

Supplementary Material: Quantitative assessment of Digital Image Correlation methods to detect and monitor surface displacements of large slope instabilities

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Table S1. GNSS measurement details.

ID	Color	Coordinates N	Coordinates E	Elevation	NS disp.	EW disp.	Disp. magnitude
		CH1903+/ LV95	CH1903+/ LV95	[masl]	[m]	[m]	[m]
1		173070.318	702438.432	2308.974	2.11	-0.14	2.12
2		173077.161	702664.562	2335.98	0.22	-0.09	0.24
3		172929.075	702657.111	2277.278	0.6	-0.23	0.65
4		172979.272	702735.583	2310.32	0.11	0.01	0.11
5		172815.298	702230.681	2229.08	2.5	0.18	2.51
6		173455.459	702052.917	2459.938	0.99	-1.51	1.81
7		173542.056	702062.701	2499.572	0.41	-0.54	0.68
8		173185.071	702289.738	2335.819	2.57	-0.6	2.63
9		173301.975	701828.208	2350.092	2.4	-0.39	2.43
10		172837.346	702412.243	2210.747	1.92	0.05	1.92
11	excluded	173325.867	702042.782	2443.758	4.55	-1.47	4.78
12		173405.695	702047.32	2431.419	1.47	-0.98	1.77
13		172987.996	701947.625	2220.004	1.65	-0.47	1.71
14		172673.772	702002.756	2107.846	2.35	-0.12	2.35
15		172524.369	702139.75	2042.822	2.29	0.28	2.31
16		172398.507	702051.097	1957.524	2.17	0.4	2.2
17	excluded	173287.871	702150.243	2442.786	5.77	1.5	5.96
18		173200.397	702620.046	2403.326	0.82	-0.41	0.92
19		173405.367	702246.109	2396.22	0.2	-0.09	0.22
20		173458.103	702242.334	2405.646	0.19	-0.04	0.2
21		173437.838	702224.949	2406.839	0.18	-0.18	0.26
22		173628.072	702256.173	2490.175	0.09	-0.02	0.09
23		173028.098	701755.515	2182.588	1.77	-0.65	1.89

