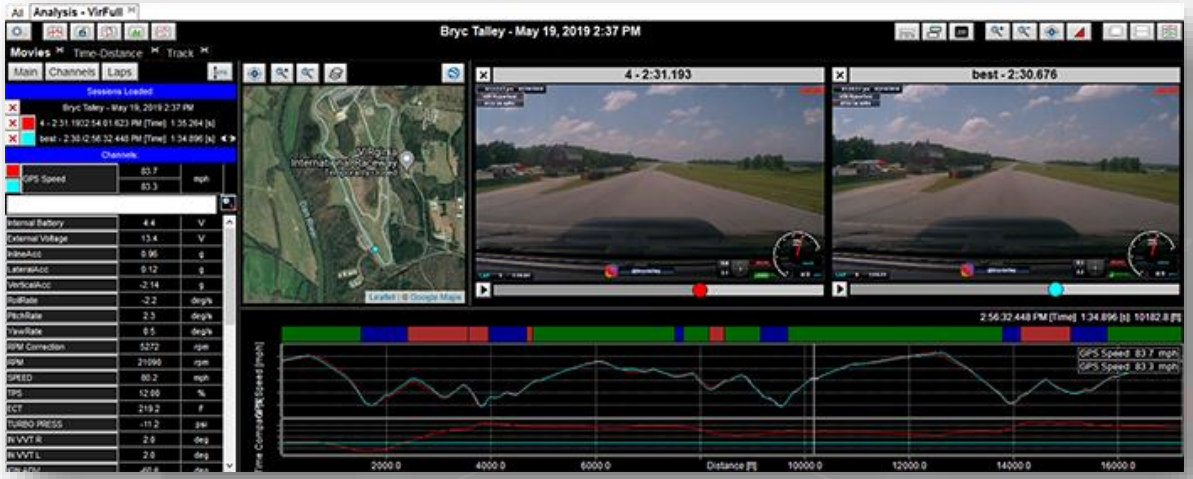

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2020 Webinar #56

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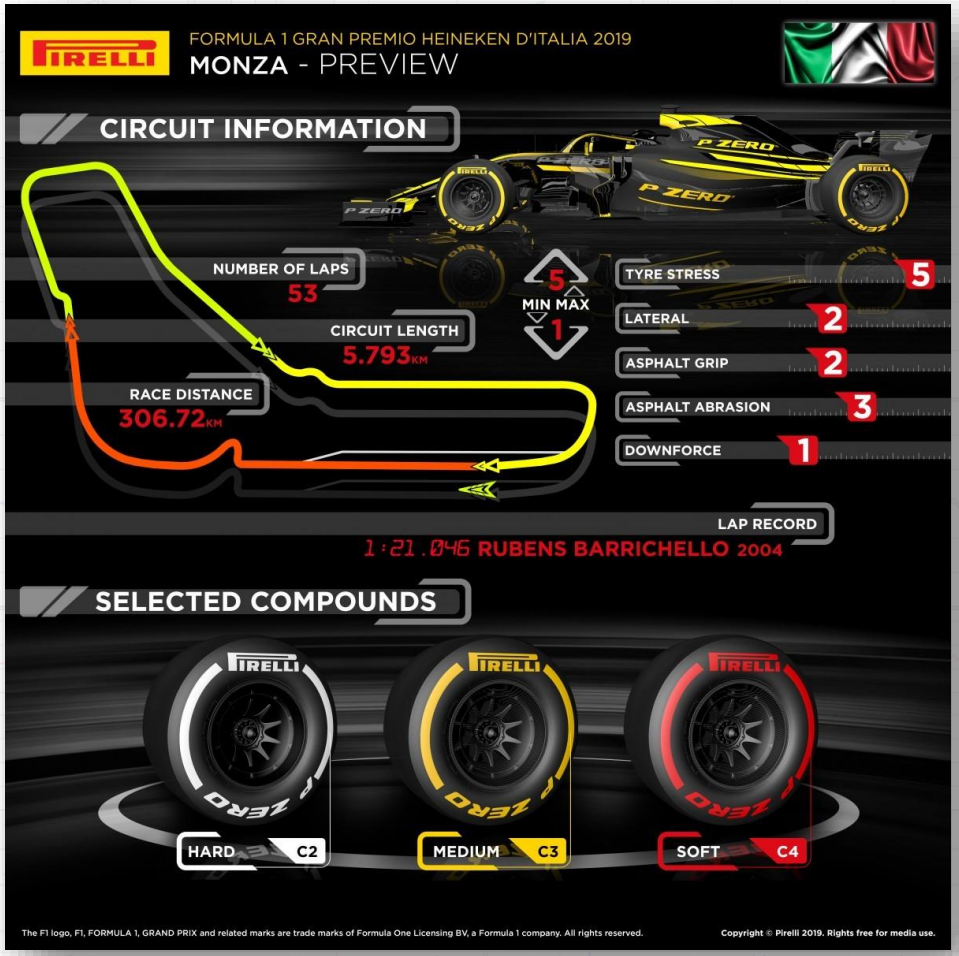
Track Stats


