

3186 Havendoklaanbrug



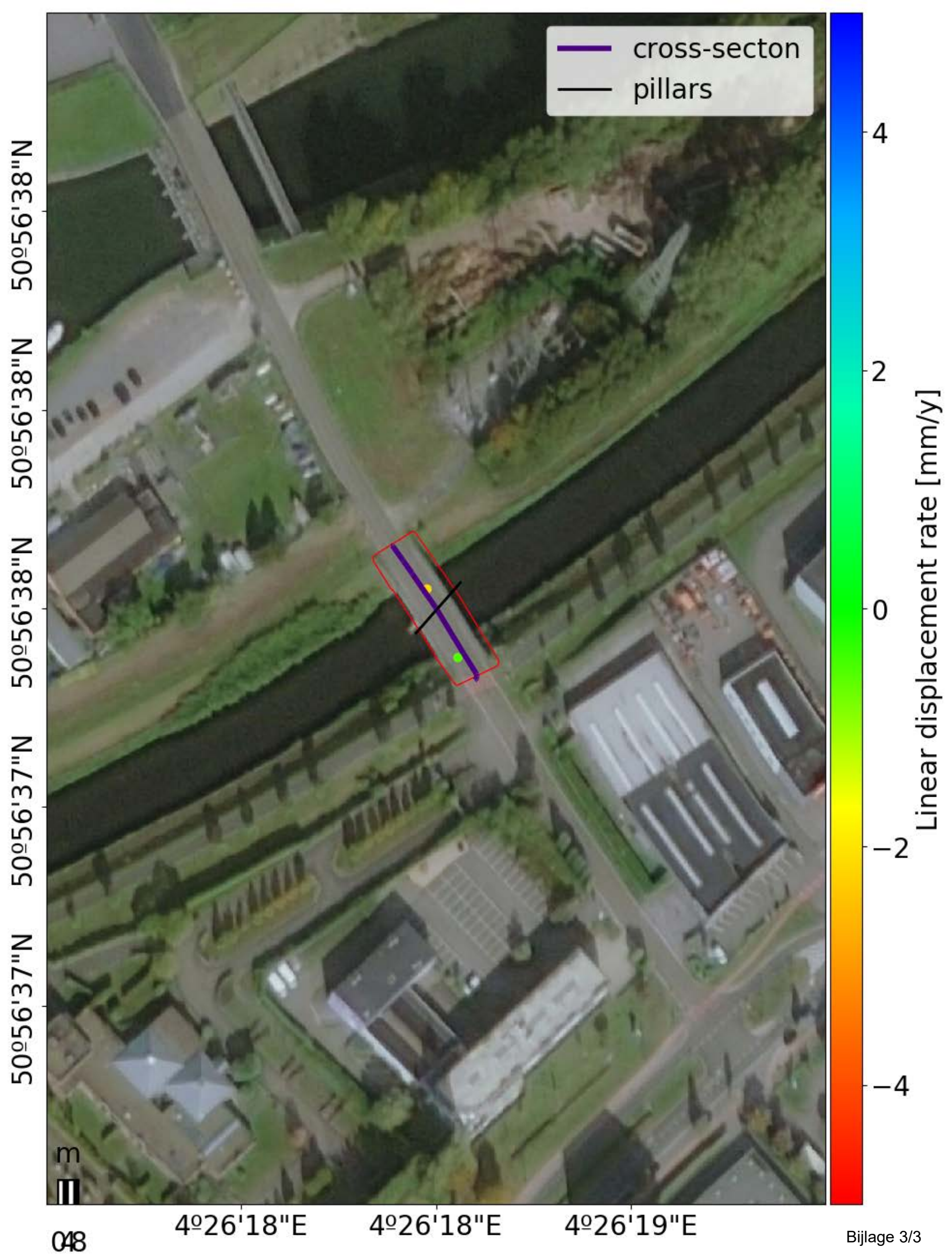
Object Nummer	Name	Long (WGS 84)	Lat (WGS 84)	Long (Lambert)	Lat (Lambert)	Length [m]	Width [m]	Material	Description	Information
3186	Havendoklaanbrug	50.94376858	4.438474077	154899.97000	181500.08999	31.6	10.74	-	(1) kleine brug	no maintenance works

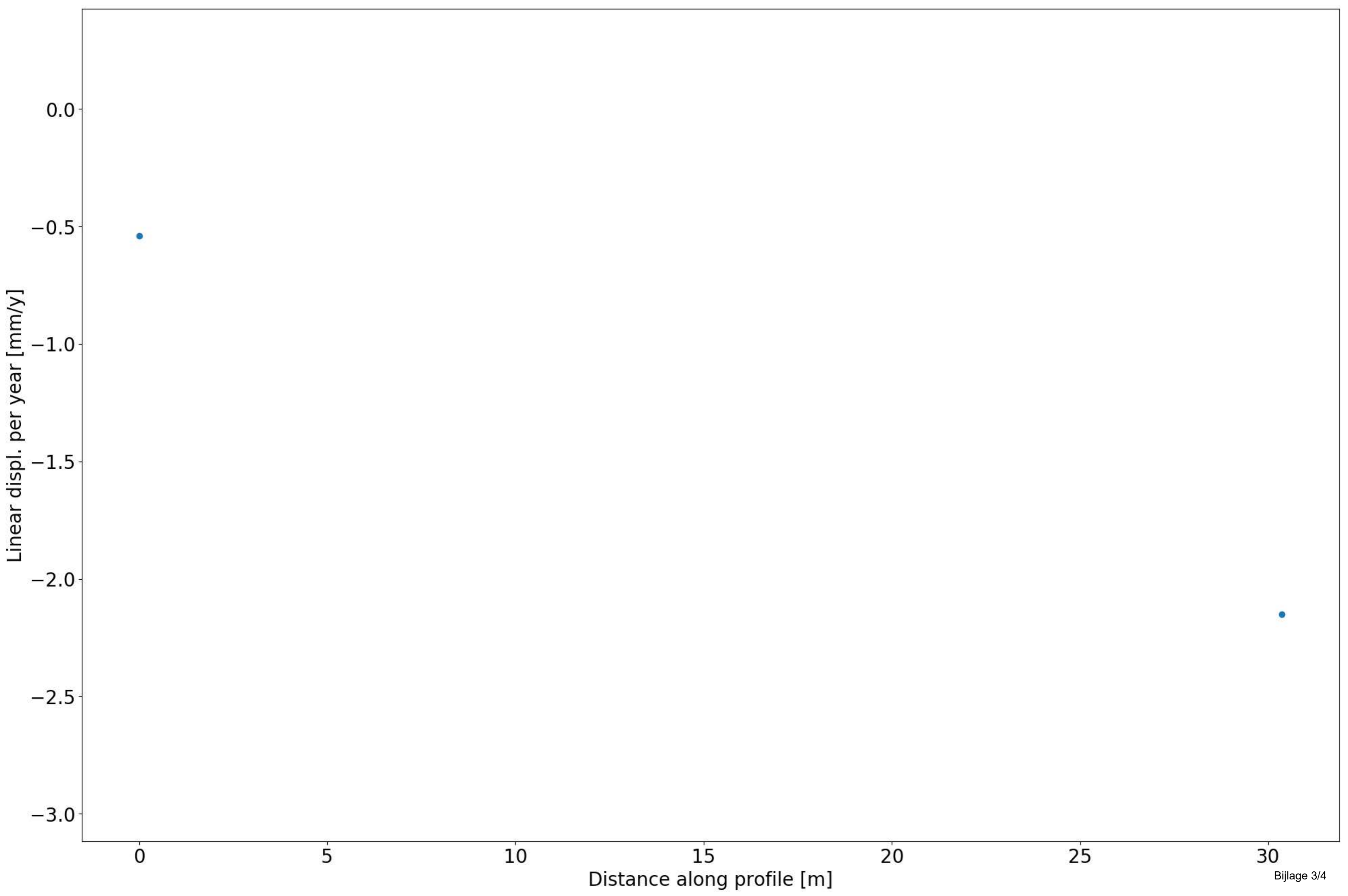
Change Detection

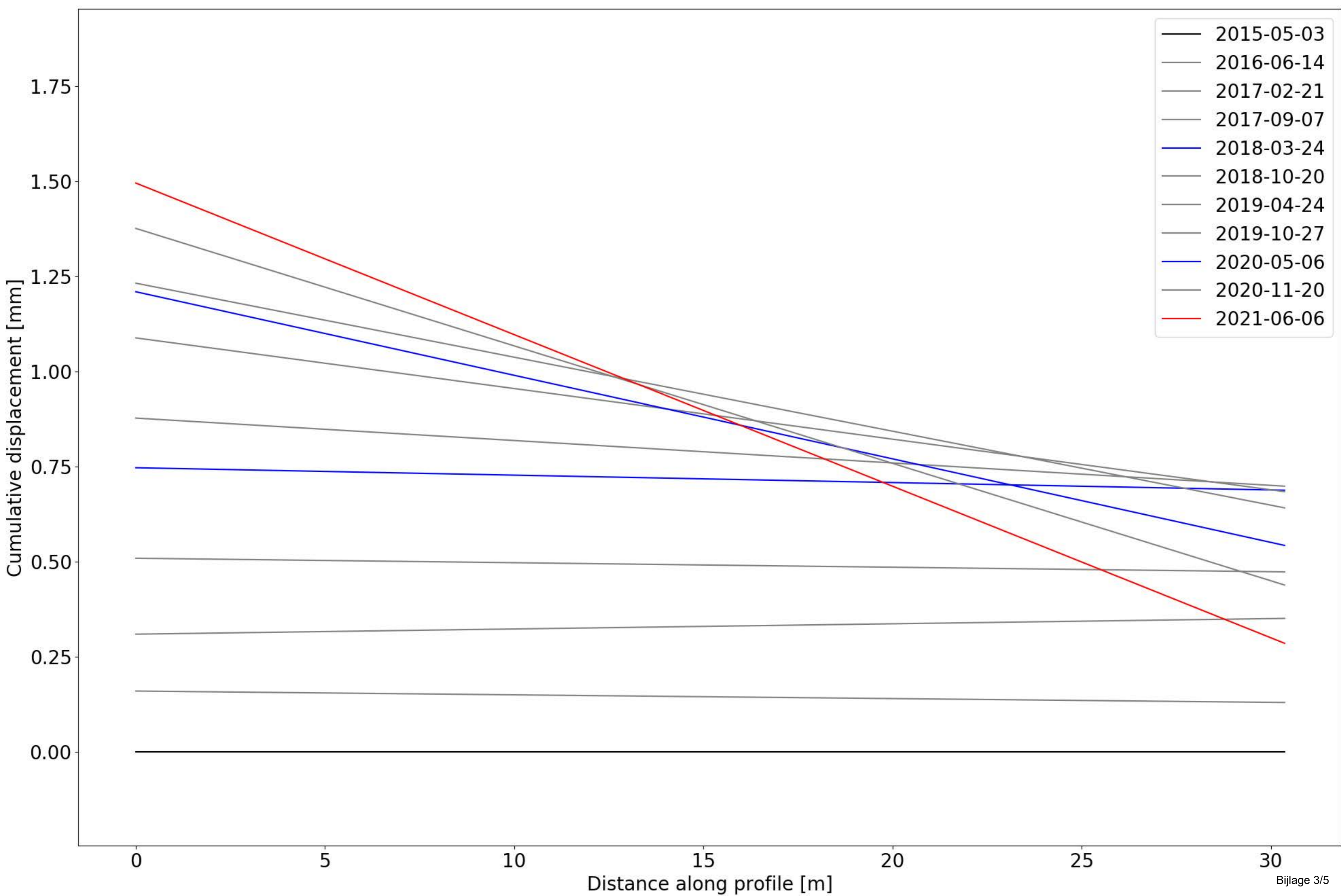
Change detection	Approx. period	Description
Change SE	April 2016	Change in displacement rate after April 2016
Change SE	April 2016	Change in amplitude after April 2016

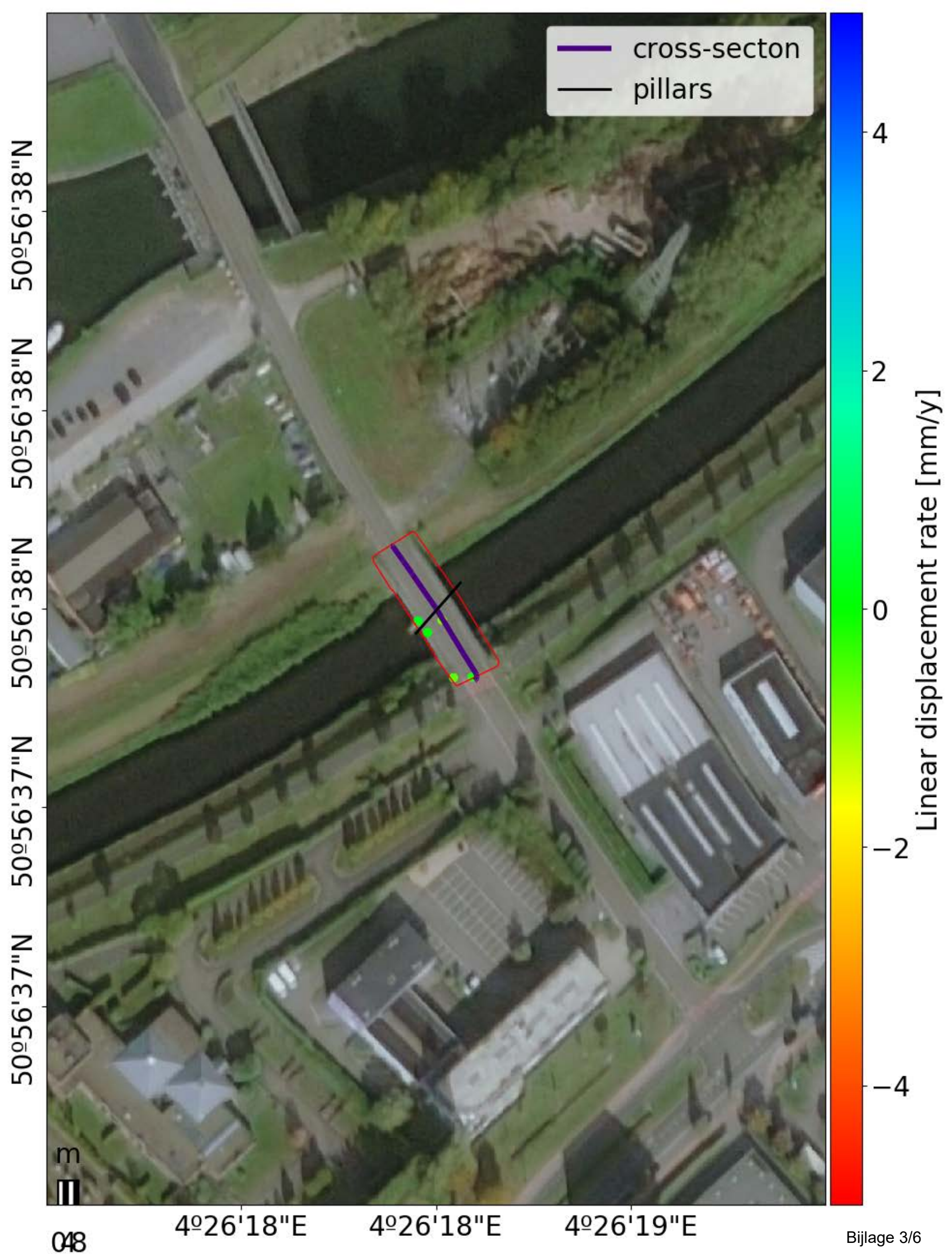
Comments on point density/distribution

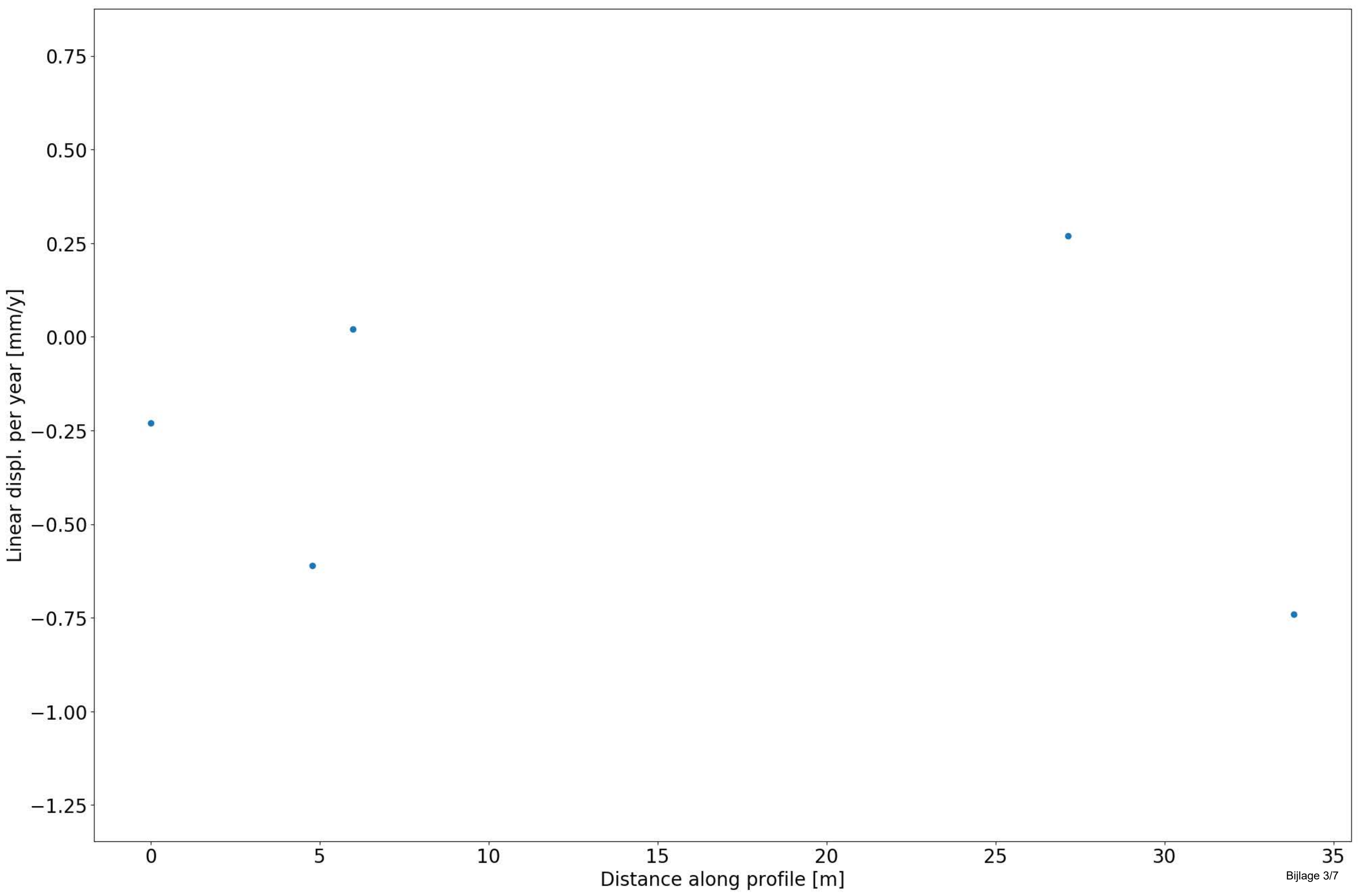
For the TSX dataset, there are InSAR points along the full length of the bridge, no significant gaps in the data. The S1 datasets have very few points, which is likely associated with the changes detected on this bridge.

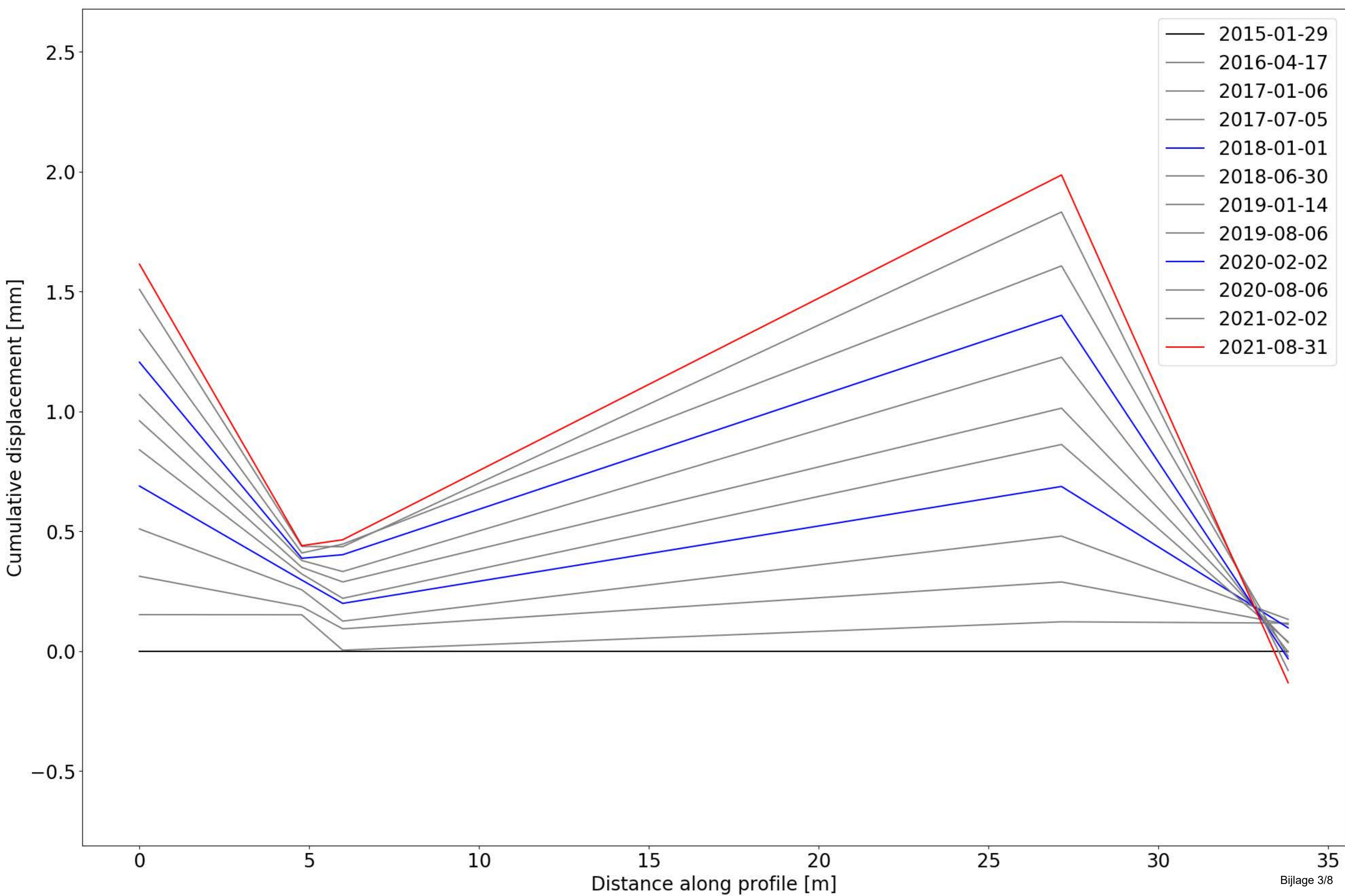


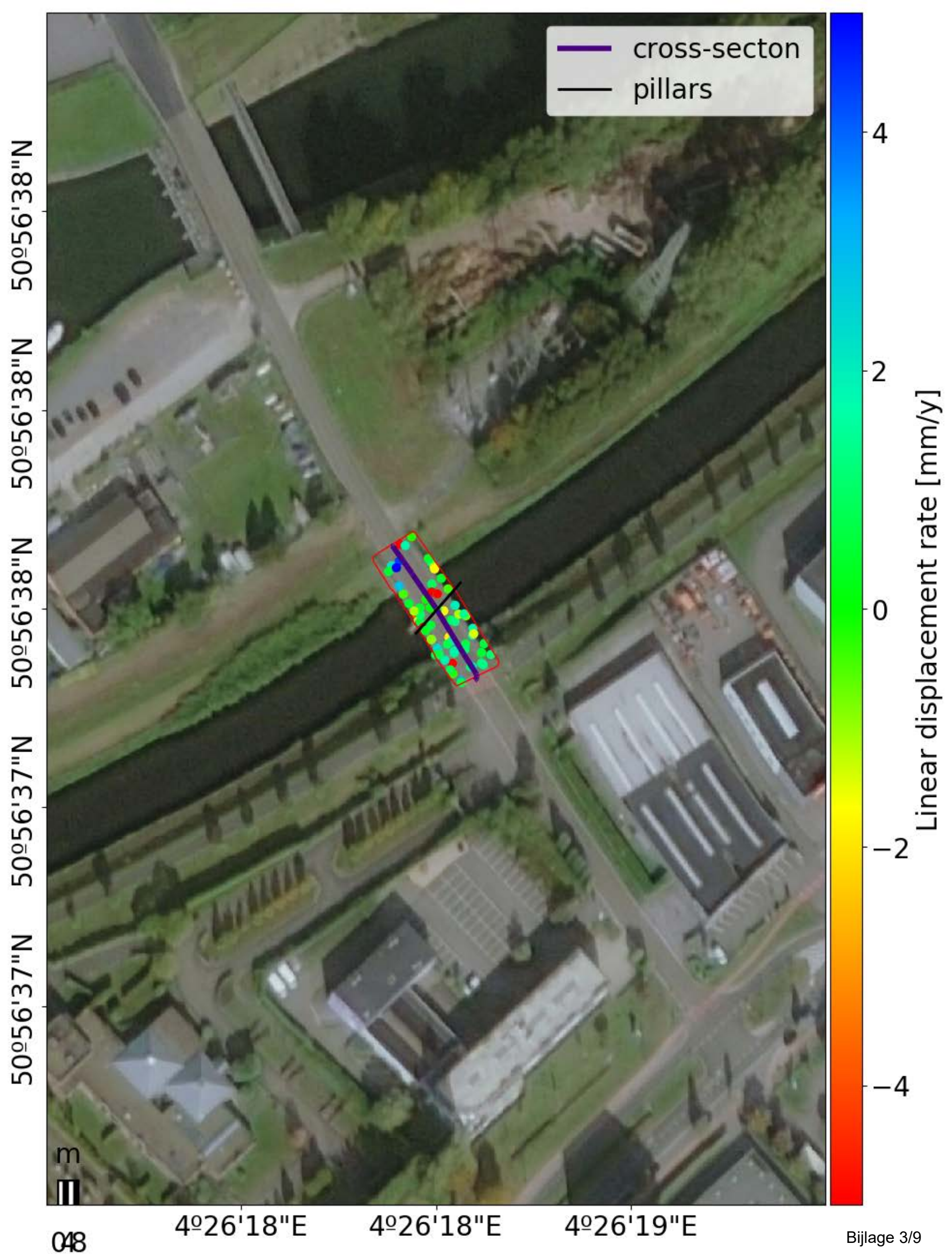












— cross-section
— pillars



Linear displacement rate [mm/y]

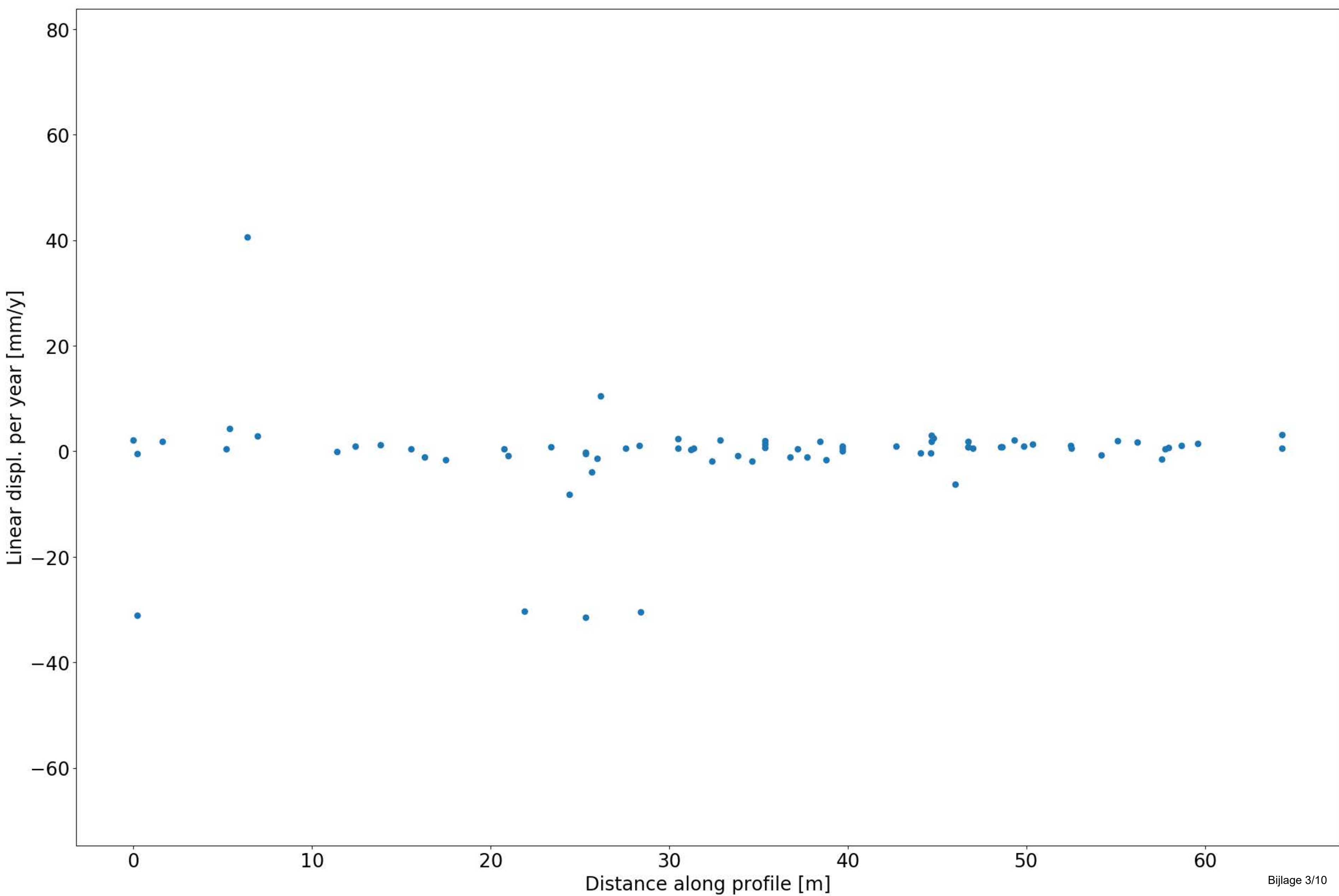
0 1 2
m

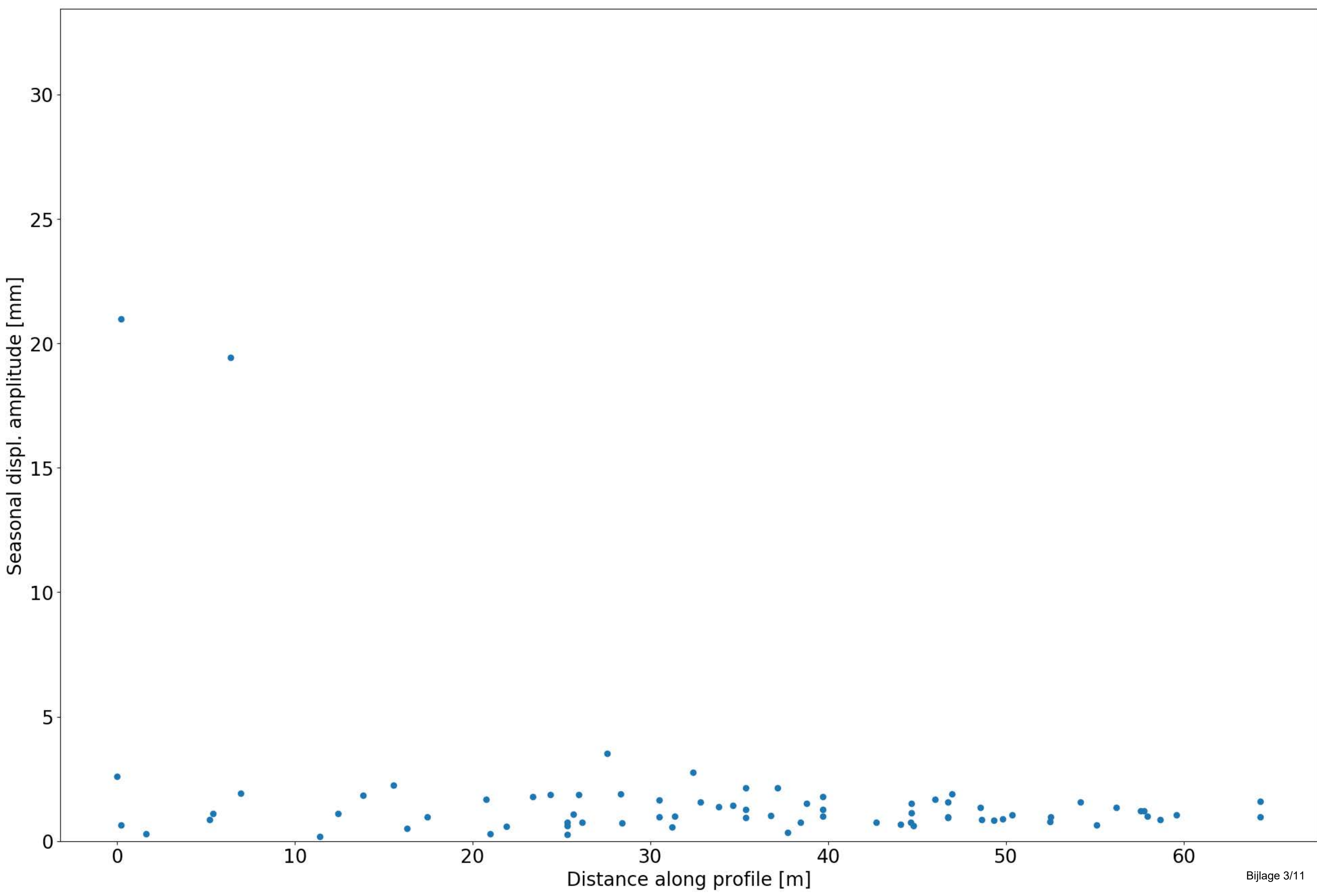
048

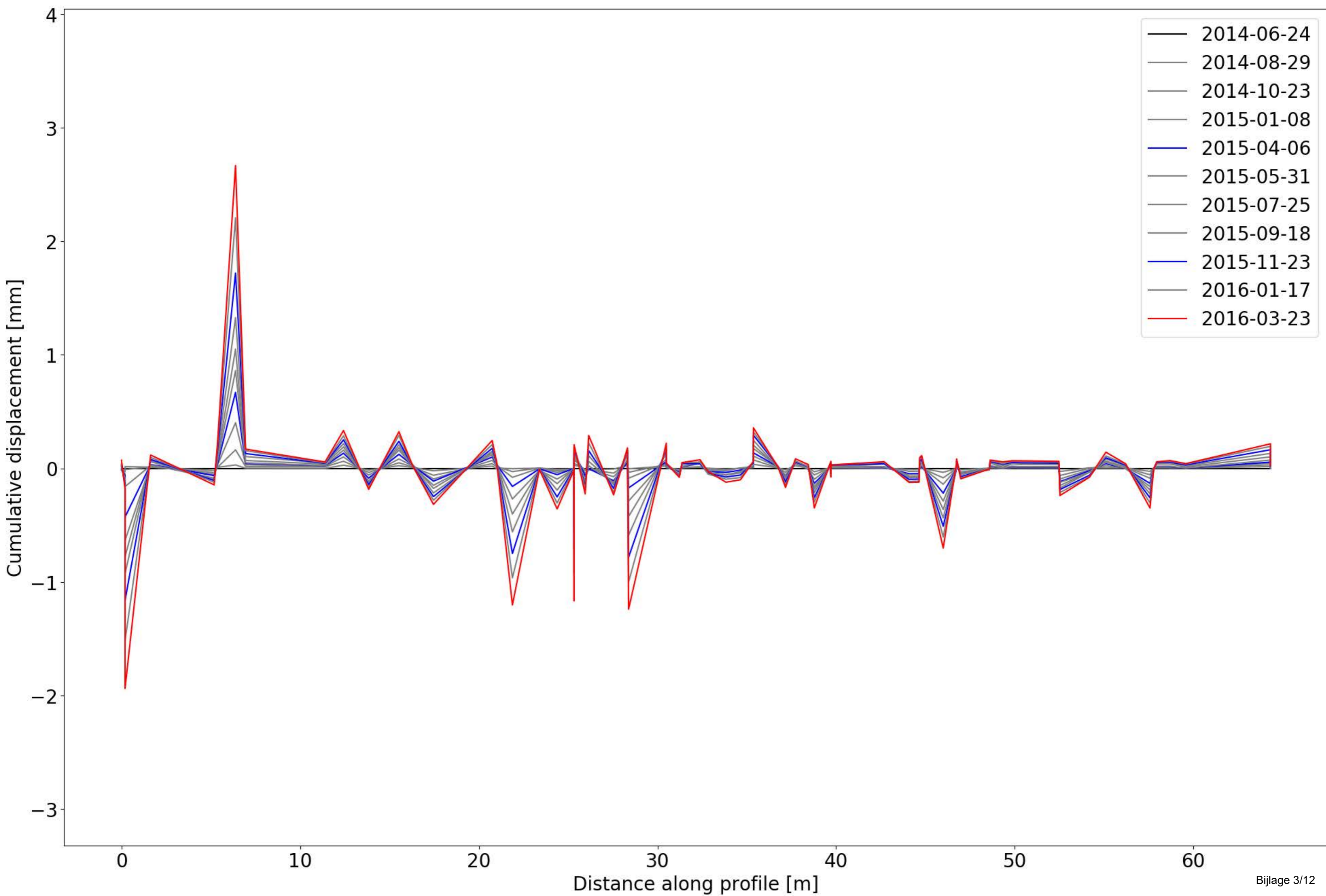
4°26'18"E

4°26'18"E

4°26'19"E







3187 Willemsbrug



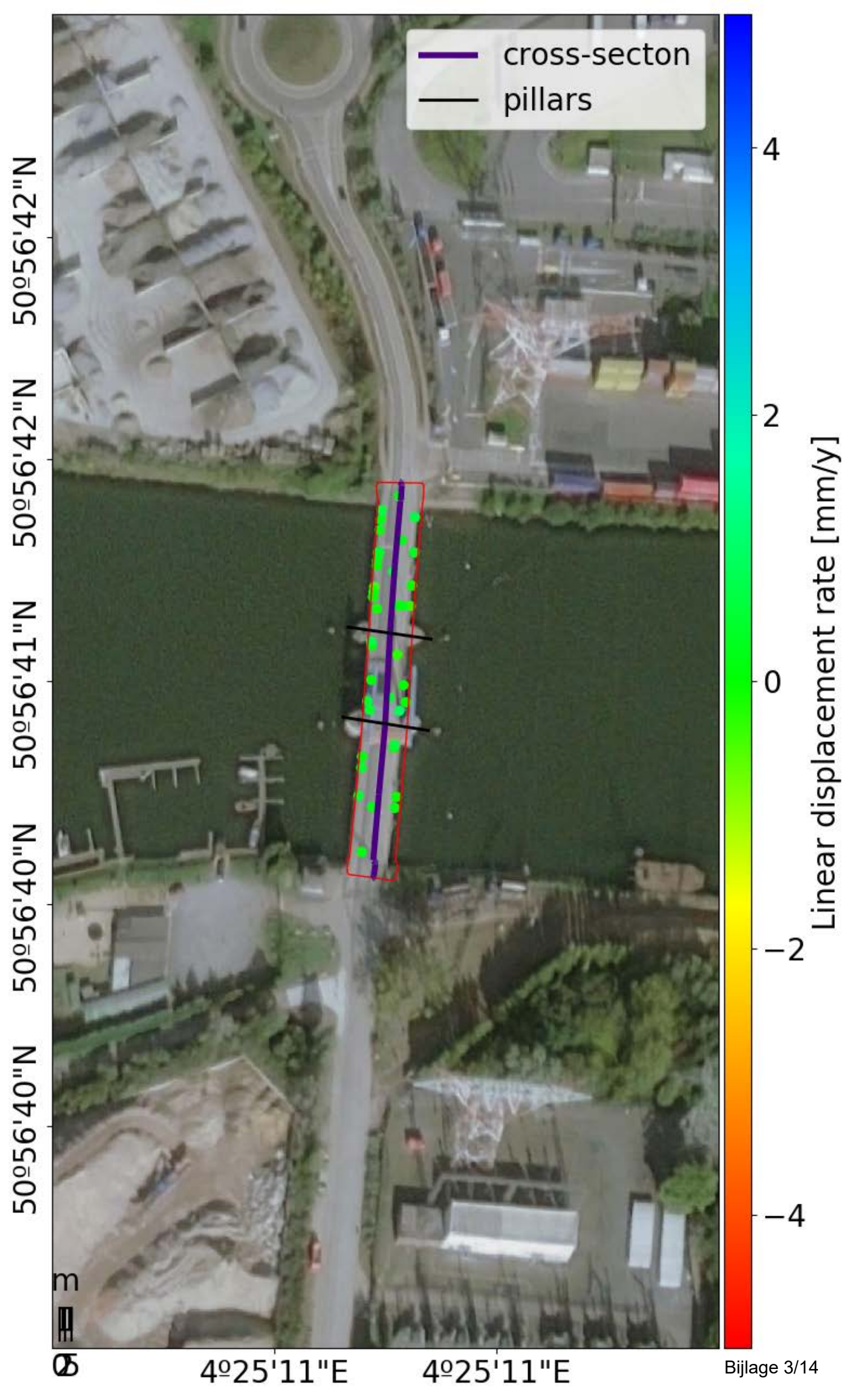
Object Nummer	Name	Long (WGS84)	Lat (WGS84)	Long (Lambert)	Lat (Lambert)	Length [m]	Width [m]	Material	Description	Information
3187	Willemsbrug	50.9446726	4.419693159	153579.97000	181600.07999	21	10.3	steel	(10) ophaalbrug / N-Z gericht/staal	renewing of bridge deck in 2016 - exact period not known

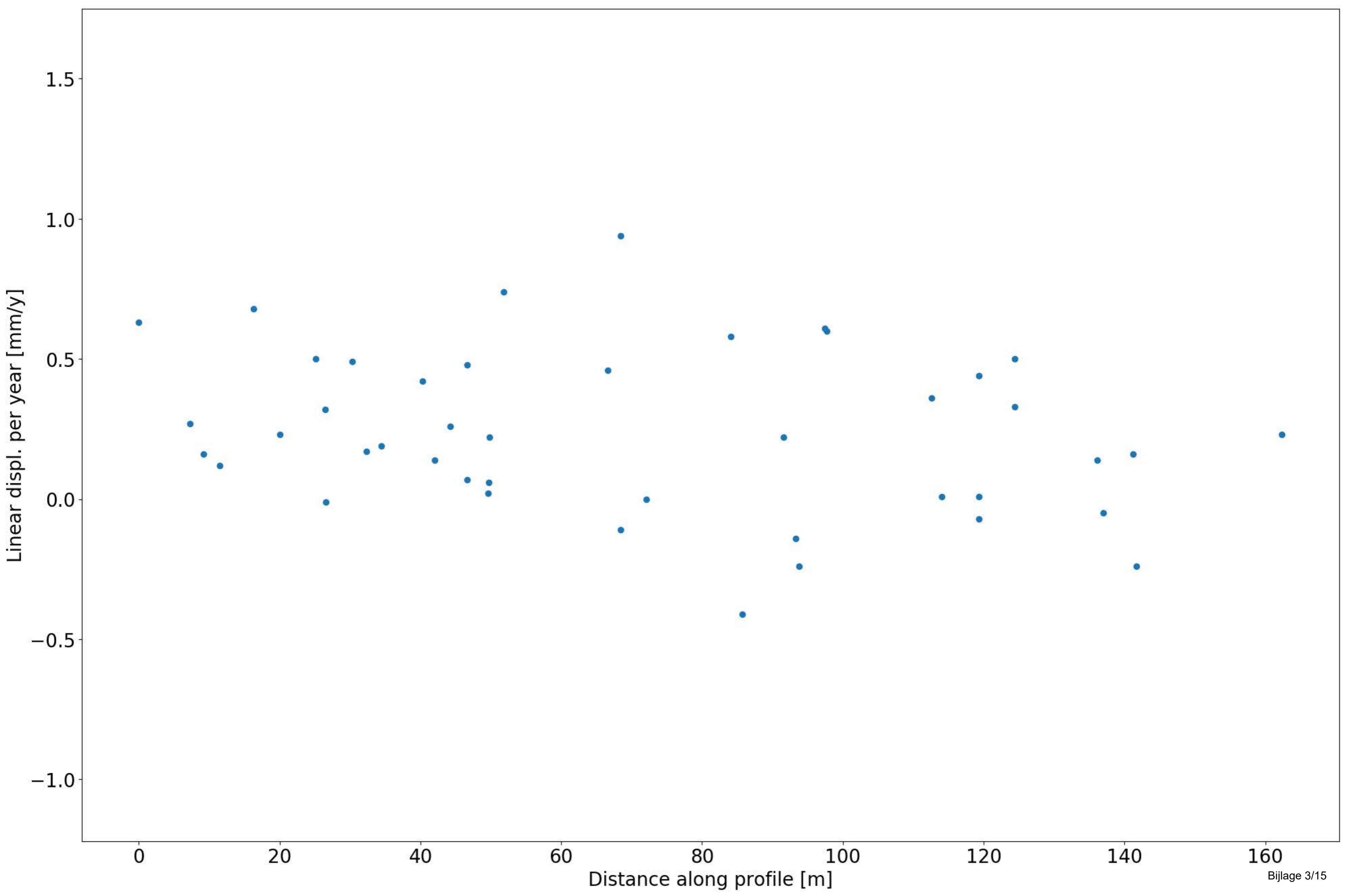
Change Detection

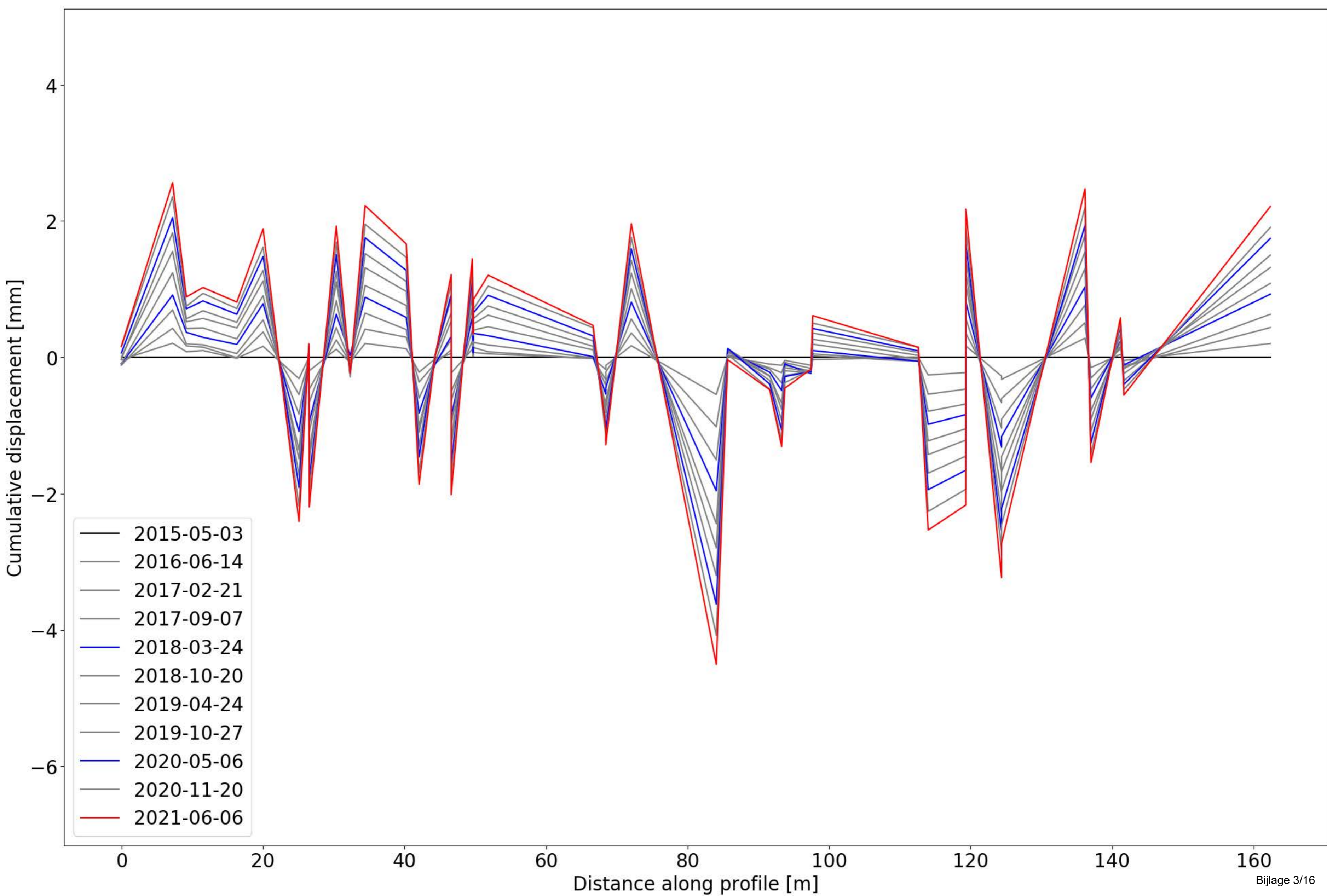
No change was detected for this bridge.

