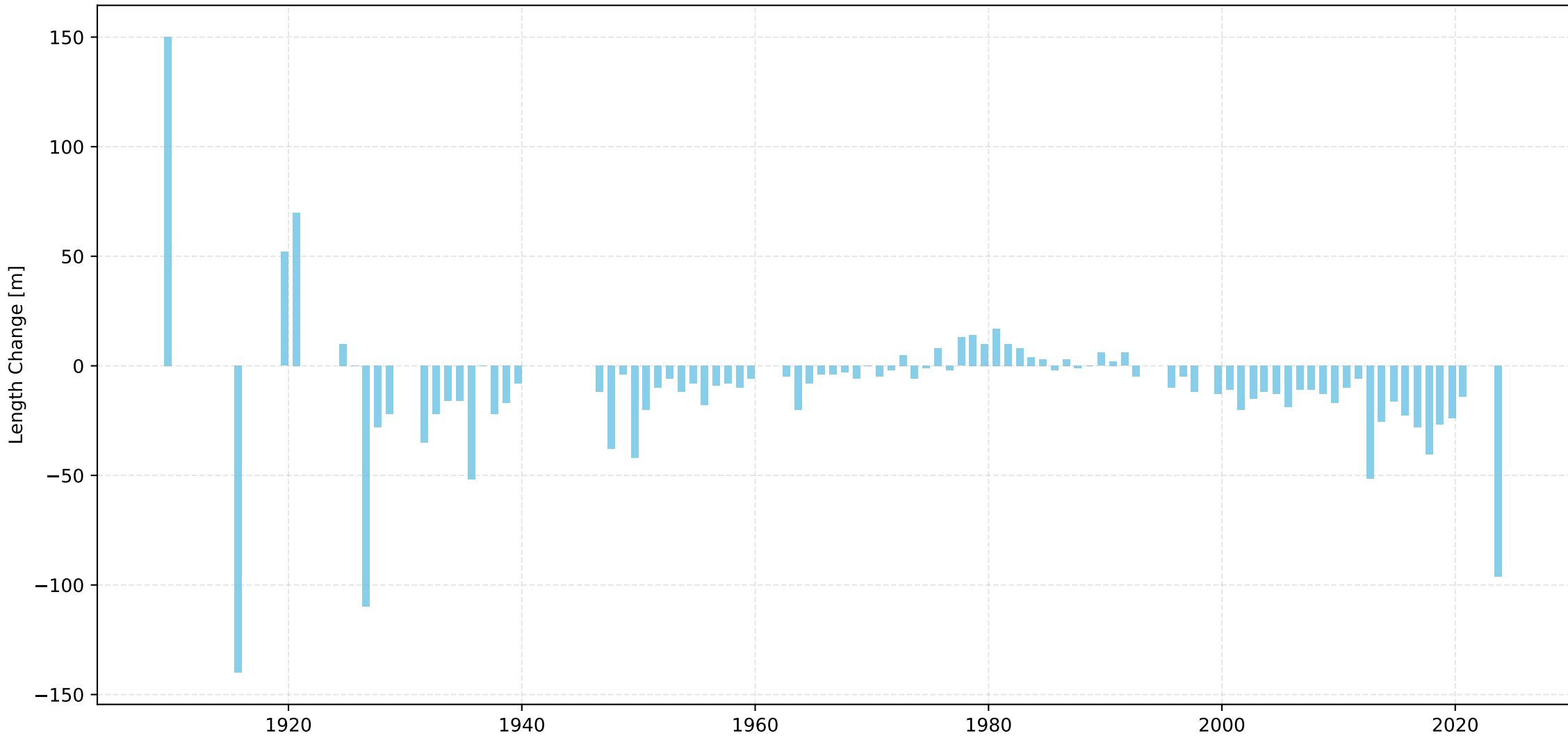
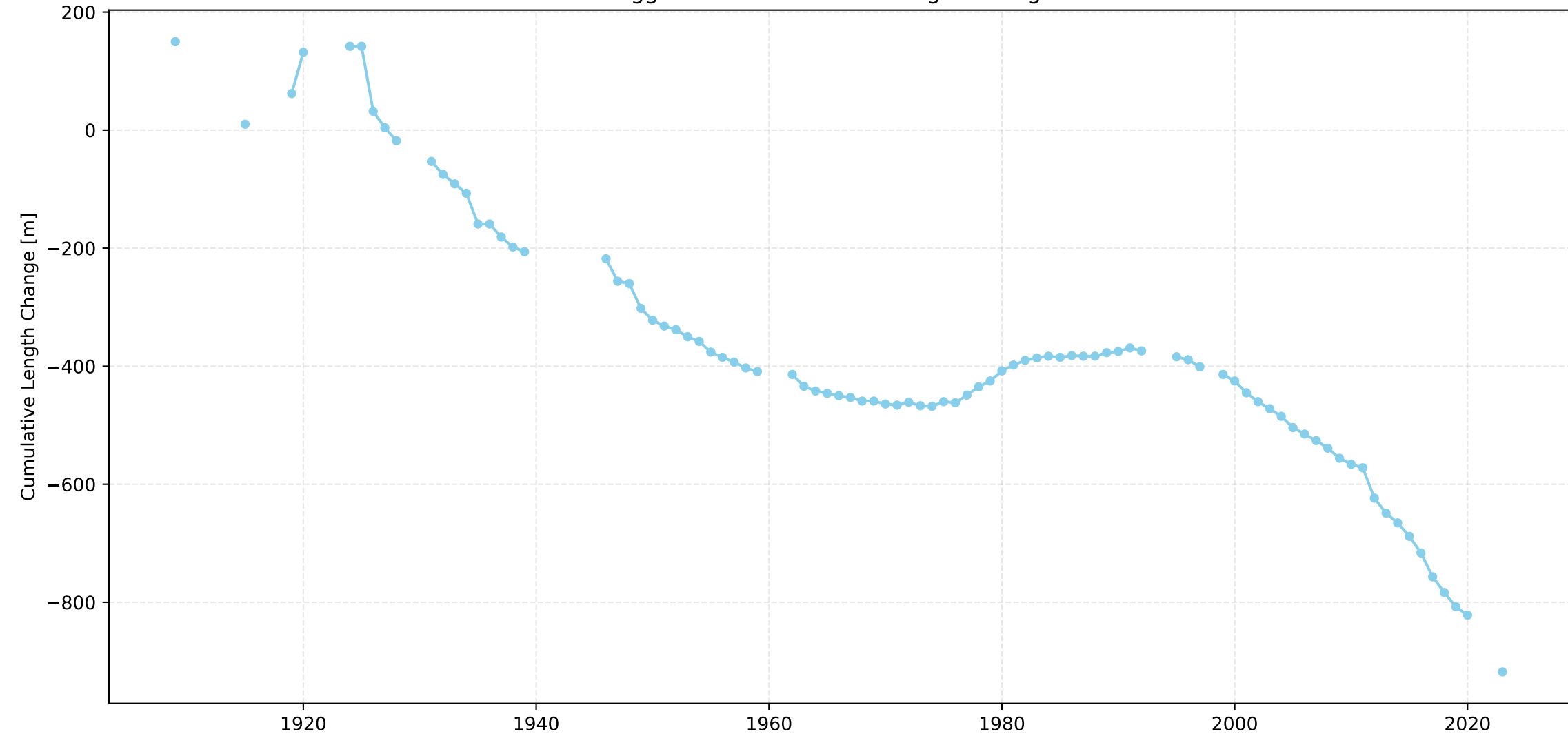