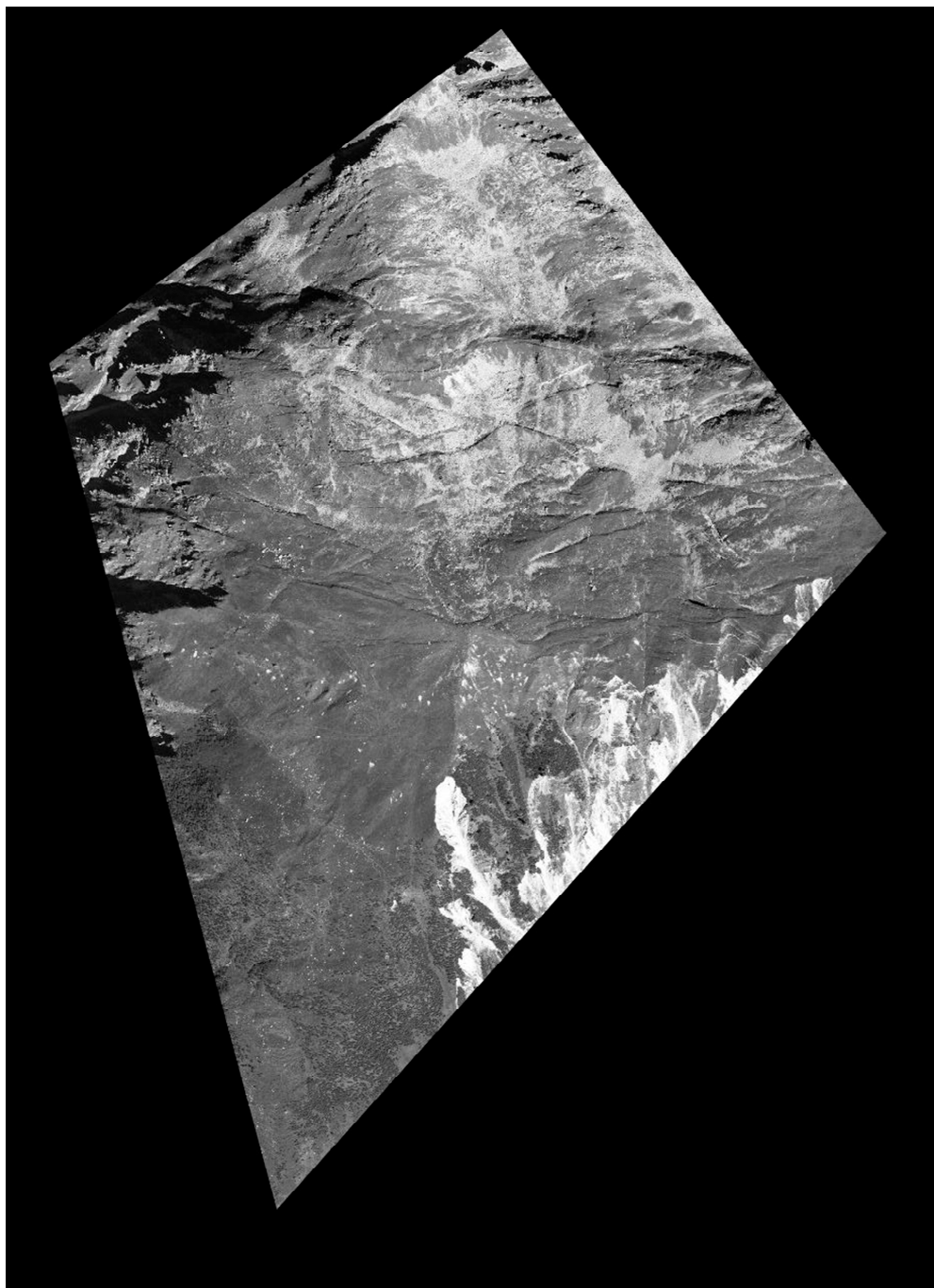


Figure S1. Orthorectified single band input image of the CdV AoI, taken in 1999.

