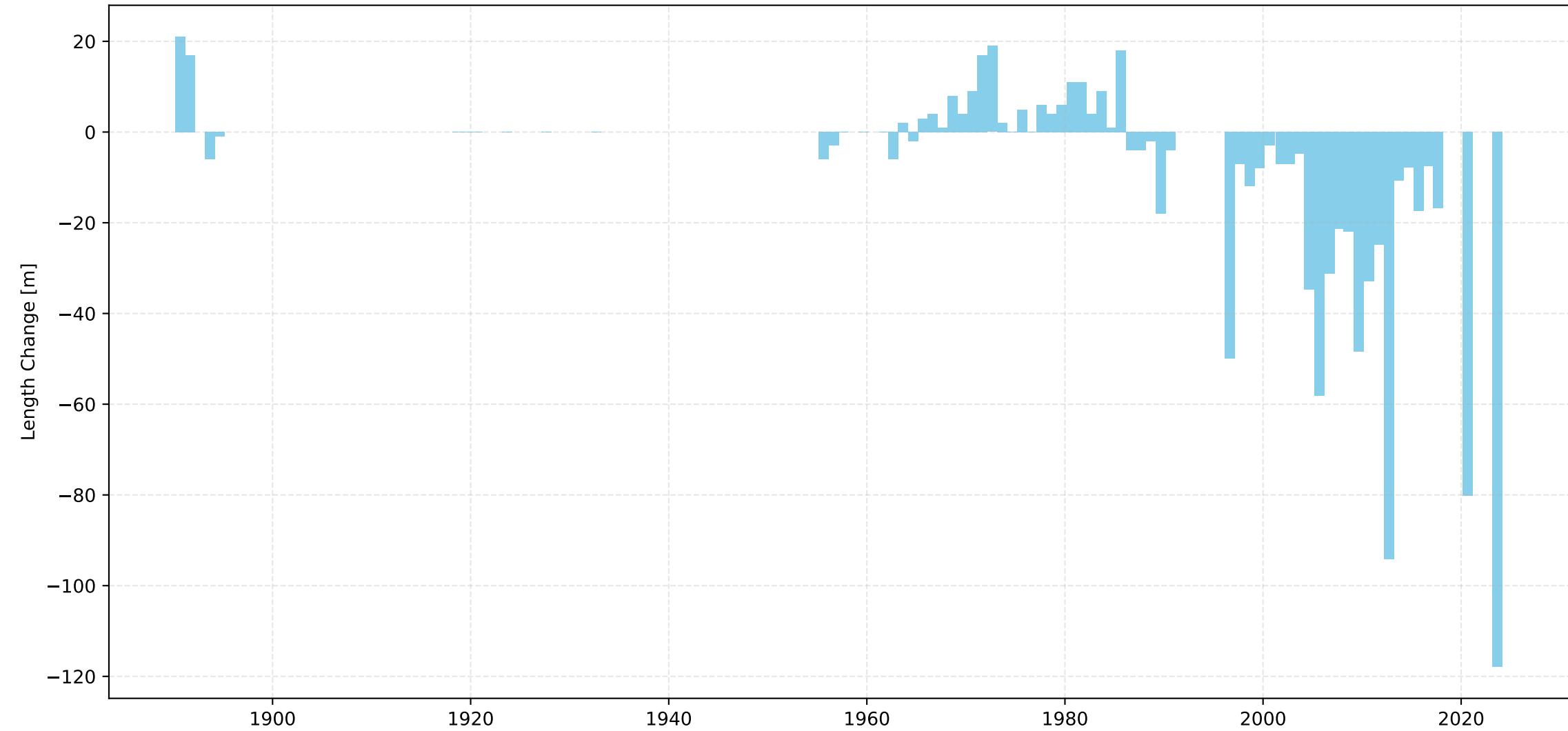
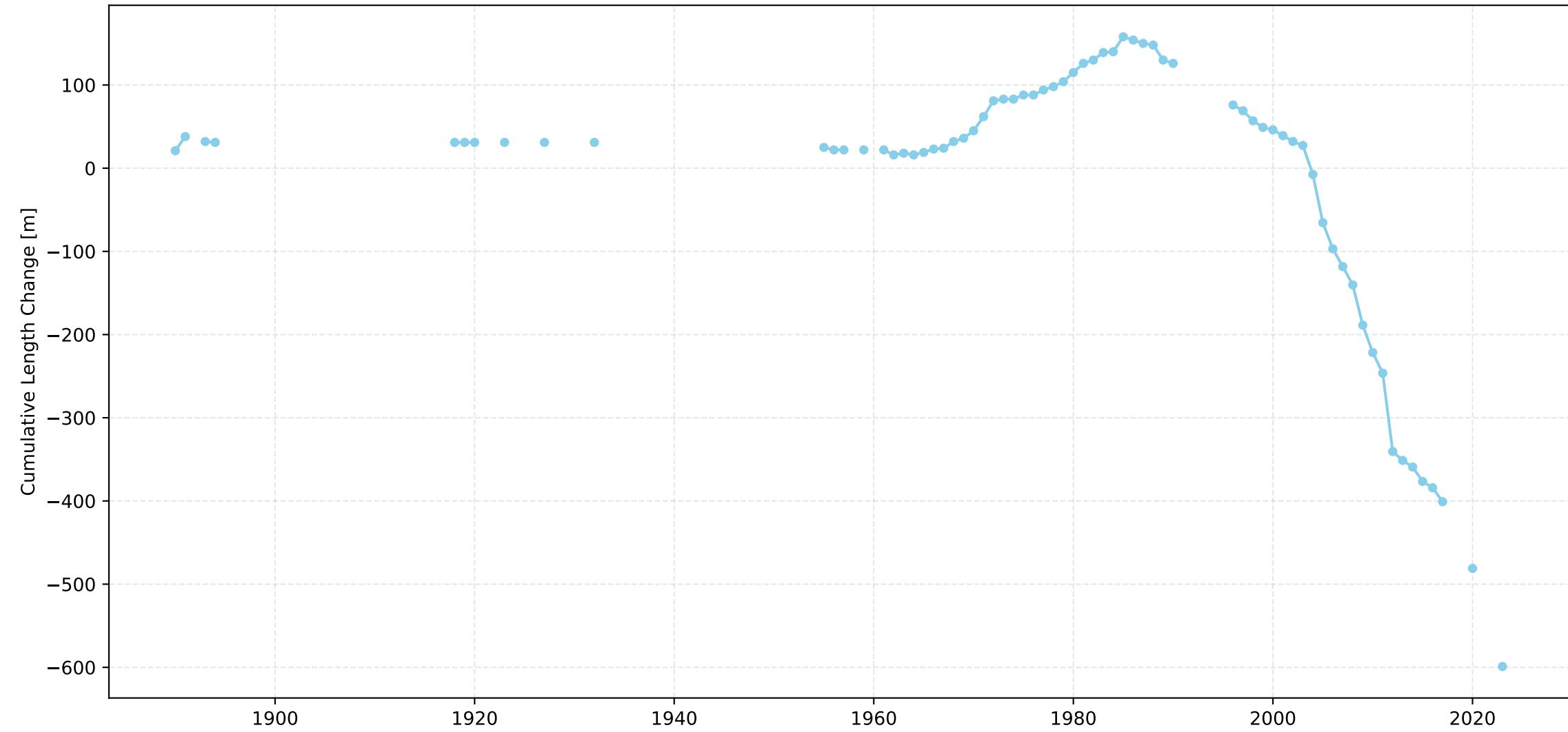


