

Vehicle

All

Outlier Type

All

Timestamp selection

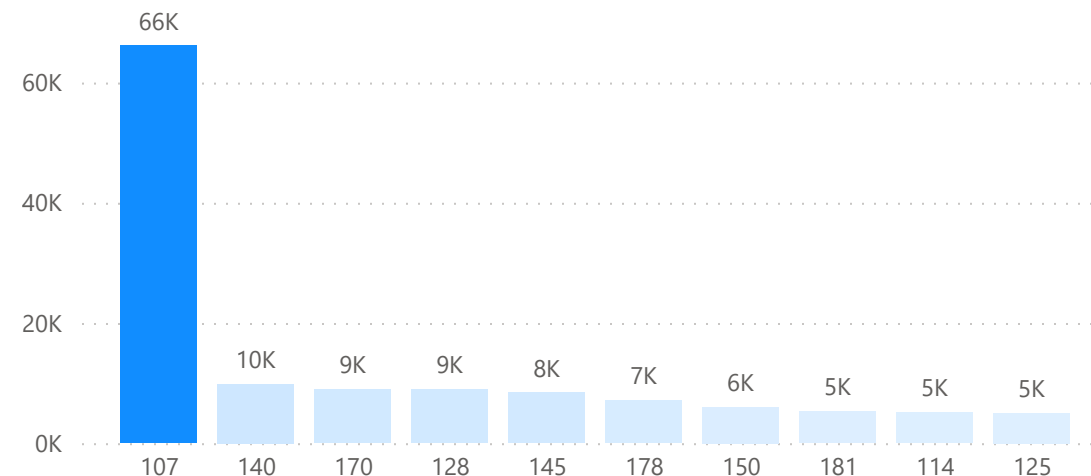
1/22/2023



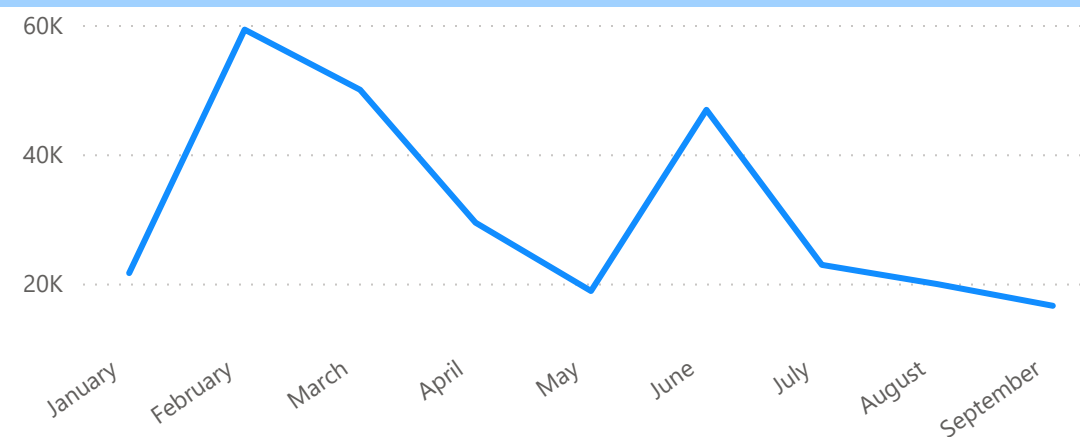
9/13/2023



Problematic vehicles (Top 10)



Outliers during time (Monthly)



