

## Turning Points Analyzer

The Turning Points Analyzer module (TPA) in Timingsolution is one of the best research tools you will ever find in any software available. You can find almost every metric describing the size and duration of turns in the market you are studying. This module started out as a highly specific technical analysis tool. But over the last couple upgrades, it can now churn out both technical analysis datapoints and Astronomical datapoints for all turning points a market makes. I will provide some examples to illustrate.

It should be mentioned that this class is not intended to repeat all of the descriptive information on this module found in the User's Area and Knowledge Base. This class is simply to show how I use the module and to suggest some possible ways to use it for research.

There are 2 lengthy classes that describe the bulk of the ideas behind the module and the buttons and displays.

<http://www.timingsolution.com/TS/Uphistory/tp.pdf>

<http://www.timingsolution.com/TS/Study/E/11.htm>

First and foremost, there are a couple of concepts to using this module when you first open it that many people may find confusing and feel like they aren't using it correctly or efficiently, even after they read all about it. Hopefully I can encapsulate in a few sentences the "Big Picture" on this module and get people using it quickly.

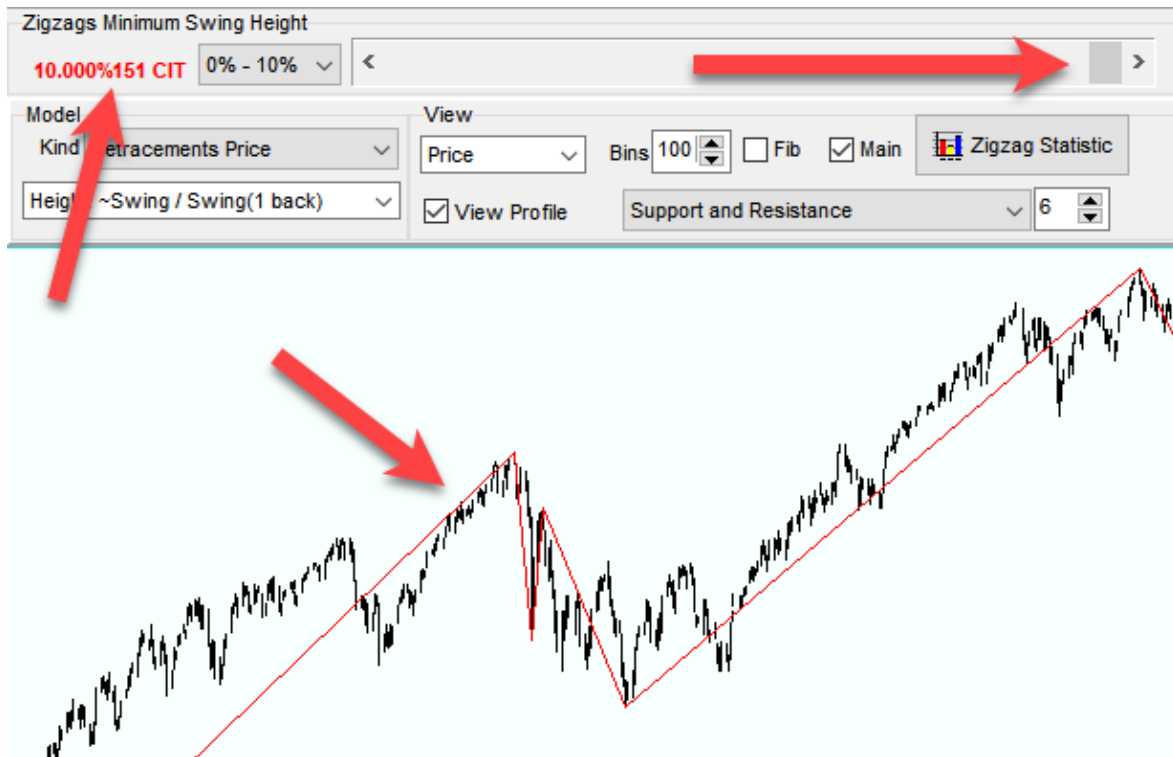
When you first open the module, it instantly, literally, displays a ZigZag indicator based on the default percentage (5%) setting and gives you the statistical number of turns that percentage creates with the price history you have loaded. (In this case, 627 turns.)



All of the other statistical datapoints the module produces for all of these CIT's (Change in Trend) are also instantly available and the tendency is to want to go look at them immediately. But that is part of the problem in grasping how to best use this module. You may need to go look at some datapoints by clicking on the ZigZag Statistic button, just to see what the module does, but the most important step is to adjust the slider bar to the ZigZag percentage you want.