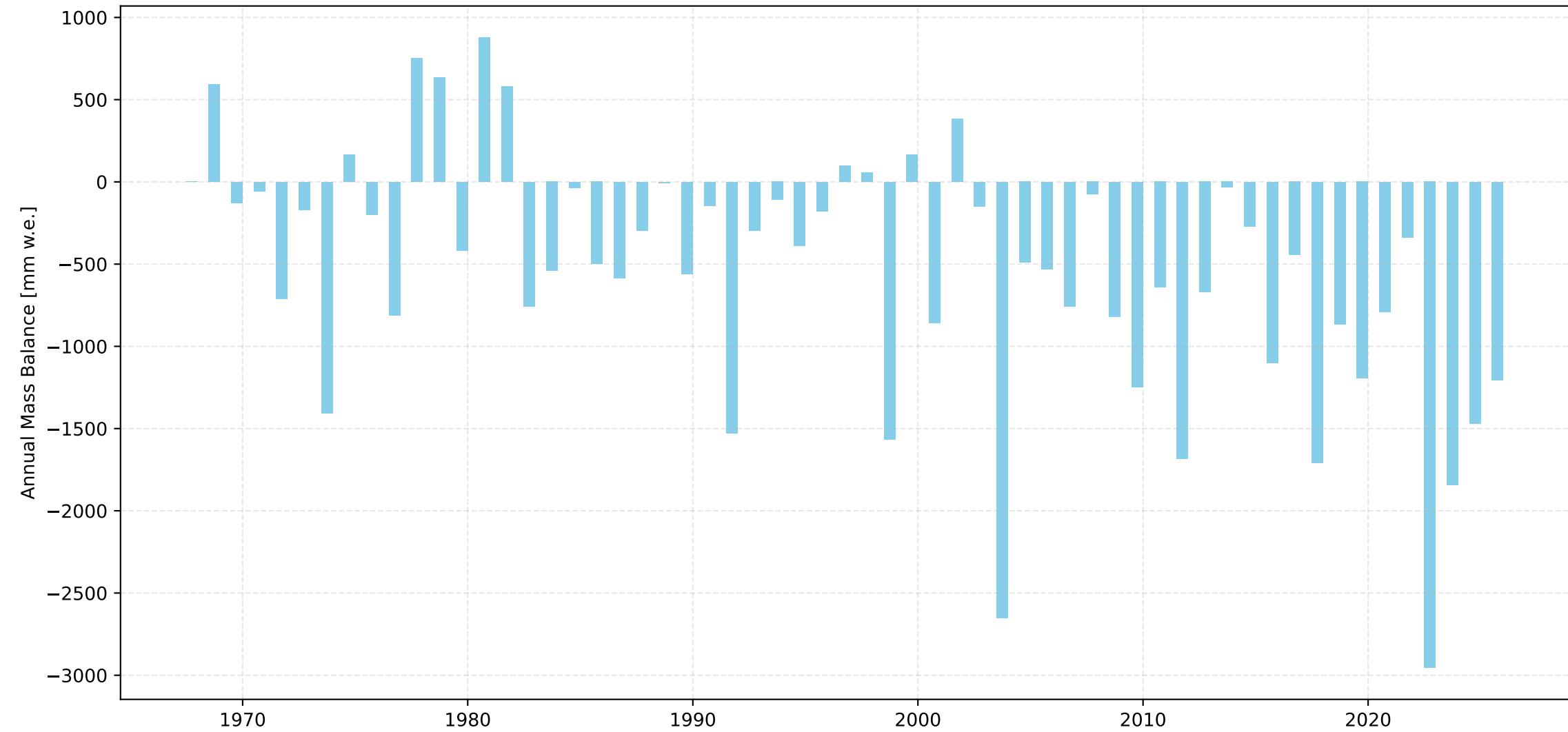
Glacier du Giétero Length Change Over Time



