The Cryosphere

EGU

Supplement of

Unravelling the long-term, locally heterogenous response of Greenland glaciers observed in archival photography
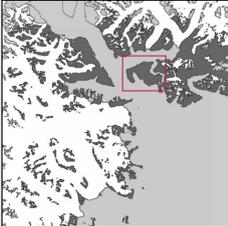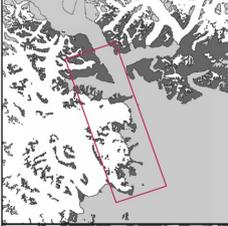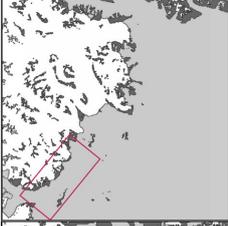
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In Table S1 we provide a additional detail on our derived orthophotomap model. Specifically, we provide a detailed summary of the individual structure-from-motion models and the resulting orthophotomaps. For each model we show (left to right):

1. The approximate model location within the overall map area

2. The mission within which the source images were acquired, the type of images acquired and surface area covered by the model

3. The number of ground control points used in total for each model and the average number of ground control points placed on each image

4. The number of images used to build the model and the spatial density of ground control points (in terms of number of GCPs per unit area)

5. The GCP errors in terms of: average 2D error, average 3D error and maximum 3D error, all in metres

6. The average absolute GCP errors in the X, Y and Z directions in metres

7. The minimum and maximum signed GCP errors in the X, Y and Z directions in metres

The density of GCPs was adapted depending upon the availability of identifiable features in the reconstructed model and reference DEM. In addition, extra GCPs were added where the errors suggested alignment between reference and reconstructed models was poor.

Area	Mission / Type of images / Area [km^2]	Number GCP/ Average number of GCP per image	Number of images / Number of GCP per km^2	2D error / 3D error / Max 3D error [m]	X/Y/Z average errors [m]	Min/Max value of X/Y/Z error [m]
	BAARE / aerial oblique / 376	22 / 10	13 / 0.03	22.25 / 24.68 / 36.51	18.70 / 12.06 / 10.68	(25.92, -35.90) / (34.30, -20.25) / (16.91, -22.21)
	BAARE / aerial oblique / 558	17 / 15	20 / 0.04	15.50 / 19.52 / 36.51	11.78 / 10.07 / 11.86	(22.23, -18.42) / (15.33, -18.42) / (23.46, -16.02)
	BAARE / aerial oblique / 77	11 / 12	12 / 0.16	22.53 / 26.41 / 37.94	18.42 / 12.98 / 13.77	(28.65, -31.94) / (18.93, -19.63) / (22.26, -22.76)
	BAARE / aerial oblique / 154	15 /14	6 / 0.04	16.16 / 20.85 / 35.97	13.83 / 8.36 / 13.17	(22.02, -24.15) / (13.99, -12.99) / (33.13, -21.72)
	BAARE / aerial oblique / 238	13 / 8	35 / 0.15	12.40 / 13.25 / 23.27	10.63 / 6.39 / 6.39	(15.48, -22.35) / (9.16, -11.27) / (7.79, -7.70)
	CORONA / satellites stereo pair / 181	45 / 45	2 / 0.25	19.92 / 21.04 / 35.66	15.70 / 12.26 / 6.76	(32.94, -34.41) / (30.41, -26.86) / (13.50, -15.78)
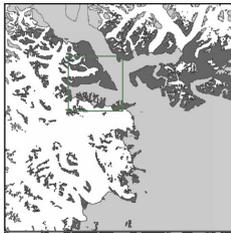
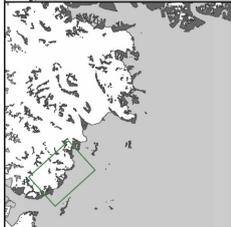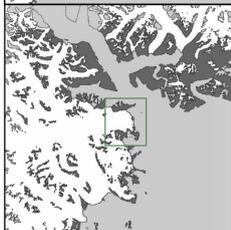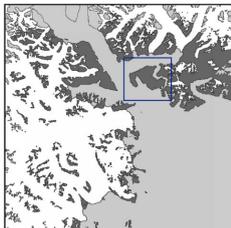|						
	CORONA / satellites stereo pair / 202	75 / 75	2 / 0.37	17.87 / 18.76 / 32.21	13.21 / 12.03 / 5.72	(25.41, -29.96) / (26.19, -24.62) / (14.98, -15.37)
	CORONA / satellites stereo pair / 138	73 / 73	2 / 0.53	17.45 / 17.94 / 31.72	13.10 / 11.52 / 4.19	(28.40, -30.69) / (27.83, -24.33) / (10.84, -19.82)
	CORONA / satellites stereo pair / 84	64 / 64	2 / 0.76	15.83 / 16.47 / 27.55	11.35 / 11.04 / 4.53	(27.28, -23.69) / (26.86, -19.20) / (14.79, -12.94)
	CORONA / satellites stereo pair / 238	128 / 128	2 / 0.54	19.98 / 23.22 / 41.17	13.83 / 14.421 / 11.83	(32.44, -34.16) / (31.66, -38.49) / (34.37, -27.14)
	14.08.1981 / aerial vertical / 316	64 / 25	5 / 0.20	17.65 / 19.05 / 28.81	13.68 / 11.15 / 7.16	(24.90, -25.65) / (23.11, -21.66) / (16.36, -18.79)
	14.08.1981 / aerial vertical / 238	19 / 12	6 / 0.08	24.35 / 32.79 / 45.56	19.58 / 14.48 / 21.96	(38.61, -38.30) / (28.83, -36.87) / (38.52, -38.05)
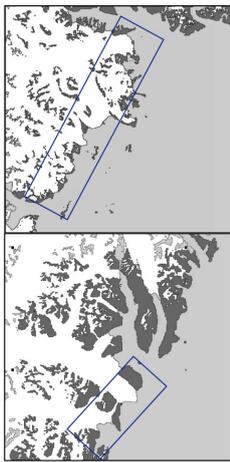
	14.08.1981 / aerial vertical / 2898	66 / 25	6 / 0.02	23.32 / 27.26 / 44.57	16.32 / 16.67 / 14.09	(39.97, -31.46) / (29.62, -33.38) / (28.94, -40.88)
	30.07.1981 / aerial vertical / 1144	19 / 11	13 / 0.02	20.66 / 23.20 / 31.77	11.63 / 17.08 / 10.55	(21.28, -19.74) / (26.64, -23.50) / (17.22, -20.21)

Table S1: Archival Orthophotomaps: for each model we summarise the input data (mission, number of images, type of images, area covered), ground control point placement and residual errors in the GCPs after alignment. See text for detailed description of each column.