

09162 Glacier Info

Input data files

DEM file	RGI1_DEM/RGI60-01.09162_dem.tif
Change in thickness file	09162_dhdt.tif (Hugonnet, 2015-2020)
Thickness file	09162_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	16.74 (sq. km)
Total MB	-869.72 (mm w.e.)
Total MB, alt-resolved	-869.72 (mm w.e.)
Climatic MB: ITS_LIVE_2017-2018	-884.32 (mm w.e.)
Climatic MB: MillanVelocity_2017-2018	-897.99 (mm w.e.)
Climatic MB: RETREAT_2017-2018	-860.44 (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	939.27 (mm w.e.)	-327.65 (mm w.e.)	2016.99 (mm w.e.)	-1320.11 (mm w.e.)
MillanVelocity_2017-2018	1091.7 (mm w.e.)	357.88 (mm w.e.)	2004.29 (mm w.e.)	-1636.25 (mm w.e.)
RETREAT_2017-2018	1240.38 (mm w.e.)	-529.25 (mm w.e.)	1982.43 (mm w.e.)	-1329.67 (mm w.e.)

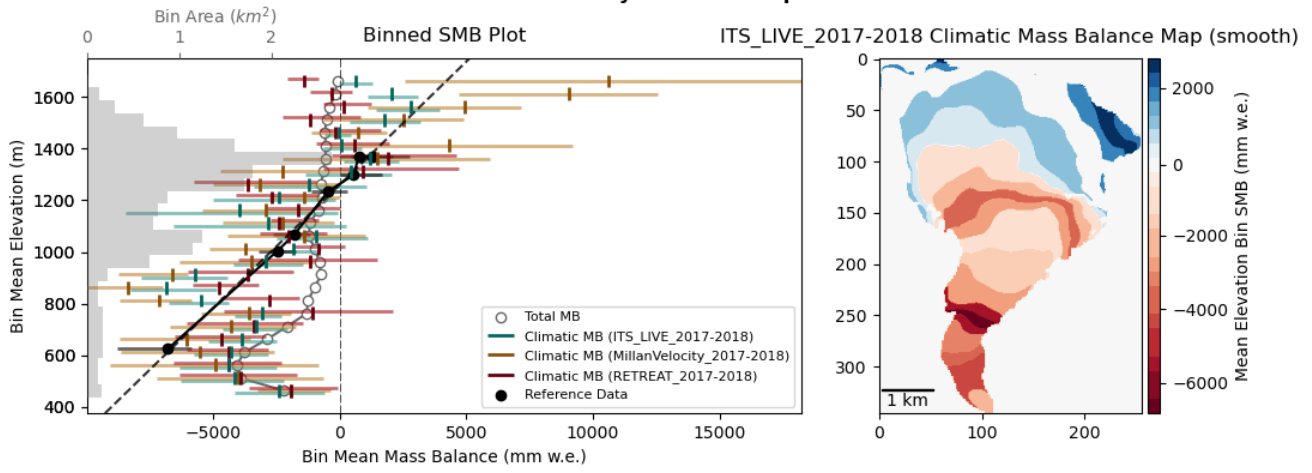
3-Bin averages are area-weighted

Error Metrics: to WGMS Stake Point L.O.B.F.

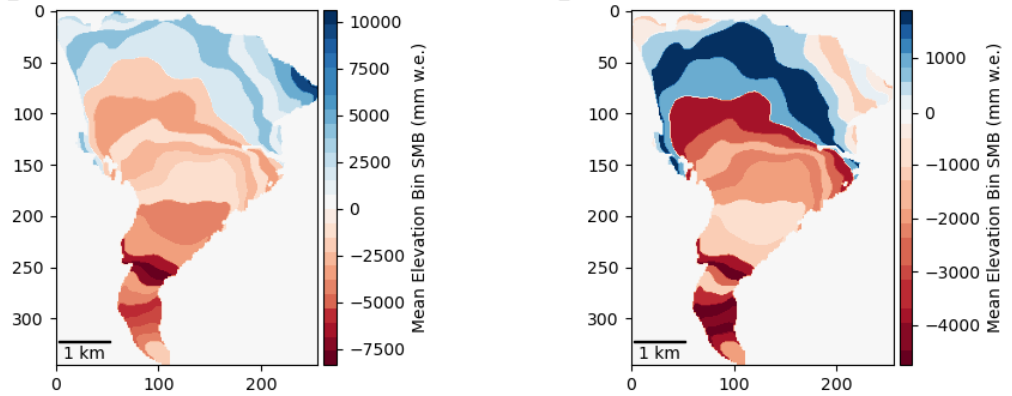
	Mean Absolute Error	Mean Bias Error	Clim MB Gradient Error
ITS_LIVE_2017-2018	1554.48 (mm w.e.)	221.97 (mm w.e.)	-7.06 (%)
MillanVelocity_2017-2018	1824.27 (mm w.e.)	191.37 (mm w.e.)	33.17 (%)
RETREAT_2017-2018	1929.0 (mm w.e.)	81.81 (mm w.e.)	-30.03 (%)