Therein lies the first learning point. You most likely have no idea what percentage you want!

This requires a mix of visual inspection of the price chart and seeing if the turns you are interested in are being caught and some basic logic on what type of forecast horizon you're looking to work on. In this case, using approximately 60 years of price history for the SPX, the 5% Swing Height is giving us about 10 CIT's per year. If you are interested in shorter term swing trades, you may choose to go smaller and for longer term trades of a few months, you would want to increase the slider to say, 8—10%. 10% reduces the number of CIT's to approximately 2.5 per year. To get swings larger than 10%, use the drop-down button to the left of the slider bar.



So, there is the mathematical/logical aspect to sizing the percentage, but you may find that too large of a percentage will skip certain turns that you think are important. This is especially true if you are including Astronomical datapoints or cycle analysis, as oftentimes these techniques will not coincide with the highest high or lowest low. For this reason, in my opinion, jumping over this step is what can cause the most frustration with your research.

How I have dealt with this issue is to run the statistics for 2 or 3 different percentages around the best visual display of CIT's. It is a little bit “art” and a little bit trial-and-error.

At this point, after finding the swing height you want, there are 2 directions you can go within the module, depending on your goal:

1. Finding the next swing target.
2. Analyzing important triggers for CIT's in your particular market, i.e. cycles, Astro, Fib's.

These 2 goals are extremely diverse endpoints, with many possible steps to each. Not understanding that this one module is profoundly useful in doing detailed analysis on each of these issues can end up confusing the user, as one will undoubtedly begin to see opportunities for analyzing datapoints in one issue and end up using the wrong components of the module.

### Finding the Next Swing Target – Goal #1

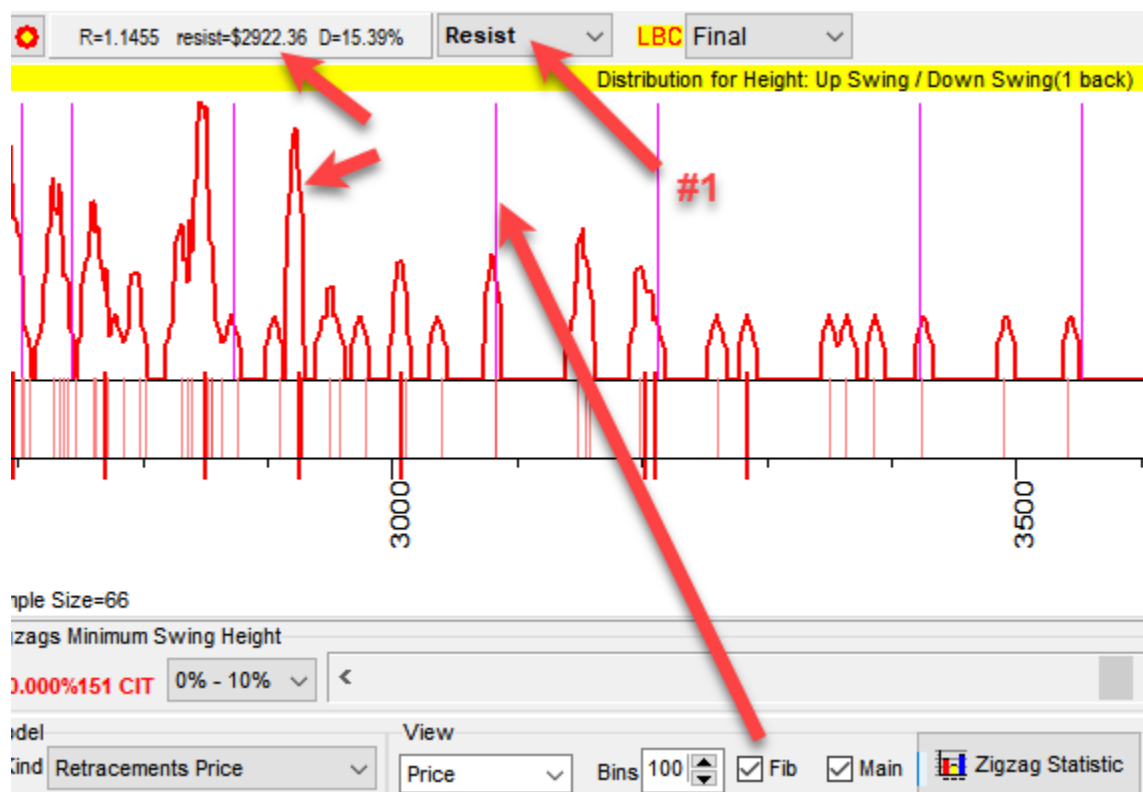
Let's start with finding a probable target for the next swing. Sergey has written quite a bit regarding the difficulties with this issue, from the standpoint of drawing the ZigZag display. You have to make a choice and set up the module based on your best guess, is the last price pivot a CIT, or will price continue moving in the direction of the last leg?

