



Spring Natural Gas Trading Strategy **Using 12z GFS & JS MC Value**

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As the energy markets transition out of winter, the spring season is traditionally viewed as less volatile from a weather forecast standpoint. However, analysis shows that the 12Z GFS forecasts during March and April are as volatile as the same forecast models during the summer. The volatility seen in these months provide a good basis for defining Weather Insight Trading Indicators (WITIs) for natural gas.

This study examines whether the prompt month NG contract price will strengthen when prompt month natural gas is trading with a BULLISH technical consensus and during those same times the 16-day government weather forecast (12Z GFS) supports the same BULLISH direction. Similarly, the study examines whether the prompt month NG price will weaken when natural gas is trading with a BEARISH technical consensus and a BEARISH government forecast model is released.

The following matrix includes a quick summary of the criteria behind the study:

WITI Criteria	
Commodity	Prompt month Natural Gas (NG)
Time Period	March and April
Research Period	5 years: 2004 thru 2008
Weather forecasts	12z GFS only
Additional Variables	JS Services MC Value

Study Details

Preliminary research found that Chicago-O’Hare AP (KORD) was the single city with the strongest relationship to prompt month natural gas during the two months included in this study. The analysis investigated 12-hour changes in the government-generated Global Forecast System (GFS) models for forecasted daily average temperature. Specifically, the study used the 12Z GFS model released at 10:30 AM CDT/9:30 AM CST versus the 0z GFS model released 12-hours prior.

Analysis tools used were Weather Insight’s historical weather forecast database and Logical Information Machines’ XMIM software application.

Forecast Criteria details for the 12z GFS

For Forecast Days 7 through 14, the 12z GFS had to meet or exceed the following minimum criteria (see explanation of MCV in the JS Services paragraph below):

Bullish (MCV > -2)	March	April
12-hr change (°F)	-5	-5
30-yr dept. from average (°F)	-7	-8
Bearish (MCV < 1)		
12-hr change (°F)	4	3
30-yr dept. from average (°F)	7	3

The study examined the minimum 12z GFS Forecast Criteria versus the prompt month natural gas prices listed on NYMEX. This report focused on market price responses in exact 5, 10, 15, 30 and 60 minutes after the specific forecast day of the 12z GFS forecast was released into the public domain.

Parameters examined:

- Percent of time that the criteria were met and a positive move in market prices occurred. The criterion for additional study was a 65% occurrence rate.
- P/N ratio: the ratio of the average positive move to the average negative move. The P/N ratio had to be greater than 2 to be considered “actionable”.

Criteria Details for JS Services’ MC Value

JS Services is a leading provider in technical trading information for both the bond and commodity markets over the last 15 years. Recently JS Services have adopted their proprietary systems for certain energy contracts. One of these proprietary indicators is the MC Value, which is updated daily. The MC Value (MCV) is a proprietary algorithm that defines any market’s technical consensus. Specifically, the MCV indicator is a number between -11 and +11 and defines varying degrees of technical direction (i.e. bullish or bearish), with -3 to +3 representing a neutral zone (see image below).

MC Value Table

-11 -10	-9 -8 -7 -6 -5 -4	-3 -2 -1 0 +1 +2 +3	+4 +5 +6 +7 +8 +9	+10 +11
Extreme	BEAR TREND	NEUTRAL	BULL TREND	Extreme

Results

BULLISH Strategy

The WITI analysis focused on those times when the MC Value showed a neutral to BULLISH reading, i.e. values of -1 and greater **and** the 12z GFS met the minimum Forecast Criteria for a BULLISH weather movement.

Chicago (KORD)		March		12-hr change: -5°F		30-yr dept: -7°F	
Time frame	Occurrences	% positive	P/N ratio	Avg pos move	Avg neg move	Max pos move	Max neg move
Forecast Day 10							
15-min	4	75	1.8	1.8 c	-1.0 c	3.5 c	-1.0 c
30-min	4	100	-	5.1 c	-	8.3 c	-
60-min	4	75	9.2	4.6 c	-0.5 c	6.8 c	-0.5 c
Forecast Day 11							
10-min	7	72	1.8	4.0 c	-1.5 c	6.0 c	-2.7 c
Forecast Day 12							
10-min	8	88	-	2.1 c	-	8.8 c	-
Forecast Day 13							
30-min	8	75	4.5	5.9 c	-1.3 c	9.1 c	-2.5 c

