

Appendix IV Output from the Regression Model

The output from the regression model for Collector One excludes the inlet temperature variable.

Regression Summary

Tdiff-C1 vs. 2 Independents

Inclusion criteria: C1-1 from May10-Nov25-Tdiff-2nd.svd

Count	625
Num. Missing	0
R	.801
R Squared	.641
Adjusted R Squared	.640
RMS Residual	7.293

ANOVA Table

Tdiff-C1 vs. 2 Independents

Inclusion criteria: C1-1 from May10-Nov25-Tdiff-2nd.svd

	DF	Sum of Squares	Mean Square	F-Value	P-Value
Regression	2	59111.538	29555.769	555.677	<.0001
Residual	622	33083.392	53.189		
Total	624	92194.930			

Regression Coefficients

Tdiff-C1 vs. 2 Independents

Inclusion criteria: C1-1 from May10-Nov25-Tdiff-2nd.svd

	Coefficient	Std. Error	Std. Coeff.	t-Value	P-Value
Intercept	2.769	1.013	2.769	2.734	.0064
Incident Angle	-.089	.014	-.176	-6.429	<.0001
Sol.Rad.	120.791	4.711	.701	25.640	<.0001

Figure IV-1 Regression output for C1-1

Regression Summary

Tdiff-C1 vs. 3 Independents

Inclusion criteria: C1-2 from May10-Nov25-Tdiff-2nd.svd

Count	3164
Num. Missing	0
R	.705
R Squared	.498
Adjusted R Squared	.497
RMS Residual	9.901

ANOVA Table

Tdiff-C1 vs. 3 Independents

Inclusion criteria: C1-2 from May10-Nov25-Tdiff-2nd.svd

	DF	Sum of Squares	Mean Square	F-Value	P-Value
Regression	3	306721.851	102240.617	1042.954	<.0001
Residual	3160	309774.248	98.030		
Total	3163	616496.098			

Regression Coefficients**Tdiff-C1 vs. 3 Independents****Inclusion criteria: C1-2 from May10-Nov25-Tdiff-2nd.svd**

	Coefficient	Std. Error	Std. Coeff.	t-Value	P-Value
Intercept	-1.907	2.050	-1.907	-.930	.3525
Sol.Rad.	44.828	1.494	.450	29.999	<.0001
Incident Angle	-.181	.008	-.324	-22.114	<.0001
C1-inlet	.287	.033	.112	8.627	<.0001

Figure IV-2 Regression output for C1-2

Regression Summary**Tdiff-C1 vs. 3 Independents****Inclusion criteria: C1-3 from May10-Nov25-Tdiff-2nd.svd**

Count	1175
Num. Missing	0
R	.770
R Squared	.592
Adjusted R Squared	.591
RMS Residual	9.396

ANOVA Table**Tdiff-C1 vs. 3 Independents****Inclusion criteria: C1-3 from May10-Nov25-Tdiff-2nd.svd**

	DF	Sum of Squares	Mean Square	F-Value	P-Value
Regression	3	150197.273	50065.758	567.149	<.0001
Residual	1171	103371.440	88.276		
Total	1174	253568.712			

Regression Coefficients**Tdiff-C1 vs. 3 Independents****Inclusion criteria: C1-3 from May10-Nov25-Tdiff-2nd.svd**

	Coefficient	Std. Error	Std. Coeff.	t-Value	P-Value
Intercept	-27.814	5.398	-27.814	-5.153	<.0001
Incident Angle	-.447	.014	-.699	-31.660	<.0001
C1-inlet	.984	.071	.260	13.881	<.0001
Sol.Rad.	5.082	2.344	.048	2.169	.0303

Figure IV-3 Regression output for C1-3

Output from regression:

Regression Summary**Tdiff-C2 vs. 3 Independents****Inclusion criteria: C2-1 from May10-Nov25-Tdiff-2nd.svd**

Count	857
Num. Missing	0
R	.857
R Squared	.734
Adjusted R Squared	.733
RMS Residual	12.544

ANOVA Table**Tdiff-C2 vs. 3 Independents****Inclusion criteria: C2-1 from May10-Nov25-Tdiff-2nd.svd**

	DF	Sum of Squares	Mean Square	F-Value	P-Value
Regression	3	370901.545	123633.848	785.718	<.0001
Residual	853	134220.833	157.352		
Total	856	505122.378			

Regression Coefficients**Tdiff-C2 vs. 3 Independents****Inclusion criteria: C2-1 from May10-Nov25-Tdiff-2nd.svd**

	Coefficient	Std. Error	Std. Coeff.	t-Value	P-Value
Intercept	26.151	3.729	26.151	7.013	<.0001
Incident Angle	-.181	.020	-.183	-9.030	<.0001
C2-inlet	-.421	.085	-.090	-4.979	<.0001
Sol.Rad.	246.806	6.583	.752	37.494	<.0001

Figure IV-4 Regression output for C2-1

Output from Regression running in StatView:

Regression Summary**Tdiff-C2 vs. 3 Independents****Inclusion criteria: C2-2 from May10-Nov25-Tdiff-2nd.svd**

Count	3283
Num. Missing	0
R	.763
R Squared	.582
Adjusted R Squared	.582
RMS Residual	18.003

ANOVA Table**Tdiff-C2 vs. 3 Independents****Inclusion criteria: C2-2 from May10-Nov25-Tdiff-2nd.svd**

	DF	Sum of Squares	Mean Square	F-Value	P-Value
Regression	3	1482196.166	494065.389	1524.370	<.0001
Residual	3279	1062760.327	324.111		
Total	3282	2544956.493			

