

Rockies 2017 - Week #14

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Figure 1: So, what is the significance of this picture of the Colorado Rockies? Hint, do you like pi?

“You can observe a lot by just watching.” – Yogi Berra

Table 1: NL West Standings

Tm	W	L	W-L%	GB
Los Angeles Dodgers	61	29	.678	–
Arizona Diamondbacks	53	36	.596	7.5
Colorado Rockies	52	39	.571	9.5
San Diego Padres	38	50	.432	22.0
San Francisco Giants	34	56	.378	27.0

Table 2: Current Rockies Results as of 2017-07-10

Wins	Losses	Win.Pct	Runs	Runs.Ag	Predicted Season Wins
52	39	57.143	461	419	89



Week #14

So, we are over half way through the season at ninety-one games. The Rockies have won fifty-two games. Will they finish with over ninety wins? The stats indicate they have a good chance of finishing around ninety wins. Common wisdom is that a team must win at least ninety games to have a chance in the playoffs.

For this week's featured article, I pose the question, "Are **Team Payroll** and **Team Combined WAR** values correlated?" In other words, if a team gets an extra \$10 million for payroll, what, if any, improvement can the team expect in its Team Combined WAR rating?

Here is a synopsis of what is included in this week's newsletter.

- **Featured Article**
 - Are Team Payroll and Team Combined WAR values correlated?
- Colorado Rockies Dashboard
 - Rockies Win/Loss Graphs for 2017 and 2007
 - National and American League Standings
 - Game-by-Game Results
 - **Pythagorean Theorem** prediction of the number of wins.
 - Batting Statistics (for non-pitchers)
 - Pitching Statistics
 - National League Team Standard Batting **New**
 - Current Injuries **Updated**
- Topics for Future Articles
- Glossary
 - Batting Statistics
 - Pitching Statistics
 - Fielding Statistics

Most of the source data for this article can be found at URL <http://baseball-reference.com>.

Let me know what other special interest statistics you might like to see. Remember to refer to the Glossaries at the end of the document if unfamiliar with one or more of the statistic abbreviations in the tables.

Featured Article

Are Team Payroll and Team Combined WAR values correlated?

This week we will focus on the question of whether team payroll and combined team WAR rating are correlated.

Table 3: FANGRAPHS Leaderboard Team Combined WAR Rankings

Rk	Team	C	1B	2B	SS	3B	LF	CF	RF	DH	SP	RP	Bat	Pit	WAR
1	Dodgers	1.7	0.6	1.0	2.2	2.1	0.9	1.2	1.4	0.3	9.4	2.8	11.5	12.2	23.7
2	Indians	0.9	1.3	1.2	2.2	2.0	1.0	1.1	0.9	1.2	8.5	2.9	11.8	11.4	23.2
3	Astros	1.4	0.7	2.2	2.5	1.2	0.5	1.6	1.5	0.2	7.0	2.4	11.9	9.4	21.3
4	Red Sox	0.8	0.5	1.2	1.5	-0.1	0.8	1.7	2.5	0.6	9.0	2.0	9.5	11.1	20.6
5	Cubs	1.3	2.2	0.9	1.4	2.4	0.7	0.6	1.1	0.5	6.8	2.8	11.0	9.6	20.5
6	Yankees	1.6	0.2	0.8	1.2	0.9	1.0	1.1	1.9	0.6	7.4	2.9	9.2	10.3	19.5
7	Nationals	0.5	0.5	1.5	0.9	2.1	0.1	0.5	2.6	0.2	8.5	1.4	8.8	9.9	18.7
8	Blue Jays	1.3	0.8	0.0	1.2	2.7	0.5	1.2	1.1	0.5	6.7	1.9	9.3	8.7	18.0
9	Cardinals	1.1	1.2	1.0	0.9	1.2	0.7	1.1	0.8	0.3	6.9	2.1	8.3	9.1	17.4
10	Mets	0.9	0.9	0.8	0.4	0.6	1.5	1.2	0.9	0.5	7.6	1.8	7.7	9.4	17.2
11	Mariners	1.0	0.2	1.5	1.1	1.6	0.3	1.4	0.9	1.2	4.9	1.9	9.2	6.8	16.0
12	Tigers	1.5	1.5	1.3	0.8	0.6	1.2	0.2	1.0	0.4	6.3	1.0	8.5	7.3	15.8
13	Pirates	0.8	0.5	0.8	0.7	0.9	1.0	1.9	0.7	0.2	6.4	1.6	7.6	8.0	15.6
14	Giants	2.1	1.4	1.1	1.3	0.6	0.0	0.6	0.6	0.1	6.3	1.4	7.8	7.7	15.5
15	Rangers	1.5	0.4	0.8	1.0	1.9	0.5	1.0	0.8	0.3	5.4	1.7	8.2	7.1	15.3
16	Angels	0.9	0.2	0.1	1.6	0.8	0.4	3.5	1.1	0.2	4.6	1.7	8.8	6.4	15.1
17	Orioles	0.9	1.0	1.1	-0.1	2.4	0.6	0.9	0.7	0.5	4.5	2.2	7.9	6.7	14.7
18	Rays	0.9	0.6	0.6	0.3	1.5	0.5	0.9	0.9	0.4	6.6	1.3	6.7	7.9	14.6
19	Diamondbacks	0.2	2.2	0.4	0.5	1.1	-0.2	1.2	0.7	0.1	7.3	1.3	6.0	8.5	14.5
20	Marlins	1.2	0.6	0.8	0.1	0.8	1.2	1.7	1.9	0.1	4.1	1.4	8.4	5.5	13.9
21	Reds	0.9	2.2	0.3	1.3	0.9	0.6	0.8	0.5	0.1	4.0	1.4	7.7	5.4	13.1
22	Royals	1.3	0.9	0.5	0.1	1.3	0.7	1.6	0.0	0.0	5.1	1.4	6.4	6.6	13.0
23	Twins	0.9	0.6	1.4	0.5	1.3	0.3	1.0	0.8	0.4	4.3	1.2	7.3	5.4	12.7
24	Athletics	1.0	0.8	0.6	0.9	0.7	0.9	0.0	0.6	0.2	5.4	1.6	5.6	7.1	12.7
25	Rockies	0.1	0.3	0.6	0.5	1.9	0.2	1.0	0.3	-0.1	5.5	1.8	4.9	7.2	12.1
26	Brewers	0.8	0.8	0.2	0.2	1.0	0.7	0.4	0.5	0.3	5.2	1.8	4.8	7.0	11.8
27	Phillies	0.5	0.5	0.8	0.5	0.8	-0.3	1.1	0.4	0.1	5.6	1.4	4.3	7.0	11.3
28	Braves	0.7	0.7	0.4	0.6	1.9	0.0	1.3	0.1	0.0	4.3	1.2	5.6	5.4	11.1
29	Padres	0.6	0.9	0.9	-0.1	0.5	0.1	0.4	-0.1	0.1	4.6	1.9	3.2	6.5	9.7
30	White Sox	0.4	1.1	0.3	0.2	1.2	0.3	-0.2	0.4	-0.5	4.8	1.7	3.1	6.5	9.6
31	Free Agents	1.0	-0.9	-0.5	-0.5	0.8	-0.8	0.0	-0.6	0.0	5.1	-0.1	-1.4	5.0	3.5