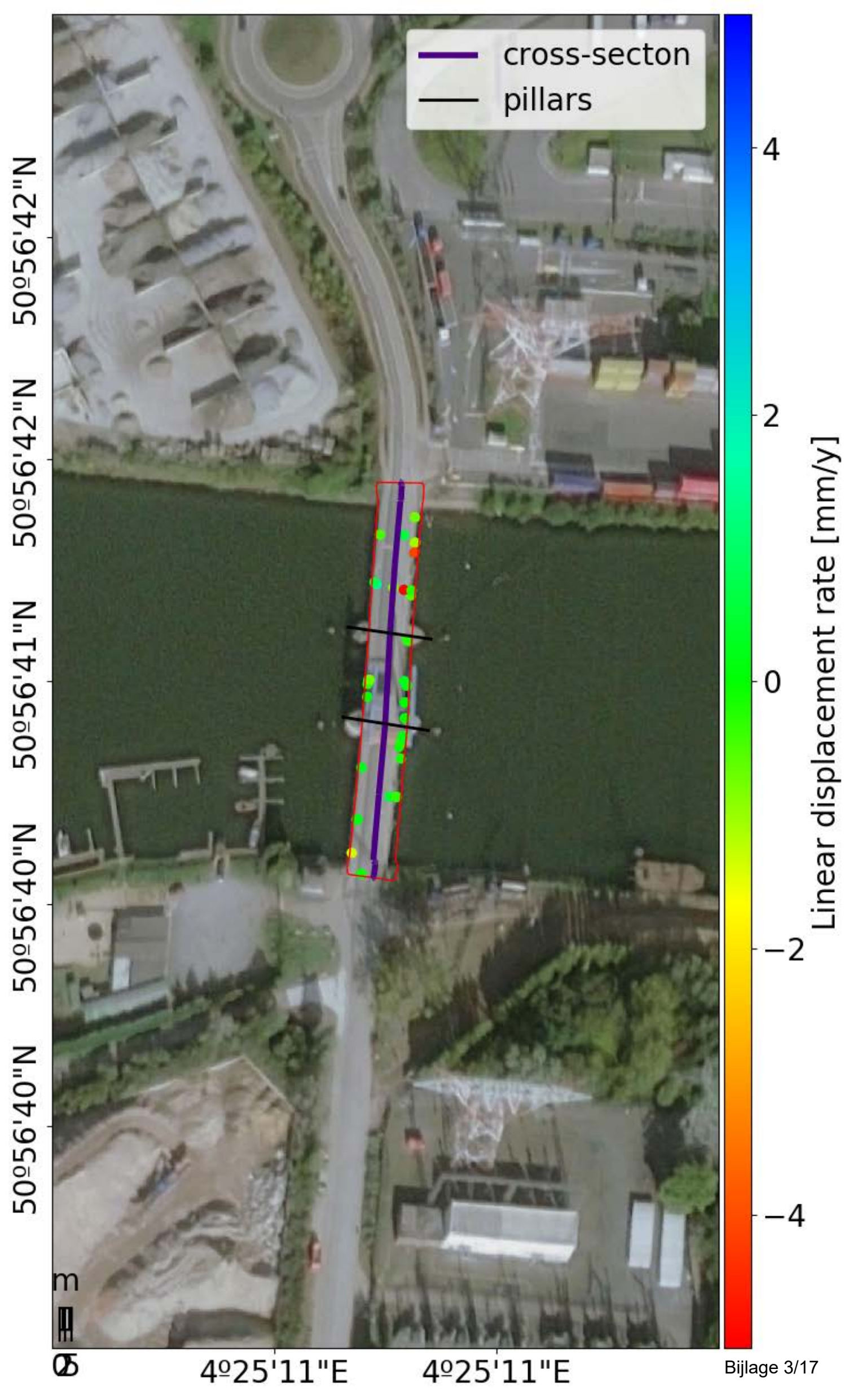
Comments on point density/distribution

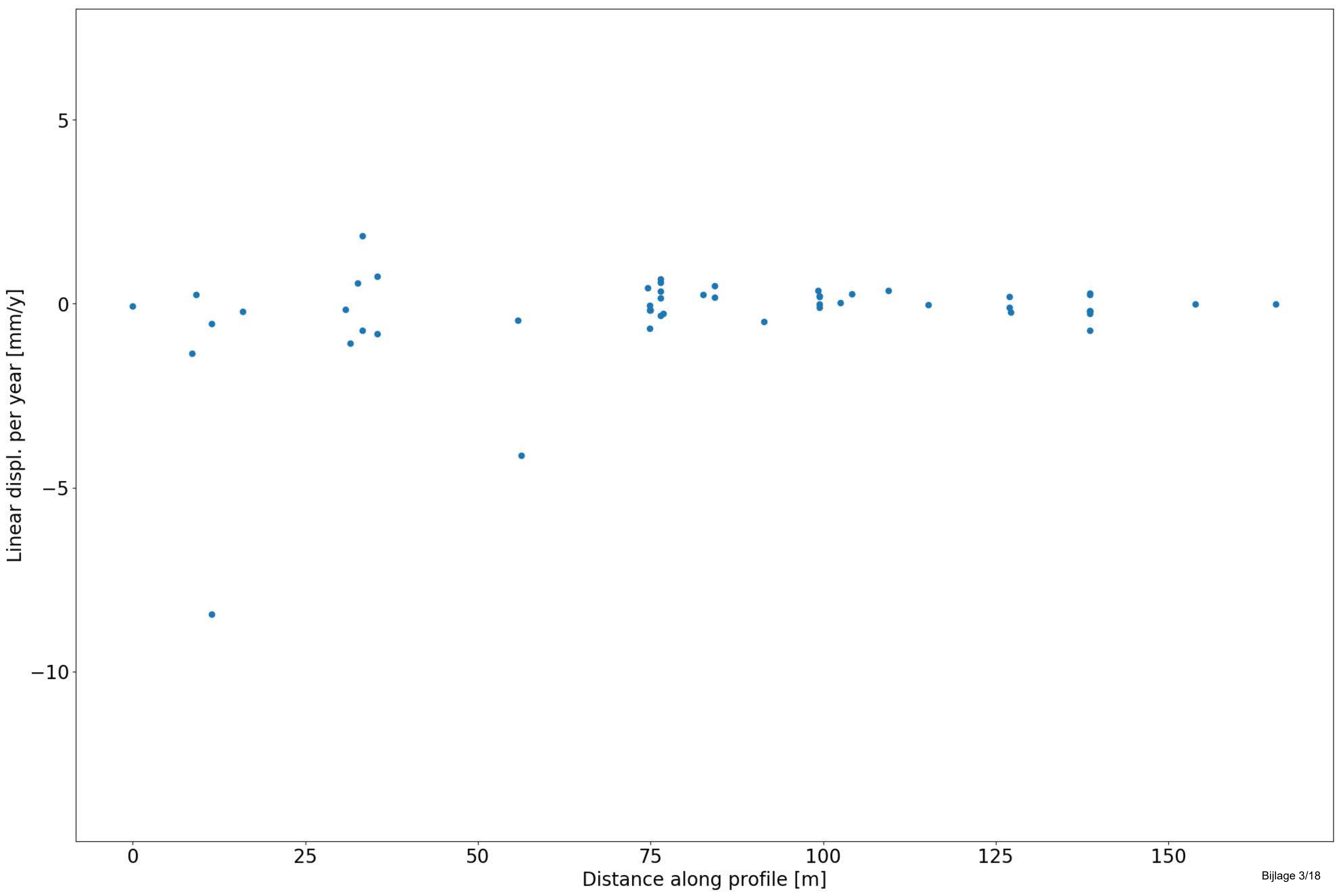
All datasets have InSAR points along the full length of the bridge, no significant gaps in the data.

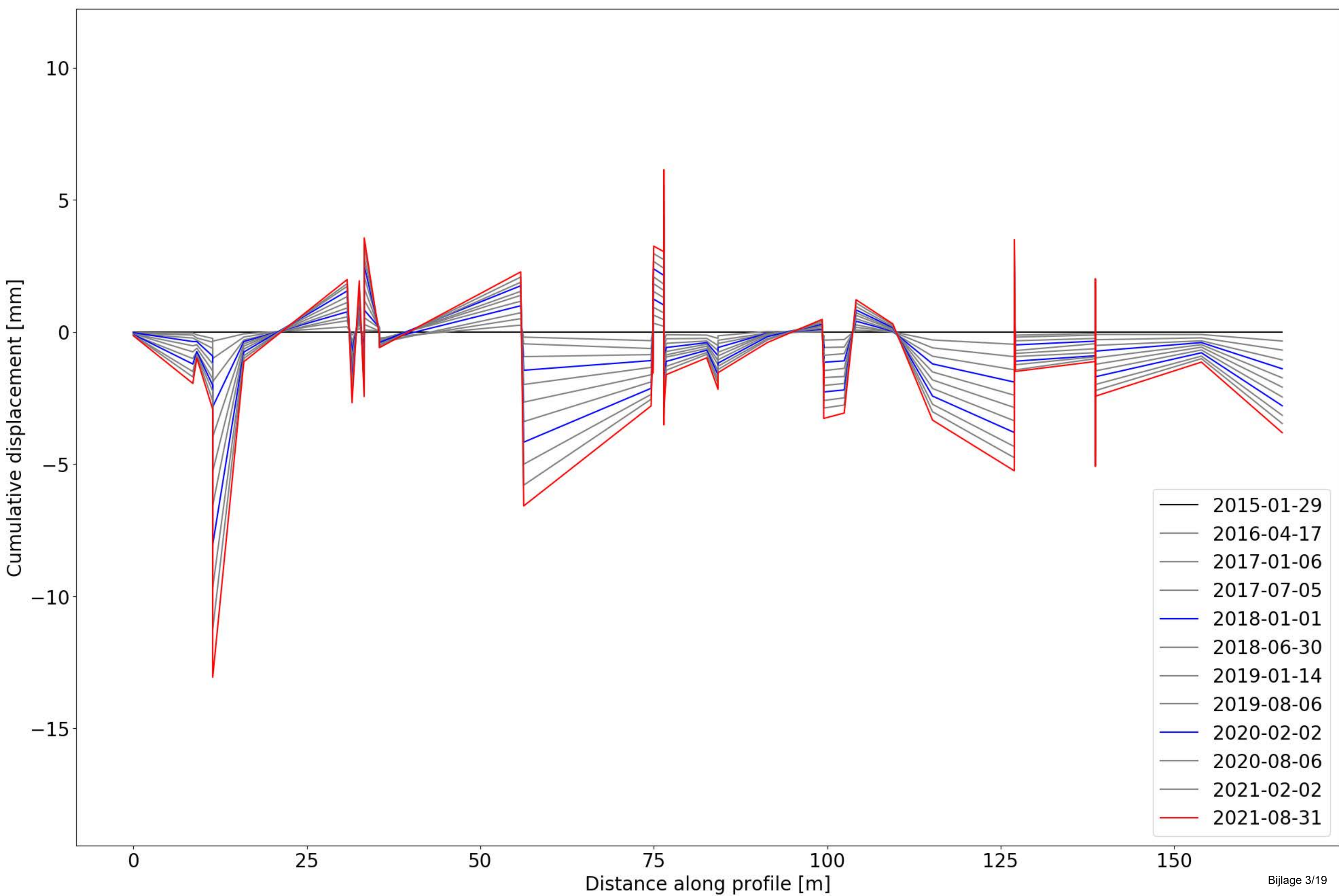


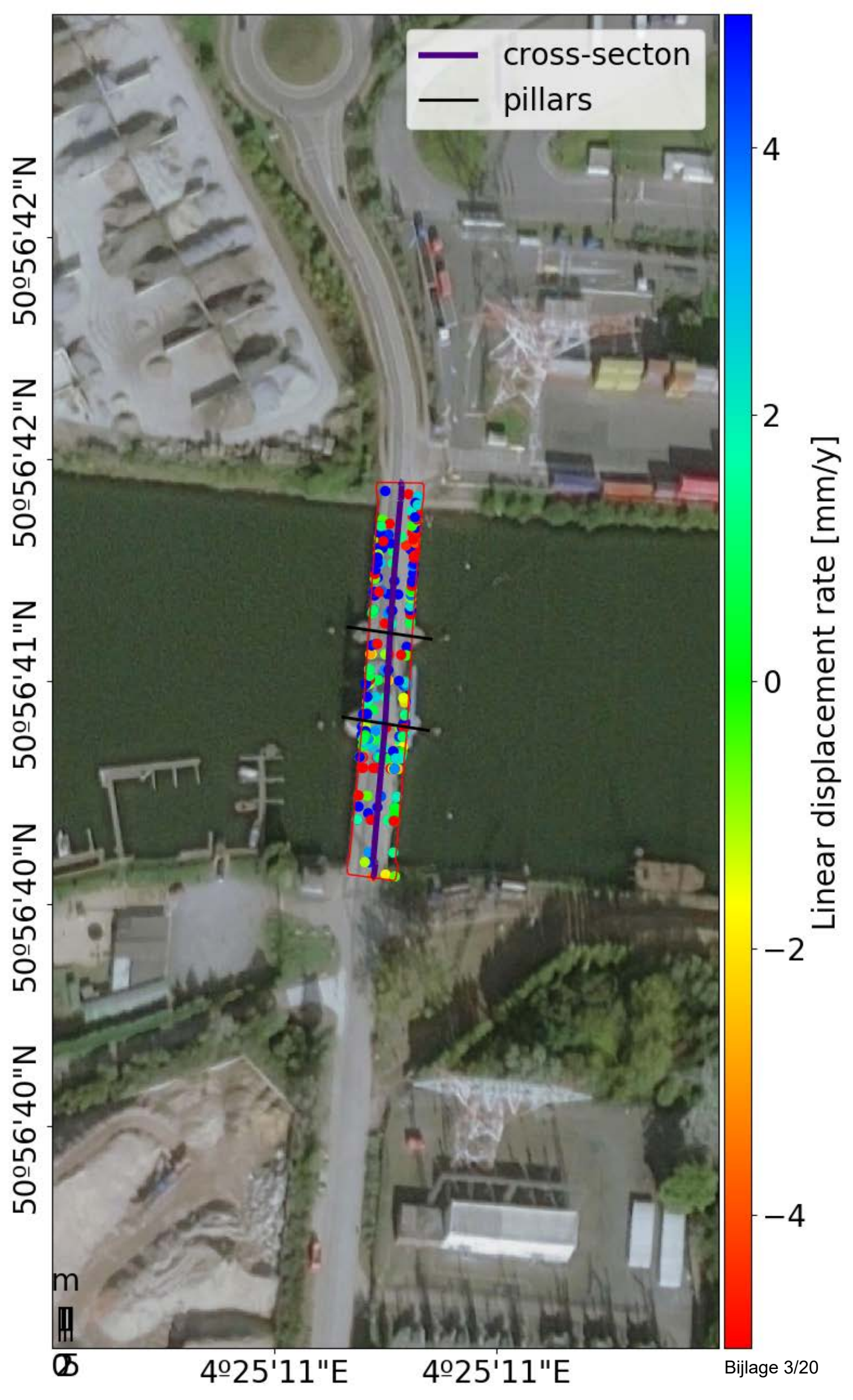


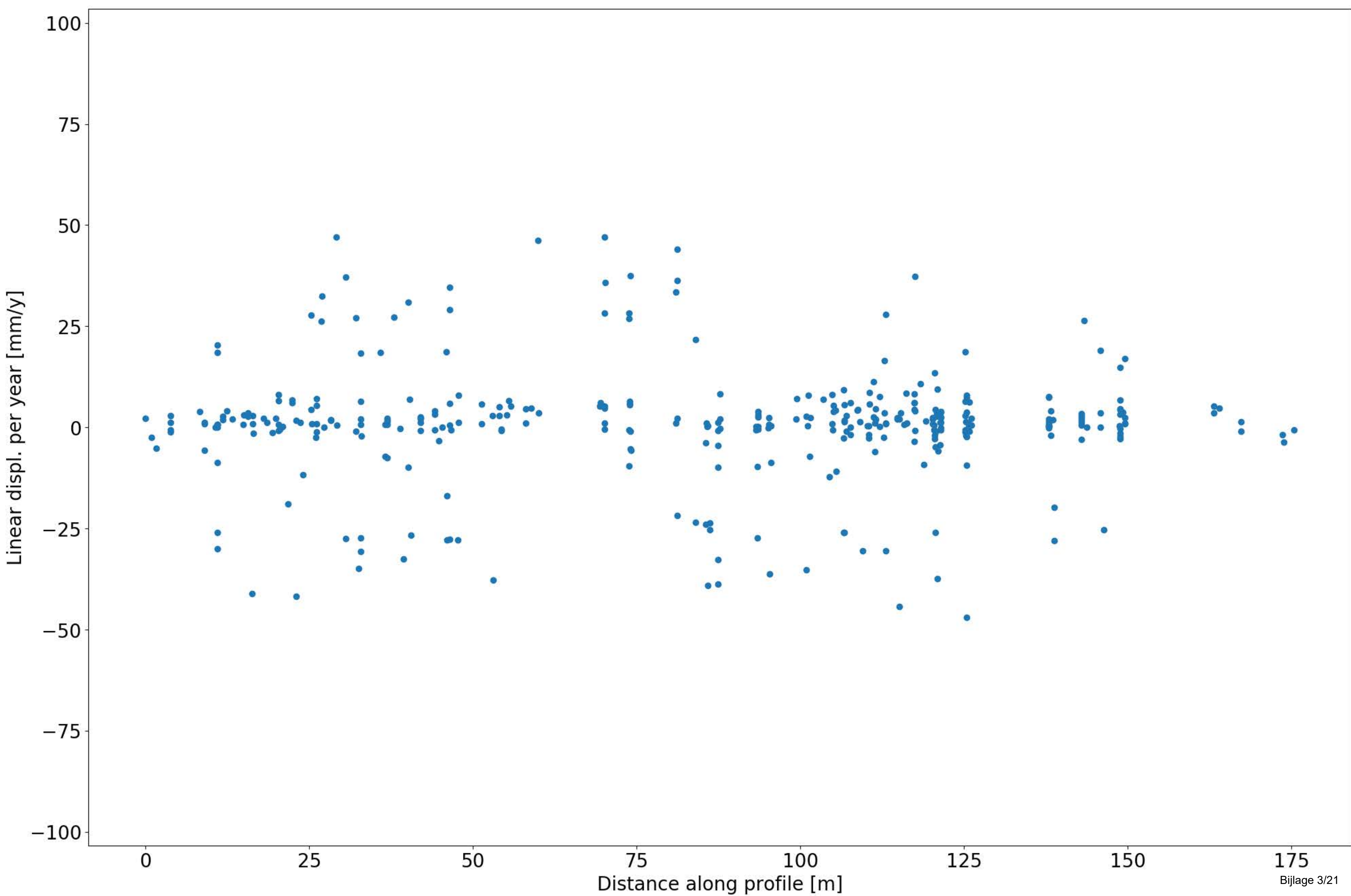


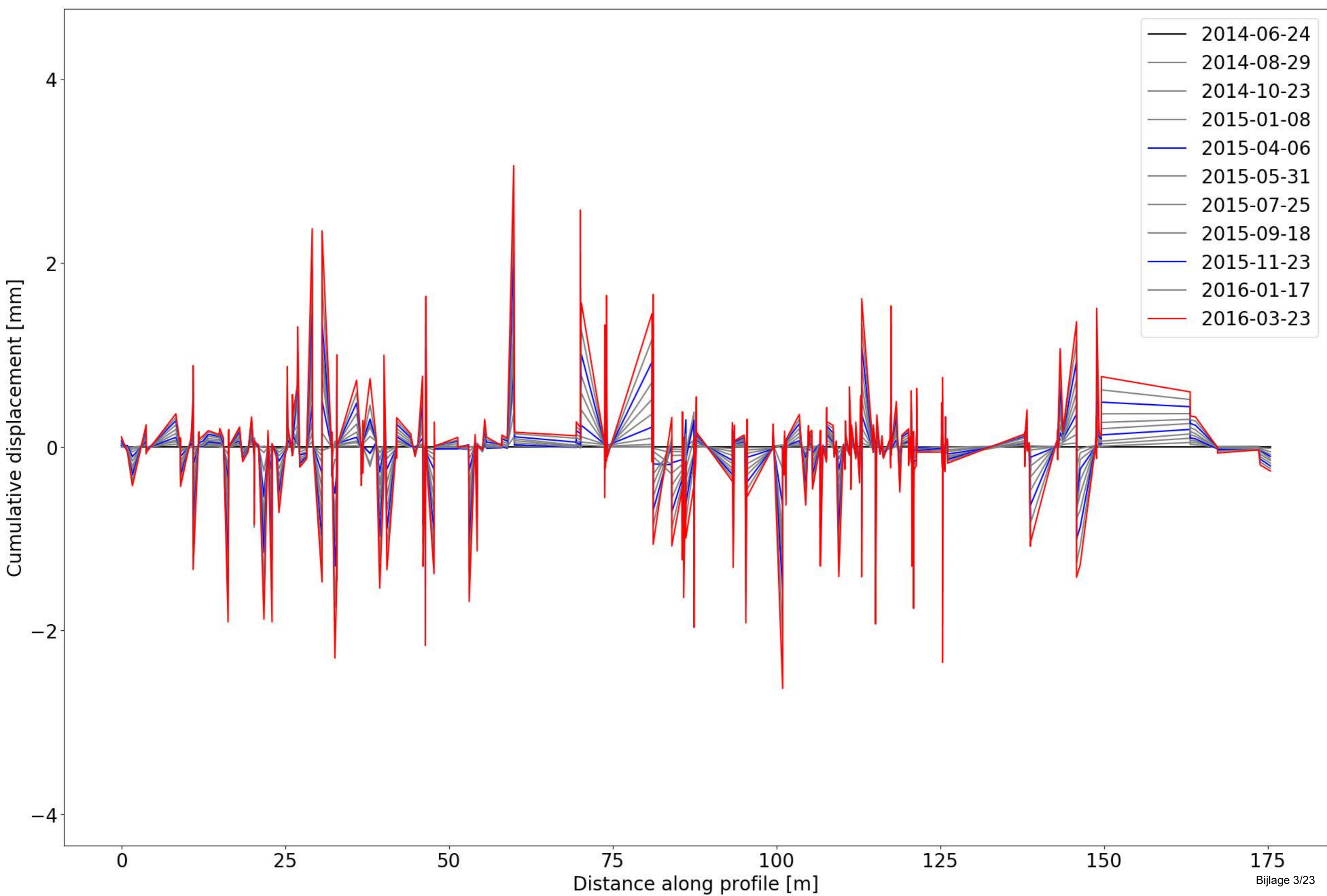












3189 Tuchthuisbrug



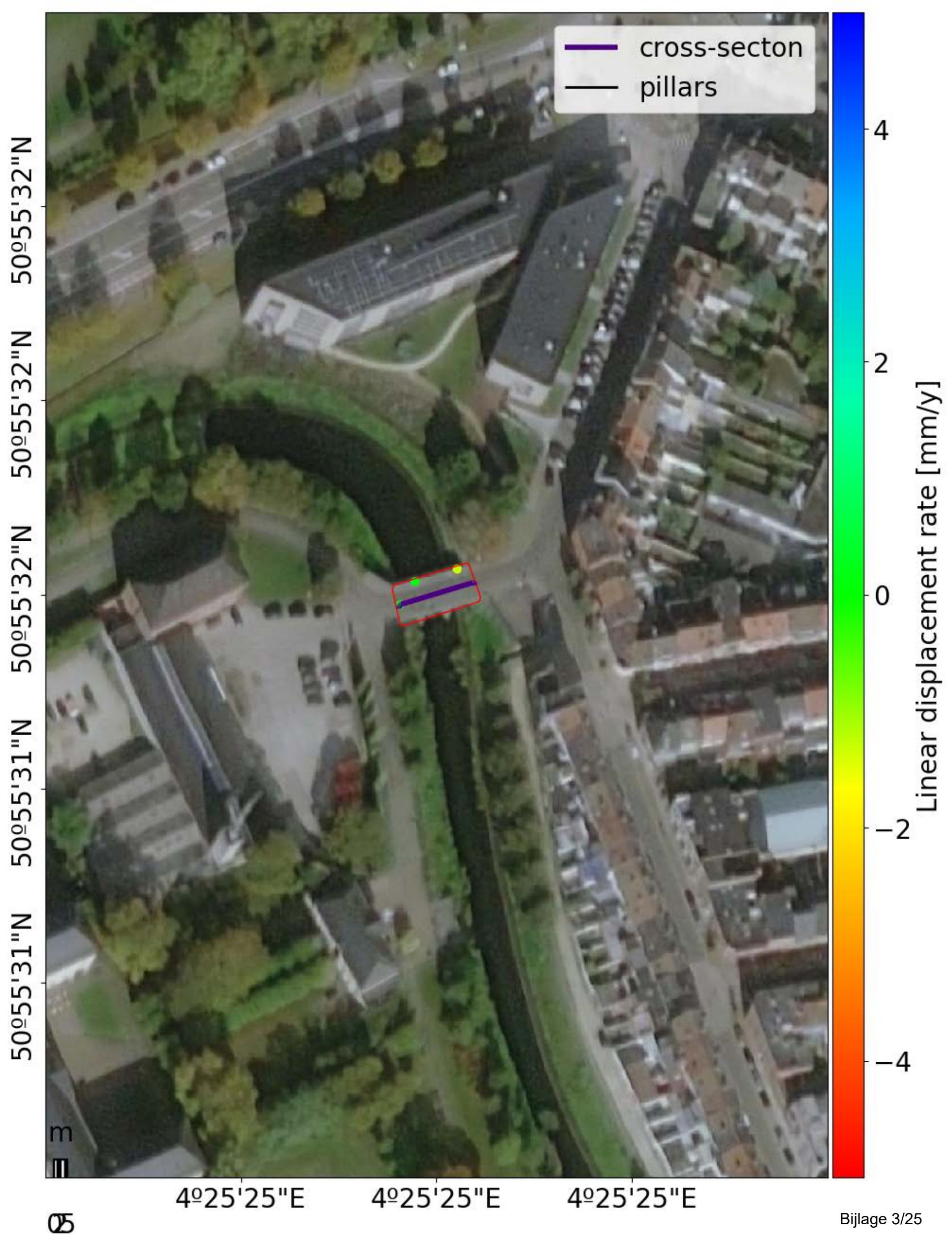
Object Nummer	Name	Long (WGS 84)	Lat (WGS84)	Long (Lambert)	Lat (Lambert)	Length [m]	Width [m]	Material	Description	Information
3189	Tuchthuisbrug	50.92548336	4.423569203	155500.01999	174870.10000	16.2	8		(16) klein/bijna OW	no maintenance works

Change Detection

No change was detected.

Comments on point density/distribution

The TSX data has InSAR points along the full length of the bridge, no significant gaps in the data. However, the S1 datasets have just one or two points. The reason for this lack of points is currently unknown, since no maintenance works were recorded, no changes detected and it has no strong seasonal component. Further investigation would be needed to assess the causes.



— cross-section
— pillars

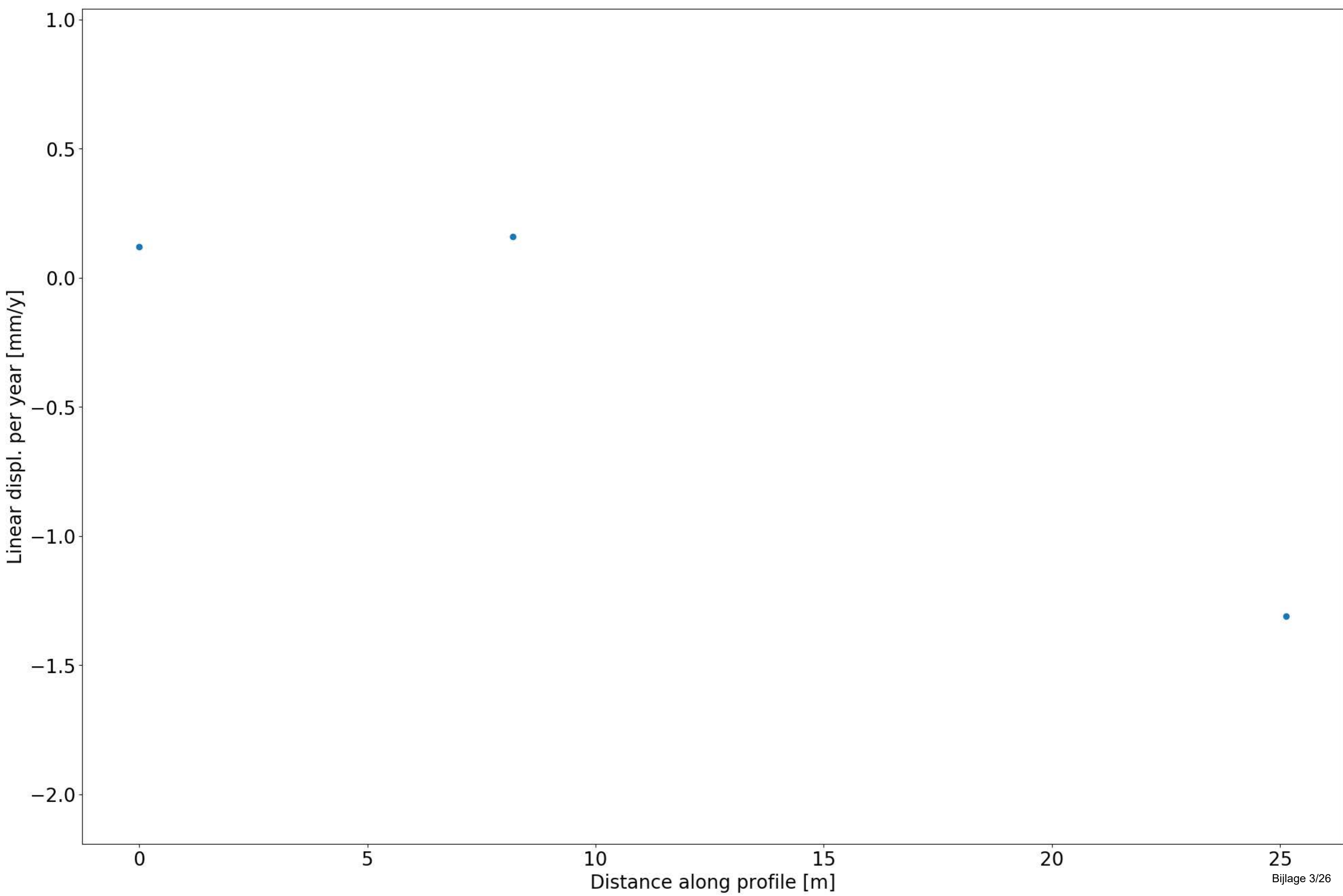
Linear displacement rate [mm/y]

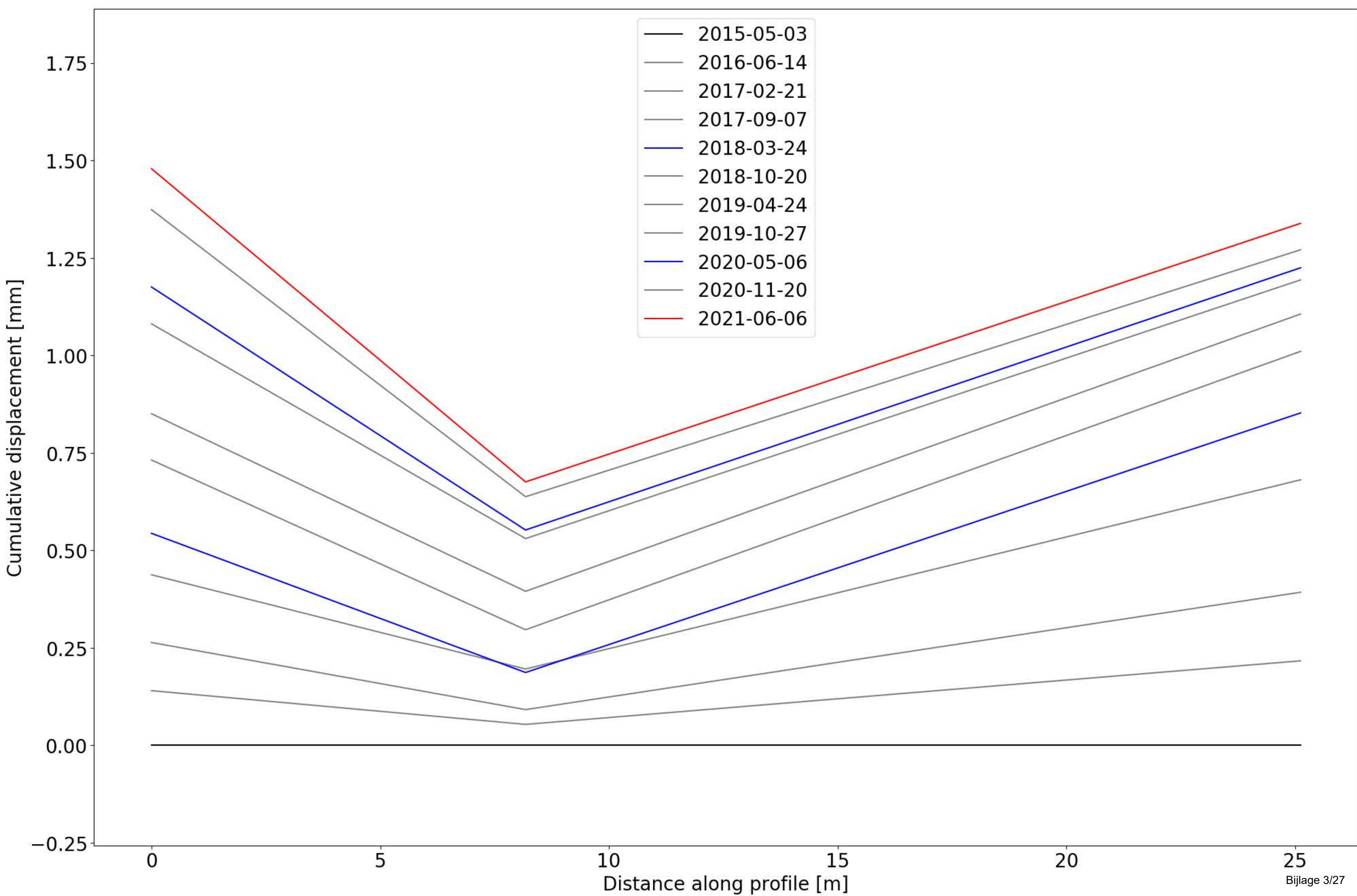
4
2
0
-2
-4

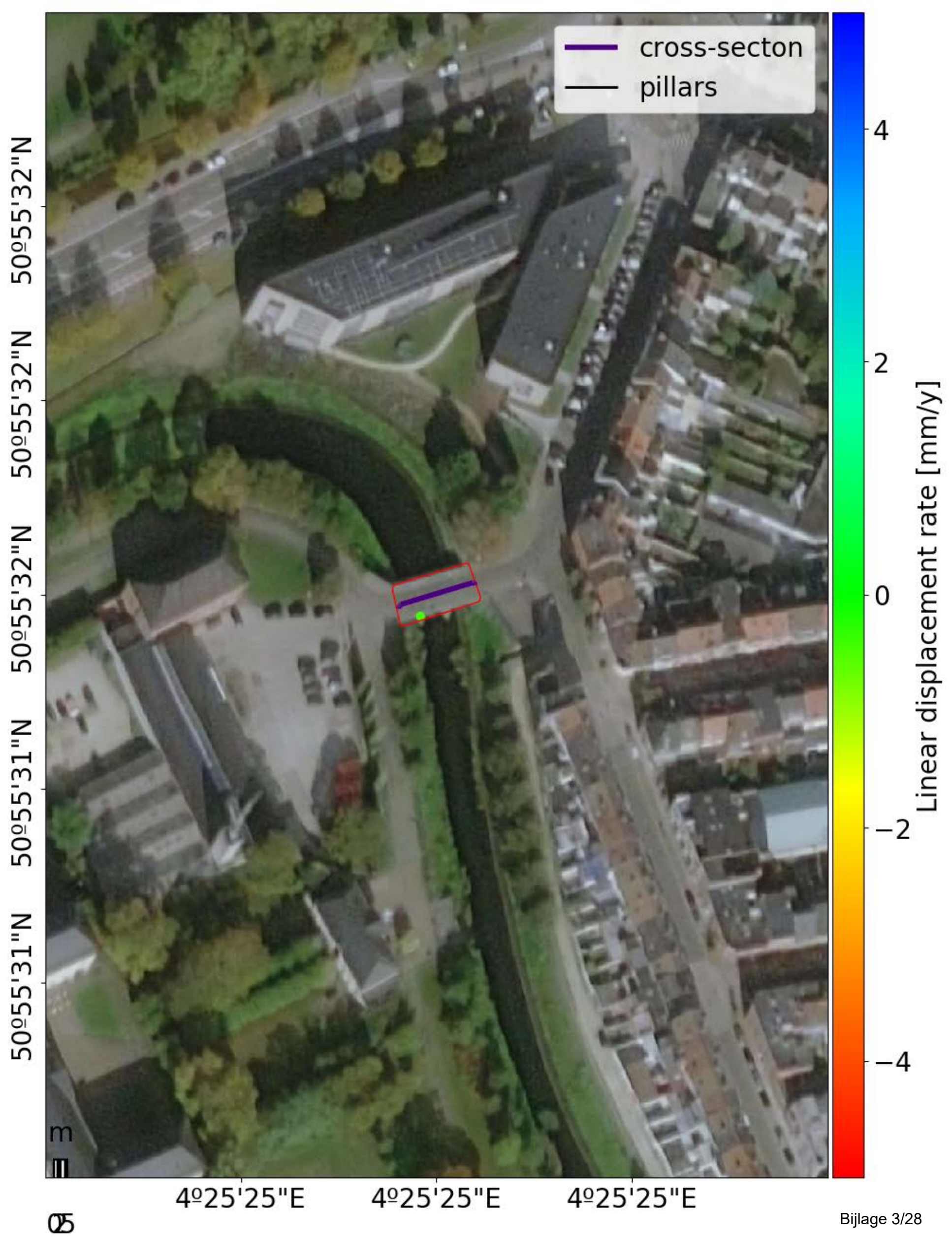
50°55'31"N 50°55'31"N 50°55'32"N 50°55'32"N 50°55'32"N

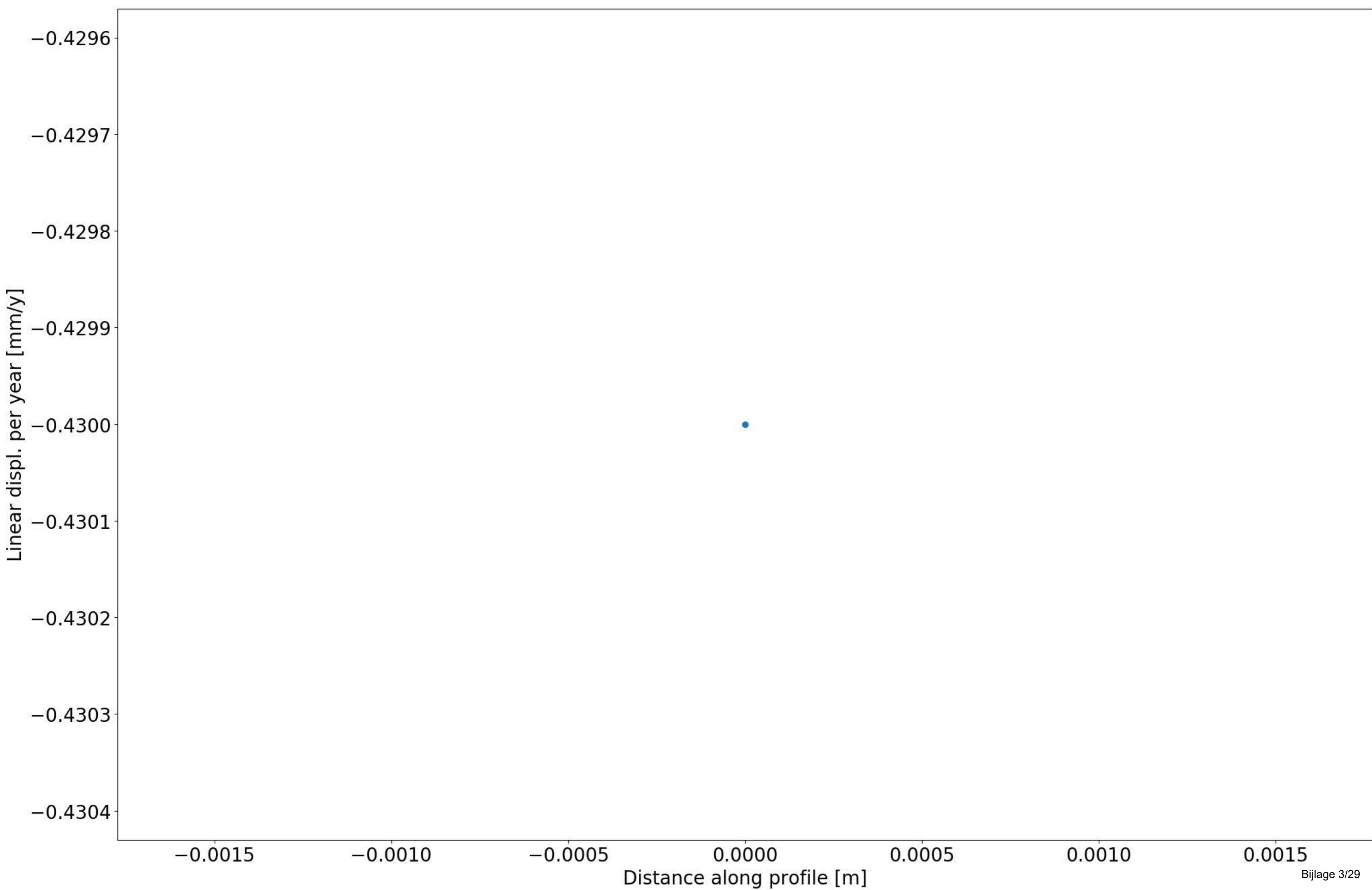
4°25'25"E 4°25'25"E 4°25'25"E

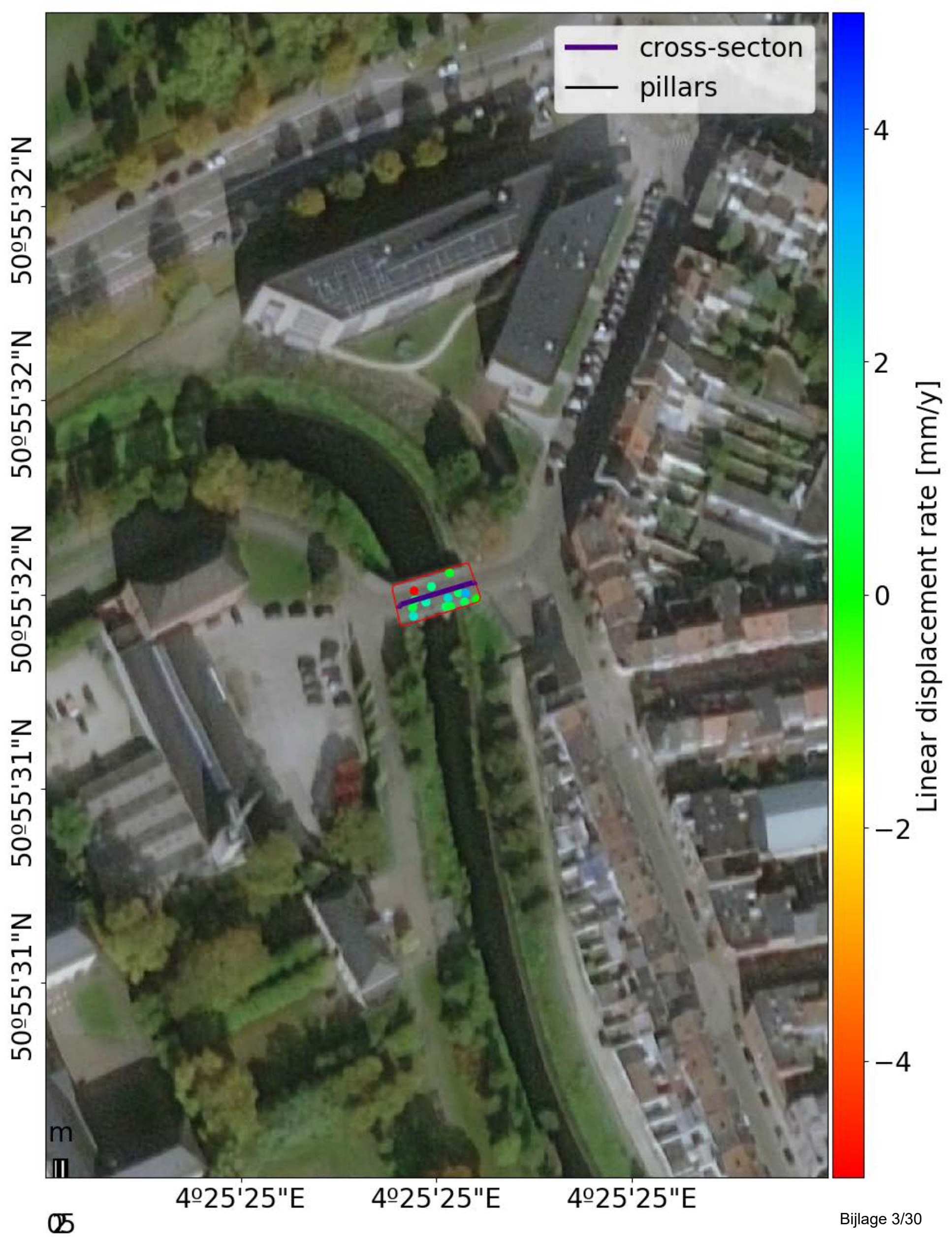
3
05

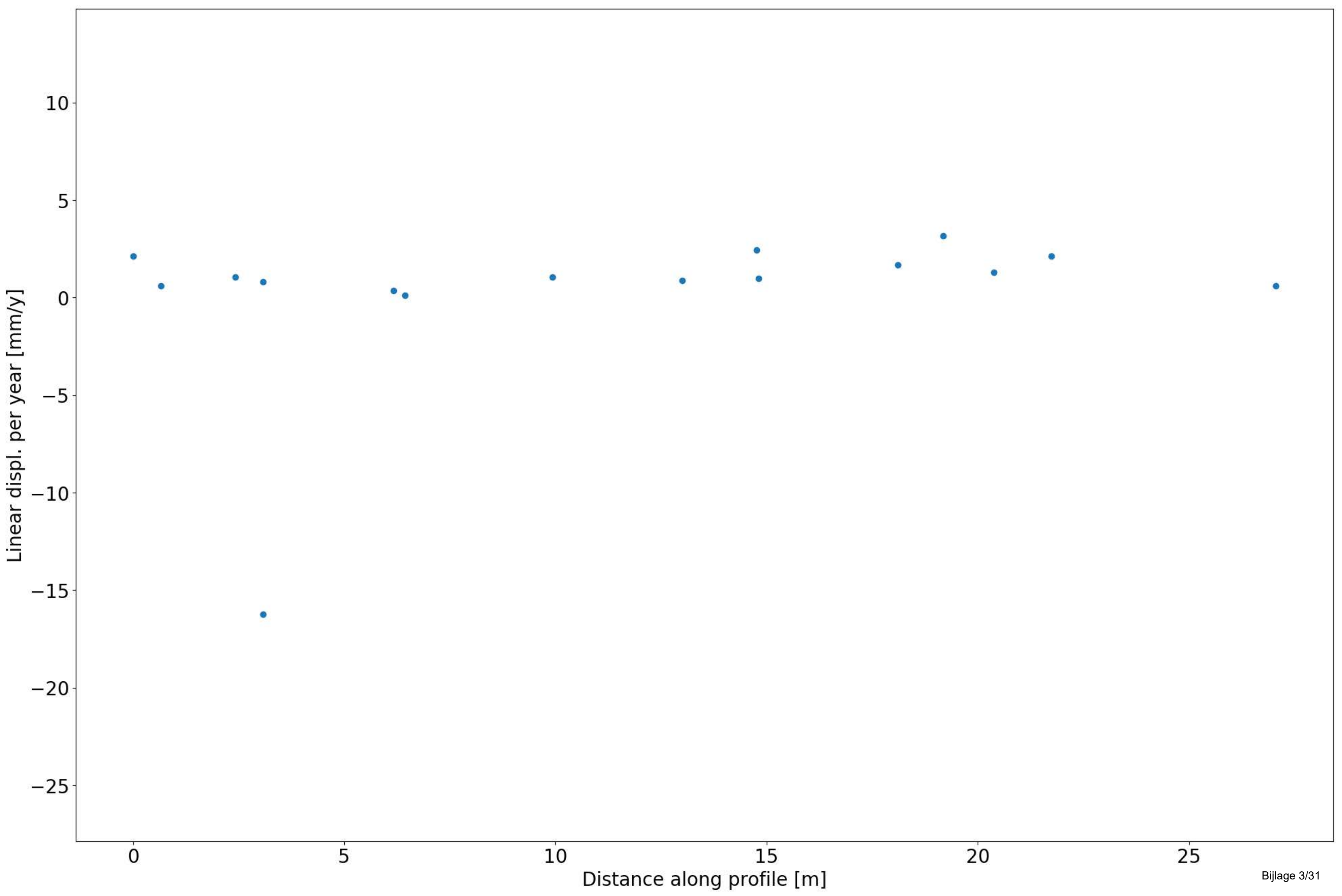


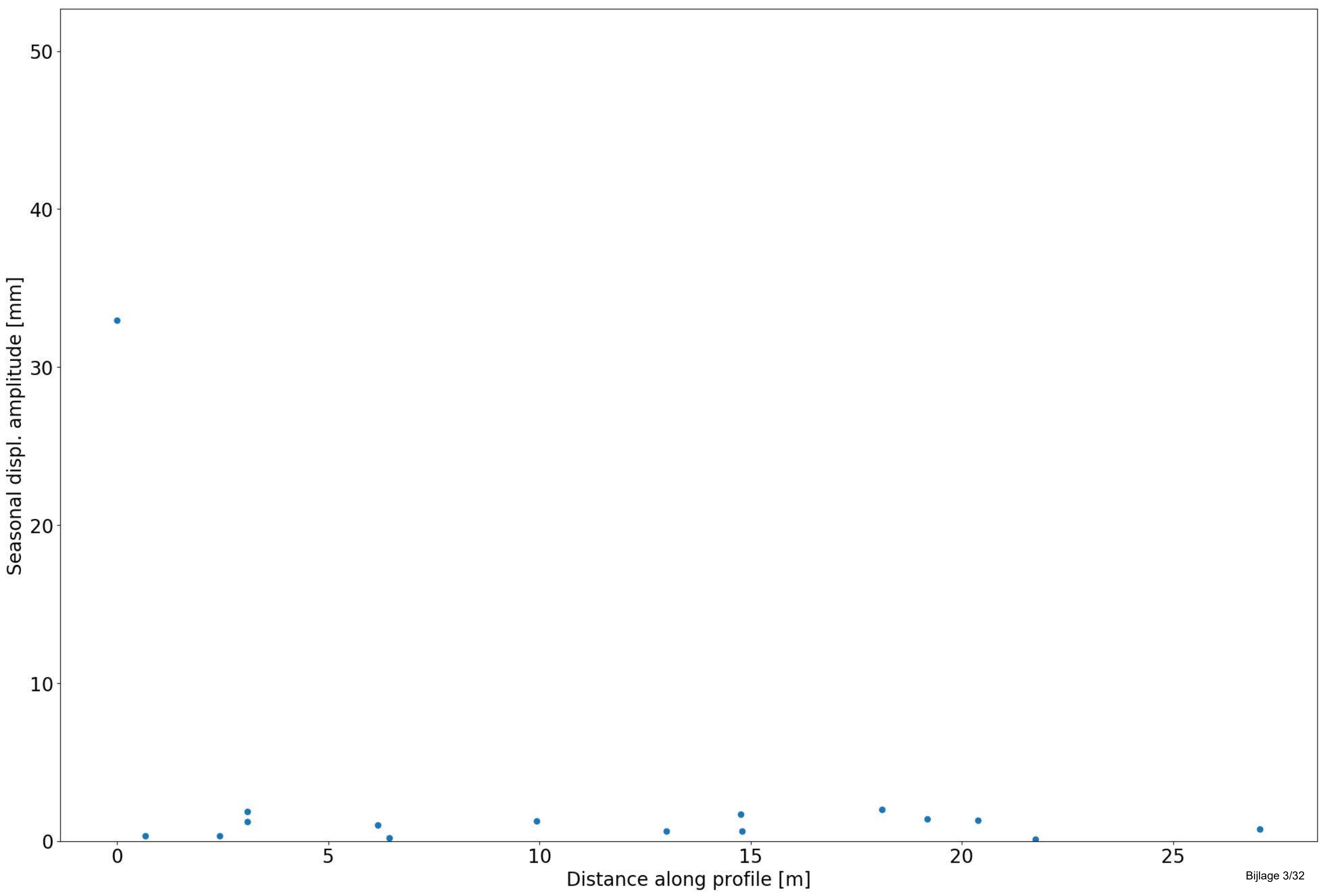


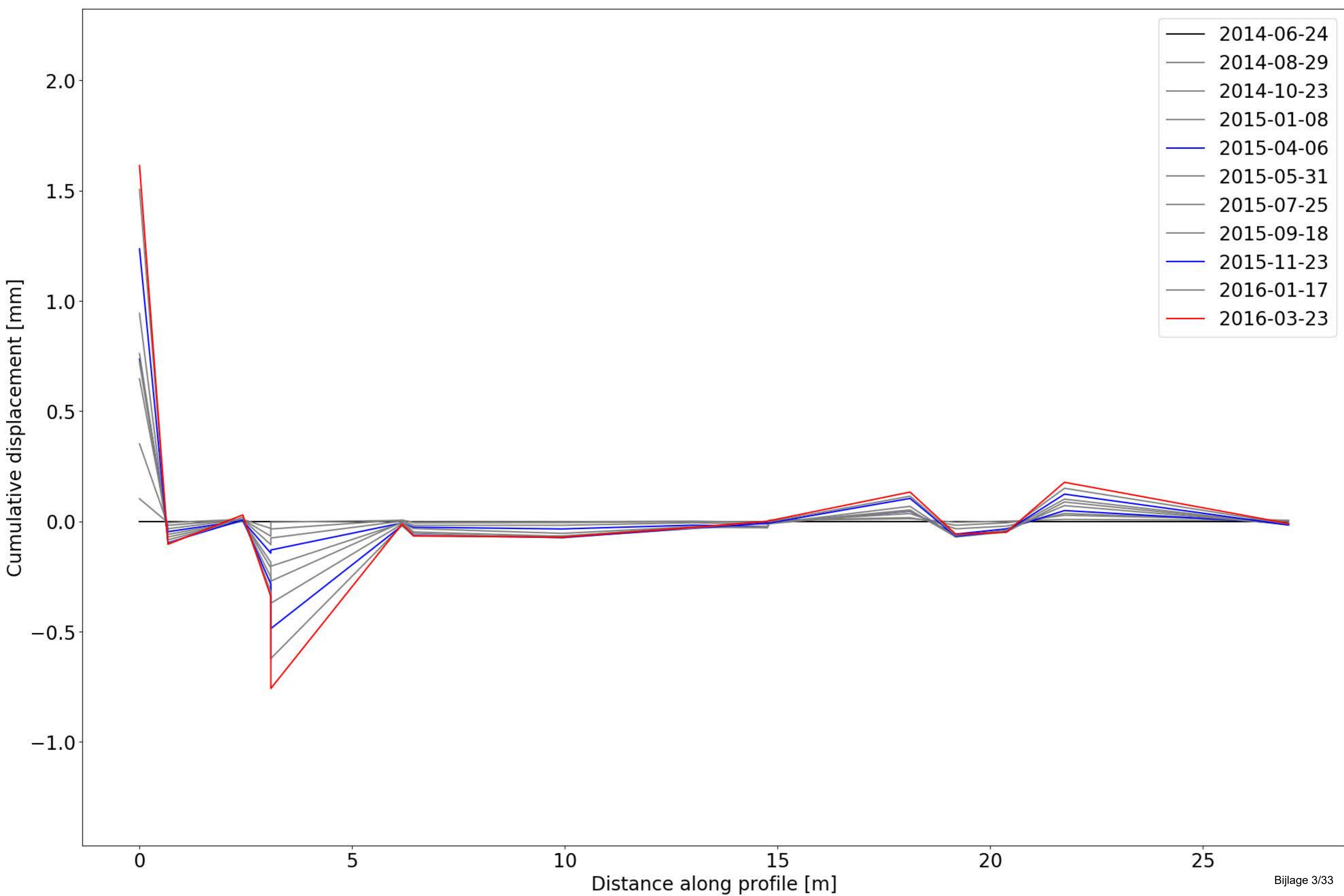












3590 Brug 1 over de J. F. Kennedylaan Grensstraat



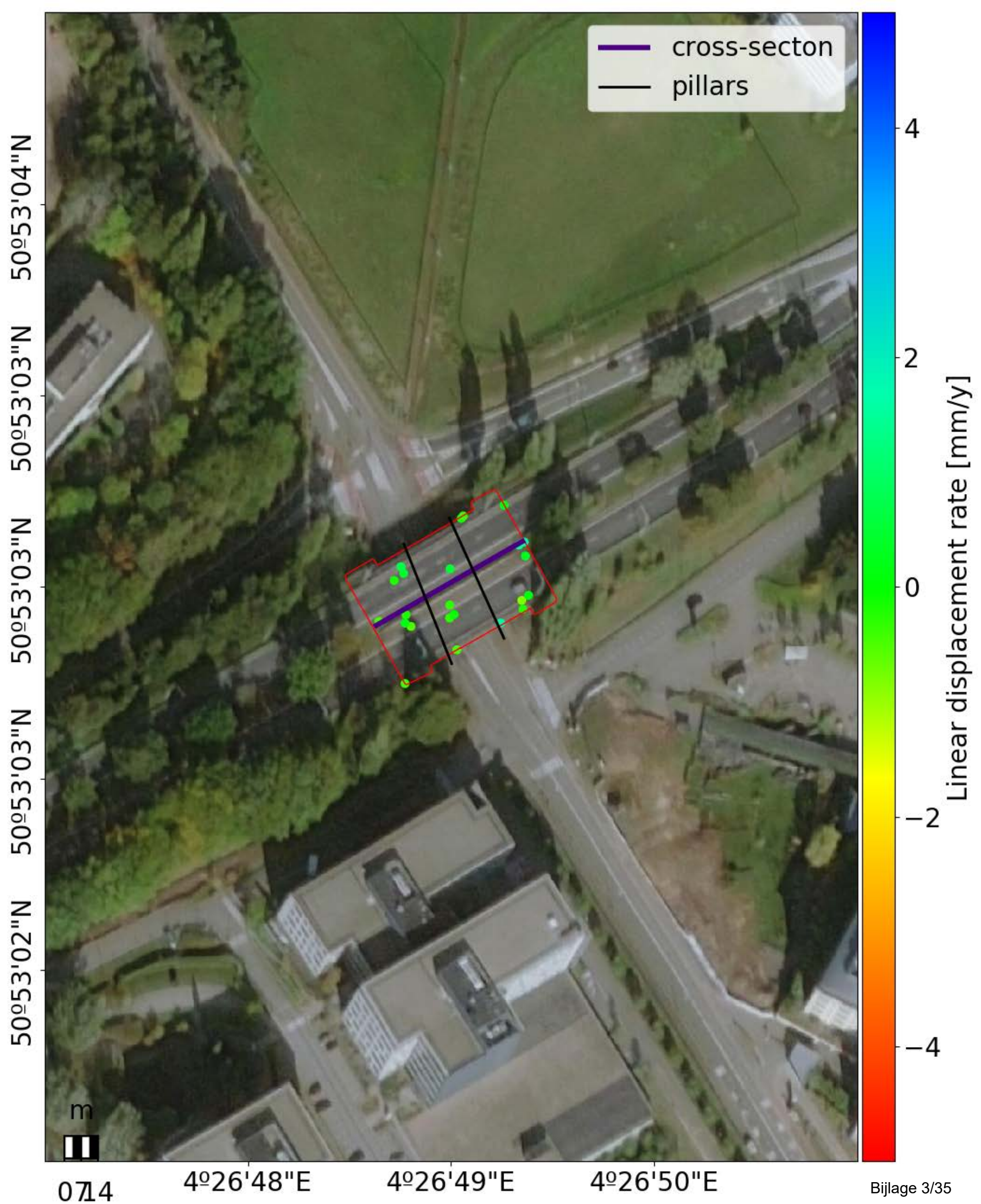
Object Nummer	Name	Long (WGS 84)	Lat (WGS84)	Long (Lambert)	Lat (Lambert)	Length [m]	Width [m]	Material	Description	Information
3590	Brug 1 over de J. F. Kennedylaan Grensstraat	50.88416387	4.446911158	155500.01999	174870.10000	35	31	concrete	(17) 4 rijvakken met middenberm - beton	no maintenance works

