00570 Glacier Info

Input data files

DEM file	RGI1_DEM/RGI60-01.00570_dem.tif
Change in thickness file	00570_dhdt.tif (Hugonnet, 2015-2020)
Thickness file	00570_h.tif (MillanThickness)
Velocity file(s)	['ITS_LIVE_2017-2018', 'MillanVelocity_2017-2018', 'RETREAT_2017-2018']

Input Constants and Assumptions

Resolution (m)	Density (kg/m3)	Vel Col Scaling Factor	Elevation Bin Width (m)	Coordinate system
20	850	0.8	50	EPSG:32606

Input Calculation Settings

Smoothing Filter	Smoothing Factor (raw data)	Smoothing Factor (divQ product)
Dynamic Window Gaussian Filter	4x local thickness	1x local thickness

Smoothing is only done for velocity and ice thickness data. If dynamic smoothing uses 0 for both inputs, there is no smoothing

Calculation Results

Area	17.55 (sq. km)
Total MB	-952.61 (mm w.e.)
Total MB, alt-resolved	-952.61 (mm w.e.)
Climatic MB: ITS_LIVE_2017-2018	-952.91 (mm w.e.)
Climatic MB: MillanVelocity_2017-2018	-950.95 (mm w.e.)
Climatic MB: RETREAT_2017-2018	-950.43 (mm w.e.)
Scatter plot error bar value	percentile: lower bound at 25%, upper bound at 75%

Climatic MB from emergence method does not use smoothed data

Error Metrics: to WGMS Stake Points

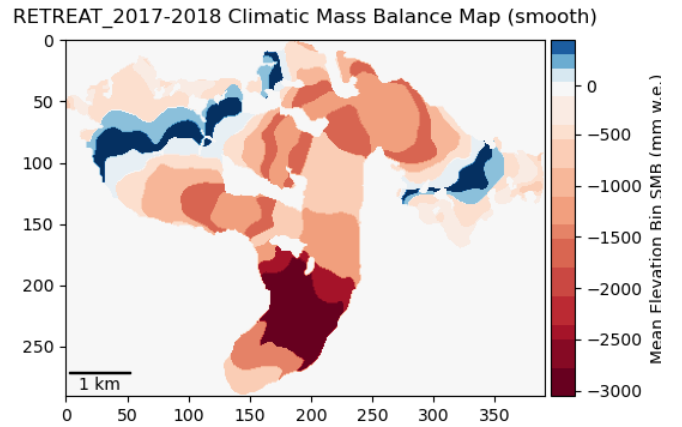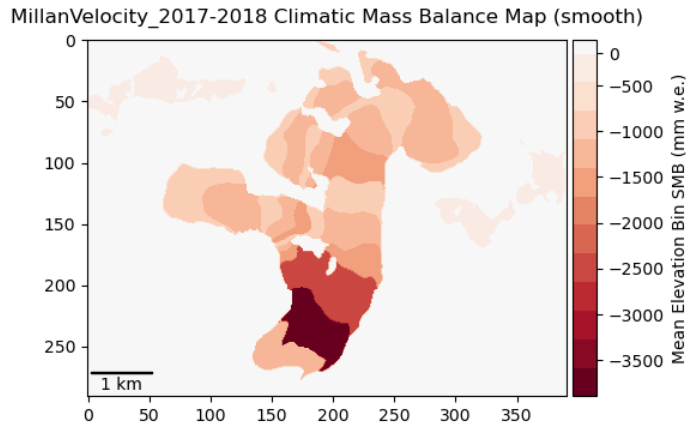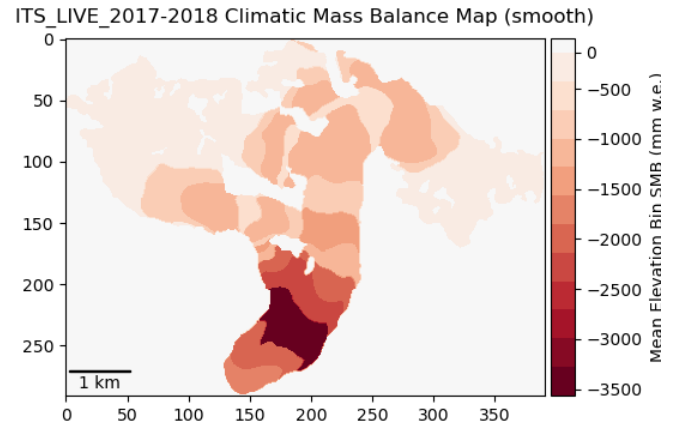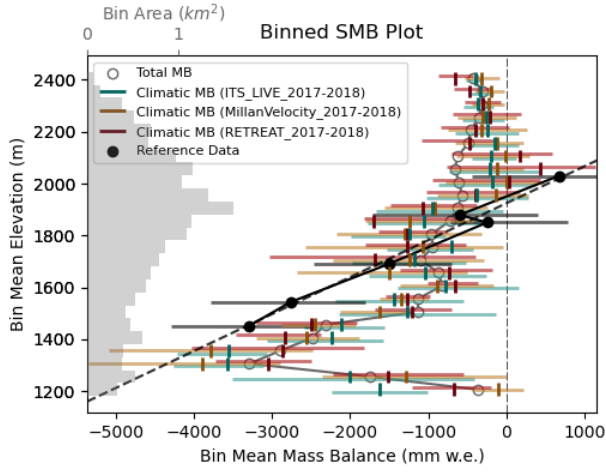|	Mean Absolute Error	Mean Bias Error	MAE (3-Bin Avg)	MBE (3-Bin Avg)
ITS_LIVE_2017-2018	822.55 (mm w.e.)	-118.2 (mm w.e.)	1505.91 (mm w.e.)	-1273.82 (mm w.e.)
MillanVelocity_2017-2018	802.37 (mm w.e.)	-35.81 (mm w.e.)	1509.38 (mm w.e.)	-1280.52 (mm w.e.)
RETREAT_2017-2018	940.03 (mm w.e.)	175.22 (mm w.e.)	1507.21 (mm w.e.)	-1276.58 (mm w.e.)