Exploring the Correlation Between Team Payroll and Combined WAR

Following is a table showing each teams total payroll and their current Team Combined WAR value from FanGraphs. Looking at the data, can you tell if having a higher payroll yields a better WAR value?

Let me know what you think and next week we will explore this mathematically. For now, though, give me the benefit of your intuition. Note that the highest payroll team, the Los Angeles Dodgers have the highest WAR value. Is this a coincidence?

More detail next week.

Table 4: MLB Teams Team Combined WAR and 2017 Payroll
(Million)

Tm	WAR	Payroll
LAD	23.7	252.14
CLE	23.2	132.59
HOU	21.3	136.37
BOS	20.6	216.31
CHC	20.5	176.51
NYY	19.5	212.92
WSN	18.7	177.91
TOR	18.0	199.88
STL	17.4	151.78
NYM	17.2	167.01
SEA	16.0	165.62
DET	15.8	209.52
PIT	15.6	110.85
SFG	15.5	189.70
TEX	15.3	190.33
LAA	15.1	172.18
BAL	14.7	175.03
TBR	14.6	89.92
ARI	14.5	110.81
MIA	13.9	121.31
CIN	13.1	114.05
KCR	13.0	152.67
MIN	12.7	126.44
OAK	12.7	93.53
COL	12.1	135.50
MIL	11.8	78.27
PHI	11.3	126.65
ATL	11.1	126.52
SDP	9.7	88.00
CHW	9.6	110.20