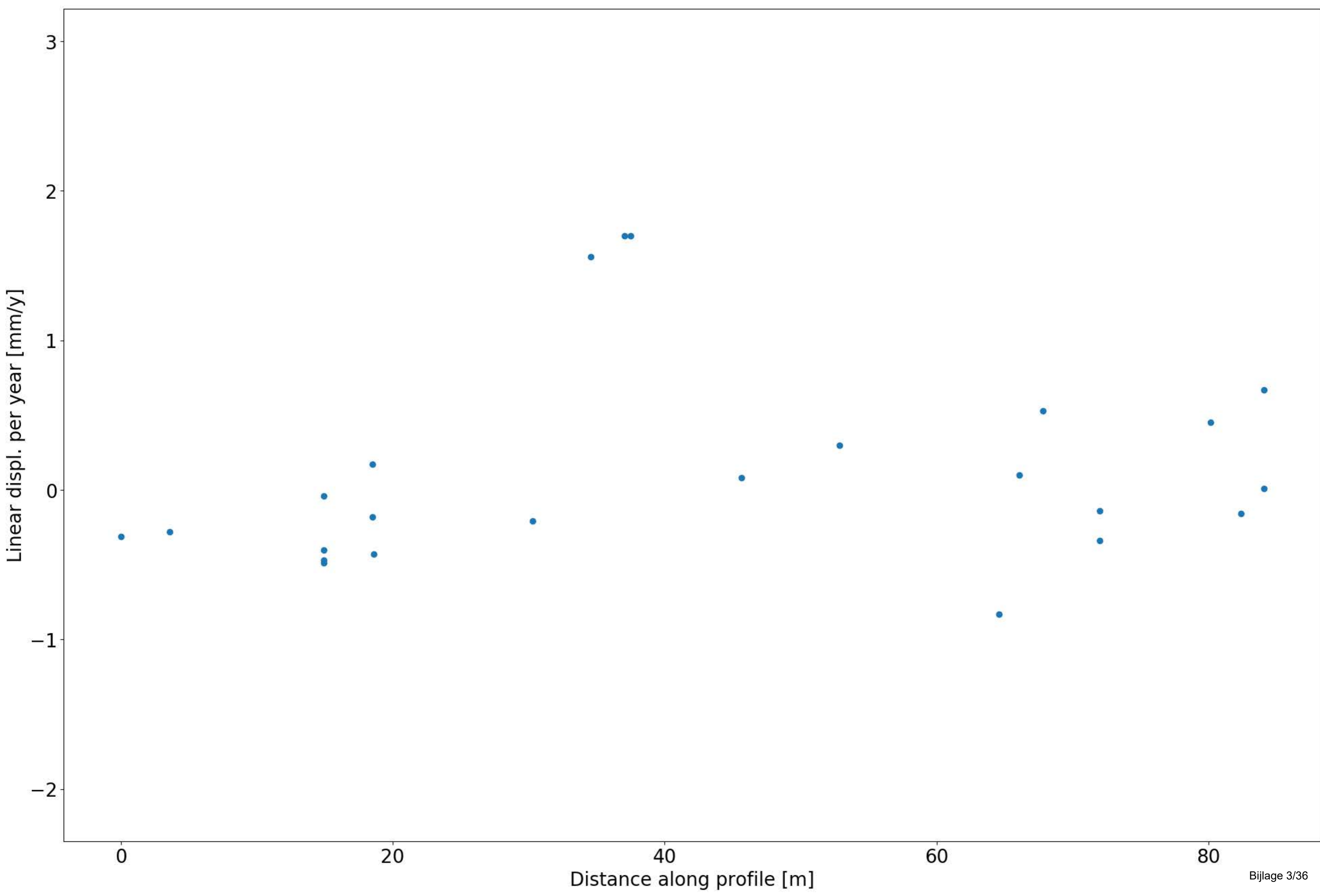
Change Detection

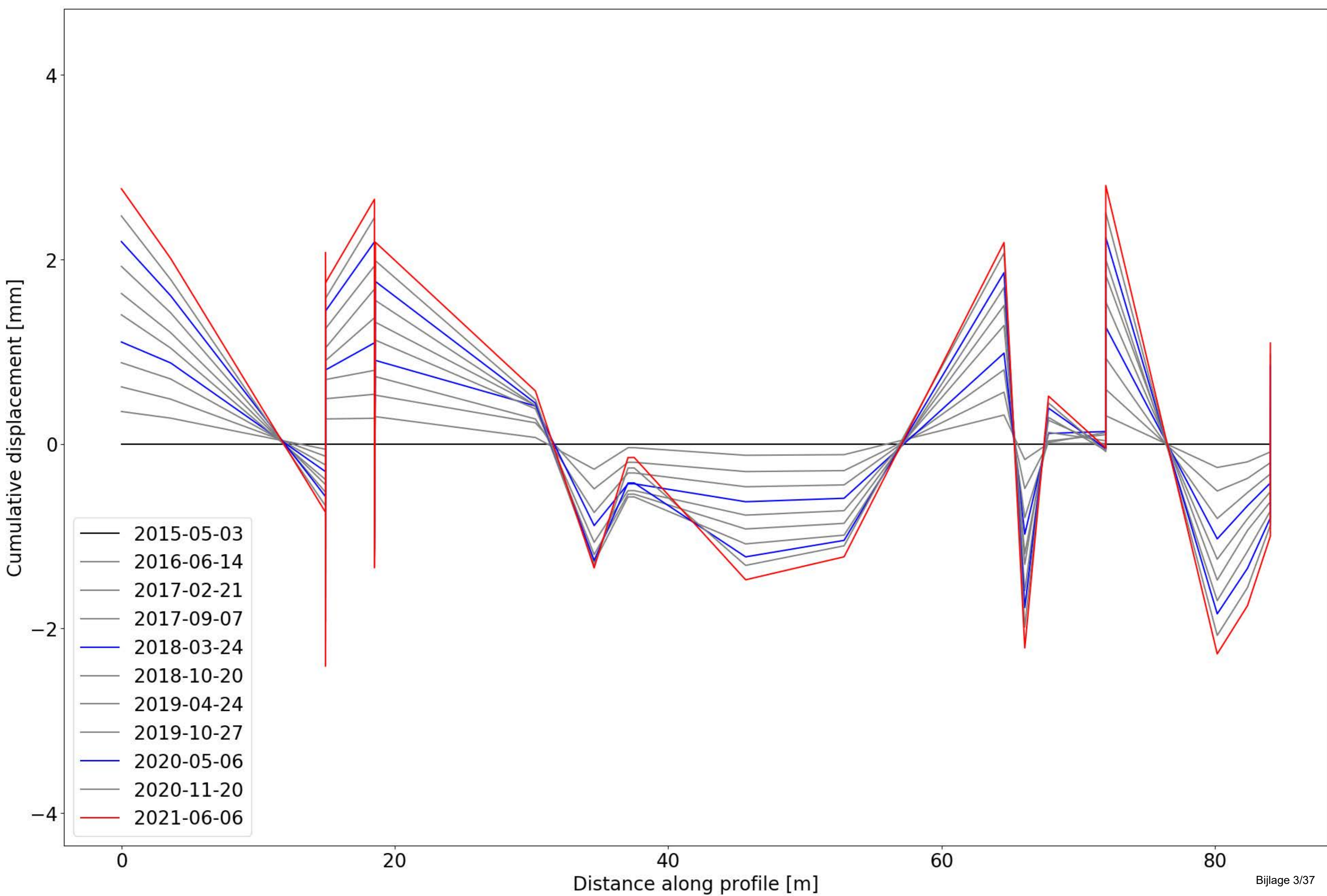
Change detection	Approx. period	Description
Change NE	Since September 2016	Change in amplitude after September 2016

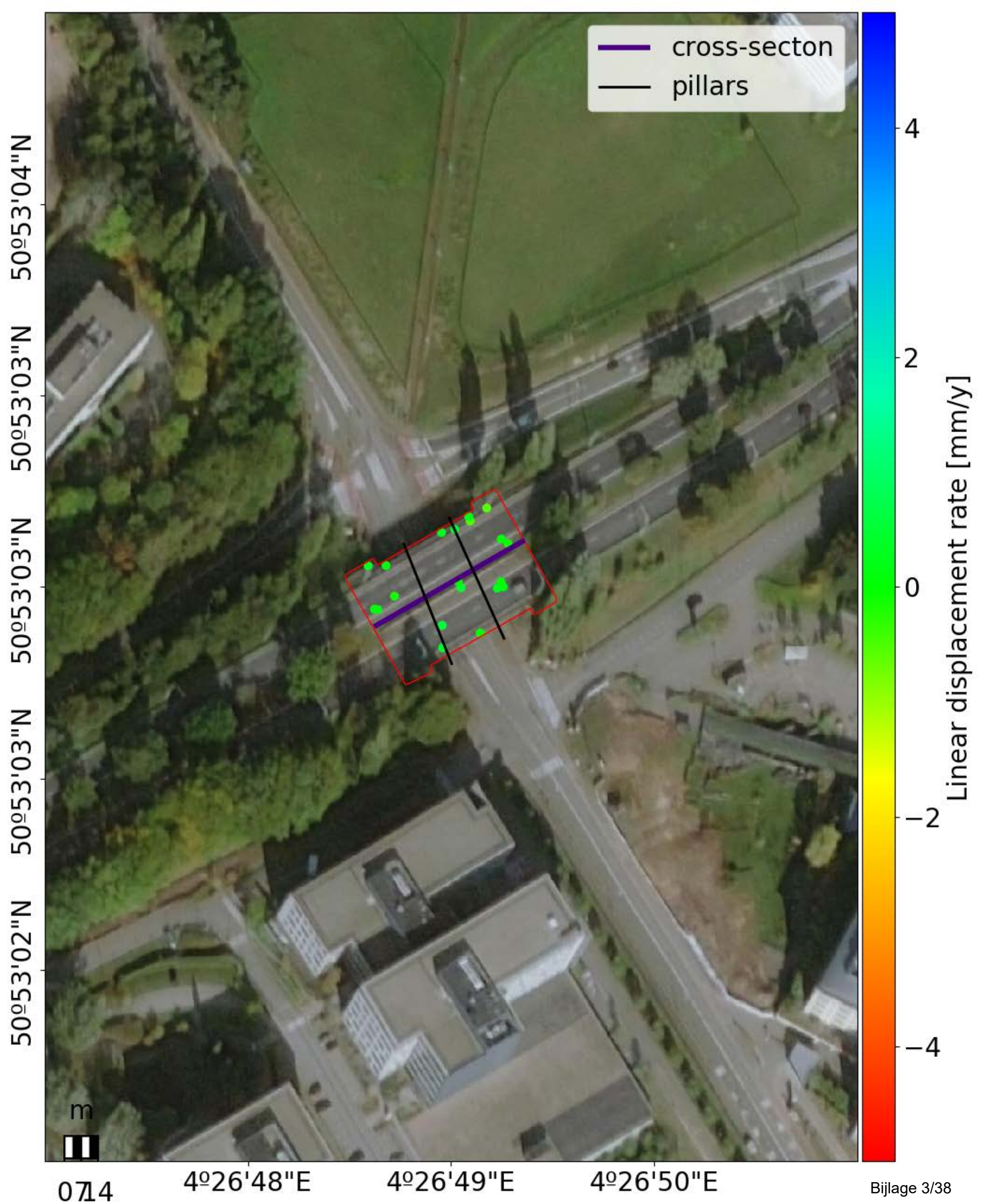
Comments on point density/distribution

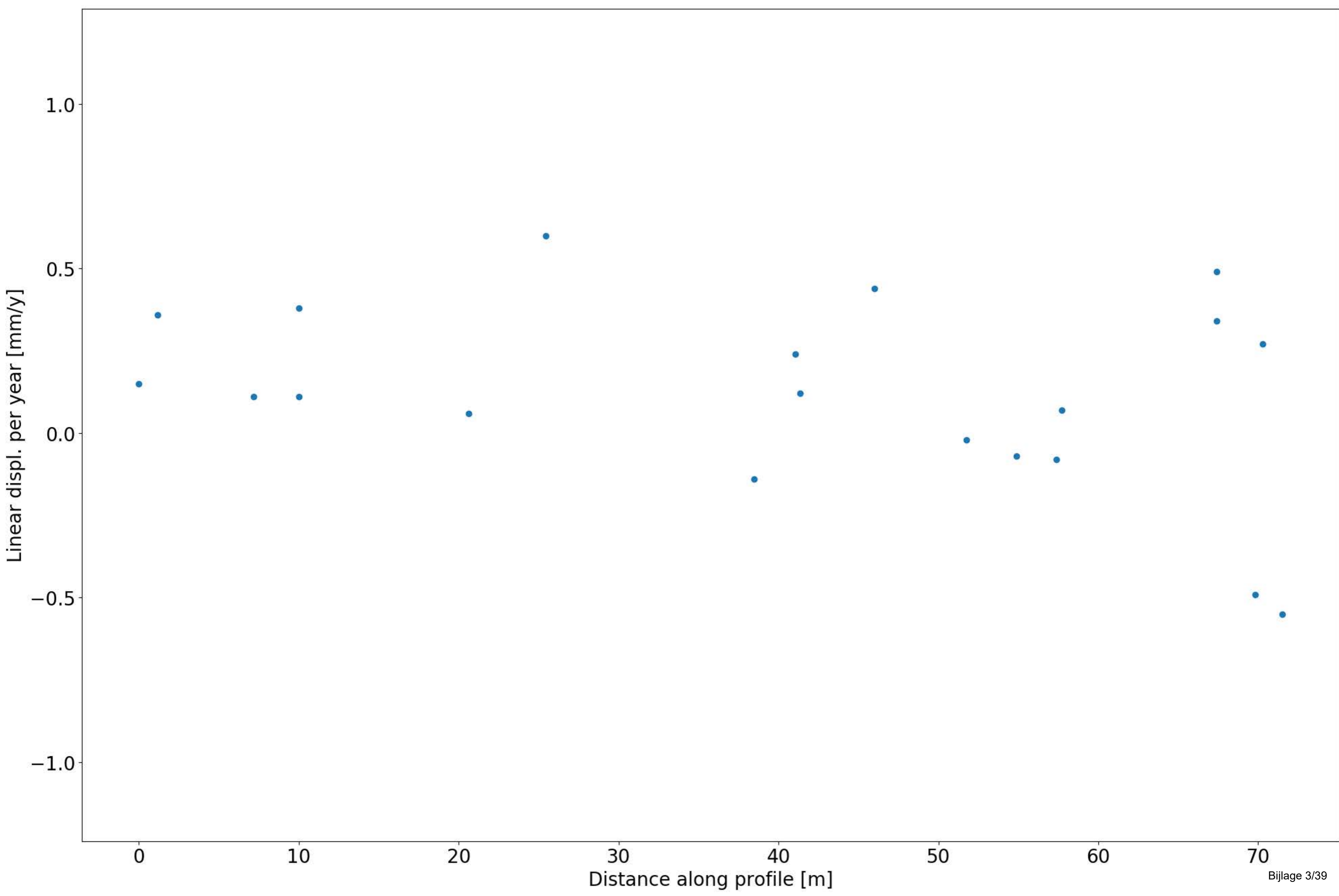
InSAR points along the length of the bridge for all 3 datasets (TSX, S1 asc and S1 dsc), no significant gaps in the data.

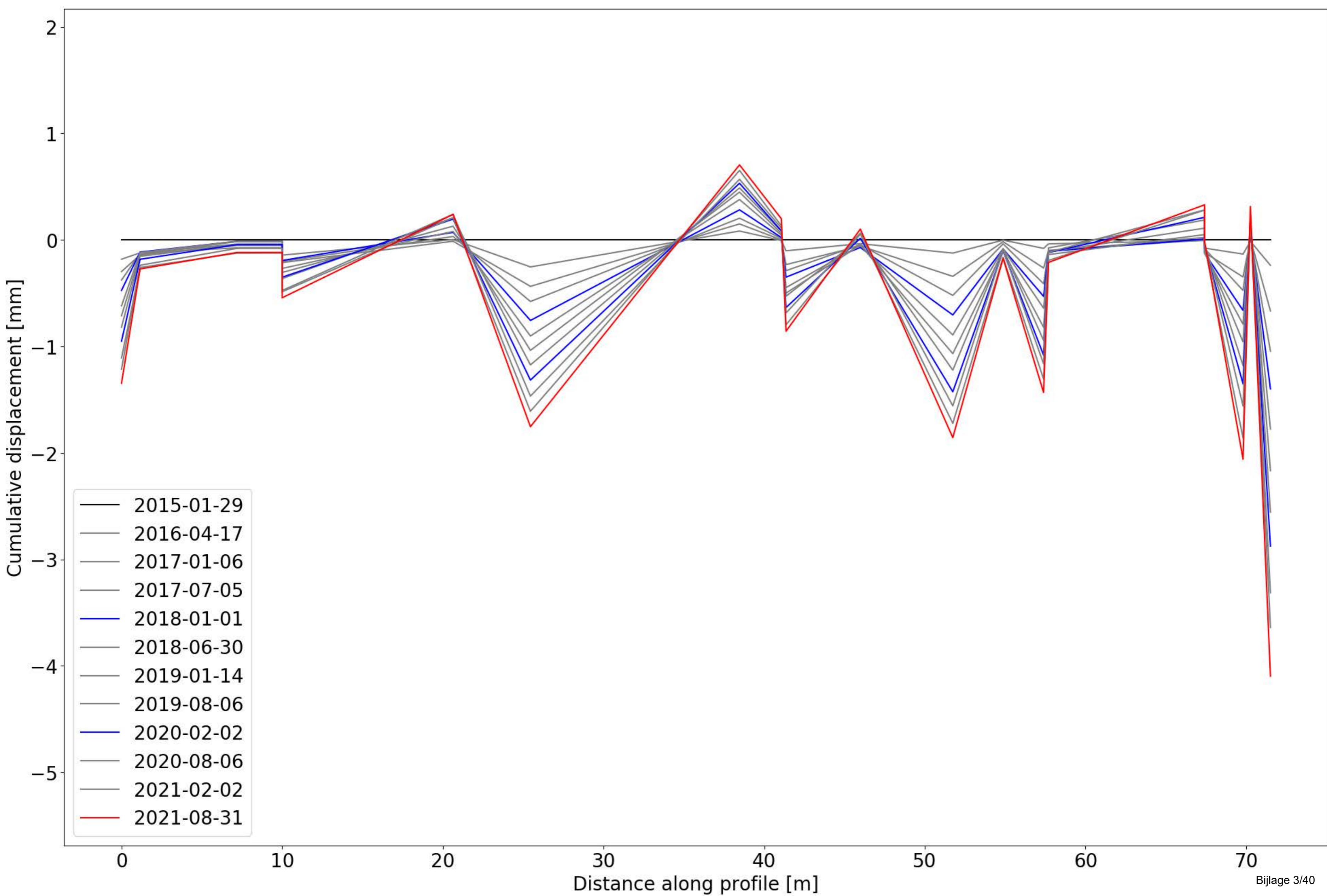


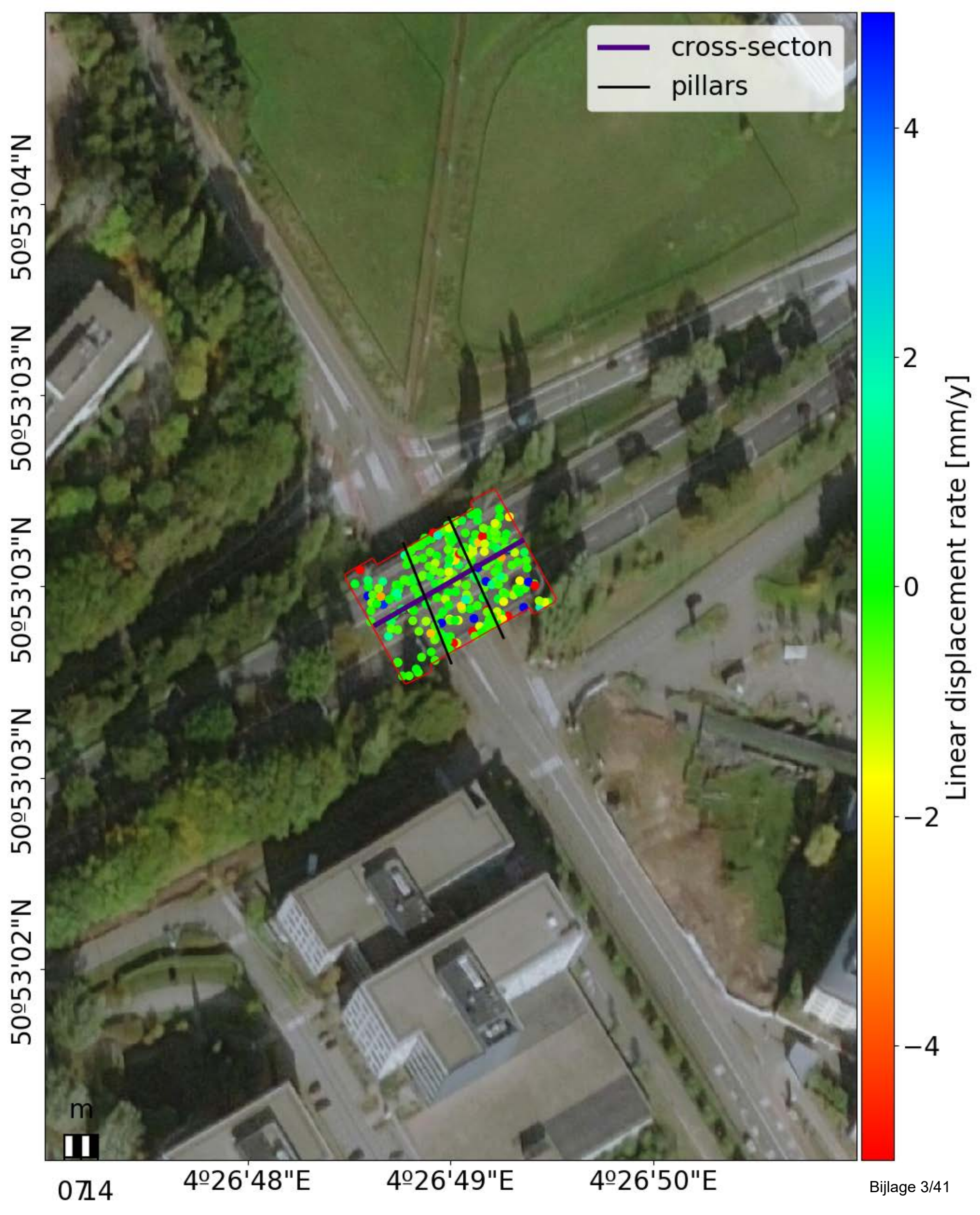


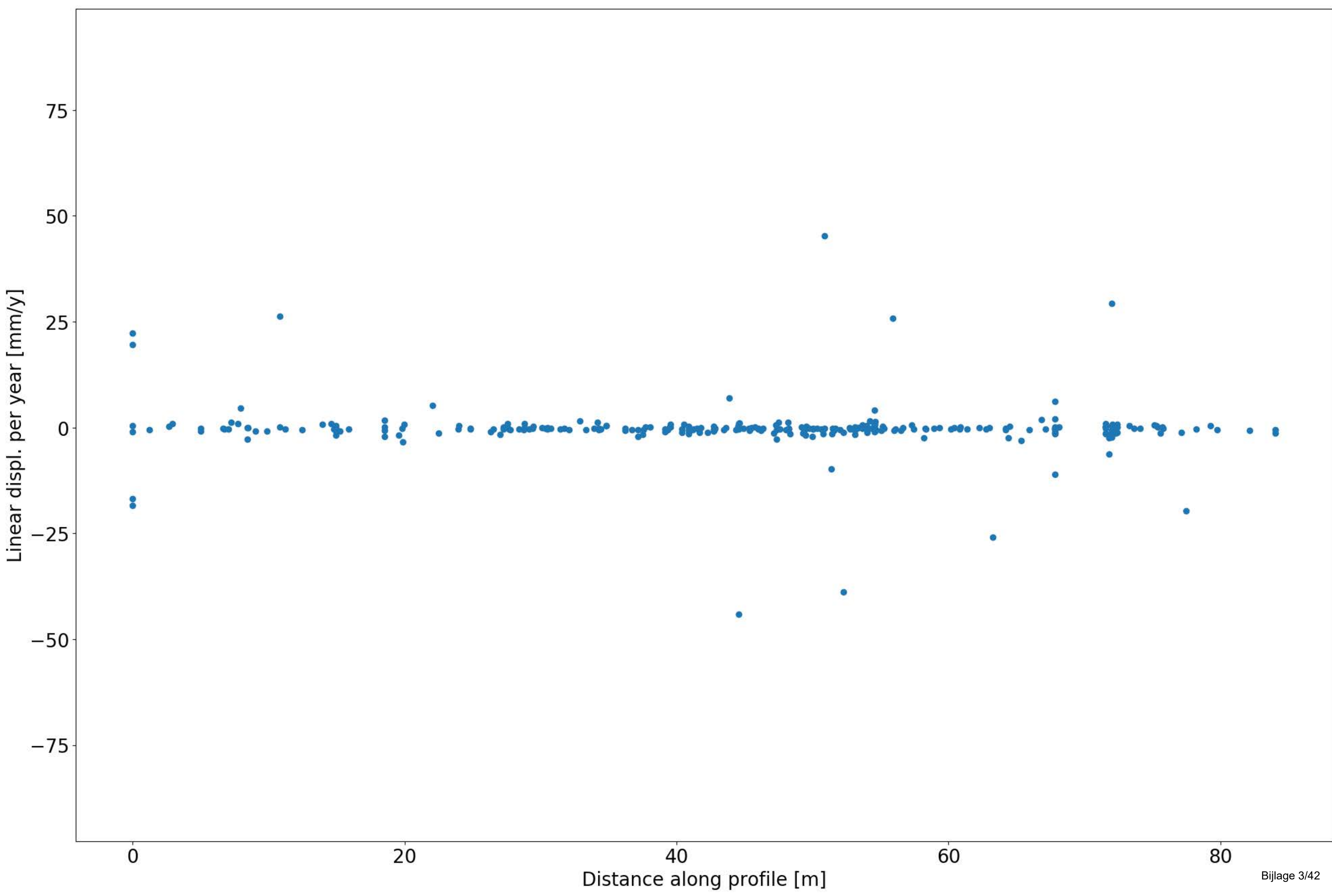


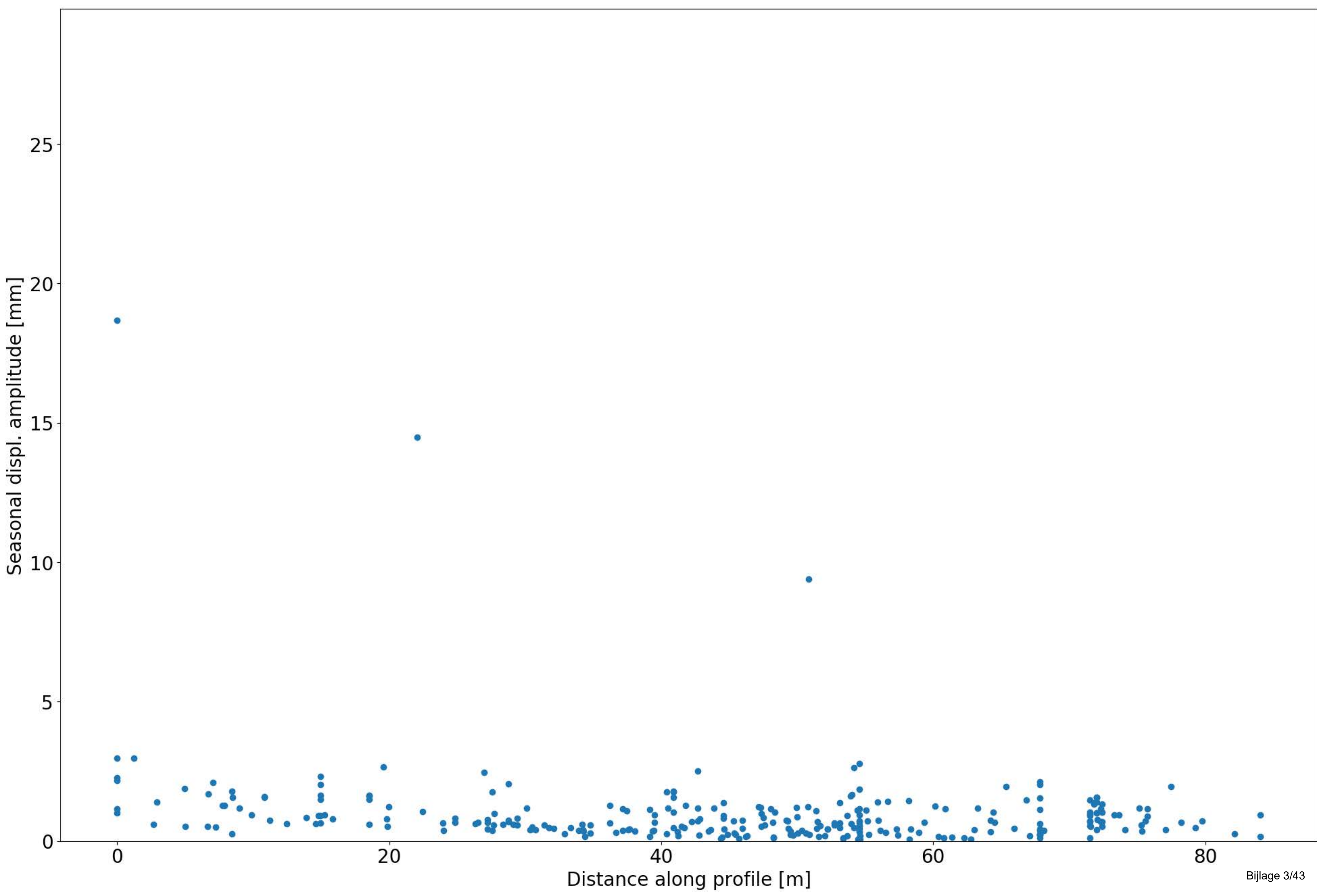


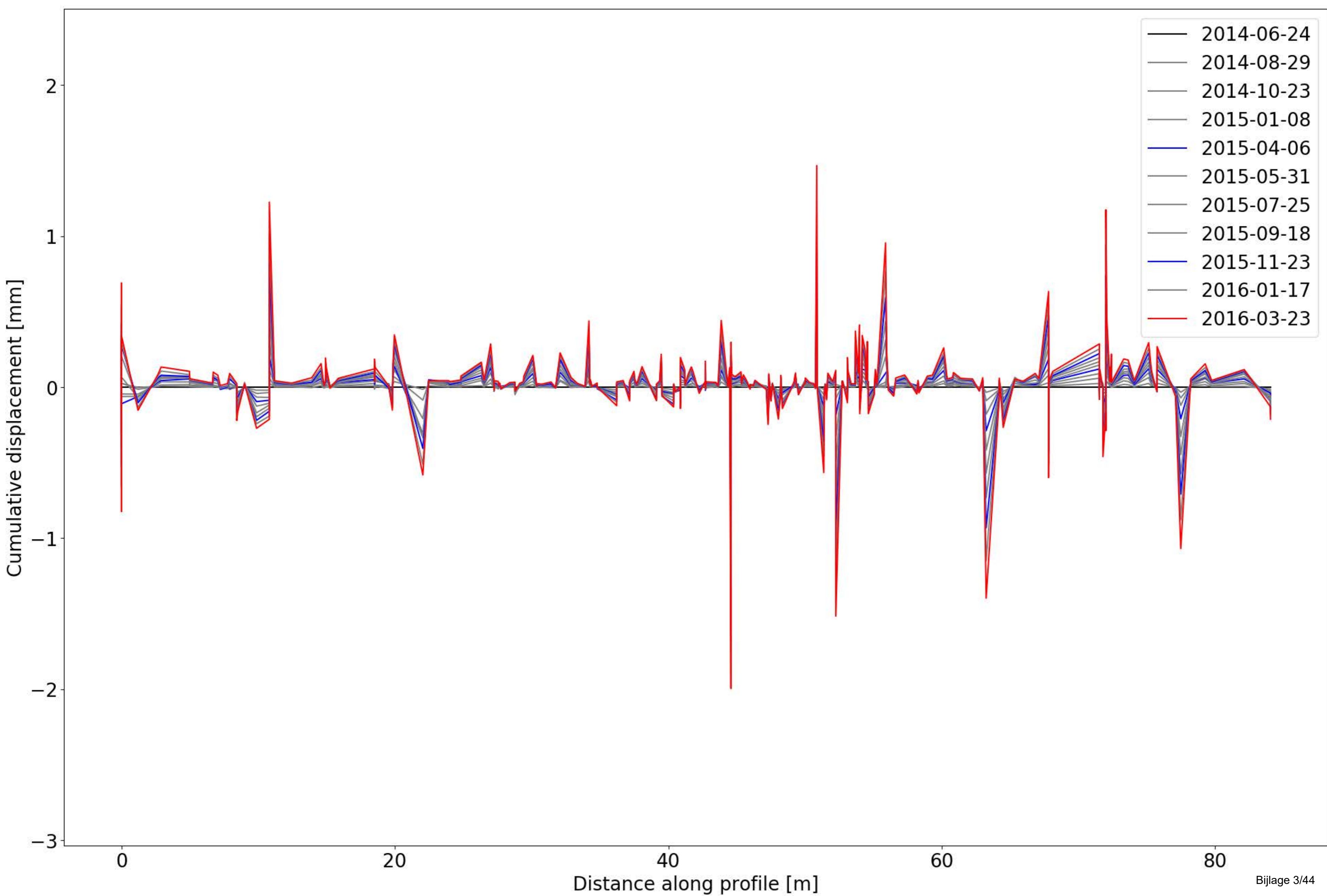




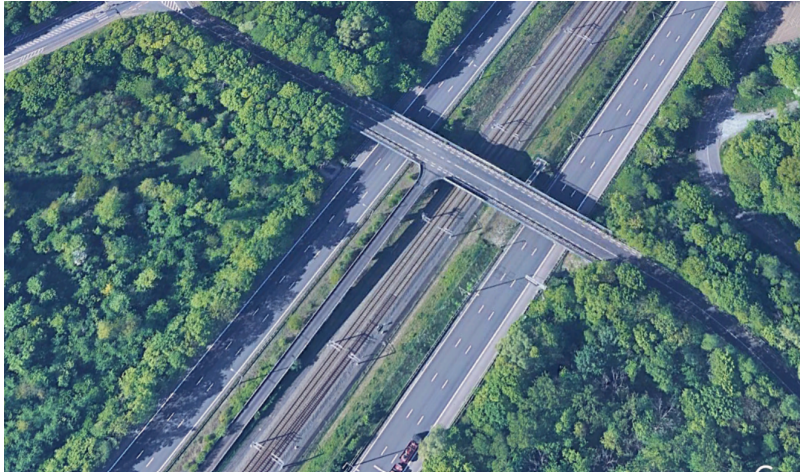








4292 Brug B14



Object Nummer	Name	Long (WGS84)	Lat (WGS84)	Long (Lambert)	Lat (Lambert)	Length [m]	Width [m]	Material	Description	Information
4292	Brug B14	50.92411684	4.465297194	156787.98999	179316.10999	89	13	-	(5) bulge (nZ)	no maintenance works

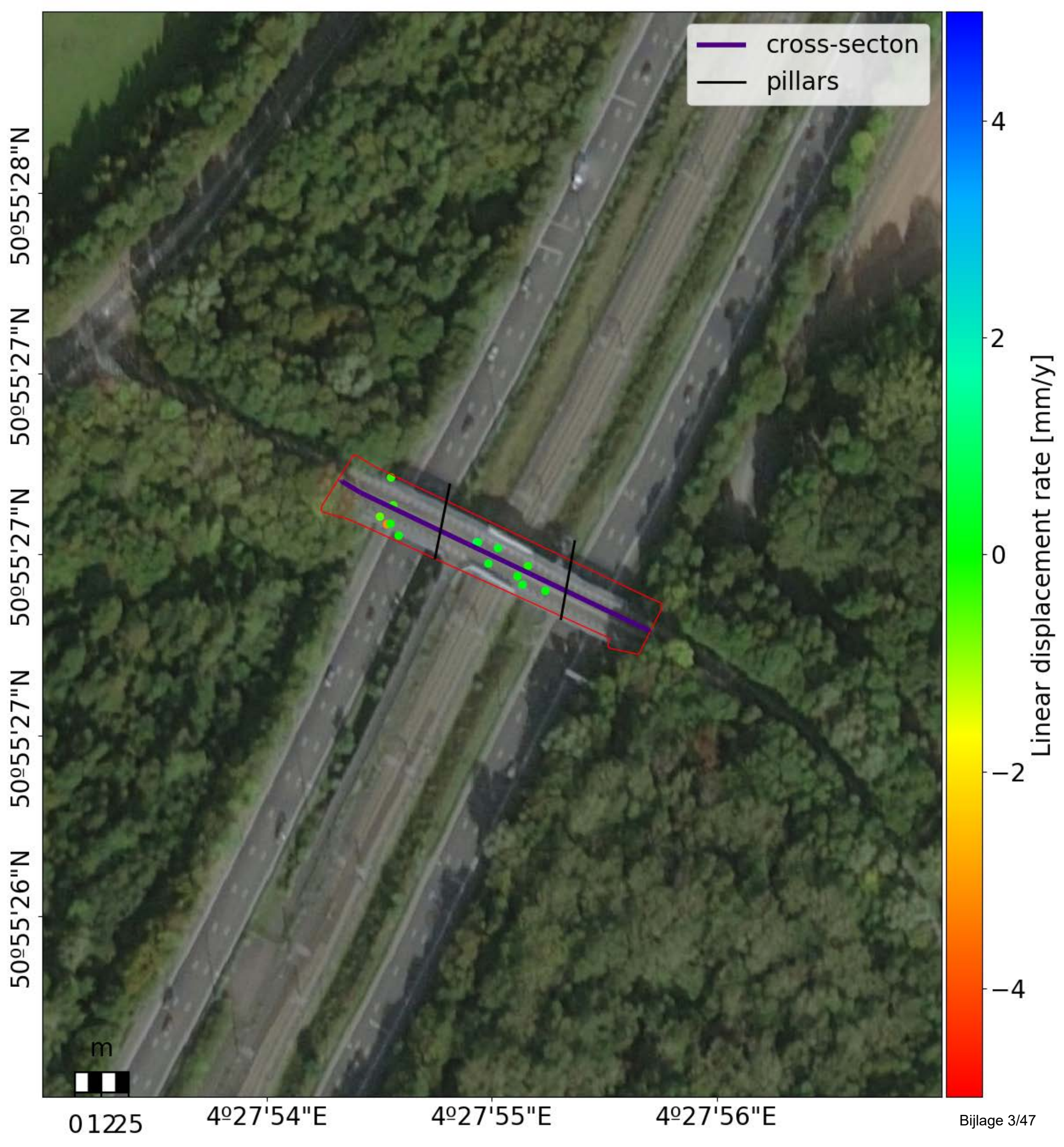
Change Detection

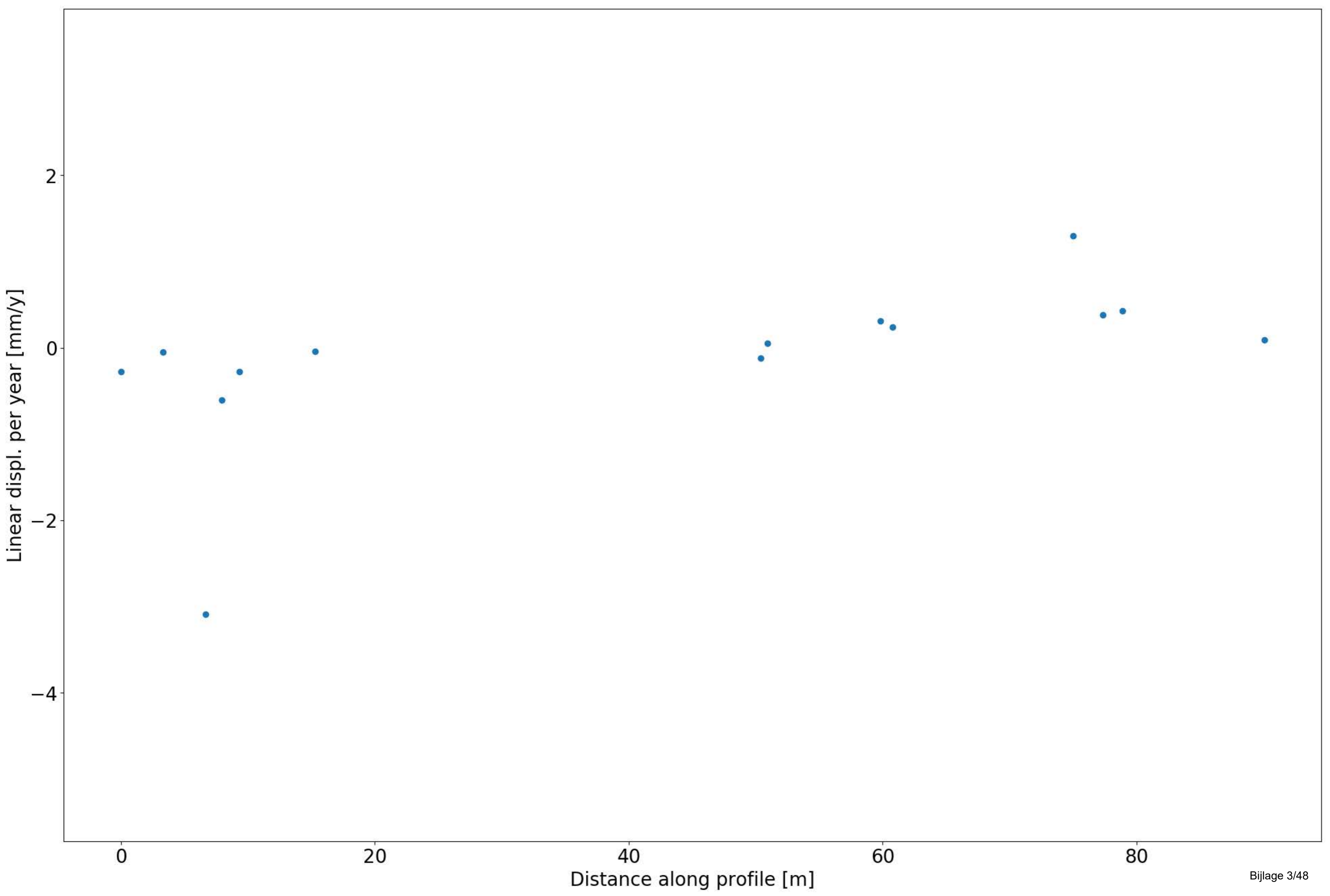
Change detection	Approx. period	Description
Change E	February 2019	Increase in displacement rate around February 2019
Change E	October 2020	Change in amplitude after October 2020

