BSkyOpenNewDataset(datasetName='Dataset1')

Open Dataset

Anova (1 Way and 2 Way)

C:\Users\User\Documents\Marg I\Clean data D&R trials\Restoration plots.xlsx

`Summarise()` ungrouping output (override with `.groups` arment)

Summaries for Sand___ by factor variable Tube_diameter

Tube_diameTer	n	mean	median	min	Max	Sd	variance
4.5cm	48	86.4746	86.6	85.29	88.78	0.609	0.3708
7.5cm	48	86.4775	86.68	85.28	86.98	0.5006	0.2505

`summarise()` ungrouping output (override with `.groups` argument)

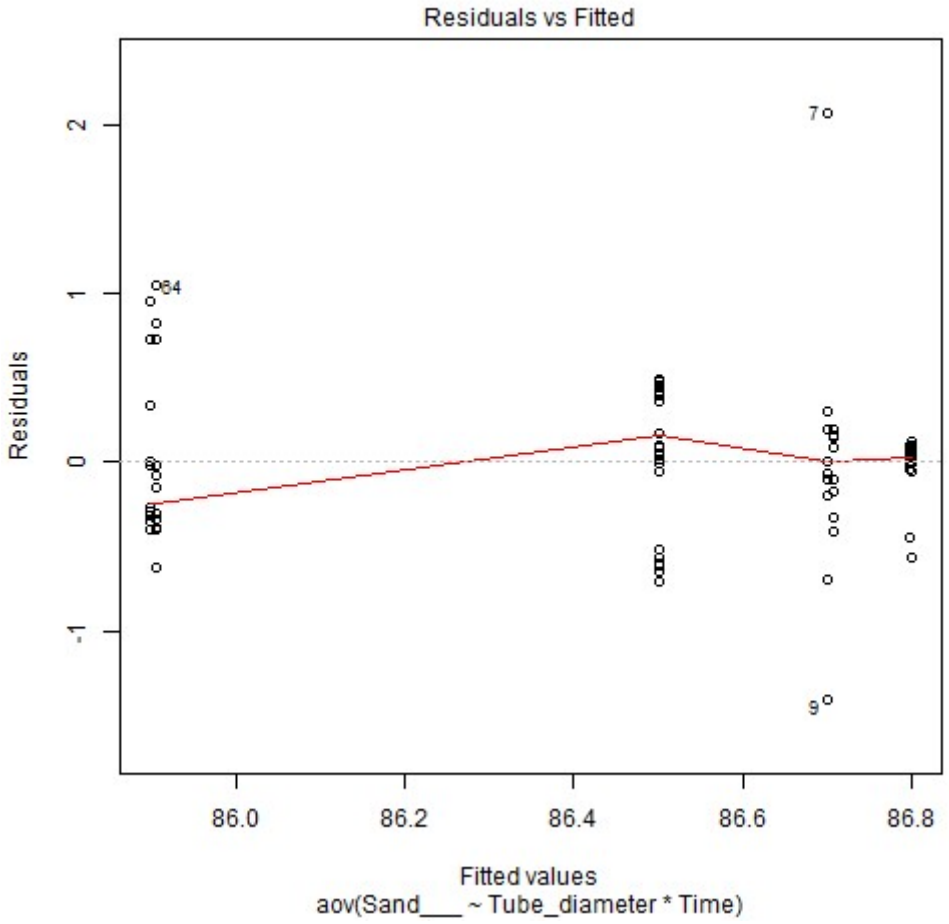
Summaries for Sand___ by factor variable Time

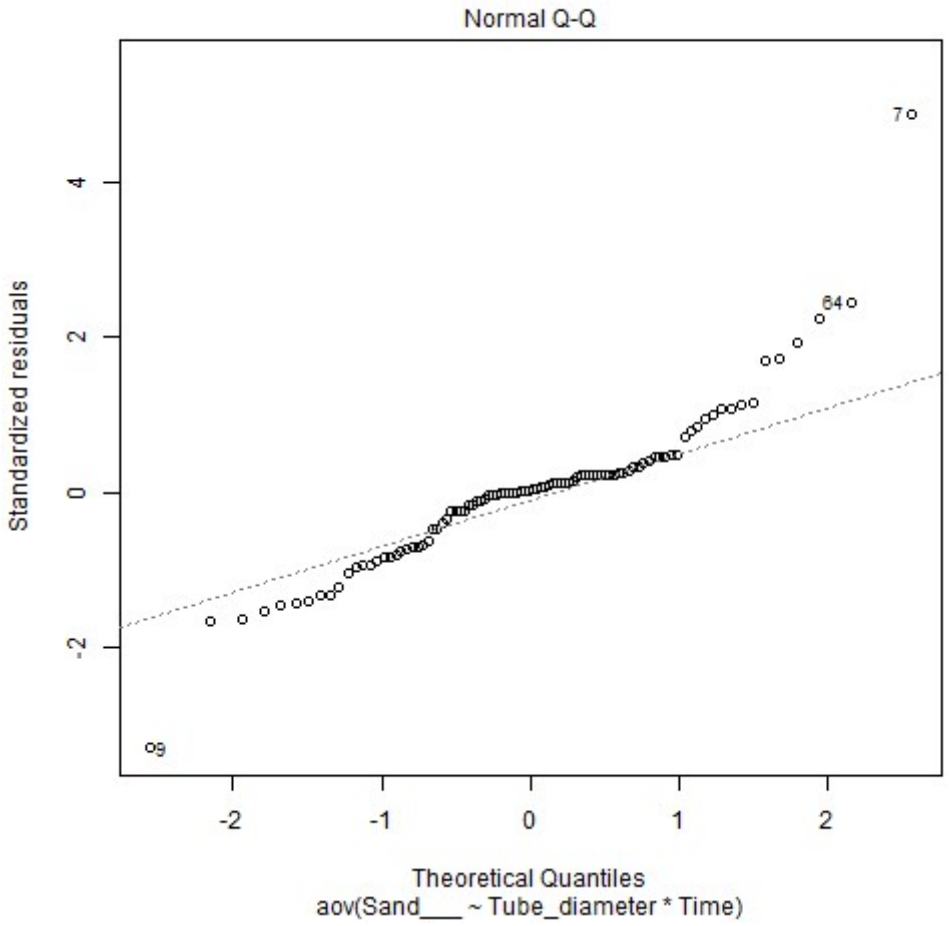
Time	n	mean	median	min	max	sd	variance
T1	24	86.7037	86.665	85.29	88.78	0.5745	0.33
T2	24	85.9	85.69	85.28	86.95	0.4919	0.242
T3	24	86.8	86.845	86.23	86.92	0.1651	0.0273
T4	24	86.5004	86.55	85.79	86.99	0.4001	0.1601

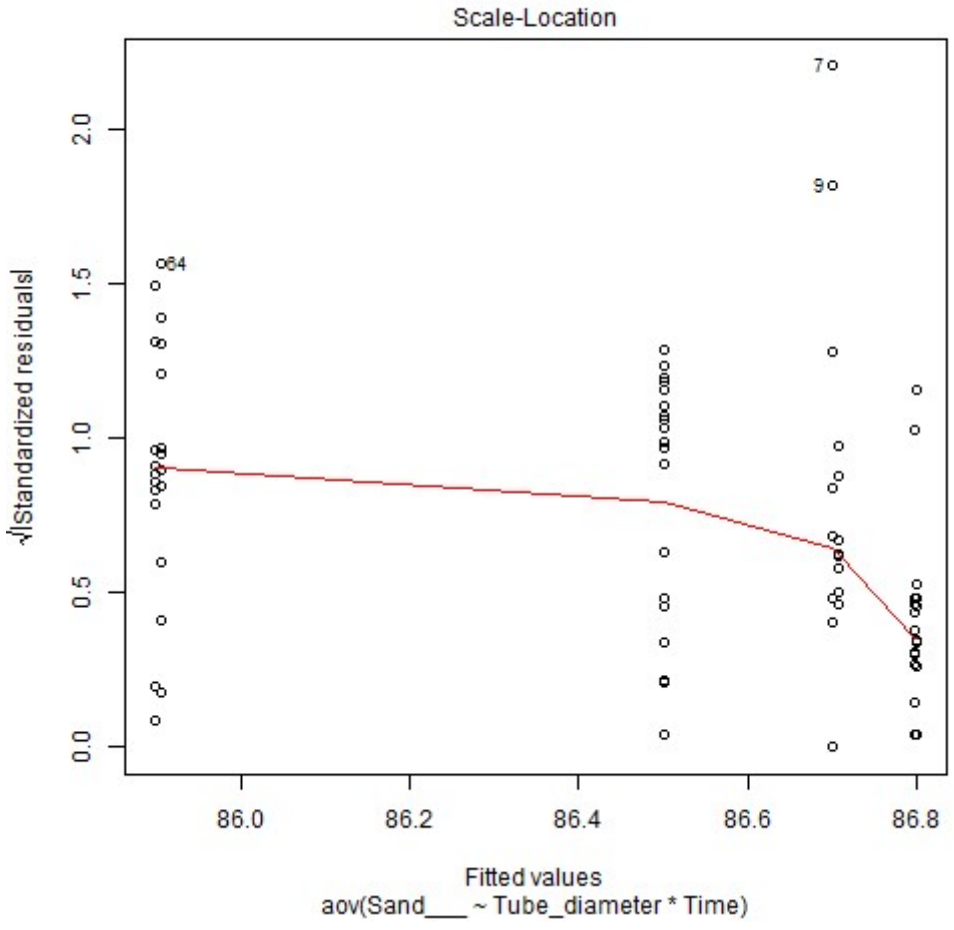
`summarise()` regrouping output by 'Tube_diameter' (override with `.groups` argument)

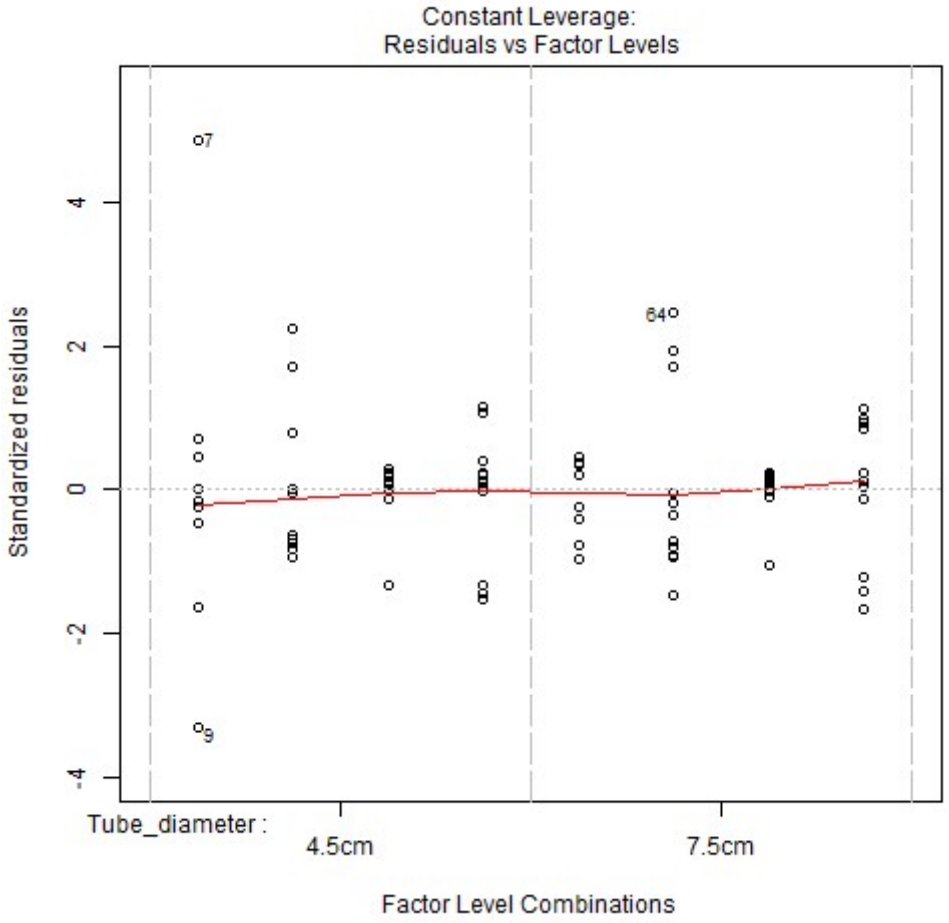
Summaries for Sand___ by factor variables Tube_diameter*Time

Tube_diameTer	Time	n	mean	median	min	max	sd	variance
4.5cm	T1	12	86.7	86.615	85.29	88.78	0.8022	0.6436
4.5cm	T2	12	85.8967	85.755	85.5	86.85	0.4502	0.2027
4.5cm	T3	12	86.8008	86.85	86.23	86.92	0.1868	0.0349
4.5cm	T4	12	86.5008	86.57	85.85	86.99	0.4082	0.1666
7.5cm	T1	12	86.7075	86.825	86.3	86.9	0.2156	0.0465
7.5cm	T2	12	85.9033	85.675	85.28	86.95	0.5507	0.3033
7.5cm	T3	12	86.7992	86.835	86.35	86.9	0.1486	0.0221
7.5cm	T4	12	86.5	86.55	85.79	86.98	0.41	0.1681