3-Bin averages are area-weighted
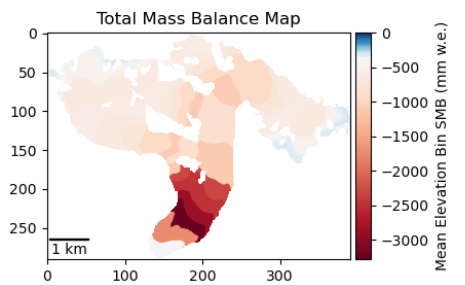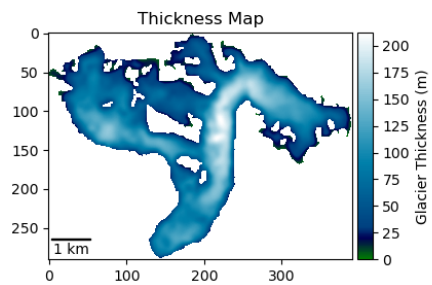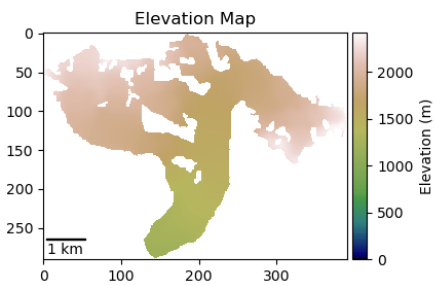
Error Metrics: to WGMS Stake Point L.O.B.F.

	Mean Absolute Error	Mean Bias Error	Clim MB Gradient Error
ITS_LIVE_2017-2018	1194.32 (mm w.e.)	269.32 (mm w.e.)	-83.45 (%)
MillanVelocity_2017-2018	1051.16 (mm w.e.)	361.96 (mm w.e.)	-65.78 (%)
RETREAT_2017-2018	1206.89 (mm w.e.)	275.81 (mm w.e.)	-77.52 (%)