Regression Coefficients**Tdiff-C2 vs. 3 Independents****Inclusion criteria: C2-2 from May10-Nov25-Tdiff-2nd.svd**

	Coefficient	Std. Error	Std. Coeff.	t-Value	P-Value
Intercept	23.013	3.605	23.013	6.383	<.0001
Incident Angle	-.417	.015	-.374	-28.244	<.0001
C2-inlet	.213	.059	.042	3.625	.0003
Sol.Rad.	93.930	2.597	.489	36.166	<.0001

Figure IV-5 Regression output for C2-2

Regression Summary**Tdiff-C2 vs. 3 Independents**

Inclusion criteria: C2-3 from May10-Nov25-Tdiff-2nd.svd

Count	866
Num. Missing	0
R	.817
R Squared	.667
Adjusted R Squared	.666
RMS Residual	15.295

ANOVA Table**Tdiff-C2 vs. 3 Independents**

Inclusion criteria: C2-3 from May10-Nov25-Tdiff-2nd.svd

	DF	Sum of Squares	Mean Square	F-Value	P-Value
Regression	3	404349.806	134783.269	576.121	<.0001
Residual	862	201664.467	233.949		
Total	865	606014.273			

Regression Coefficients**Tdiff-C2 vs. 3 Independents**

Inclusion criteria: C2-3 from May10-Nov25-Tdiff-2nd.svd

	Coefficient	Std. Error	Std. Coeff.	t-Value	P-Value
Intercept	-2.086	12.210	-2.086	-.171	.8644
Incident Angle	-.829	.027	-.709	-30.348	<.0001
C2-inlet	1.153	.164	.139	7.012	<.0001
Sol.Rad.	29.177	4.601	.149	6.342	<.0001

Figure IV-6 Regression output for C2-3

Regression Summary**Tdiff-C3 vs. 3 Independents**

Inclusion criteria: C3-1 from May10-Nov25-Tdiff-2nd.svd

Count	847
Num. Missing	0
R	.848
R Squared	.720
Adjusted R Squared	.719
RMS Residual	12.639

ANOVA Table**Tdiff-C3 vs. 3 Independents**

Inclusion criteria: C3-1 from May10-Nov25-Tdiff-2nd.svd

	DF	Sum of Squares	Mean Square	F-Value	P-Value
Regression	3	345509.035	115169.678	720.976	<.0001
Residual	843	134661.993	159.741		
Total	846	480171.028			

Regression Coefficients**Tdiff-C3 vs. 3 Independents****Inclusion criteria: C3-1 from May10-Nov25-Tdiff-2nd.svd**

	Coefficient	Std. Error	Std. Coeff.	t-Value	P-Value
Intercept	26.289	3.885	26.289	6.766	<.0001
Incident Angle	-.199	.020	-.205	-9.875	<.0001
C3-inlet	-.404	.088	-.085	-4.600	<.0001
Sol.Rad.	247.060	6.907	.733	35.770	<.0001

Figure IV-7 Regression output for C3-1

Regression Summary**Tdiff-C3 vs. 3 Independents****Inclusion criteria: C3-2 from May10-Nov25-Tdiff-2nd.svd**

Count	3291
Num. Missing	0
R	.756
R Squared	.572
Adjusted R Squared	.571
RMS Residual	18.274

ANOVA Table**Tdiff-C3 vs. 3 Independents****Inclusion criteria: C3-2 from May10-Nov25-Tdiff-2nd.svd**

	DF	Sum of Squares	Mean Square	F-Value	P-Value
Regression	3	1465674.558	488558.186	1463.051	<.0001
Residual	3287	1097631.597	333.931		
Total	3290	2563306.155			

Regression Coefficients**Tdiff-C3 vs. 3 Independents****Inclusion criteria: C3-2 from May10-Nov25-Tdiff-2nd.svd**

	Coefficient	Std. Error	Std. Coeff.	t-Value	P-Value
Intercept	20.688	3.654	20.688	5.661	<.0001
Incident Angle	-.448	.015	-.399	-29.819	<.0001
C3-inlet	.307	.059	.060	5.154	<.0001
Sol.Rad.	87.018	2.622	.453	33.191	<.0001

Figure IV-8 Regression output for C3-2

Regression Summary**Tdiff-C3 vs. 3 Independents****Inclusion criteria: C3-3 from May10-Nov25-Tdiff-2nd.svd**

Count	871
Num. Missing	0
R	.833
R Squared	.693
Adjusted R Squared	.692
RMS Residual	14.630

ANOVA Table**Tdiff-C3 vs. 3 Independents****Inclusion criteria: C3-3 from May10-Nov25-Tdiff-2nd.svd**

	DF	Sum of Squares	Mean Square	F-Value	P-Value
Regression	3	419875.129	139958.376	653.856	<.0001
Residual	867	185582.070	214.051		
Total	870	605457.199			

Regression Coefficients**Tdiff-C3 vs. 3 Independents****Inclusion criteria: C3-3 from May10-Nov25-Tdiff-2nd.svd**

	Coefficient	Std. Error	Std. Coeff.	t-Value	P-Value
Intercept	-.422	11.621	-.422	-.036	.9711
Incident Angle	-.850	.026	-.743	-32.903	<.0001
C3-inlet	1.166	.157	.141	7.448	<.0001
Sol.Rad.	24.264	4.406	.125	5.507	<.0001

Figure IV-9 Regression output for C3-3