Total data

17679K

Outliers

285395

269778

Distinct outliers

92

Vehicles affected

Vehicle

All

Outlier Type

All

Timestamp selection

1/22/2023

9/13/2023

92

Number of vehicles

285.40K

Outliers

Map plot

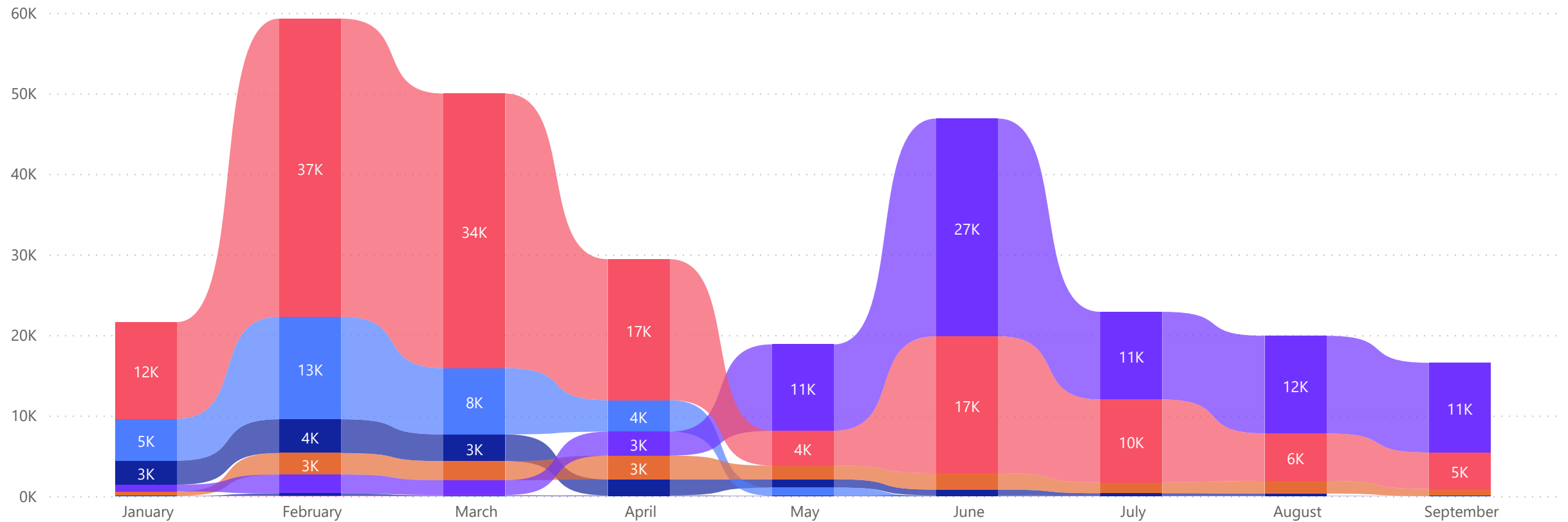


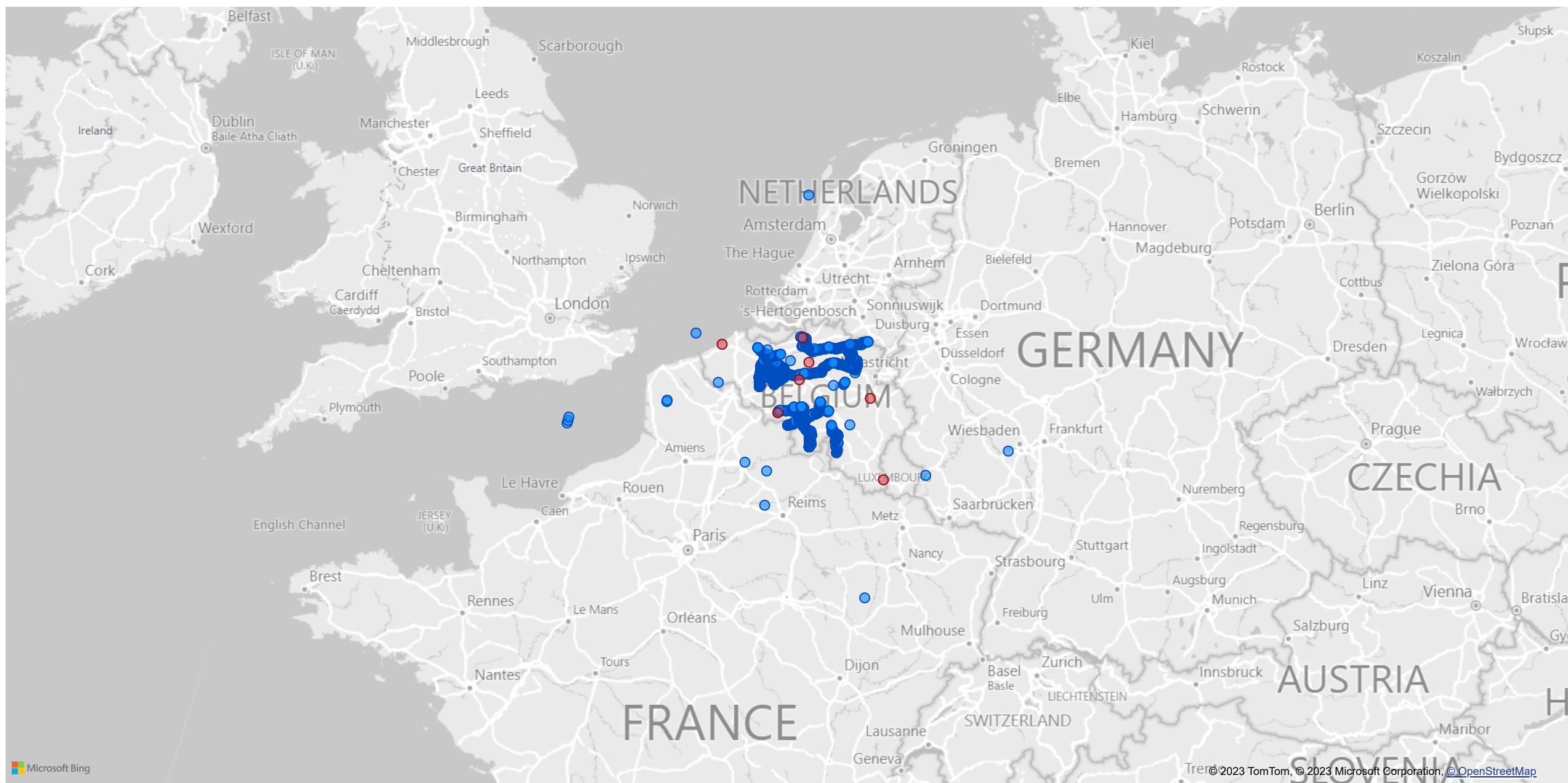
Table view



## Outliers by Type (Monthly)

● InAir Sensor Delta ● ISO Forest ● Outside Temperature ● Speed Outlier ● Temperature Bound ● Train Stopped ● Water Oil Sensor Delta





Vehicle	Timestamp	InAirPC1	InAirPC2	OilPressPC1	OilPressPC2	RPMPC1	RPMPC2	WatTempPC1	WatTempPC2	OilTempPC1	OilTempPC2	Temperature	OutlierType
Station													
102	1/23/2023 10:48:30 PM	55	58	0	0.00	0	0	72	76	73.00	75	2.50	Outisde Temperature
102	1/23/2023 10:48:46 PM	55	58	0	0.00	0	0	72	76	71.00	75	2.50	Outisde Temperature
102	1/23/2023 10:49:30 PM	56	59	0	0.00	0	0	72	76	71.00	75	2.50	Outisde Temperature
102	1/23/2023 10:49:46 PM	56	60	0	0.00	0	0	72	76	71.00	76	2.50	Outisde Temperature
102	1/23/2023 10:50:30 PM	56	60	0	0.00	0	0	71	75	73.00	75	2.50	Outisde Temperature
102	1/23/2023 10:50:45 PM	56	60	0	0.00	0	0	71	75	74.00	75	2.50	Outisde Temperature
102	1/23/2023 10:51:30 PM	56	61	0	0.00	0	0	71	75	72.00	75	2.50	Outisde Temperature
102	1/23/2023 10:51:45 PM	57	61	0	0.00	0	0	71	75	71.00	74	2.50	Outisde Temperature
102	1/24/2023 10:47:13 AM	46	57	0	0.00	0	0	71	81	72.00	77	1.80	Outisde Temperature