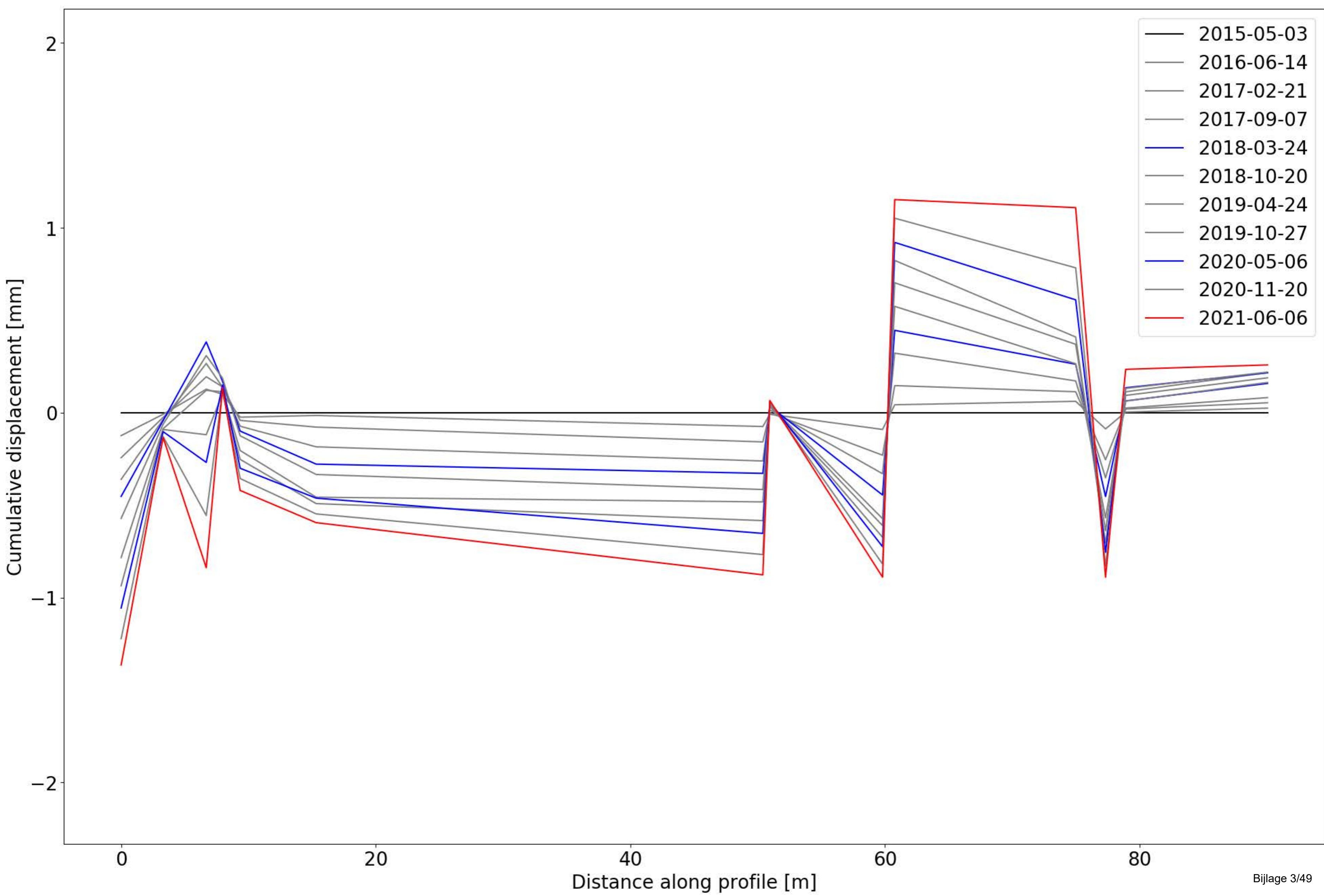
Comments on point density/distribution

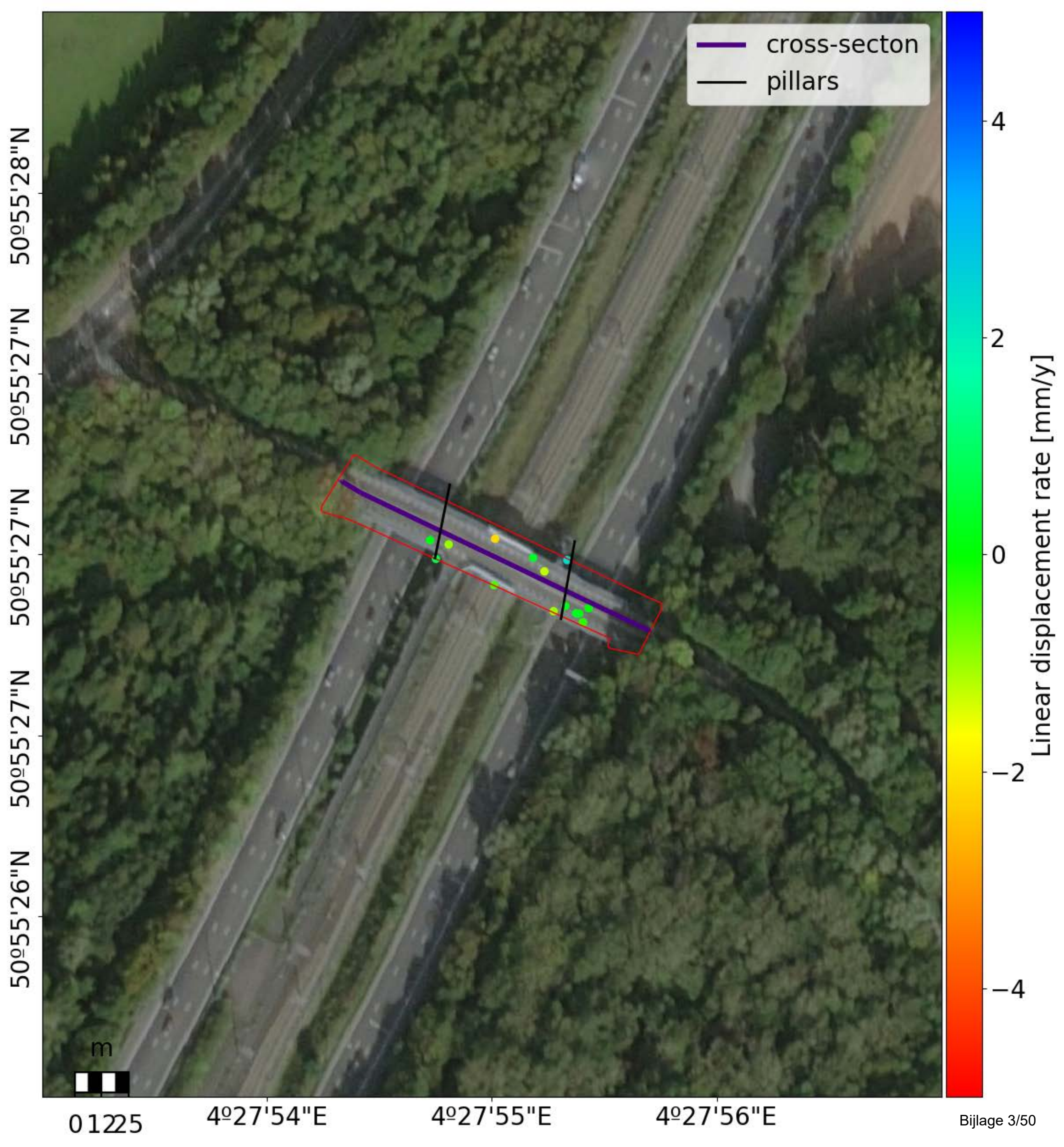
The TSX data has InSAR points along the full length of the bridge, no significant gaps in the data. On the ramp there is a lack of points for S1 at the top of the ramp where it meets the

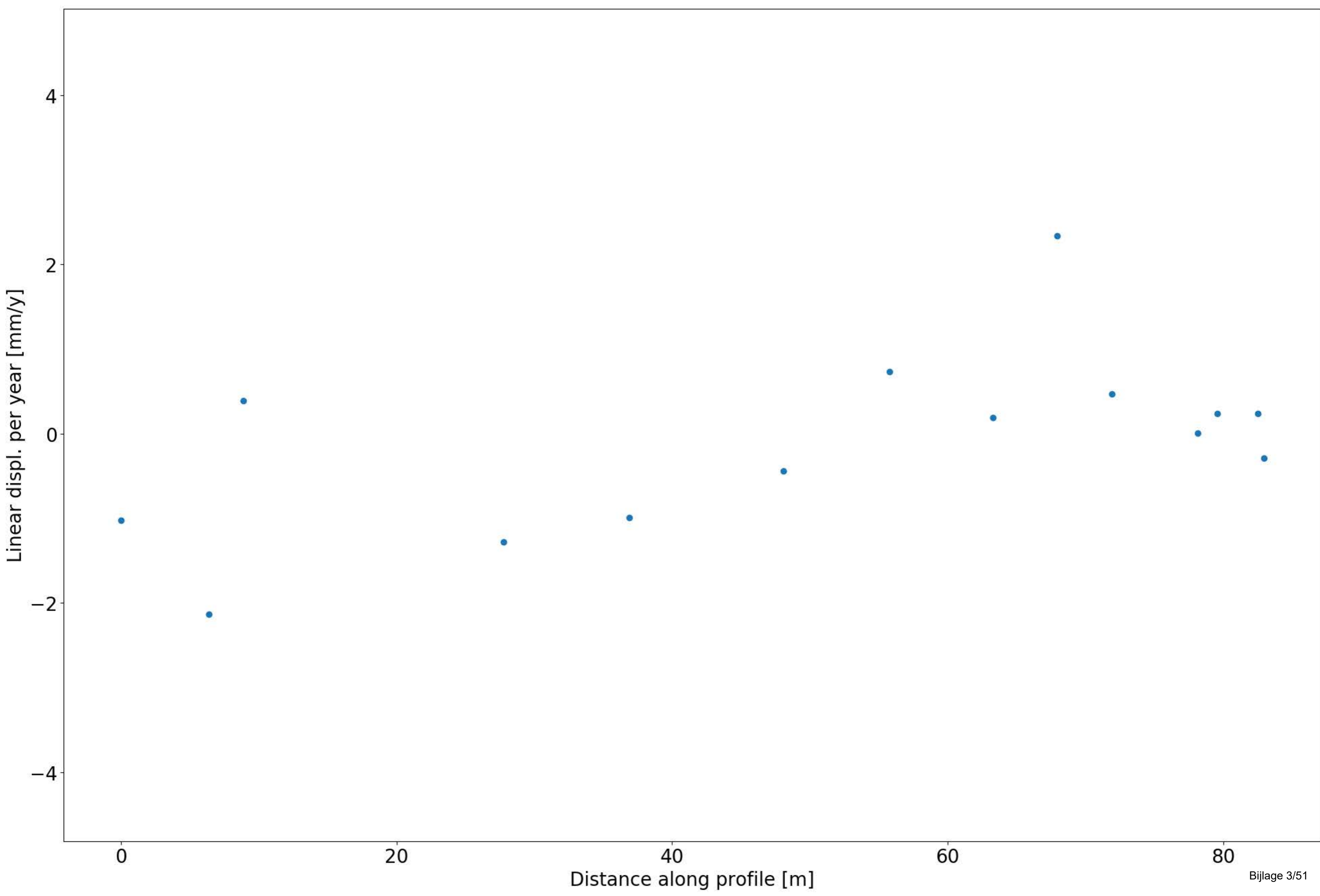
bridge and for S1 asc on the eastern end and S1 dsc on the western end. This could be due to the bridge geometry and would need further investigation.