Positive error means the calculated product predicts more mass loss per elevation than the stake measurements

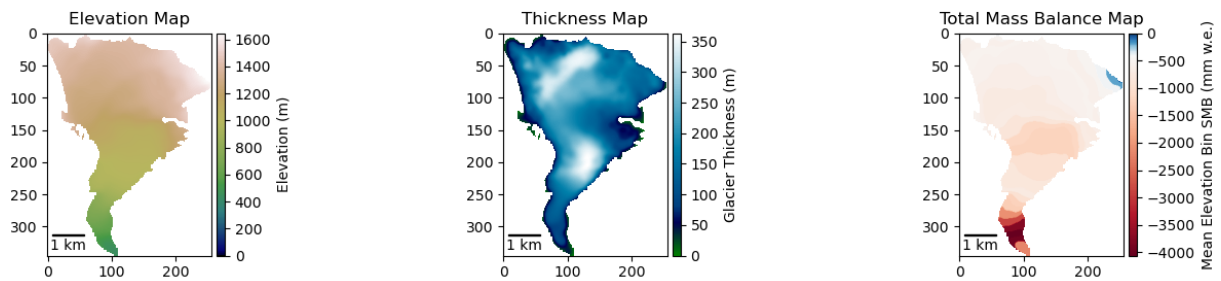
09162 Velocity Product Comparison



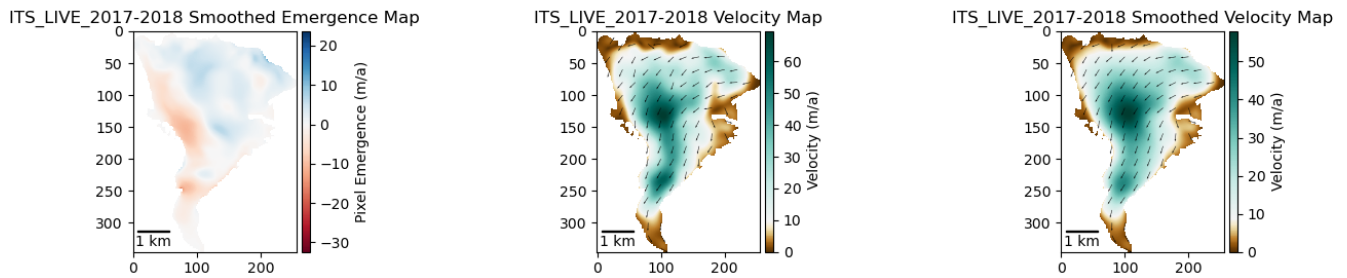
MillanVelocity_2017-2018 Climatic Mass Balance Map (smooth) RETREAT_2017-2018 Climatic Mass Balance Map (smooth)



09162 Thickness, Elevation, Total MB Plots

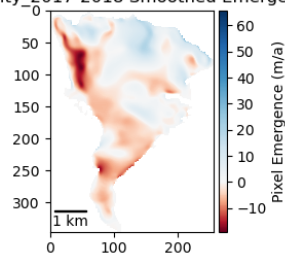


09162 ITS_LIVE_2017-2018 Velocity Products

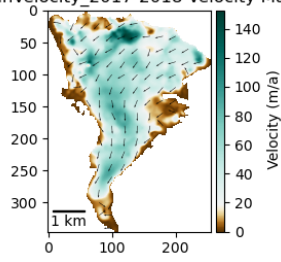


09162 MillanVelocity_2017-2018 Velocity Products

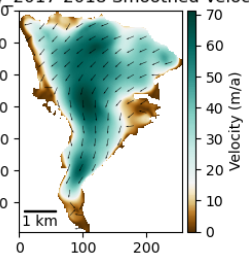
MillanVelocity_2017-2018 Smoothed Emergence Map



MillanVelocity_2017-2018 Velocity Map

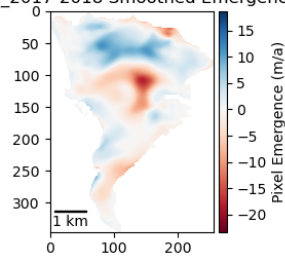


MillanVelocity_2017-2018 Smoothed Velocity Map

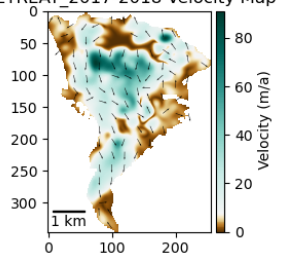


09162 RETREAT_2017-2018 Velocity Products

RETREAT_2017-2018 Smoothed Emergence Map



RETREAT_2017-2018 Velocity Map



RETREAT_2017-2018 Smoothed Velocity Map