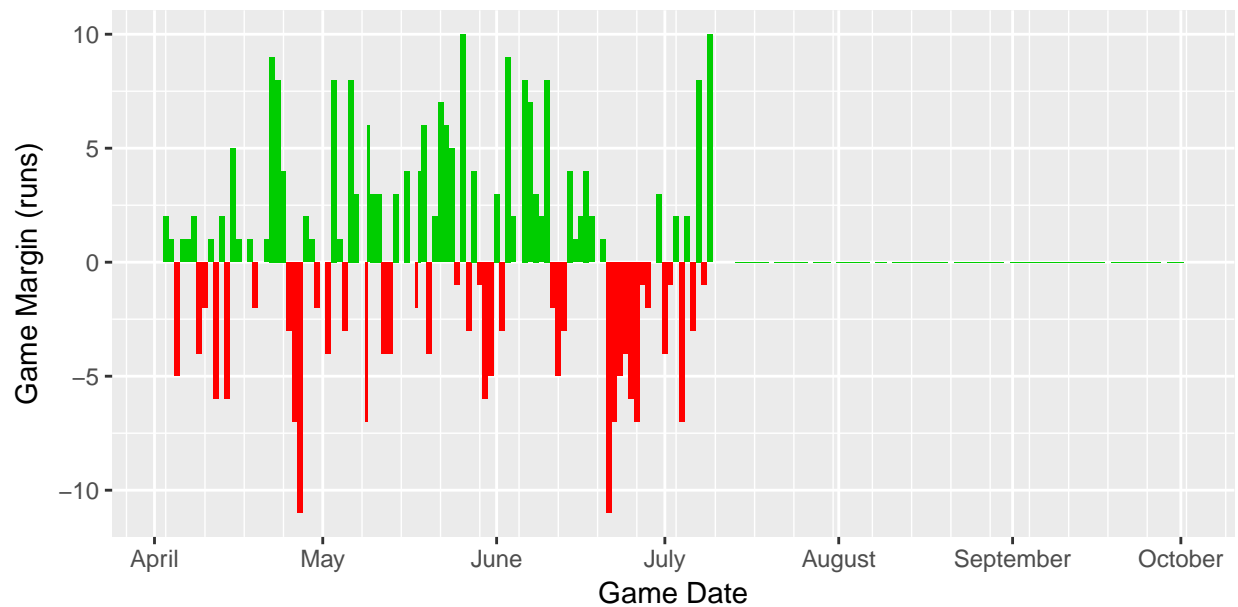
Colorado Rockies Dashboard

Win Loss Margin

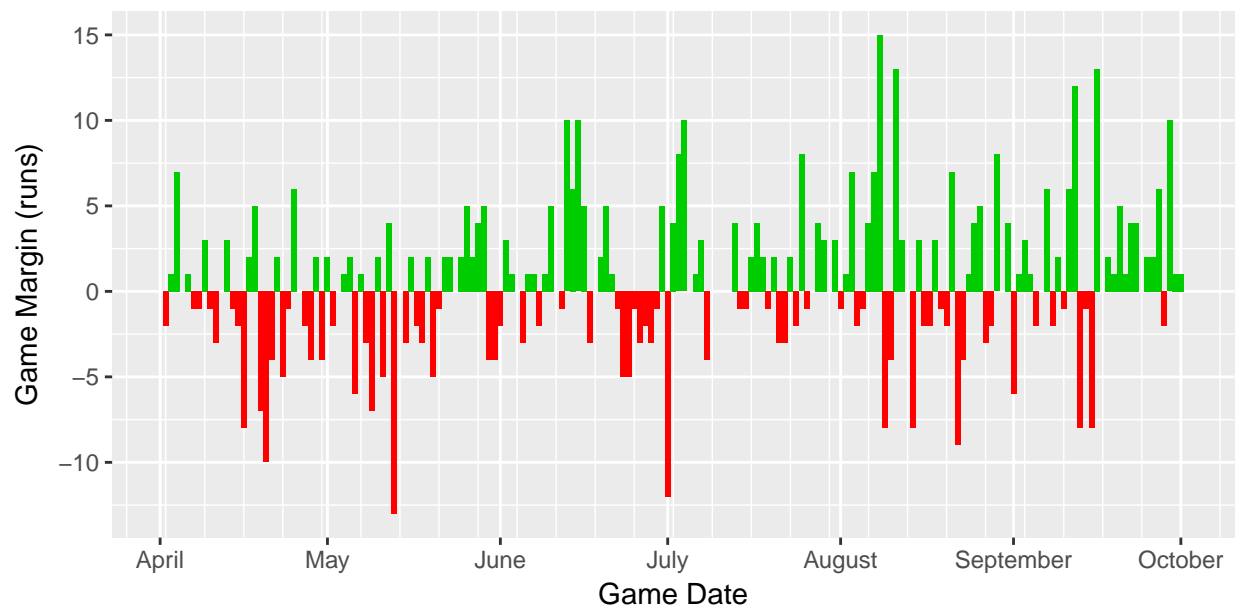
One of the many ways to visualize a teams performance is to show wins and losses as the margin of the win (positive) or loss (negative). In the graphs below, we show the current season performance. For emphasis, wins are displayed in green (above the zero) and losses in red (below the zero).

Following the current season's graph, I have included the Win/Loss margin chart for our benchmark season of 2007 when the Rockies won the National League pennant.

Rockies 2017 Win/Loss Margin



Rockies 2007 Win/Loss Margin



National League Standings

Table 5: NL East Standings

Tm	W	L	W-L%	GB
Washington Nationals	52	36	.591	–
Atlanta Braves	42	45	.483	9.5
Miami Marlins	41	46	.471	10.5
New York Mets	39	47	.453	12.0
Philadelphia Phillies	29	58	.333	22.5

Table 6: NL Central Standings

Tm	W	L	W-L%	GB
Milwaukee Brewers	50	41	.549	–
Chicago Cubs	43	45	.489	5.5
St. Louis Cardinals	43	45	.489	5.5
Pittsburgh Pirates	42	47	.472	7.0
Cincinnati Reds	39	49	.443	9.5

Table 7: NL West Standings

Tm	W	L	W-L%	GB
Los Angeles Dodgers	61	29	.678	–
Arizona Diamondbacks	53	36	.596	7.5
Colorado Rockies	52	39	.571	9.5
San Diego Padres	38	50	.432	22.0
San Francisco Giants	34	56	.378	27.0

American League Standings

Table 8: AL East Standings

Tm	W	L	W-L%	GB
Boston Red Sox	50	39	.562	–
New York Yankees	45	41	.523	3.5
Tampa Bay Rays	47	43	.522	3.5
Baltimore Orioles	42	46	.477	7.5
Toronto Blue Jays	41	47	.466	8.5

Table 9: AL Central Standings

Tm	W	L	W-L%	GB
Cleveland Indians	47	40	.540	–
Minnesota Twins	45	43	.511	2.5
Kansas City Royals	44	43	.506	3.0
Detroit Tigers	39	48	.448	8.0
Chicago White Sox	38	49	.437	9.0

Table 10: AL West Standings

Tm	W	L	W-L%	GB
Houston Astros	60	29	.674	–
Los Angeles Angels of Anaheim	45	47	.489	16.5
Texas Rangers	43	45	.489	16.5
Seattle Mariners	43	47	.478	17.5
Oakland Athletics	39	50	.438	21.0