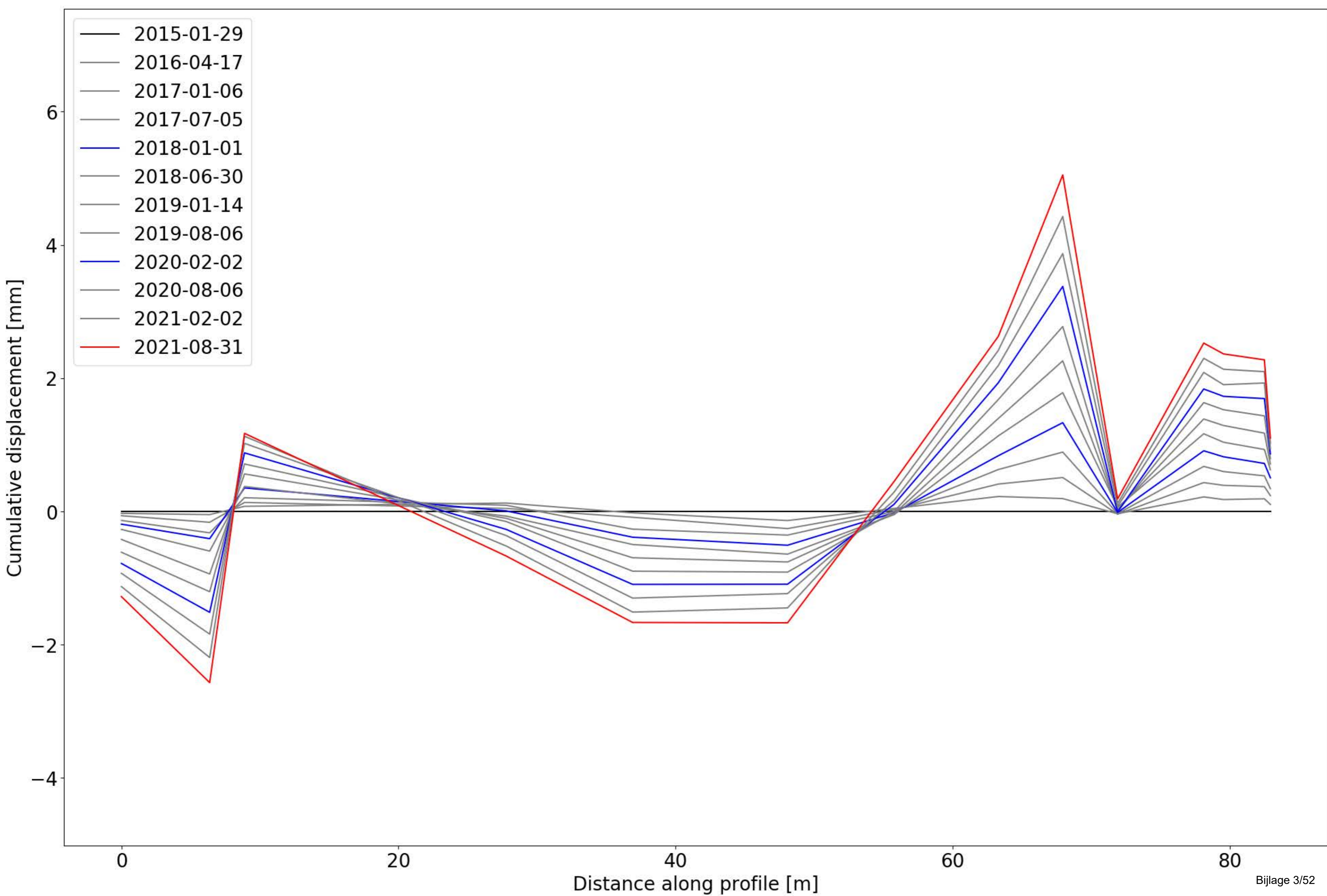


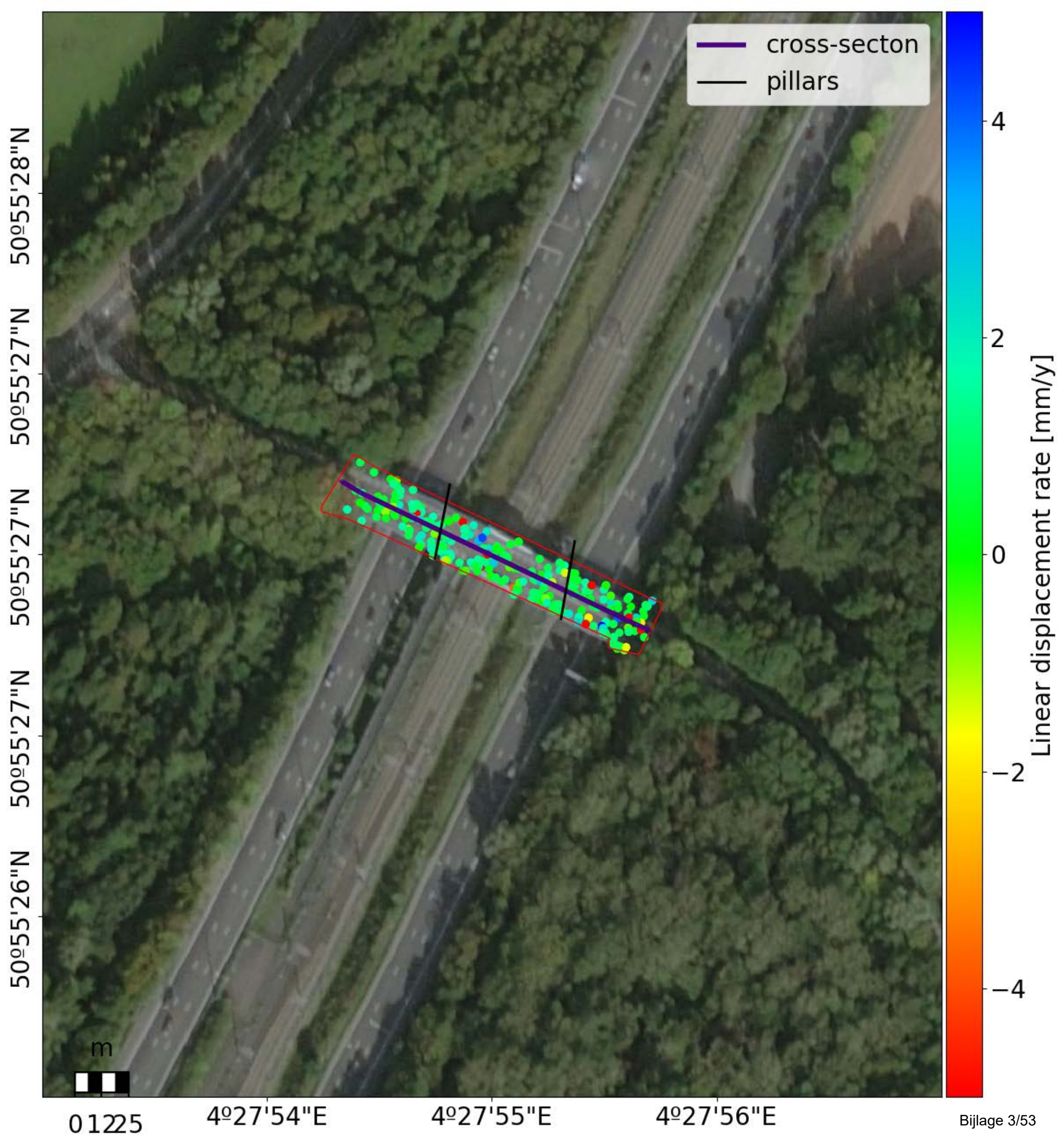


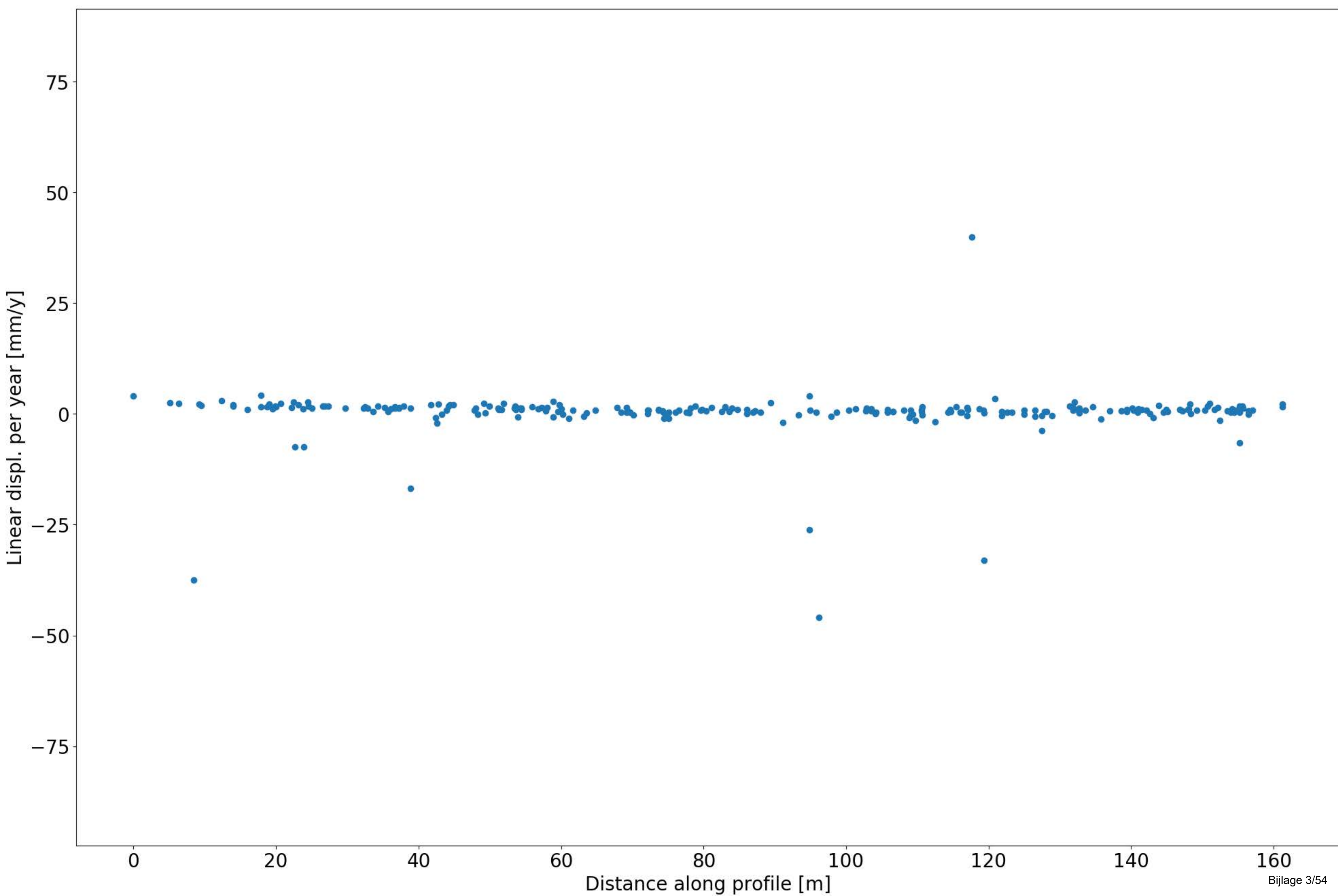


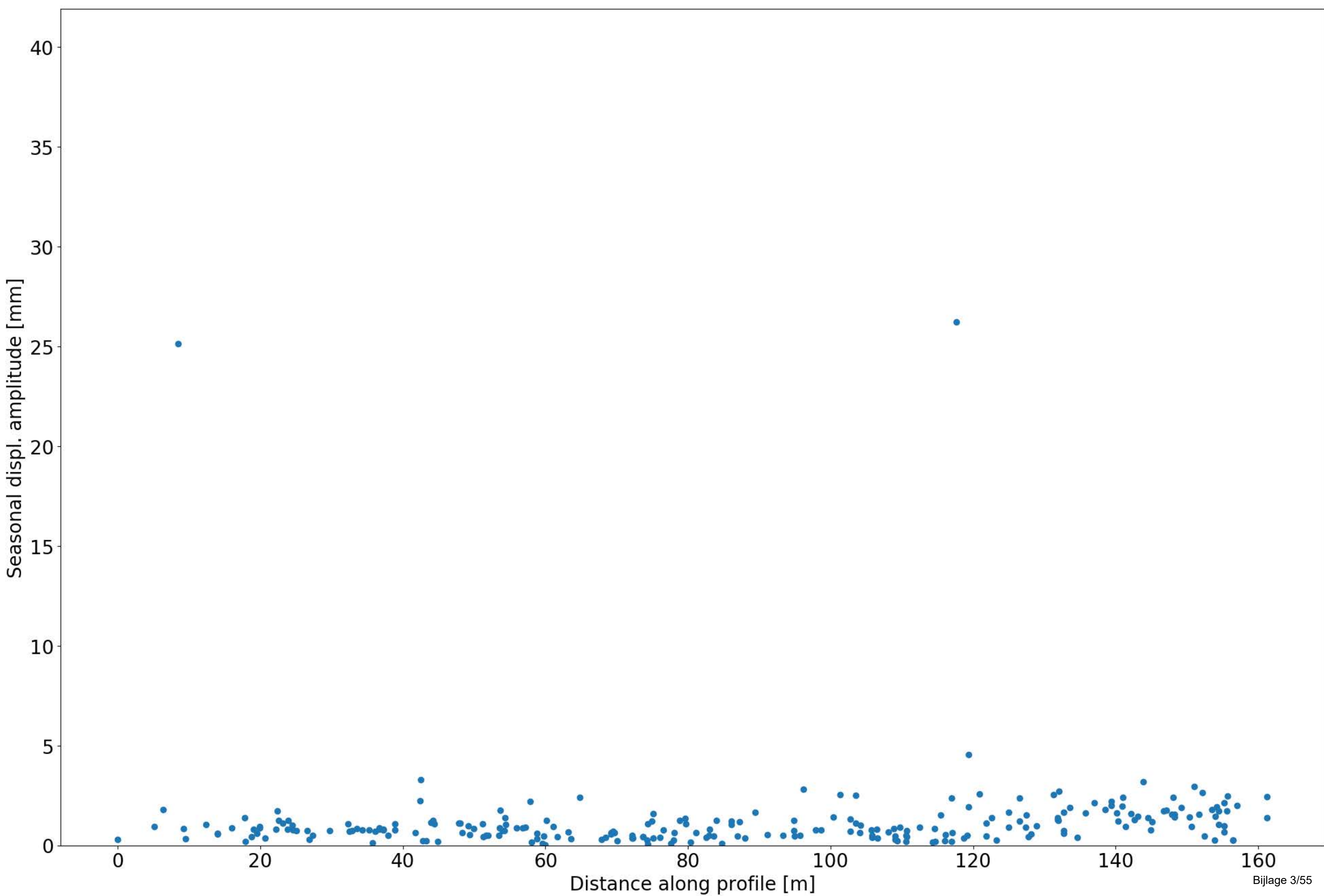


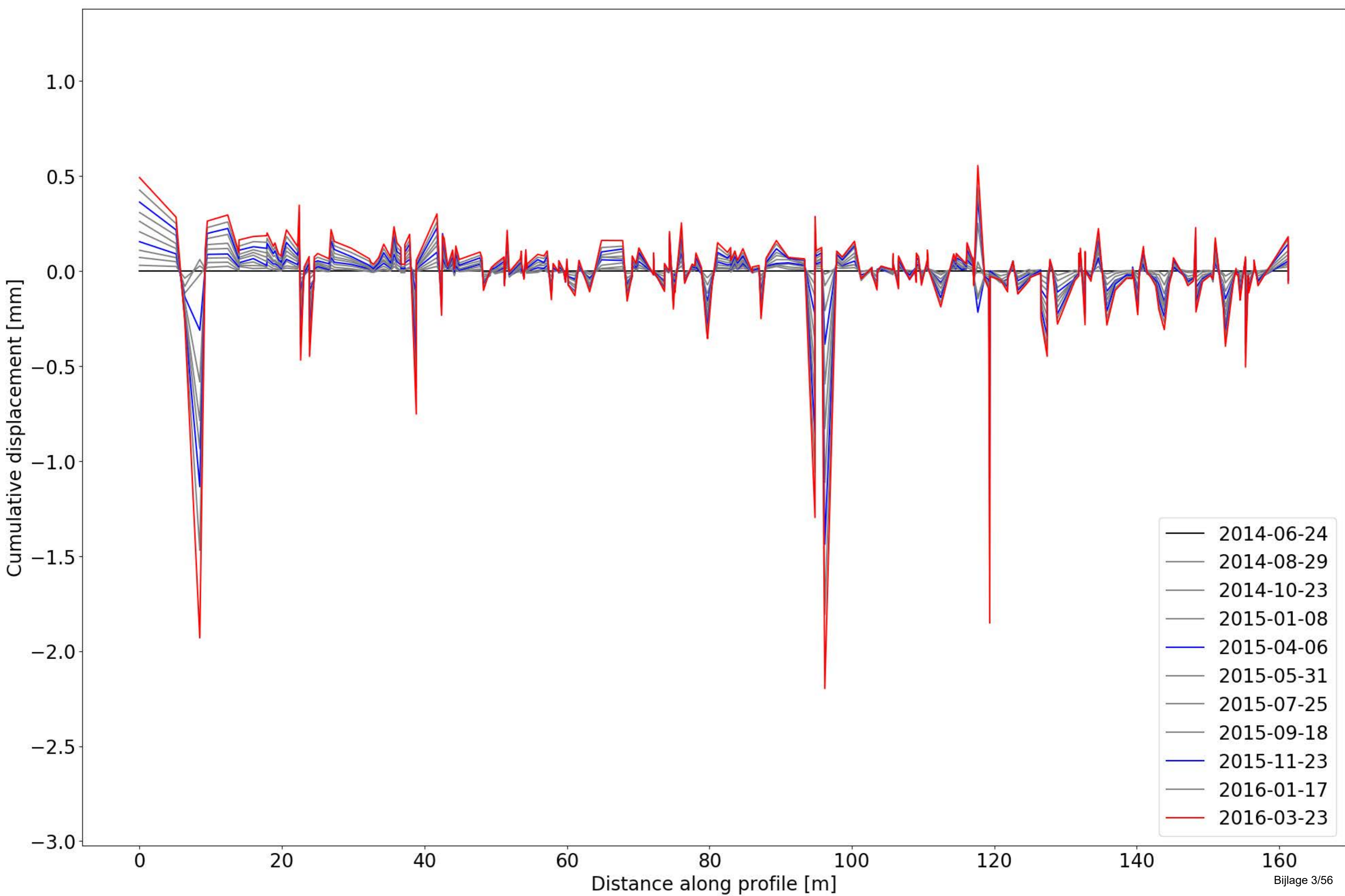


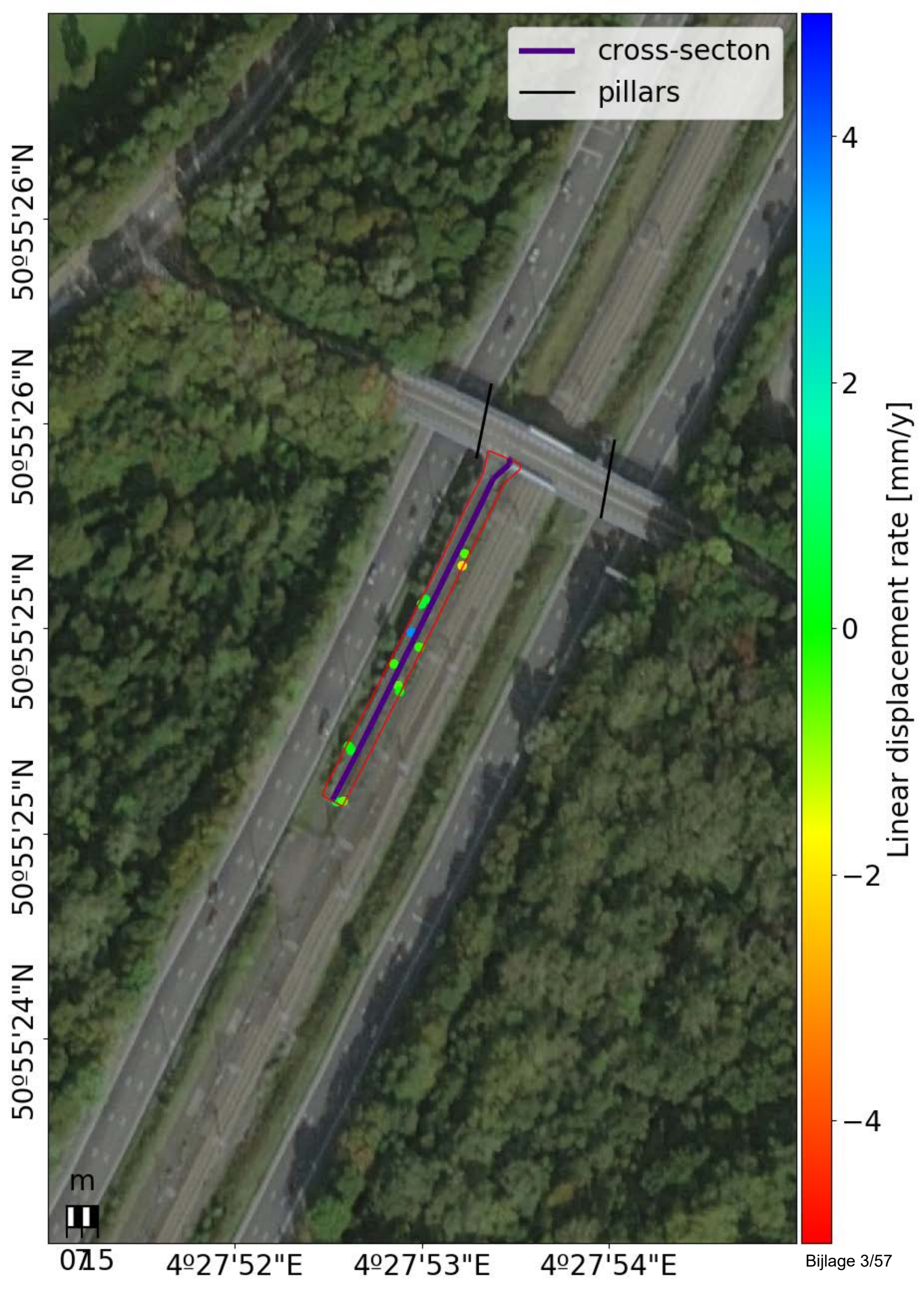


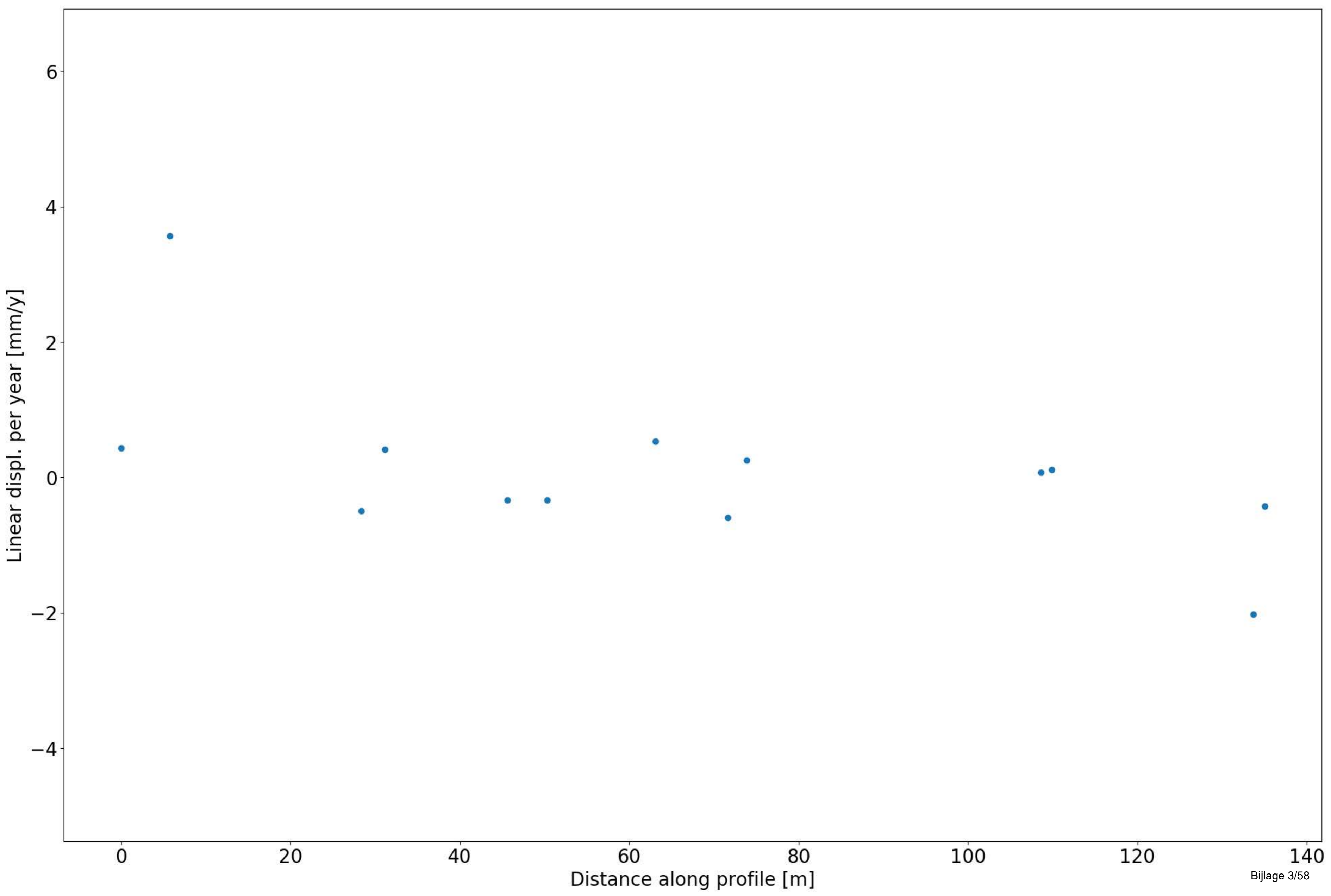


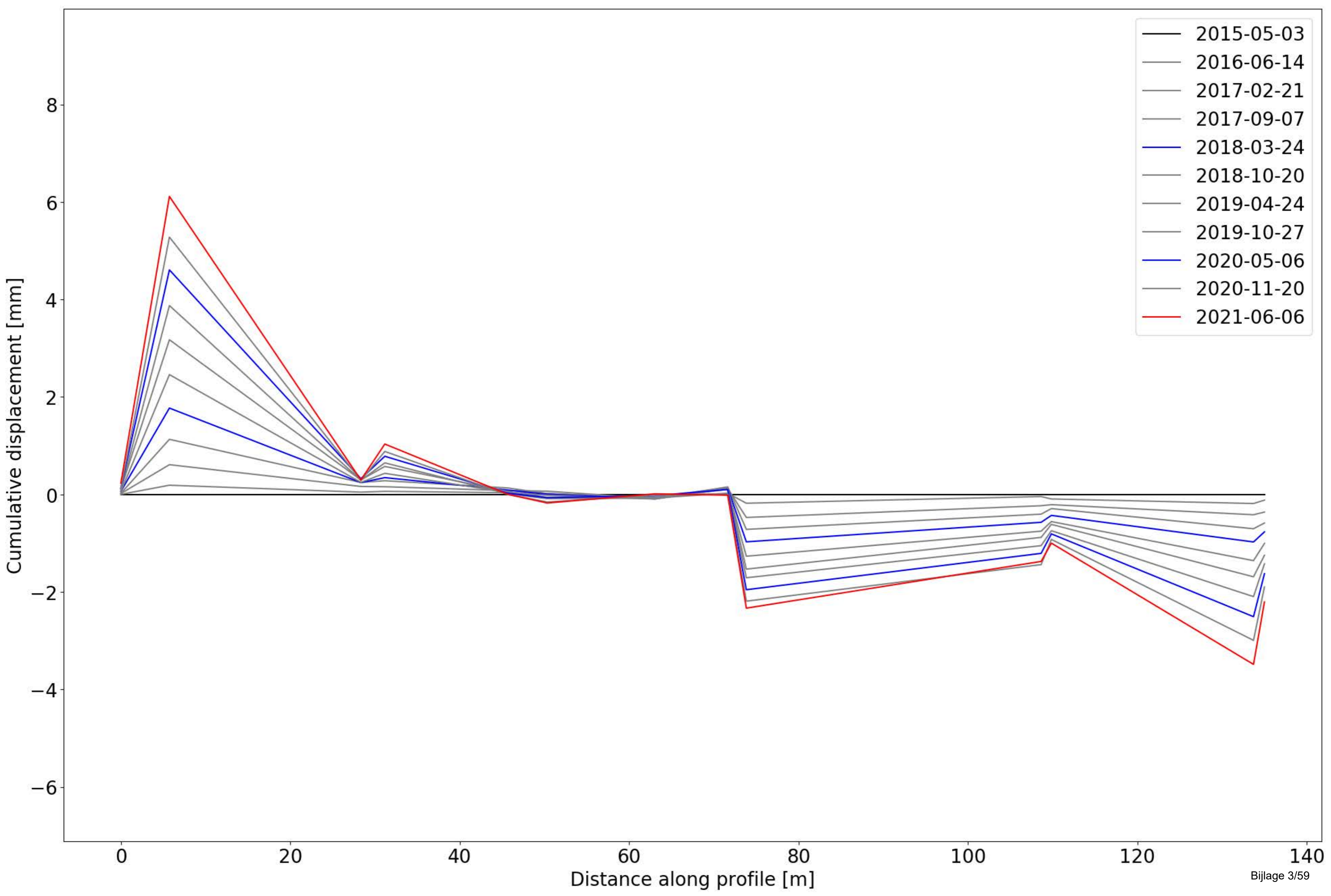


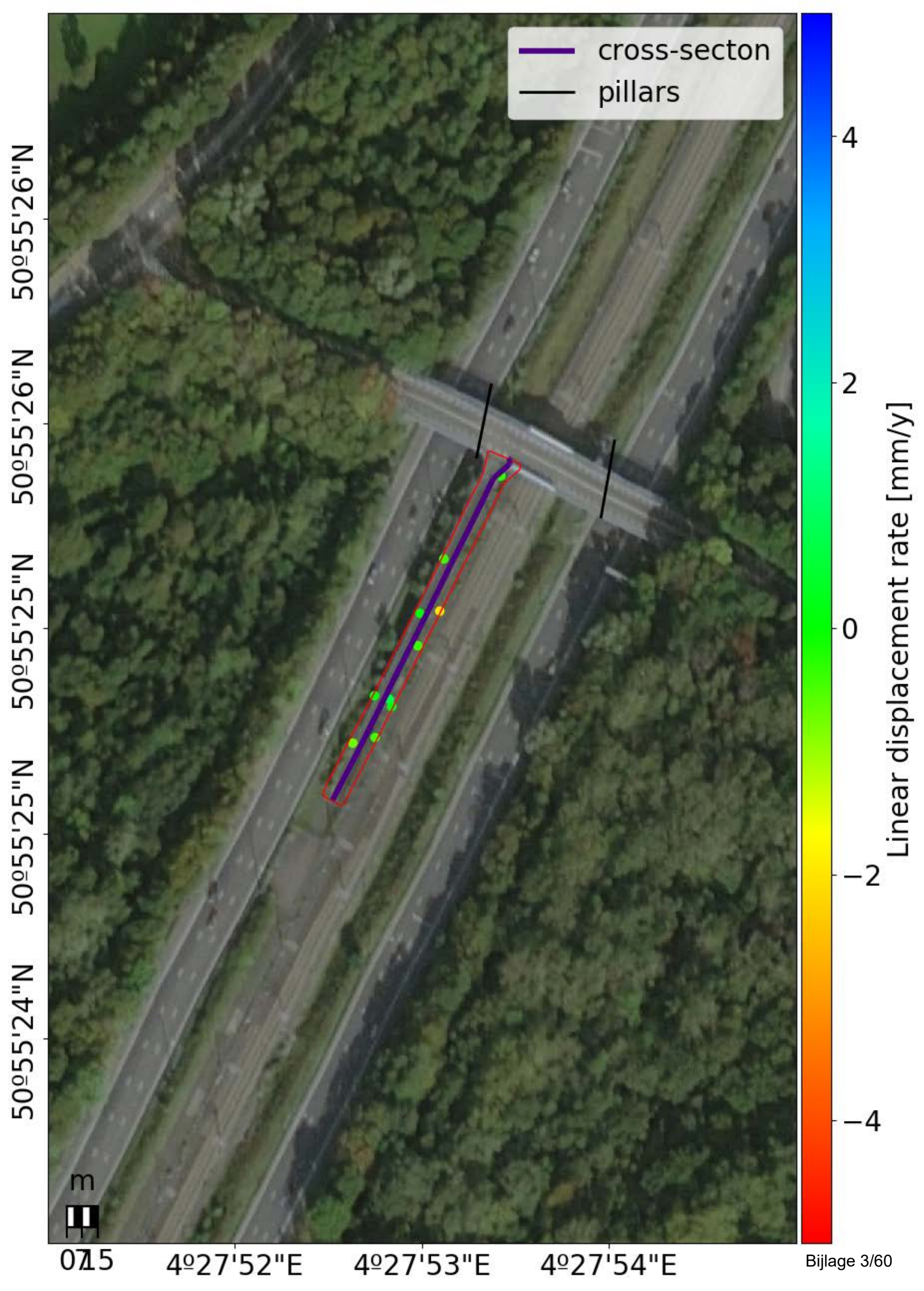


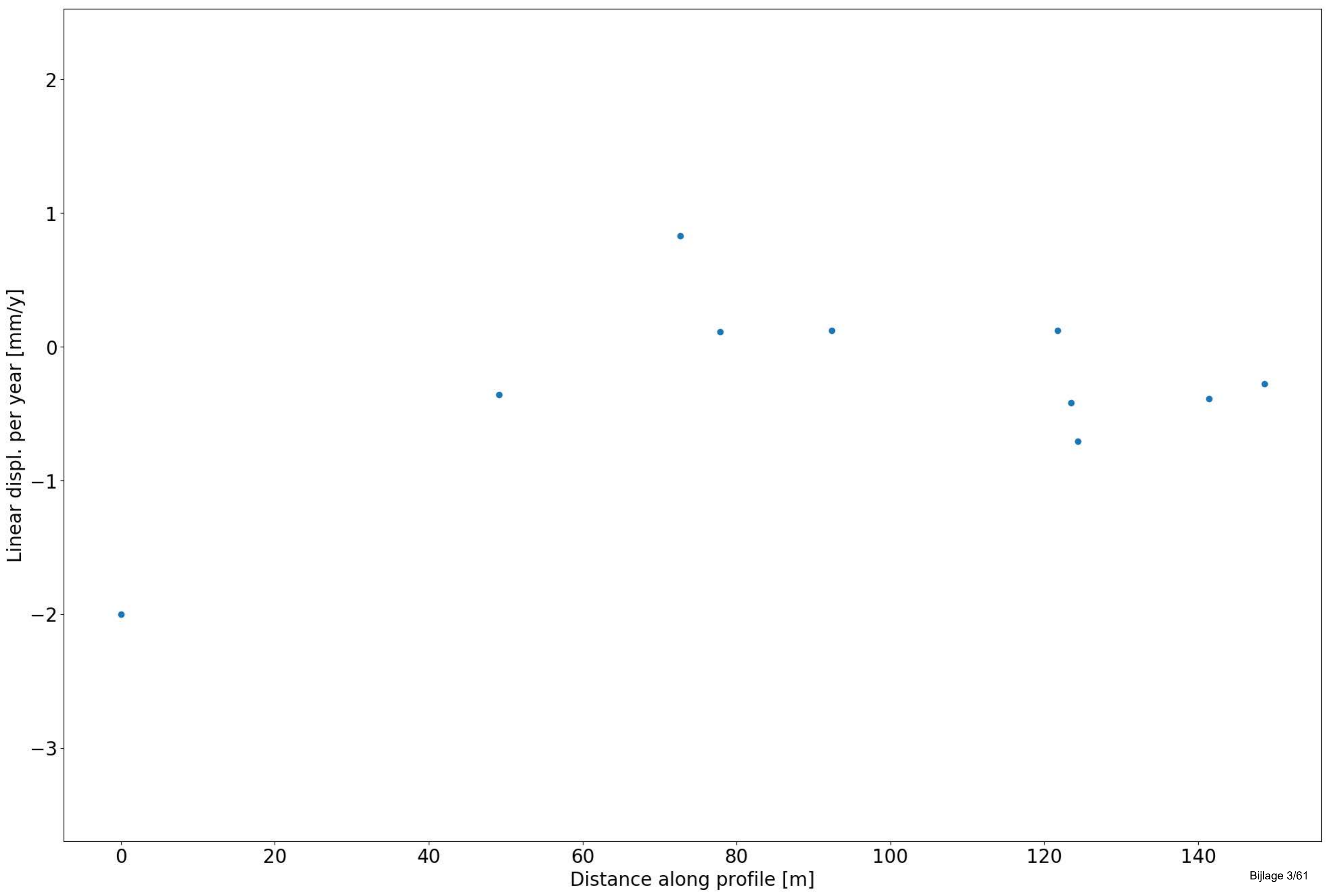


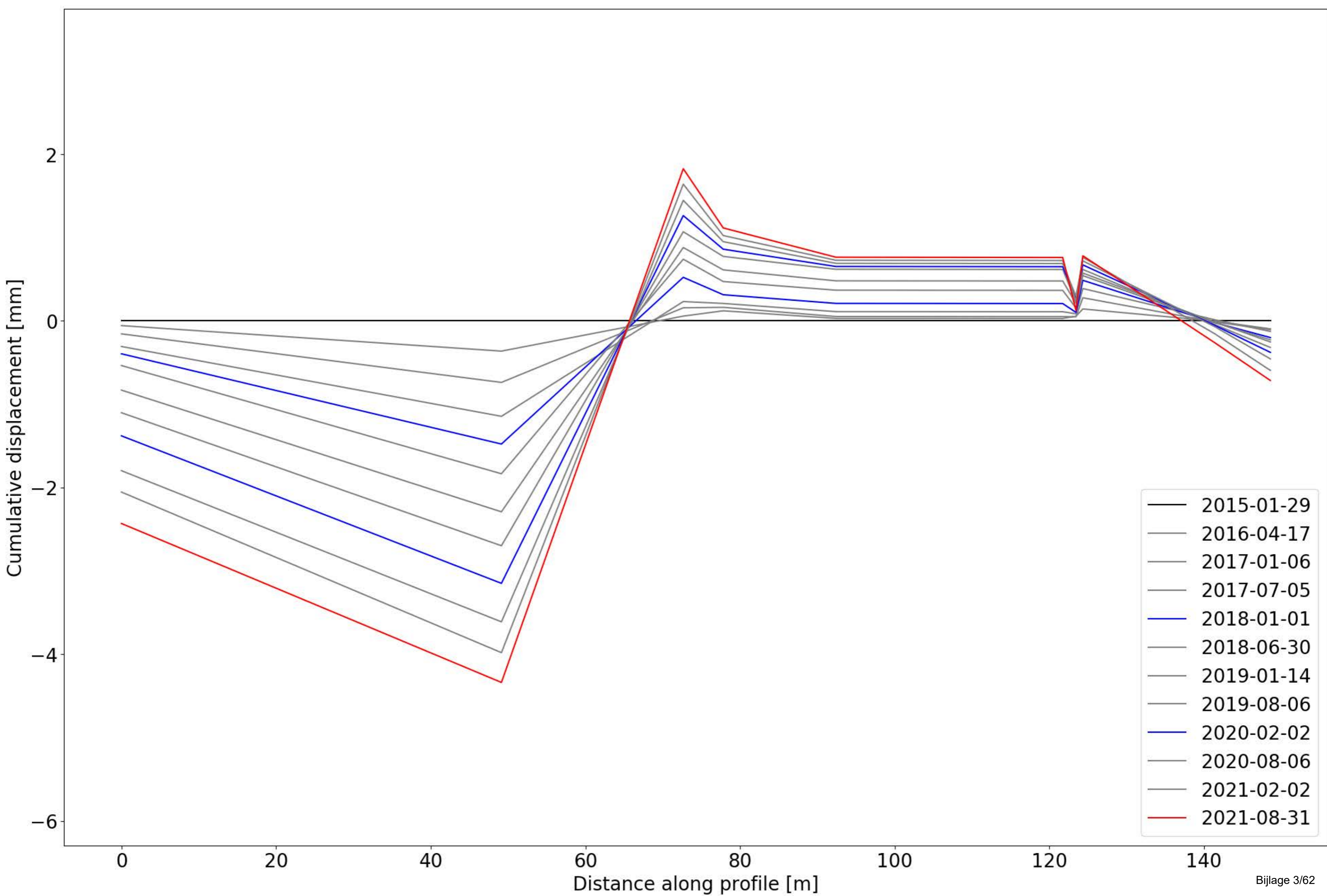


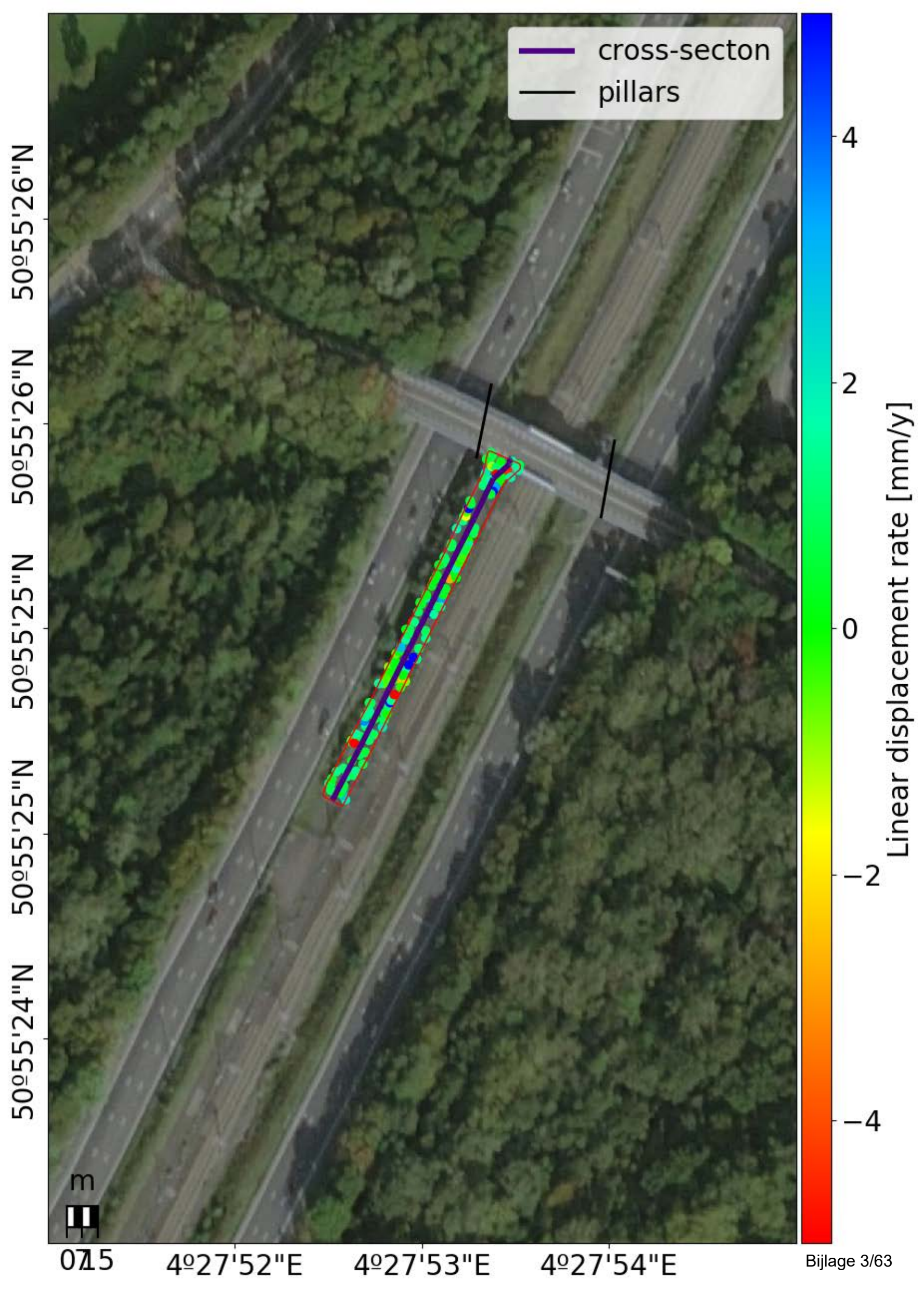


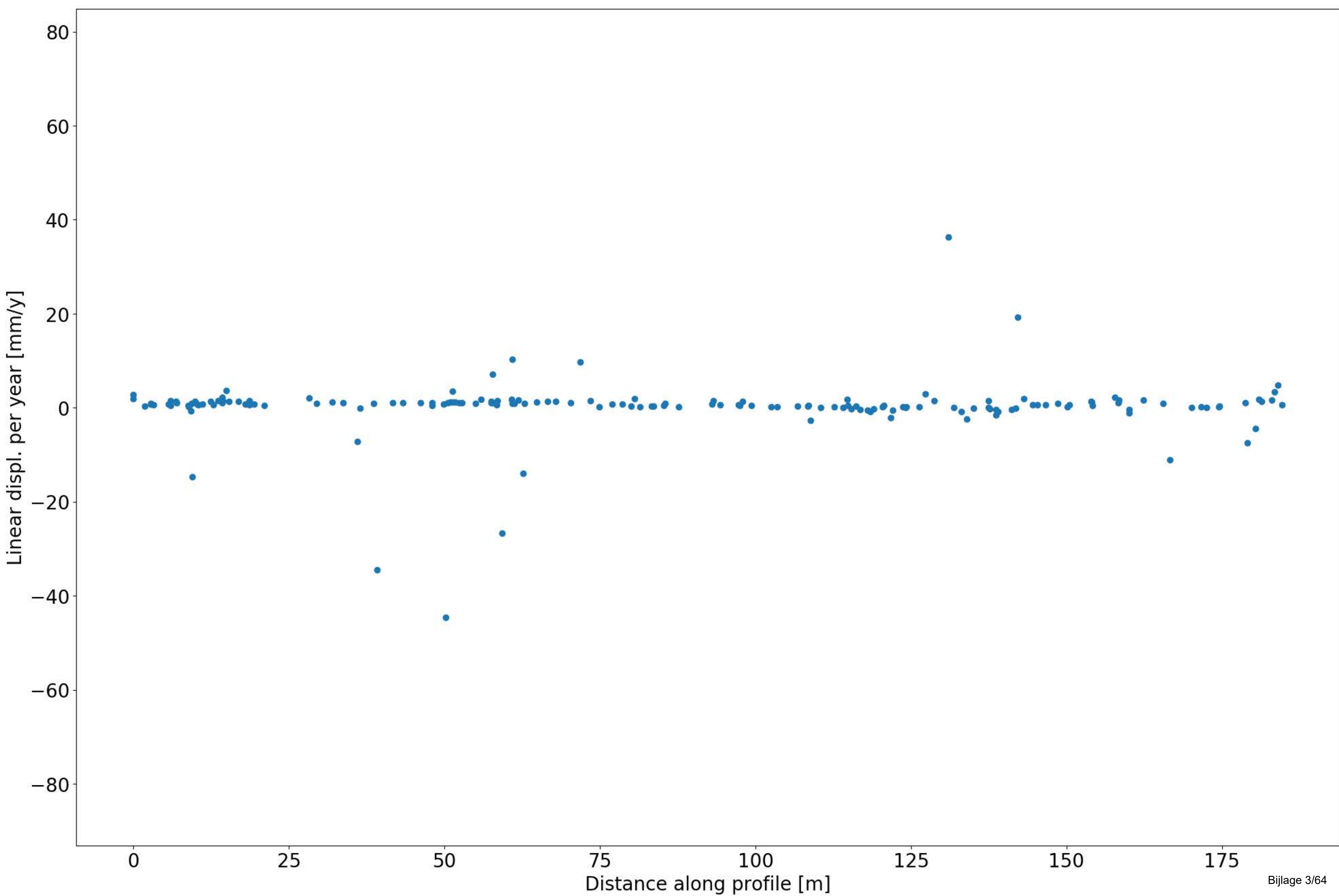


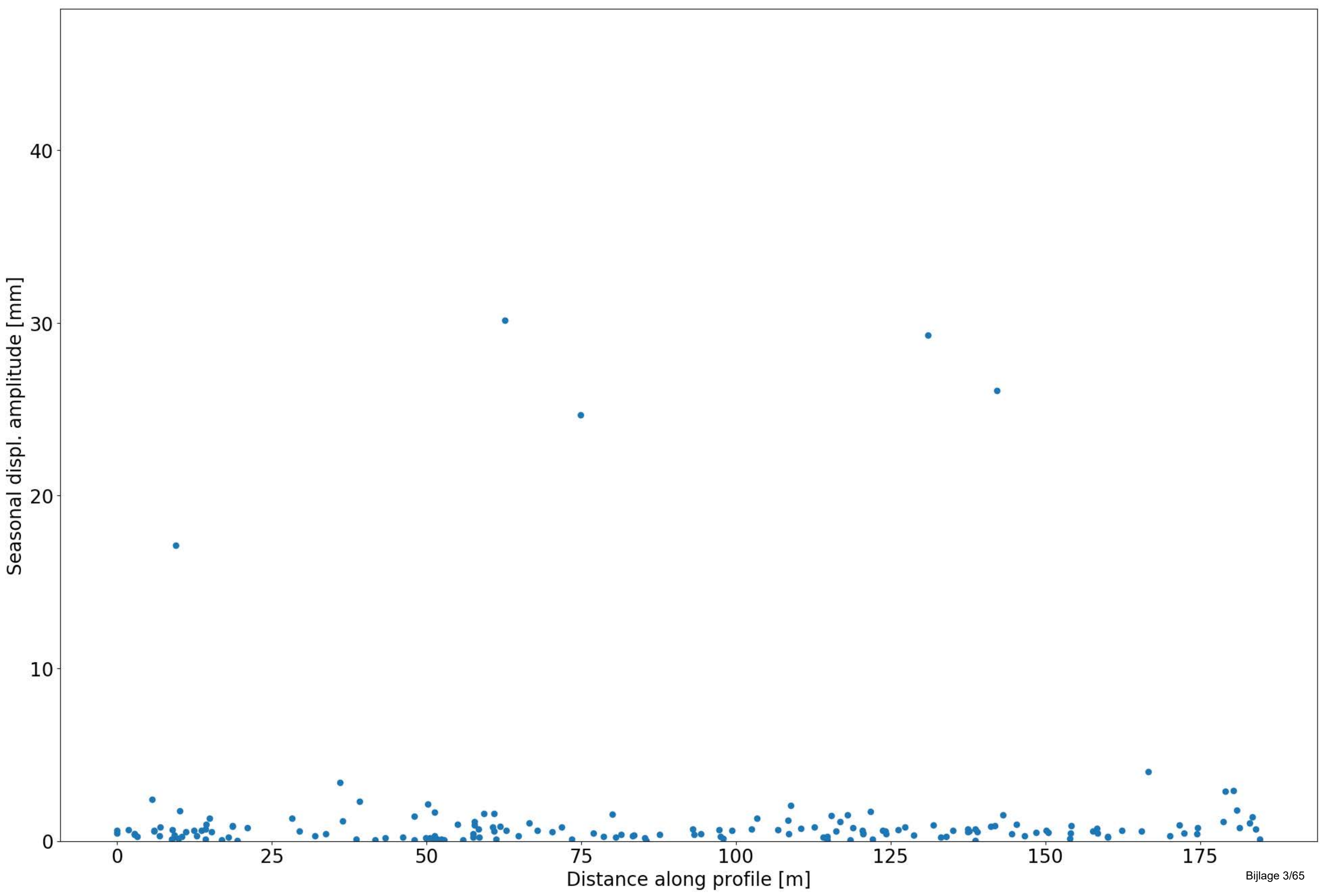


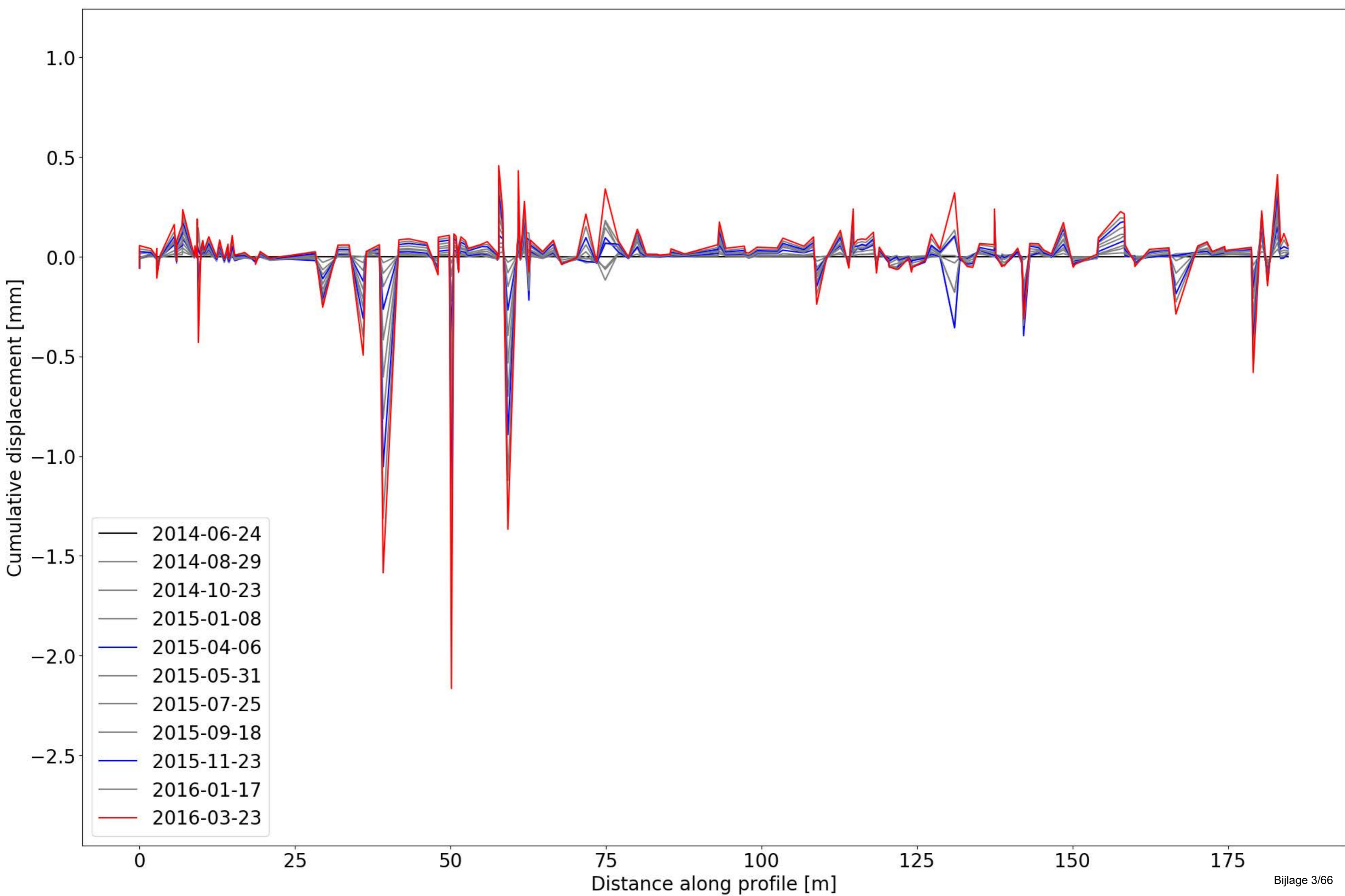












4318 Brug R8 P. Schoonstraat Oudstrijdersstraat



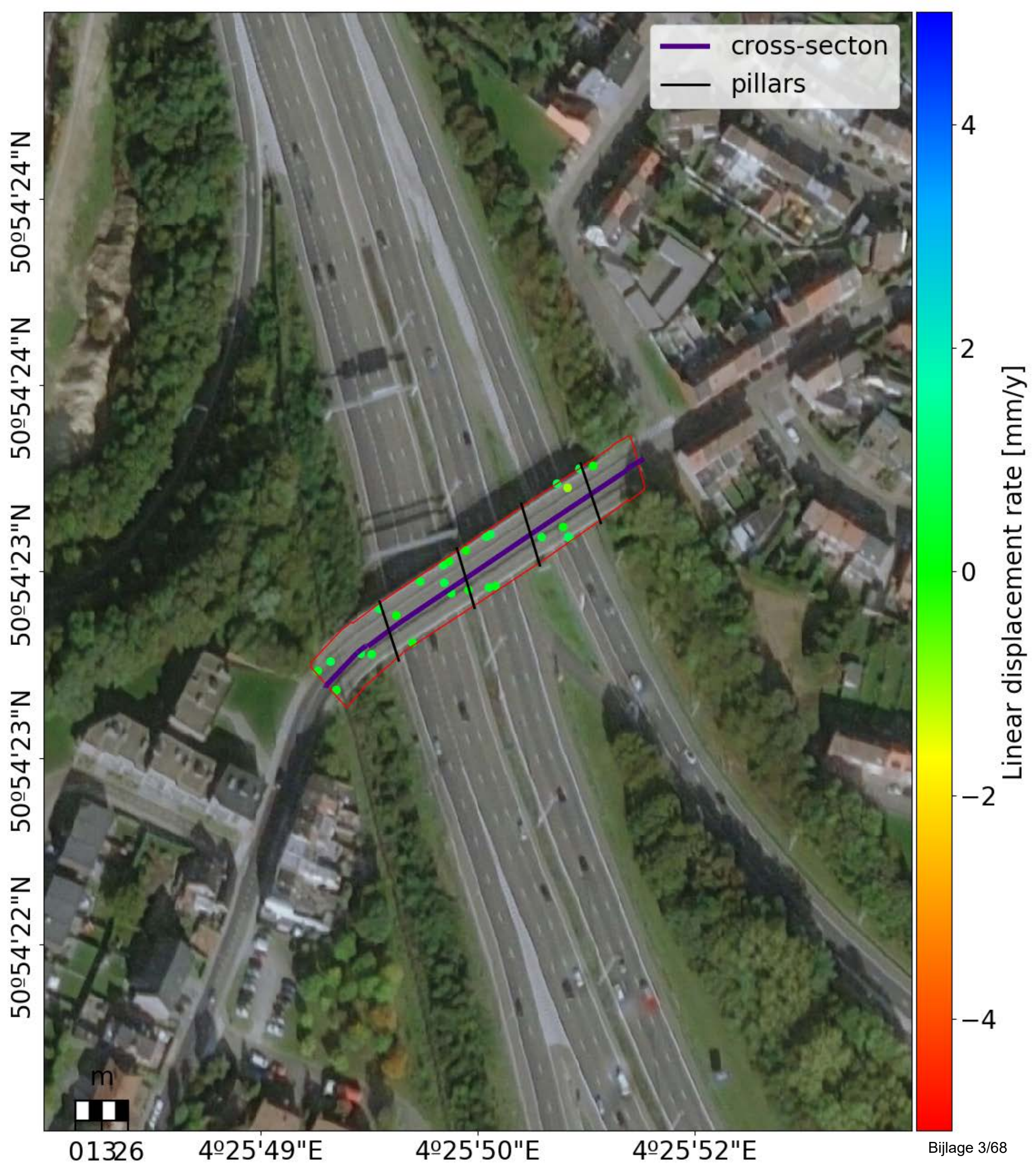
Object Nummer	Name	Long (WGS 84)	Lat (WGS 84)	Long (Lambert)	Lat (Lambert)	Length [m]	Width [m]	Material	Description	Information
4318	Brug R8 P. Schoonstraat Oudstrijdersstraat	50.90652124	4.430740816	154360.01000	177356.08999	107.4	14.6	concrete	(16) vrij gewoon - beton	no maintenance works

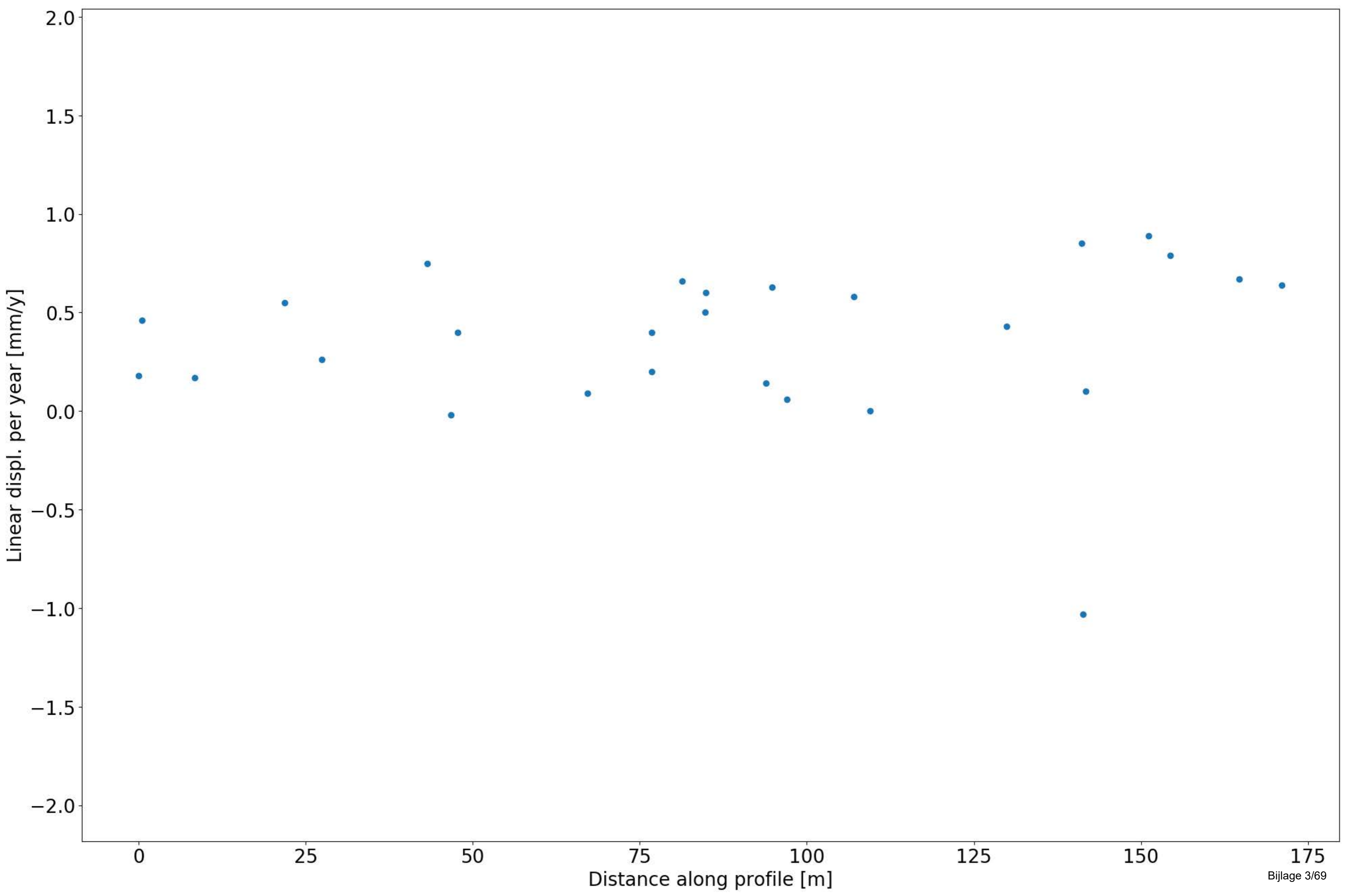
Change Detection

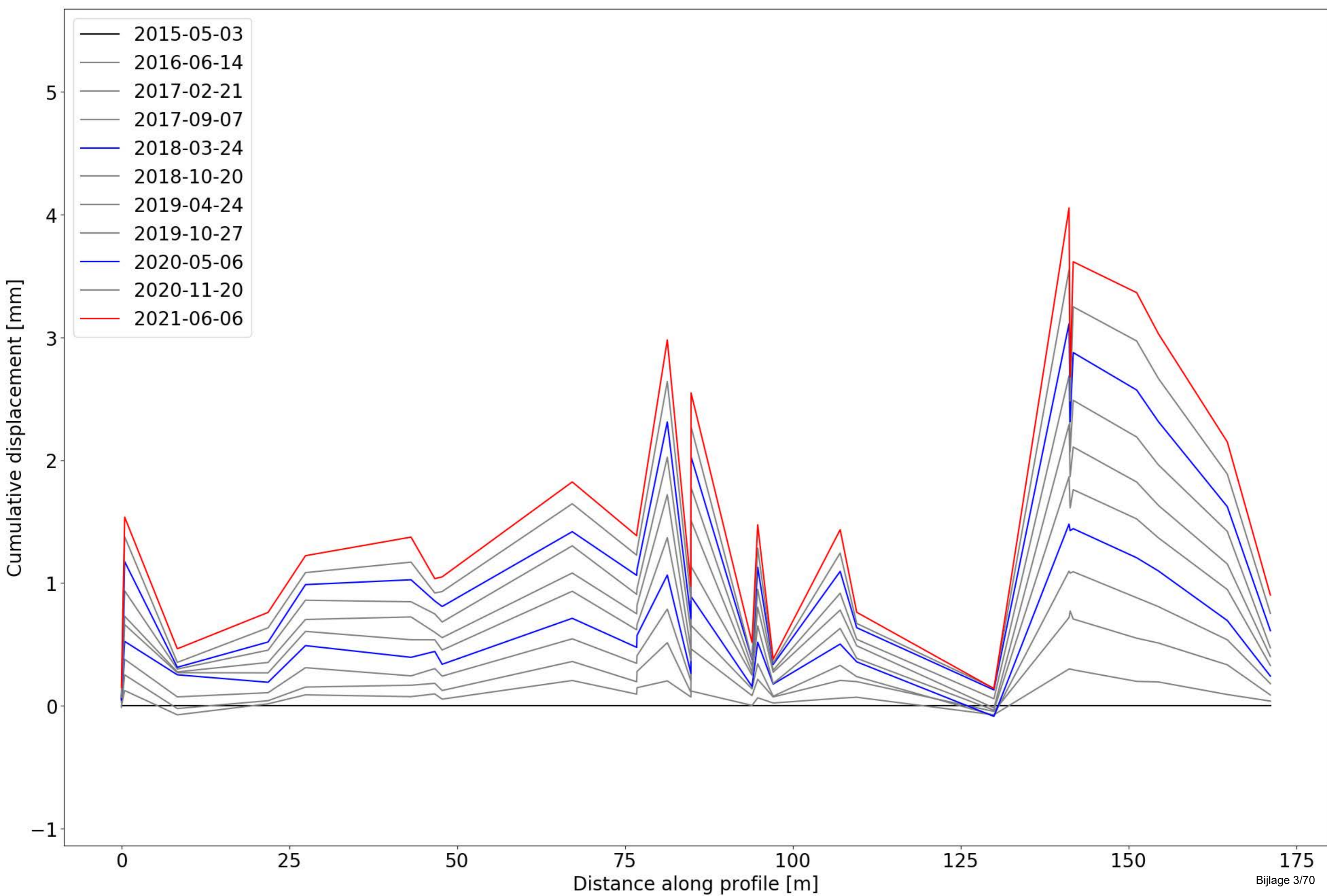
No changes were detected.

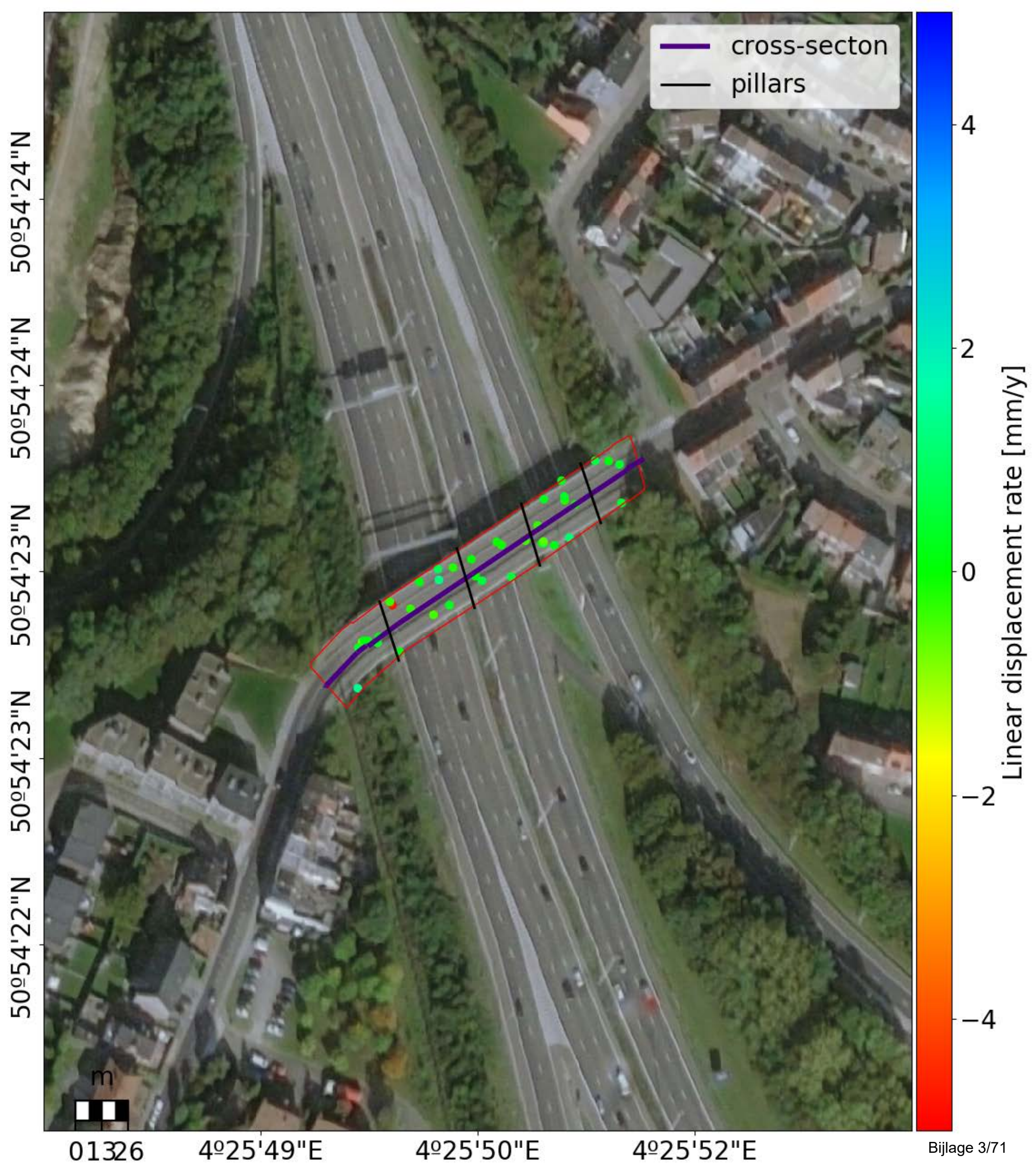
Comments on point density/distribution

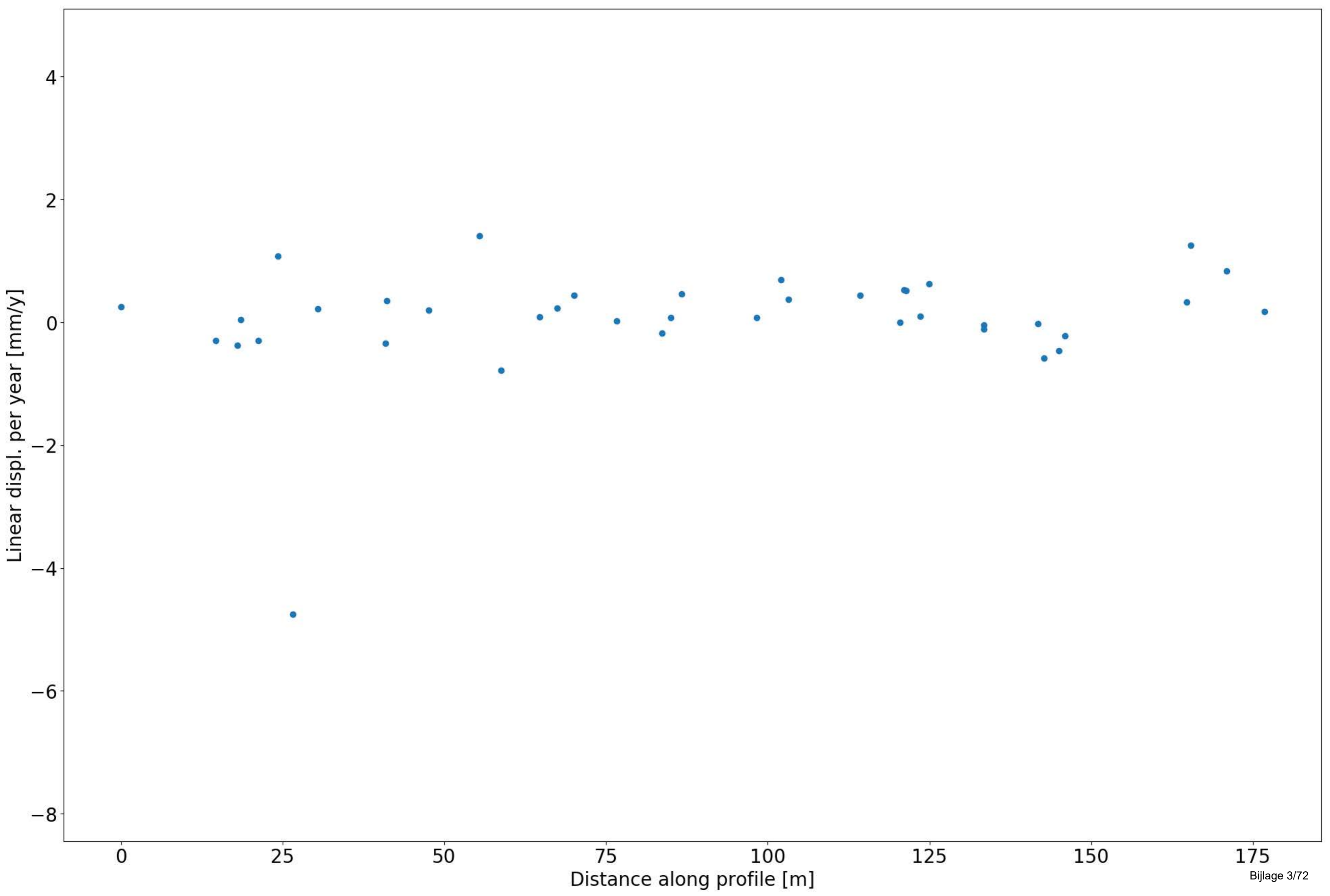
InSAR points along the full length of the bridge, no significant gaps in the data.

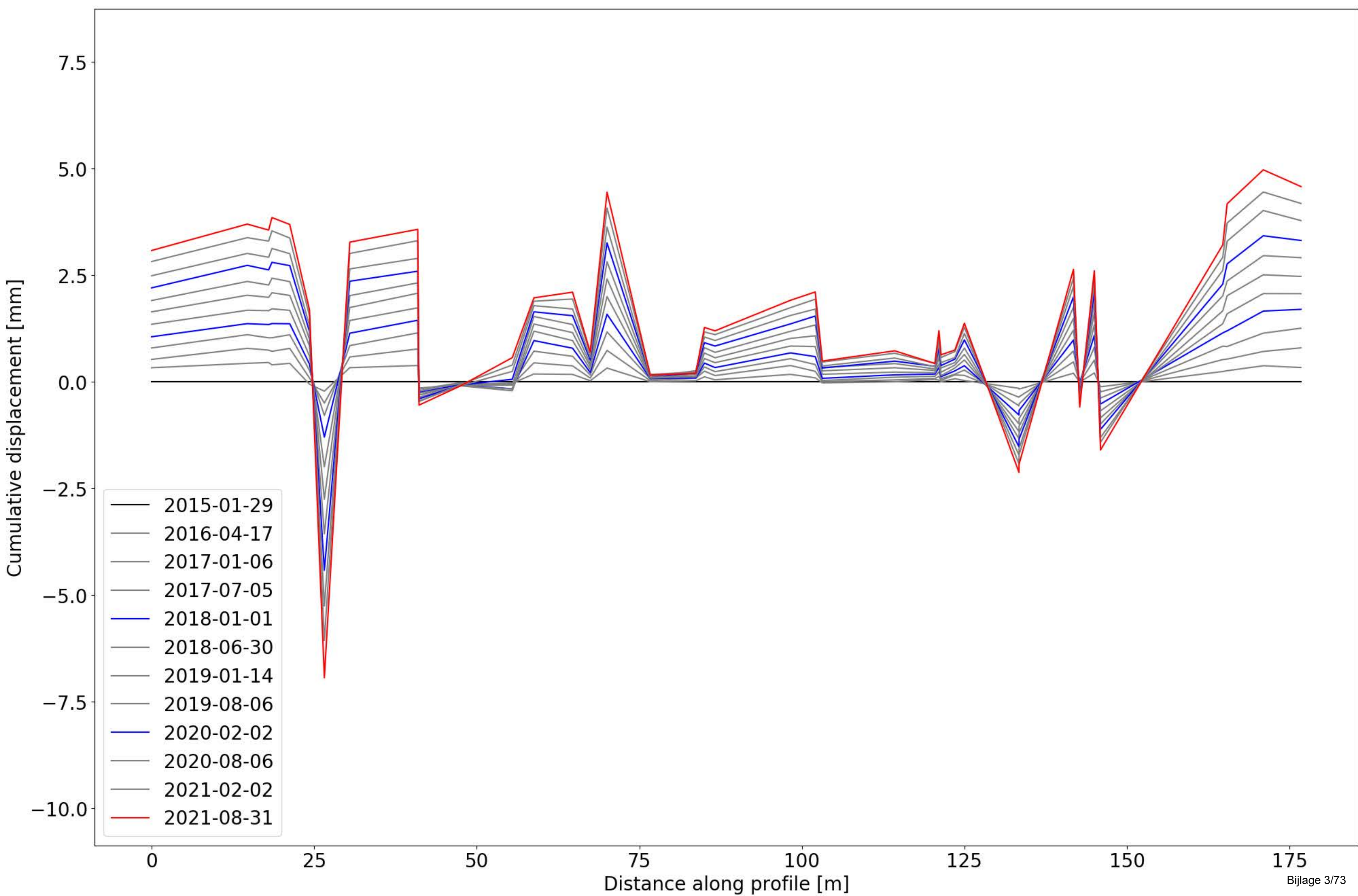


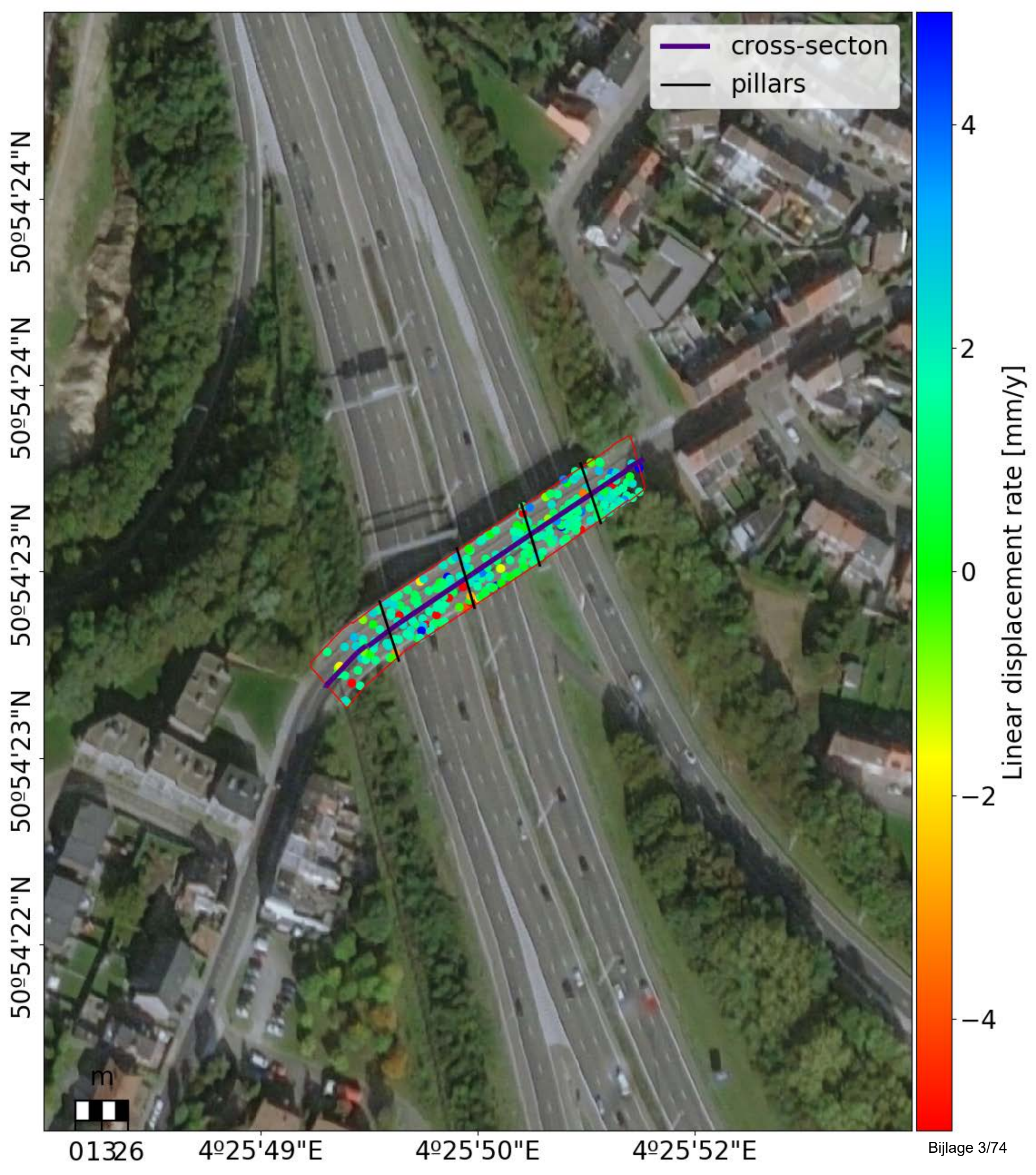


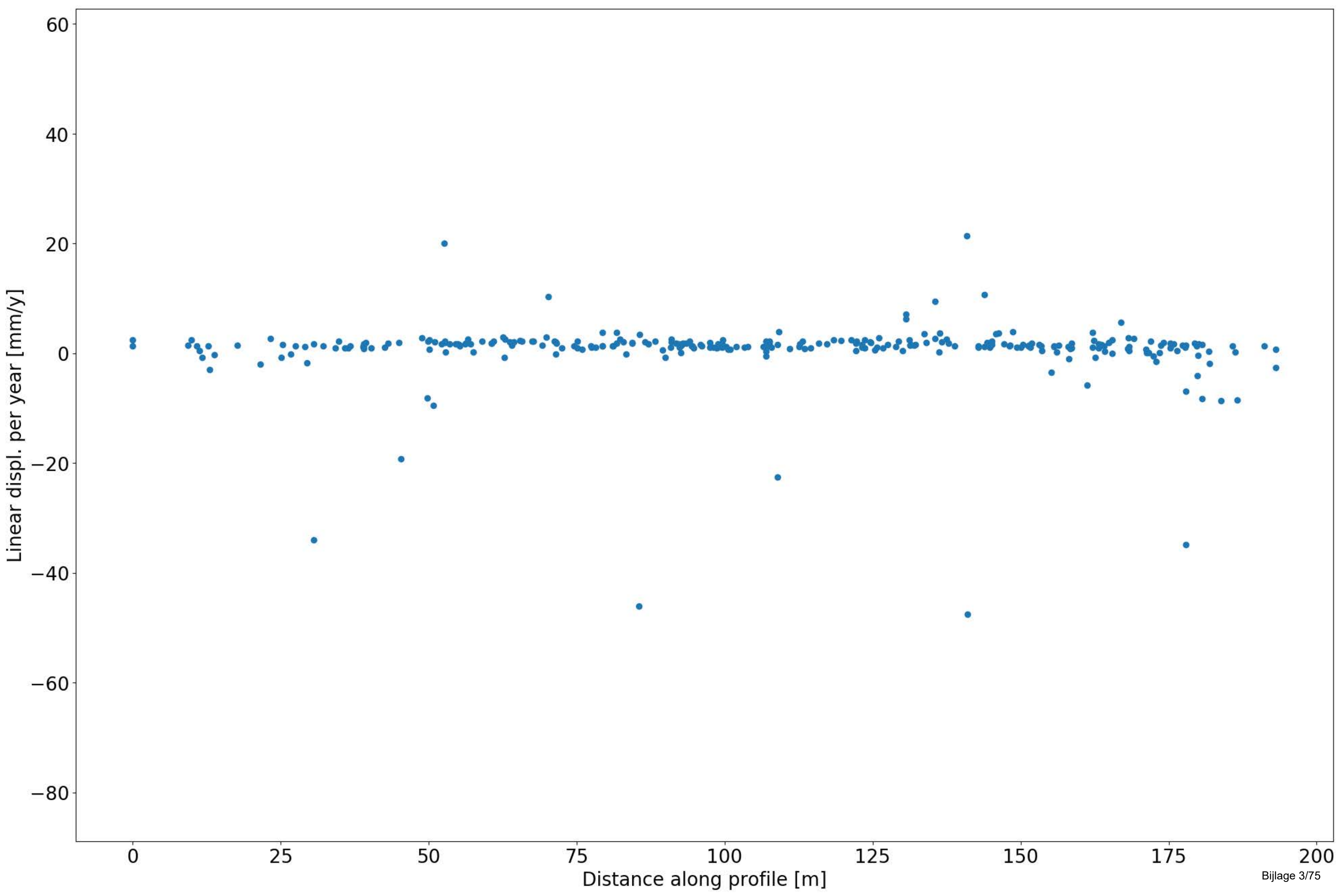


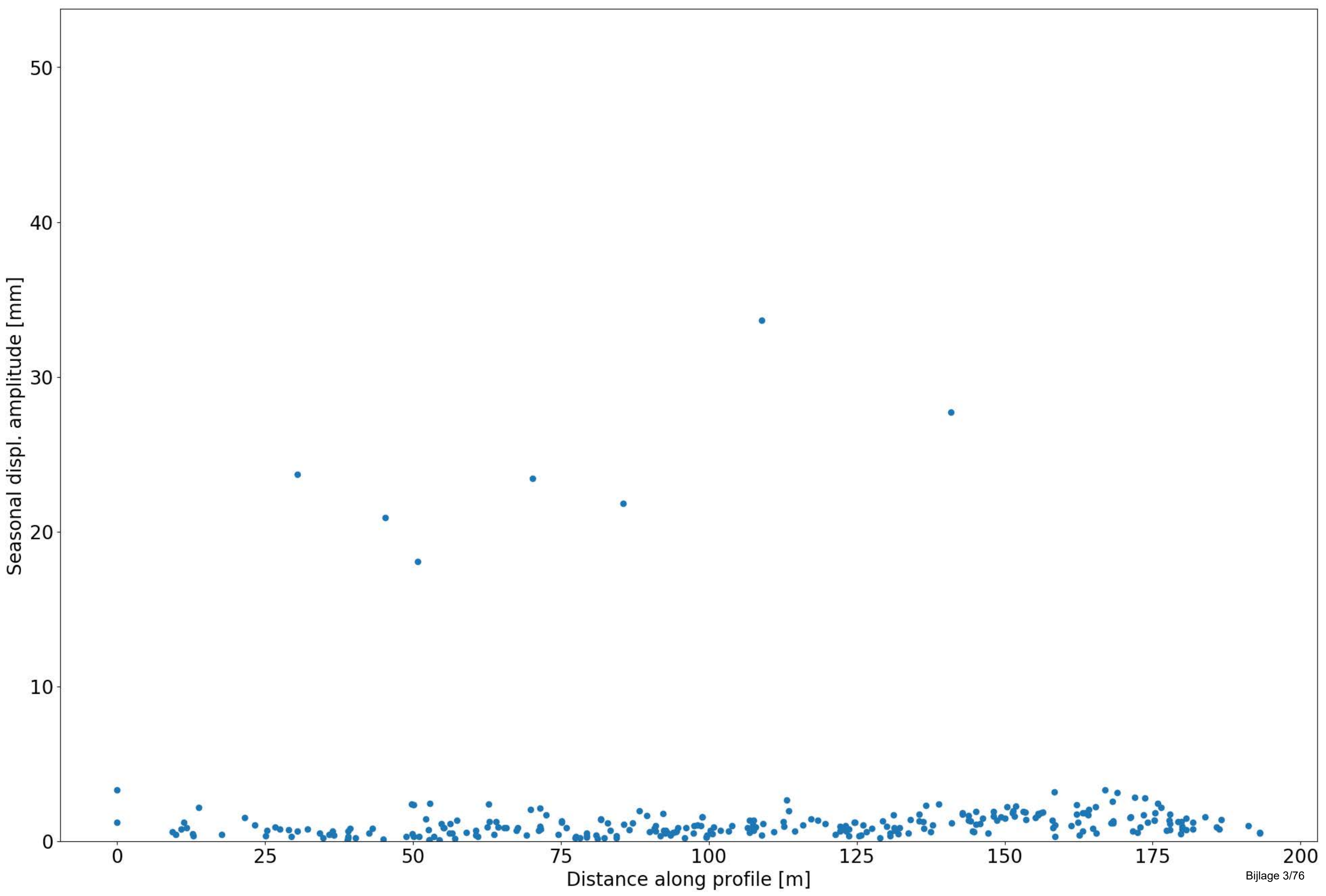


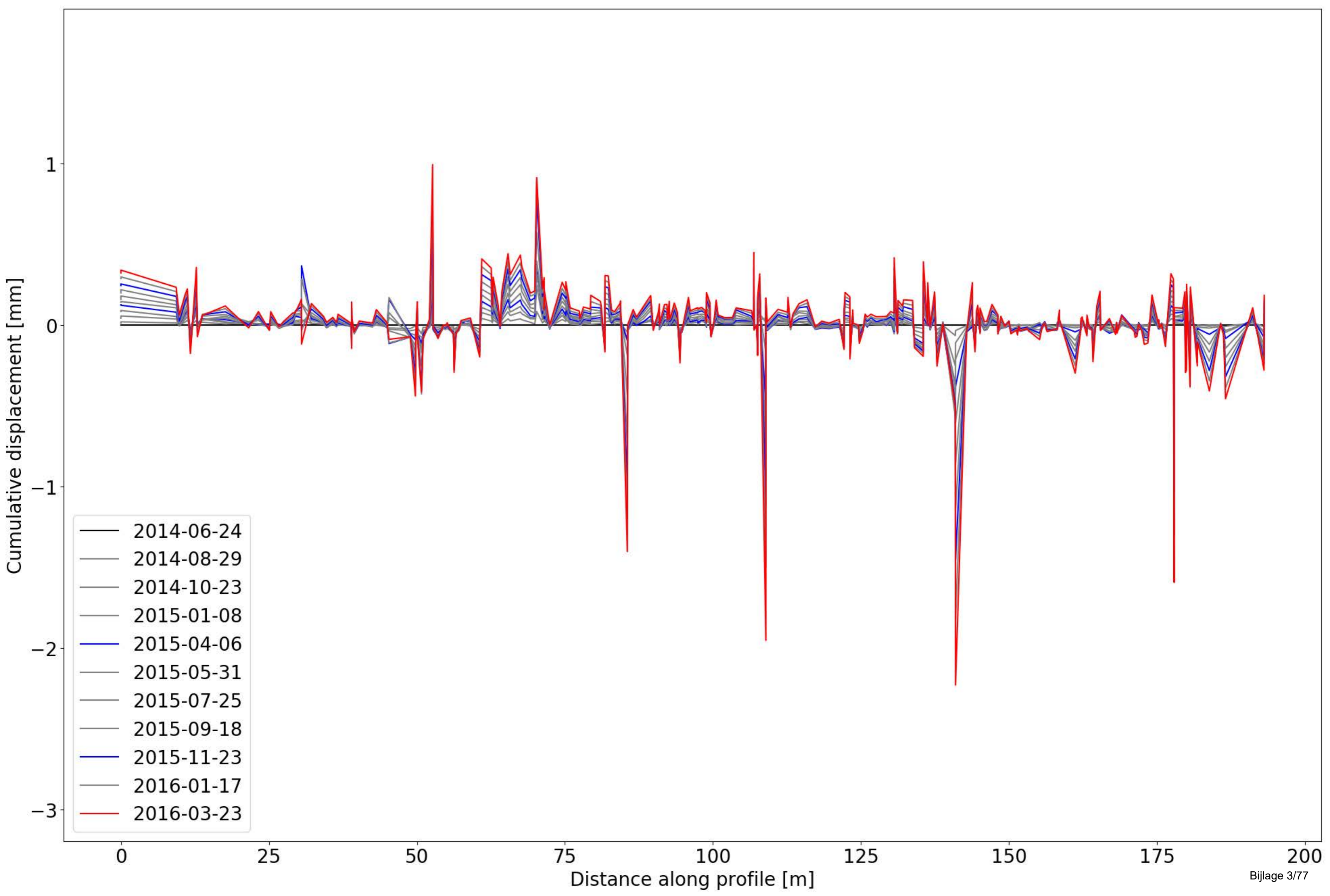




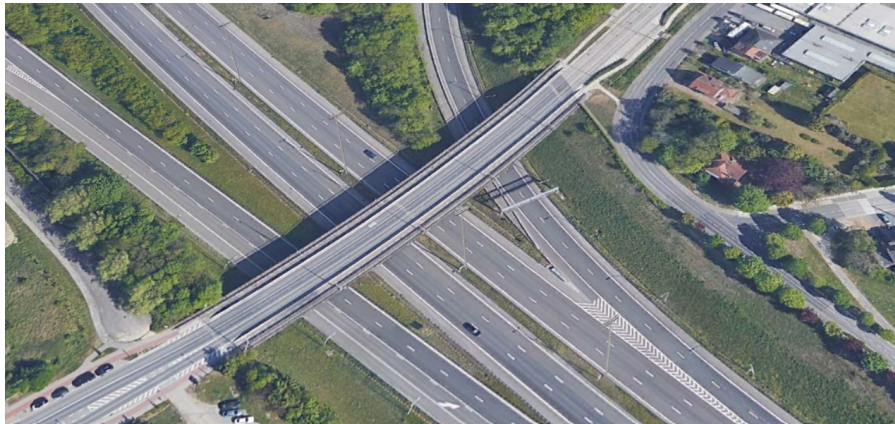








4323 Brug R15



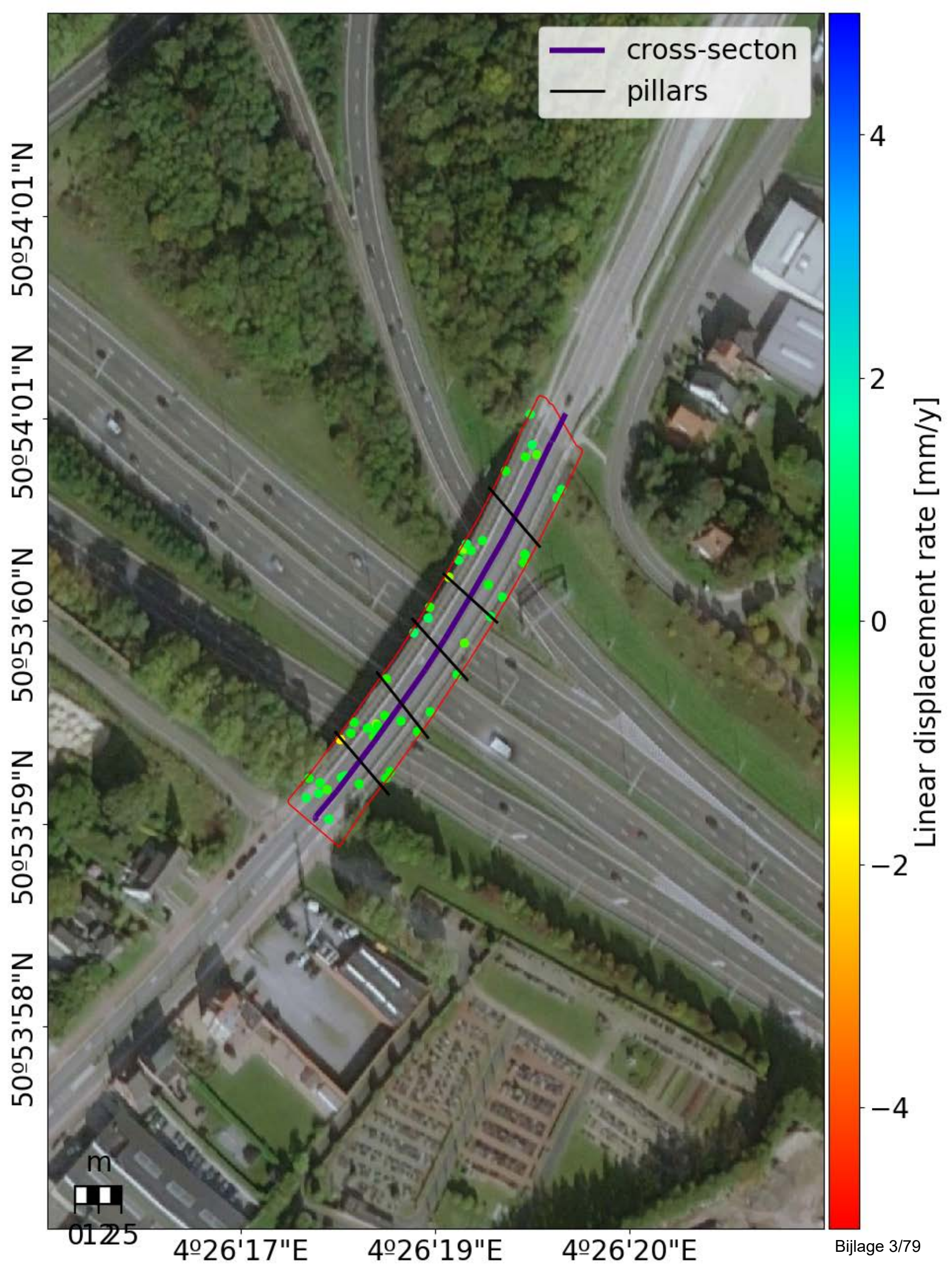
Object Nummer	Name	Long (WGS84)	Lat (WGS84)	Long (Lambert)	Lat (Lambert)	Length [m]	Width [m]	Material	Description	Information
4323	Brug R15	50.89982871	4.438578793	154912.01000	176612.08999	140	20.8	concrete	-	new concrete new jerseys between bicycle lane and road, autumn 2014