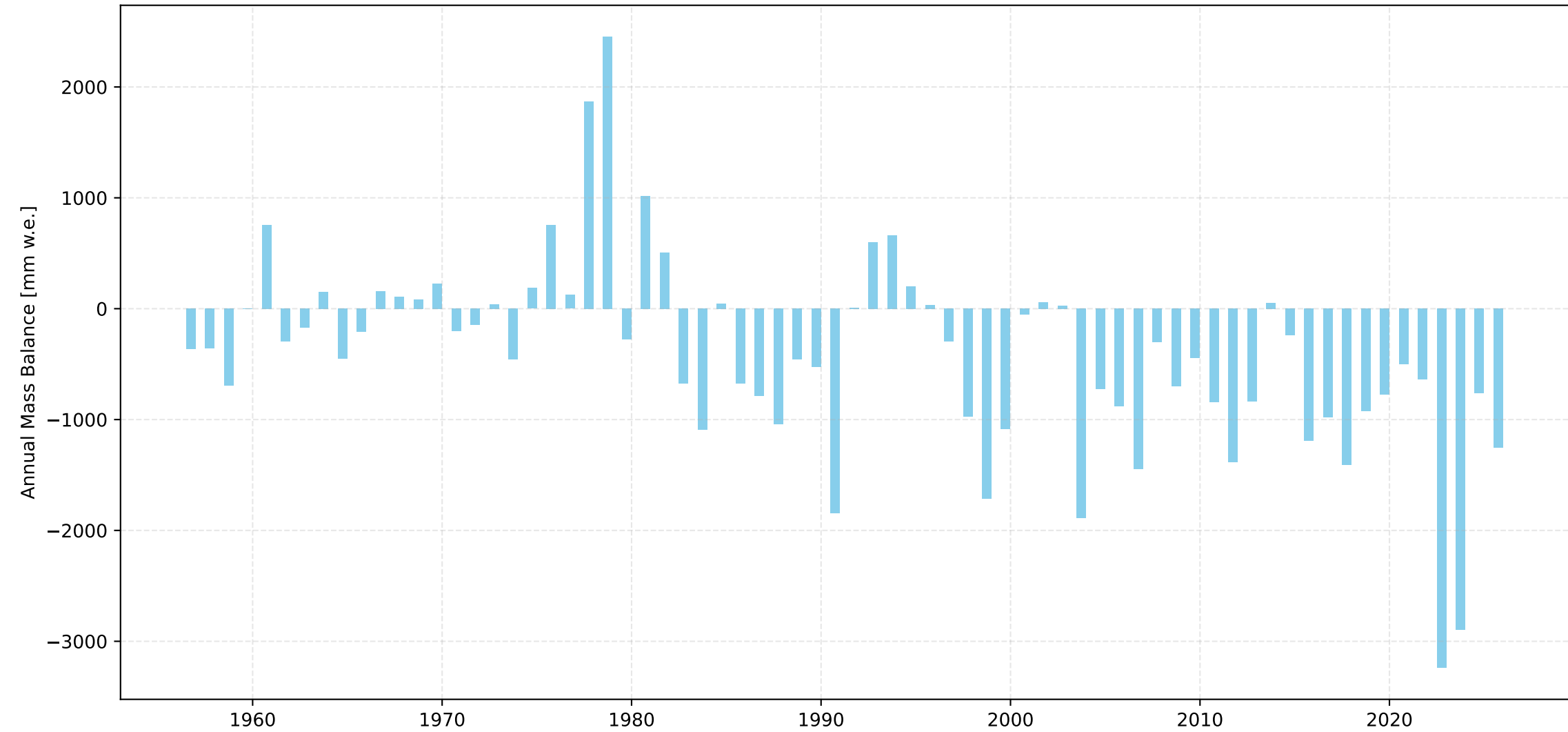
Schwarzberggletscher Length Change Over Time