Was this a top? Or are we still going up?



There are a couple places to look first. The dark red lines correspond to the most statistically significant size of prior turns. The size of swings that have happened the most often. The module has counted not only all the swings, it counted the size (in price and time) of all the swings. These dark red lines can be seen in much greater detail back on the TPA window itself, on the histogram. But you have to “choose” which histogram to use, based on the question you had to answer: Is it a top, or not?

Let's assume we are not yet at a Top. We think it's going to continue higher. We need to choose Resistance, because we are looking for Resistance levels that will create our Top.



This histogram is giving you, again, instantly, the counts of the different size of the swing heights, hence, the most common size swings. And by selecting the Fib button, you can see the standard Fibonacci levels (that you can modify) and can see how some Fib values are significant and other sizes that happen more often. As you move your mouse over the histogram, a corresponding line appears on the price chart also. Notice the very tight peak shown with an arrow on the left. Holding your mouse over the peak will show the corresponding size of the swing ( $1.1455 \times$  last swing height). You'll notice the magenta Fib line just to the left of that peak is the 1.0 line and there is just a small blip on the histogram, so don't expect too many exact retracements in the SPX. And although there are obviously some, there are virtually no historical swings that only exceed an exact retracement by 1.0—1.14. (histogram is zero)

This is profound information. You can see the size of swings that actually occur, again and again, in your market. And, you can see that they don't always line up with a Fib amount. But you may choose to draw your Fib's from different levels or see points of strong Supp/Resis horizontally in the chart and then look for a likely peak on the histogram. You can then use the mouse to drag a small box on a peak you like and see that level displayed on the price chart.



From here, we can begin to build lines of confluence by looking back to prior swing legs. Everything we just saw was based on the “last” leg, Down. But it may be even more informative to look back at only Up legs so we can make apples-to-apples comparisons. By using the Swing Height dropdown, we can select only even-numbered swings back and find (in this case) the last several Up legs.

Zigzags Minimum Swing Height

10.000%151 CIT 0% - 10%

Model Kind Retracements Price

Height: ~Swing / Swing(1 back)

Height: ~Swing / Swing(1 back)

Height: ~Swing / Swing(2 back)

Height: ~Swing / Swing(3 back)

Height: ~Swing / Swing(4 back)

Height: ~Swing / Swing(5 back)

Height: ~Swing / Swing(6 back)

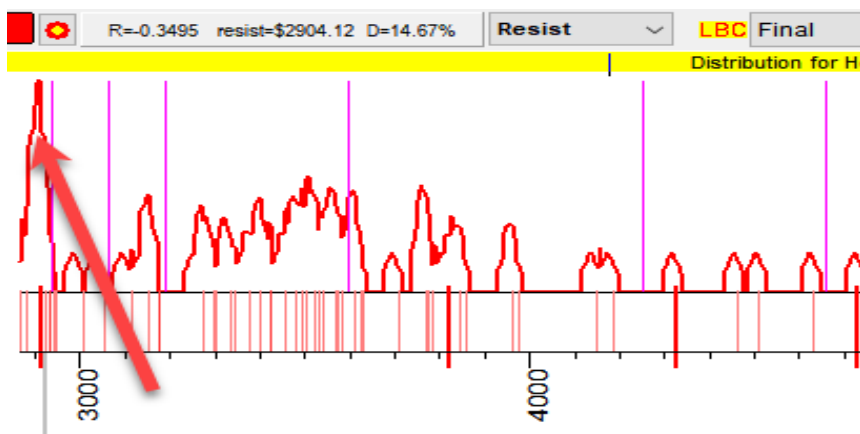
Height: ~Swing / Swing(7 back)

Height: ~Swing / Swing(8 back)

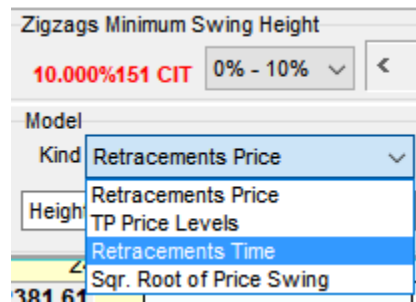
The 2<sup>nd</sup> swing back was a very large leg. But right away, we see the largest peak has already been exceeded (R=.3536) and the next significant peak is between the 0.5 and 0.618 Fib lines, at R=0.5828, Price of \$3152, an absolute move in the stock of 24.46%.