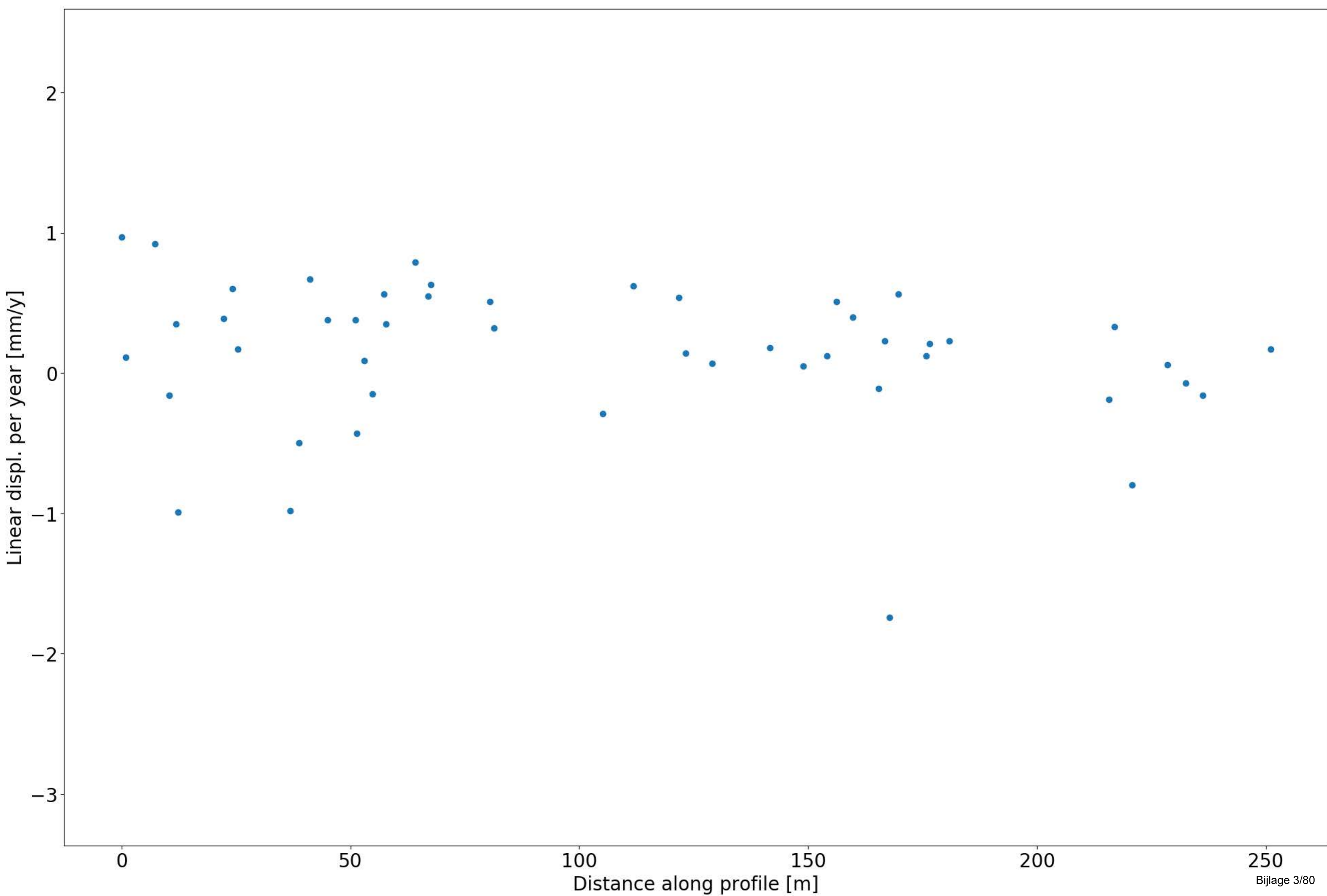
Change Detection

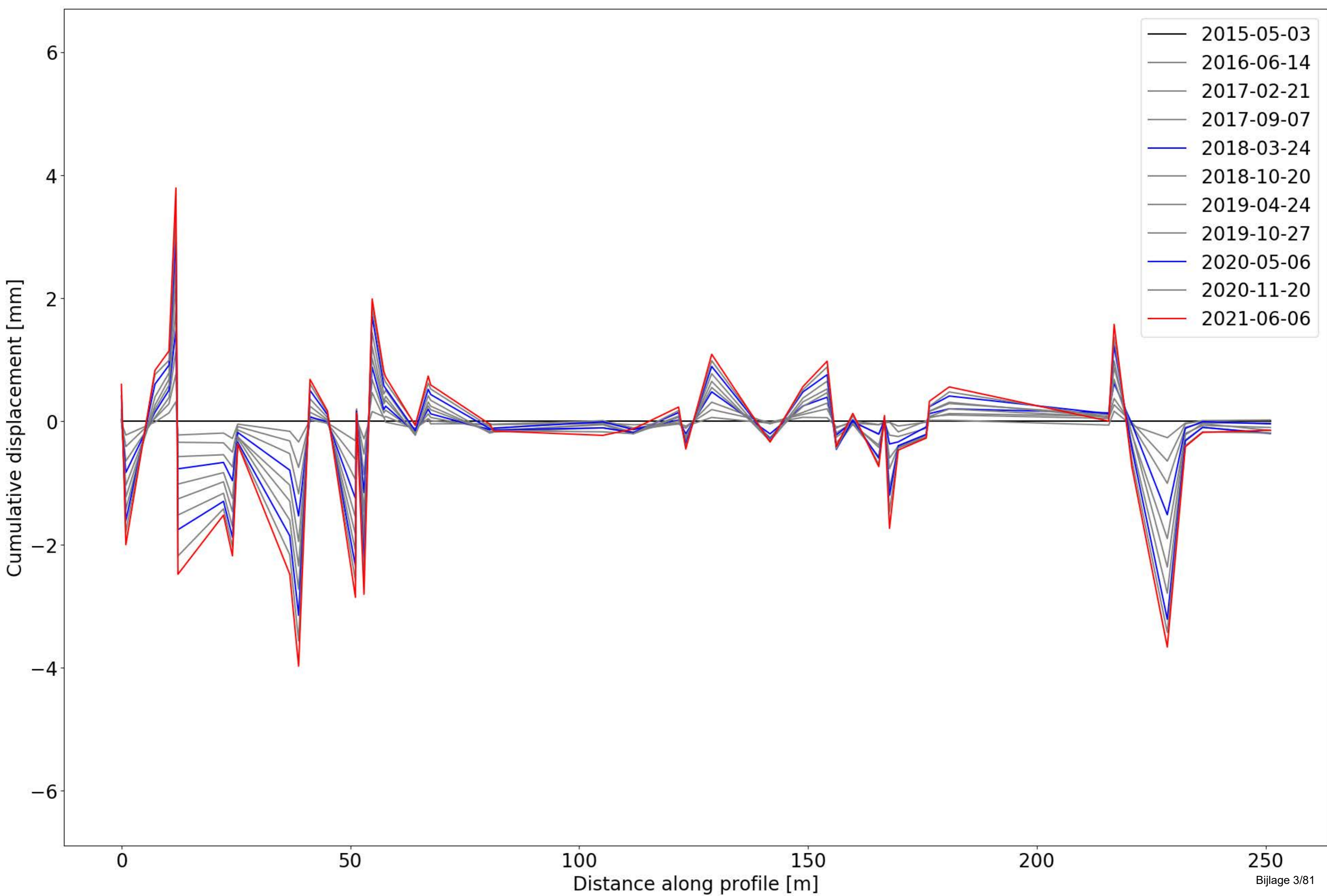
No changes were detected.

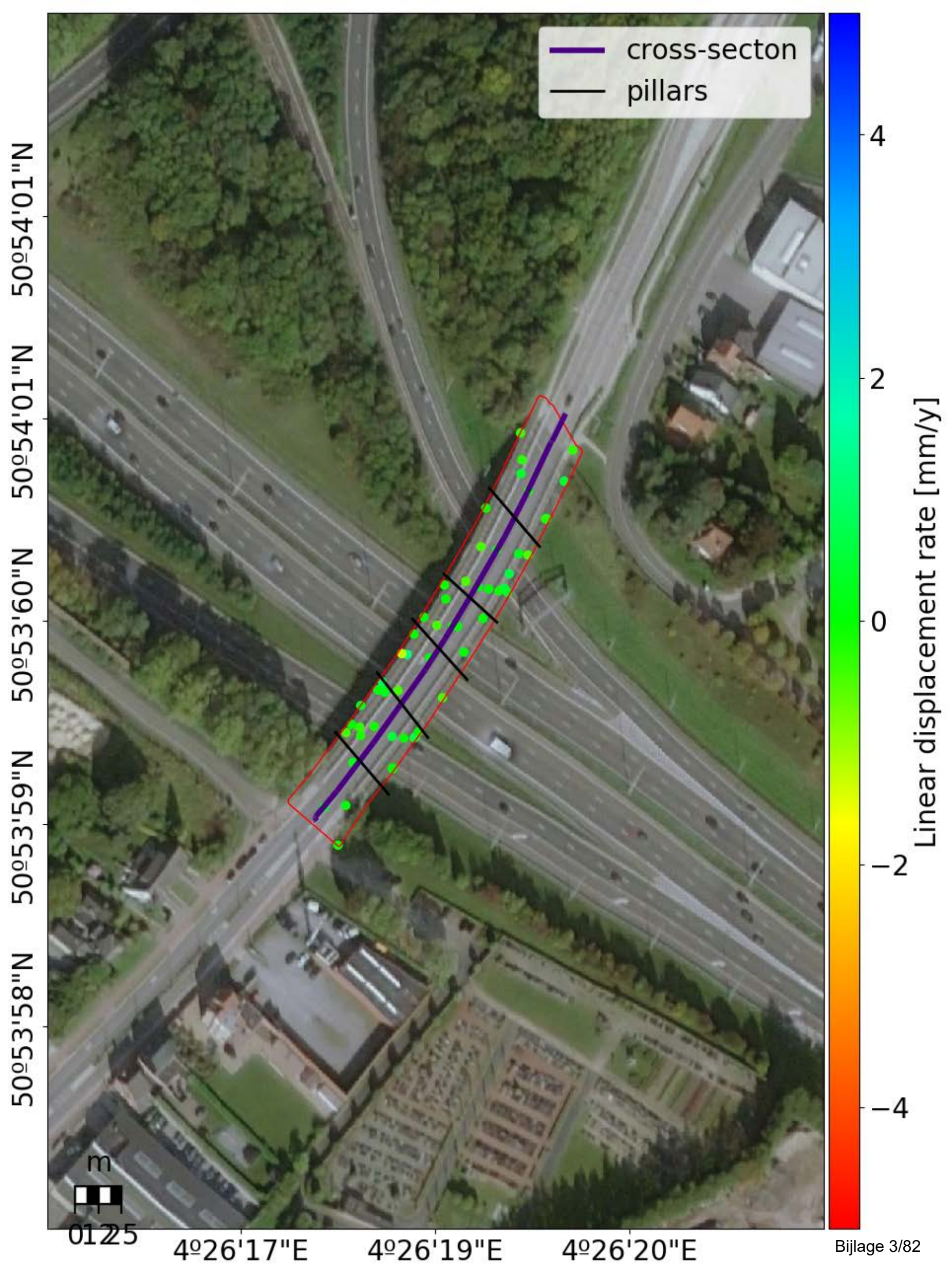
Comments on point density/distribution

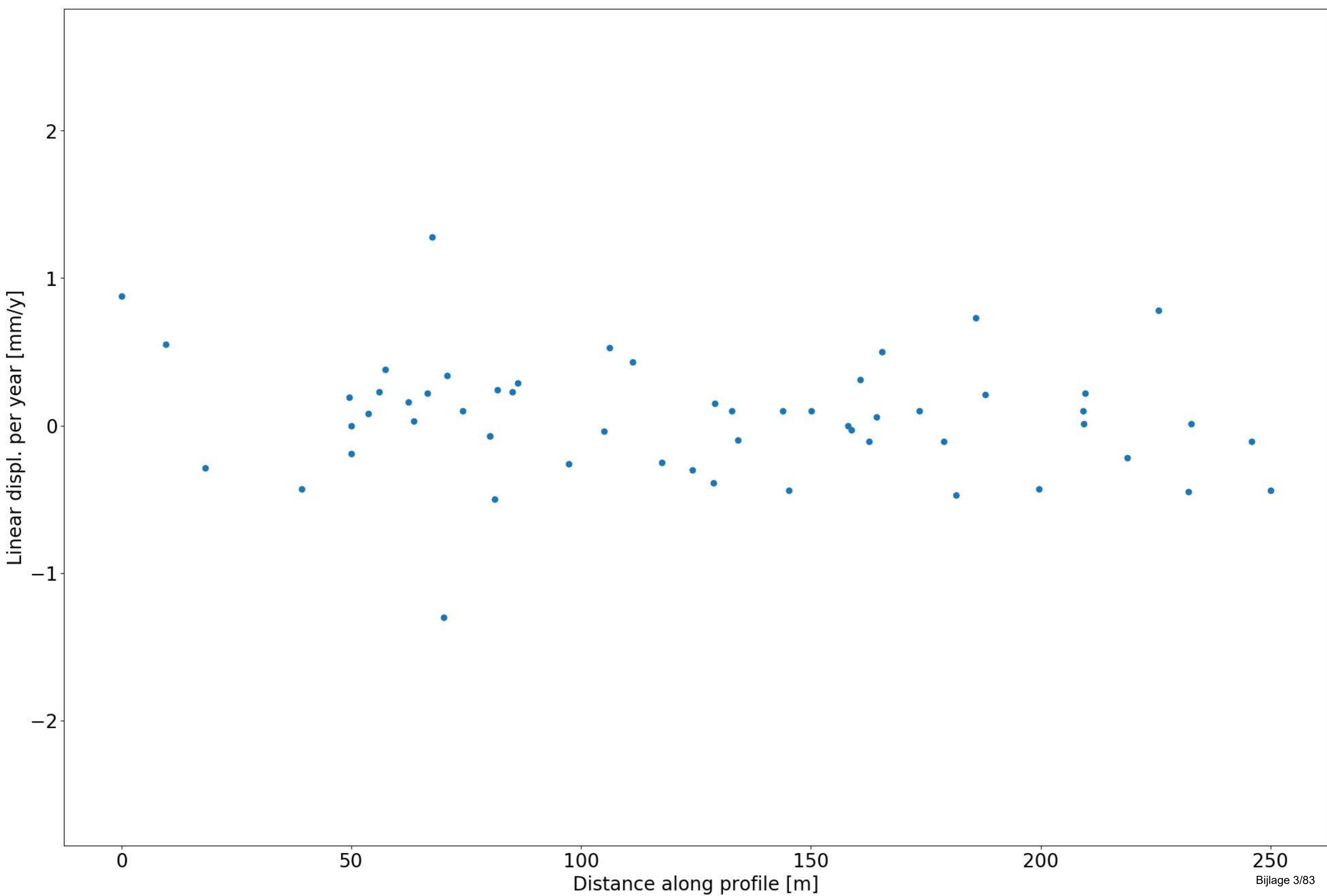
InSAR points along the full length of the bridge, no significant gaps in the data.

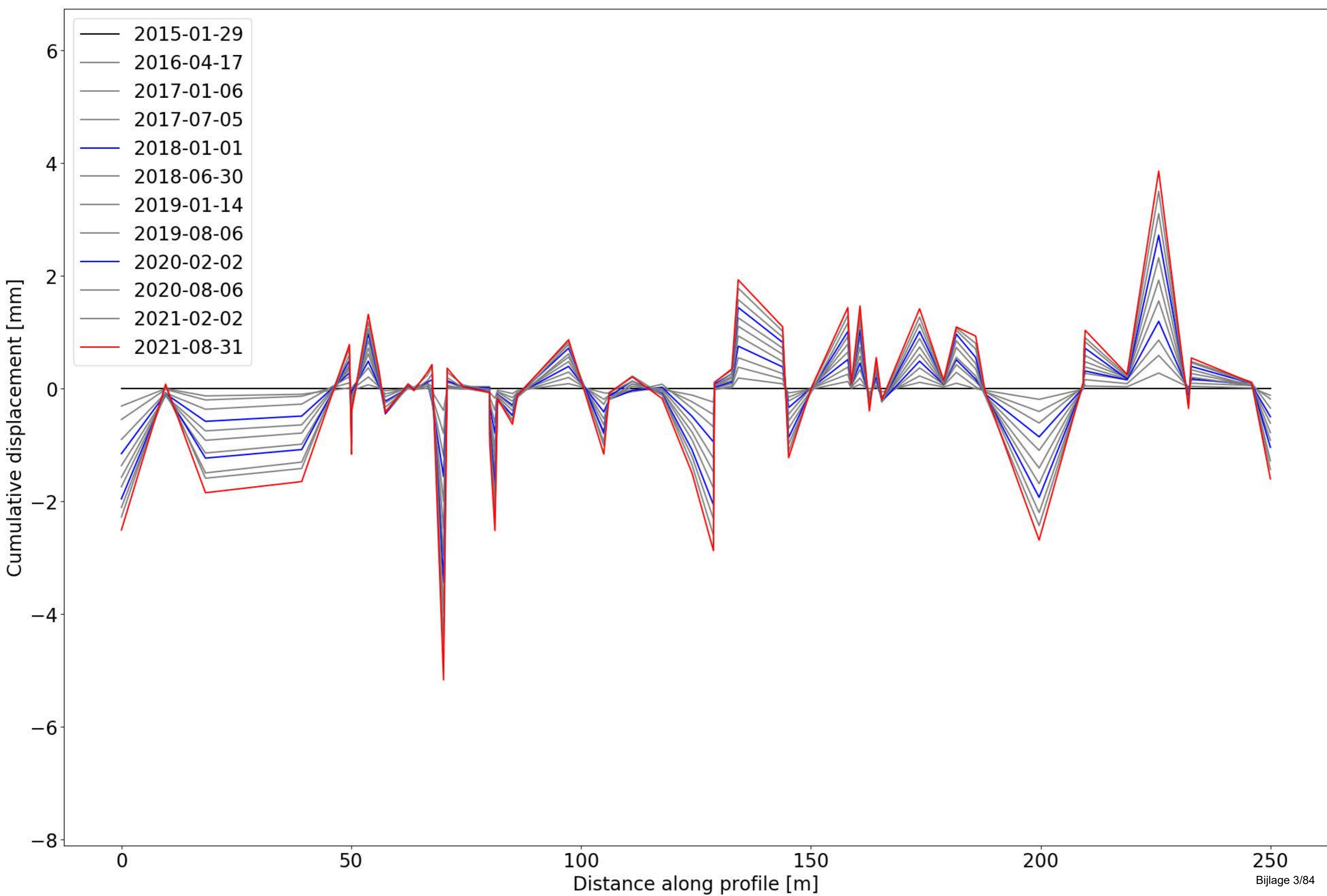


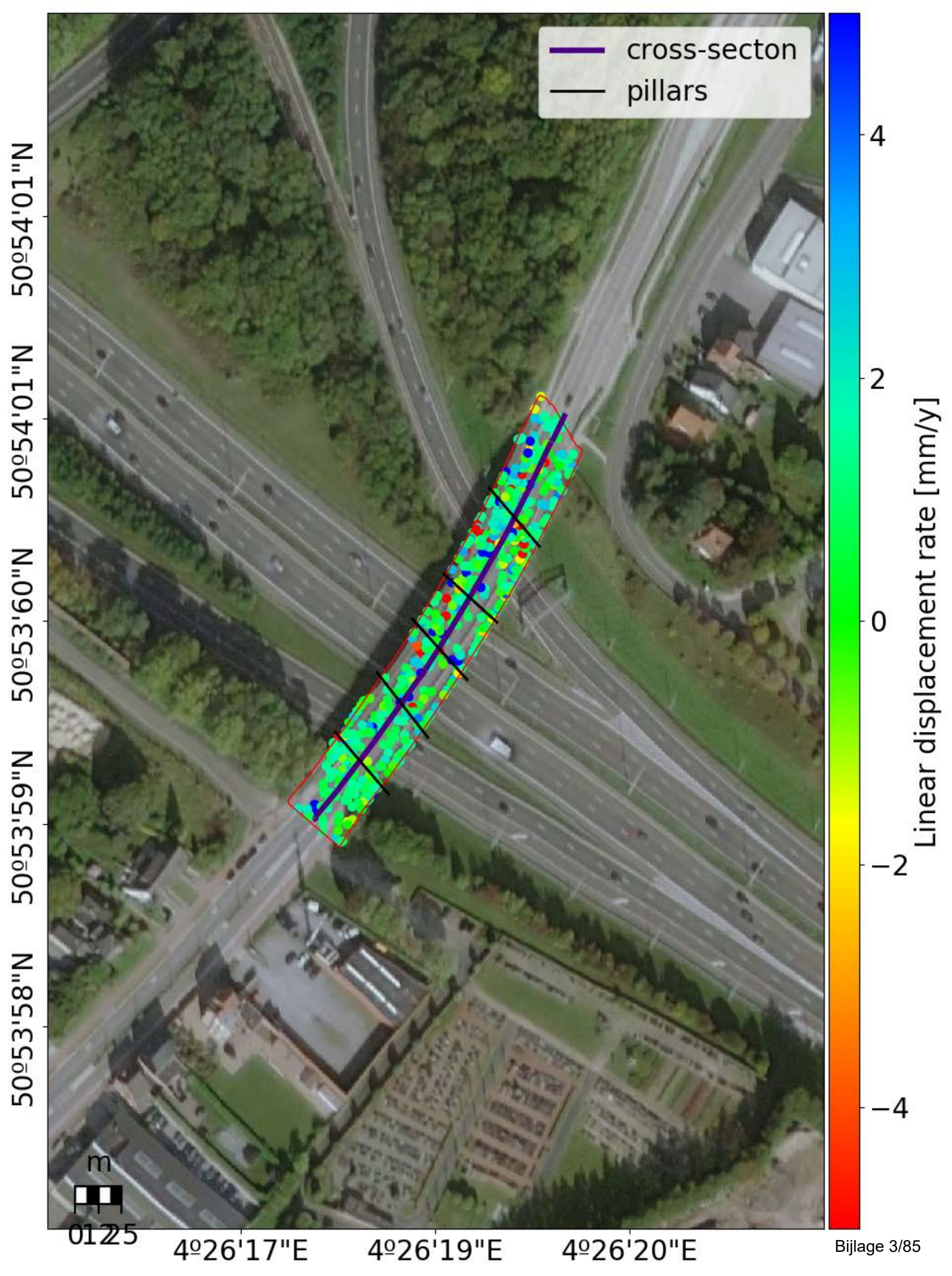


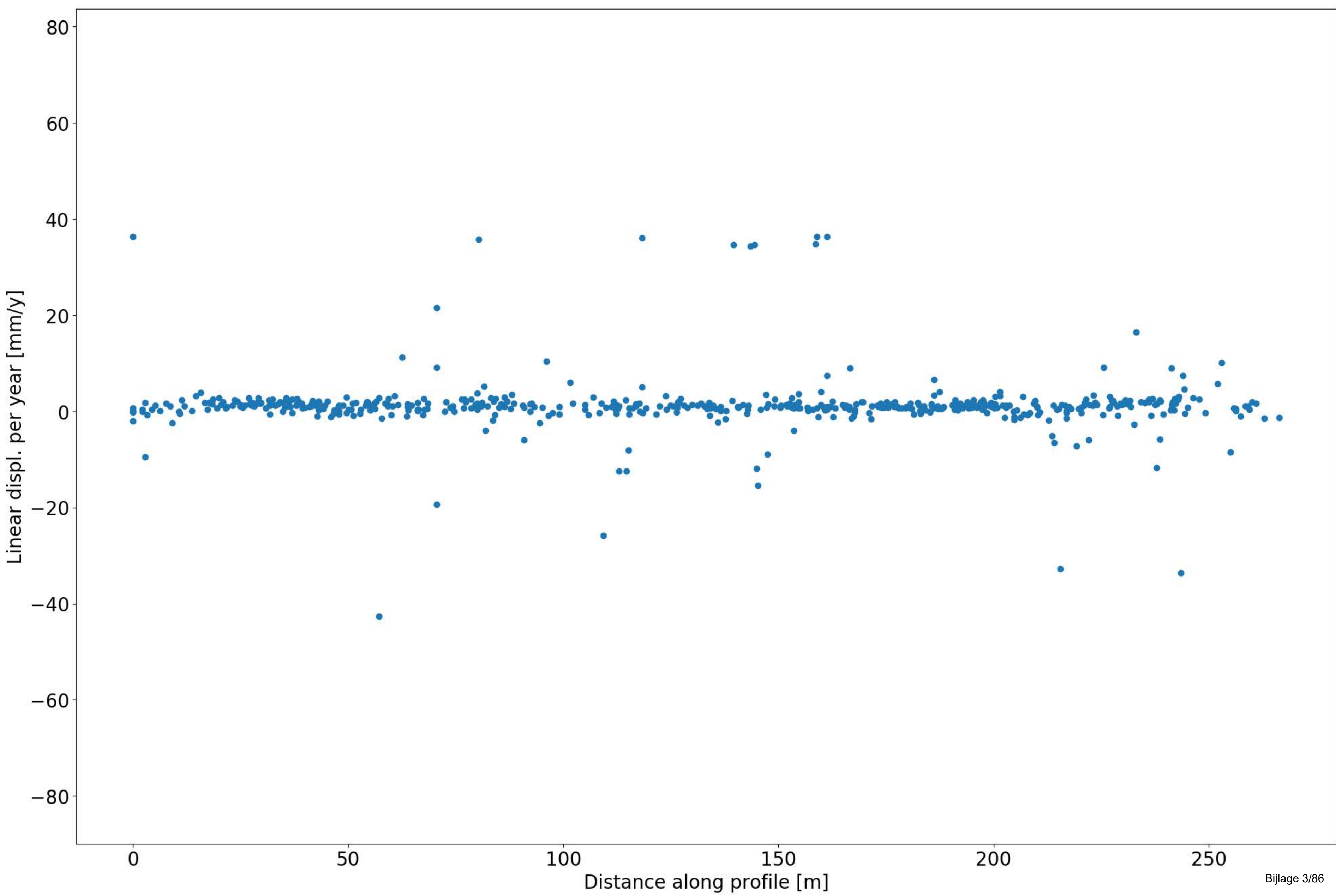


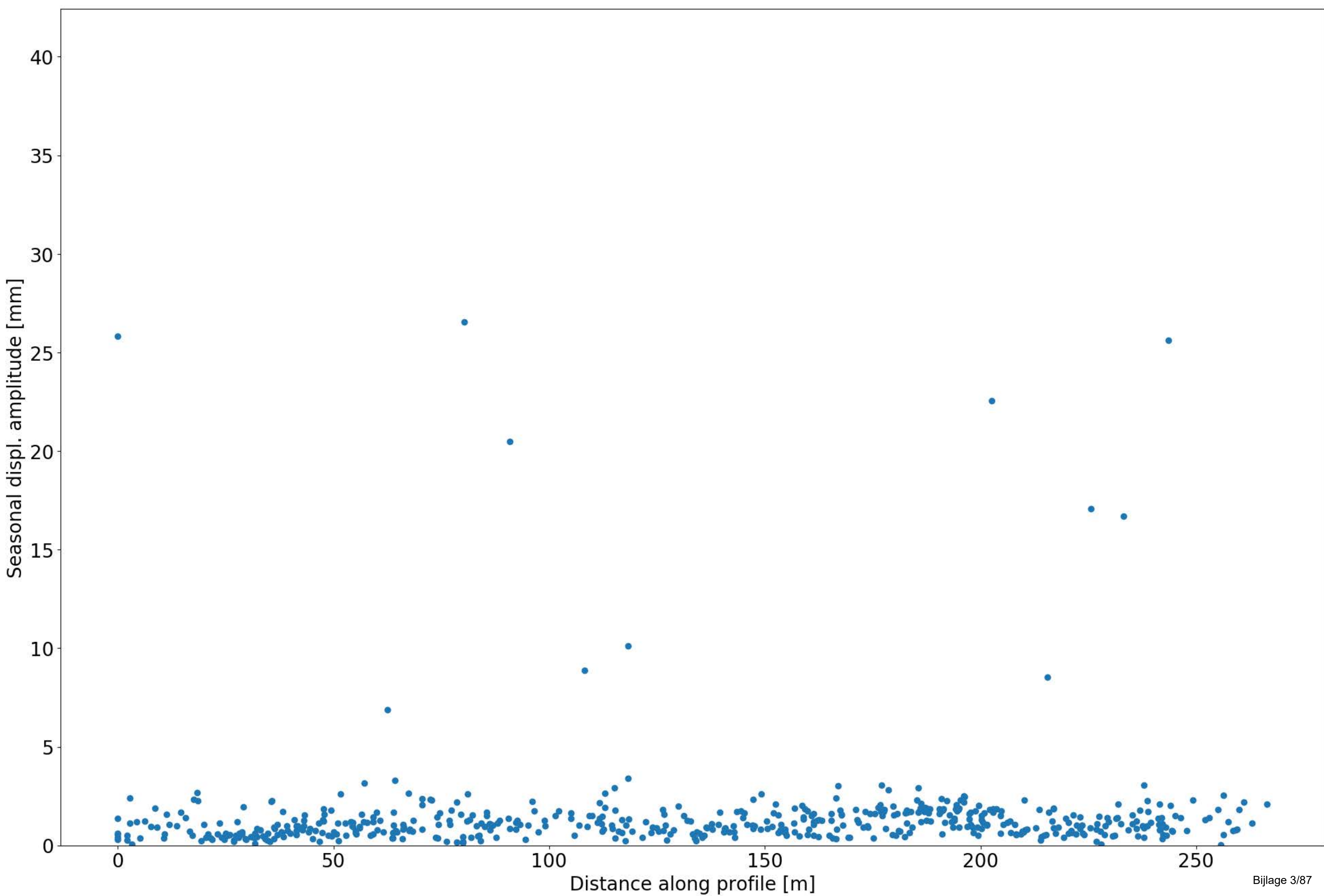


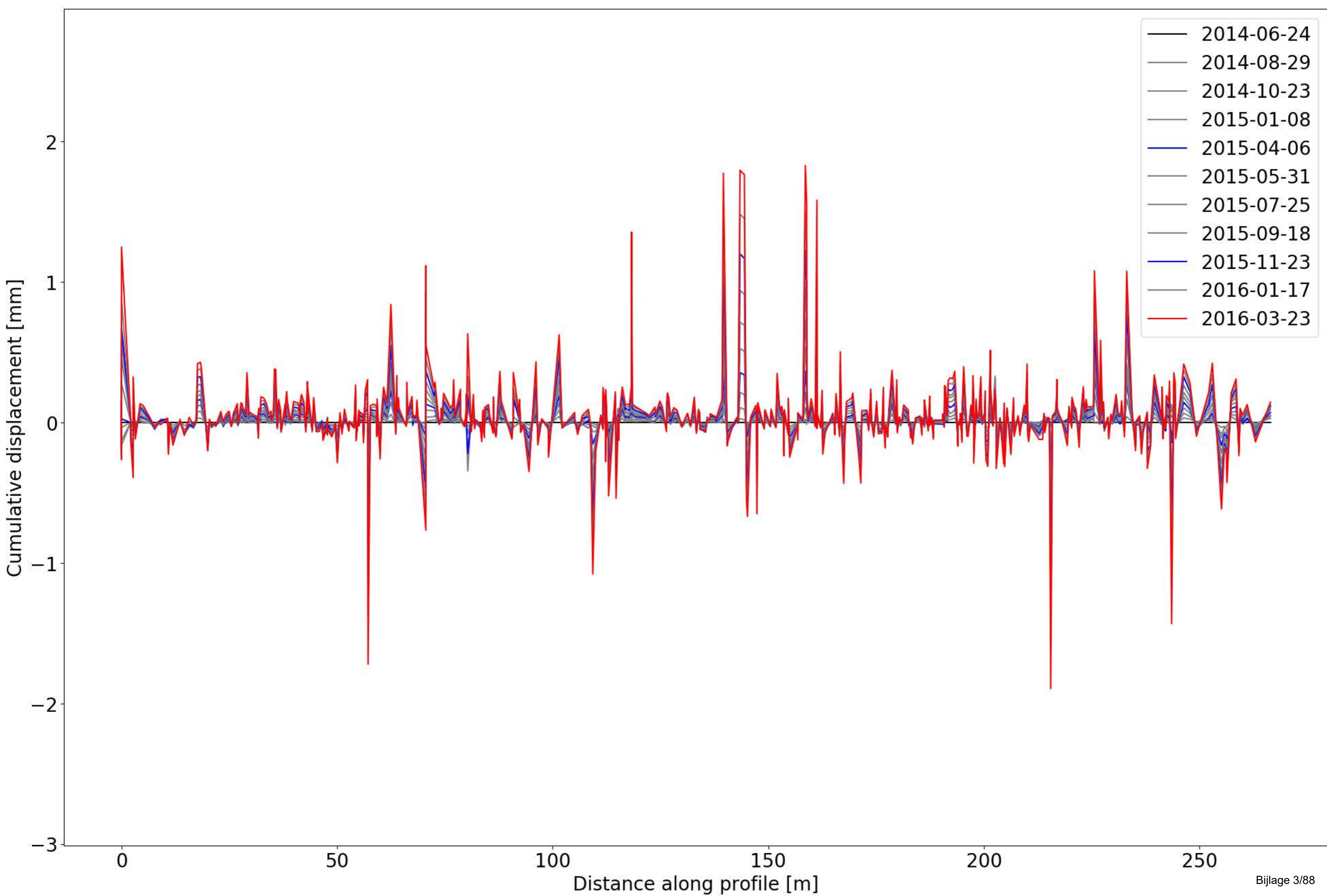












4332 Brug D5 Steenweg op Zaventem



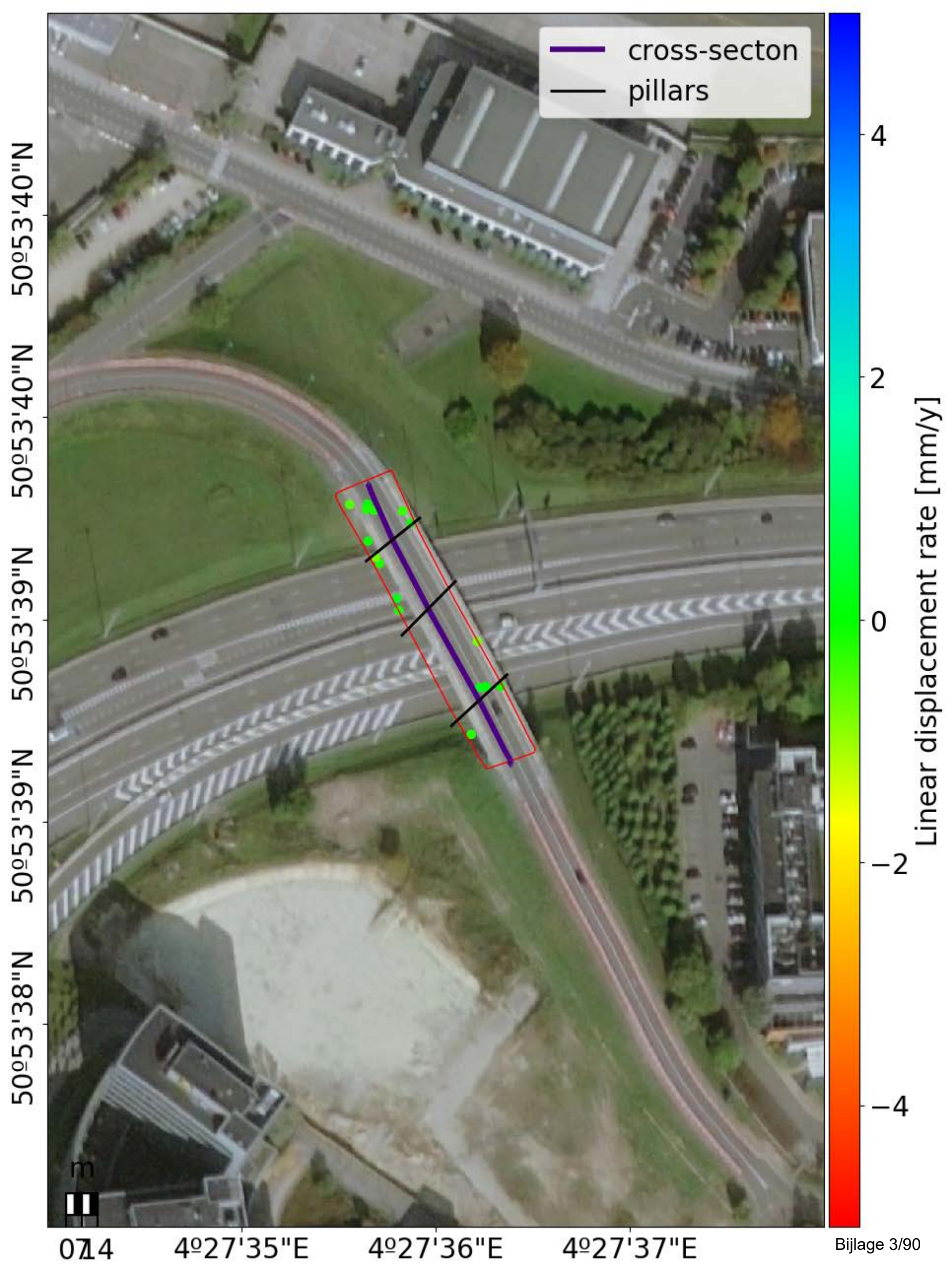
Object Nummer	Name	Long (WGS84)	Lat (WGS84)	Long (Lambert)	Lat (Lambert)	Length [m]	Width [m]	Material	Description	Information
4332	Brug D5 Steenweg op Zaventem	50.89423147	4.460018893	156421.01000	175991.10999	84	13.6	concrete	(20) vrijgewone brug - beton	no maintenance works

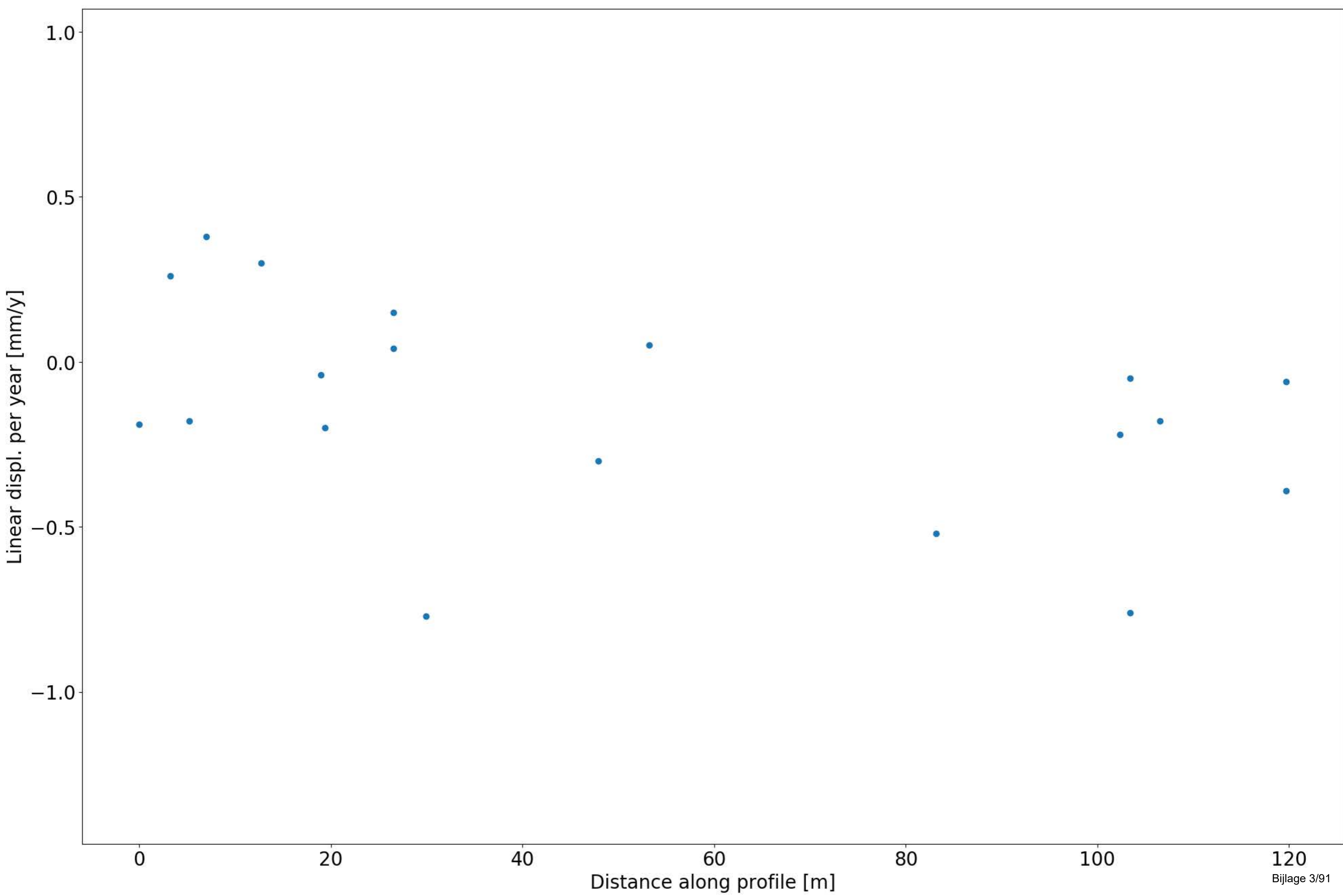
Change Detection

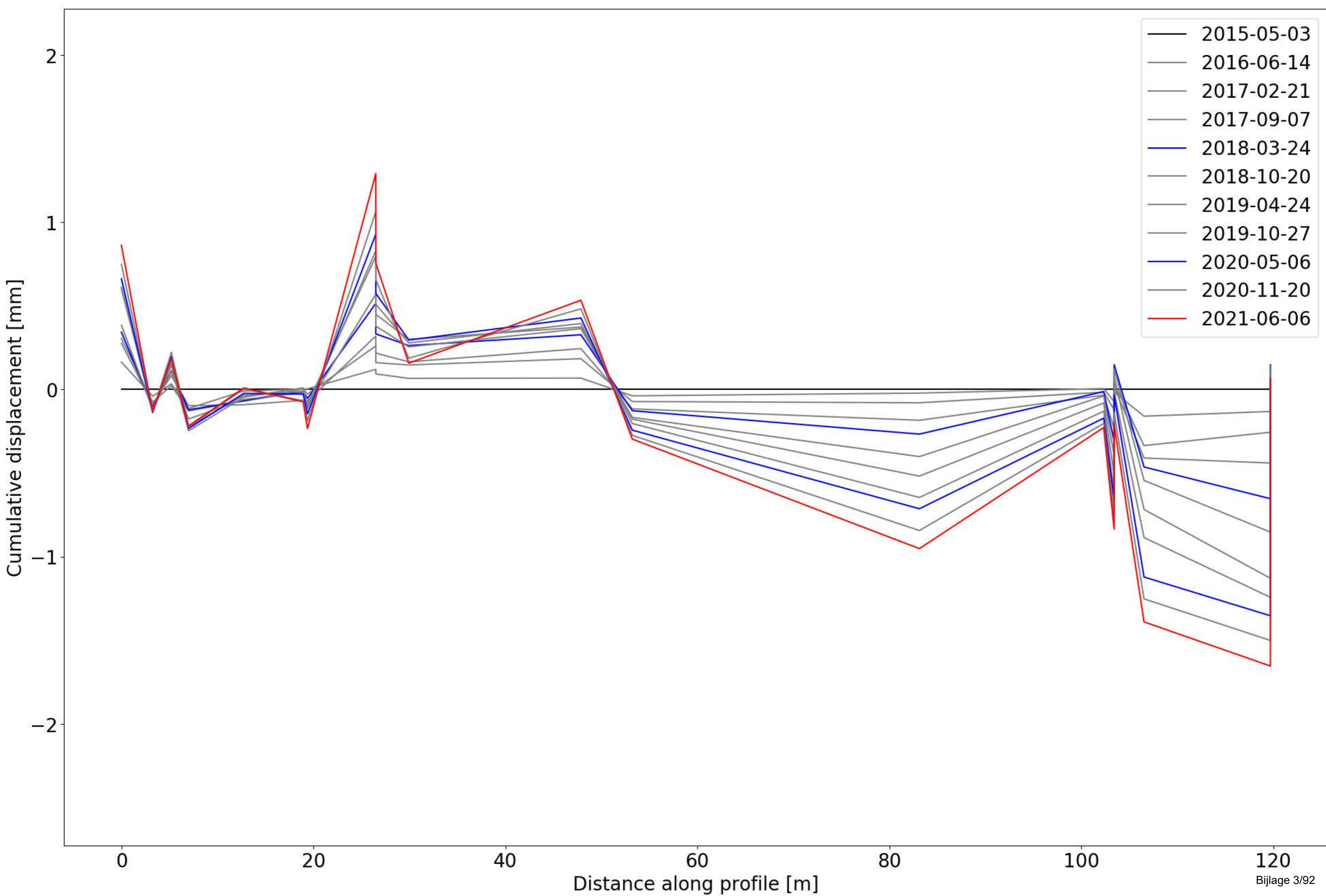
No changes were detected.