Rockies Game-by-Game Schedule/Results

Gm#	Day	Date	H/A	Opp	W/L	R	RA	Win	Loss	Save	D/N	Streak
1	Mon	Apr 3	A	MIL	W	7	5	Estevez	Marinez	Holland	D	+
2	Tue	Apr 4	A	MIL	W	6	5	Anderson	Davies	Holland	N	++
3	Wed	Apr 5	A	MIL	L	1	6	Peralta	Chatwood	Feliz	N	-
4	Thu	Apr 6	A	MIL	W	2	1	Dunn	Feliz	Holland	D	+
5	Fri	Apr 7	H	LAD	W	2	1	Freeland	Ryu	McGee	D	++
6	Sat	Apr 8	H	LAD	W	4	2	Dunn	Kershaw	Holland	N	+++
7	Sun	Apr 9	H	LAD	L	6	10	Maeda	Anderson		D	-
8	Mon	Apr 10	H	SDP	L	3	5	Diaz	Chatwood		N	-
9	Tue	Apr 11	H	SDP	W	3	2	Senzatela	Diaz	Holland	N	+
10	Wed	Apr 12	H	SDP	L	0	6	Lee	Freeland		D	-
11	Thu	Apr 13	A	SFG	W	3	1	Rusin	Bumgarner	Holland	N	+
12	Fri	Apr 14	A	SFG	L	2	8	Cueto	Anderson		N	-
13	Sat	Apr 15	A	SFG	W	5	0	Chatwood	Moore		D	+
14	Sun	Apr 16	A	SFG	W	4	3	Senzatela	Samardzija	Holland	D	++
15	Tue	Apr 18	A	LAD	W	4	3	Rusin	Ryu	Holland	N	+++
16	Wed	Apr 19	A	LAD	L	2	4	Kershaw	Anderson	Jansen	N	-
17	Fri	Apr 21	H	SFG	W	6	5	Chatwood	Cueto	Holland	N	+
18	Sat	Apr 22	H	SFG	W	12	3	Senzatela	Moore		N	++
19	Sun	Apr 23	H	SFG	W	8	0	Freeland	Samardzija		D	+++
20	Mon	Apr 24	H	WSN	W	8	4	Estevez	Romero		N	++++
21	Tue	Apr 25	H	WSN	L	12	15	Romero	Marquez		N	-
22	Wed	Apr 26	H	WSN	L	4	11	Roark	Chatwood		N	-
23	Thu	Apr 27	H	WSN	L	5	16	Gonzalez	Senzatela		D	—
24	Fri	Apr 28	A	ARI	W	3	1	Freeland	Ray	Holland	N	+
25	Sat	Apr 29	A	ARI	W	7	6	Estevez	Rodney	Holland	N	++
26	Sun	Apr 30	A	ARI	L-wo	0	2	Delgado	Lyles		D	-
27	Tue	May 2	A	SDP	L	2	6	Cahill	Chatwood		N	-
28	Wed	May 3	A	SDP	W	11	3	Senzatela	Weaver		N	+
29	Thu	May 4	A	SDP	W	3	2	Qualls	Hand	Holland	D	++
30	Fri	May 5	H	ARI	L	3	6	Greinke	Marquez	Rodney	N	-
31	Sat	May 6	H	ARI	W	9	1	Anderson	Corbin	Rusin	N	+
32	Sun	May 7	H	ARI	W	5	2	Chatwood	Walker	Holland	D	++
33	Tue	May 9 (1)	H	CHC	W	10	4	Senzatela	Arrieta		D	+++
34	Tue	May 9 (2)	H	CHC	L	1	8	Lackey	Freeland		N	-
35	Wed	May 10	H	CHC	W	3	0	Marquez	Hendricks	Holland	D	+
36	Thu	May 11	H	LAD	W	10	7	Hoffman	Ryu	Holland	N	++
37	Fri	May 12	H	LAD	L	2	6	Kershaw	Chatwood		N	-
38	Sat	May 13	H	LAD	L	0	4	Wood	Anderson		N	-
39	Sun	May 14	H	LAD	W	9	6	Senzatela	Urias	Holland	D	+
40	Tue	May 16	A	MIN	W	7	3	Freeland	Hughes	Holland	N	++
41	Thu	May 18 (1)	A	MIN	W	5	1	Marquez	Santana	Holland	D	+++
42	Thu	May 18 (2)	A	MIN	L	0	2	Berrios	Chatwood	Kintzler	N	-
43	Fri	May 19	A	CIN	W	12	6	Anderson	Bonilla		N	+
44	Sat	May 20	A	CIN	L	8	12	Wojciechowski	Dunn		D	-
45	Sun	May 21	A	CIN	W	6	4	Freeland	Arroyo	Holland	D	+
46	Mon	May 22	A	PHI	W	8	1	Hoffman	Eickhoff		N	++
47	Tue	May 23	A	PHI	W	8	2	Marquez	Eflin		N	+++
48	Wed	May 24	A	PHI	W	7	2	Chatwood	Hellickson		N	++++
49	Thu	May 25	A	PHI	L-wo	1	2	Gomez	Oberg		D	-
50	Fri	May 26	H	STL	W	10	0	Senzatela	Martinez		N	+