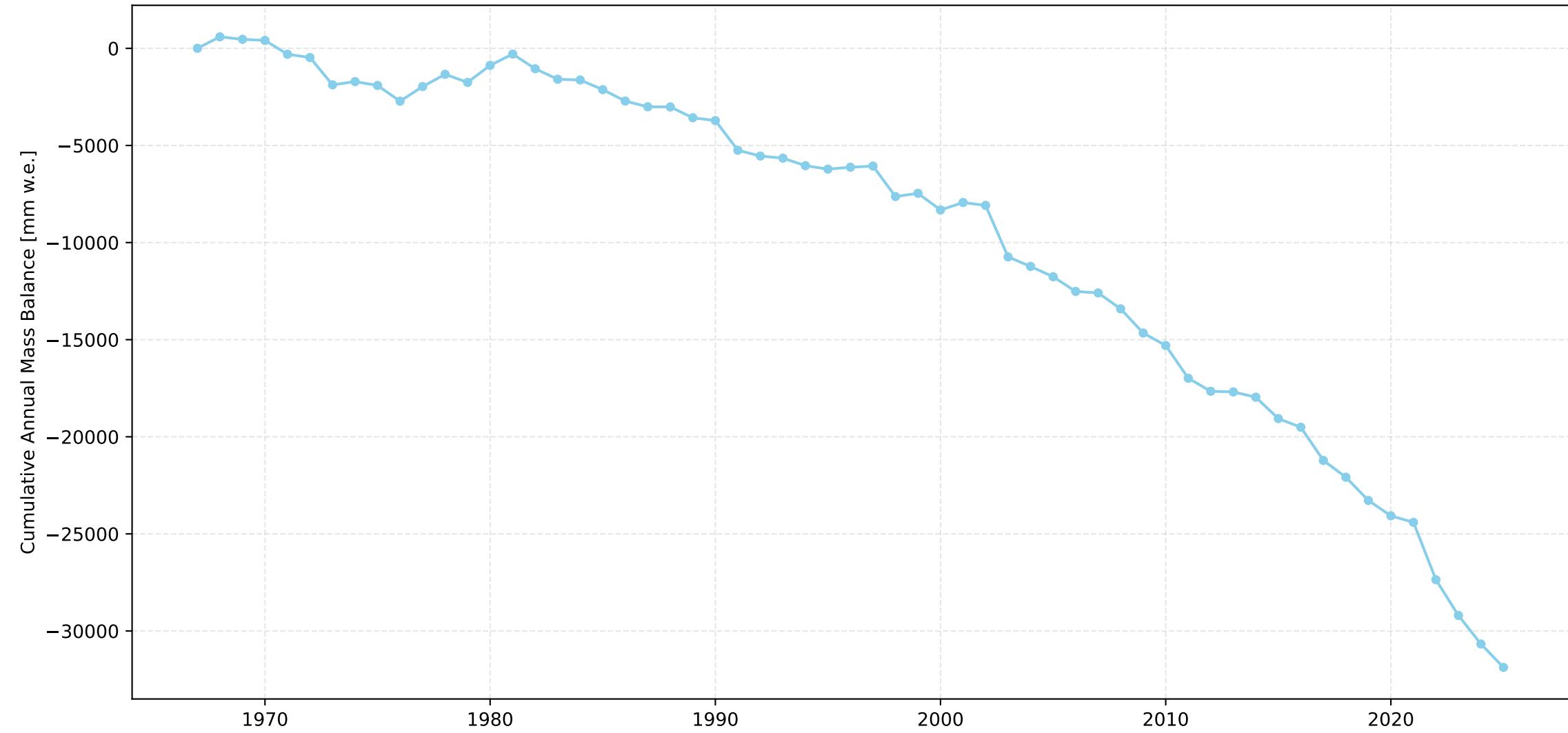
Glacier du Giéstro Cumulative Length Change Over Time