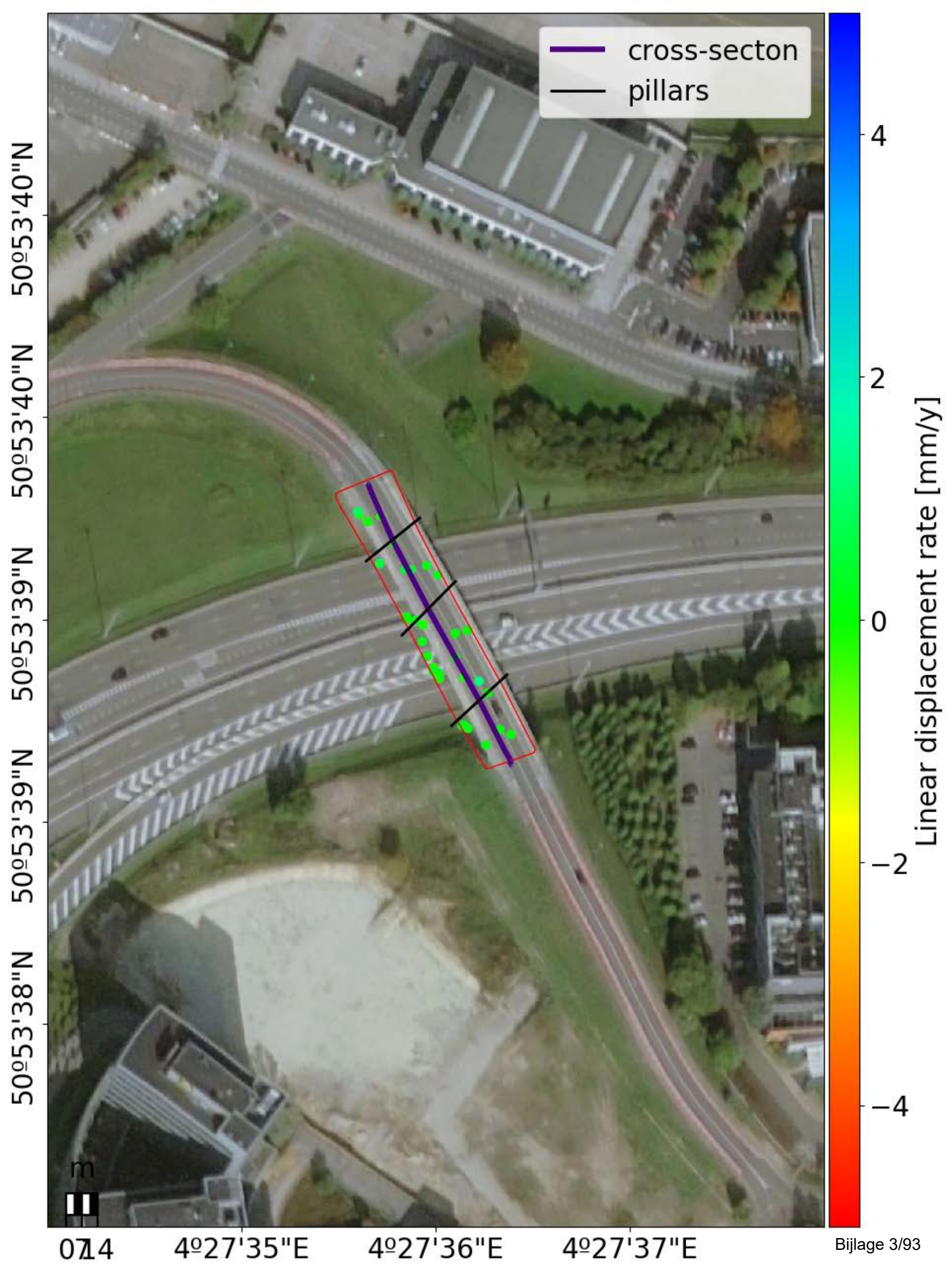
Comments on point density/distribution

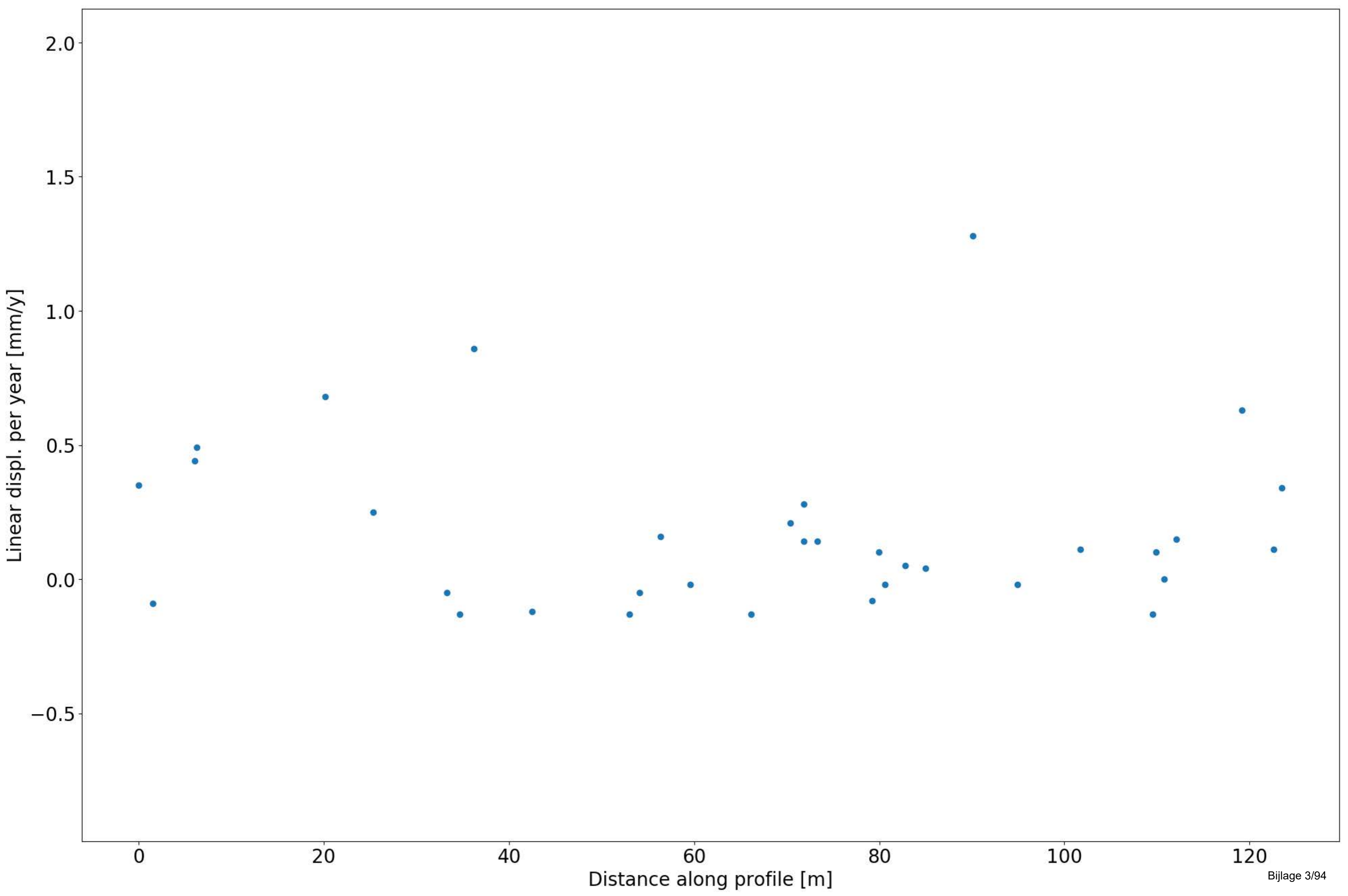
InSAR points along the length of the bridge for all 3 datasets (TSX, S1 asc and S1 dsc), no significant gaps in the data.

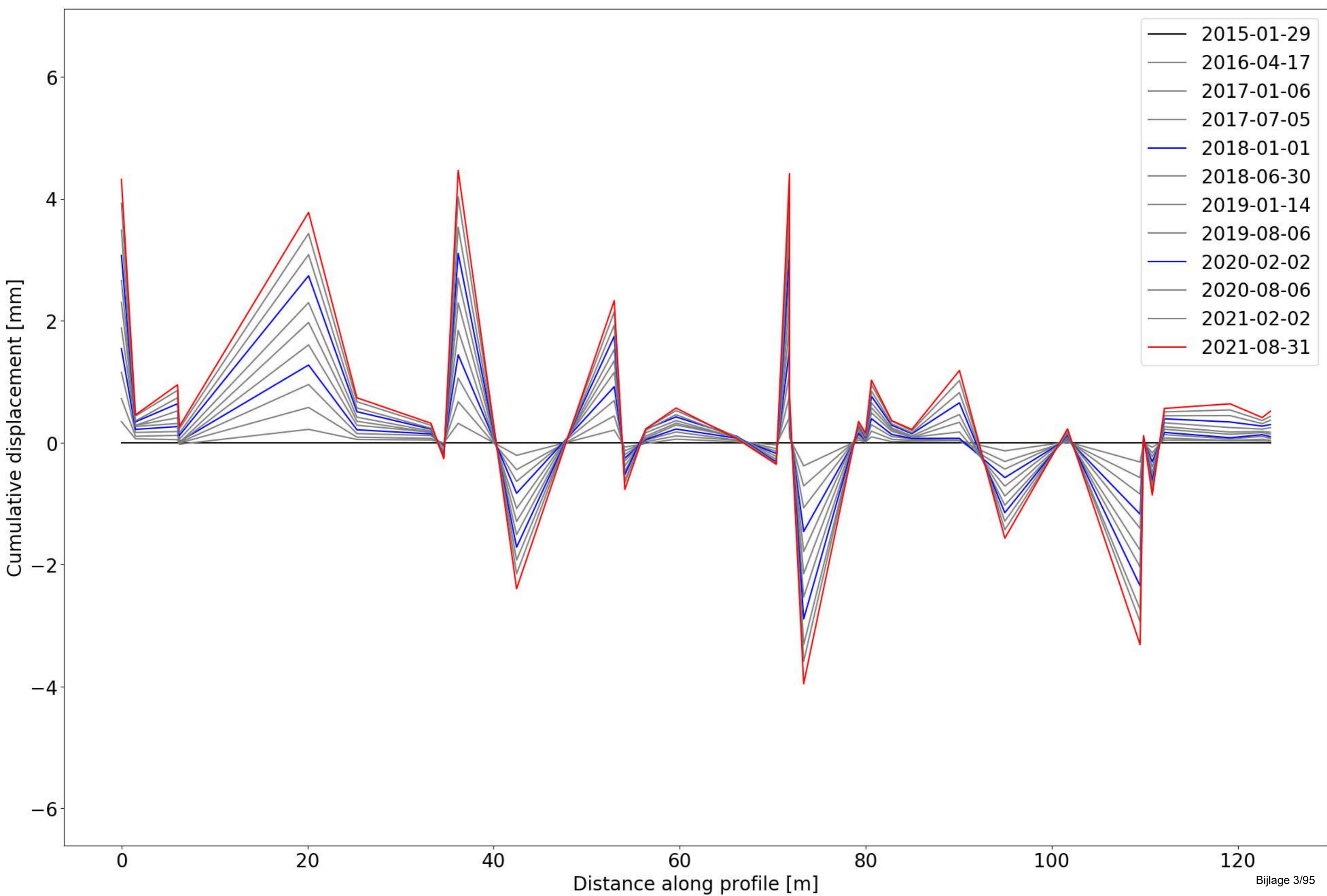


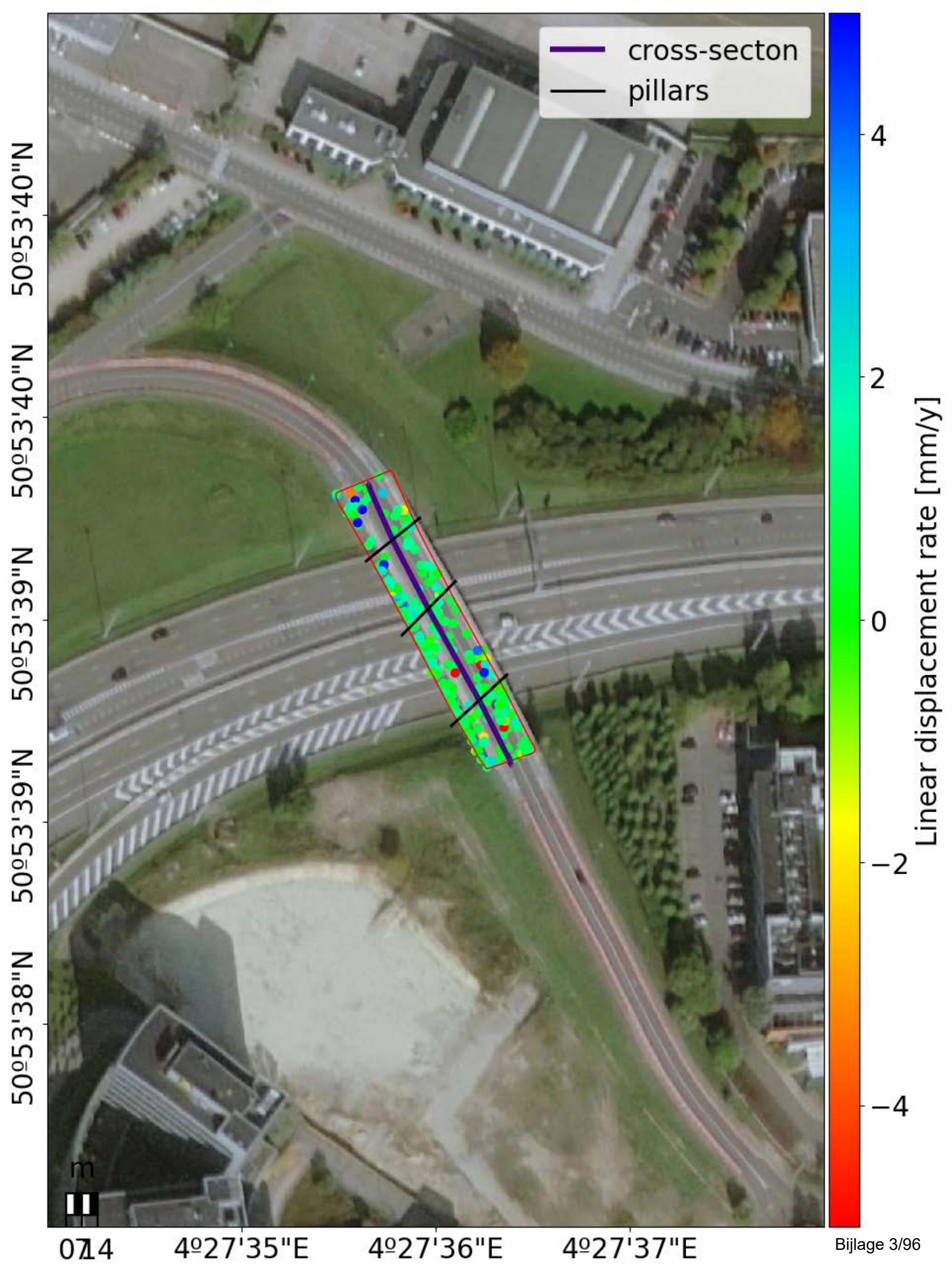


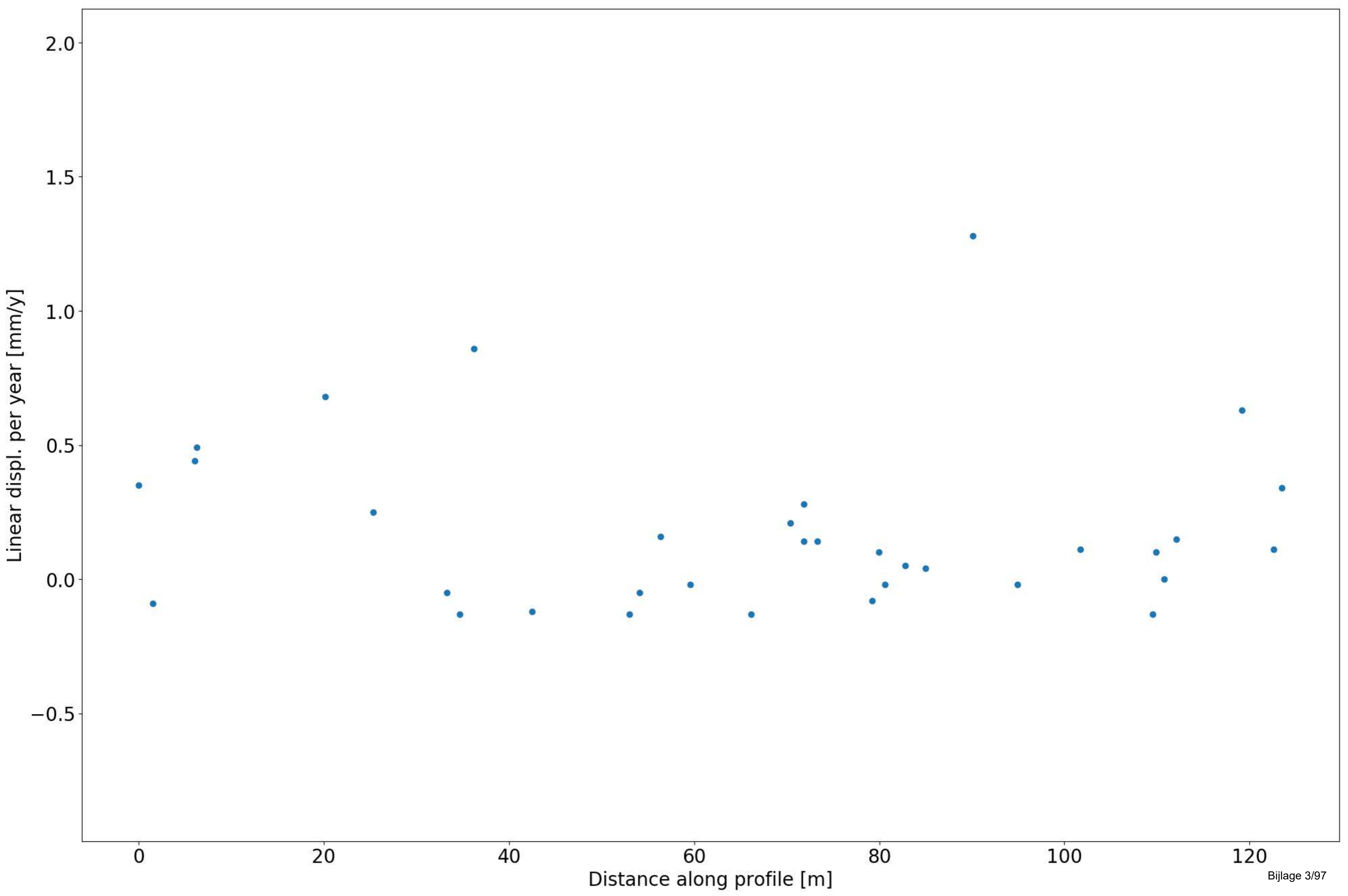


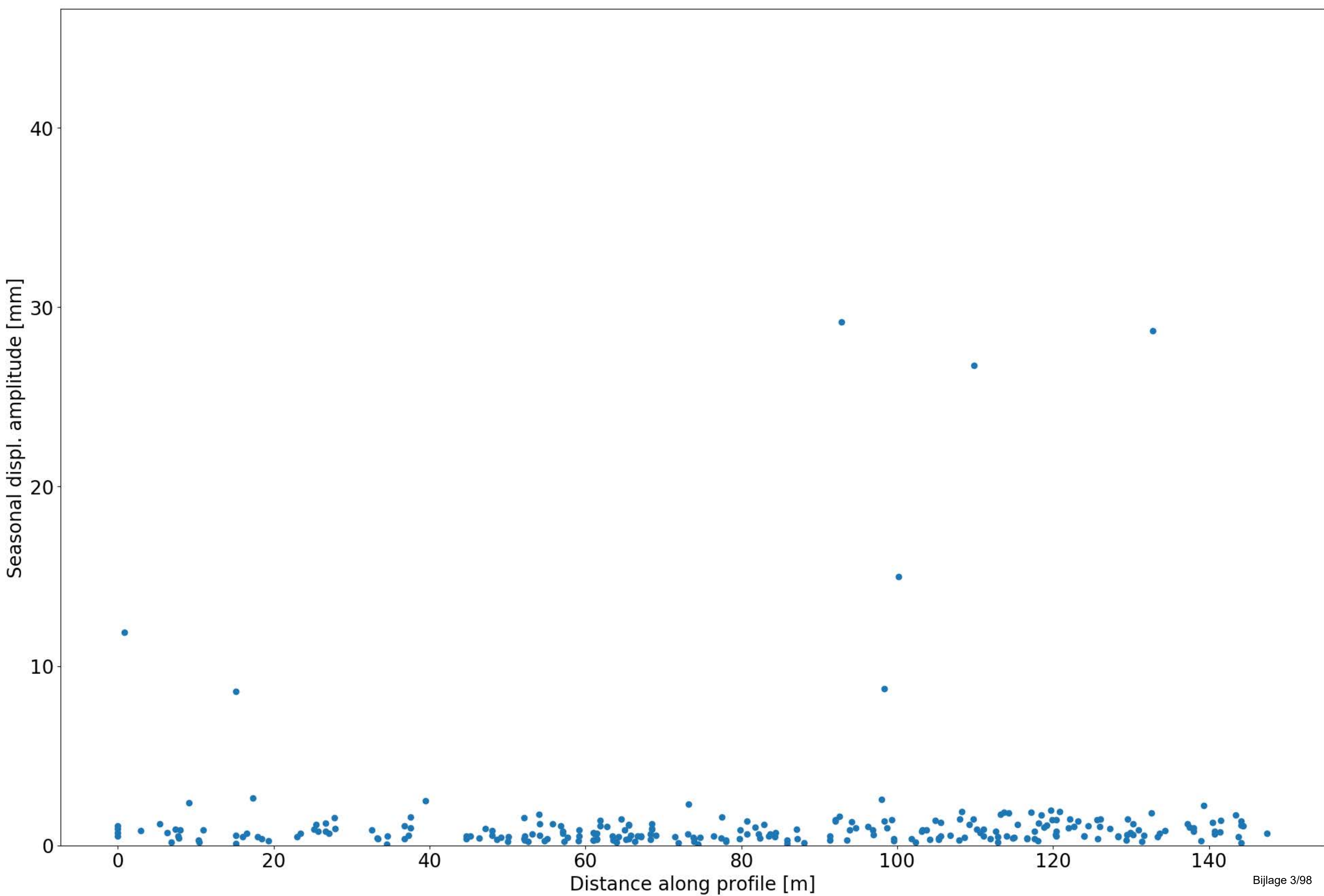


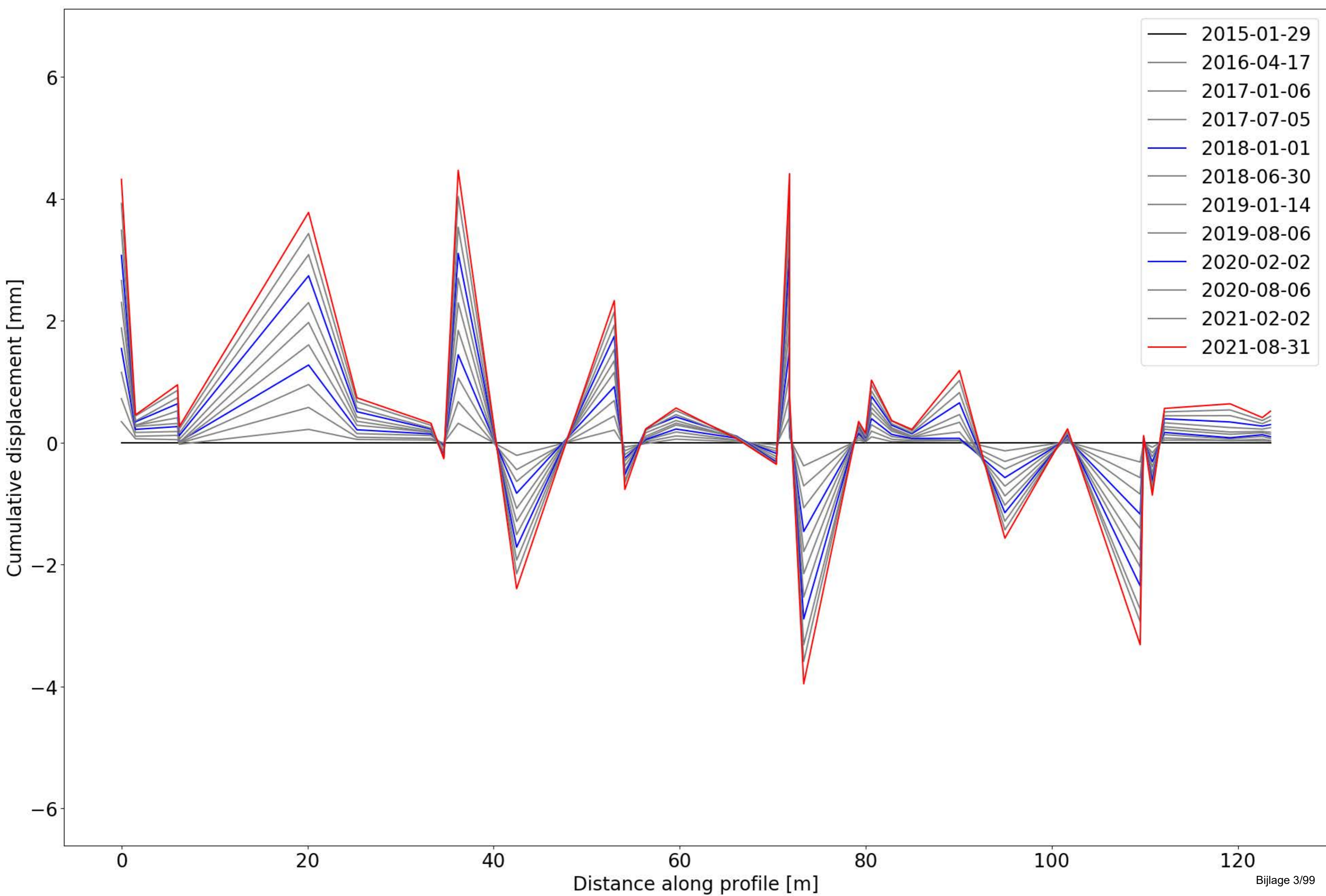












4333 Brug R18



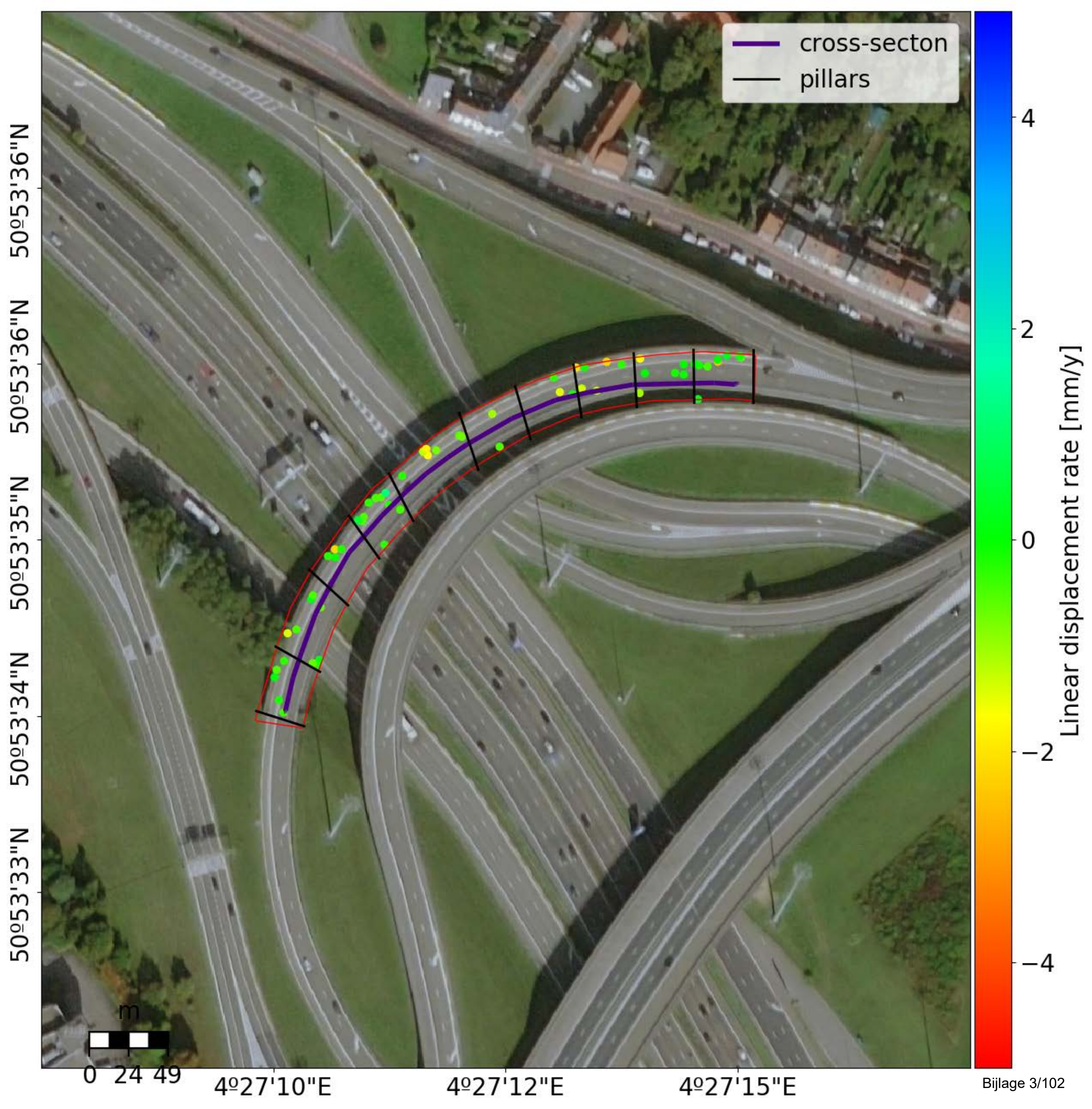
Object Nummer	Name	Long (WGS 84)	Lat (WGS84)	Long (Lambert)	Lat (Lambert)	Length [m]	Width [m]	Material	Description	Information
4333	Brug R18	50.89308634	4.45268255	155905.01999	175863.10000	251.5	15.5		(7) verscherpt toezicht	no maintenance works, pillars were treated between 2011 and 2013

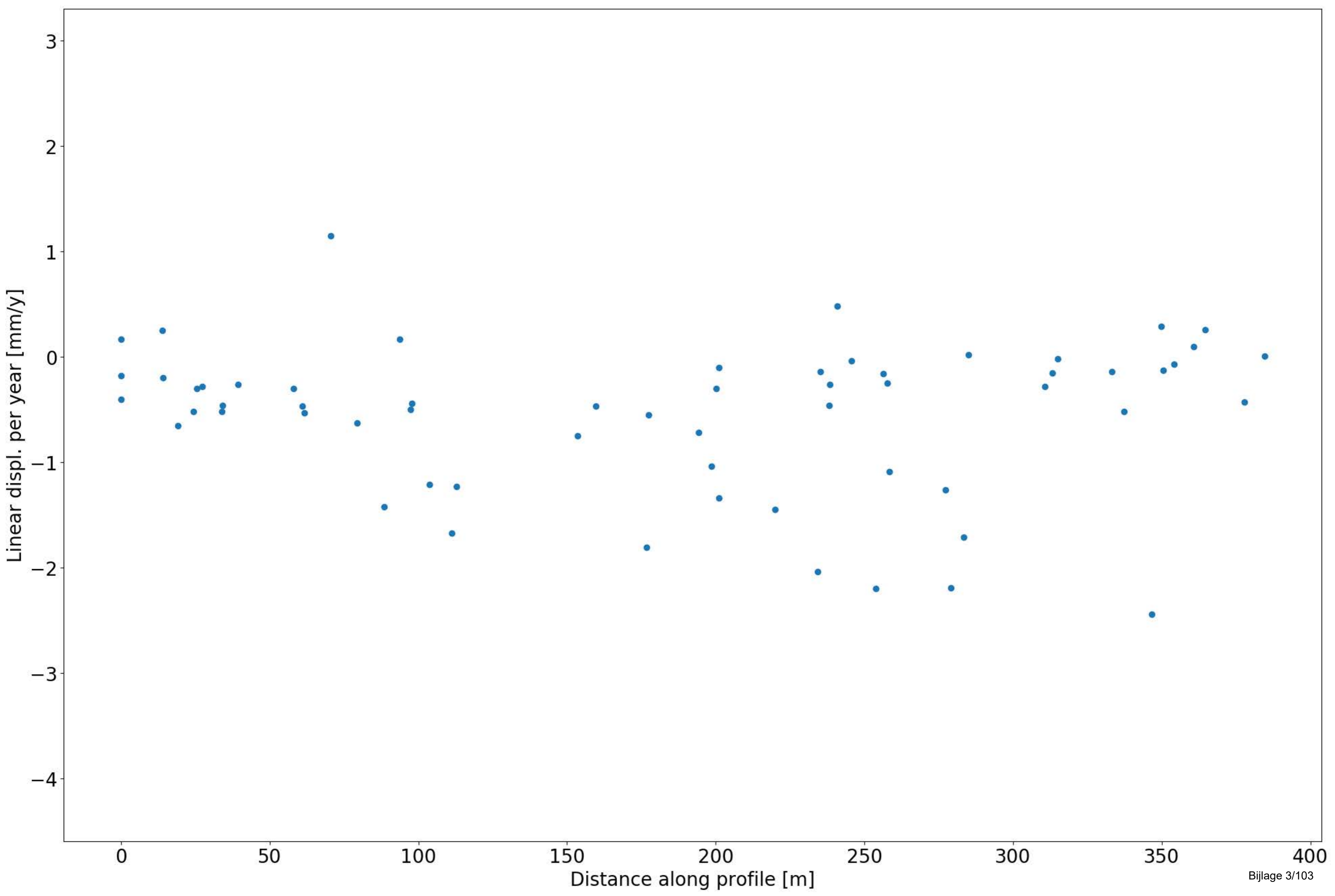
Change Detection

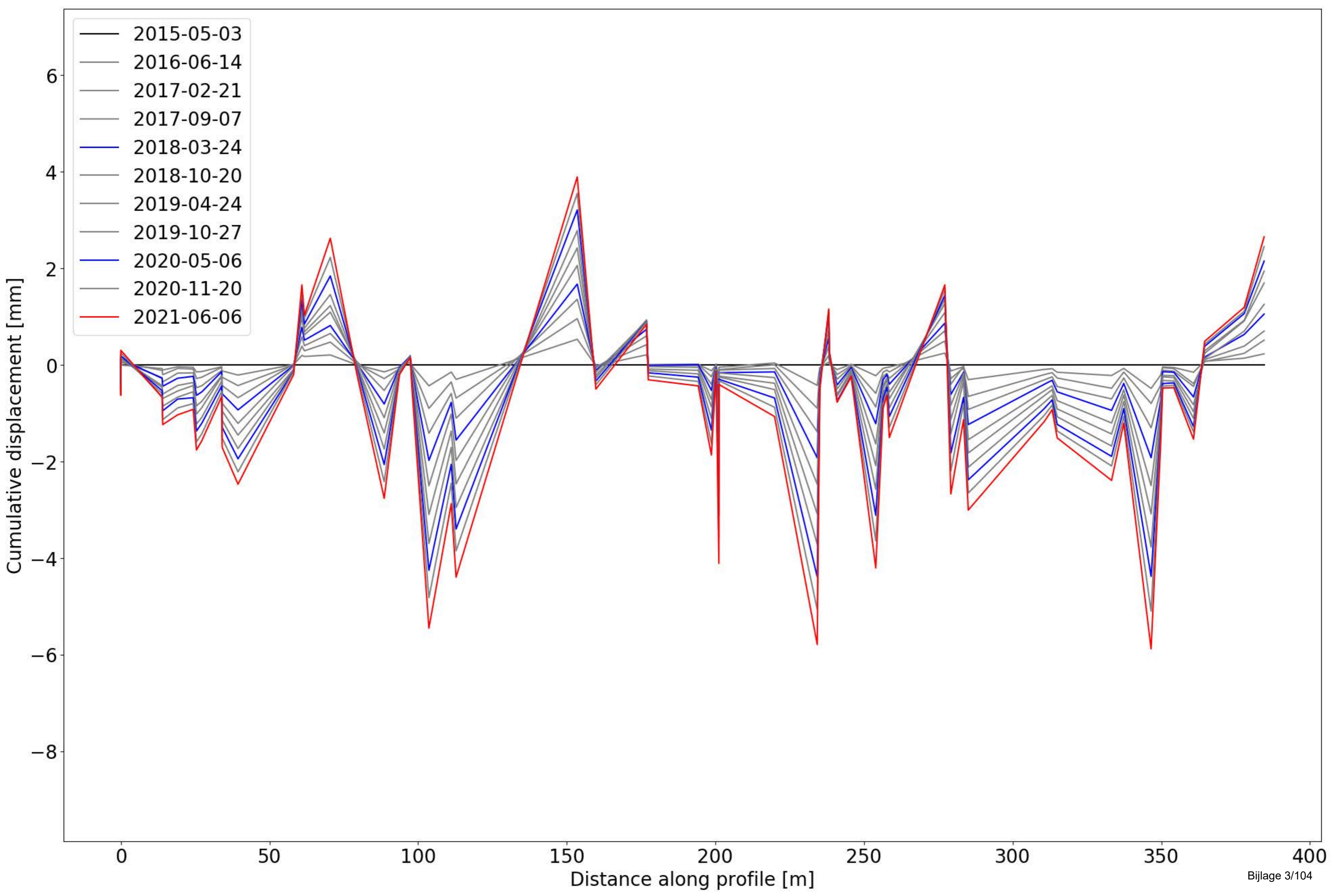
Change detection	Approx. period	Description
Change SW	August 2017	Increase in displacement rate from August 2017
Change NE	January 2020	Slight increase in displacement rate from January 2020

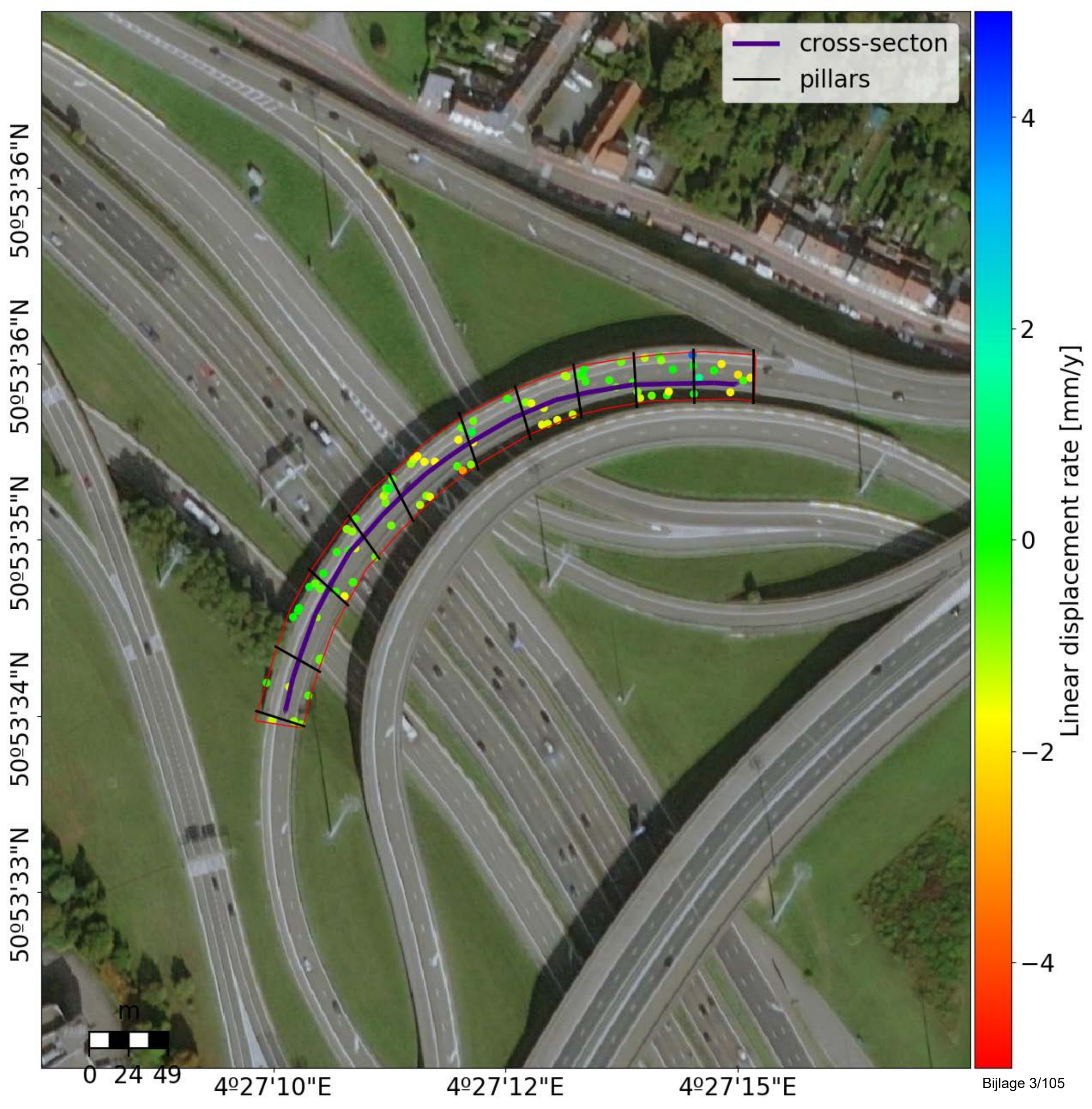
Comments on point density/distribution

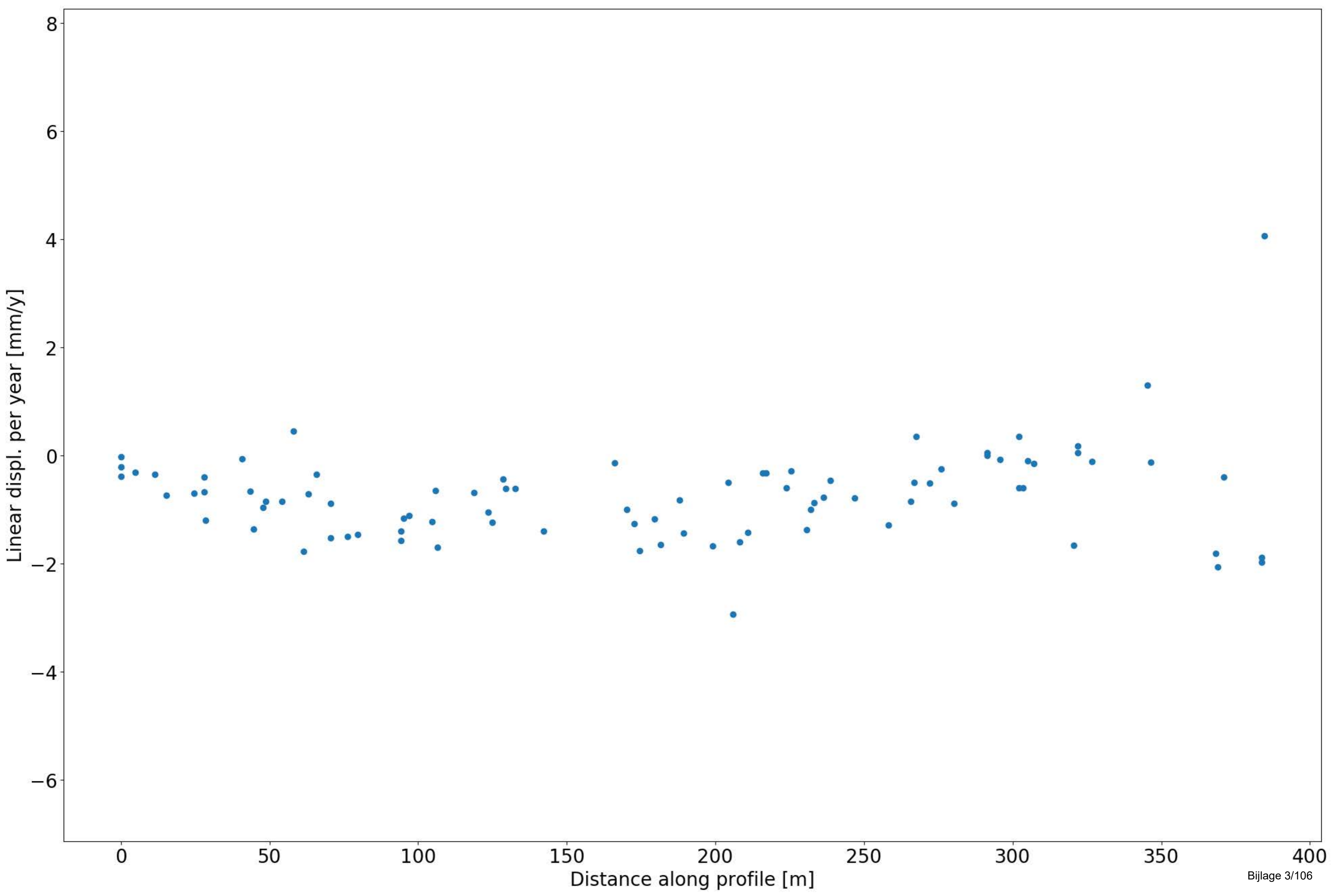
InSAR points along the length of the bridge for all 3 datasets (TSX, S1 asc and S1 dsc), no significant gaps in the data.