Normal Q-Q
Standardized residuals
Theoretical Quantiles
aov(Sand___ ~ Tube_diameter * Time)
7
64
9
-2
-1
0
1
2
4


Scale-Location
√|Standardized residuals|
Fitted values
aov(Sand___ ~ Tube_diameter * Time)
7
9
64
0.0
0.5
1.0
1.5
2.0
86.0
86.2
86.4
86.6
86.8



Anova table with type III sum of squares for Sand___ by Tube_diameter*Time

	Df	Sum Sq	Mean Sq	F value	Pr(>F)
Tube_diameter	1	0.0002	0.0002	0.001	0.9745
Time	3	11.7412	3.9137	19.7206	<.001***
Tube_diameter:Time	3	0.0004	0.0001	0.0007	1
Residuals	88	17.4644	0.1985	NA	NA

Note. Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

NOTE: Results may be misleading due to involvement in interactions

Estimated Marginal Means for Sand___ by Tube_diameter

Tube_diameter	emmean	SE	df	lower.CL	upper.CL
4.5cm	86.4746	0.0643	88	86.3468	86.6024
7.5cm	86.4775	0.0643	88	86.3497	86.6053

NOTE: Results may be misleading due to involvement in interactions

Estimated Marginal Means for Sand___ by Time

Time	emmean	SE	df	lower.CL	upper.CL
T1	86.7037	0.0909	88	86.523	86.8845
T2	85.9	0.0909	88	85.7193	86.0807
T3	86.8	0.0909	88	86.6193	86.9807
T4	86.5004	0.0909	88	86.3197	86.6811

Estimated Marginal Means for Sand___ by Tube_diameter*Time

	Tube_diameter	Time	emmean	SE	df	lower.CL	upper.CL
	4.5cm	T1	86.7	0.1286	88	86.4444	86.9556
	7.5cm	T1	86.7075	0.1286	88	86.4519	86.9631
	4.5cm	T2	85.8967	0.1286	88	85.6411	86.1522
	7.5cm	T2	85.9033	0.1286	88	85.6478	86.1589
	4.5cm	T3	86.8008	0.1286	88	86.5453	87.0564
	7.5cm	T3	86.7992	0.1286	88	86.5436	87.0547
	4.5cm	T4	86.5008	0.1286	88	86.2453	86.7564
	7.5cm	T4	86.5	0.1286	88	86.2444	86.7556

Levene's test for homogenity of variances (center=mean) for Sand___ against Tube_diameter

	Df	F value	Pr(>F)
Group	1	0.4713	0.4941
	94	NA	NA

Note. Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Levene's test for homogenity of variances (center=mean) for Sand___ against Time

	Df	F value	Pr(>F)
group	3	3.2156	0.0265 *
	92	NA	NA

Note. Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Results are averaged over the levels of: Time

Post-hoc tests for Sand___ by Tube_diameter (using method = pairwise)

contrast	estimate	SE	df	t.ratio	p.value
4.5cm - 7.5cm	-0.0029	0.0909	88	-0.0321	0.9745

Note. Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Results are averaged over the levels of: Tube_diameter
P value adjustment: tukey method for comparing a family of 4 estimates

Post-hoc tests for Sand___ by Time (using method = pairwise)

contrast	estimate	SE	df	t.ratio	p.value
T1 - T2	0.8038	0.1286	88	6.2499	<.001***

contrast	estimate	SE	df	t.ratio	p.value
T1 - T3	-0.0962	0.1286	88	-0.7484	0.8771
T1 - T4	0.2033	0.1286	88	1.5811	0.3946
T2 - T3	-0.9	0.1286	88	-6.9984	<.001***
T2 - T4	-0.6004	0.1286	88	-4.6688	<.001***
T3 - T4	0.2996	0.1286	88	2.3296	0.0991 .

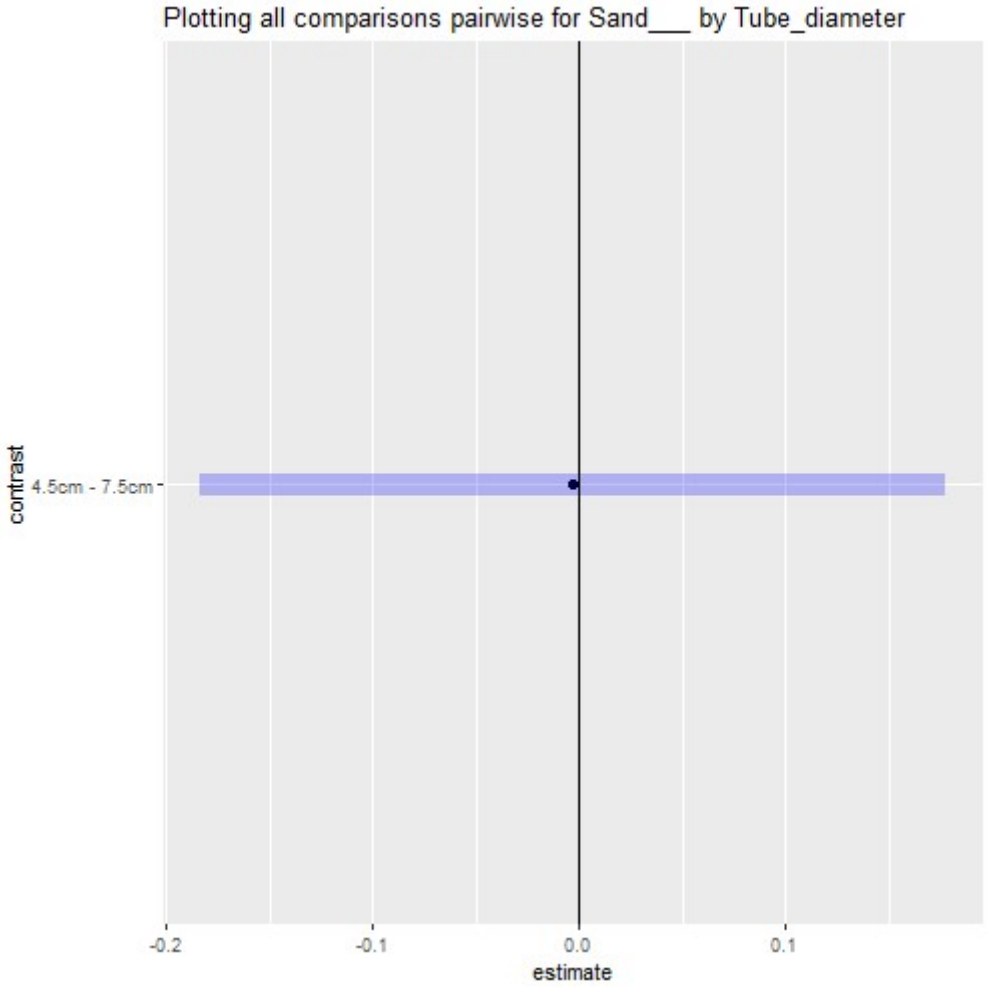
Note. Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

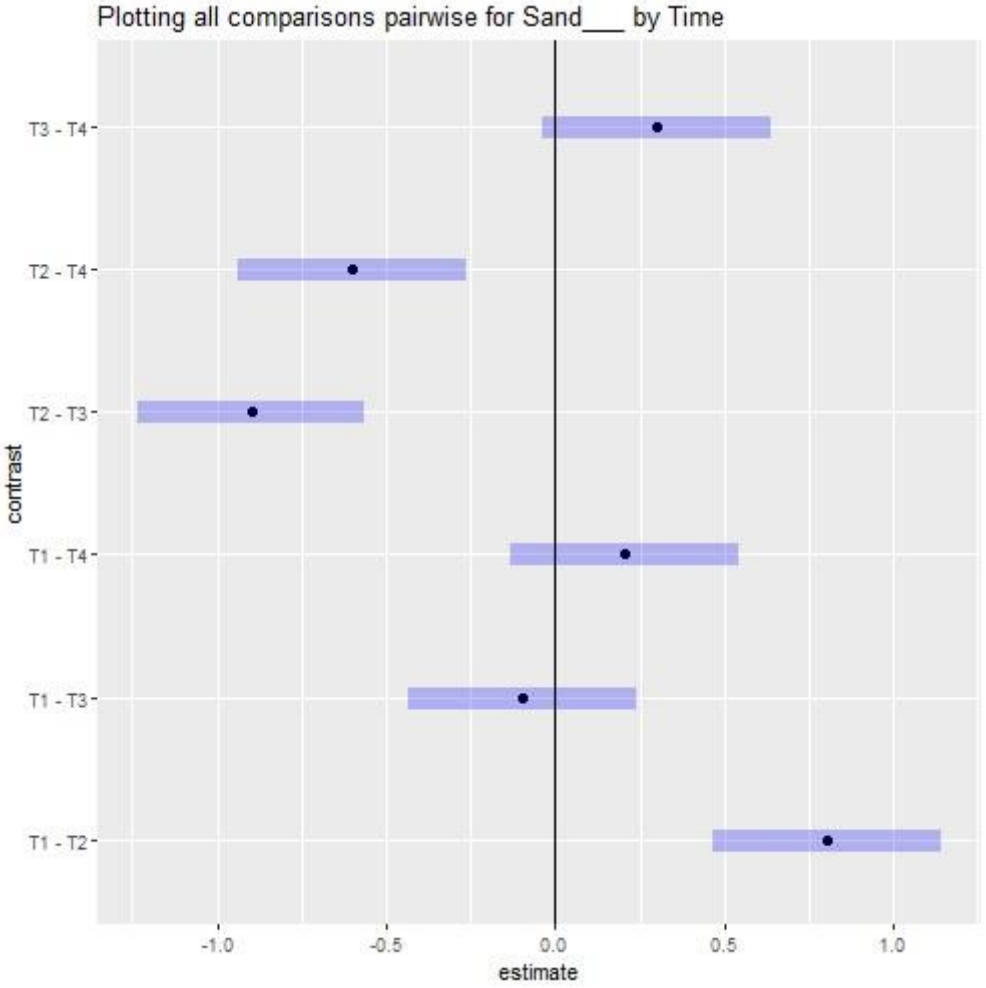
P value adjustment: tukey method for comparing a family of 8
Simple effects for Sand___ by Tube_diameter*Time (using thod = pairwise imates