PIRELLI
FORMULA 1 GRAN PREMIO HEINEKEN D'ITALIA 2019
MONZA - PREVIEW
CIRCUIT INFORMATION
NUMBER OF LAPS
53
CIRCUIT LENGTH
5.793KM
RACE DISTANCE
306.72KM
MIN MAX
5
1
TYRE STRESS 5
LATERAL 2
ASPHALT GRIP 2
ASPHALT ABRASION 3
DOWNFORCE 1
LAP RECORD
1:21.046 RUBENS BARRICHELLO 2004
SELECTED COMPOUNDS
HARD C2
MEDIUM C3
SOFT C4
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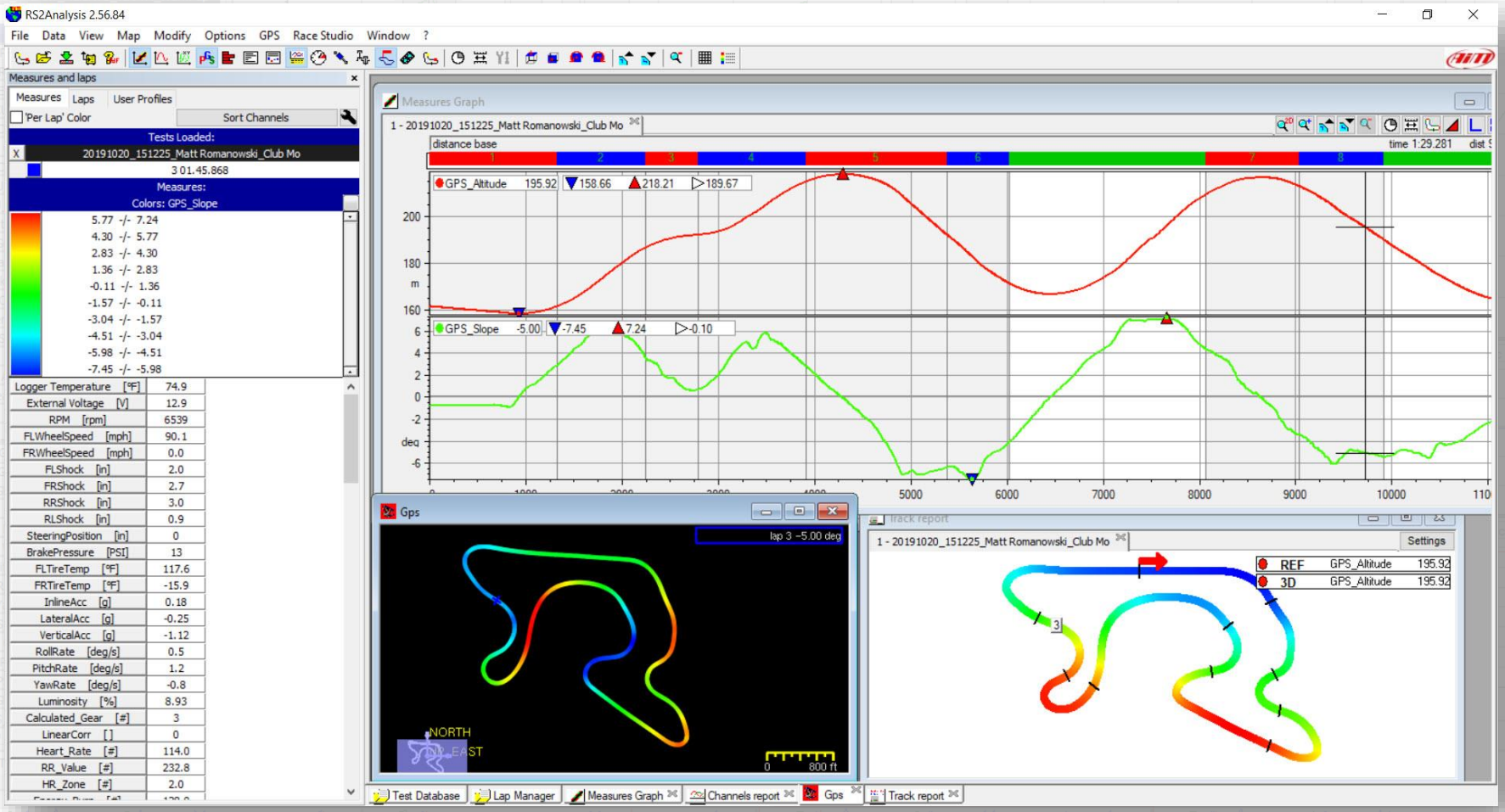
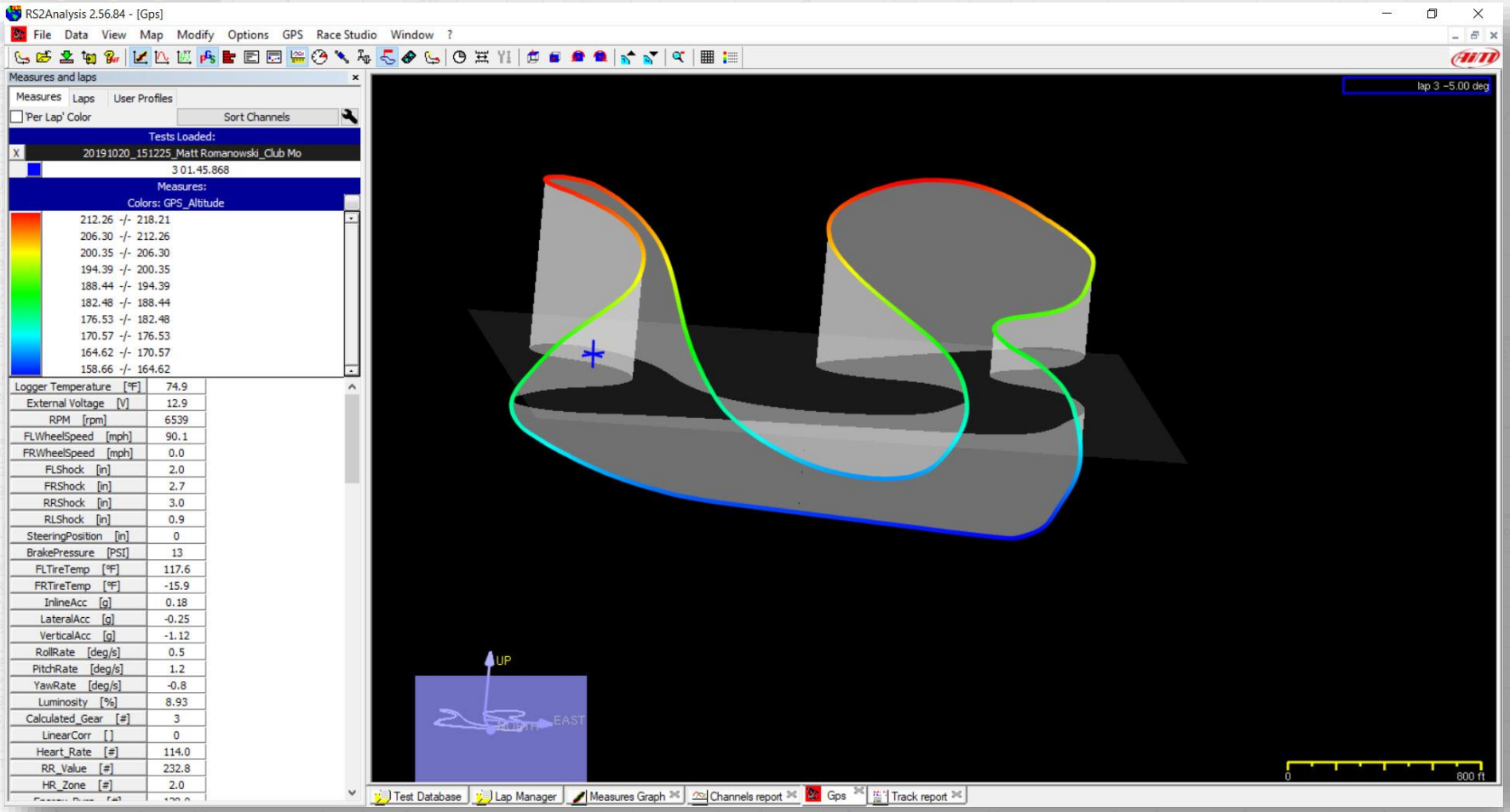
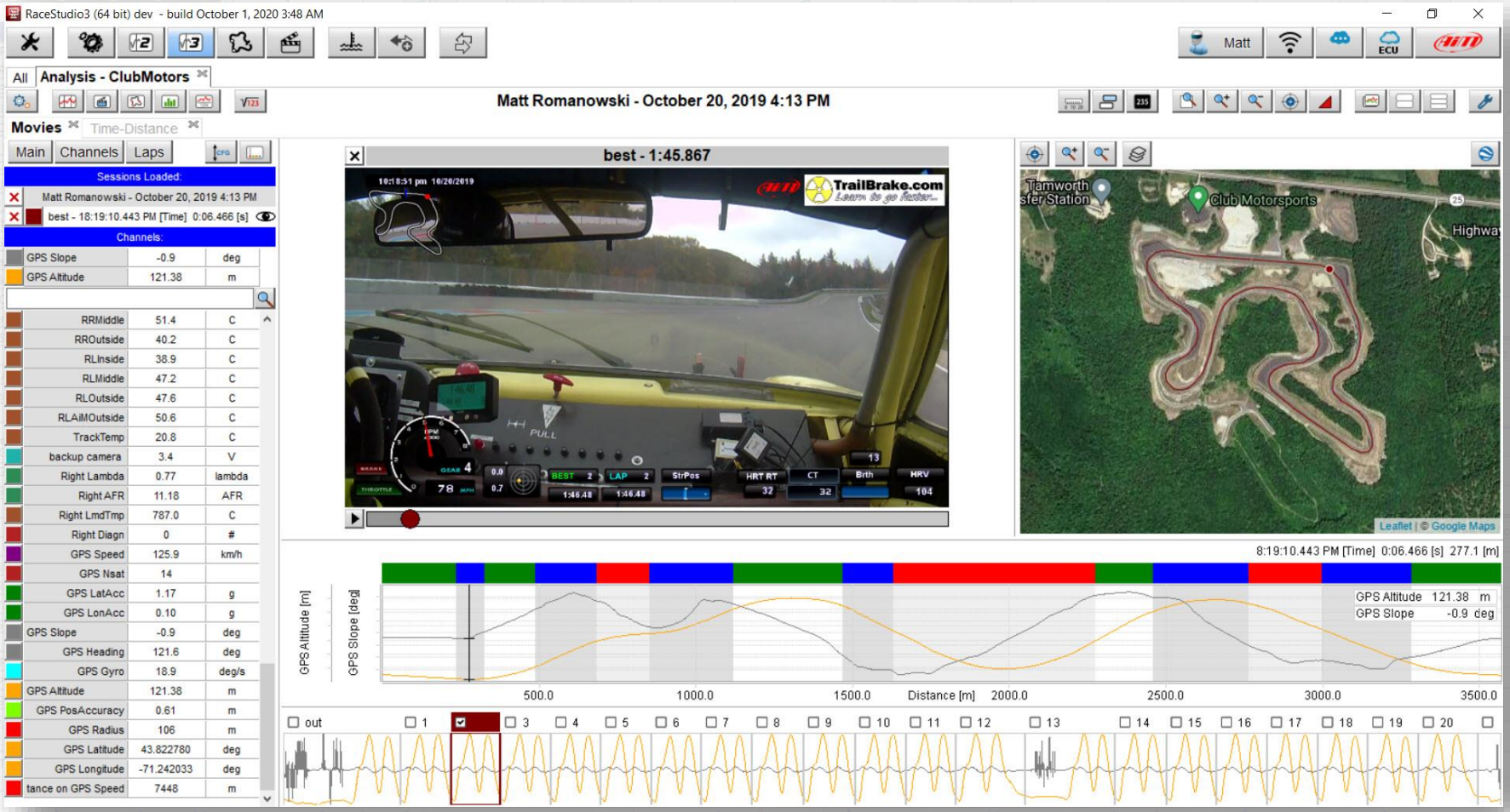
Track Topography