102	1/24/2023 11:02:53 AM	50	58	0	0.00	0	0	72	76	70.00	74	2.20	Outisde Temperature
102	1/24/2023 11:03:03 AM	50	58	0	0.00	0	0	72	76	71.00	74	2.20	Outisde Temperature
102	1/24/2023 11:28:42 AM	52	58	0	0.00	0	0	72	75	68.00	74	2.20	Outisde Temperature
102	1/24/2023 11:28:52 AM	52	58	0	0.00	0	0	72	75	70.00	74	2.20	Outisde Temperature
102	1/24/2023 11:29:42 AM	53	59	0	0.00	0	0	72	74	70.00	74	2.20	Outisde Temperature
102	1/24/2023 11:29:51 AM	53	59	0	0.00	0	0	72	74	74.00	74	2.20	Outisde Temperature
102	1/24/2023 11:30:42 AM	53	60	0	0.00	0	0	72	74	70.00	74	2.20	Outisde Temperature
102	1/24/2023 11:30:44 AM	54	60	0	0.00	0	0	72	74	71.00	74	2.20	Outisde Temperature
102	1/25/2023 9:16:34 AM	6	4	555	610.00	799	786	27	15	17.00	14		ISO Forest
102	1/25/2023 9:16:48 AM	6	3	576	610.00	800	813	27	15	19.00	13		ISO Forest
102	1/25/2023 9:17:34 AM	6	3	558	600.00	800	800	28	17	17.00	13		ISO Forest
102	1/25/2023 9:17:49 AM	6	3	552	596.00	800	806	28	18	19.00	13		ISO Forest
102	1/25/2023 9:18:34 AM	6	3	541	586.00	800	800	31	20	19.00	14		ISO Forest
102	1/25/2023 10:39:17 PM	3	3	1	36.67	34	80	26	27	77.33	80		ISO Forest
102	1/25/2023 11:00:38 PM	23	56	3	0.00	0	0	76	75	72.00	72	0.60	Outisde Temperature
102	1/25/2023 11:00:43 PM	12	56	2	0.00	0	0	38	38	71.50	72	0.60	Outisde Temperature
102	1/25/2023 11:00:59 PM	26	56	3	0.00	0	0	76	75	70.00	72	0.60	Outisde Temperature
102	1/25/2023 11:01:42 PM	35	56	3	0.00	0	0	74	75	70.00	71	0.60	Outisde Temperature