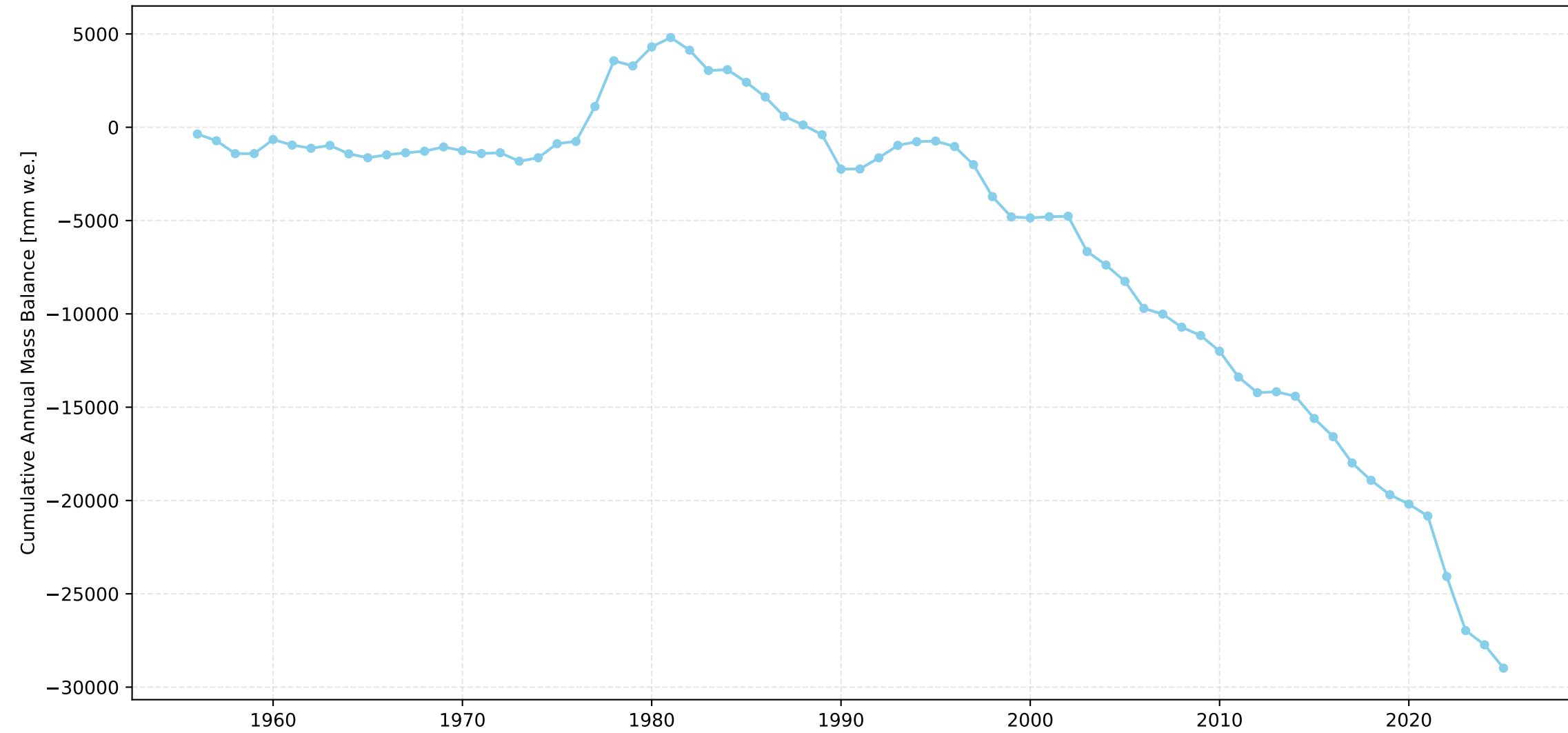
Schwarzberggletscher Cumulative Length Change Over Time



