189,
    "delta_put_05": 0.4753
  },
  … 9 more tenors, 2 to 180 days
  ],
  "meta": {
    "api_version": "2026-10-01",
    "count": 10,
    "next_url": null,
    "url": "https://api.kaiko.io/analytics/
volatility/mark-iv-delta-surfaces?
exchange=drbt&base_asset=btc&quote_asset=usd&start
_time=2026-10-29T12:00:00.000Z&end_time=2026-10-29
T13:00:00.000Z&interval=1h&api_version=2026-10-01"
  }
}
```

Floating: request

Amberdata

```
GET https://api.amberdata.com
    /markets/derivatives/analytics
    /volatility/delta-surfaces
    /floating
    ?exchange=deribit
    &currency=BTC
    &startDate=2026-10-29T12:00:00
    &endDate=2026-10-29T13:00:00
    &timeInterval=hour
x-api-key: <your-amberdata-key>
```

Kaiko

```
GET https://api.kaiko.io
    /analytics/volatility
    /mark-iv-delta-surfaces
    ?exchange=drbt
    &base_asset=btc
    &quote_asset=usd
    &maturity_type=floating
    &start_time=2026-10-29T12:00:00.000Z
    &end_time=2026-10-29T13:00:00.000Z
    &interval=1h
    &api_version=2026-10-01
X-Api-Key: <your-kaiko-key>
```

Floating: response (real responses, 12:00 snapshot, nearest expiry 30 October 2026 08:00 UTC; values rounded, fields reordered)

Amberdata


```
{
  "status": 200,
  "title": "OK",
  "description": "Successful request",
  "payload": {
    "data": [
    … 13 rows stamped 13:00
      (endDate is included), then
    {
      "timestamp": "2026-10-29T12:00:00.000Z",
      "exchange": "deribit",
      "currency": "BTC",
      "expirationTimestamp":
        "2026-10-30T08:00:00.000Z",
      "daysToExpiration": 0.8333,
      "indexPrice": 80062.92,
      "underlyingPrice": 80080.36,
      "openInterest": 135747.4,
      "multiplier": 1,
      "atm": 31.33,
      "deltaCall05": 33.40,
      "deltaCall10": 30.92,
      "deltaCall15": 30.13,
      "deltaCall20": 29.74,
      "deltaCall25": 29.79,
      "deltaCall30": 29.98,
      "deltaCall35": 30.17,
      "deltaCall40": 30.52,
      "deltaCall45": 30.92,
      "delta50": 31.31,
      "deltaPut45": 31.93,
      "deltaPut40": 32.87,
      "deltaPut35": 33.79,
      "deltaPut30": 34.87,
      "deltaPut25": 36.11,
      "deltaPut20": 37.68,
      "deltaPut15": 39.82,
      "deltaPut10": 42.85,
      "deltaPut05": 48.64
    },
    … 12 more expiries, to 2027-09-24
    ],
    "metadata": {
      "api-version": "2023-09-30"
    }
  }
}
```


Kaiko


```
{
  "data": [ {
    "value_time": "2026-10-29T12:00:00.000Z",
    "expiry": "2026-10-30T08:00:00.000Z",
    "days_to_expiry": 0.8333,
    "index_price": 80062.64,
    "underlying_price": 80080.12,
    "open_interest": 135747.4,
    "multiplier": 1,
    "atm": 0.3133,
    "delta_call_05": 0.3339,
    "delta_call_10": 0.3091,
    "delta_call_15": 0.3013,
    "delta_call_20": 0.2973,
    "delta_call_25": 0.2978,
    "delta_call_30": 0.2997,
    "delta_call_35": 0.3016,
    "delta_call_40": 0.3051,
    "delta_call_45": 0.3091,
    "delta_50": 0.3131,
    "delta_put_45": 0.3193,
    "delta_put_40": 0.3287,
    "delta_put_35": 0.3379,
    "delta_put_30": 0.3487,
    "delta_put_25": 0.3611,
    "delta_put_20": 0.3768,
    "delta_put_15": 0.3982,
    "delta_put_10": 0.4285,
    "delta_put_05": 0.4864
  },
  … 12 more expiries, to 2027-09-24
  ],
  "meta": {
    "api_version": "2026-10-01",
    "count": 13,
    "next_url": null,
    "url": "https://api.kaiko.io/analytics/
volatility/mark-iv-delta-surfaces?
exchange=drbt&base_asset=btc&quote_asset=usd&matur
ity_type=floating&start_time=2026-10-29T12:00:00.0
00Z&end_time=2026-10-29T13:00:00.000Z&interval=1h&
api_version=2026-10-01"
  }
}
```