Vehicle



All



Outlier



All



873

Number of groups

13.87

Average duration

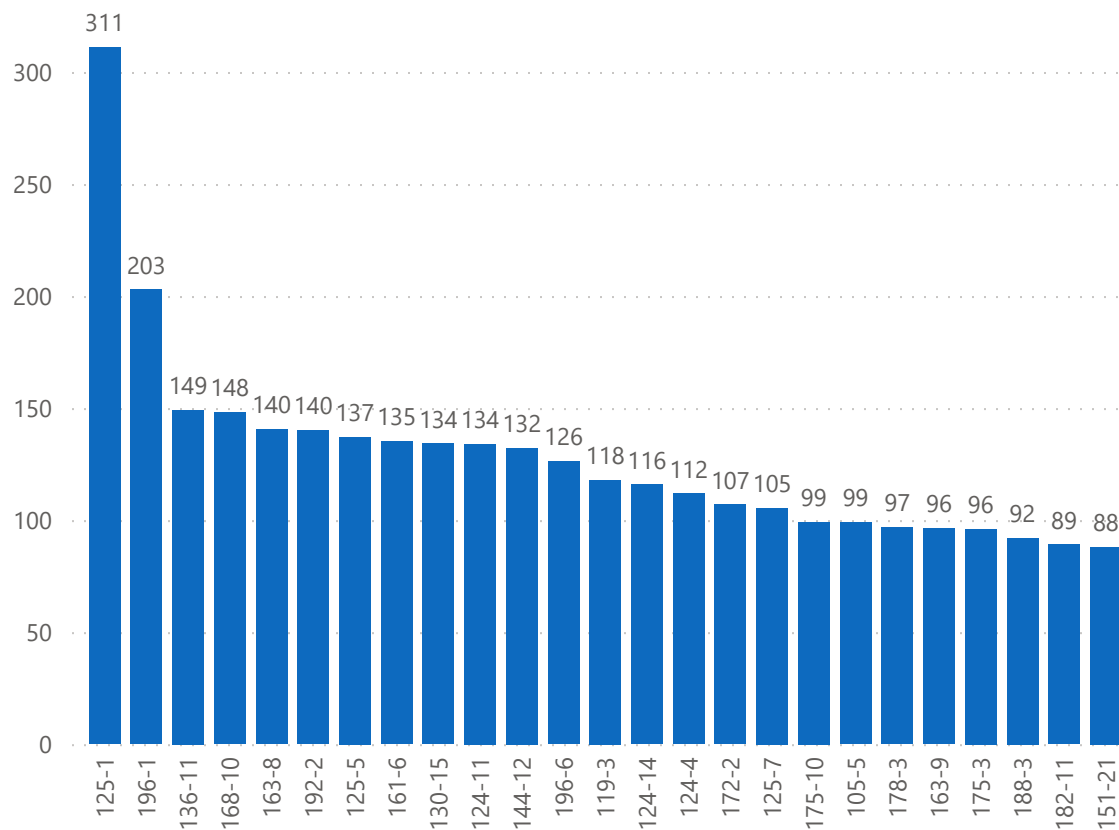
217

Outlier

656

Non-outlier

Groups with continuous considerable abs. difference (minutes)