Gm#	Day	Date	H/A	Opp	W/L	R	RA	Win	Loss	Save	D/N	Streak
51	Sat	May 27	H	STL	L	0	3	Wainwright	Freeland	Oh	N	-
52	Sun	May 28	H	STL	W	8	4	Marquez	Lynn		D	+
53	Mon	May 29	H	SEA	L	5	6	Gaviglio	Chatwood	Diaz	D	-
54	Tue	May 30	H	SEA	L	4	10	Miranda	Anderson		N	-
55	Wed	May 31	A	SEA	L	0	5	Paxton	Senzatela		N	—
56	Thu	Jun 1	A	SEA	W	6	3	Freeland	Gallardo	Holland	D	+
57	Fri	Jun 2	A	SDP	L	5	8	Richard	Marquez	Maurer	N	-
58	Sat	Jun 3	A	SDP	W	10	1	Chatwood	Chacin		D	+
59	Sun	Jun 4	A	SDP	W	3	1	Hoffman	Cosart	Holland	D	++
60	Tue	Jun 6	H	CLE	W	11	3	Senzatela	Clevinger		N	+++
61	Wed	Jun 7	H	CLE	W	8	1	Freeland	Bauer		D	++++
62	Thu	Jun 8	A	CHC	W	4	1	Chatwood	Lester	Holland	N	++++
63	Fri	Jun 9	A	CHC	W	5	3	Rusin	Frankoff	Holland	D	++++
64	Sat	Jun 10	A	CHC	W	9	1	Hoffman	Butler		D	++++
65	Sun	Jun 11	A	CHC	L	5	7	Edwards	Lyles	Davis	D	-
66	Mon	Jun 12	A	PIT	L	2	7	Taillon	Freeland		N	-
67	Tue	Jun 13	A	PIT	L	2	5	Cole	Ottavino		N	—
68	Wed	Jun 14	A	PIT	W	5	1	Marquez	Kuhl		N	+
69	Thu	Jun 15	H	SFG	W-wo	10	9	Holland	Strickland		N	++
70	Fri	Jun 16	H	SFG	W	10	8	Senzatela	Samardzija	Holland	N	+++
71	Sat	Jun 17	H	SFG	W	5	1	Freeland	Cain		D	++++
72	Sun	Jun 18	H	SFG	W-wo	7	5	Estevez	Melancon		D	++++
73	Tue	Jun 20	H	ARI	W	4	3	Ottavino	Greinke	Holland	N	++++
74	Wed	Jun 21	H	ARI	L	5	16	Walker	Hoffman		N	-
75	Thu	Jun 22	H	ARI	L	3	10	Godley	Senzatela		D	-
76	Fri	Jun 23	A	LAD	L	1	6	Wood	Freeland		N	—
77	Sat	Jun 24	A	LAD	L	0	4	Kershaw	Chatwood		N	—
78	Sun	Jun 25	A	LAD	L	6	12	Baez	Ottavino	Jansen	D	—
79	Mon	Jun 26	A	SFG	L	2	9	Samardzija	Marquez		N	—
80	Tue	Jun 27	A	SFG	L-wo	3	4	Gerrin	Qualls		N	—
81	Wed	Jun 28	A	SFG	L	3	5	Blach	Freeland	Strickland	D	—
82	Fri	Jun 30	A	ARI	W	6	3	Gray	Ray	Holland	N	+
83	Sat	Jul 1	A	ARI	L	2	6	Greinke	Chatwood	Rodney	N	-
84	Sun	Jul 2	A	ARI	L-wo	3	4	Rodney	Ottavino		D	-
85	Mon	Jul 3	H	CIN	W	5	3	Hoffman	Castillo	Holland	N	+
86	Tue	Jul 4	H	CIN	L	1	8	Bailey	Freeland		N	-
87	Wed	Jul 5	H	CIN	W	5	3	Gray	Feldman	Holland	N	+
88	Thu	Jul 6	H	CIN	L	3	6	Romano	Chatwood		D	-
89	Fri	Jul 7	H	CHW	W	12	4	Marquez	Holland		N	+
90	Sat	Jul 8	H	CHW	L	4	5	Kahnle	Holland	Robertson	N	-
91	Sun	Jul 9	H	CHW	W	10	0	Freeland	Rodon		D	+

The Rockies current record is 52 Wins and 39 Losses. So far, the Rockies have scored 461 runs and have had 419 runs scored against them.

Pythagorean Win-Loss Theorem

$$predictedW\% = \frac{R^k}{R^k + RA^k}$$

Using the commonly used values of k, the Rockies predicted wins for the 2017 are shown in the table below. Remember this statistic will vary widely over the course of the season.

Table 12: Predicted Wins for Entire 2017 Season

Wins (k=1.81)	Wins (k=1.83)	Wins (k=2.00)
88	88	89

Batting Statistics (non-pitchers)

Table 13: Rockies Batting Statistics (1 of 2).

Rk	Pos	Name	Age	G	AB	R	H	2B	3B	HR	RBI	SB	CS	BB
1	C	Wolters*	25	58	176	27	47	7	1	0	14	0	1	23
2	1B	Reynolds	33	85	306	52	87	11	1	19	61	1	1	46
3	2B	LeMahieu	28	86	339	47	104	14	1	4	41	4	4	28
4	SS	Story	24	75	255	33	57	11	0	11	35	3	0	28
5	3B	Arenado	26	89	352	56	106	28	5	17	70	2	1	27
6	LF	Desmond	31	57	219	31	62	6	1	5	26	10	4	10
7	CF	Blackmon*	30	89	367	72	117	17	10	20	61	8	6	29
8	RF	Gonzalez*	31	74	263	37	58	13	0	6	22	1	0	30
9	LF	Parra*	30	52	161	27	54	9	0	6	33	0	4	6
10	IF	Valaika	24	58	107	17	26	8	0	7	22	0	0	4
11	UT	Amarista*	28	52	110	15	28	7	0	2	16	1	0	3
12	OF	Tapia*	23	36	96	20	31	6	2	2	8	3	2	7
13	C	Garneau	29	22	68	5	14	7	0	1	6	0	0	4
14	C	Hanigan	36	17	57	4	14	0	0	2	9	0	0	3
15	OF	Cardullo	29	15	28	2	4	0	0	0	3	0	0	3
16	C	Murphy	26	8	20	1	1	1	0	0	1	0	0	2
17	IF	Adames#	25	12	13	1	0	0	0	0	0	0	0	1
18	OF	Tauchman*	26	7	9	0	2	0	0	0	1	0	0	3

Table 14: Rockies Batting Statistics (2 of 2).

