



TEAM VEGA

PROJECT RESULTS

MAGNETOSPHERIC MULTISCALE MISSION

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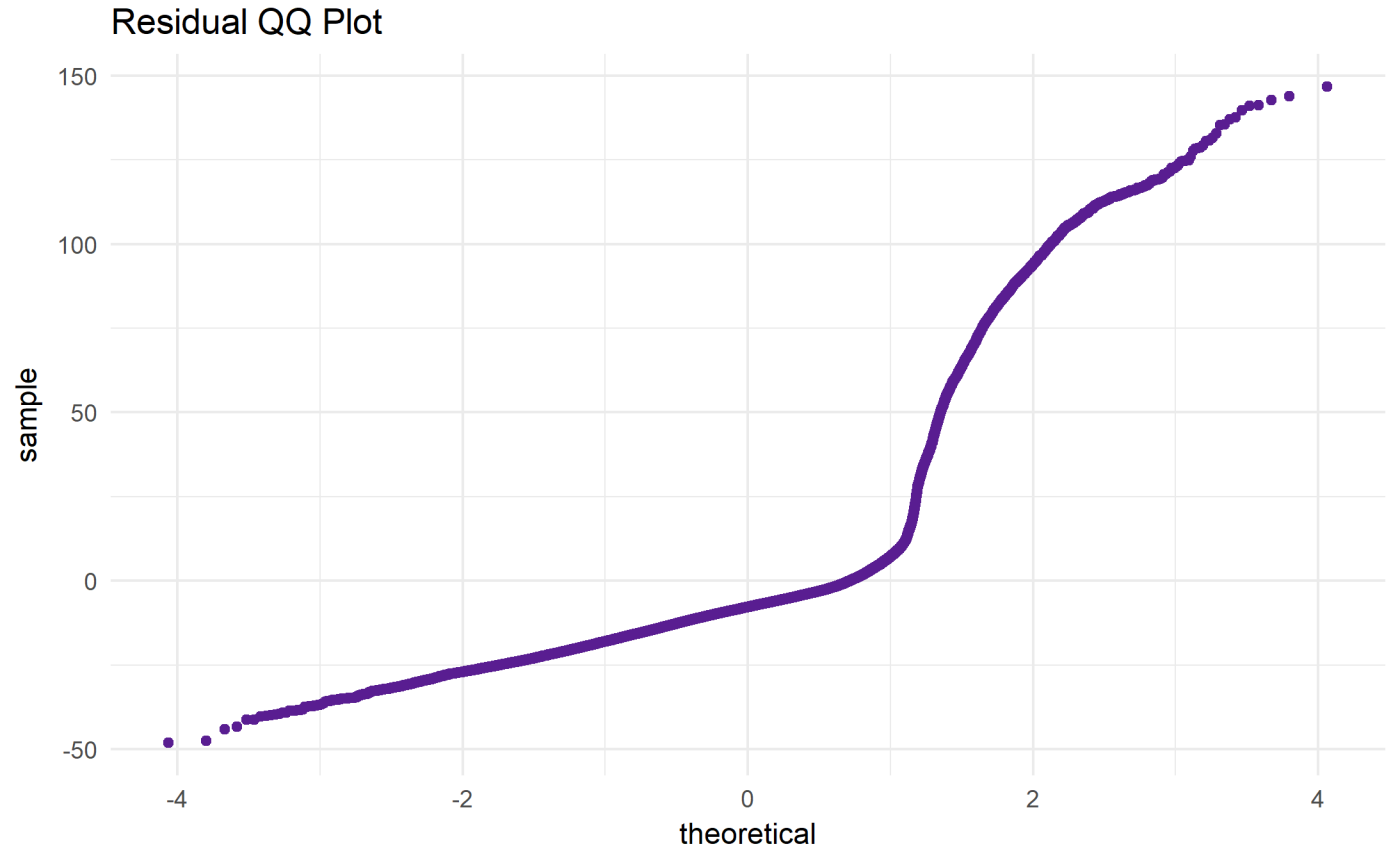
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DATA EXPLORATION