Chicago (KORD)		April		12-hr change: -5°F		30-yr dept: -8°F	
Time frame	Occurrences	% positive	P/N ratio	Avg pos move	Avg neg move	Max pos move	Max neg move
Forecast Day 13							
30-min	12	72	2.4	6.3 c	-2.7 c	10.9 c	-4.2 c
Forecast Day 14							
10-min	9	72	2.7	3.1 c	-1.2 c	5.7 c	-1.5 c
15-min	9	72	3.0	3.7 c	-1.3 c	7.6 c	-2.0 c

BEARISH Strategy

The WITI analysis focused on those times when the MC Value showed a neutral to BEARISH reading, i.e. values of 0 and lower **and** the 12z GFS met the minimum Forecast Criteria for a BEARISH weather movement.

Chicago (KORD)		March		12-hr change: 4°F		30-yr dept: 7°F	
Time frame	Occurrences	% negative	N/P ratio	Avg pos move	Avg neg move	Max pos move	Max neg move
Forecast Day 11							
10-min	5	80	4	1.0 c	-4.0 c	1.0 c	-8.0 c
15-min	5	80	3.4	1.0 c	-3.4 c	1.0 c	-9.0 c
30-min	5	100	-	-	-3.9 c	-	-13.5 c
60-min	5	80	7.5	1.0 c	-7.5 c	1.0 c	-21.0 c
Forecast Day 12							
30-min	9	67	9.6	0.5 c	-4.8 c	0.5 c	-14.0 c
60-min	9	77	3.2	1.8 c	-5.6 c	3.0 c	-20.0 c
Forecast Day 13							
5-min	8	75	3.0	0.7 c	-2.0 c	1.0 c	-4.0 c

Chicago (KORD)		April		12-hr change: 3°F		30-yr dept: 3°F	
Time frame	Occurrences	% negative	N/P ratio	Avg pos move	Avg neg move	Max pos move	Max neg move
Forecast Day 12							
30-min	5	80	4.9	1.6 c	-7.8 c	1.6 c	-10.0 c
Forecast Day 13							
30-min	10	90	5.8	0.9 c	-5.2 c	0.9 c	-12.0 c
Forecast Day 14							
10-min	10	90	1.8	2.5 c	-4.6 c	2.5 c	-12.0 c

Conclusions:

The analysis of Chicago historical weather forecast data showed that there are several optimal opportunities for actionable trades based on changes in the 12Z GFS forecast model.

Historically, there have been a total of 27 BULLISH and 22 BEARISH signals over the 110 March trading days examined in this study. This equates to WITIs occurring 45% of the time, once every 2-3 days.

Historically, there have been a total of 21 BULLISH and 25 BEARISH signals over the 103 April trading days examined in this study. Again, this equates to WITIs occurring 45% of the time, once every 2-3 days.

The following tables summarize the highest performing bullish and bearish WITI strategies.

BULLISH		Chicago (KORD)		12-hr change: -5°F 30-yr dept: -7°F		With JS data MCV > -1	
Time frame	Occurrences	% positive	P/N ratio	Avg pos move	Avg neg move	Max pos move	Max neg move
Forecast Day 10 (March)							
30-min	4	100	-	5.1 c	-	8.3 c	-
Forecast Day 12 (March)							
10-min	8	88	-	2.1 c	-	8.8 c	-

BEARISH		Chicago (KORD)		12-hr change: 4°F 30-yr dept: 7°F		With JS data MCV < 1	
Time frame	Occurrences	% negative	N/P ratio	Avg pos move	Avg neg move	Max pos move	Max neg move
Forecast Day 11 (March)							
30-min	5	100	-	-	-3.9 c	-	-13.5 c
Forecast Day 13 (April)							
30-min	10	90	5.8	0.9 c	-5.2 c	0.9 c	-12.0 c
Forecast Day 14 (April)							
10-min	10	90	1.8	2.5 c	-4.6 c	2.5 c	-12.0 c

Based on these positive findings, we have implemented automated alerts using BULLISH and BEARISH signals on the Trader Dashboard of our Premium First Insight suite.

For more information about Weather Insight and its suite of First Insight services, as well as its Premium Tropical Weather Service and other leading edge trading services, please see our web site at <http://www.weatherinsight.com> or call 713-361-4950.