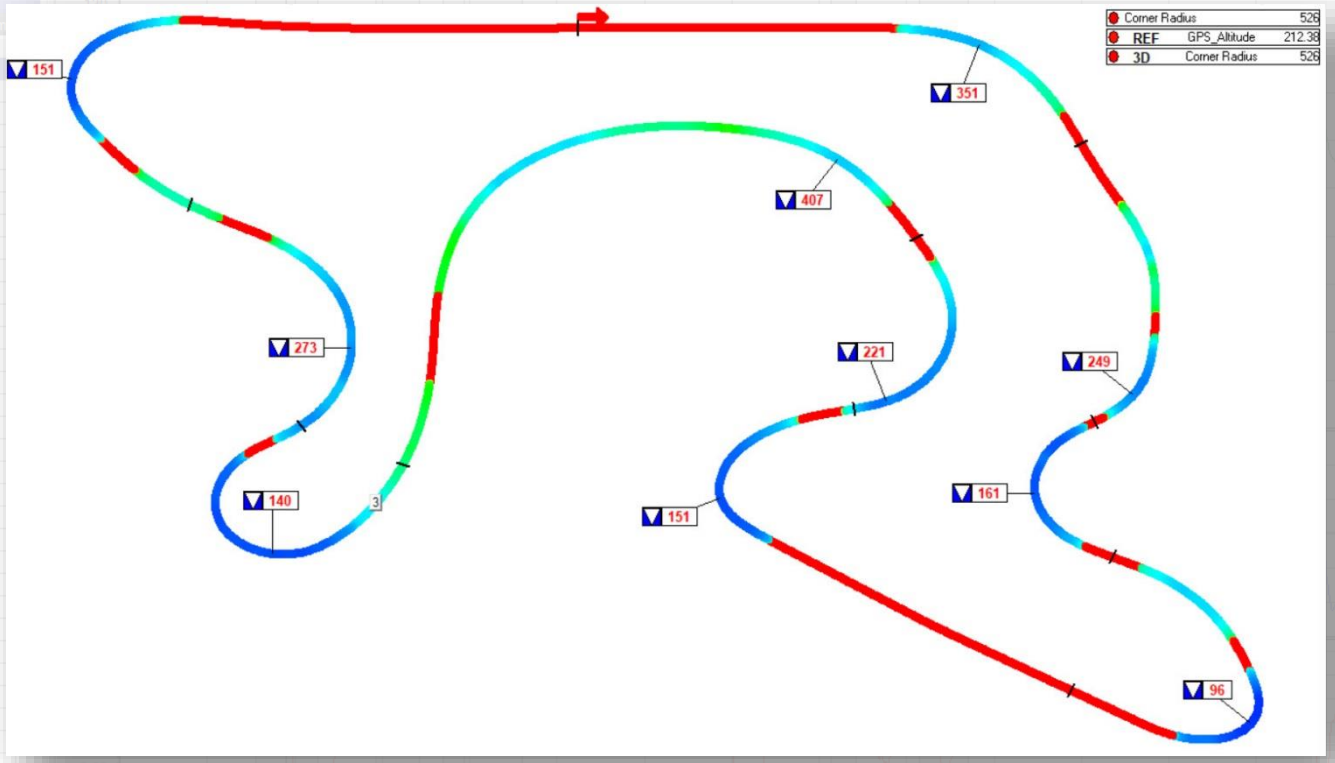
Track Topography



Track Topography

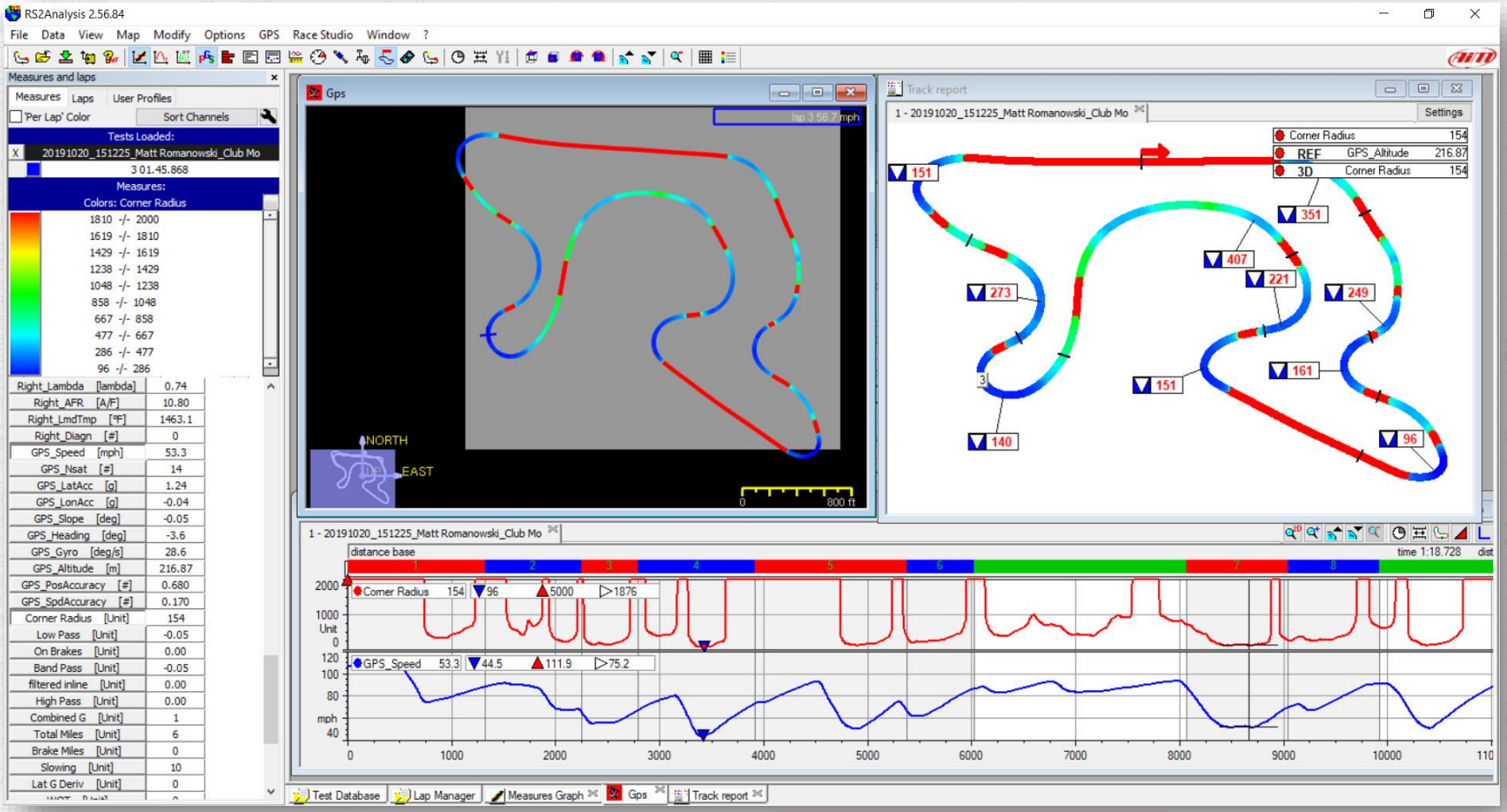


Corner Radius

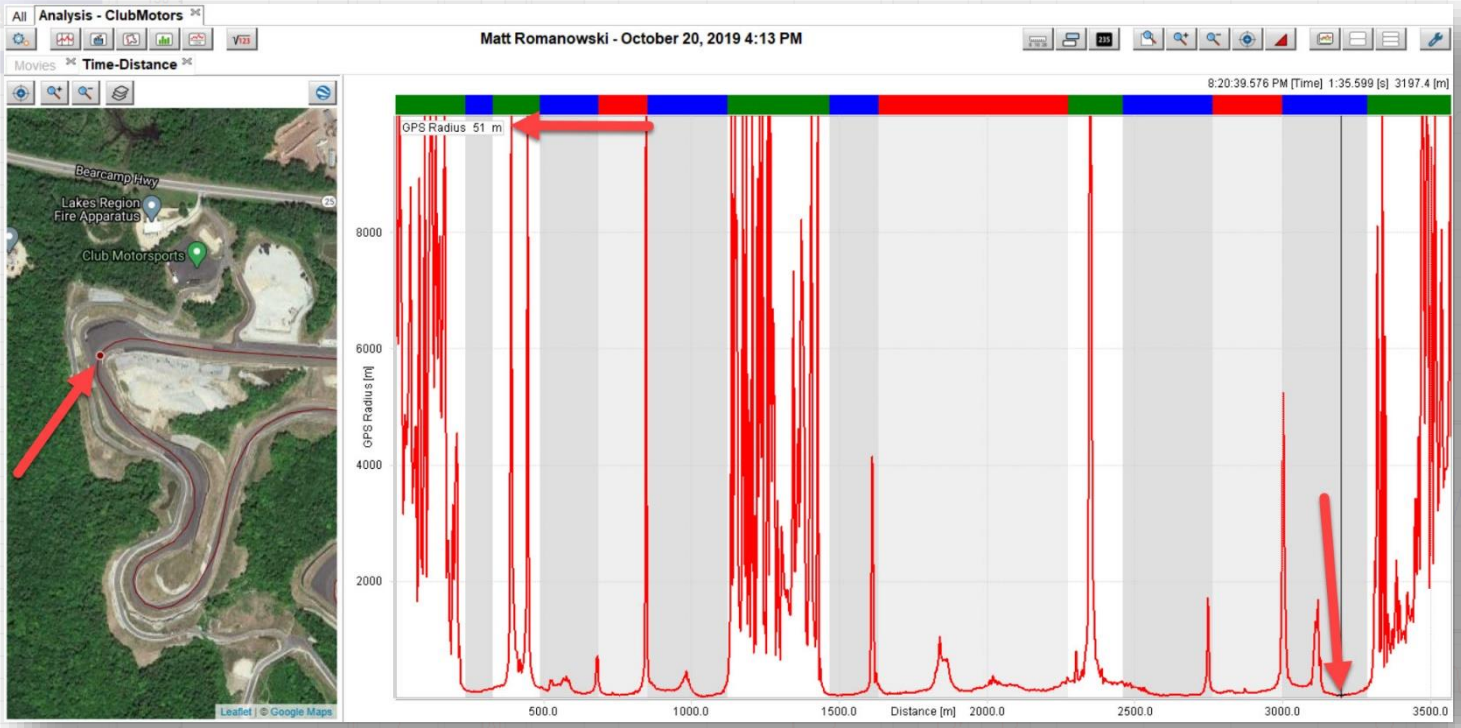


Use RS2 math channels to find corner radius, then use a track report to display them on the map showing flags for minimum values (tightest part of the turn). Remember this is driven by the segment map.