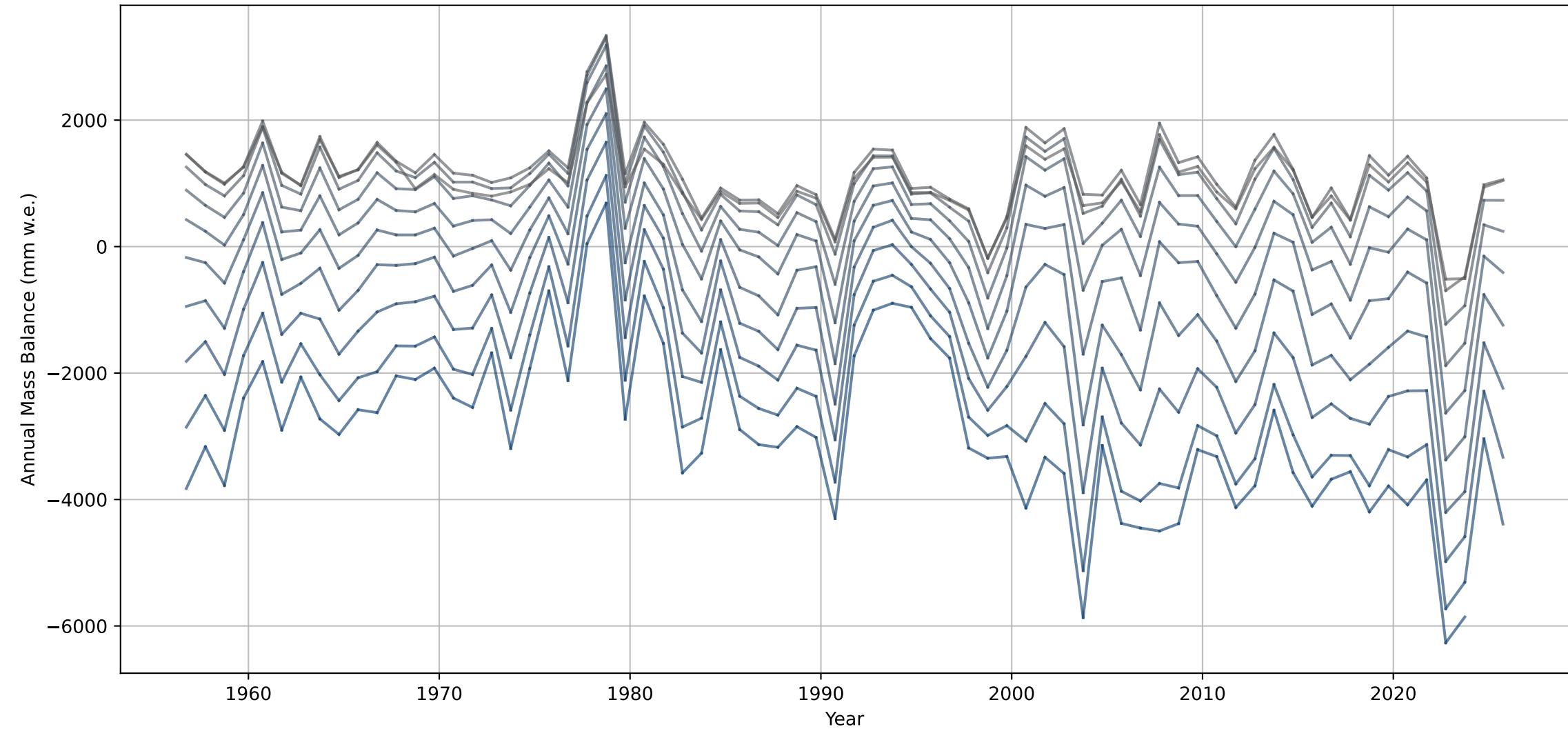
Schwarzberggletscher Annual Mass Balance Over Time