Rk	Pos	Name	Age	SO	BA	OBP	SLG	OPS	OPS+	TB	GDP	HBP	SH	SF	IBB
1	C	Wolters*	25	39	.267	.358	.318	.676	70	56	9	2	1	0	7
2	1B	Reynolds	33	101	.284	.379	.513	.892	117	157	9	1	0	1	0
3	2B	LeMahieu	28	48	.307	.364	.389	.753	86	132	11	3	2	1	0
4	SS	Story	24	100	.224	.303	.396	.699	71	101	5	1	0	0	1
5	3B	Arenado	26	64	.301	.351	.554	.905	118	195	12	3	1	5	3
6	LF	Desmond	31	60	.283	.321	.388	.709	74	85	7	3	2	2	1
7	CF	Blackmon*	30	81	.319	.372	.583	.955	130	214	1	4	3	3	2
8	RF	Gonzalez*	31	64	.221	.299	.338	.637	57	89	2	1	0	4	3
9	LF	Parra*	30	28	.335	.360	.503	.864	110	81	4	2	0	3	0
10	IF	Valaika	24	30	.243	.268	.514	.782	86	55	0	0	2	1	0
11	UT	Amarista*	28	22	.255	.274	.373	.647	57	41	2	0	1	0	0
12	OF	Tapia*	23	21	.323	.375	.490	.865	111	47	0	1	1	0	1
13	C	Garneau	29	24	.206	.260	.353	.613	49	24	1	1	1	0	0
14	C	Hanigan	36	15	.246	.283	.351	.634	55	20	3	0	1	0	0
15	OF	Cardullo	29	7	.143	.250	.143	.393	1	4	0	1	0	0	0
16	C	Murphy	26	7	.050	.136	.100	.236	-40	2	0	0	0	0	1
17	IF	Adames#	25	6	.000	.071	.000	.071	-80	0	0	0	0	0	0
18	OF	Tauchman*	26	1	.222	.417	.222	.639	66	2	0	0	0	0	0

- * - bats left-handed, # - bats both, else - bats right, ? - unknown; OPS_lg for OPS+ does not include pitchers.

Pitching Statistics

Table 15: Rockies pitching statistics (1 of 2).

Rk	Pos	Name	Age	W	L	W-L%	ERA	G	GS	GF	CG	SHO	SV	IP	H	R
1	SP	Freeland*	24	9	7	.563	3.77	18	18	0	0	0	0	107.1	109	48
2	SP	Chatwood	27	6	10	.375	4.42	18	18	0	1	1	0	106.0	93	54
3	SP	Senzatela	22	9	3	.750	4.63	18	15	1	0	0	0	93.1	86	49
4	SP	Marquez	22	6	4	.600	4.36	14	14	0	0	0	0	76.1	81	38
5	SP	Anderson*	27	3	5	.375	6.11	13	12	1	0	0	0	63.1	75	45
6	SP	Hoffman	24	5	1	.833	4.15	10	9	1	0	0	0	56.1	49	26
7	CL	Holland	31	1	1	.500	1.62	35	0	34	0	0	28	33.1	18	6
8	RP	McGee*	30	0	0		2.70	38	0	8	0	0	1	36.2	28	11
9	RP	Oberg	27	0	1	.000	5.35	40	0	6	0	0	0	35.1	42	23
10	RP	Ottavino	31	1	3	.250	5.74	36	0	0	0	0	0	31.1	28	20
11	RP	Dunn*	32	2	1	.667	5.40	37	0	5	0	0	0	28.1	30	17
12		Rusin*	30	3	0	1.000	2.30	33	0	5	0	0	1	47.0	32	13
13		Lyles	26	0	2	.000	6.34	29	0	12	0	0	0	38.1	45	28
14		Gray	25	2	0	1.000	3.75	5	5	0	0	0	0	24.0	26	11
15		Estevez	24	4	0	1.000	8.10	18	0	6	0	0	0	16.2	25	16
16		Qualls	38	1	1	.500	5.40	19	0	9	0	0	0	16.2	17	11
17		Carle	25	0	0		0.00	1	0	1	0	0	0	1.0	0	0
18		Diaz	26	0	0		18.00	1	0	1	0	0	0	1.0	4	3

Table 16: Rockies pitching statistics (2 of 2).

Rk	Pos	Name	ER	HR	BB	IBB	SO	HBP	BK	WP	BF	ERA+	FIP	WHIP
1	SP	Freeland*	45	12	41	2	65	8	1	0	464	133	4.76	1.398
2	SP	Chatwood	52	14	57	2	87	2	2	5	447	114	4.89	1.415
3	SP	Senzatela	48	15	30	0	68	4	2	1	386	109	4.87	1.243
4	SP	Marquez	37	8	26	2	67	5	0	3	334	115	3.97	1.402
5	SP	Anderson*	43	15	23	0	63	2	2	3	281	82	5.42	1.547
6	SP	Hoffman	26	5	16	1	50	2	0	0	233	121	3.48	1.154
7	CL	Holland	6	2	16	1	43	0	0	5	129	312	2.79	1.020
8	RP	McGee*	11	3	9	0	44	0	0	5	145	187	2.55	1.009
9	RP	Oberg	21	3	13	2	35	2	0	3	159	94	3.54	1.557
10	RP	Ottavino	20	6	23	1	39	3	0	7	144	88	5.64	1.628
11	RP	Dunn*	17	7	17	0	37	0	0	2	129	94	5.55	1.659
12		Rusin*	12	3	13	1	35	1	0	1	181	219	3.38	0.957
13		Lyles	27	8	9	0	27	2	0	1	166	80	5.31	1.409
14		Gray	10	2	9	0	24	0	0	1	106	135	3.36	1.458
15		Estevez	15	1	6	1	18	1	1	1	82	63	3.03	1.860
16		Qualls	10	3	5	0	11	0	0	0	72	95	5.07	1.320
17		Carle	0	0	0	0	1	0	0	1	4		1.15	0.000
18		Diaz	2	0	0	0	2	0	0	0	8	36	-0.85	4.000

* - throws left-handed

National League Team Standard Batting

Table 17: NL Team Batting statistics (1 of 2).