Corner Radius

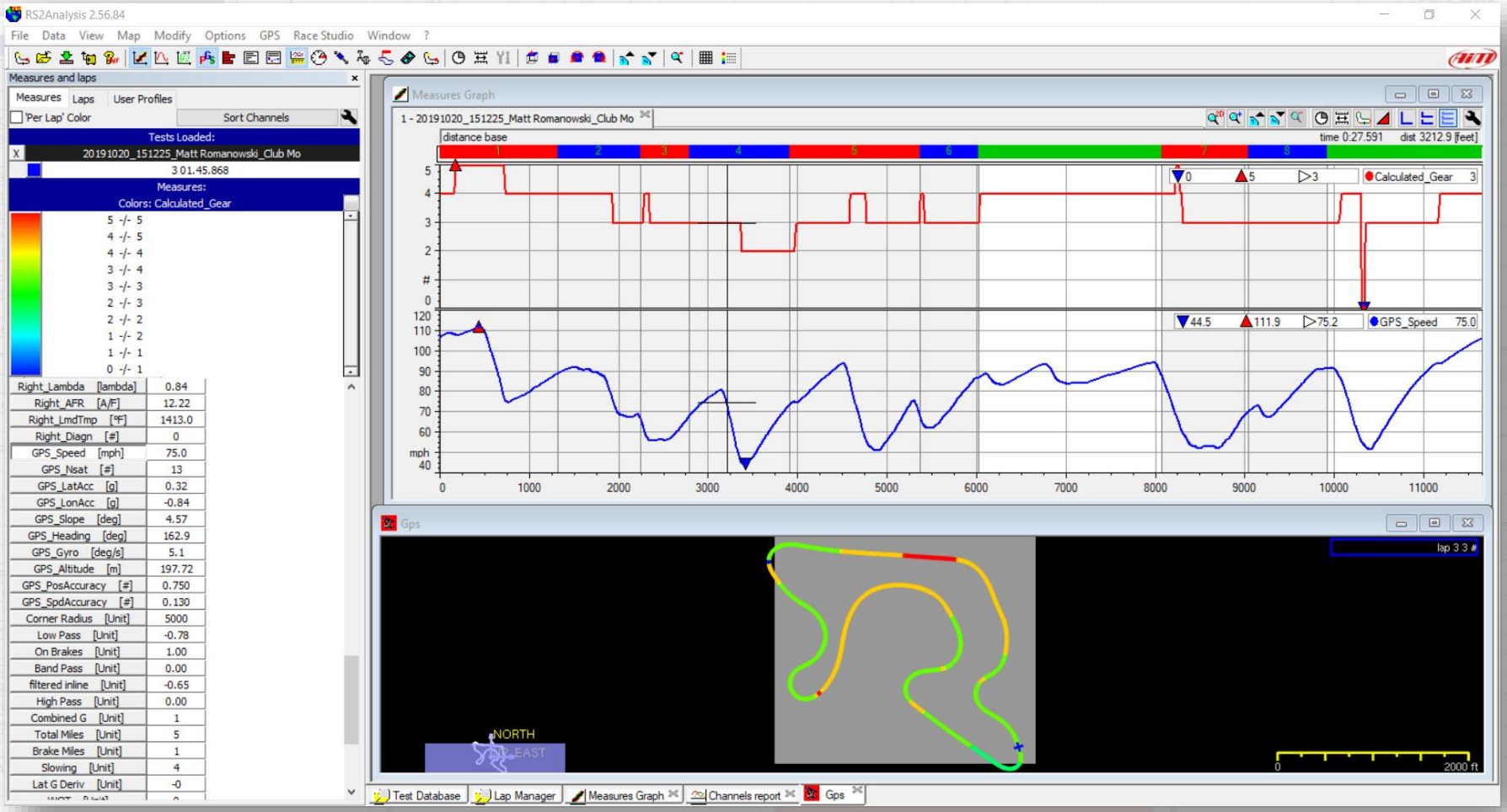


Corner Radius

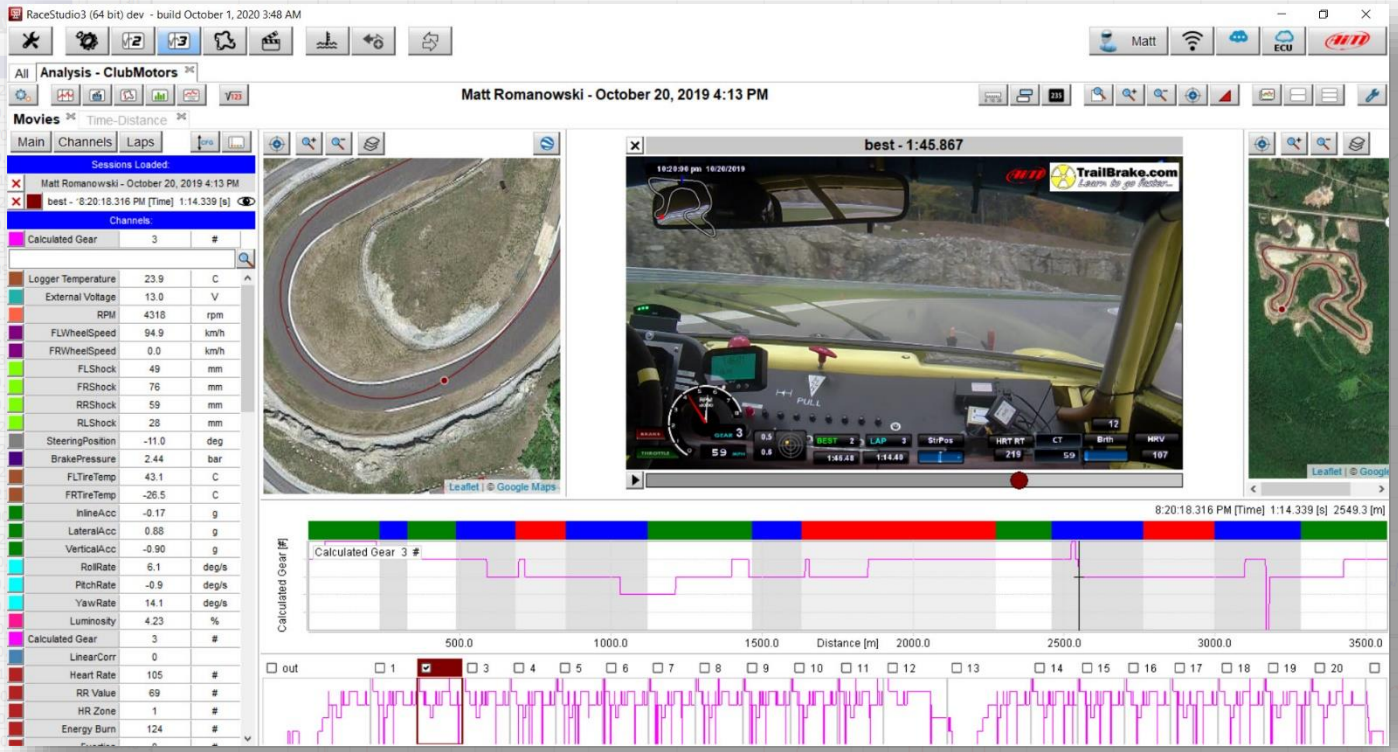


RS3A Beta includes the GPS radius. A neat feature is being able to see the exact tightest point (arguably the Apex!) and the spot on the track where it is. You can use this to confirm early, perfect, or late apexes in the data!