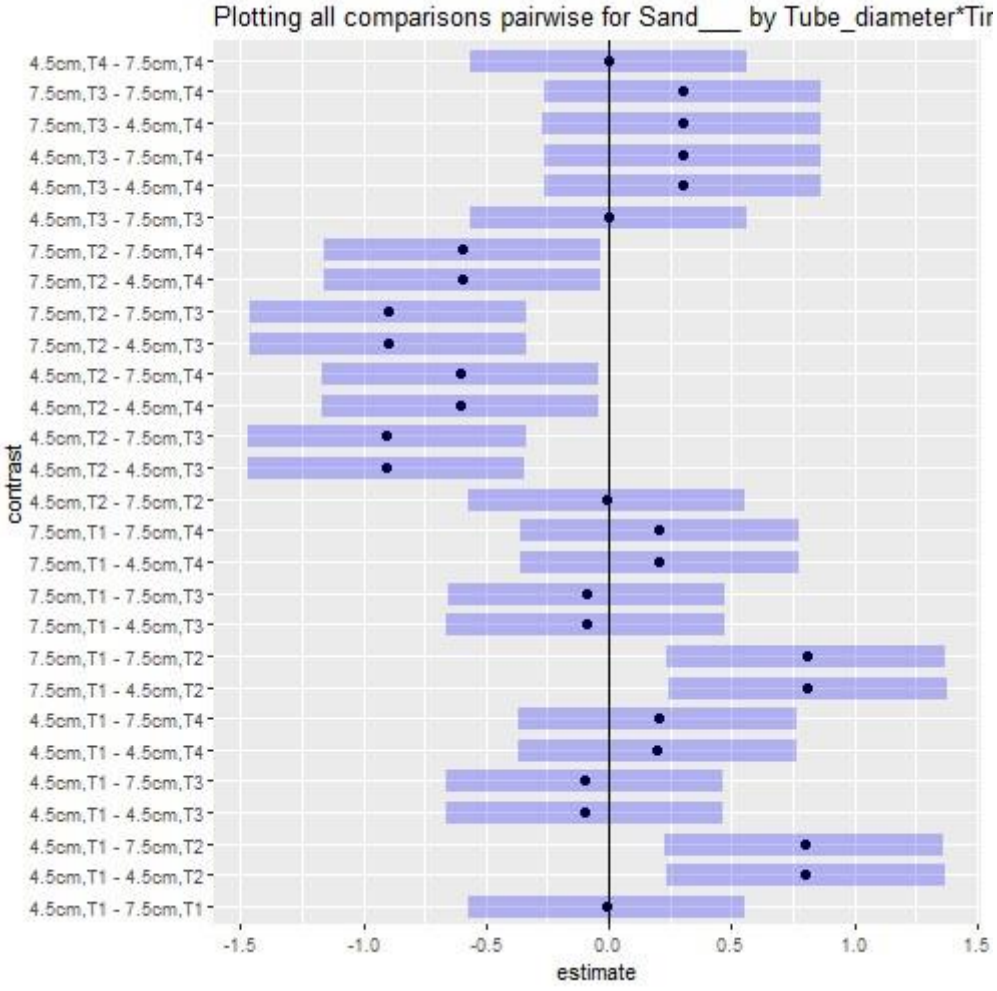
contrast	estimate	SE	df	t.ratio	p.value
4.5cm,T1 - 7.5cm,T1	-0.0075	0.1819	88	-0.0412	1
4.5cm,T1 - 4.5cm,T2	0.8033	0.1819	88	4.4171	<.001***
4.5cm,T1 - 7.5cm,T2	0.7967	0.1819	88	4.3804	<.001***
4.5cm,T1 - 4.5cm,T3	-0.1008	0.1819	88	-0.5544	0.9993
4.5cm,T1 - 7.5cm,T3	-0.0992	0.1819	88	-0.5453	0.9994
4.5cm,T1 - 4.5cm,T4	0.1992	0.1819	88	1.0951	0.9562
4.5cm,T1 - 7.5cm,T4	0.2	0.1819	88	1.0997	0.9553
7.5cm,T1 - 4.5cm,T2	0.8108	0.1819	88	4.4583	<.001***
7.5cm,T1 - 7.5cm,T2	0.8042	0.1819	88	4.4217	<.001***
7.5cm,T1 - 4.5cm,T3	-0.0933	0.1819	88	-0.5132	0.9996
7.5cm,T1 - 7.5cm,T3	-0.0917	0.1819	88	-0.504	0.9996
7.5cm,T1 - 4.5cm,T4	0.2067	0.1819	88	1.1363	0.9469
7.5cm,T1 - 7.5cm,T4	0.2075	0.1819	88	1.1409	0.9458
4.5cm,T2 - 7.5cm,T2	-0.0067	0.1819	88	-0.0367	1
4.5cm,T2 - 4.5cm,T3	-0.9042	0.1819	88	-4.9715	<.001***
4.5cm,T2 - 7.5cm,T3	-0.9025	0.1819	88	-4.9623	<.001***
4.5cm,T2 - 4.5cm,T4	-0.6042	0.1819	88	-3.322	0.0273 *
4.5cm,T2 - 7.5cm,T4	-0.6033	0.1819	88	-3.3174	0.0277 *
7.5cm,T2 - 4.5cm,T3	-0.8975	0.1819	88	-4.9349	<.001***
7.5cm,T2 - 7.5cm,T3	-0.8958	0.1819	88	-4.9257	<.001***
7.5cm,T2 - 4.5cm,T4	-0.5975	0.1819	88	-3.2853	0.0303 *
7.5cm,T2 - 7.5cm,T4	-0.5967	0.1819	88	-3.2807	0.0307 *
4.5cm,T3 - 7.5cm,T3	0.0017	0.1819	88	0.0092	1
4.5cm,T3 - 4.5cm,T4	0.3	0.1819	88	1.6495	0.7190
4.5cm,T3 - 7.5cm,T4	0.3008	0.1819	88	1.6541	0.7162
7.5cm,T3 - 4.5cm,T4	0.2983	0.1819	88	1.6404	0.7246

7.5cm,T3 - 7.5cm,T4	0.2992	0.1819	88	1.645	0.7218
4.5cm,T4 - 7.5cm,T4	0.0008	0.1819	88	0.0046	1

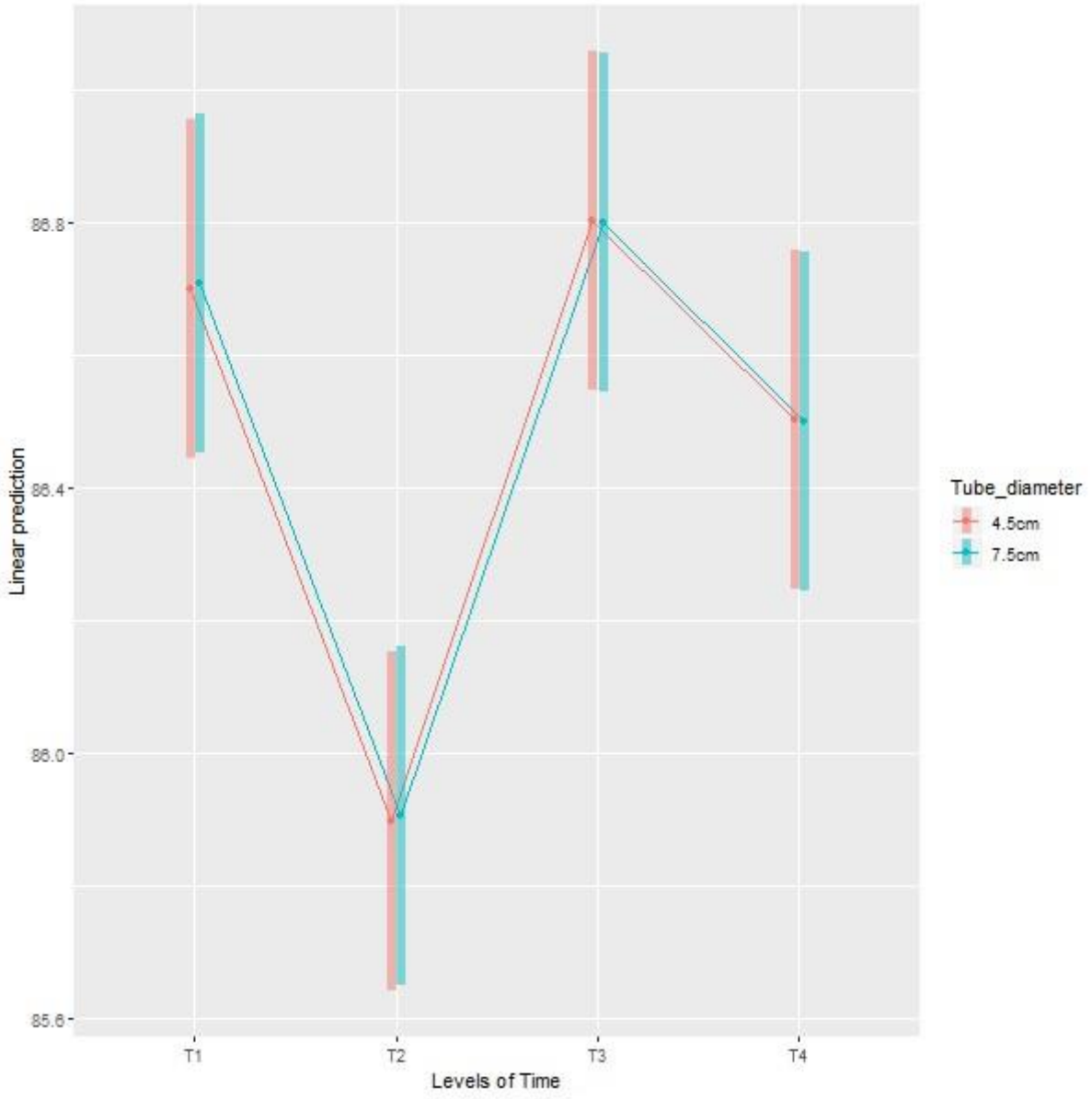
Note. Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1




Plotting all comparisons pairwise for Sand___ by Time
T3 - T4
T2 - T4
T2 - T3
T1 - T4
T1 - T3
T1 - T2
contrast
-1.0
-0.5
0.0
0.5
1.0
estimate


Plotting all comparisons pairwise for Sand___ by Tube_diameter*Tir
4.5cm,T4 - 7.5cm,T4
7.5cm,T3 - 7.5cm,T4
7.5cm,T3 - 4.5cm,T4
4.5cm,T3 - 7.5cm,T4
4.5cm,T3 - 4.5cm,T4
4.5cm,T3 - 7.5cm,T3
7.5cm,T2 - 7.5cm,T4
7.5cm,T2 - 4.5cm,T4
7.5cm,T2 - 7.5cm,T3
7.5cm,T2 - 4.5cm,T3
4.5cm,T2 - 7.5cm,T4
4.5cm,T2 - 4.5cm,T4
4.5cm,T2 - 7.5cm,T3
4.5cm,T2 - 4.5cm,T3
4.5cm,T2 - 7.5cm,T2
7.5cm,T1 - 7.5cm,T4
7.5cm,T1 - 4.5cm,T4
7.5cm,T1 - 7.5cm,T3
7.5cm,T1 - 4.5cm,T3
7.5cm,T1 - 7.5cm,T2
7.5cm,T1 - 4.5cm,T2
4.5cm,T1 - 7.5cm,T4
4.5cm,T1 - 4.5cm,T4
4.5cm,T1 - 7.5cm,T3
4.5cm,T1 - 4.5cm,T3
4.5cm,T1 - 7.5cm,T2
4.5cm,T1 - 4.5cm,T2
4.5cm,T1 - 7.5cm,T1
contrast
-1.5
-1.0
-0.5
0.0
0.5
1.0
1.5
estimate

Interaction plot with Confidence Intervals



Anova (1 Way and 2 Way)

[Restoration.plots.xlsx.Sediment] - C:\Users\User\Documents\Marg I\Clean data D&R trials\Restoration plots.xlsx

`summarise()` ungrouping output (override with `.groups` argument)

Summaries for Silt___ by factor variable Tube_diameter

Tube_diameter	n	mean	median	min	max	sd	variance
4.5cm	48	11.3304	11.475	9.2	13	0.6686	0.447
7.5cm	48	11.3212	11.485	10.11	12.08	0.5113	0.2614

`summarise()` ungrouping output (override with `.groups` argument)

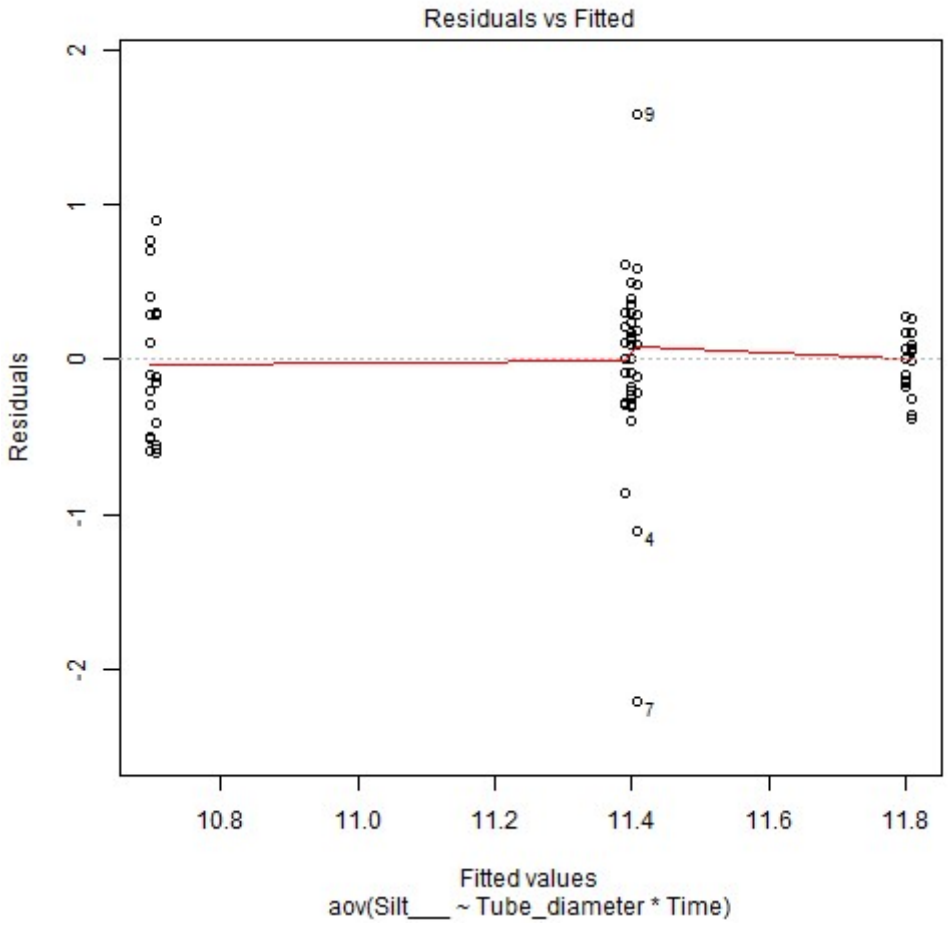
Summaries for Silt___ by factor variable Time