Schwarzberggletscher Cumulative Annual Mass Balance Over Time



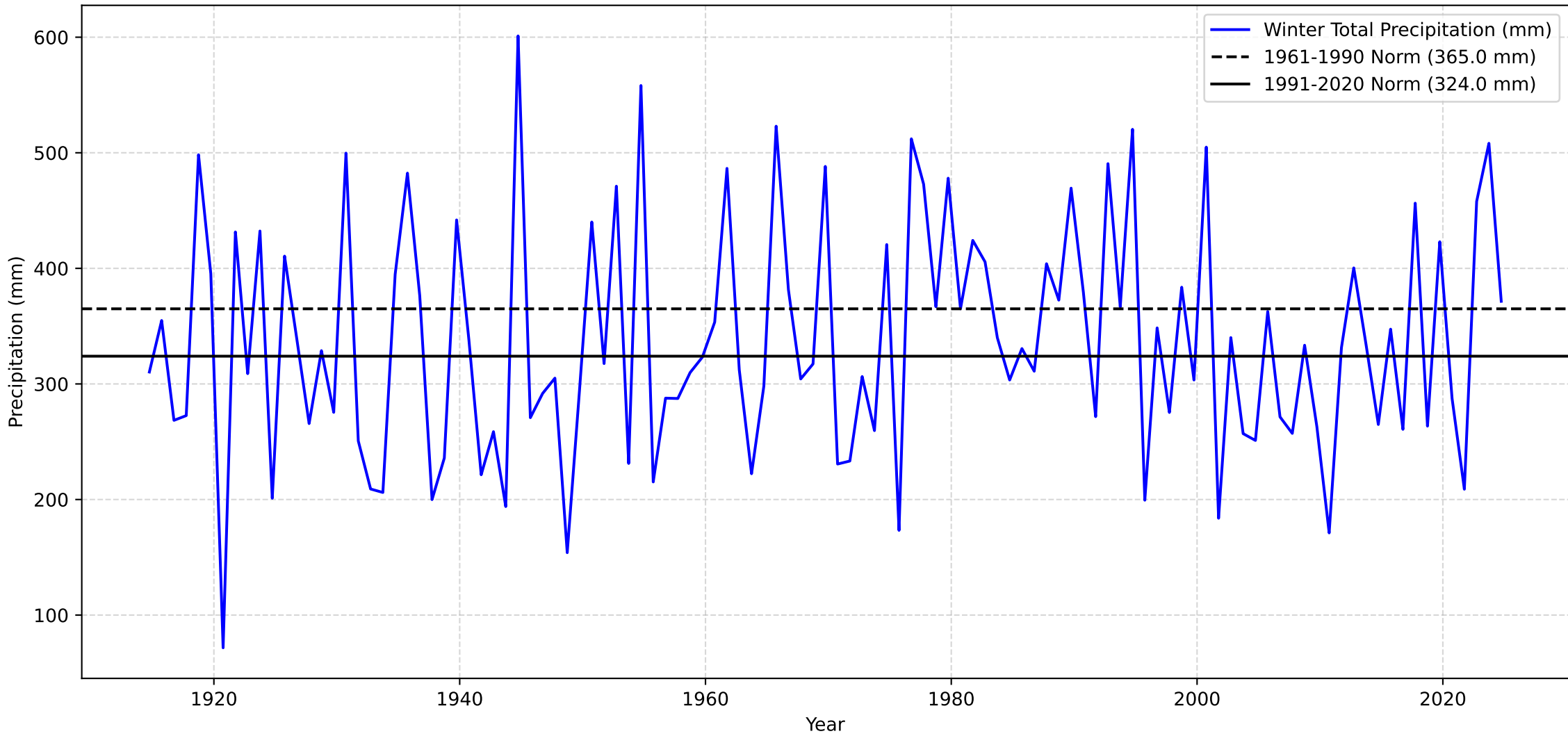
Annual Mass Balance for each Elevation Bin over Time - Schwarzberggletscher