Tm	#Bat	BatAge	R/G	G	PA	AB	R	H	2B	3B	HR	RBI	SB	CS	BB	SO
WSN	37	29.2	5.52	88	3463	3083	486	855	181	14	125	472	65	19	319	681
LAD	38	27.9	5.14	90	3462	3016	463	771	180	8	127	433	44	15	373	793
COL	36	28.2	5.07	91	3462	3122	461	842	150	21	104	443	33	23	259	799
ARI	35	28.2	5.01	89	3413	3061	446	793	177	23	113	424	64	20	294	798
MIL	40	27.2	4.96	91	3477	3104	451	790	165	15	138	432	75	24	302	874
CIN	40	27.3	4.82	88	3397	3037	424	789	155	26	125	407	75	18	277	707
NYM	41	29.7	4.72	86	3315	2945	406	732	159	15	129	393	22	8	295	658
MIA	39	28.4	4.71	87	3341	3017	410	810	140	11	104	393	49	12	237	675
ATL	38	29.4	4.66	87	3359	3021	405	795	164	9	88	393	37	15	250	654
LgAvg	38	28.1	4.62	88	3386	3021	409	767	156	16	109	391	47	18	288	734
STL	38	28.4	4.57	88	3375	2978	402	759	159	12	107	383	44	20	311	717
CHC	38	26.9	4.53	88	3373	2951	399	706	147	16	117	376	26	13	337	743
PIT	39	28.2	4.25	89	3422	3022	378	729	145	22	87	352	38	25	309	649
SFG	44	29.6	3.93	90	3447	3108	354	754	147	18	75	342	45	16	259	665
PHI	37	27.3	3.82	87	3259	2959	332	715	152	17	89	316	35	18	250	751
SDP	40	26.2	3.55	88	3219	2893	312	658	114	15	102	304	52	20	252	840

Table 18: NL Team Batting statistics (2 of 2).

Tm	#Bat	BatAge	R/G	BA	OBP	SLG	OPS	OPS+	TB	GDP	HBP	SH	SF	IBB	LOB
WSN	37	29.2	5.52	0	0.345	0.467	0.812	108	1439	67	13	22	26	36	633
LAD	38	27.9	5.14	0	0.342	0.447	0.789	107	1348	68	33	18	21	20	639
COL	36	28.2	5.07	0	0.328	0.431	0.759	85	1346	68	23	38	20	19	581
ARI	35	28.2	5.01	0	0.328	0.443	0.771	93	1355	52	26	20	12	25	606
MIL	40	27.2	4.96	0	0.326	0.451	0.777	100	1399	59	35	23	13	17	598
CIN	40	27.3	4.82	0	0.327	0.451	0.778	100	1371	59	37	23	23	16	613
NYM	41	29.7	4.72	0	0.321	0.444	0.765	100	1308	66	31	21	23	19	584
MIA	39	28.4	4.71	0	0.328	0.426	0.753	101	1284	74	40	24	22	25	600
ATL	38	29.4	4.66	0	0.326	0.411	0.737	92	1241	84	41	29	18	36	591
LgAvg	38	28.1	4.62	0	0.323	0.424	0.747	94	1280	67	32	24	20	22	601
STL	38	28.4	4.57	0	0.329	0.424	0.753	97	1263	74	32	25	29	23	594
CHC	38	26.9	4.53	0	0.326	0.419	0.744	95	1236	78	47	24	13	29	613
PIT	39	28.2	4.25	0	0.320	0.390	0.710	85	1179	67	50	24	16	21	638
SFG	44	29.6	3.93	0	0.303	0.374	0.677	80	1162	67	26	18	36	15	611
PHI	37	27.3	3.82	0	0.303	0.395	0.698	84	1168	69	20	13	17	15	556
SDP	40	26.2	3.55	0	0.294	0.383	0.677	78	1108	49	26	31	17	10	564

Current Injuries

	Name	Updated	Type	Details
1	Tyler Anderson	June 27 2017	Knee	Anderson has been designated for the 10-day disabled list as he will have arthroscopic left knee surgery and is expected to miss up to four weeks of action.
2	Chad Bettis	June 06 2017	Illness	Bettis is on the 60-day disabled list while recovering from testicular cancer but is expected to make his season debut sometime around the All-Star break.
3	David Dahl	June 27 2017	Ribs	Dahl has been moved to the 60-day disabled list with a stress reaction of his sixth rib and it is unknown as to when he will be ready to join the lineup.
4	Ian Desmond	July 03 2017	Calf	Desmond has landed on the 10-day disabled list with a right calf strain and it is unknown as to how long he will be out of action.

Table 19: Current Injuries

Topics for Future Articles

Here are a few suggestions, but I would prefer to hear from you, dear reader, on what interests you.

- Player Value - There is much more to cover here. Perhaps we can rank some of the past greats based on their modern day WAR rating?
- What is the OPS+ statistic and how is it calculated.
- Survey MLB ticket prices.
- Are WAR ratings a good indicator of past season's playoff and World Series teams?
- A suggestion from a work colleague that we investigate what budding talent we have in the Rockies farm system. I will look into this and see what I can find.

Let me know what you would like to see in future articles. Send me an email at jdreed@q.com.

Yours truly,

Jim Reed

Appendix

Glossary

Batting Statistics

Statistic Abbreviation	Definition
<i>G</i>	number of games (participated)
<i>PA</i>	plate appearances
<i>AB</i>	at bats
<i>R</i>	runs scored by player or team
<i>RA</i>	runs allowed
<i>H</i>	hits
<i>2B</i>	doubles
<i>3B</i>	triples
<i>HR</i>	home runs
<i>RBI</i>	runs batted in
<i>BA</i>	batting average
<i>OBP</i>	on-base percentage
<i>SLG</i>	slugging percentage
<i>OPS</i>	on-base percentage plus slugging percentage
<i>OPS+</i>	This statistic normalizes a player's OPS. It adjusts for small variables that might affect OPS scores (e.g., park effects).