Gear Map

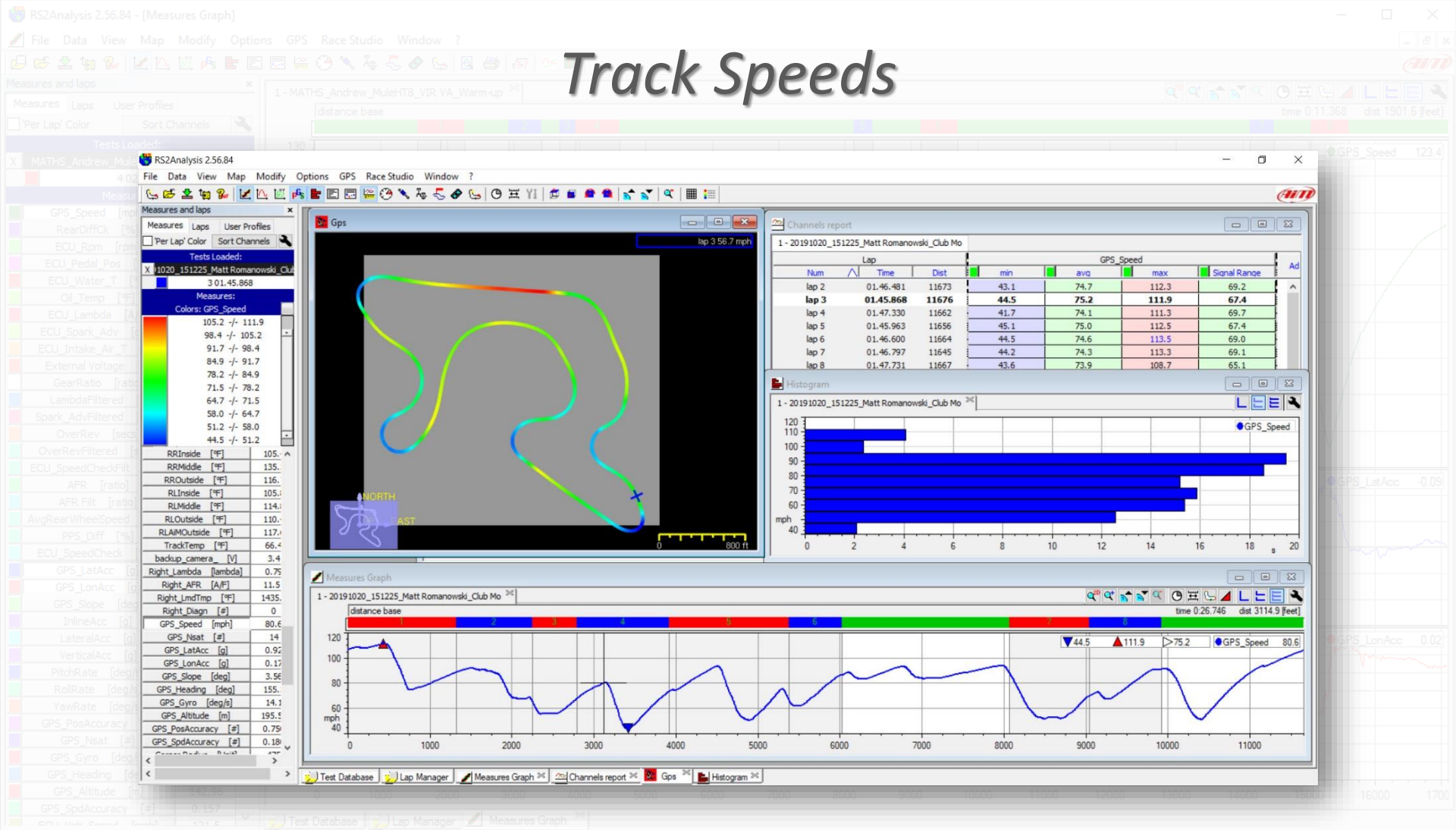

RS2Analysis 2.56.84
File Data View Map Modify Options GPS Race Studio Window ?
Measures and laps
Measures Laps User Profiles
'Per Lap' Color
Sort Channels
Tests Loaded:
20191020_151225_Matt Romanowski_Club Mo
3 01.45.868
Measures:
Colors: Calculated_Gear
5 -/- 5
4 -/- 5
4 -/- 4
3 -/- 4
3 -/- 3
2 -/- 3
2 -/- 2
1 -/- 2
1 -/- 1
0 -/- 1
Right_Lambda [lambda] 0.84
Right_AFR [A/F] 12.22
Right_LmdTmp [°F] 1413.0
Right_Diagn [#] 0
GPS_Speed [mph] 75.0
GPS_Nsat [#] 13
GPS_LatAcc [g] 0.32
GPS_LonAcc [g] -0.84
GPS_Slope [deg] 4.57
GPS_Heading [deg] 162.9
GPS_Gyro [deg/s] 5.1
GPS_Altitude [m] 197.72
GPS_PosAccuracy [#] 0.750
GPS_SpdAccuracy [#] 0.130
Corner Radius [Unit] 5000
Low Pass [Unit] -0.78
On Brakes [Unit] 1.00
Band Pass [Unit] 0.00
filtered inline [Unit] -0.65
High Pass [Unit] 0.00
Combined G [Unit] 1
Total Miles [Unit] 5
Brake Miles [Unit] 1
Slowing [Unit] 4
Lat G Deriv [Unit] -0
Measures Graph
1 - 20191020_151225_Matt Romanowski_Club Mo
distance base
time 0:27.591 dist 3212.9 [feet]
Calculated_Gear 3
GPS_Speed 75.0
mph
Gps
lap 3 3 #
NORTH
EAST
2000 ft
Test Database
Lap Manager
Measures Graph
Channels report
Gps

Gear Map



RS3A Beta has a neat way to show your gear position, video, zoomed track map, and overall track map. This is a great way to be able to reference your visual picture at a shift along with the exact track position.

Track Speeds



Use the GPS map to show a visual of speeds, the Channel Report for min, max, average, and range, along with a histogram to show the distribution.