You may feel that price is too high and will never be reached and may opt for the 0.382 Fib price of \$2936, just to the right of the highest peak on the histogram. You can draw another line there. (although the chart starts to get cluttered)

You could continue and check the 4<sup>th</sup> swing back, to compare to a shorter leg, but let’s move on to “Time”.



Above the dropdown for Swings Back, is “Kind”. This dropdown has several options, which you can experiment with, but now let’s choose Time. You can play with the same settings and draw vertical lines on the chart for higher probability periods to look for CIT’s. This is discussed in the TPA KB article.



### Hardcore Research – Goal #2

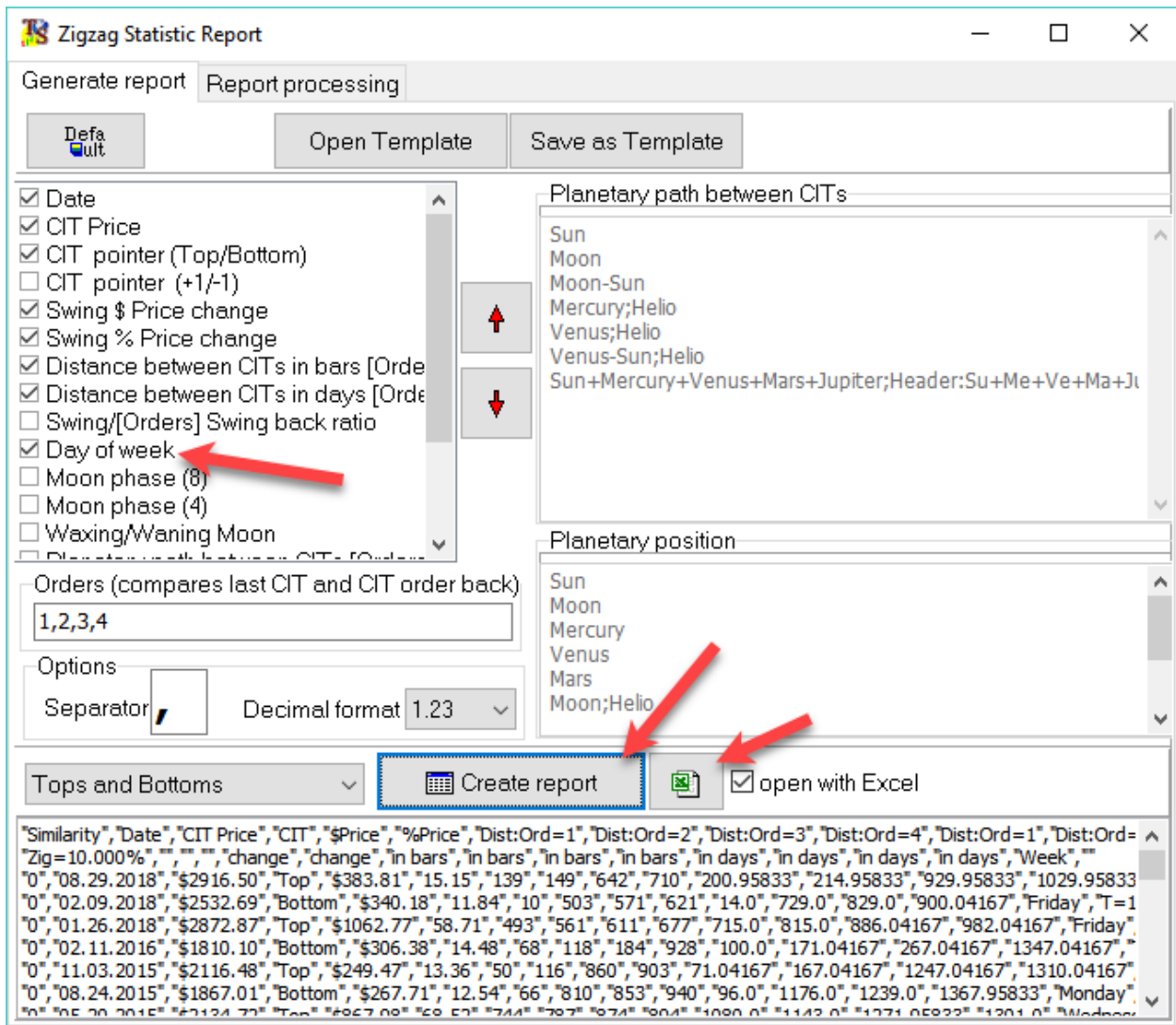
Now, we can look at the 2<sup>nd</sup> direction you could have chosen to use this module for, making the bold statements you hear from researchers and analysts about cycle lengths, swing durations, triggers for CIT’s, etc.