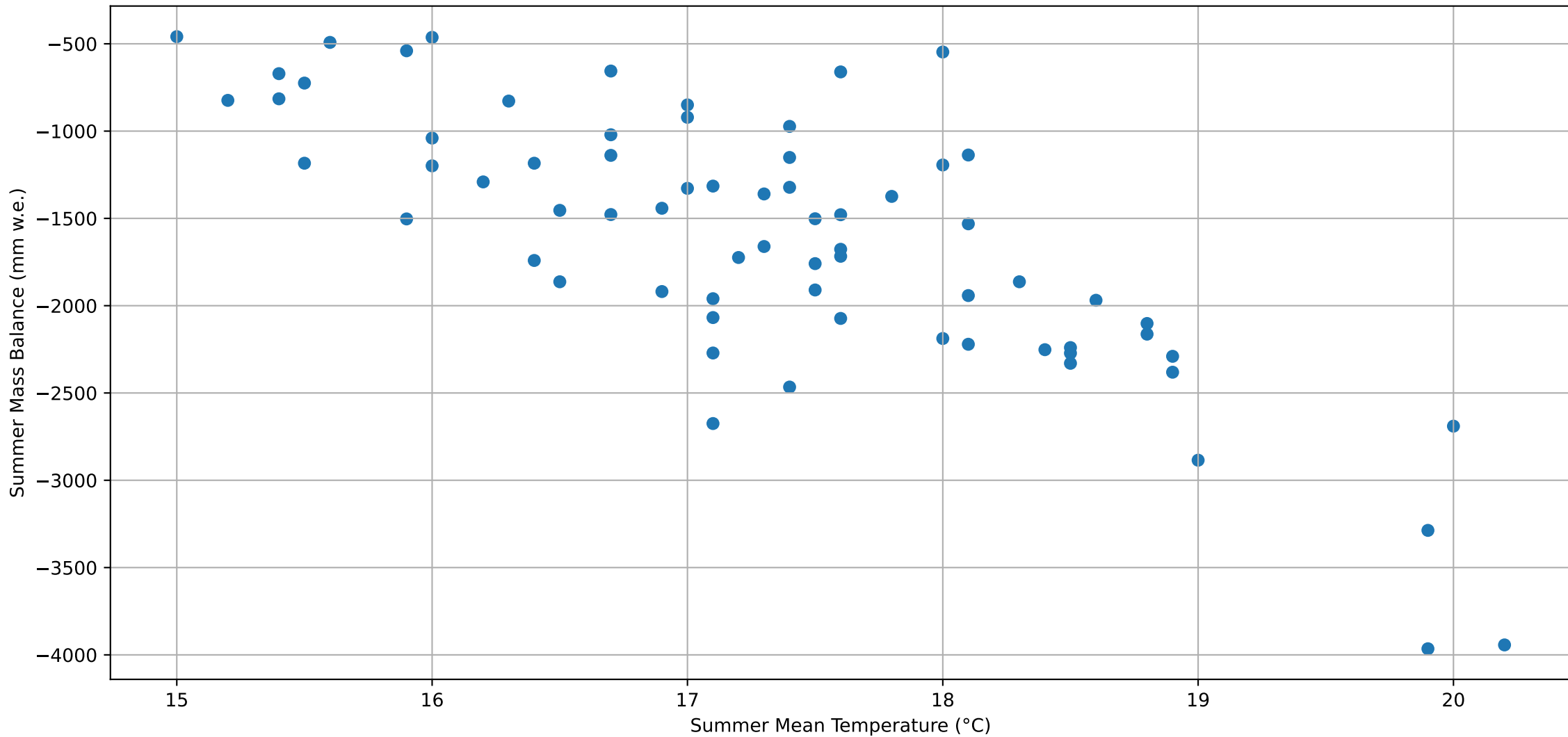
Sion Summer Mean Temperature



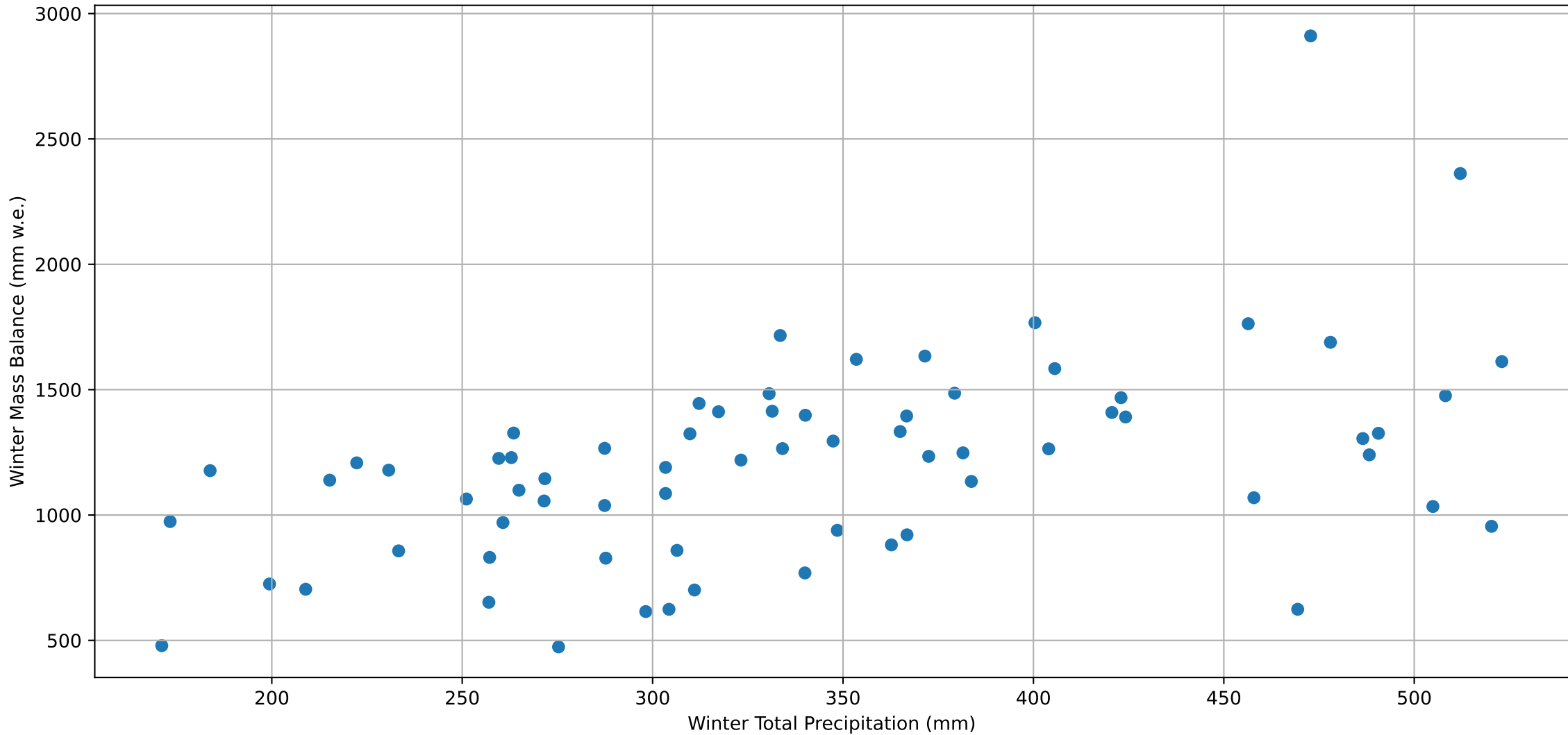
Sion Winter Total Precipitation



Schwarzberggletscher Summer Mass Balance with relation to Temperature



Schwarzberggletscher Winter Mass Balance with relation to Precipitation



Regression: Monthly 1961-1990

=====
MONTHLY DEVIATIONS for Schwarzberggletscher using 1961-1990 climate norms
=====

Correlation Analysis with Significance Testing:
Skipping constant column: const
Table with 5 columns: Variable, Correlation Coefficient, P-value, Significant (p < 0.05), and an unlabeled column. Rows include months from July to April.

Number of observations: 70

Regression Summary:

OLS Regression Results
Table with 2 columns: Label and Value. Rows include Dep. Variable, Model, Method, Date, Time, No. Observations, Df Residuals, Df Model, Covariance Type, R-squared, Adj. R-squared, F-statistic, Prob (F-statistic), Log-Likelihood, AIC, and BIC.

Table with 7 columns: Label, coef, std err, t, P>|t|, [0.025, 0.975]. Rows include const and months from May to April.

Table with 4 columns: Label, Value, Label, Value. Rows include Omnibus, Prob(Omnibus), Skew, Kurtosis, Durbin-Watson, Jarque-Bera (JB), Prob(JB), and Cond. No.

Notes:
[1] Standard Errors assume that the covariance matrix of the errors is correctly specified.

Regression: Optimal 1961-1990

=====
OPTIMAL SEASONAL DEVIATIONS for Schwarzberggletscher using 1961-1990 climate norms
=====

Correlation Analysis with Significance Testing:
Skipping constant column: const
Variable Correlation Coefficient P-value Significant (p < 0.05)
0 opt_season_td -0.673903 1.617824e-10 True
1 opt_season_pd 0.241944 4.360289e-02 True

Number of observations: 70

Regression Summary:

OLS Regression Results						
=====						
Dep. Variable:	annual mass balance (mm w.e.)			R-squared:	0.484	
Model:	OLS			Adj. R-squared:	0.469	
Method:	Least Squares			F-statistic:	31.45	