Track Speeds – Multiple Laps

Track Length

Channels report

1 - 20191020_151225_Matt Romanowski_Club Mo

Lap			Brake Miles	GPS_Speed			Heart_Rate	Total Miles
Num	Time	Dist	max	min	avg	max	avg	max
lap 2	01.46.481	11673	0.80	43.1	74.7	112.3	18.28	4.45
lap 3	**01.45.868**	**11676**	**1.19**	**44.5**	**75.2**	**111.9**	**34.11**	**6.66**
lap 4	01.47.330	11662	1.63	41.7	74.1	111.3	102.59	8.87
lap 5	01.45.963	11656	2.05	45.1	75.0	112.5	25.10	11.08
lap 6	01.46.600	11664	2.43	44.5	74.6	113.5	0.00	13.29
lap 7	01.46.797	11645	2.87	44.2	74.3	113.3	0.00	15.49
lap 8	01.47.731	11667	3.27	43.6	73.9	108.7	34.07	17.70
lap 9	01.49.169	11681	3.72	41.6	73.0	109.9	99.23	19.91
lap 10	01.48.912	11666	4.18	43.9	73.1	110.7	98.00	22.12
lap 11	01.47.694	11674	4.64	41.0	73.9	112.0	98.95	24.33
lap 12	01.46.622	11676	5.09	42.9	74.7	112.9	102.36	26.54
lap 15	01.48.919	11671	6.42	39.0	73.1	113.1	100.04	33.27
lap 16	01.46.684	11684	6.85	42.2	74.7	112.5	102.08	35.48
lap 17	01.46.272	11676	7.27	43.2	74.9	111.0	103.94	37.69
lap 18	01.48.387	11656	7.72	44.6	73.3	110.1	103.83	39.90
lap 19	01.46.727	11677	8.16	46.6	74.6	110.0	104.53	42.11
lap 20	01.47.159	11660	8.61	44.1	74.2	110.1	106.51	44.32

Channel Report - Track Distances

- Lap Length
- Distance on Brakes
- Total Miles Driven
- Full Throttle (WOT) Miles

Channels report

1 - 20191020_151225_Matt Romanowski_Club Mo

Lap			Brake Miles	Heart_Rate	Total Miles	WOT Miles
Num	Time	Dist	max	avg	max	max
lap 2	01.46.481	11673	0.80	18.28	4.45	0.00
lap 3	**01.45.868**	**11676**	**1.19**	**34.11**	**6.66**	**0.00**
lap 4	01.47.330	11662	1.63	102.59	8.87	0.00
lap 5	01.45.963	11656	2.05	25.10	11.08	0.00
lap 6	01.46.600	11664	2.43	0.00	13.29	0.00
lap 7	01.46.797	11645	2.87	0.00	15.49	0.00
lap 8	01.47.731	11667	3.27	34.07	17.70	0.00
lap 9	01.49.169	11681	3.72	99.23	19.91	0.00
lap 10	01.48.912	11666	4.18	98.00	22.12	0.00
lap 11	01.47.694	11674	4.64	98.95	24.33	0.00
lap 12	01.46.622	11676	5.09	102.36	26.54	0.00
lap 15	01.48.919	11671	6.42	100.04	33.27	0.00
lap 16	01.46.684	11684	6.85	102.08	35.48	0.00
lap 17	01.46.272	11676	7.27	103.94	37.69	0.00
lap 18	01.48.387	11656	7.72	103.83	39.90	0.00
lap 19	01.46.727	11677	8.16	104.53	42.11	0.00
lap 20	01.47.159	11660	8.61	106.51	44.32	0.00

Channel Report – Lap Percent

- Lap Length
- Distance on Brakes
- Total Miles Driven
- Full Throttle (WOT) Miles

Channels report

1 - 20191020_151225_Matt Romanowski_Club Mo

Lap			Percent Brakes	Percent Left Turn	Percent Right Turn	Percent Straight	Add / Remove
Num	Time	Dist	max	max	max	min	
lap 2	01.46.481	11673	19.90	28.77	42.55	28.68	
lap 3	**01.45.868**	**11676**	**19.10**	**28.95**	**42.92**	**28.13**	
lap 4	01.47.330	11662	21.70	28.71	41.69	29.60	
lap 5	01.45.963	11656	20.40	29.15	43.40	27.45	
lap 6	01.46.600	11664	18.80	28.88	42.61	28.51	
lap 7	01.46.797	11645	21.70	28.57	42.49	28.94	
lap 8	01.47.731	11667	20.00	28.45	41.75	29.80	
lap 9	01.49.169	11681	22.80	27.85	40.89	31.27	
lap 10	01.48.912	11666	23.10	27.80	40.89	31.31	
lap 11	01.47.694	11674	22.90	28.41	41.62	29.97	
lap 12	01.46.622	11676	22.30	28.90	42.61	28.49	
lap 15	01.48.919	11671	23.50	26.95	41.32	31.73	
lap 16	01.46.684	11684	21.40	28.69	42.71	28.60	
lap 17	01.46.272	11676	20.20	28.74	43.40	27.85	
lap 18	01.48.387	11656	22.00	27.53	41.38	31.09	
lap 19	01.46.727	11677	21.60	28.63	43.26	28.11	
lap 20	01.47.159	11660	22.20	28.38	42.20	29.42	

More Ideas

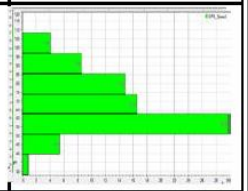
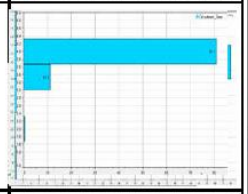
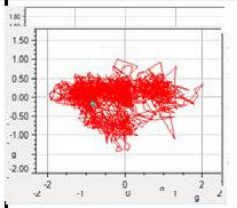
1 - 20191020_151225_Matt Romanowski_Club Mo