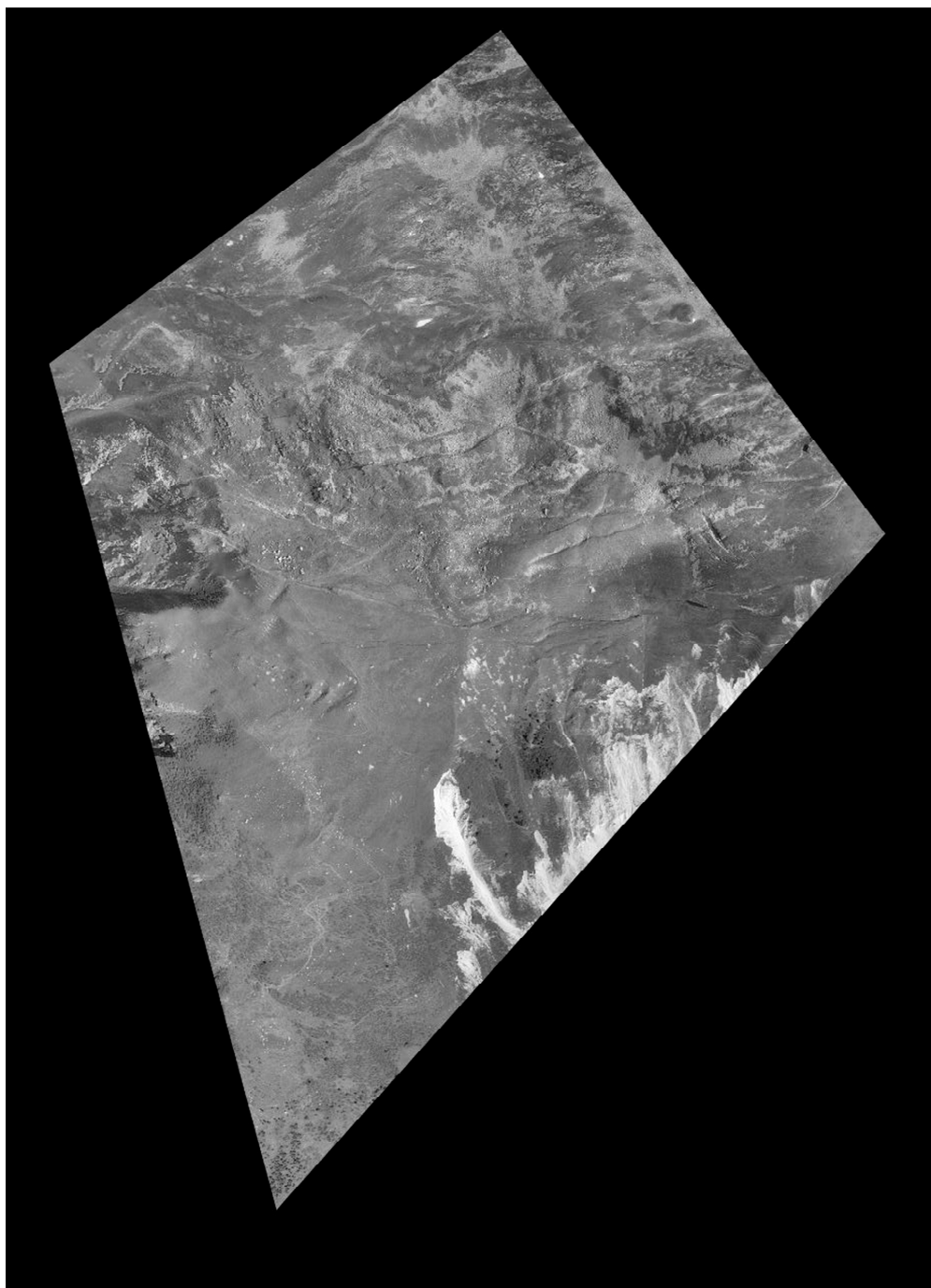


Figure S2. Orthorectified single band input image of the CdV AoI, taken in 2015.