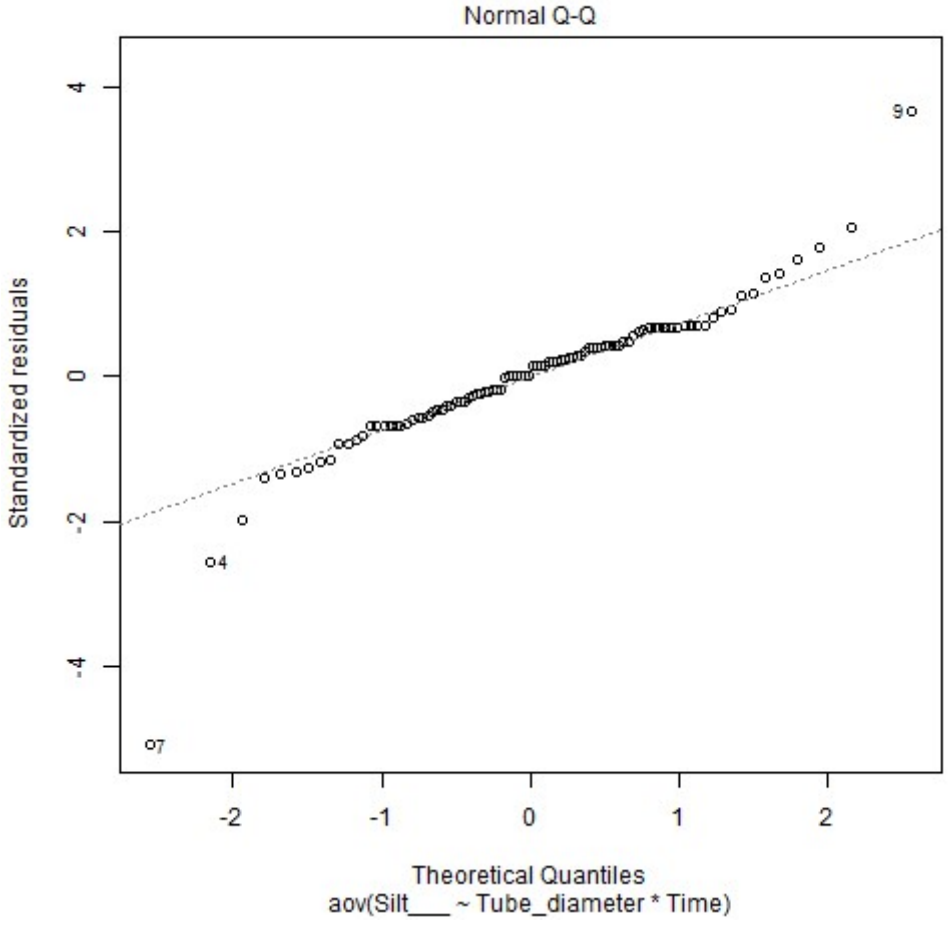
Time	n	mean	median	min	max	sd	variance
T1	24	11.3987	11.5	9.2	13	0.6915	0.4782
T2	24	10.7004	10.6	10.1	11.6	0.4562	0.2082
T3	24	11.4	11.405	11	11.9	0.2658	0.0706
T4	24	11.8042	11.835	11.43	12.08	0.1803	0.0325

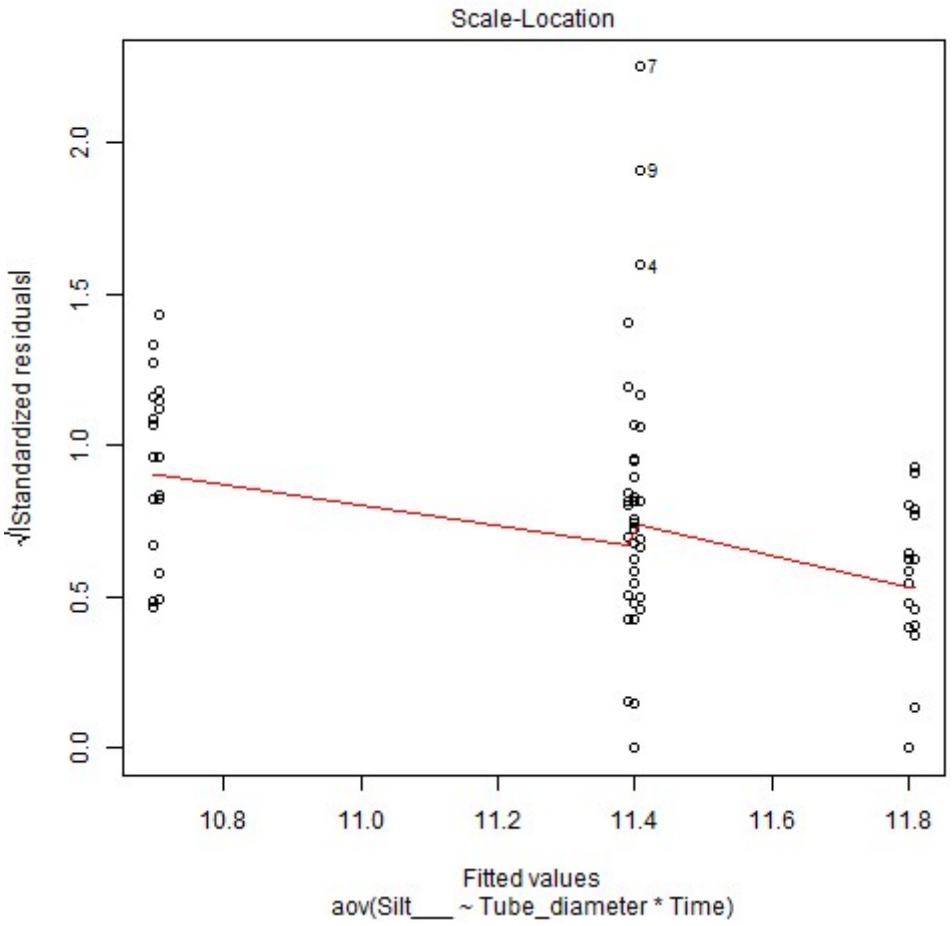
`summarise()` regrouping output by 'Tube_diameter' (override with `.groups` argument)

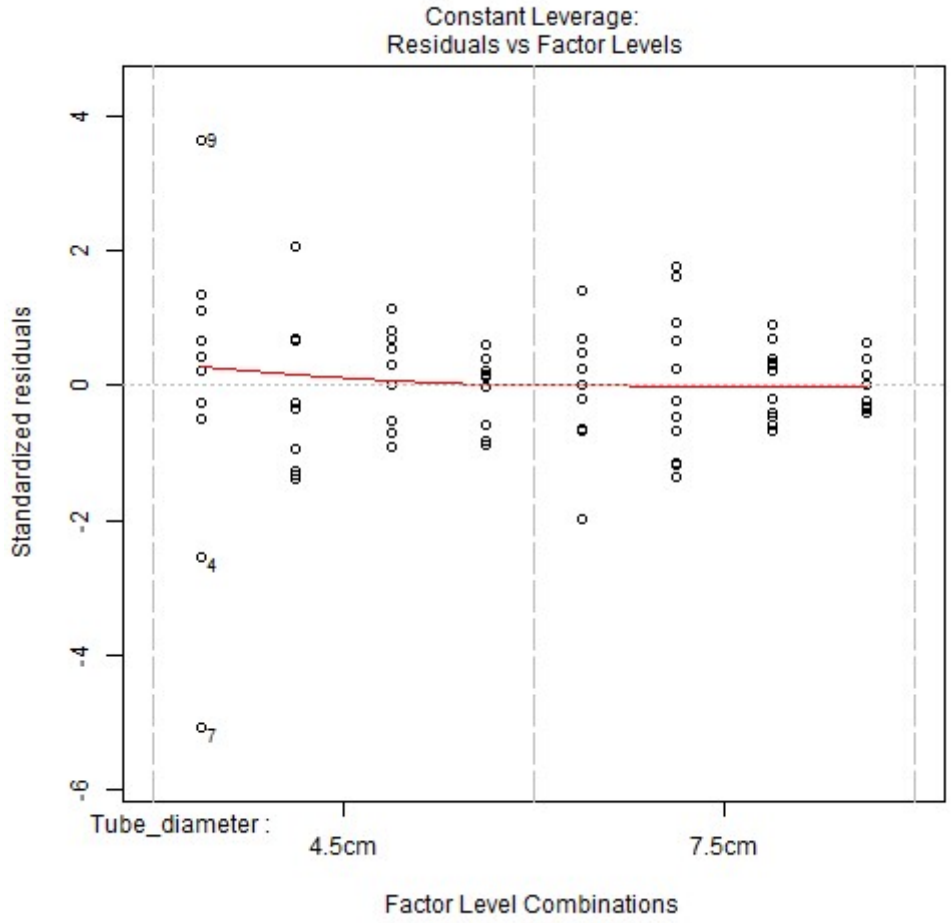
Summaries for Silt___ by factor variables Tube_diameter*Time

Tube_diameter	Time	n	mean	median	min	max	Sd	variance
4.5cm	T1	12	11.4083	11.6	9.2	13	0.9288	0.8627
4.5cm	T2	12	10.705	10.8	10.1	11.6	0.4702	0.2211
4.5cm	T3	12	11.4	11.405	11	11.9	0.3045	0.0927
4.5cm	T4	12	11.8083	11.88	11.43	12.08	0.2136	0.0456
7.5cm	T1	12	11.3892	11.45	10.53	12.01	0.3702	0.1371
7.5cm	T2	12	10.6958	10.6	10.11	11.47	0.4627	0.2141
7.5cm	T3	12	11.4	11.41	11.11	11.79	0.2345	0.055
7.5cm	T4	12	11.8	11.8	11.63	12.08	0.1494	0.0223


Residuals vs Fitted
Residuals
Fitted values
aov(Silt___ ~ Tube_diameter * Time)
9
4
7
2
1
0
-1
-2
10.8
11.0
11.2
11.4
11.6
11.8


Normal Q-Q
Standardized residuals
Theoretical Quantiles
aov(Silt___ ~ Tube_diameter * Time)
9
4
7
4
2
0
-2
-4
-2
-1
0
1
2


Scale-Location
√|Standardized residuals|
0.0
0.5
1.0
1.5
2.0
10.8
11.0
11.2
11.4
11.6
11.8
Fitted values
aov(Silt___ ~ Tube_diameter * Time)


Constant Leverage:
Residuals vs Factor Levels
Standardized residuals
4
2
0
-2
-4
-6
Tube_diameter :
4.5cm
7.5cm
Factor Level Combinations

Anova table with type III sum of squares for Silt___ by Tube_diameter*Time

	Df	Sum Sq	Mean Sq	F value	Pr(>F)
Tube_diameter	1	0.002	0.002	0.0098	0.9215
Time	3	15.1384	5.0461	24.4574	<.001***
Tube_diameter:Time	3	0.0011	0.0004	0.0018	0.9999
Residuals	88	18.1564	0.2063	NA	NA

Note. Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

NOTE: Results may be misleading due to involvement in interactions

Estimated Marginal Means for Silt___ by Tube_diameter

Tube_diameTer	emmean	SE	Df	lower.CL	upper.CL
4.5cm	11.3304	0.0656	88	11.2001	11.4607
7.5cm	11.3212	0.0656	88	11.191	11.4515

NOTE: Results may be misleading due to involvement in interactions

Estimated Marginal Means for Silt___ by Time

Time	Emmean	SE	df	lower.CL	upper.CL
T1	11.3987	0.0927	88	11.2145	11.583
T2	10.7004	0.0927	88	10.5162	10.8847
T3	11.4	0.0927	88	11.2157	11.5843
T4	11.8042	0.0927	88	11.6199	11.9884

Estimated Marginal Means for Silt___ by Tube_diameter*Time

Tube_diameter	Time	emmean	SE	Df	lower.CL	upper.CL
4.5cm	T1	11.4083	0.1311	88	11.1478	11.6689
7.5cm	T1	11.3892	0.1311	88	11.1286	11.6497
4.5cm	T2	10.705	0.1311	88	10.4444	10.9656
7.5cm	T2	10.6958	0.1311	88	10.4352	10.9564
4.5cm	T3	11.4	0.1311	88	11.1394	11.6606
7.5cm	T3	11.4	0.1311	88	11.1394	11.6606
4.5cm	T4	11.8083	0.1311	88	11.5478	12.0689
7.5cm	T4	11.8	0.1311	88	11.5394	12.0606

Levene's test for homogenity of variances (center=mean) for Silt___ against Tube_diameter

	Df	F value	Pr(>F)
group	1	1.4624	0.2296
	94	NA	NA

Note. Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Levene's test for homogenity of variances (center=mean) for Silt___ against Time

	Df	F value	Pr(>F)
group	3	3.97	0.0104 *
	92	NA	NA

Note. Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Results are averaged over the levels of: Time

Post-hoc tests for Silt___ by Tube_diameter (using method = pairwise)

contrast	estimate	SE	df	t.ratio	p.value
4.5cm - 7.5cm	0.0092	0.0927	88	0.0989	0.9215

Note. Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Results are averaged over the levels of: Tube_diameter
P value adjustment: tukey method for comparing a family of 4 estimate

Post-hoc tests for Silt___ by Time (using method = pairwise)

contrast	Estimate	SE	df	t.ratio	p.value
T1 - T2	0.6983	0.1311	88	5.3257	<.001***
T1 - T3	-0.0012	0.1311	88	-0.0095	1.0000
T1 - T4	-0.4054	0.1311	88	-3.0919	0.0139 *
T2 - T3	-0.6996	0.1311	88	-5.3353	<.001***
T2 - T4	-1.1038	0.1311	88	-8.4176	<.001***
T3 - T4	-0.4042	0.1311	88	-3.0823	0.0143 *