There is the motherload of datapoints lying behind the button called Zigzag Statistic.

Sergey generously added almost every metric you could want for measuring turns in the market. You can create almost endless combinations of reports, measuring price values at CIT’s and the difference in price and time, measured in days, bars, distance any particular planet has moved, day of the week, phase of the Moon, exact positions of the planets at the times of the CIT.

These reports can be created and exported right into Excel. I spent months and months creating lists of dates of turns and then exporting to Excel and doing reverse lookups to create datapoints that the program will now do in seconds.

Let’s see what Day of the Week CIT’s of 10% or greater occur on.



Using the “CountIF” function in Excel, you can quickly verify that Fridays are the least likely day for a big turn to commence.

Monday	Tuesday	Wednesday	Thursday	Friday
38	33	26	29	23

Let’s say you want to investigate the time duration of turns in the market relative to the movement of Jupiter. (as certain authors have suggested in the past) Setup the Report to capture data for Jupiter, position and path (distance moved).

Similarity, Date, CIT Price, CIT, Price, %Price, Dist:Ord=1, Dist:Ord=2, Dist:Ord=3, Dist:Ord=4, Path:Ord=1, Path:Ord=2, Path:Ord=3, Path:Ord=4, Zig=10.000%, change, change, in days, in days, in days, in days, Sun, Sun, Sun, Sun, Jupiter, Helio, Jupiter, Helio

Similarity	Date	CIT Price	CIT	Price	%Price	Dist:Ord=1	Dist:Ord=2	Dist:Ord=3	Dist:Ord=4	Path:Ord=1	Path:Ord=2	Path:Ord=3	Path:Ord=4
0	08.29.2018	\$2916.50	Top	\$383.81	15.15	200.95833	214.95833	929.95833	1029.95833	195.38	209.58	91.0	02.09.2018
0	02.09.2018	\$2532.69	Bottom	\$340.18	11.84	14.0	729.0	829.0	900.04167	14.20	718.49	819.94	889.71
0	01.26.2018	\$2872.87	Top	\$1062.77	58.71	715.0	815.0	886.04167	982.04167	704.29	805.74	875.51	967.0
0	02.11.2016	\$1810.10	Bottom	\$306.38	14.48	100.0	171.04167	267.04167	1347.04167	101.45	171.21	263.0	11.03.2015
0	11.03.2015	\$2116.48	Top	\$249.47	13.36	71.04167	167.04167	1247.04167	1310.04167	69.77	161.62	1226.0	08.24.2015
0	08.24.2015	\$1867.01	Bottom	\$267.71	12.54	96.0	1176.0	1239.0	1367.95833	91.85	1156.75	1217.87	13.05.2015
0	05.20.2015	\$2124.77	Top	\$267.08	12.57	109.0	1142.0	1271.05833	1201.0	1064.00	1116.07	1256.76	14.05.2015

Moving the columns around for better viewing, we can see that while not perfect, there certainly could be something said for turns coinciding with multiples of 2.5 degrees of Jupiter Helio movement, i.e. 2.5, 5, 7.5, 10, etc.