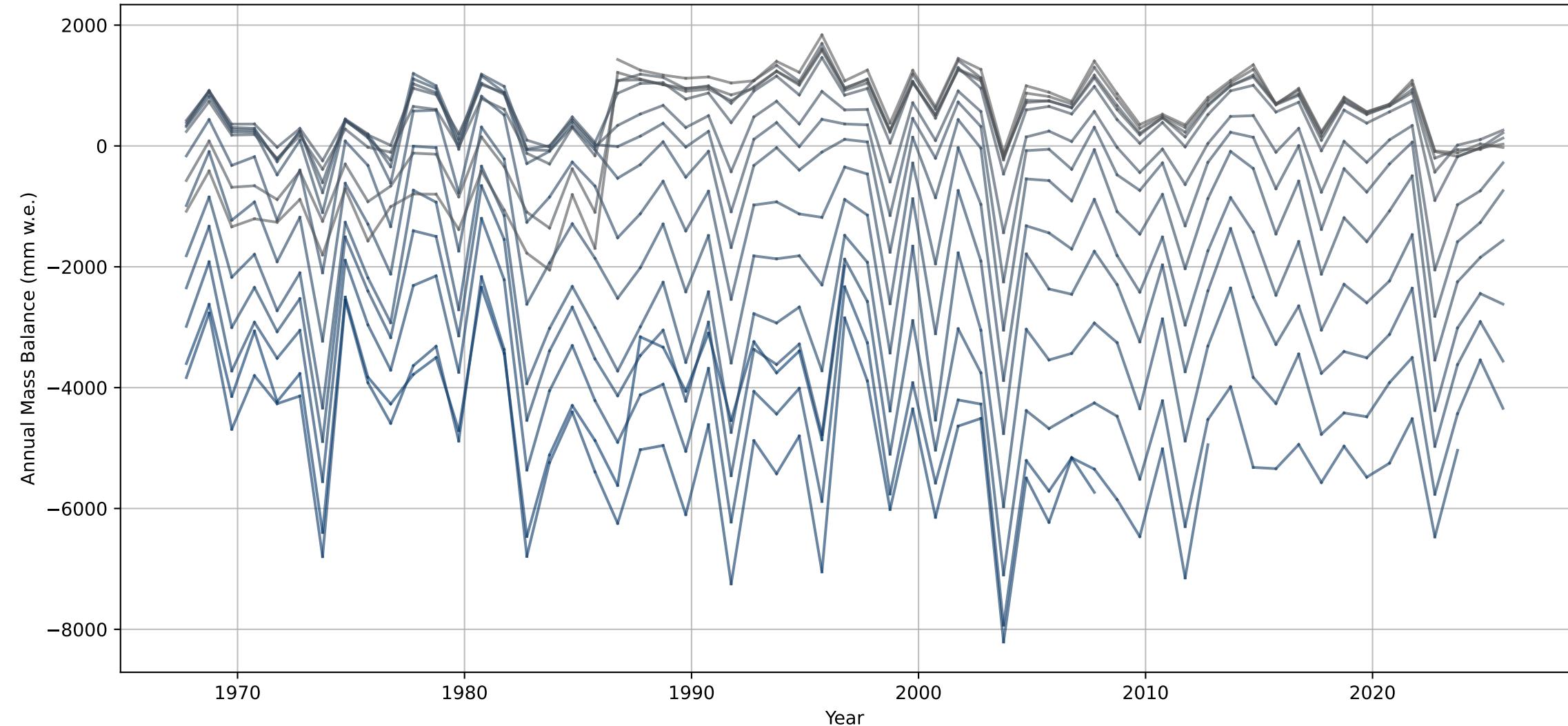
Glacier du Giétre Annual Mass Balance Over Time