Lap			Exertion	FLTireTemp	GPS_Altitude	GPS_Speed	HR_Zone	Heart_Rate		Logger Temperature	RPM
Num	Time	Dist	max	max	avg	avg	avg	avg	max	avg	avg
lap 2	01.46.481	11673	13.00	143.02	189.79	74.7	0.14	18.28	98.00	75.52	5231.06
lap 3	**01.45.868**	**11676**	**24.00**	**146.92**	**189.67**	**75.2**	**0.54**	**34.11**	**118.00**	**75.17**	**5267.21**
lap 4	01.47.330	11662	47.00	146.94	189.58	74.1	1.21	102.59	112.00	74.90	5177.56
lap 5	01.45.963	11656	49.00	149.28	189.61	75.0	0.25	25.10	103.00	74.75	5290.81
lap 6	01.46.600	11664	0.00	148.73	189.75	74.6	0.00	0.00	0.00	74.69	5257.24
lap 7	01.46.797	11645	0.00	151.33	189.68	74.3	0.00	0.00	0.00	74.70	5222.88
lap 8	01.47.731	11667	20.00	144.79	189.58	73.9	0.34	34.07	112.00	74.80	5205.25
lap 9	01.49.169	11681	45.00	146.11	189.98	73.0	1.00	99.23	108.00	74.91	5098.49
lap 10	01.48.912	11666	47.00	153.68	189.66	73.1	0.98	98.00	110.00	75.05	5138.90
lap 11	01.47.694	11674	47.00	150.77	189.78	73.9	1.00	98.95	109.00	75.22	5204.67
lap 12	01.46.622	11676	47.00	154.71	189.63	74.7	1.19	102.36	112.00	75.26	5244.32
lap 15	01.48.919	11671	46.00	150.21	189.97	73.1	1.06	100.04	111.00	76.35	5135.79
lap 16	01.46.684	11684	47.00	155.60	189.79	74.7	1.19	102.08	112.00	76.20	5246.51
lap 17	01.46.272	11676	49.00	161.78	189.63	74.9	1.23	103.94	114.00	76.11	5259.55
lap 18	01.48.387	11656	47.00	162.58	189.58	73.3	1.23	103.83	113.00	76.14	5154.72
lap 19	01.46.727	11677	48.00	159.88	189.66	74.6	1.38	104.53	114.00	76.21	5241.39
lap 20	01.47.159	11660	48.00	152.24	189.56	74.2	1.44	106.51	114.00	76.31	5217.77

Use the channels you have to make more generalizations about the track. Things like average Track Temp, Average RPM, Average Speed, Max Tire (or average) Tire Temp, Average Altitude (carb jetting?), and Driver Measures can tell you a lot!

Take the Next Steps….

- Put it all together and carry it further
- Use all the channels you have available
- Put them together in a spreadsheet and compare track to track. You'll be surprised!

Track Length (miles)	1.52
Top Speed	107
Average Speed	69
Speed Profile	
Gear Usage	
Gearshifts per lap	5
Max Lateral G LH Corner	1.7
Max Lateral G RH Corner	1.37
Friction Circle Shape	
# LH Corners	7
# RH Corners	4
Quadrant 1:Acc LH	43%
Quadrant 2: Acc RH	25%
Quadrant 3: Brake LH	20%
Quadrant 4: Brake RH	6%
Full Throttle time (% of laptime)	51%
Time on brakes (% of laptime)	17%

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Co-Host

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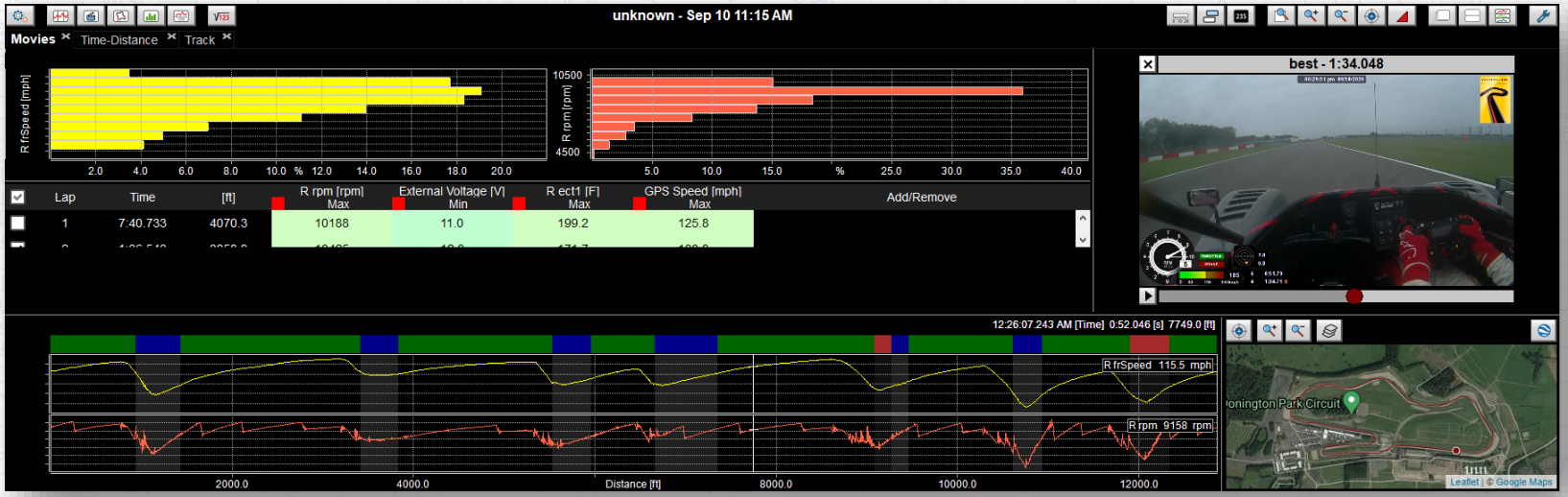
Determining Your (and Their)

Data Analysis Learning Styles



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Determining Your (and Their)
Data Analysis Learning Styles

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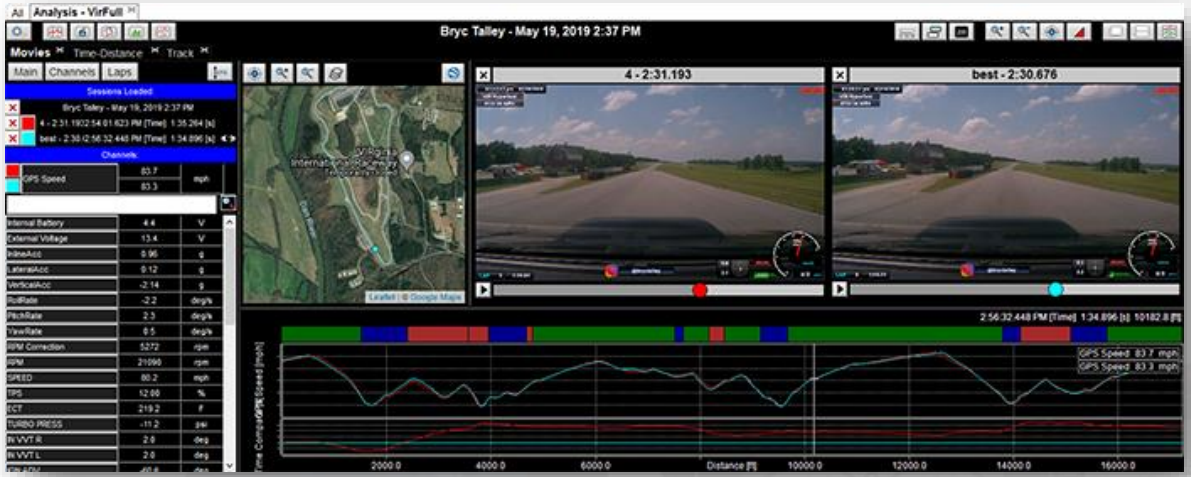

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2020 Webinar #56

October 8th, 2020