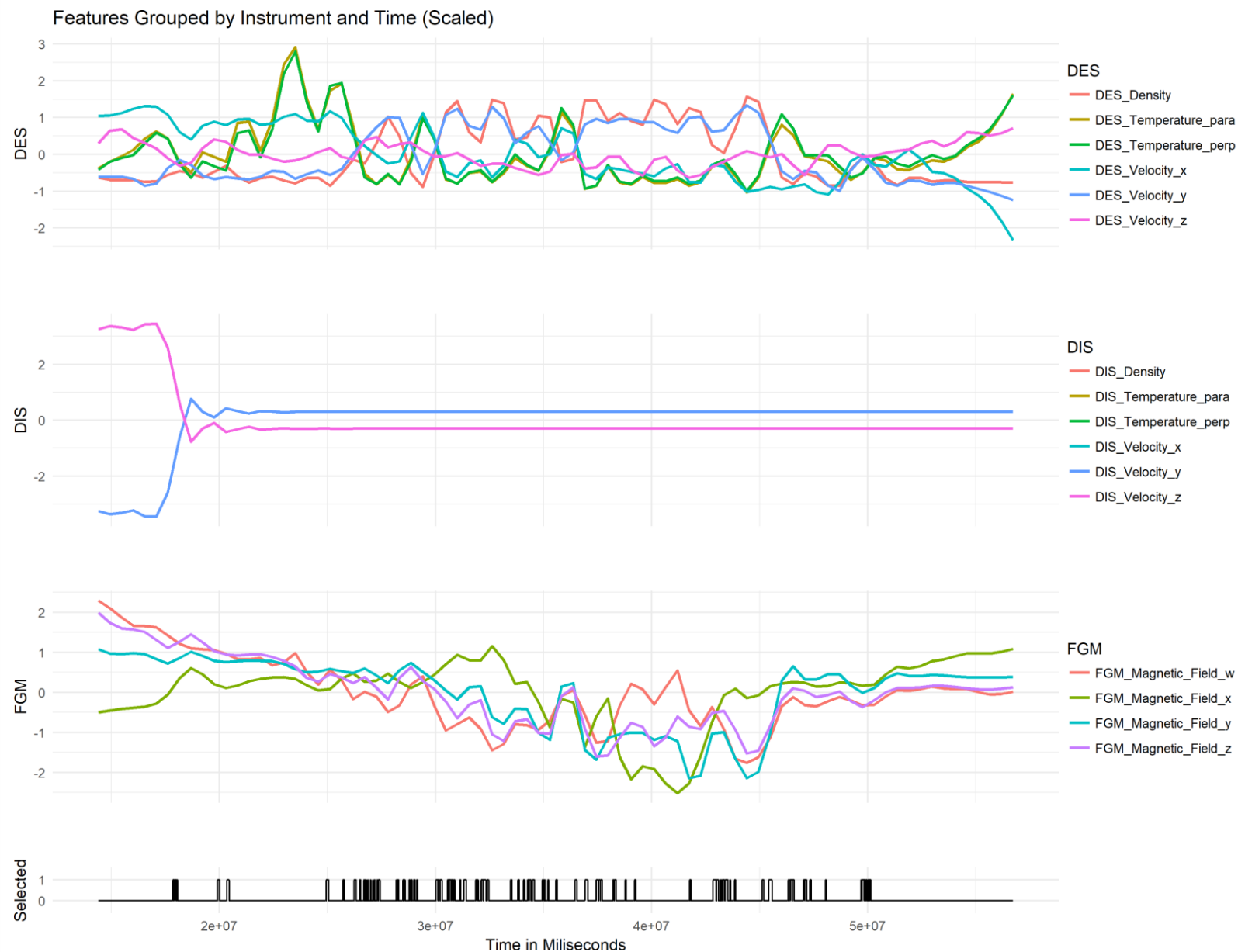
We found that the data did not follow the **i.i.d. assumption**.

We hypothesized that we should be treating it as a **Time Series**.



DATA EXPLORATION

We found that the DIS instrument data did not seem to greatly impact the selections, so we removed it from our models.



FEATURE SETS

Time Shift

ID	Density.2	Density.1	Density.3
1	1.3588403
2	1.3109657	1.3588403	...
3	1.5180655	1.3109657	1.3588403
4	1.5744927	1.5180655	1.3109657
5	1.1567937	1.5744927	1.5180655

Time Difference

ID	Density.Past	Density	Density.Future
1	0.000000	{ 1.1023268 }	-0.3868457
2	0.2565135	{ 1.3588403 }	-0.09930529
3	0.08038215	1.3109657	-0.11654876
4	0.2606879	{ 1.5180655 }	0.13234722
5	0.25194312	{ 1.5744927 }	0.22760318

METHODS

	Total	Found	Missed	Classification Error	Weighted Error
Linear Regression					
Basic Data	426	186	315	0.1460517	6100.4859
Time Shift	438	200	306	0.1443801	5307.1438
Time Difference	436	261	243	0.1265440	5311.7890
Radial SVM					
Basic Data	426	272	229	0.1043559	4468.3803
Time Shift	438	294	212	0.0987254	3699.4909
Time Difference	436	423	81	0.0418452	1181.6560
Random Forest					
Basic Data	426	323	178	0.0805963	3140.3850
Time Shift	438	325	181	0.0852839	2948.5776
Time Difference	436	466	38	0.0191581	529.1858

VALIDATION

	Total	Found	Missed	Classification Error	Weighted Error
Time Difference	256	267	19	0.0202117	370.5141