Glacier du Giétre Cumulative Annual Mass Balance Over Time



Annual Mass Balance for each Elevation Bin over Time - Glacier du Giéstro



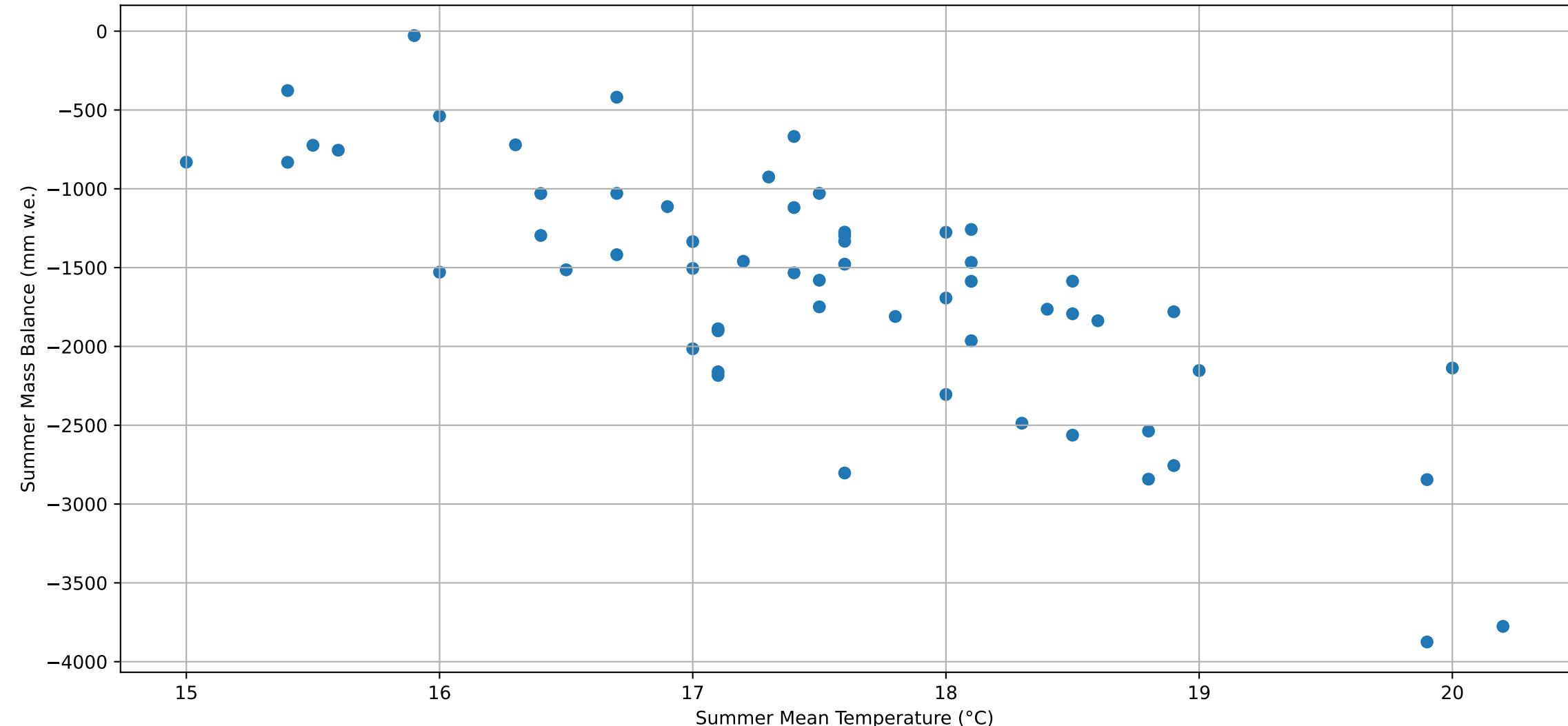
Sion Summer Mean Temperature



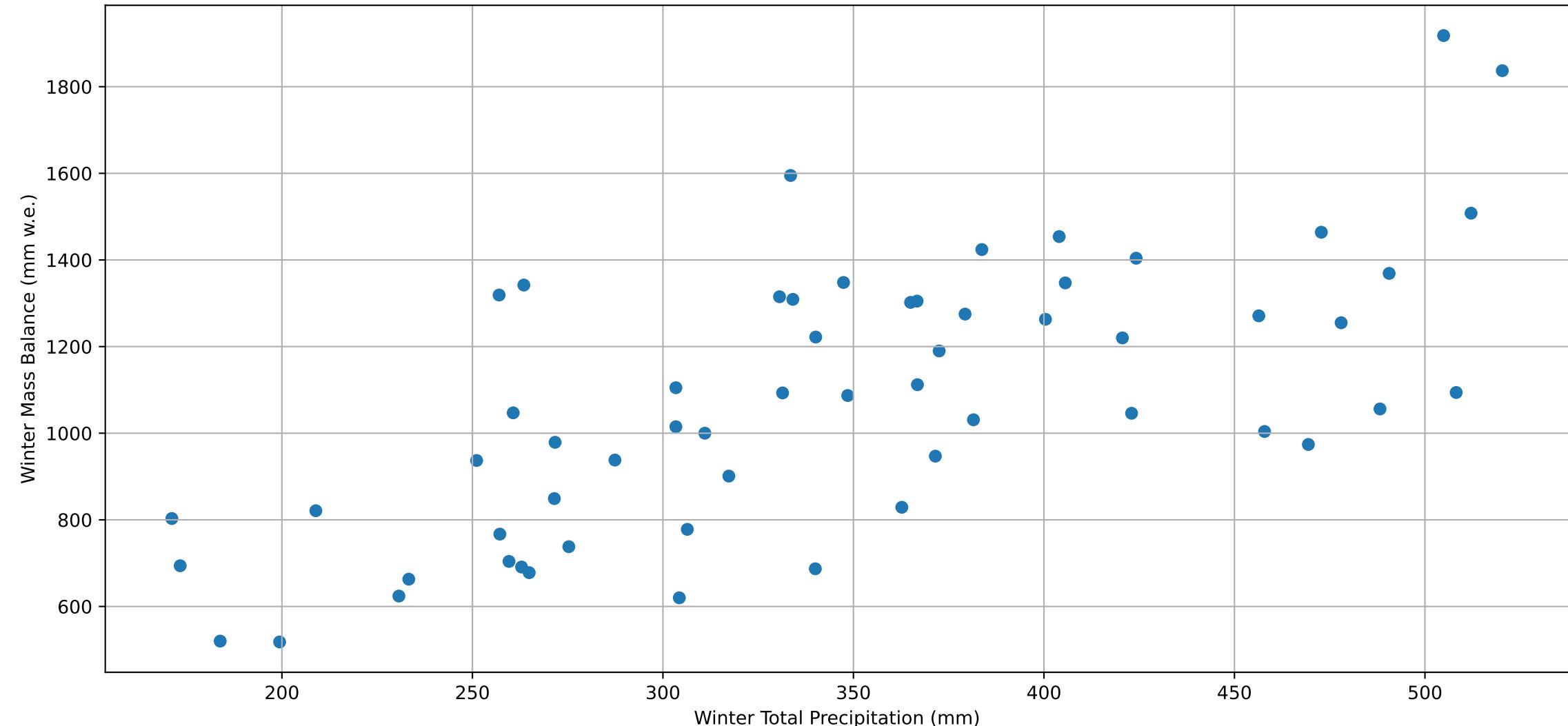
Sion Winter Total Precipitation



Glacier du Giétero Summer Mass Balance with relation to Temperature



Glacier du Giétero Winter Mass Balance with relation to Precipitation



Regression: Monthly 1961-1990

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MONTHLY DEVIATIONS for Glacier du Giédro using 1961-1990 climate norms
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Correlation Analysis with Significance Testing:

Skipping constant column: const

	Variable	Correlation Coefficient	P-value	Significant (p < 0.05)
3	august_td	-0.658178	1.470237e-08	True
1	june_td	-0.644929	3.523408e-08	True
2	july_td	-0.579919	1.483556e-06	True
0	may_td	-0.474425	1.469830e-04	True
4	september_td	-0.402591	1.571603e-03	True
9	february_pd	0.344876	7.473511e-03	True
10	march_pd	0.185747	1.589784e-01	False
8	january_pd	0.175636	1.833241e-01	False
5	october_pd	0.153290	2.464077e-01	False
6	november_pd	-0.079989	5.470221e-01	False