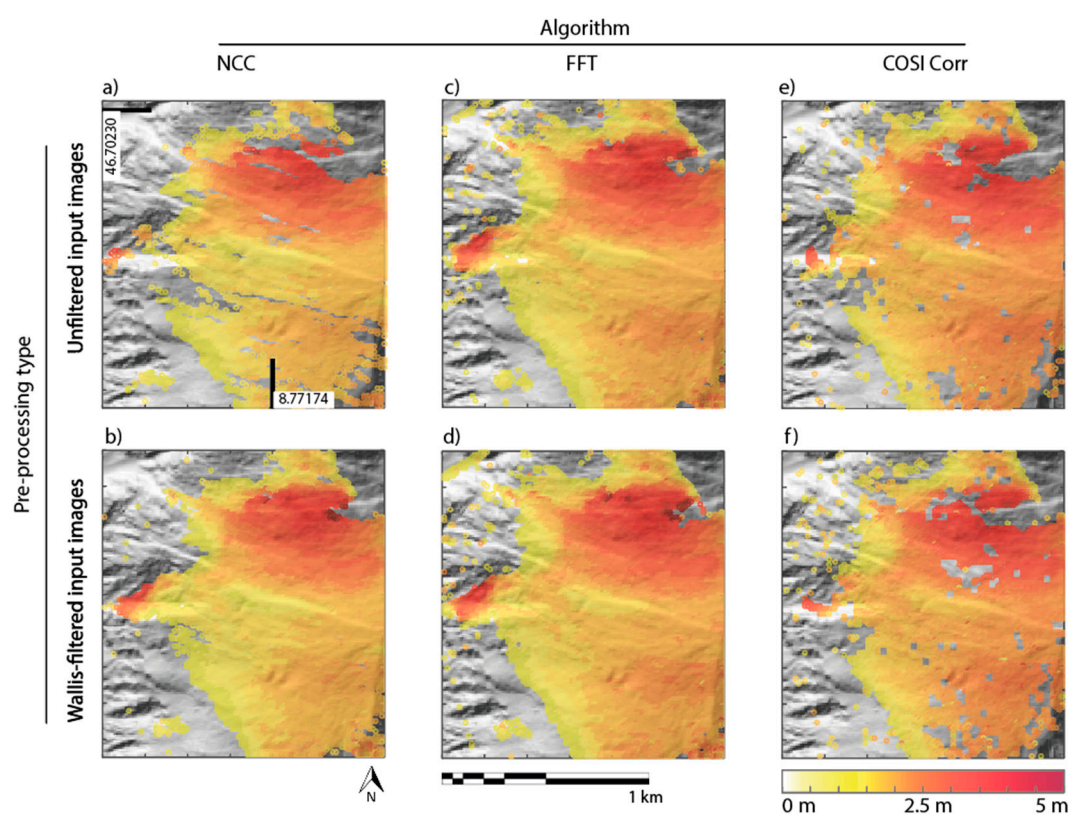


Figure S3. Zoom into the CdV displacement field as returned from the NCC-based code (left column), the FFT-based code (center), and COSI Corr (right); top row is based on original input imagery, the bottom row is based on Wallis-filtered data. Blank areas indicate portions of the slope with displacements lower than 4 pixels or without information. All runs were performed with a scan window size of 64x64 pixels and a spatial vector filter. WGS 84. (Hillshade taken from [1]).

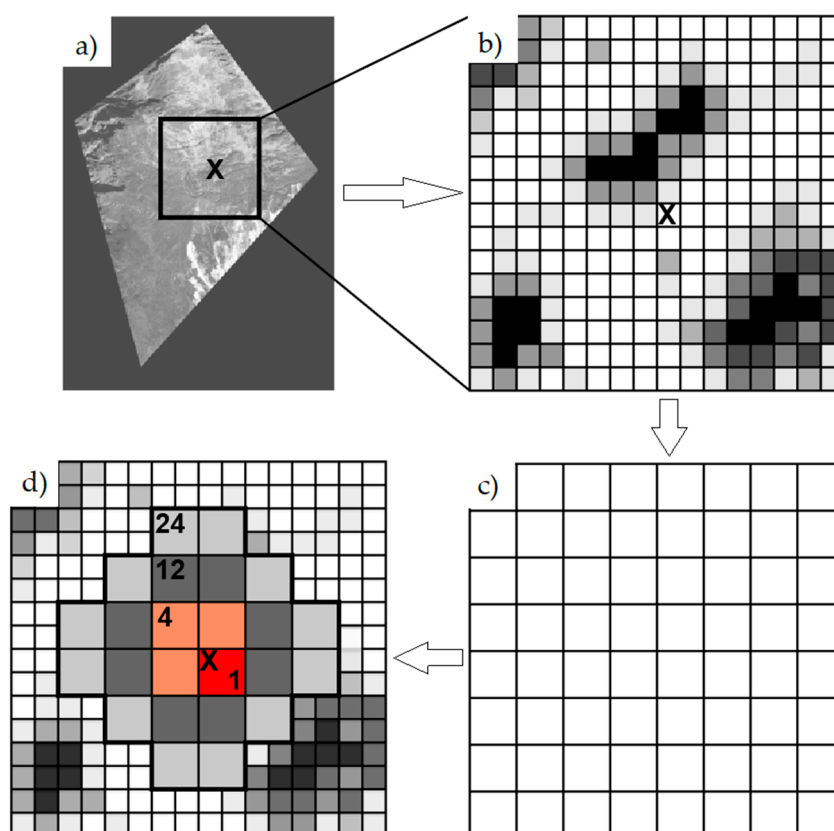


Figure S4. Scheme of vicinity-point offset data extraction; black X is the GNSS measurement point of interest (a). (b) illustrates the pixels of the subset. Search window raster (here 2 by 2 pixels) is applied during DIC (c); for the quantitative comparison the closest 1 (red), 4 (orange), 12 (grey), and 24 (light grey) DIC-derived cells were used (d).

References

1. Swiss Geoportal Available online: <https://map.geo.admin.ch> (accessed on Mar 23, 2018).