Pitching Statistics

Pitching Statistic	Definition
<i>Rk</i>	Rank This is a count of the rows from top to bottom. It is recalculated following the sorting of a column.
<i>Pos</i>	Position
<i>Name</i>	Player Name
<i>Age</i>	Player's age at midnight of June 30th of that year
<i>W</i>	Wins
<i>L</i>	Losses
<i>W-L%</i>	Win-Loss Percentage $W / (W + L)$ For players, leaders need one decision for every ten team games. For managers, minimum to qualify for leading is 320 games.
<i>ERA</i>	$9 * ER / IP$
<i>G</i>	Games Played or Pitched
<i>GS</i>	Games Started
<i>GF</i>	Games Finished
<i>CG</i>	Complete Game
<i>SHO</i>	Shutouts No runs allowed and a complete game.
<i>SV</i>	Saves
<i>IP</i>	Innings Pitched
<i>H</i>	Hits/Hits Allowed
<i>R</i>	Runs Scored/Allowed
<i>ER</i>	Earned Runs Allowed
<i>HR</i>	Home Runs Hit/Allowed
<i>BB</i>	Bases on Balls/Walks
<i>IBB</i>	Intentional Bases on Balls First tracked in 1955.
<i>SO</i>	Strikeouts
<i>HBP</i>	Times Hit by a Pitch.
<i>BK</i>	Balks
<i>WP</i>	Wild Pitches
<i>BF</i>	Batters Faced
<i>ERA+</i>	$ERA+ 100*[lgERA/ERA]$ Adjusted to the player's ballpark(s).
<i>FIP</i>	Fielding Independent Pitching
<i>WHIP</i>	$(BB + H)/IP$ For recent years, leaders need 1 IP per team game played
<i>H9</i>	$9 \times H / IP$ For recent years, leaders need 1 IP per team game played
<i>HR9</i>	$9 \times HR / IP$ For recent years, leaders need 1 IP per team game played
<i>BB9</i>	$9 \times BB / IP$ For recent years, leaders need 1 IP per team game played
<i>SO9</i>	$9 \times SO / IP$ For recent years, leaders need 1 IP per team game played
<i>SO/W</i>	SO/W or SO/BB For recent years, pitching leaders need 1 IP per team game played.

Fielding Statistics

Fielding Statistic	Definition
<i>Name</i>	Player Name Bold can mean player is active for this team or player has appeared in MLB * means LHP or LHB, \# means switch hitter, + can mean HOFer.
<i>Age</i>	Player's age at midnight of June 30th of that year
<i>G</i>	Games Played or Pitched
<i>GS</i>	– Games Started
<i>CG</i>	– Complete Game
<i>Inn</i>	– Innings Played in Field
<i>Ch</i>	– Defensive Chances Putouts + Assists + Errors
<i>PO</i>	– Putouts
<i>A</i>	– Assists
<i>E</i>	– Errors Committed
<i>DP</i>	– Double Plays Turned
<i>Fld%</i>	– Fielding Percentage (Putouts + Assists) / (Putouts + Assists + Errors)
<i>Rtot</i>	– Total Zone Total Fielding Runs Above Avg The number of runs above or below average the player was worth based on the number of plays made. This number combines the Rtz, Rdp, Rof, Rcatch numbers into a total defensive contribution. See the glossary section for a more complete explanation. Provided by BaseballProjection.com
<i>Rtot/yr</i>	– Total Zone Total Fielding Runs Above Avg per 1,200 Inn The number of runs above or below average the fielder was worth per 1,200 Innings (approx 135 games). This number combines the Rtz, Rdp, Rof, Rcatch numbers into a total defensive contribution. See the glossary section for a more complete explanation. Provided by BaseballProjection.com
<i>Rdrs</i>	– BIS Defensive Runs Saved Above Avg The number of runs above or below average the player was worth based on the number of plays made. This number combines the Rpm, Rbdp, Rbof, Rbcatch numbers into a total defensive contribution. Provided by Baseball Info Solutions
<i>Rdrs/yr</i>	– BIS Defensive Runs Saved Above Avg per 1,200 Inn The number of runs above or below average the fielder was worth per 1,200 Innings (approx 135 games). This number combines the Rpm, Rbdp, Rbof, Rbcatch numbers into a total defensive contribution. For pitchers, this is set to 200 Innings. Provided by Baseball Info Solutions
<i>RF/9</i>	– Range Factor per 9 Inn $9 * (\text{Putouts} + \text{Assists}) / \text{Innings Played}$
<i>RF/G</i>	– Range Factor per Game $(\text{Putouts} + \text{Assists}) / \text{Games Played}$
<i>PB</i>	– Passed Balls
<i>WP</i>	– Wild Pitches
<i>SB</i>	– Stolen Bases
<i>CS</i>	– Caught Stealing

Fielding Statistic	Definition
<i>CS%</i>	– Caught Stealing Percentage $CS / (SB + CS)$
<i>lgCS%</i>	– League Caught Stealing Percentage League Expected $CS / \text{Players } SB + \text{Players } CS$
<i>PO</i>	– Pickoffs Runner picked off a base. May include cases they were safe on an error. Also includes Pickoff Caught Stealing plays.
<i>Pos</i>	Summary – Positions Played The positions either followed by the games played at that position or in order of games or innings played. For a single season, * indicates they played at least 2/3rds of the team games there Positions after / indicate less than ten games played at those positions. For career, a + sign means more than 300 games at that position and a - sign means less than 30 games.

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