Note. Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

P value adjustment: tukey method for comparing a family of 8 estimates

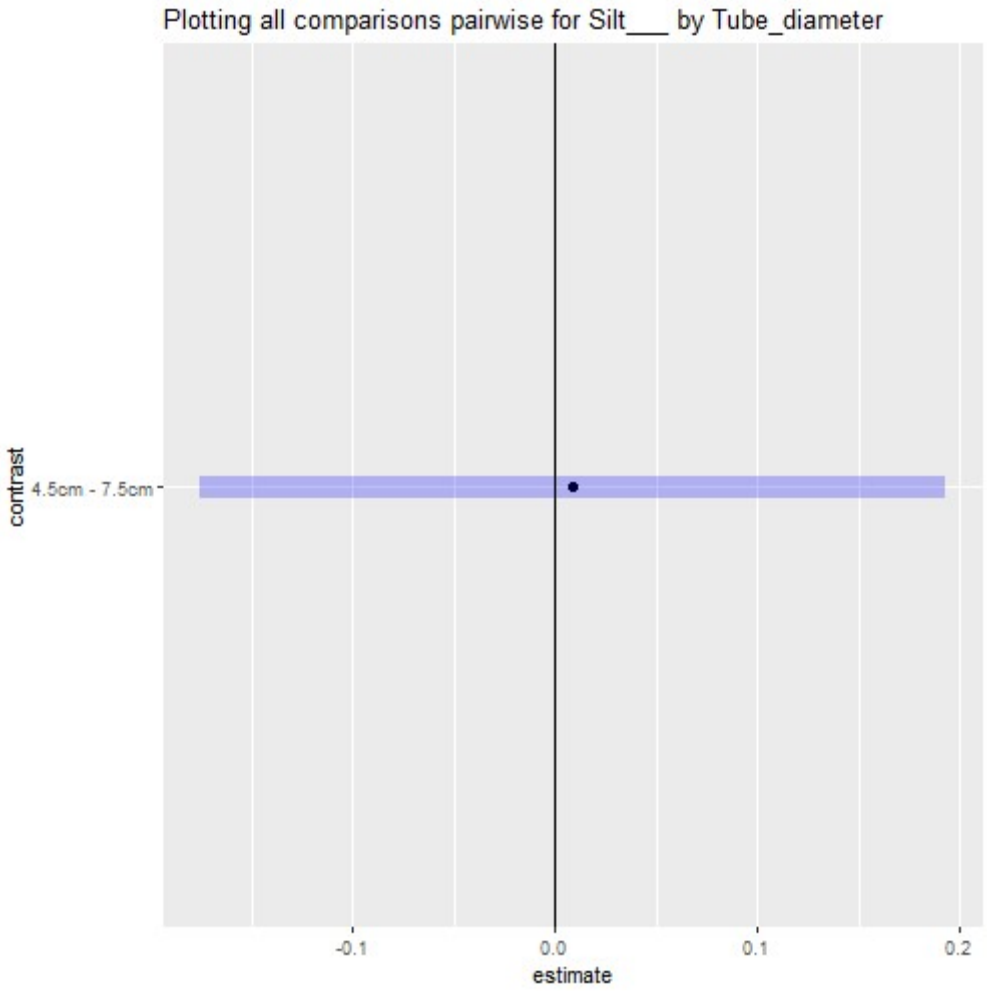
Simple effects for Silt___ by Tube_diameter*Time (using method = pairwise)

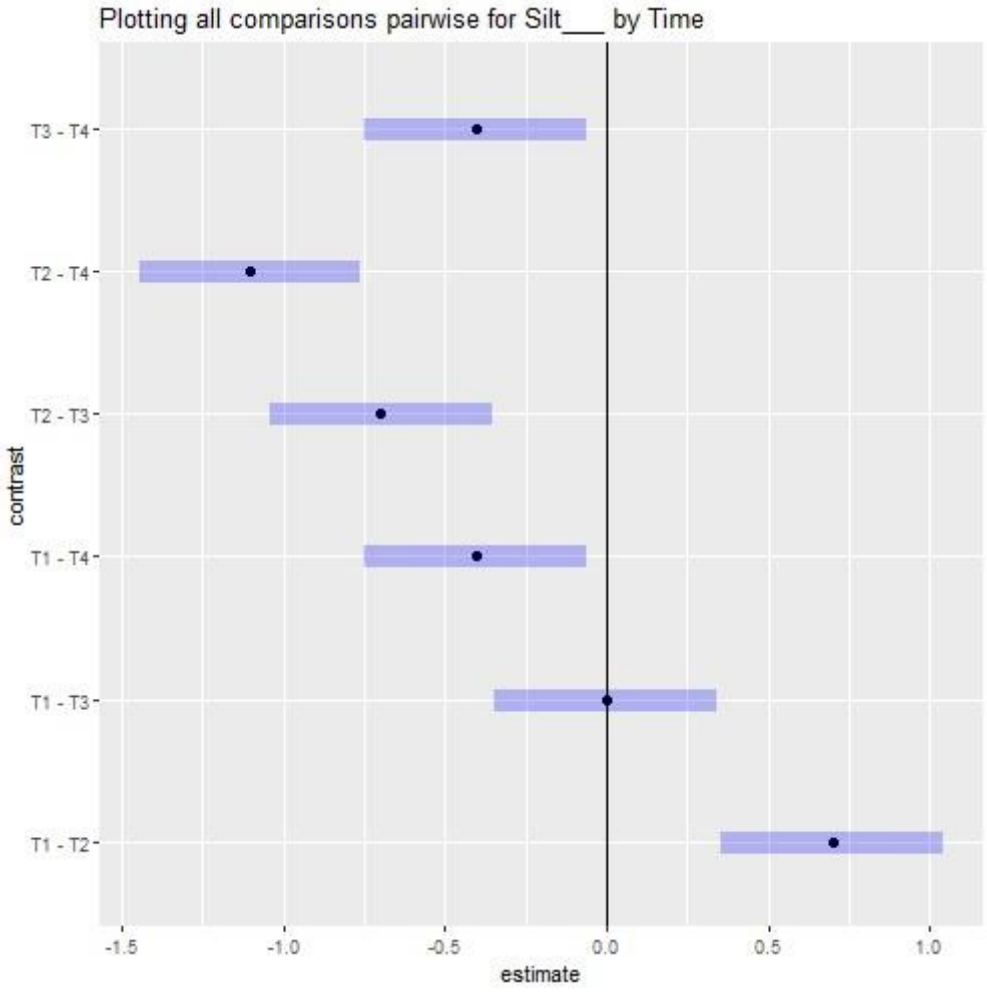
contrast	estimate	SE	df	t.ratio	p.value
4.5cm,T1 - 7.5cm,T1	0.0192	0.1854	88	0.1034	1
4.5cm,T1 - 4.5cm,T2	0.7033	0.1854	88	3.7928	0.0064 **

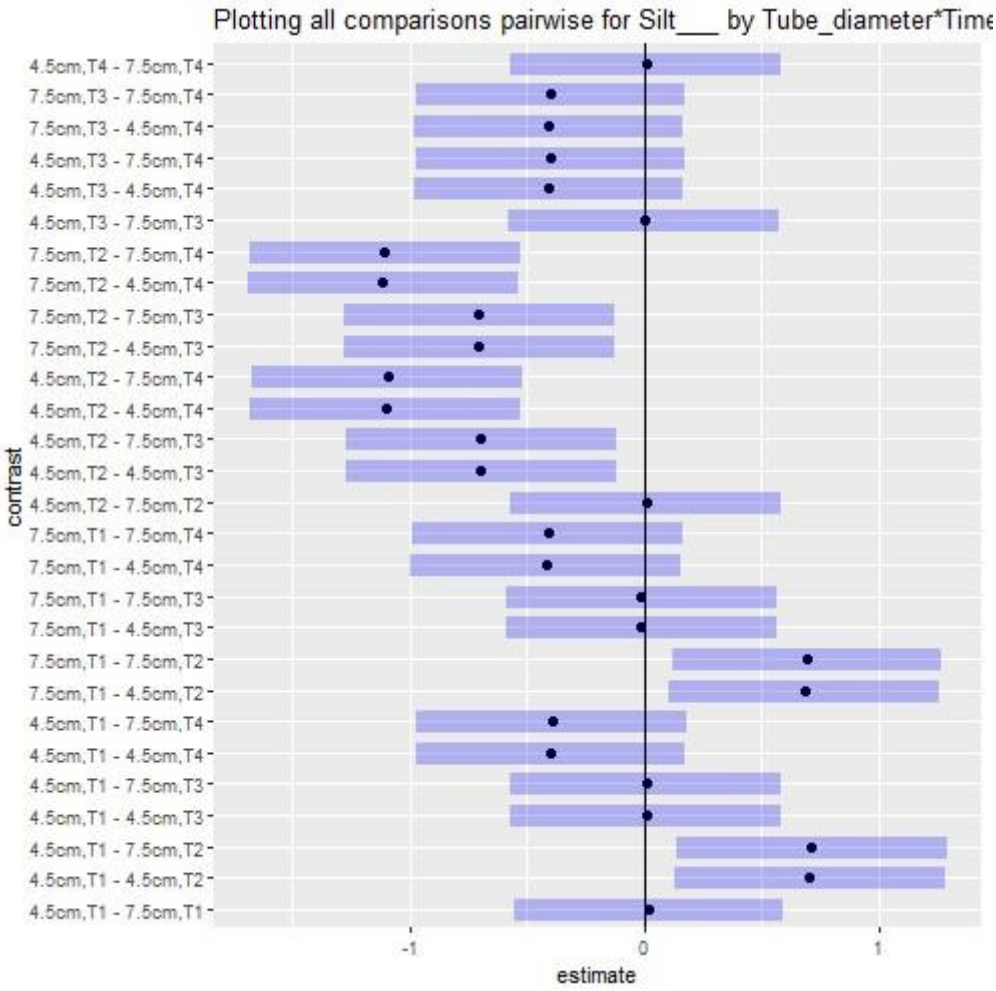
4.5cm,T1 - 7.5cm,T2	0.7125	0.1854	88	3.8423	0.0054 **
4.5cm,T1 - 4.5cm,T3	0.0083	0.1854	88	0.0449	1
4.5cm,T1 - 7.5cm,T3	0.0083	0.1854	88	0.0449	1
4.5cm,T1 - 4.5cm,T4	-0.4000	0.1854	88	-2.1571	0.3877

contrast	Estimate	SE	df	t.ratio	p.value
4.5cm,T1 - 7.5cm,T4	-0.3917	0.1854	88	-2.1121	0.4155
7.5cm,T1 - 4.5cm,T2	0.6842	0.1854	88	3.6895	0.0089 **
7.5cm,T1 - 7.5cm,T2	0.6933	0.1854	88	3.7389	0.0076 **
7.5cm,T1 - 4.5cm,T3	-0.0108	0.1854	88	-0.0584	1
7.5cm,T1 - 7.5cm,T3	-0.0108	0.1854	88	-0.0584	1
7.5cm,T1 - 4.5cm,T4	-0.4192	0.1854	88	-2.2604	0.3272
7.5cm,T1 - 7.5cm,T4	-0.4108	0.1854	88	-2.2155	0.3529
4.5cm,T2 - 7.5cm,T2	0.0092	0.1854	88	0.0494	1
4.5cm,T2 - 4.5cm,T3	-0.6950	0.1854	88	-3.7479	0.0074 **
4.5cm,T2 - 7.5cm,T3	-0.6950	0.1854	88	-3.7479	0.0074 **
4.5cm,T2 - 4.5cm,T4	-1.1033	0.1854	88	-5.9499	<.001***
4.5cm,T2 - 7.5cm,T4	-1.095	0.1854	88	-5.9049	<.001***
7.5cm,T2 - 4.5cm,T3	-0.7042	0.1854	88	-3.7973	0.0063 **
7.5cm,T2 - 7.5cm,T3	-0.7042	0.1854	88	-3.7973	0.0063 **
7.5cm,T2 - 4.5cm,T4	-1.1125	0.1854	88	-5.9993	<.001***
7.5cm,T2 - 7.5cm,T4	-1.1042	0.1854	88	-5.9544	<.001***
4.5cm,T3 - 7.5cm,T3	-0.0000	0.1854	88	-0.0000	1
4.5cm,T3 - 4.5cm,T4	-0.4083	0.1854	88	-2.202	0.3608
4.5cm,T3 - 7.5cm,T4	-0.4000	0.1854	88	-2.1571	0.3877
7.5cm,T3 - 4.5cm,T4	-0.4083	0.1854	88	-2.202	0.3608
7.5cm,T3 - 7.5cm,T4	-0.4000	0.1854	88	-2.1571	0.3877
4.5cm,T4 - 7.5cm,T4	0.0083	0.1854	88	0.0449	1