Vehicle	Accumulated duration of minutes
125	660.67
164	611.43
196	526.78
130	503.35
142	500.35
134	479.73
136	469.07
175	460.10
124	453.77
172	378.83
163	376.37
161	298.48
145	298.38
166	283.70
144	266.63
151	254.62
114	240.98
105	228.50
168	228.50
182	225.55

Total

12,105.58



Vehicle



All



Outlier



All



Sensor



All



3966

Number of groups - PC1

4022

Number of groups - PC2

21.21

Average duration

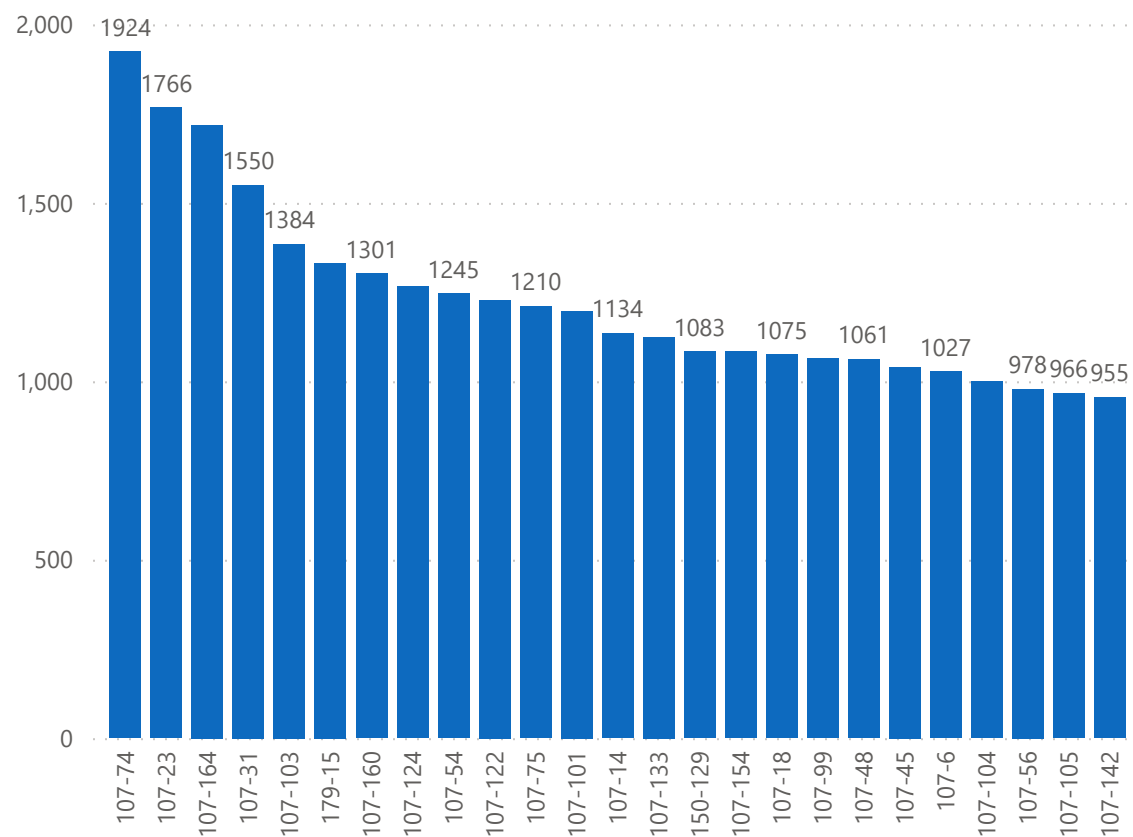
455

Outlier

7533

Non-outlier

Groups with continuous considerable abs. difference (minutes)