Similarity	Date	CIT Price	CIT	\$Price	%Price	Dist:Ord=1	Position:	Position:	Path:Ord=1	Path:Ord=1
Zig=10.000%				change	change	in days	Sun	Jupiter,Helio	Sun	Jupiter,Helio
0	08.29.2018	\$2,916.50	Top	\$383.81	15.15	201	156.16	237.04	195.38	15.45
0	02.09.2018	\$2,532.69	Bottom	\$340.18	11.84	14	320.78	221.59	14.2	1.07
0	01.26.2018	\$2,872.87	Top	\$1,062.77	58.71	715	306.58	220.52	704.29	54.19
0	02.11.2016	\$1,810.10	Bottom	\$306.38	14.48	100	322.29	166.33	101.45	7.67
0	11.03.2015	\$2,116.48	Top	\$249.47	13.36	71	220.84	158.66	69.77	5.48
0	08.24.2015	\$1,867.01	Bottom	\$267.71	12.54	96	151.08	153.18	91.85	7.47
0	05.20.2015	\$2,134.72	Top	\$867.98	68.52	1080	59.23	145.71	1064.9	90.55
0	06.04.2012	\$1,266.74	Bottom	\$155.64	10.94	63	74.33	55.16	61.11	5.67
0	04.02.2012	\$1,422.38	Top	\$263.72	22.76	129	13.21	49.49	130.25	11.7
0	11.25.2011	\$1,158.66	Bottom	\$134.00	10.37	29	242.97	37.79	29.18	2.65
0	10.27.2011	\$1,292.66	Top	\$217.89	20.27	23	213.78	35.14	22.8	2.1
0	10.04.2011	\$1,074.77	Bottom	\$155.94	12.67	34	190.98	33.04	33.17	3.11
0	08.31.2011	\$1,230.71	Top	\$129.17	11.73	22	157.81	29.93	21.18	2.01
0	08.09.2011	\$1,101.54	Bottom	\$269.04	19.63	99	136.64	27.92	94.82	9.08
0	05.02.2011	\$1,370.58	Top	\$359.67	35.58	305	41.81	18.84	302.2	27.94
0	07.01.2010	\$1,010.91	Bottom	\$162.66	13.86	49	99.62	350.9	46.93	4.46
0	04.26.2010	\$1,219.80	Top	\$553.01	82.94	416	36.21	344.91	410.06	36.96
0	03.06.2009	\$666.79	Bottom	\$277.06	29.35	59	346.16	307.95	59.74	5.09
0	09.18.2008	\$1,133.50	Bottom	\$306.74	21.3	122	176	293.47	117.06	10.24
0	05.19.2008	\$1,440.24	Top	\$183.26	14.58	63	58.94	283.23	61.6	5.22
0	03.17.2008	\$1,256.98	Bottom	\$319.11	20.25	158	357.34	278.01	159.48	12.89
0	10.11.2007	\$1,576.09	Top	\$205.49	14.99	56	197.85	265.12	54.54	4.5
0	08.16.2007	\$1,370.60	Bottom	\$185.30	11.91	31	143.32	260.62	29.66	2.48
0	07.16.2007	\$1,555.90	Top	\$767.00	97.22	1587	113.66	258.14	1562.06	122
0	03.12.2003	\$788.90	Bottom	\$165.38	17.33	100	351.6	136.14	101.37	7.97
0	12.02.2002	\$954.28	Top	\$185.65	24.15	53	250.23	128.17	53.16	4.27
0	10.10.2002	\$768.63	Bottom	\$196.37	20.35	49	197.07	123.9	47.79	3.97
0	08.22.2002	\$965.00	Top	\$189.32	24.41	29	149.29	119.92	27.8	2.36
0	07.24.2002	\$775.68	Bottom	\$401.29	34.1	198	121.48	117.56	194.37	16.39
0	01.07.2002	\$1,176.97	Top	\$232.22	24.58	108	287.11	101.17	108.48	9.14
0	09.21.2001	\$944.75	Bottom	\$371.18	28.21	122	178.63	92.03	117.12	10.49
0	05.22.2001	\$1,315.93	Top	\$234.74	21.71	61	61.51	81.54	59.49	5.31

Analyzing other planets could show even better statistics.

Another area is researching Elliott Wave patterns. This report generator provides all the datapoints you could want to start doing statistical analysis of segments of the waves. In fact, whenever you simply want to create a list of all the turn points for any market, you can do it in under a minute with this module. Using the Order metric (swing legs back), you can compare the Impulse Legs to the Corrective Legs and confirm for yourself the validity of other's research or grandiose statements. What are the most frequently occurring ratios of the legs? 1 swing back, comparing Impulse to Corrective, 2 swings back, comparing Impulse to Impulse, Wave 3 to Wave 1? And so on.

I hope this will help people who have not yet worked with this module to appreciate the incredible amount of heavy lifting that Sergey has eliminated for us with the latest additions to the Statistics Report. Please share some of your discoveries with our group.

Best regards,  
Jim Ranum

10 Sep 2018