7	december_pd	-0.079247	5.507605e-01	False
11	april_pd	0.014406	9.137634e-01	False

Number of observations: 59

Regression Summary:

OLS Regression Results

Dep. Variable:	annual mass balance (mm w.e.)	R-squared:	0.703
Model:	OLS	Adj. R-squared:	0.625
Method:	Least Squares	F-statistic:	9.065
Date:	Mon, 15 Dec 2025	Prob (F-statistic):	1.40e-08
Time:	10:30:39	Log-Likelihood:	-438.92
No. Observations:	59	AIC:	903.8
Df Residuals:	46	BIC:	930.9
Df Model:	12		
Covariance Type:	nonrobust		

	coef	std err	t	P> t	[0.025	0.975]
const	2.7952	83.806	0.033	0.974	-165.897	171.488
may_td	-38.2728	50.064	-0.764	0.448	-139.046	62.500
june_td	-89.3936	45.822	-1.951	0.057	-181.629	2.842
july_td	-145.8930	49.850	-2.927	0.005	-246.235	-45.551
august_td	-120.0130	61.355	-1.956	0.057	-243.515	3.489
september_td	-75.7921	47.156	-1.607	0.115	-170.713	19.129
october_pd	2.3180	2.186	1.060	0.295	-2.083	6.719
november_pd	-1.5704	1.698	-0.925	0.360	-4.988	1.847
december_pd	1.3308	1.522	0.874	0.386	-1.733	4.395
january_pd	3.3608	1.667	2.017	0.050	0.006	6.715
february_pd	2.8796	1.417	2.032	0.048	0.027	5.732
march_pd	1.7271	1.961	0.881	0.383	-2.219	5.674
april_pd	3.1540	2.942	1.072	0.289	-2.768	9.076