Date:	Fri, 19 Dec 2025			Prob (F-statistic):	2.34e-10	
Time:	16:02:39			Log-Likelihood:	-550.54	
No. Observations:	70			AIC:	1107.	
Df Residuals:	67			BIC:	1114.	
Df Model:	2					
Covariance Type:	nonrobust					
=====						
	coef	std err	t	P> t	[0.025	0.975]

const	37.4196	96.002	0.390	0.698	-154.201	229.040
opt_season_td	-452.9618	60.918	-7.436	0.000	-574.554	-331.370
opt_season_pd	1.8855	0.954	1.975	0.052	-0.020	3.791
=====						
Omnibus:	0.847		Durbin-Watson:		1.175	
Prob(Omnibus):	0.655		Jarque-Bera (JB):		0.312	
Skew:	-0.020		Prob(JB):		0.856	
Kurtosis:	3.325		Cond. No.		111.	
=====						

Notes:
[1] Standard Errors assume that the covariance matrix of the errors is correctly specified.

Regression: Seasonal 1961-1990

=====
SUMMER/WINTER SEASONAL DEVIATIONS for Schwarzberggletscher using 1961-1990 climate norms
=====

Correlation Analysis with Significance Testing:
Skipping constant column: const
Variable Correlation Coefficient P-value Significant (p < 0.05)
0 summer_td -0.704085 1.048873e-11 True
1 winter_pd 0.245330 4.065650e-02 True

Number of observations: 70

Regression Summary:

OLS Regression Results						
=====						
Dep. Variable:	annual mass balance (mm w.e.)			R-squared:	0.537	
Model:	OLS			Adj. R-squared:	0.523	
Method:	Least Squares			F-statistic:	38.87	
Date:	Fri, 19 Dec 2025			Prob (F-statistic):	6.23e-12	
Time:	16:02:39			Log-Likelihood:	-546.76	
No. Observations:	70			AIC:	1100.	
Df Residuals:	67			BIC:	1106.	
Df Model:	2					
Covariance Type:	nonrobust					
=====						
	coef	std err	t	P> t	[0.025	0.975]

const	83.7591	92.237	0.908	0.367	-100.347	267.865
summer_td	-518.3643	62.394	-8.308	0.000	-642.904	-393.825
winter_pd	1.9387	0.793	2.446	0.017	0.357	3.521
=====						
Omnibus:	1.179		Durbin-Watson:		1.253	
Prob(Omnibus):	0.555		Jarque-Bera (JB):		0.579	
Skew:	-0.128		Prob(JB):		0.748	
Kurtosis:	3.364		Cond. No.		132.	
=====						

Notes:
[1] Standard Errors assume that the covariance matrix of the errors is correctly specified.