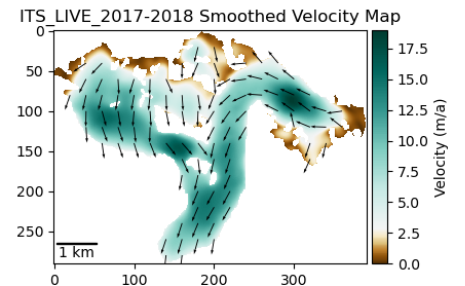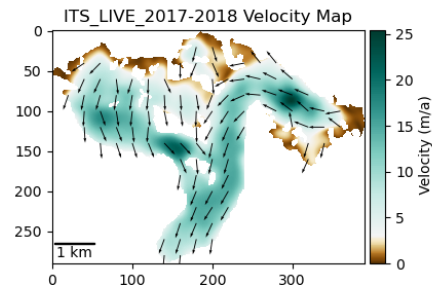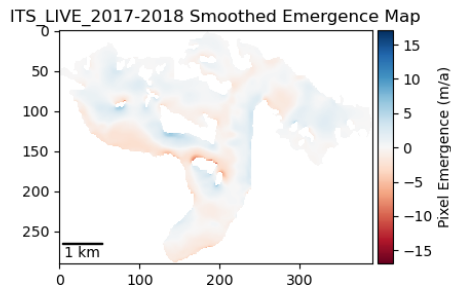**Positive error means the calculated product predicts more mass loss per elevationthan the stake measurements**

00570 Velocity Product Comparison

Binned SMB Plot

ITS_LIVE_2017-2018 Climatic Mass Balance Map (smooth)

MillanVelocity_2017-2018 Climatic Mass Balance Map (smooth)

RETREAT_2017-2018 Climatic Mass Balance Map (smooth)

00570 Thickness, Elevation, Total MB Plots

Elevation Map

Thickness Map

Total Mass Balance Map

00570 ITS_LIVE_2017-2018 Velocity Products

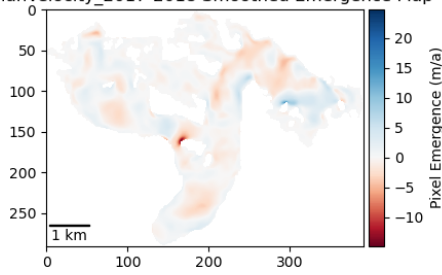## ITS_LIVE_2017-2018 Smoothed Emergence Map

ITS_LIVE_2017-2018 Velocity Map
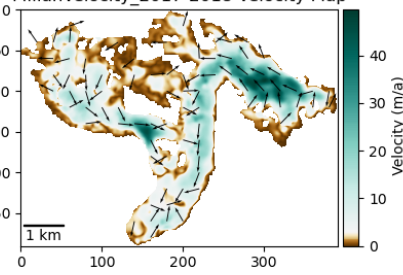

ITS_LIVE_2017-2018 Smoothed Velocity Map
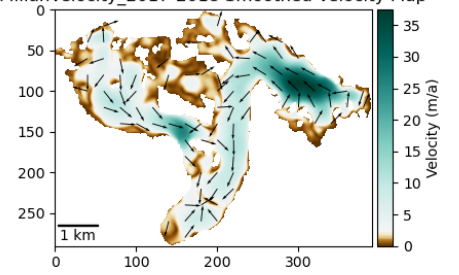
00570 MillanVelocity_2017-2018 Velocity Products

MillanVelocity_2017-2018 Smoothed Emergence Map
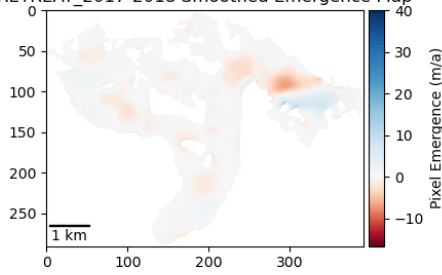
MillanVelocity_2017-2018 Velocity Map
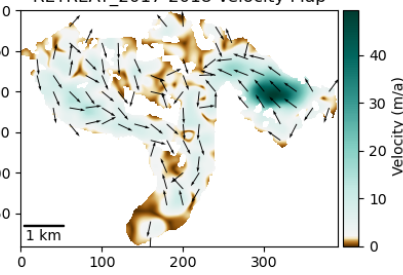
MillanVelocity_2017-2018 Smoothed Velocity Map

00570 RETREAT_2017-2018 Velocity Products

RETREAT_2017-2018 Smoothed Emergence Map

RETREAT_2017-2018 Velocity Map

RETREAT_2017-2018 Smoothed Velocity Map