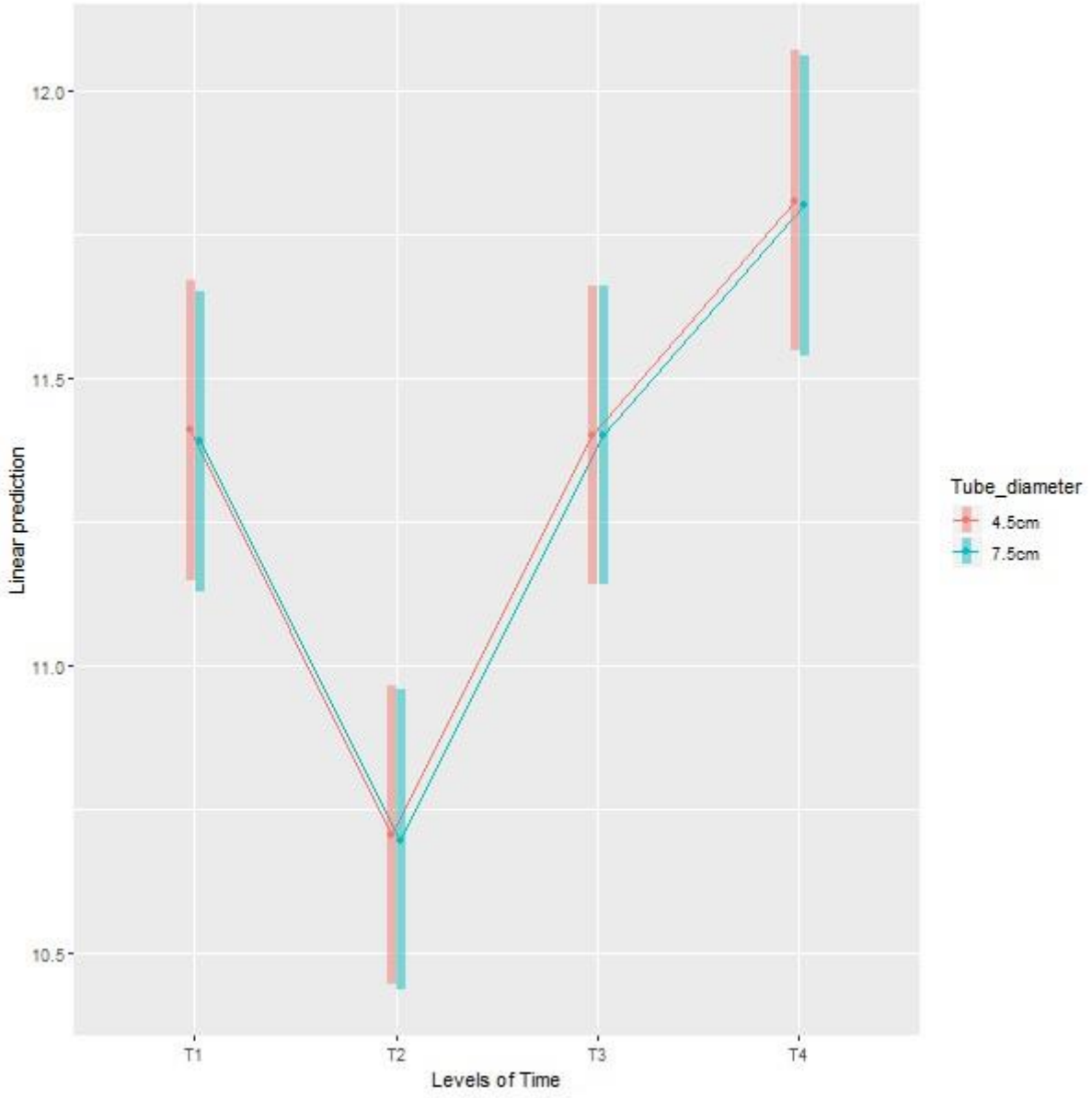
Note. Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1


Plotting all comparisons pairwise for Silt___ by Tube_diameter
contrast
4.5cm - 7.5cm
-0.1
0.0
0.1
0.2
estimate


Plotting all comparisons pairwise for Silt___ by Time
contrast
T3 - T4
T2 - T4
T2 - T3
T1 - T4
T1 - T3
T1 - T2
-1.5
-1.0
-0.5
0.0
0.5
1.0
estimate


Plotting all comparisons pairwise for Silt___ by Tube_diameter*Time
4.5cm,T4 - 7.5cm,T4
7.5cm,T3 - 7.5cm,T4
7.5cm,T3 - 4.5cm,T4
4.5cm,T3 - 7.5cm,T4
4.5cm,T3 - 4.5cm,T4
4.5cm,T3 - 7.5cm,T3
7.5cm,T2 - 7.5cm,T4
7.5cm,T2 - 4.5cm,T4
7.5cm,T2 - 7.5cm,T3
7.5cm,T2 - 4.5cm,T3
4.5cm,T2 - 7.5cm,T4
4.5cm,T2 - 4.5cm,T4
4.5cm,T2 - 7.5cm,T3
4.5cm,T2 - 4.5cm,T3
4.5cm,T2 - 7.5cm,T2
7.5cm,T1 - 7.5cm,T4
7.5cm,T1 - 4.5cm,T4
7.5cm,T1 - 7.5cm,T3
7.5cm,T1 - 4.5cm,T3
7.5cm,T1 - 7.5cm,T2
7.5cm,T1 - 4.5cm,T2
4.5cm,T1 - 7.5cm,T4
4.5cm,T1 - 4.5cm,T4
4.5cm,T1 - 7.5cm,T3
4.5cm,T1 - 4.5cm,T3
4.5cm,T1 - 7.5cm,T2
4.5cm,T1 - 4.5cm,T2
4.5cm,T1 - 7.5cm,T1
contrast
-1
0
1
estimate

Interaction plot with Confidence Intervals



Anova (1 Way and 2 Way)

[Restoration.plots.xlsx.Sediment] - C:\Users\User\Documents\Marg I\Clean data D&R trials\Restoration plots.xlsx

`summarise()` ungrouping output (override with `.groups` argument)

Summaries for Clay___ by factor variable Tube_diameter

Tube_diameter	n	mean	median	min	max	sd	variance
4.5cm	48	2.1977	2.005	1.06	4.34	0.8576	0.7355
7.5cm	48	2.2012	1.96	1.05	4.33	0.8303	0.6893

`summarise()` ungrouping output (override with `.groups` argument)

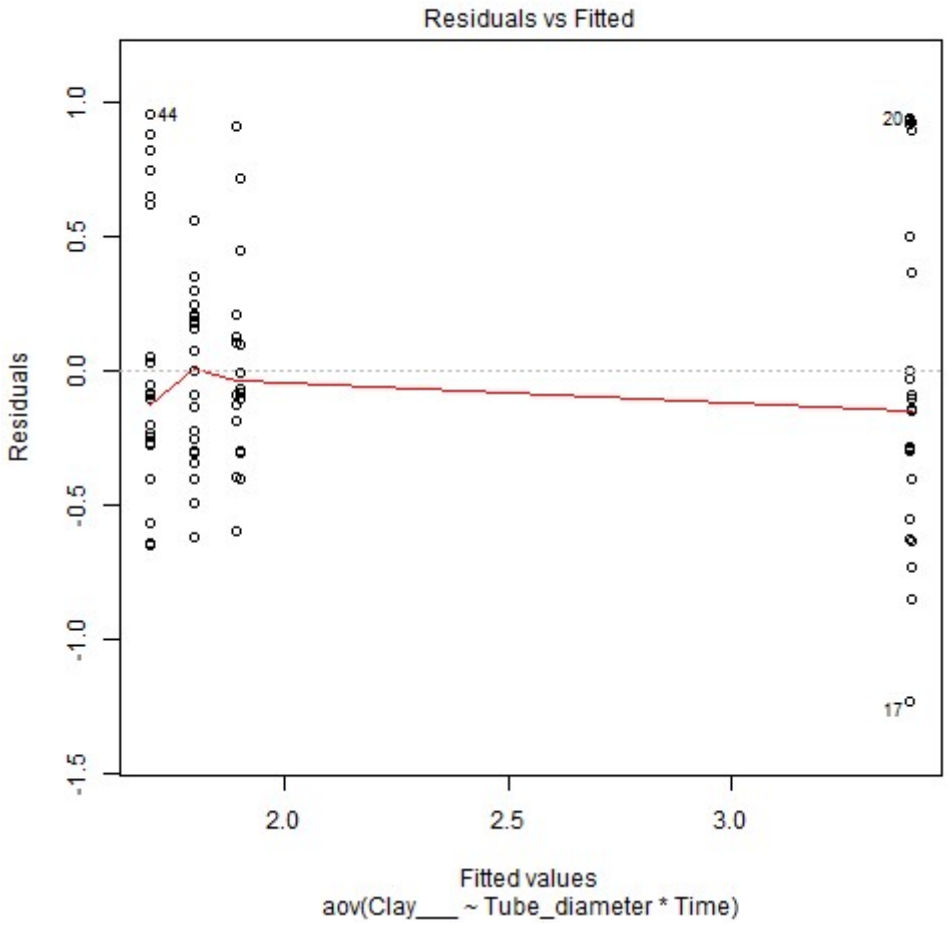
Summaries for Clay___ by factor variable Time

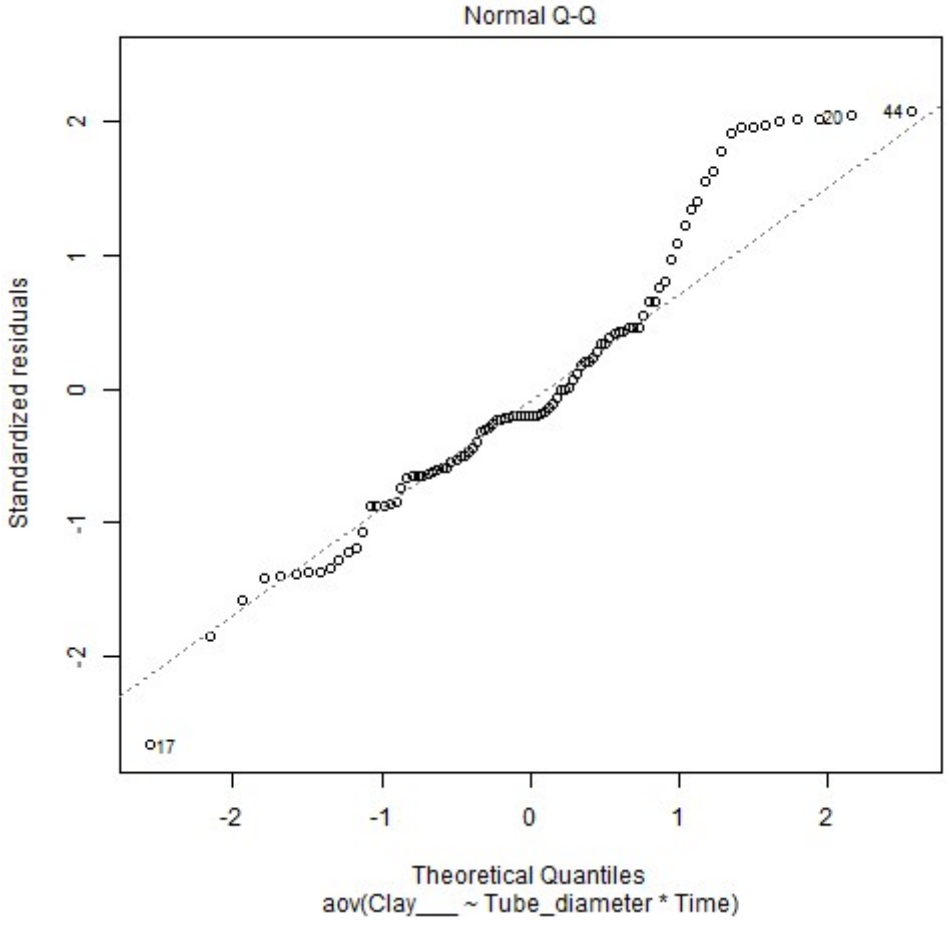
Time	n	mean	median	min	max	sd	variance
T1	24	1.8975	1.81	1.3	2.8	0.3377	0.114
T2	24	3.3996	3.28	2.17	4.34	0.6529	0.4263
T3	24	1.8	1.92	1.18	2.36	0.3054	0.0933
T4	24	1.7008	1.605	1.05	2.66	0.5039	0.2539