Omnibus:	1.577	Durbin-Watson:	2.085
Prob(Omnibus):	0.454	Jarque-Bera (JB):	1.584
Skew:	-0.345	Prob(JB):	0.453
Kurtosis:	2.589	Cond. No.	70.8

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

Regression: Optimal 1961-1990

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OPTIMAL SEASONAL DEVIATIONS for Glacier du Giédro 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	-0.763681	2.003258e-12	True
1	opt_season_pd	0.265071	4.246513e-02	True

Number of observations: 59

Regression Summary:

OLS Regression Results

Dep. Variable:	annual mass balance (mm w.e.)	R-squared:	0.608
Model:	OLS	Adj. R-squared:	0.594
Method:	Least Squares	F-statistic:	43.42
Date:	Mon, 15 Dec 2025	Prob (F-statistic):	4.11e-12
Time:	10:30:39	Log-Likelihood:	-447.09
No. Observations:	59	AIC:	900.2
Df Residuals:	56	BIC:	906.4
Df Model:	2		
Covariance Type:	nonrobust		

	coef	std err	t	P> t	[0.025	0.975]
const	-20.9892	84.812	-0.247	0.805	-190.889	148.910
opt_season_td	-442.8249	50.529	-8.764	0.000	-544.047	-341.603
opt_season_pd	1.4986	0.797	1.880	0.065	-0.098	3.095

Omnibus:	1.915	Durbin-Watson:	2.013
Prob(Omnibus):	0.384	Jarque-Bera (JB):	1.702
Skew:	-0.410	Prob(JB):	0.427
Kurtosis:	2.862	Cond. No.	118.

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

Regression: Seasonal 1961-1990

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SUMMER/WINTER SEASONAL DEVIATIONS for Glacier du Giétre using 1961-1990 climate norms
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Correlation Analysis with Significance Testing:

Skipping constant column: const

Variable	Correlation Coefficient	P-value	Significant (p < 0.05)
0 summer_td	-0.769112	1.119720e-12	True
1 winter_pd	0.303591	1.941328e-02	True

Number of observations: 59

Regression Summary:

OLS Regression Results

Dep. Variable:	annual mass balance (mm w.e.)	R-squared:	0.640
Model:	OLS	Adj. R-squared:	0.627
Method:	Least Squares	F-statistic:	49.78
Date:	Mon, 15 Dec 2025	Prob (F-statistic):	3.77e-13
Time:	10:30:39	Log-Likelihood:	-444.58
No. Observations:	59	AIC:	895.2
Df Residuals:	56	BIC:	901.4
Df Model:	2		
Covariance Type:	nonrobust		

	coef	std err	t	P> t	[0.025	0.975]
const	-2.1532	81.438	-0.026	0.979	-165.293	160.986
summer_td	-481.9572	52.207	-9.232	0.000	-586.541	-377.374
winter_pd	1.8171	0.662	2.746	0.008	0.492	3.143

Omnibus:	2.332	Durbin-Watson:	2.072
Prob(Omnibus):	0.312	Jarque-Bera (JB):	2.224
Skew:	-0.405	Prob(JB):	0.329
Kurtosis:	2.503	Cond. No.	140.

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

Regression: Monthly 1991-2020

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MONTHLY DEVIATIONS for Glacier du Giéstro using 1991-2020 climate norms
=====

Correlation Analysis with Significance Testing:

Skipping constant column: const

	Variable	Correlation Coefficient	P-value	Significant (p < 0.05)
3	august_td	-0.658178	1.470237e-08	True
1	june_td	-0.644929	3.523408e-08	True
2	july_td	-0.579919	1.483556e-06	True
0	may_td	-0.474425	1.469830e-04	True
4	september_td	-0.402591	1.571603e-03	True
9	february_pd	0.344876	7.473511e-03	True
10	march_pd	0.185747	1.589784e-01	False
8	january_pd	0.175636	1.833241e-01	False
5	october_pd	0.153290	2.464077e-01	False
6	november_pd	-0.079989	5.470221e-01	False
7	december_pd	-0.079247	5.507605e-01	False
11	april_pd	0.014406	9.137634e-01	False