Vehicle	Accumulated duration in minutes
107	65,850.45
164	18,453.38
194	15,155.50
140	8,758.97
170	3,769.93
145	3,598.17
150	3,500.15
178	2,783.77
128	2,359.90
181	2,311.03
151	2,296.32
169	1,892.87
146	1,761.58
179	1,729.68
124	1,672.80
166	1,671.22
148	1,602.55
125	1,593.63
174	1,398.28
168	1,322.08

Total

169,447.87

79.92K

Temperature outliers

Timestamp selection

1/24/2023

9/13/2023

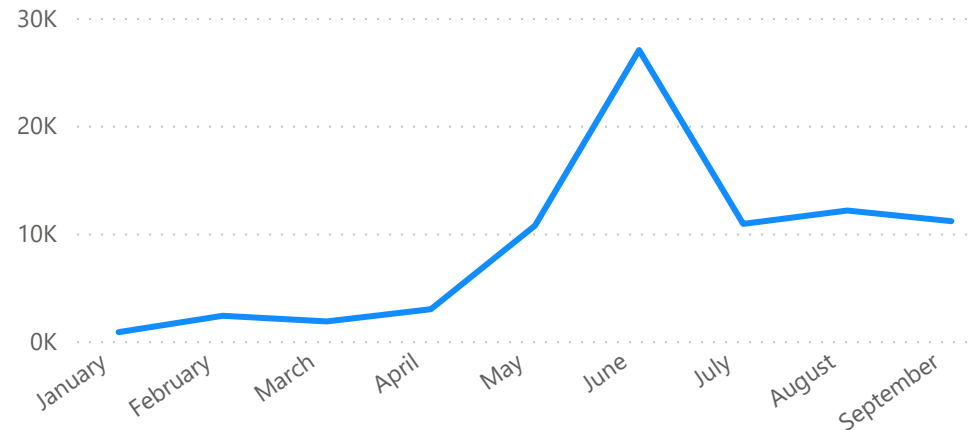
PC1

40.03K

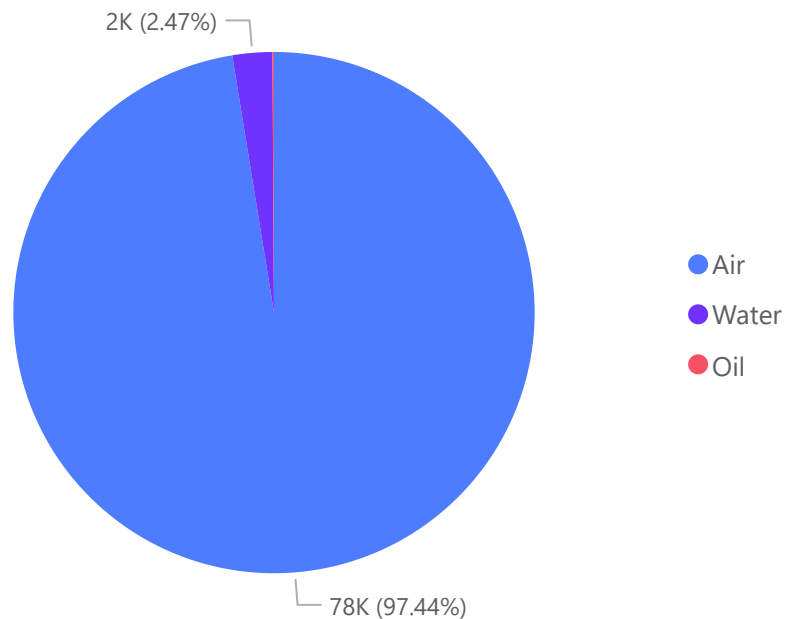
PC2

48.78K

Outliers during time (Month)



Distribution of Temperature Outliers



Vehicle	Air Outliers	Water Outliers	Oil Outliers
128	4795	915	15
114	3864		
181	2503		
191	2333	44	12
170	1972		
177	1835	4	
117	1826		
150	1826	58	
162	1719		
172	1660	35	1
164	1625	4	
192	1434	4	
137	1409		
Total	78384	1986	76



Vehicle



All



Sensor



All



13.54K

Outliers PC1

17.57K

Outliers PC2

Absolute difference with outside temperature (Above 50°C)



Vehicle

Ocurrences

172	1538
191	1370
136	1211
186	1192
192	1117
170	802
163	693
135	683
139	598
130	587
142	571
177	560
173	553
125	552
112	545
184	543
114	540
154	501
120	499
128	498

Total

31109