

# Weather Futures and Options

## MANAGE RISK ASSOCIATED WITH FLUCTUATING GLOBAL TEMPERATURES

### Overview

It is estimated that nearly 30% of the U.S. economy is directly affected by the weather. In order to enable businesses to hedge the risk they face from atypical weather conditions – particularly as the onset of climate change precipitates extreme weather events – CME Group offers Weather futures and options. These products are financial tools that provide a means of transferring risk associated with adverse weather events. They are index-based products geared to average seasonal and monthly weather in 18 cities around the world – 13 in the U.S., four in Europe, and one in Asia.

### Key features

Access to unique tools for managing exposure to weather  
Stabilized cash flow for hedges participating in these markets  
Centralized clearing and counterparty credit guaranteed by CME Clearing  
Transparent prices on all Weather futures and options

### Market participants

Participants in these markets include companies in a wide range of industries, including:

- Insurance and reinsurance companies
- Hedge funds
- Energy companies
- Food/agriculture industry
- Pension funds
- State governments
- Retailers
- Utility companies

### NORTH AMERICA

- Atlanta
- Boston
- Burbank
- Chicago
- Cincinnati
- Dallas
- Houston
- Las Vegas
- Minneapolis
- New York
- Philadelphia
- Portland
- Sacramento

### EUROPE

- Amsterdam
- Essen
- London
- Paris

### ASIA

- Tokyo



### LATEST WHITEPAPER

Managing Climate Risk with CME Group  
Weather Futures and Options



## How weather is traded at CME Group

Weather products quantify weather in terms of how much the temperature deviates from the monthly or seasonal average in a particular city, allowing market participants to trade the weather much like any other commodity index. The value of a Weather futures or options is determined by the value of the underlying weather index, measured in Heating Degree Days (HDD) or Cooling Degree Days (CDD) – the total number of degrees that the average outside air temperature falls or rises below or above the base temperature of 65°F (18°C for non-U.S. cities). The European summer cooling month contracts and all Tokyo contracts are based on a Cumulative Average Temperature (CAT). Each monthly CAT index is simply the accumulation of daily average temperatures recorded in degrees Celsius over a calendar month.

For example, if the average of a day's maximum and minimum temperature on a midnight-to-midnight basis is 55° F, that day's HDD is 10 and the CDD is zero. The original futures are based on the cumulative value of HDDs or CDDs during the term of the contract. Assume we are evaluating a monthly contract in which the month had 31 days and each day was like our example, with an average daily temperature of 55°F. Accordingly, the cumulative monthly HDD would equal 310 (10 HDDs x 31 days). Value at settlement for Weather contracts is determined by multiplying the cumulative HDD or CDD by the contract's tick size of \$20. The final value of our example Weather futures contract would equal \$6,200 (310 index points multiplied by \$20).

Using Tokyo to illustrate to CAT index pricing, assume that the month had 30 days and the average daily temperature for each of the first 15 days was 10°C and the average daily temperature for each of the remaining 15 days was 20°C. Accordingly, the CAT would equal 450 (= (15 days x 10) + (15 days x 20)). The futures contract value would be identified by multiplying that figure by ¥2,500 (Japanese Yen). In this example, the cash value of the contract would be ¥1,125,000 (= ¥2,500 x 450).

### CUMULATIVE AVERAGE TEMPERATURE (CAT) FUTURES AND OPTIONS

EUROPE	CITY CODE	MAY-SEP STRIP	JUL-AUG STRIP
Essen	G4	G4K	G4N
London	G0	G0K	G0N
Amsterdam	G2	G2K	G2N
Paris	G1	G1K	G1N

  

PACIFIC RIM		NOV-MAR STRIP	DEC-FEB STRIP
Tokyo	G6	G6X	G6Z
		MAY-SEP STRIP	JUL-AUG STRIP
		G6K	G6N

### HEATING (HDD) FUTURES AND OPTIONS

U.S.	CITY CODE	NOV-MAR STRIP	DEC-FEB STRIP
Atlanta	H1	H1X	H1Z
Boston	HW	HWX	HWZ
Burbank	LP	LPX	LPZ
Chicago	H2	H2X	H2Z
Cincinnati	H3	H3X	H3Z
Houston	HR	HRX	HRZ
New York	H4	H4X	H4Z
Dallas	H5	H5X	H5Z
Las Vegas	H0	H0X	H0Z
Minneapolis	HQ	HQX	HQZ
Sacramento	HS	HSX	HSZ
Philadelphia	H6	H6X	H6Z
Portland	H7	H7X	H7Z

  

EUROPE			
Essen	D4	D4X	D4Z
London	D0	D0X	D0Z
Amsterdam	D2	D2X	D2Z
Paris	D1	D1X	D1Z

### COOLING (CDD) FUTURES AND OPTIONS

U.S.	CITY CODE	MAY-SEP STRIP	JUL-AUG STRIP
Atlanta	K1	K1K	K1N
Boston	KW	KWK	KWN
Burbank	KP	KPK	KPN
Chicago	K2	K2K	K2N
Cincinnati	K3	K3K	K3N
Houston	KR	KRK	KRN
New York	K4	K4K	K4N
Dallas	K5	K5K	K5N
Las Vegas	K0	K0K	K0N
Minneapolis	KQ	KQK	KQN
Sacramento	KS	KSK	KSN
Philadelphia	K6	K6K	K6N
Portland	K7	K7K	K7N



For more information on Weather futures and options, visit [cmegroup.com/weather](https://cmegroup.com/weather)

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