Number of observations: 59

Regression Summary:

OLS Regression Results

Dep. Variable:	annual mass balance (mm w.e.)	R-squared:	0.703
Model:	OLS	Adj. R-squared:	0.625
Method:	Least Squares	F-statistic:	9.065
Date:	Mon, 15 Dec 2025	Prob (F-statistic):	1.40e-08
Time:	10:30:39	Log-Likelihood:	-438.92
No. Observations:	59	AIC:	903.8
Df Residuals:	46	BIC:	930.9
Df Model:	12		
Covariance Type:	nonrobust		

	coef	std err	t	P> t	[0.025	0.975]
const	-848.2916	69.883	-12.139	0.000	-988.959	-707.625
may_td	-38.2728	50.064	-0.764	0.448	-139.046	62.500
june_td	-89.3936	45.822	-1.951	0.057	-181.629	2.842
july_td	-145.8930	49.850	-2.927	0.005	-246.235	-45.551
august_td	-120.0130	61.355	-1.956	0.057	-243.515	3.489
september_td	-75.7921	47.156	-1.607	0.115	-170.713	19.129
october_pd	2.3180	2.186	1.060	0.295	-2.083	6.719
november_pd	-1.5704	1.698	-0.925	0.360	-4.988	1.847
december_pd	1.3308	1.522	0.874	0.386	-1.733	4.395
january_pd	3.3608	1.667	2.017	0.050	0.006	6.715
february_pd	2.8796	1.417	2.032	0.048	0.027	5.732
march_pd	1.7271	1.961	0.881	0.383	-2.219	5.674
april_pd	3.1540	2.942	1.072	0.289	-2.768	9.076

Omnibus:	1.577	Durbin-Watson:	2.085
Prob(Omnibus):	0.454	Jarque-Bera (JB):	1.584
Skew:	-0.345	Prob(JB):	0.453
Kurtosis:	2.589	Cond. No.	59.6

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 Glacier du Giédro 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	-0.768057	1.255240e-12	True
1	opt_season_pd	0.265071	4.246513e-02	True

Number of observations: 59

Regression Summary:

OLS Regression Results

Dep. Variable:	annual mass balance (mm w.e.)	R-squared:	0.613
Model:	OLS	Adj. R-squared:	0.599
Method:	Least Squares	F-statistic:	44.30
Date:	Mon, 15 Dec 2025	Prob (F-statistic):	2.91e-12
Time:	10:30:39	Log-Likelihood:	-446.73
No. Observations:	59	AIC:	899.5
Df Residuals:	56	BIC:	905.7
Df Model:	2		
Covariance Type:	nonrobust		

	coef	std err	t	P> t	[0.025	0.975]
const	-852.7609	71.051	-12.002	0.000	-995.092	-710.429
opt_season_td	-448.0476	50.588	-8.857	0.000	-549.388	-346.707
opt_season_pd	1.4408	0.793	1.816	0.075	-0.148	3.030

Omnibus:	1.850	Durbin-Watson:	2.024
Prob(Omnibus):	0.396	Jarque-Bera (JB):	1.632
Skew:	-0.402	Prob(JB):	0.442
Kurtosis:	2.871	Cond. No.	99.0

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

Regression: Seasonal 1991-2020

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SUMMER/WINTER SEASONAL DEVIATIONS for Glacier du Giétre using 1991-2020 climate norms
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Correlation Analysis with Significance Testing:

Skipping constant column: const

Variable	Correlation Coefficient	P-value	Significant (p < 0.05)
0 summer_td	-0.769107	1.120325e-12	True
1 winter_pd	0.303591	1.941328e-02	True

Number of observations: 59

Regression Summary:

OLS Regression Results

Dep. Variable:	annual mass balance (mm w.e.)	R-squared:	0.639
Model:	OLS	Adj. R-squared:	0.626
Method:	Least Squares	F-statistic:	49.62
Date:	Mon, 15 Dec 2025	Prob (F-statistic):	3.99e-13
Time:	10:30:39	Log-Likelihood:	-444.64
No. Observations:	59	AIC:	895.3
Df Residuals:	56	BIC:	901.5
Df Model:	2		
Covariance Type:	nonrobust		

	coef	std err	t	P> t	[0.025	0.975]
const	-863.4615	68.764	-12.557	0.000	-1001.212	-725.711
summer_td	-482.6673	52.371	-9.216	0.000	-587.580	-377.755
winter_pd	1.8040	0.663	2.723	0.009	0.477	3.131

Omnibus:	2.461	Durbin-Watson:	2.051
Prob(Omnibus):	0.292	Jarque-Bera (JB):	2.309
Skew:	-0.407	Prob(JB):	0.315
Kurtosis:	2.475	Cond. No.	116.

Notes:

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