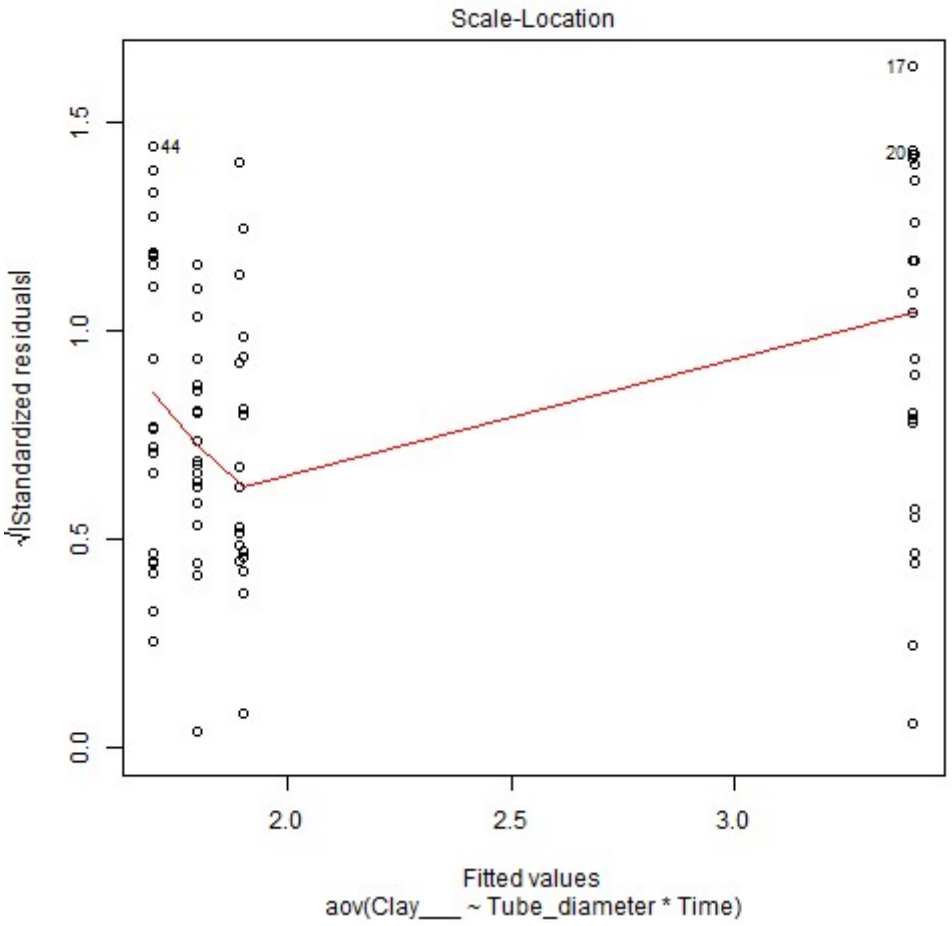
`summarise()` regrouping output by 'Tube_diameter' (override with `.groups` argument)

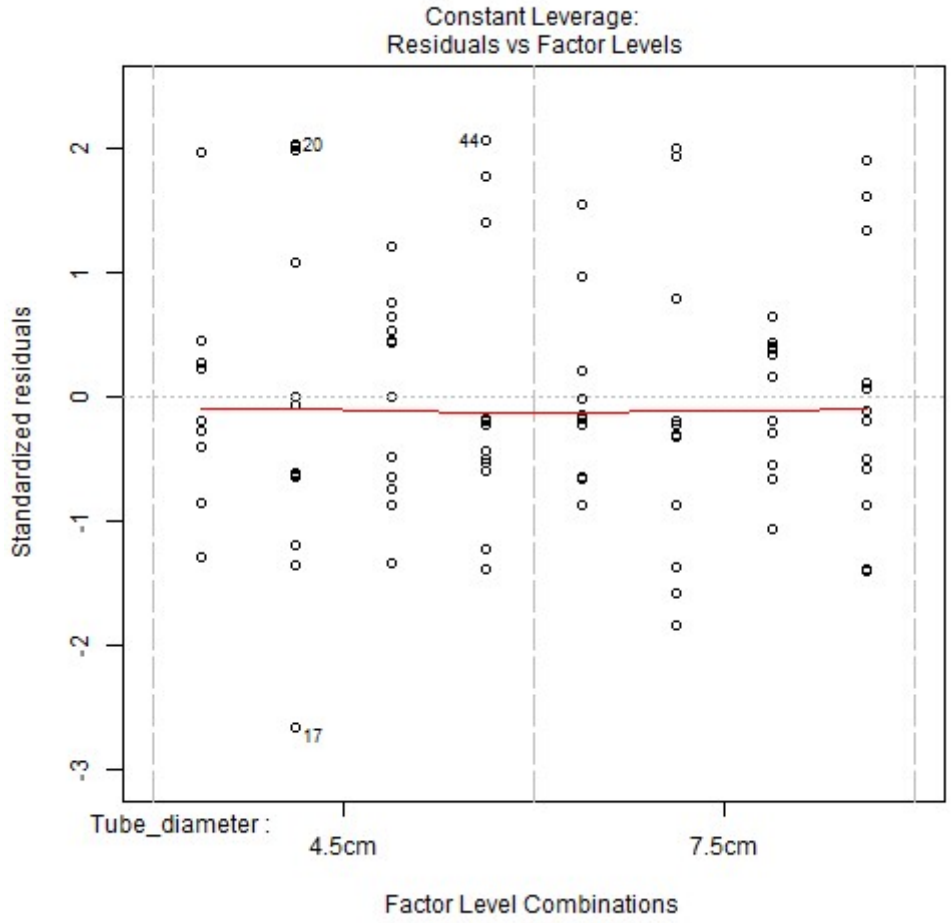
Summaries for Clay___ by factor variables Tube_diameter*Time

Tube_diameter	Time	n	mean	median	min	max	sd	variance
4.5cm	T1	12	1.8917	1.8	1.3	2.8	0.3713	0.1379
4.5cm	T2	12	3.3983	3.245	2.17	4.34	0.6948	0.4828
4.5cm	T3	12	1.7992	1.9	1.18	2.36	0.3657	0.1337
4.5cm	T4	12	1.7017	1.55	1.06	2.66	0.5211	0.2716
7.5cm	T1	12	1.9033	1.83	1.5	2.62	0.3169	0.1004
7.5cm	T2	12	3.4008	3.28	2.55	4.33	0.6392	0.4086
7.5cm	T3	12	1.8008	1.92	1.31	2.1	0.2475	0.0612
7.5cm	T4	12	1.7	1.63	1.05	2.58	0.5093	0.2594


Residuals vs Fitted
Residuals
Fitted values
aov(Clay___ ~ Tube_diameter * Time)
44
20
17
1.0
0.5
0.0
-0.5
-1.0
-1.5
2.0
2.5
3.0


Normal Q-Q
Standardized residuals
Theoretical Quantiles
aov(Clay___ ~ Tube_diameter * Time)
20
44
17
2
1
0
-1
-2
-2
-1
0
1
2


Scale-Location
√|Standardized residuals|
0.0
0.5
1.0
1.5
2.0
2.5
3.0
44
17
20
Fitted values
aov(Clay___ ~ Tube_diameter * Time)


Constant Leverage:
Residuals vs Factor Levels
Standardized residuals
-3
-2
-1
0
1
2
20
44
17
Tube_diameter :
4.5cm
7.5cm
Factor Level Combinations

Anova table with type III sum of squares for Clay___ by Tube_diameter*Time

	Df	Sum Sq	Mean Sq	F value	Pr(>F)
Tube_diameter	1	0.0003	0.0003	0.0013	0.9713
Time	3	46.5521	15.5174	66.8989	<.001***
Tube_diameter:Time	3	0.0006	0.0002	0.0008	1
Residuals	88	20.4118	0.232	NA	NA

Note. Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

NOTE: Results may be misleading due to involvement in interactions

Estimated Marginal Means for Clay___ by Tube_diameter

Tube_diameter	emmean	SE	df	lower.CL	upper.CL
4.5cm	2.1977	0.0695	88	2.0596	2.3359
7.5cm	2.2012	0.0695	88	2.0631	2.3394

NOTE: Results may be misleading due to involvement in interactions

Estimated Marginal Means for Clay___ by Time

Time	emmean	SE	df	lower.CL	upper.CL
T1	1.8975	0.0983	88	1.7021	2.0929
T2	3.3996	0.0983	88	3.2042	3.595
T3	1.8	0.0983	88	1.6046	1.9954
T4	1.7008	0.0983	88	1.5055	1.8962

Estimated Marginal Means for Clay___ by Tube_diameter*Time

Tube_diameter	Time	emmean	SE	df	lower.CL	upper.CL
4.5cm	T1	1.8917	0.139	88	1.6154	2.168
7.5cm	T1	1.9033	0.139	88	1.627	2.1796
4.5cm	T2	3.3983	0.139	88	3.122	3.6746
7.5cm	T2	3.4008	0.139	88	3.1245	3.6771
4.5cm	T3	1.7992	0.139	88	1.5229	2.0755
7.5cm	T3	1.8008	0.139	88	1.5245	2.0771
4.5cm	T4	1.7017	0.139	88	1.4254	1.978
7.5cm	T4	1.7	0.139	88	1.4237	1.9763

Levene's test for homogenity of variances (center=mean) for Clay___ against Tube_diameter

	Df	F value	Pr(>F)
group	1	0.0957	0.7578
	94	NA	NA

Note. Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Levene's test for homogenity of variances (center=mean) for Clay___ against Time

	Df	F value	Pr(>F)
group	3	4.1067	0.0088 **
	92	NA	NA

Note. Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Results are averaged over the levels of: Time

Post-hoc tests for Clay___ by Tube_diameter (using method = pairwise)

contrast	estimate	SE	df	t.ratio	p.value
4.5cm - 7.5cm	-0.0035	0.0983	88	-0.036	0.9713

Note. Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Results are averaged over the levels of: Tube_diameter
P value adjustment: tukey method for comparing a family of 4 estimates

Post-hoc tests for Clay___ by Time (using method = pairwise)

contrast	estimate	SE	df	t.ratio	p.value
T1 - T2	-1.5021	0.139	88	-10.804	<.001***
T1 - T3	0.0975	0.139	88	0.7013	0.8963
T1 - T4	0.1967	0.139	88	1.4146	0.4937
T2 - T3	1.5996	0.139	88	11.5053	<.001***
T2 - T4	1.6988	0.139	88	12.2186	<.001***
T3 - T4	0.0992	0.139	88	0.7133	0.8916

Note. Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

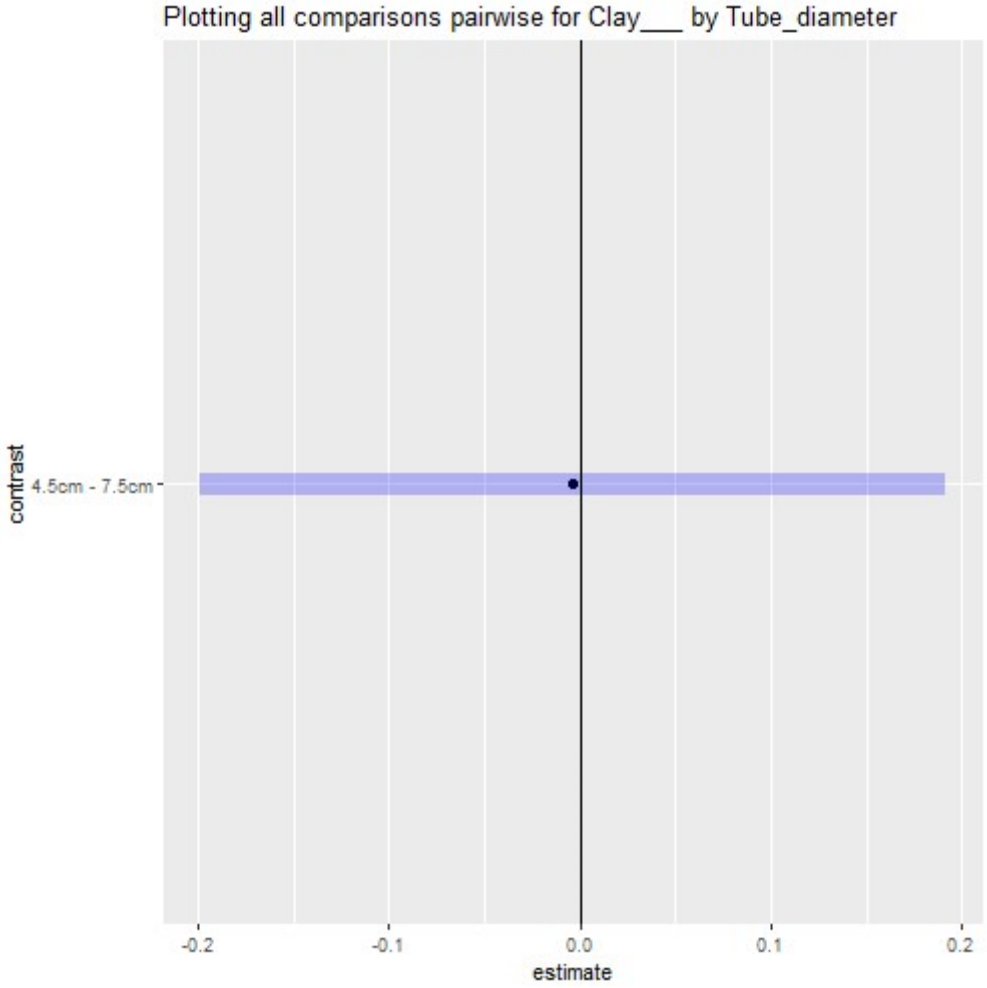
P value adjustment: tukey method for comparing a family of 8 estimates