Regression: Monthly 1991-2020

=====
MONTHLY DEVIATIONS for Schwarzberggletscher using 1991-2020 climate norms
=====

Correlation Analysis with Significance Testing:
Skipping constant column: const
Table with 5 columns: Variable, Correlation Coefficient, P-value, Significant (p < 0.05), and an unlabeled column. Rows include months from July to April.

Number of observations: 70

Regression Summary:

OLS Regression Results
Table with 2 columns: Label and Value. Rows include Dep. Variable, Model, Method, Date, Time, No. Observations, Df Residuals, Df Model, Covariance Type, R-squared, Adj. R-squared, F-statistic, Prob (F-statistic), Log-Likelihood, AIC, and BIC.

Table with 7 columns: Variable, coef, std err, t, P>|t|, [0.025, 0.975]. Rows include const and months from May to April.

Table with 4 columns: Statistic, Value, Statistic, Value. Rows include Omnibus, Prob(Omnibus), Skew, Kurtosis, Durbin-Watson, Jarque-Bera (JB), Prob(JB), and Cond. No.

Notes:
[1] Standard Errors assume that the covariance matrix of the errors is correctly specified.

Regression: Optimal 1991-2020

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OPTIMAL SEASONAL DEVIATIONS for Schwarzberggletscher using 1991-2020 climate norms

=====

Correlation Analysis with Significance Testing:
Skipping constant column: const

	Variable	Correlation Coefficient	P-value	Significant (p < 0.05)
0	opt_season_td	-0.676153	1.334027e-10	True
1	opt_season_pd	0.241944	4.360289e-02	True

Number of observations: 70

Regression Summary:

OLS Regression Results

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Dep. Variable:	annual mass balance (mm w.e.)	R-squared:	0.485
Model:	OLS	Adj. R-squared:	0.470
Method:	Least Squares	F-statistic:	31.59
Date:	Fri, 19 Dec 2025	Prob (F-statistic):	2.17e-10
Time:	16:02:39	Log-Likelihood:	-550.47
No. Observations:	70	AIC:	1107.
Df Residuals:	67	BIC:	1114.
Df Model:	2		
Covariance Type:	nonrobust		

=====

	coef	std err	t	P> t	[0.025	0.975]
const	-822.2518	92.603	-8.879	0.000	-1007.088	-637.415
opt_season_td	-457.0050	61.315	-7.453	0.000	-579.390	-334.620
opt_season_pd	1.8258	0.954	1.913	0.060	-0.079	3.731

=====

Omnibus:	0.687	Durbin-Watson:	1.161
Prob(Omnibus):	0.709	Jarque-Bera (JB):	0.208
Skew:	-0.004	Prob(JB):	0.901
Kurtosis:	3.267	Cond. No.	107.

=====

Notes:

[1] Standard Errors assume that the covariance matrix of the errors is correctly specified.

Regression: Seasonal 1991-2020

=====
SUMMER/WINTER SEASONAL DEVIATIONS for Schwarzberggletscher using 1991-2020 climate norms
=====

Correlation Analysis with Significance Testing:
Skipping constant column: const
Variable Correlation Coefficient P-value Significant (p < 0.05)
0 summer_td -0.702701 1.198032e-11 True
1 winter_pd 0.245330 4.065650e-02 True

Number of observations: 70

Regression Summary:

OLS Regression Results						
=====						
Dep. Variable:	annual mass balance (mm w.e.)			R-squared:	0.534	
Model:	OLS			Adj. R-squared:	0.520	
Method:	Least Squares			F-statistic:	38.40	
Date:	Fri, 19 Dec 2025			Prob (F-statistic):	7.75e-12	
Time:	16:02:39			Log-Likelihood:	-546.99	
No. Observations:	70			AIC:	1100.	
Df Residuals:	67			BIC:	1107.	
Df Model:	2					
Covariance Type:	nonrobust					
=====						
	coef	std err	t	P> t	[0.025	0.975]

const	-842.3214	88.023	-9.569	0.000	-1018.016	-666.627
summer_td	-516.2801	62.546	-8.254	0.000	-641.122	-391.439
winter_pd	1.9136	0.795	2.406	0.019	0.326	3.501
=====						
Omnibus:	1.147		Durbin-Watson:		1.229	
Prob(Omnibus):	0.564		Jarque-Bera (JB):		0.548	
Skew:	-0.105		Prob(JB):		0.760	
Kurtosis:	3.379		Cond. No.		124.	
=====						

Notes:
[1] Standard Errors assume that the covariance matrix of the errors is correctly specified.