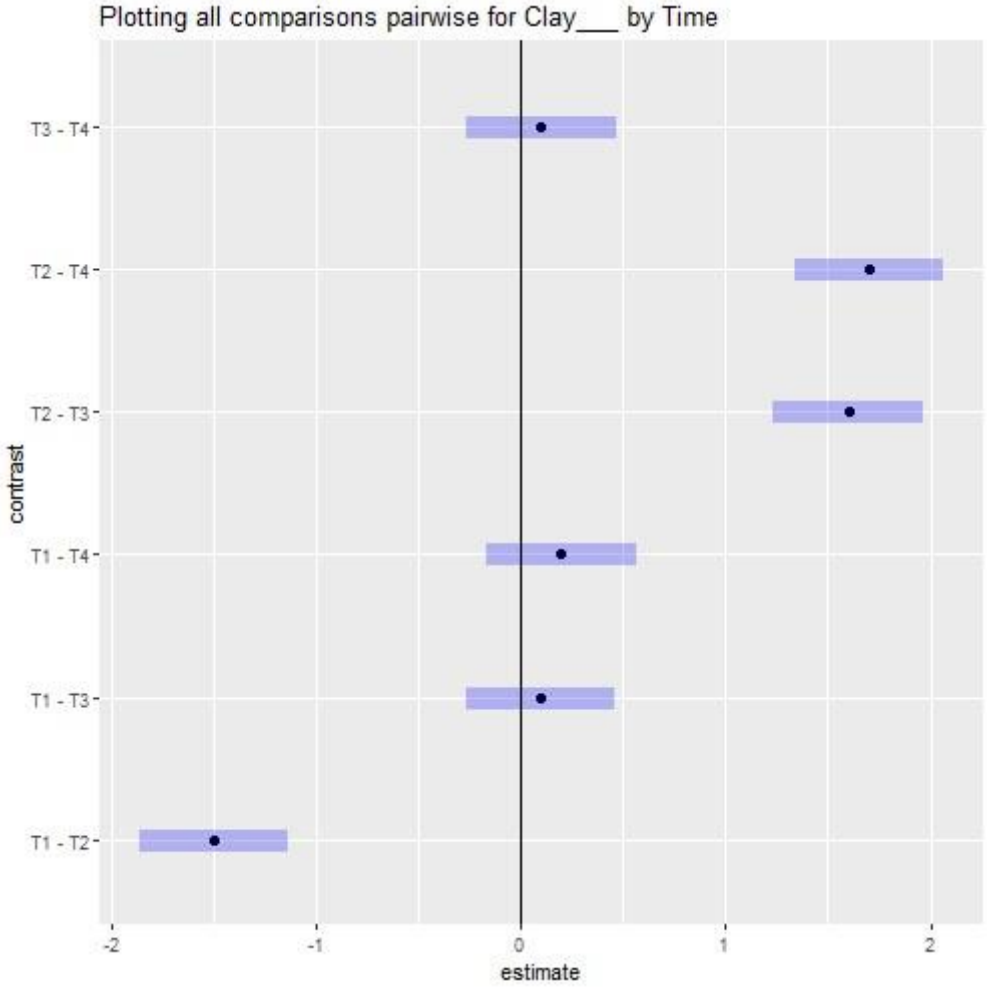
Simple effects for Clay___ by Tube_diameter*Time (using method = pairwise)

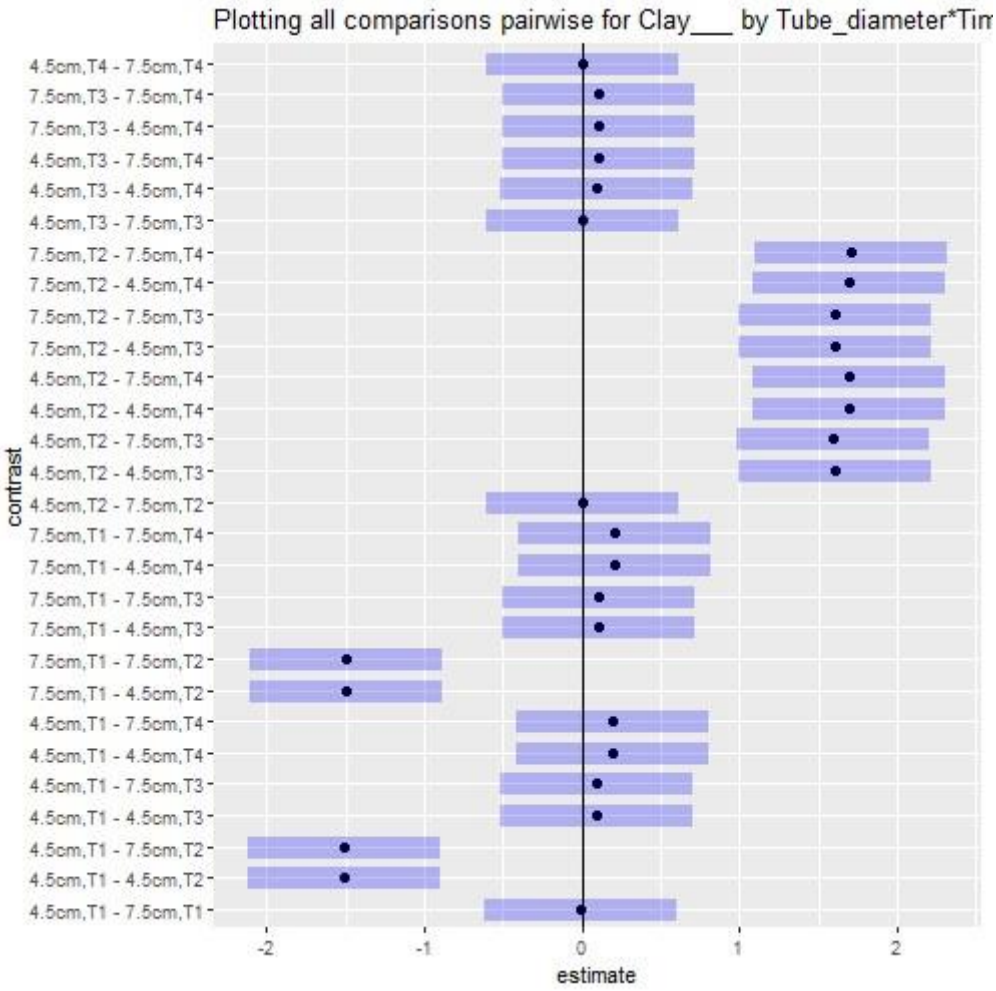
contrast	estimate	SE	df	t.ratio	p.value
4.5cm,T1 - 7.5cm,T1	-0.0117	0.1966	88	-0.0593	1
4.5cm,T1 - 4.5cm,T2	-1.5067	0.1966	88	-7.6629	<.001***
4.5cm,T1 - 7.5cm,T2	-1.5092	0.1966	88	-7.6756	<.001***
4.5cm,T1 - 4.5cm,T3	0.0925	0.1966	88	0.4705	0.9998
4.5cm,T1 - 7.5cm,T3	0.0908	0.1966	88	0.462	0.9998
4.5cm,T1 - 4.5cm,T4	0.19	0.1966	88	0.9663	0.9780
contrast	**estimate**	**SE**	**df**	**t.ratio**	**p.value**

4.5cm,T1 - 7.5cm,T4	0.1917	0.1966	88	0.9748	0.9768
7.5cm,T1 - 4.5cm,T2	-1.495	0.1966	88	-7.6036	<.001***
7.5cm,T1 - 7.5cm,T2	-1.4975	0.1966	88	-7.6163	<.001***
7.5cm,T1 - 4.5cm,T3	0.1042	0.1966	88	0.5298	0.9995
7.5cm,T1 - 7.5cm,T3	0.1025	0.1966	88	0.5213	0.9995
7.5cm,T1 - 4.5cm,T4	0.2017	0.1966	88	1.0257	0.9693
7.5cm,T1 - 7.5cm,T4	0.2033	0.1966	88	1.0342	0.9679
4.5cm,T2 - 7.5cm,T2	-0.0025	0.1966	88	-0.0127	1
4.5cm,T2 - 4.5cm,T3	1.5992	0.1966	88	8.1334	<.001***
4.5cm,T2 - 7.5cm,T3	1.5975	0.1966	88	8.1249	<.001***
4.5cm,T2 - 4.5cm,T4	1.6967	0.1966	88	8.6292	<.001***
4.5cm,T2 - 7.5cm,T4	1.6983	0.1966	88	8.6377	<.001***
7.5cm,T2 - 4.5cm,T3	1.6017	0.1966	88	8.1461	<.001***
7.5cm,T2 - 7.5cm,T3	1.6	0.1966	88	8.1376	<.001***
7.5cm,T2 - 4.5cm,T4	1.6992	0.1966	88	8.642	<.001***
7.5cm,T2 - 7.5cm,T4	1.7008	0.1966	88	8.6504	<.001***
4.5cm,T3 - 7.5cm,T3	-0.0017	0.1966	88	-0.0085	1
4.5cm,T3 - 4.5cm,T4	0.0975	0.1966	88	0.4959	0.9997
4.5cm,T3 - 7.5cm,T4	0.0992	0.1966	88	0.5044	0.9996
7.5cm,T3 - 4.5cm,T4	0.0992	0.1966	88	0.5044	0.9996
7.5cm,T3 - 7.5cm,T4	0.1008	0.1966	88	0.5128	0.9996
4.5cm,T4 - 7.5cm,T4	0.0017	0.1966	88	0.0085	1

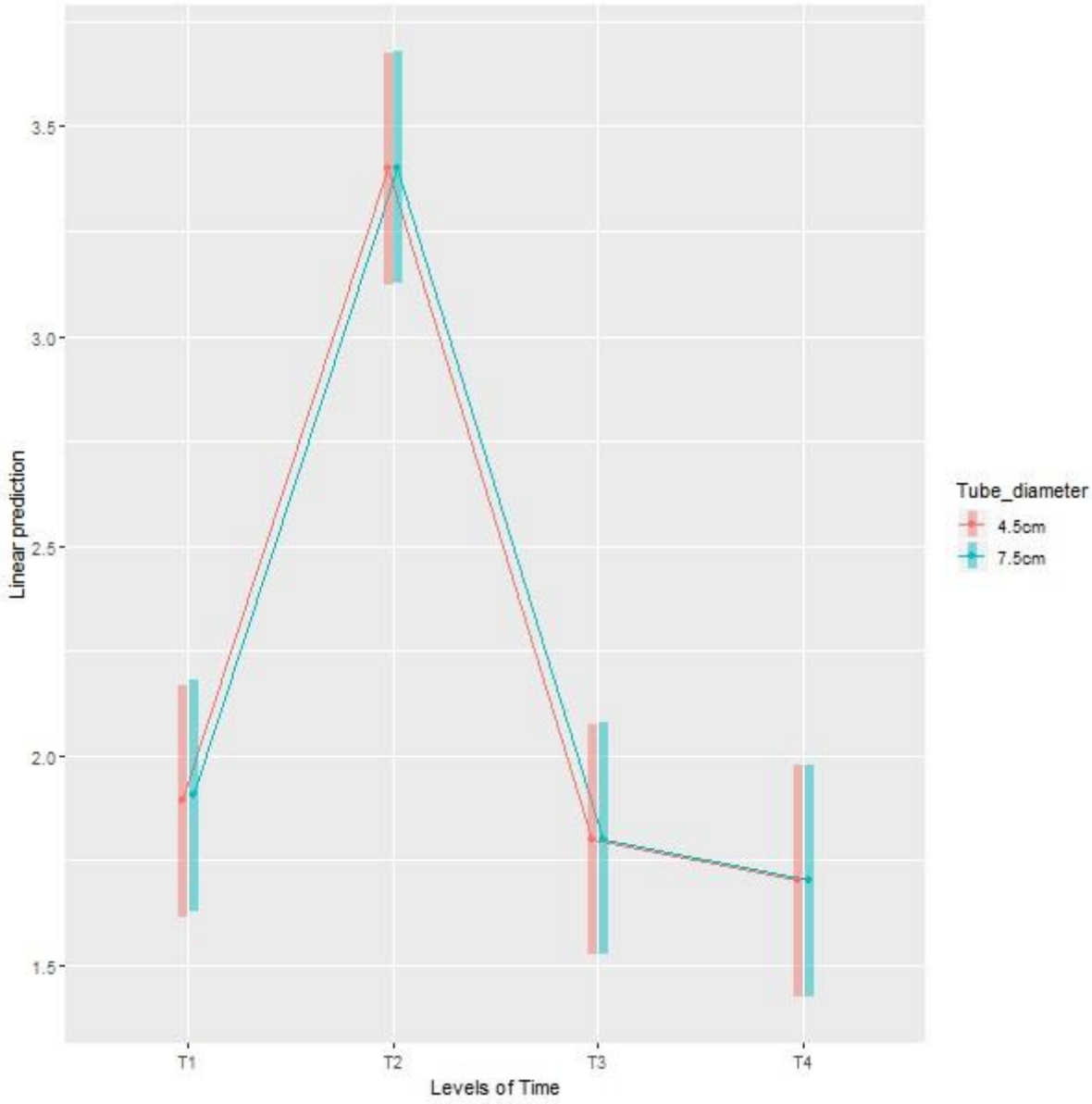
Note. Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1


Plotting all comparisons pairwise for Clay___ by Tube_diameter
contrast
4.5cm - 7.5cm
-0.2
-0.1
0.0
0.1
0.2
estimate


Plotting all comparisons pairwise for Clay___ by Time
contrast
T3 - T4
T2 - T4
T2 - T3
T1 - T4
T1 - T3
T1 - T2
-2
-1
0
1
2
estimate



Interaction plot with Confidence Intervals


3.5
3.0
2.5
2.0
1.5
Linear prediction
T1
T2
T3
T4
Levels of Time
Tube_diameter
4.5cm
7.5cm