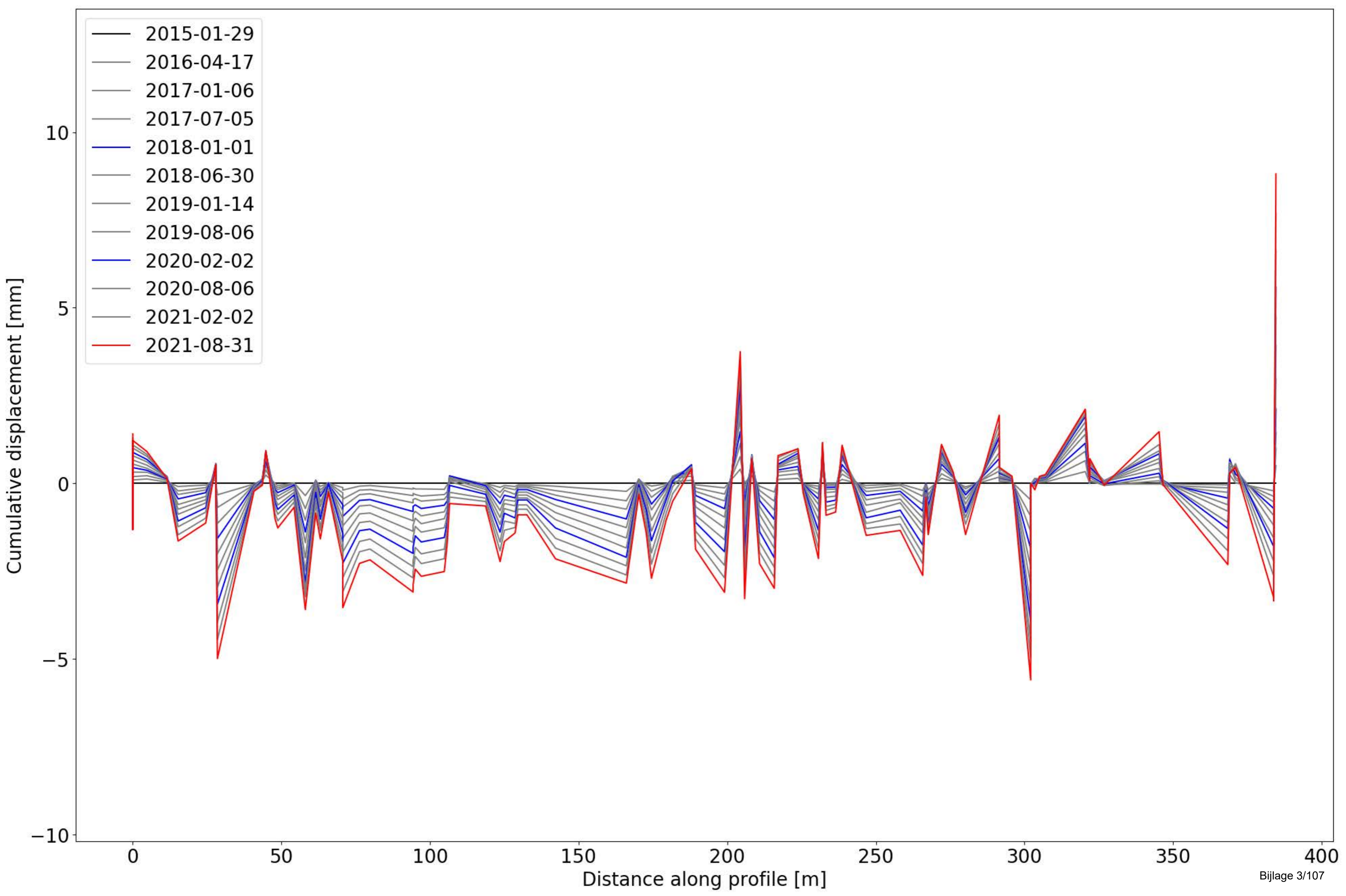


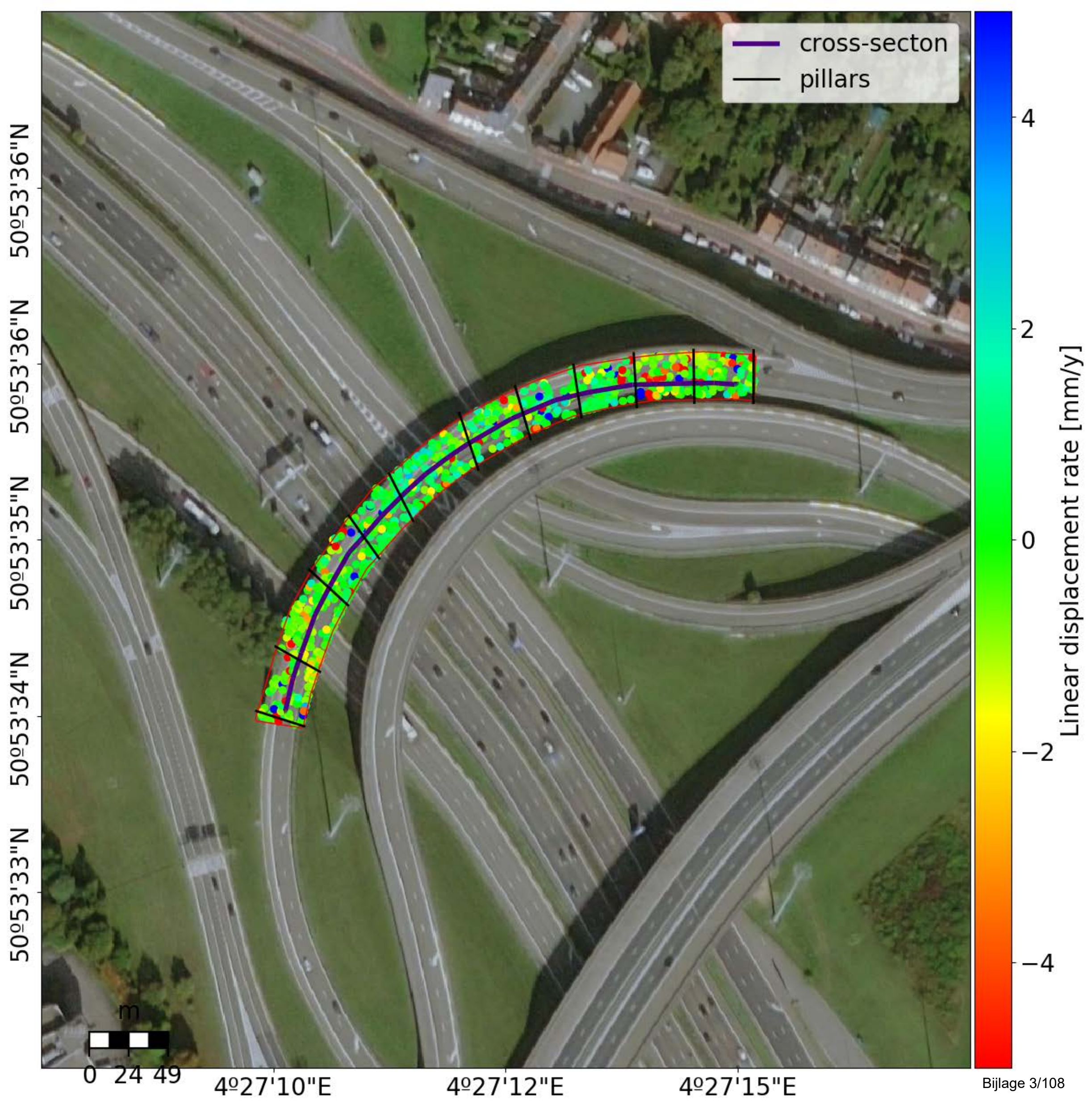












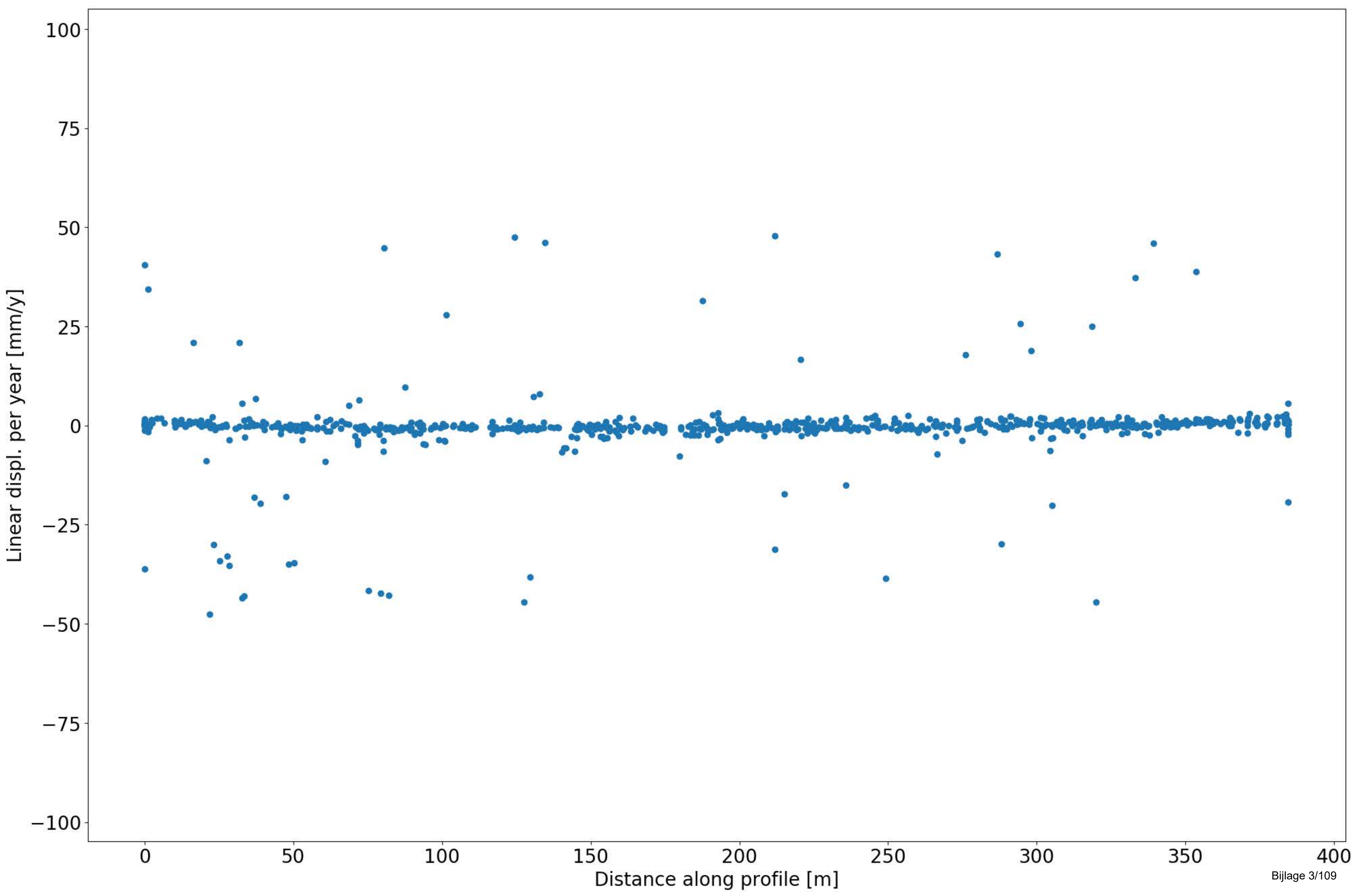
— cross-section
— pillars

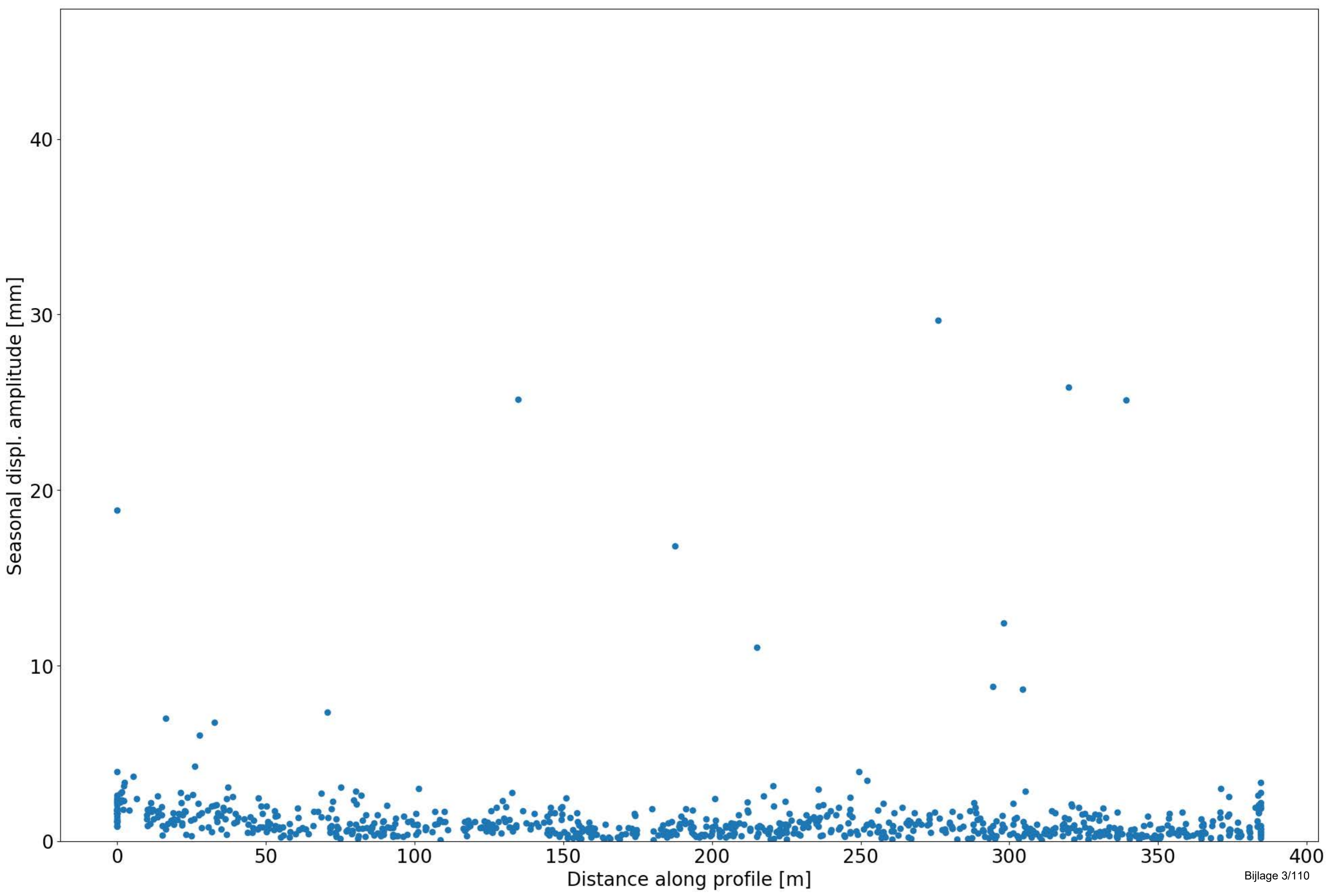
Linear displacement rate [mm/y]

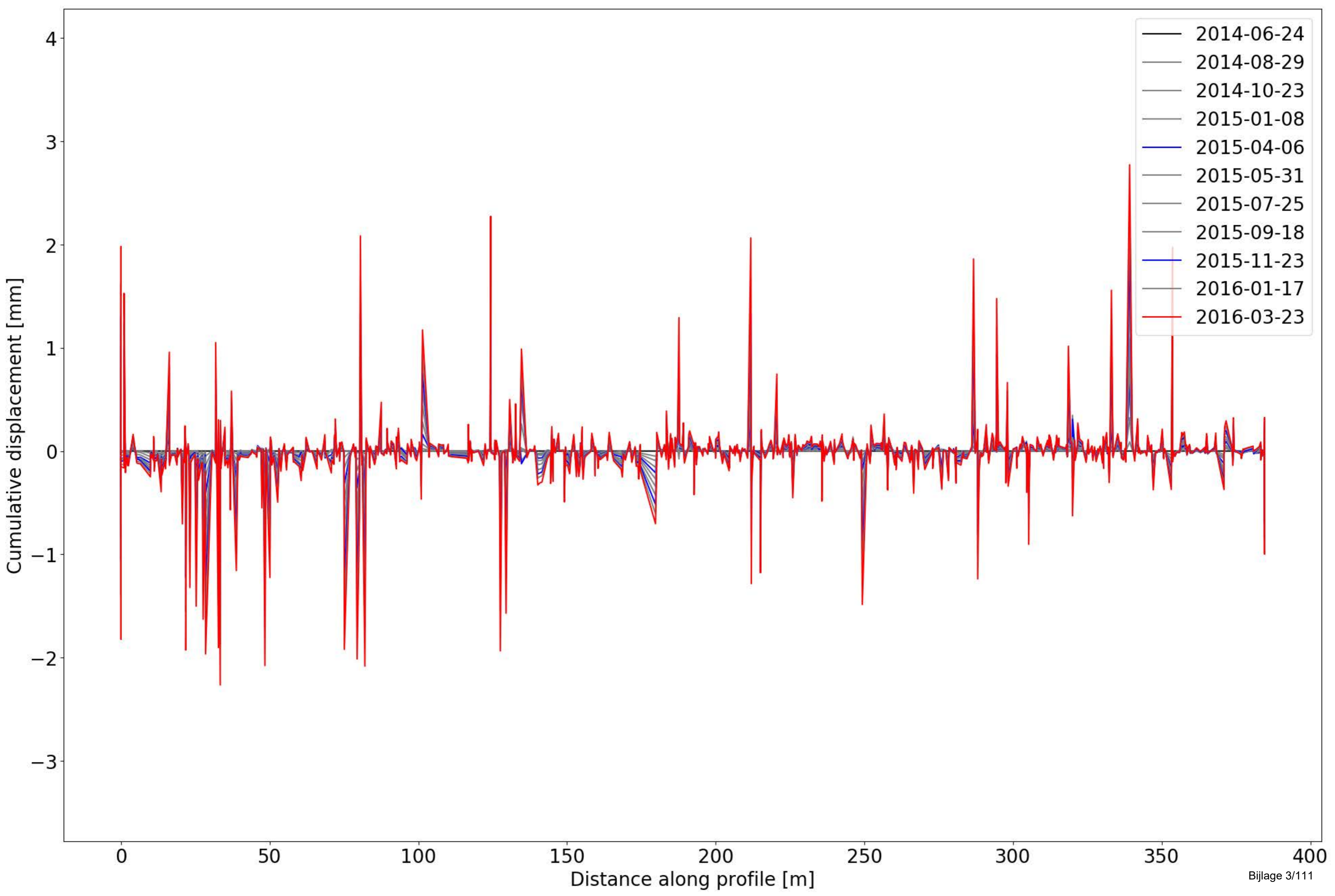
0 24 49
m

4°27'10"E 4°27'12"E 4°27'15"E

50°53'33"N 50°53'34"N 50°53'35"N 50°53'36"N







4336 Brug R21



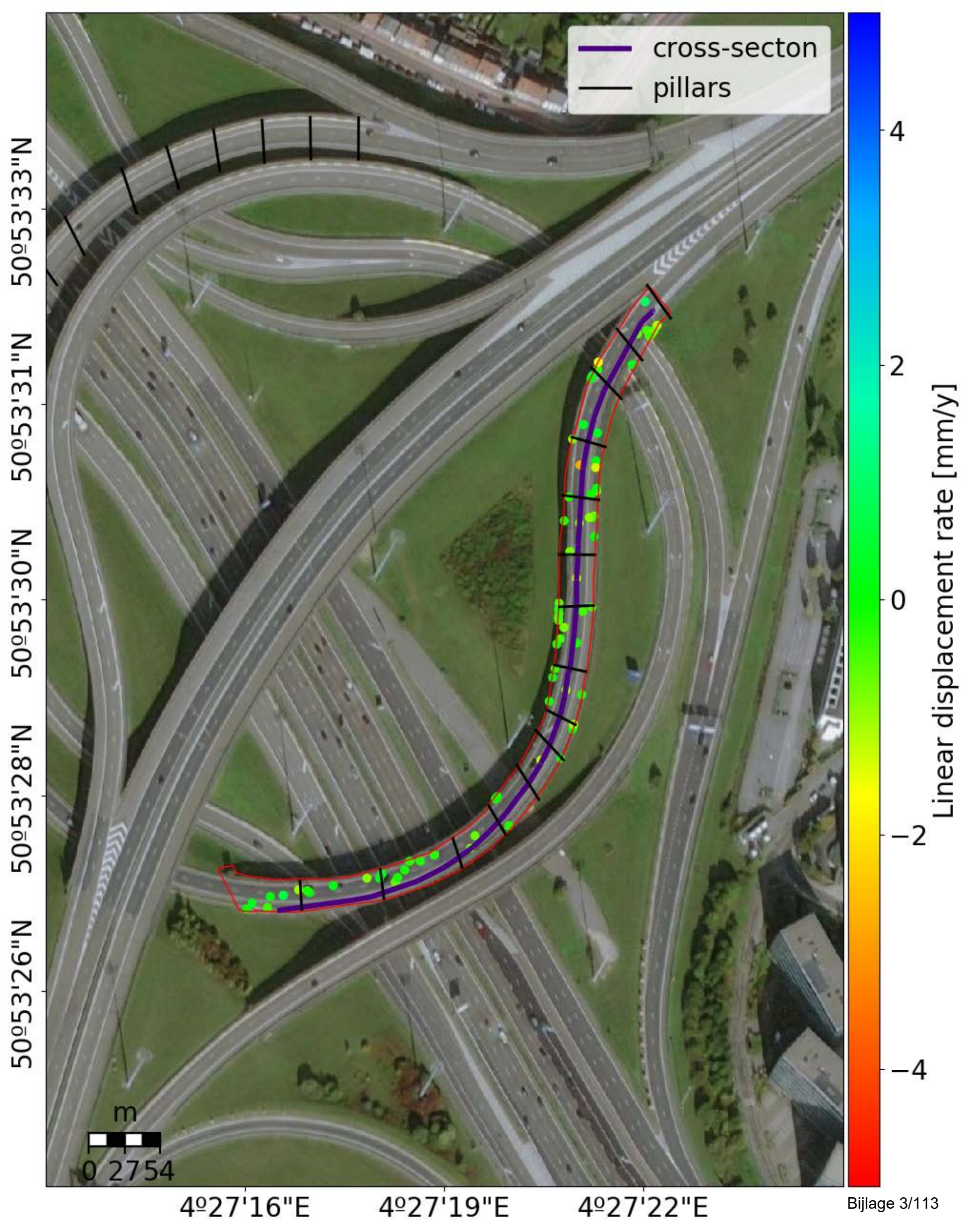
Object Nummer	Name	Long (WGS84)	Lat (WGS84)	Long (Lambert)	Lat (Lambert)	Length [m]	Width [m]	Material	Description	Information
4336	Brug R21	50.89039655	4.455349666	156093.01999	175564.10000	405	15.5		(8) verscherpt toezicht	no maintenance works

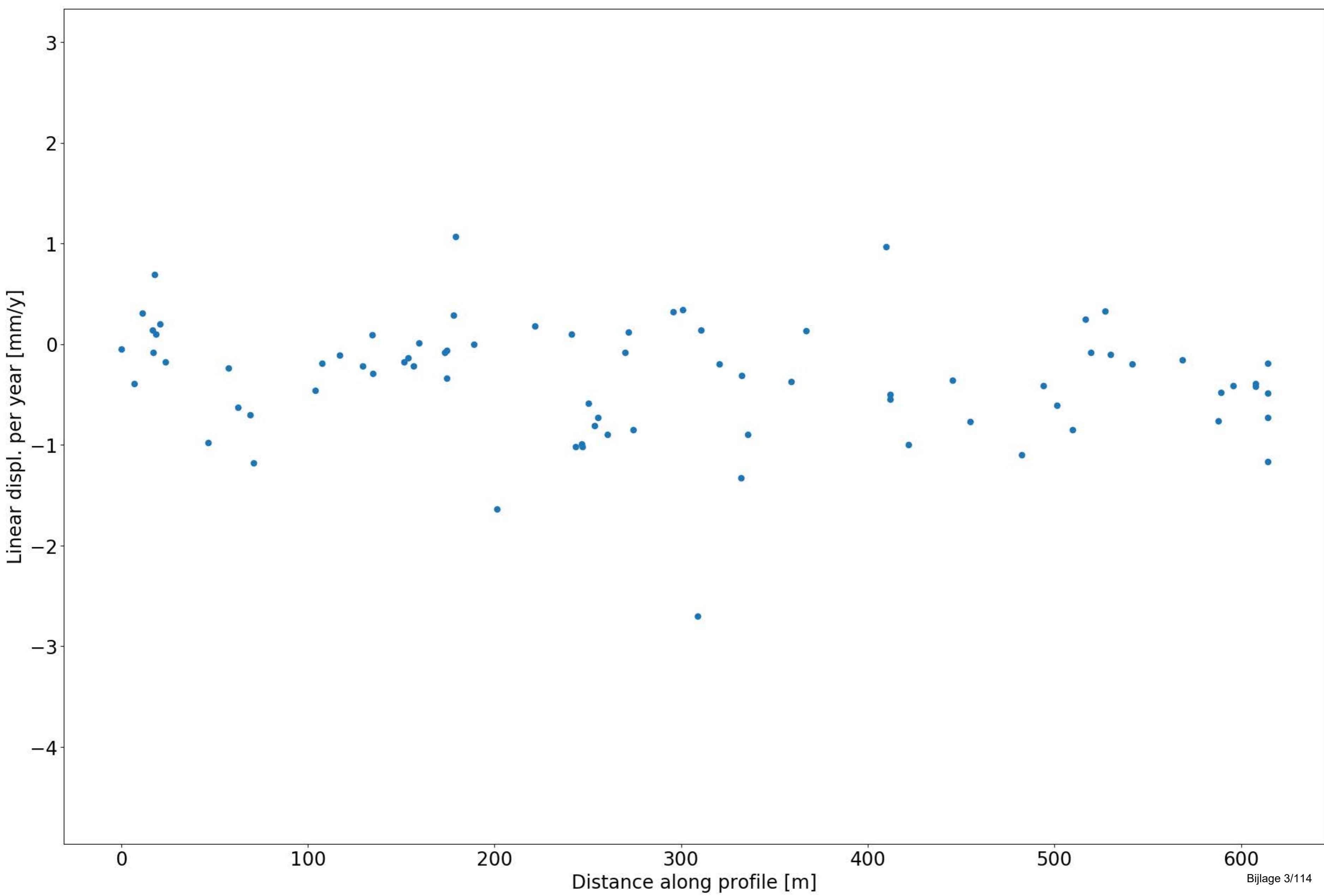
Change Detection

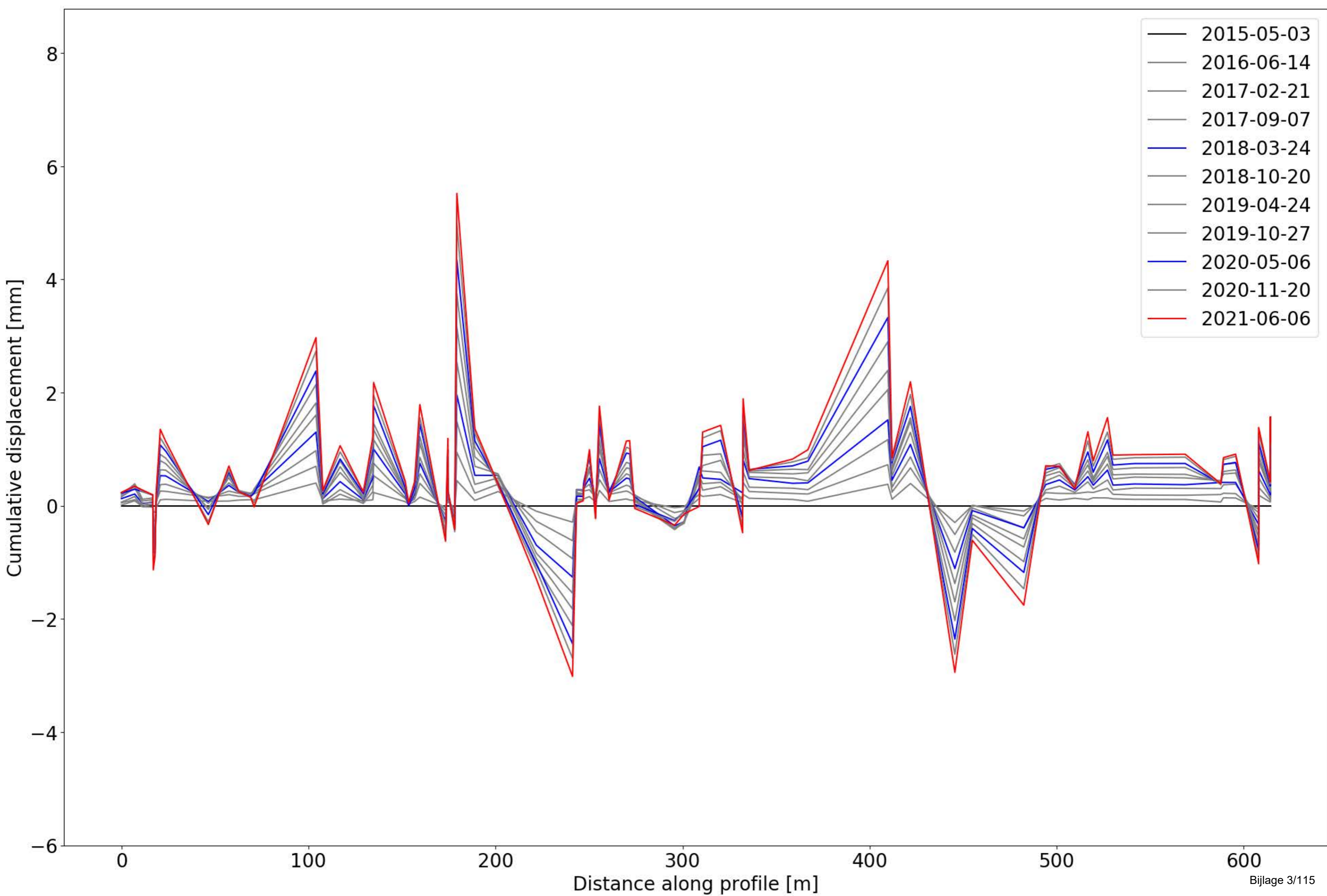
Change detection	Approx. period	Description
Change Middle	September 2020	Increase in displacement rate from September 2020

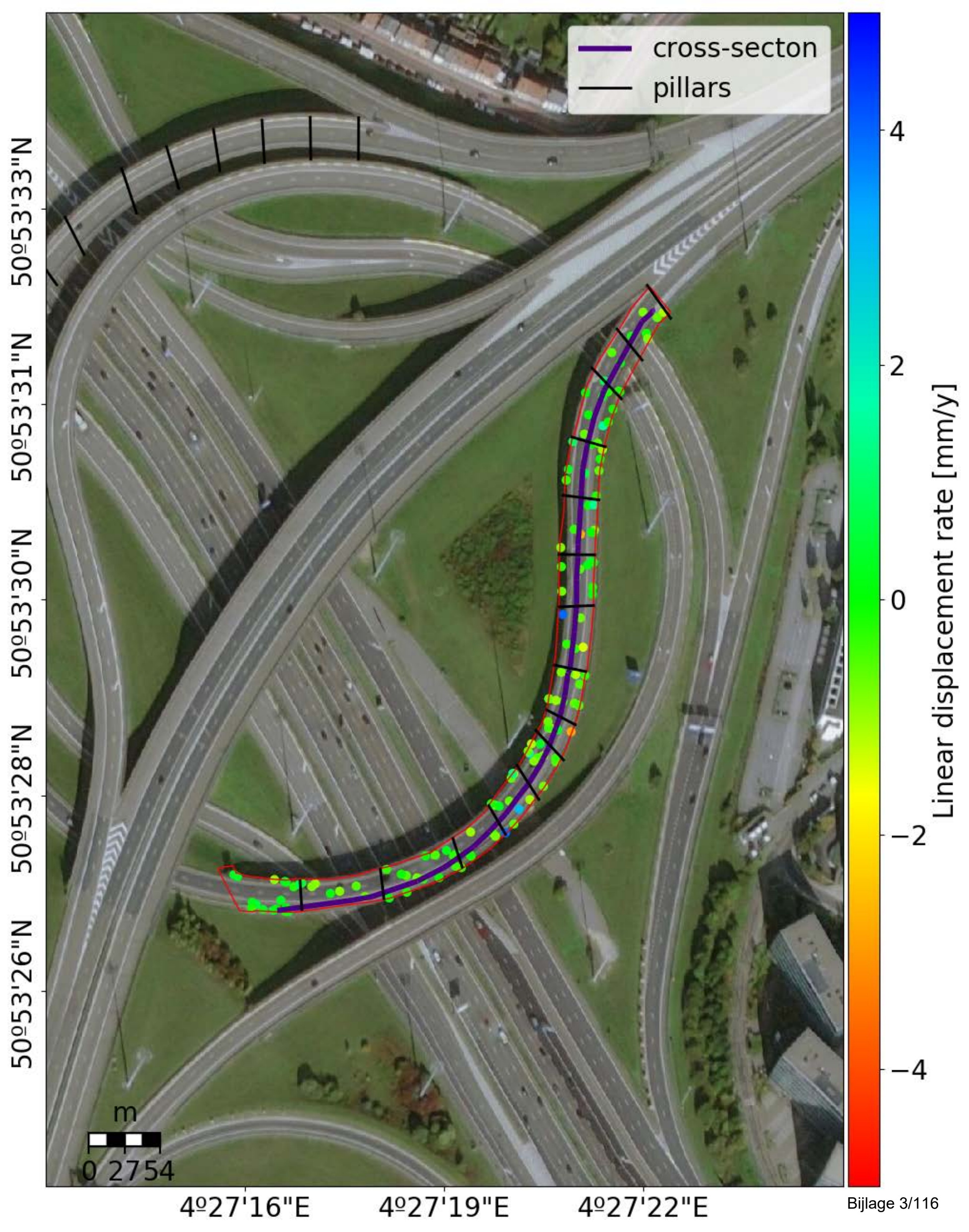
Comments on point density/distribution

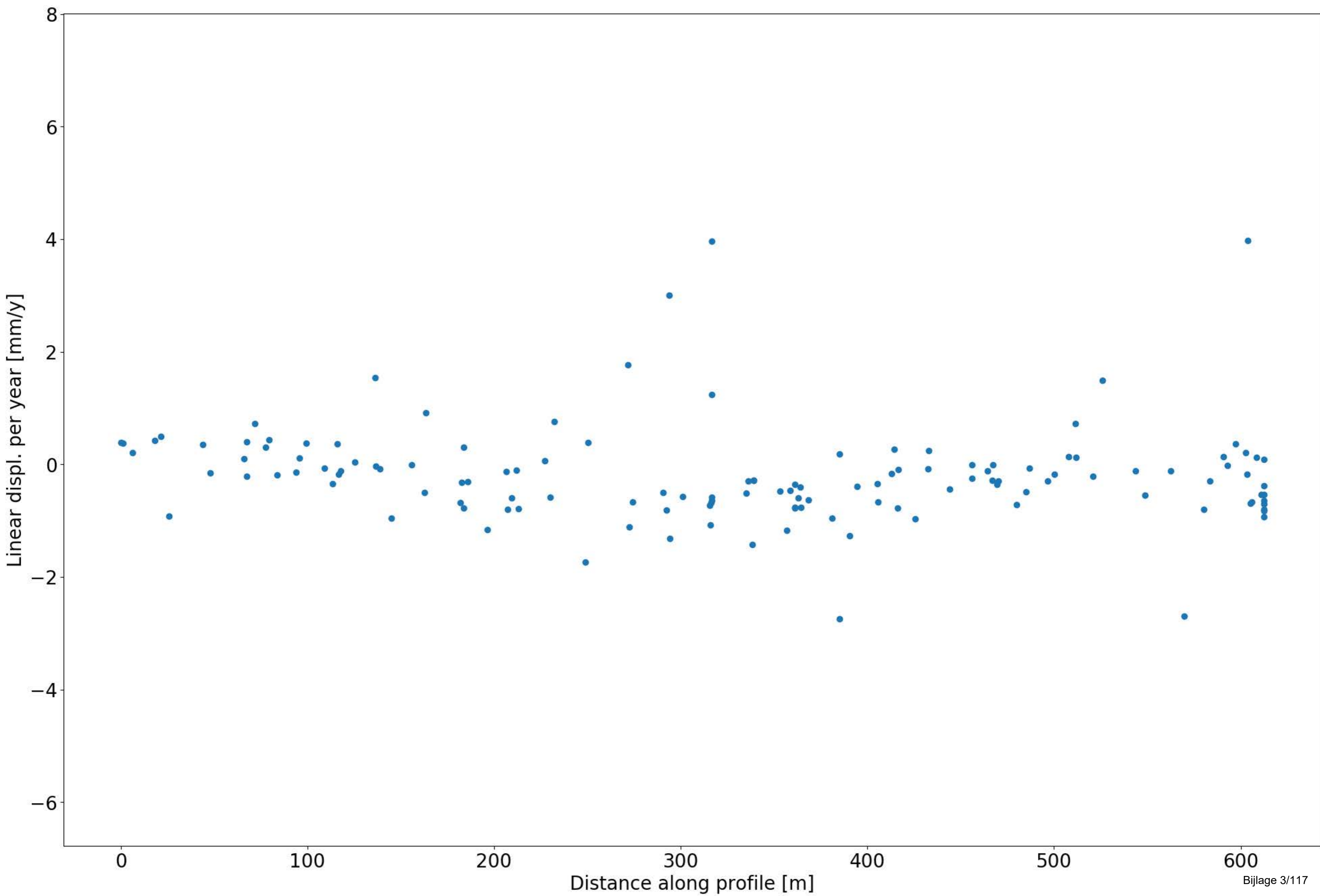
InSAR points along the length of the bridge for all 3 datasets (TSX, S1 asc and S1 dsc), no significant gaps in the data.

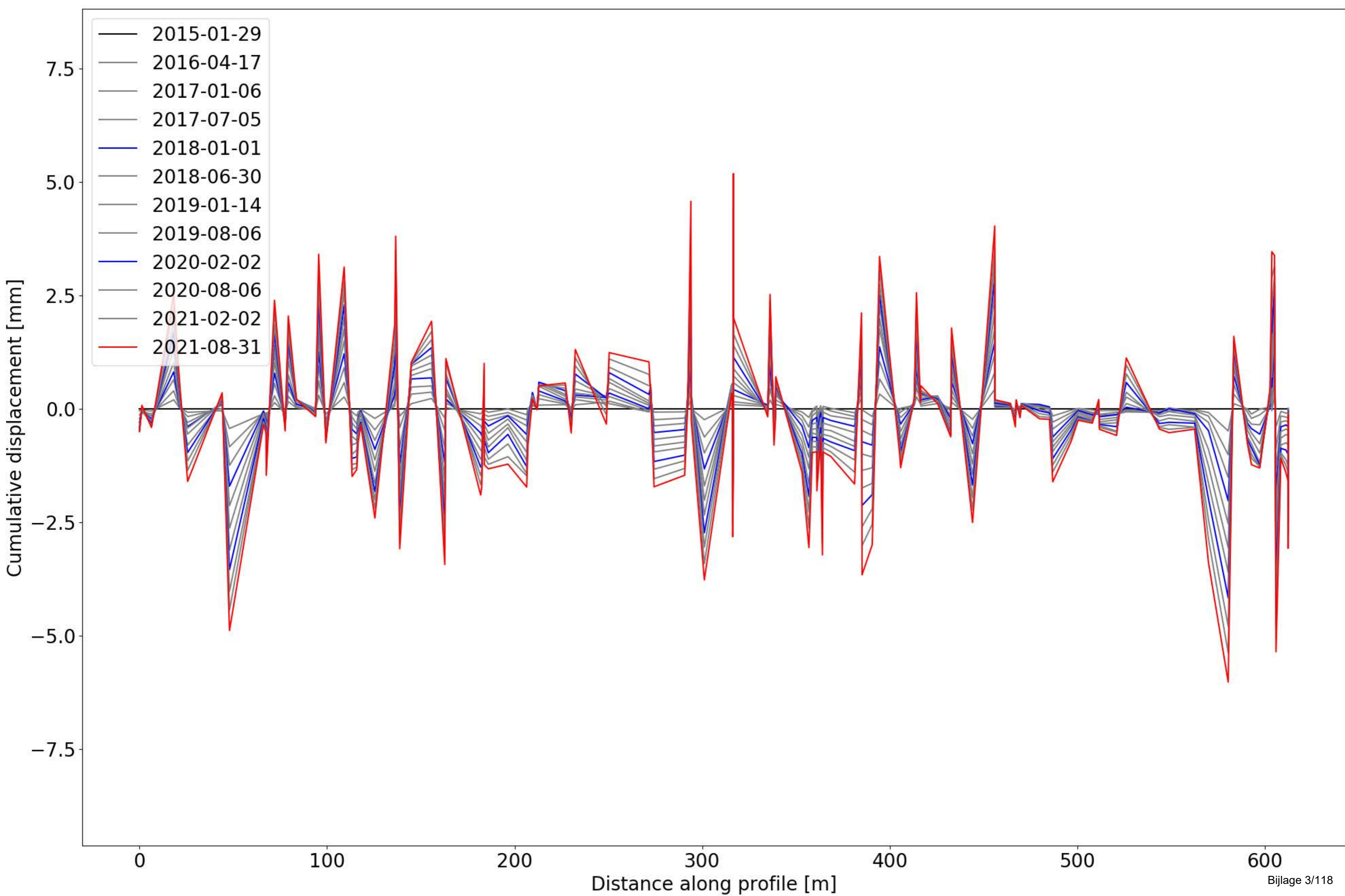


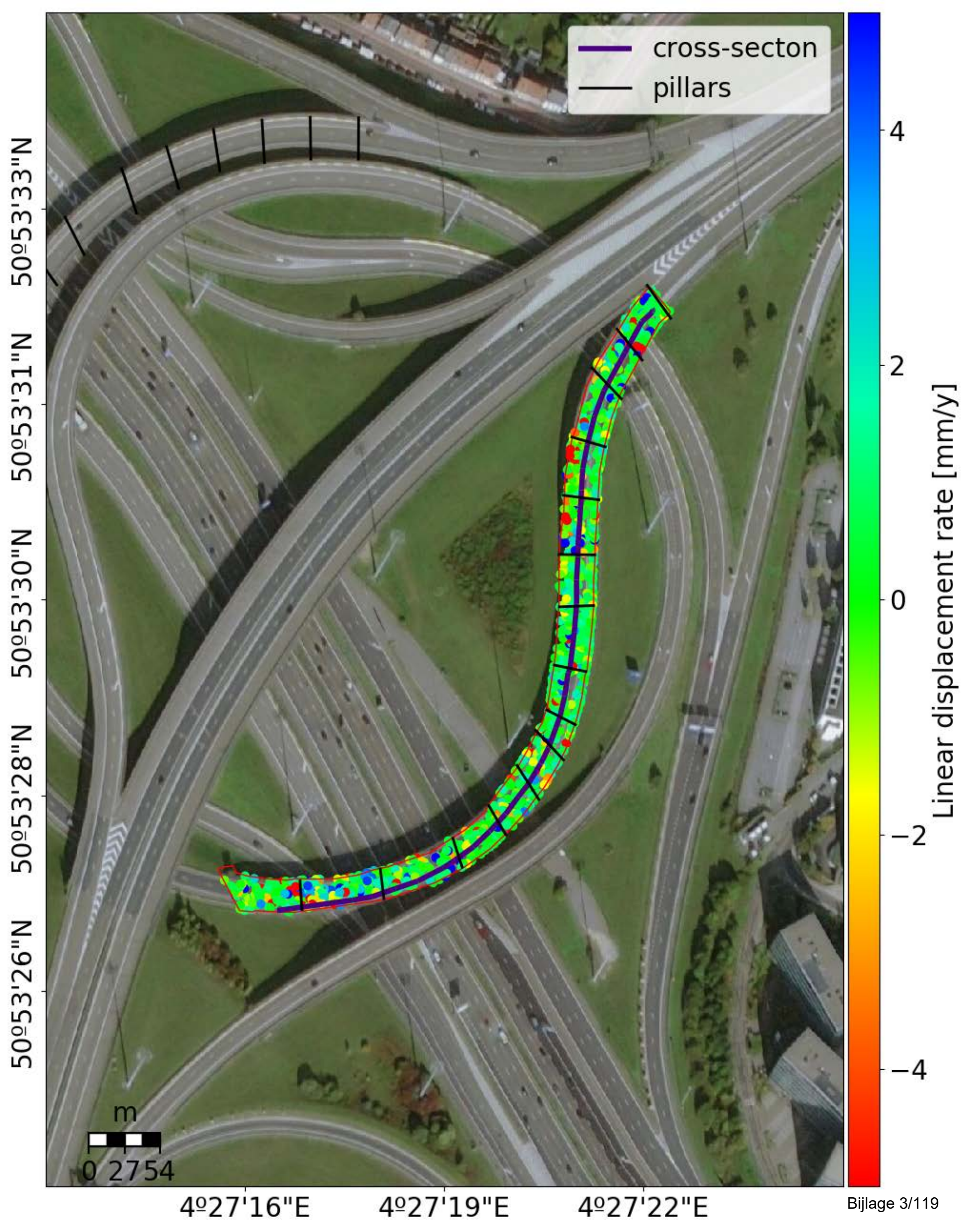


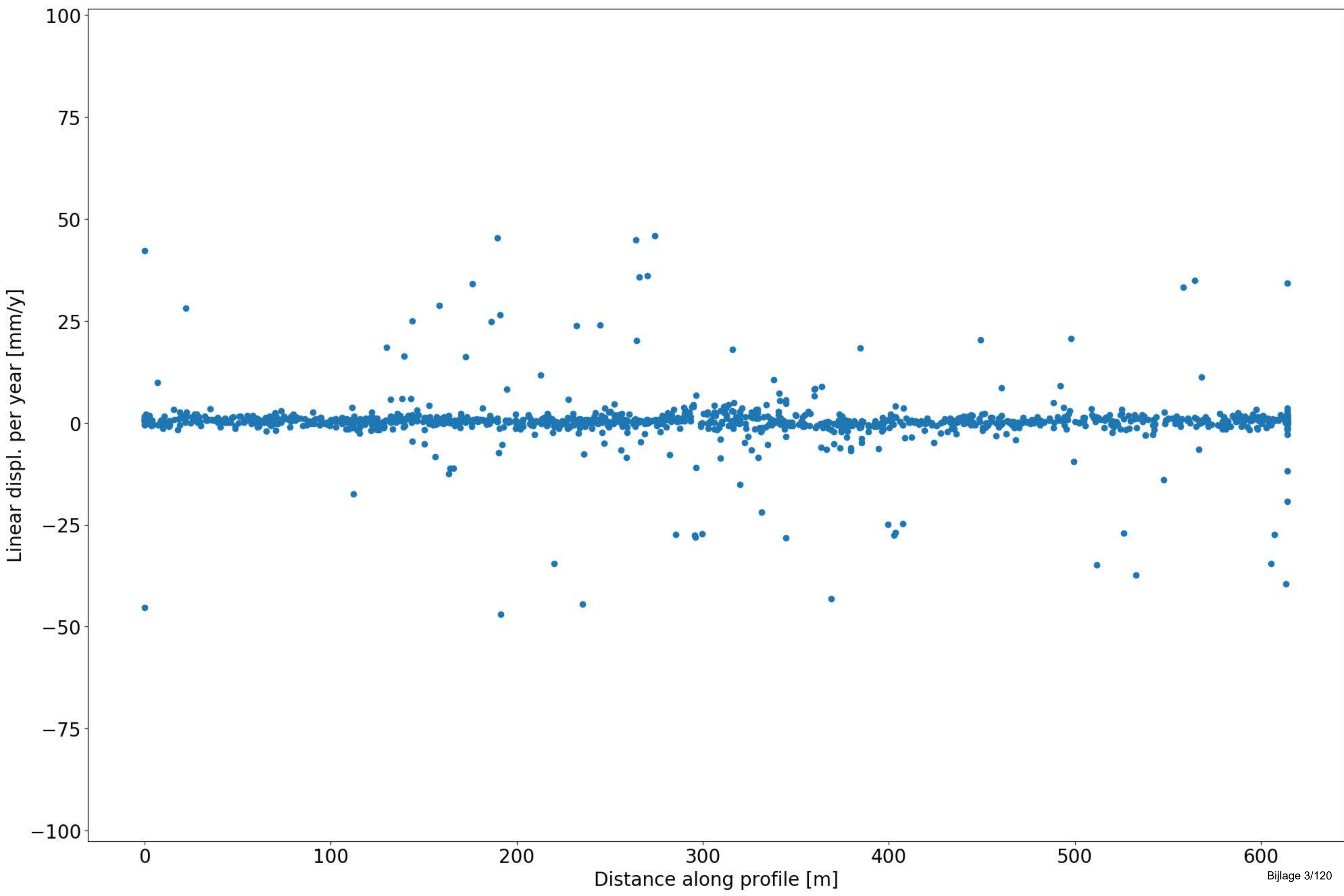


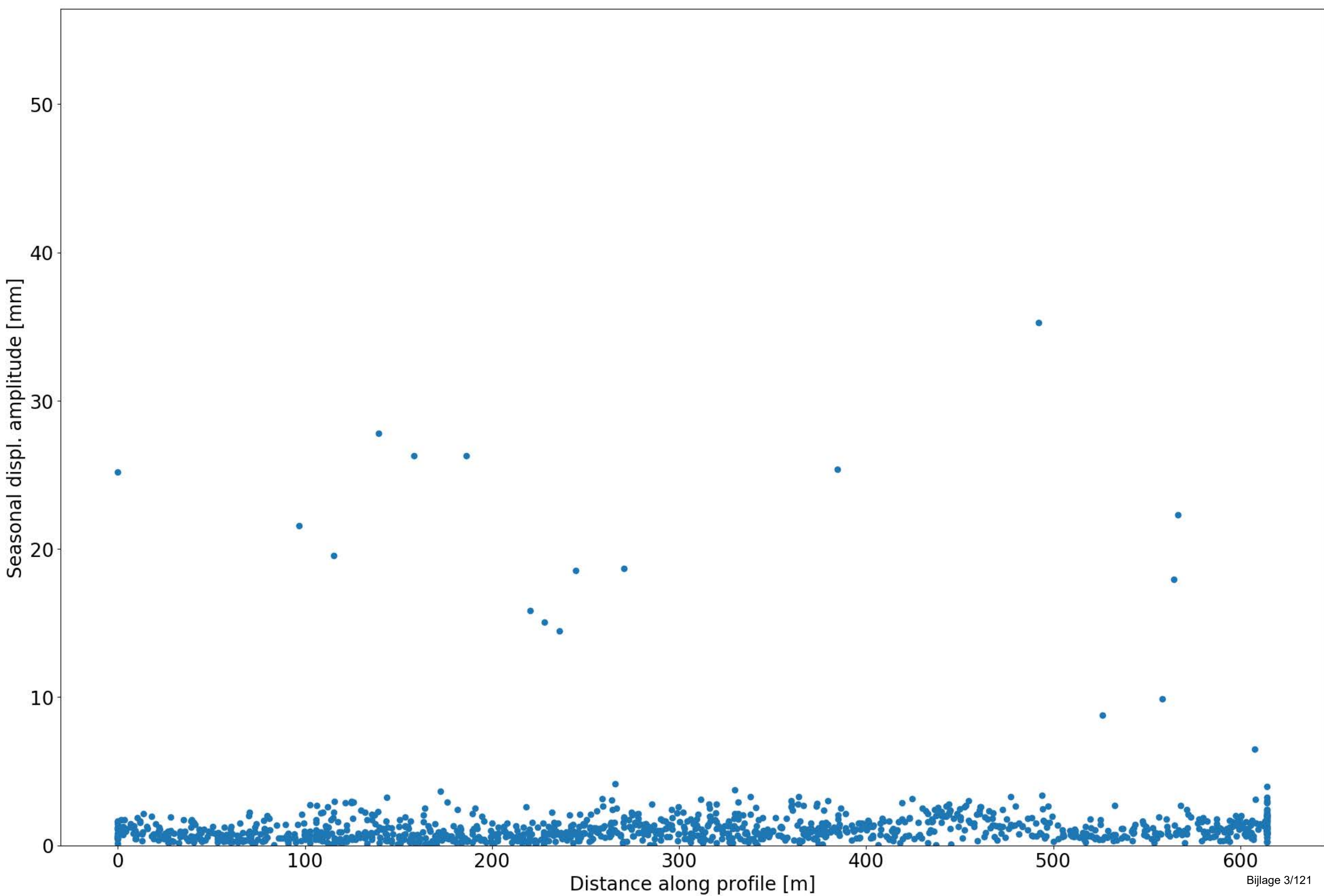


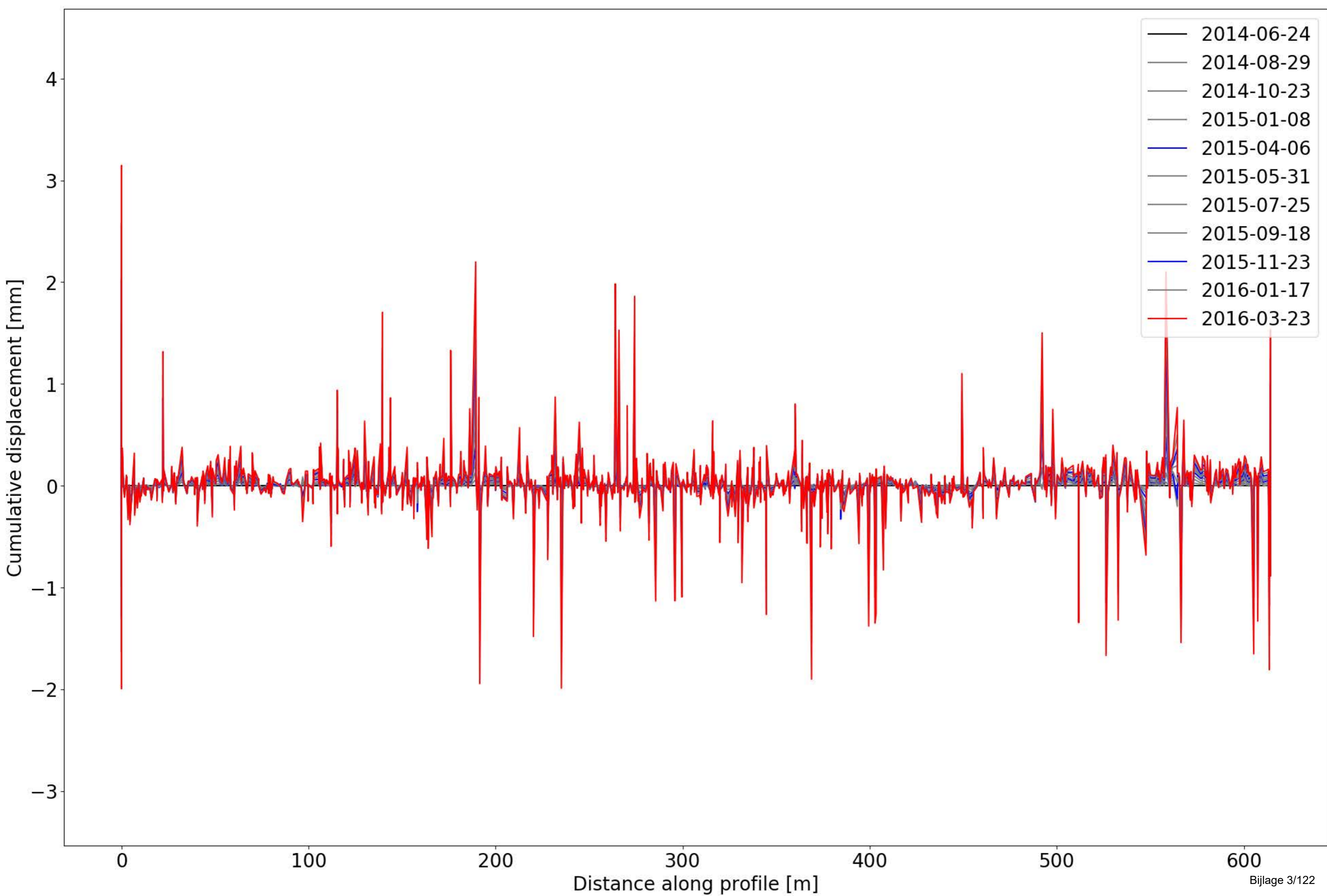












4463 Hefbrug Vilvoordebrug Vuurkruisenlaan-Rubensstraat Europabrug



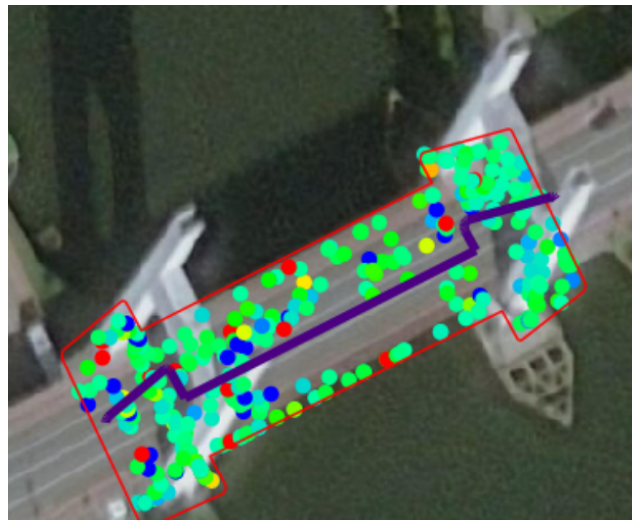
Object Nummer	Name	Long (WGS 84)	Lat (WGS84)	Long (Lambert)	Lat (Lambert)	Length [m]	Width [m]	Material	Description	Information
4463	Hefbrug Vilvoordebrug Vuurkruisenlaan-Rubensstraat Europabrug	50.92475769	4.418092505	153468.98999	179384.07999	55.8	20.96	steel	(4) ophaalbrug (hef) / staal	new top layer (asphalt) in 2015

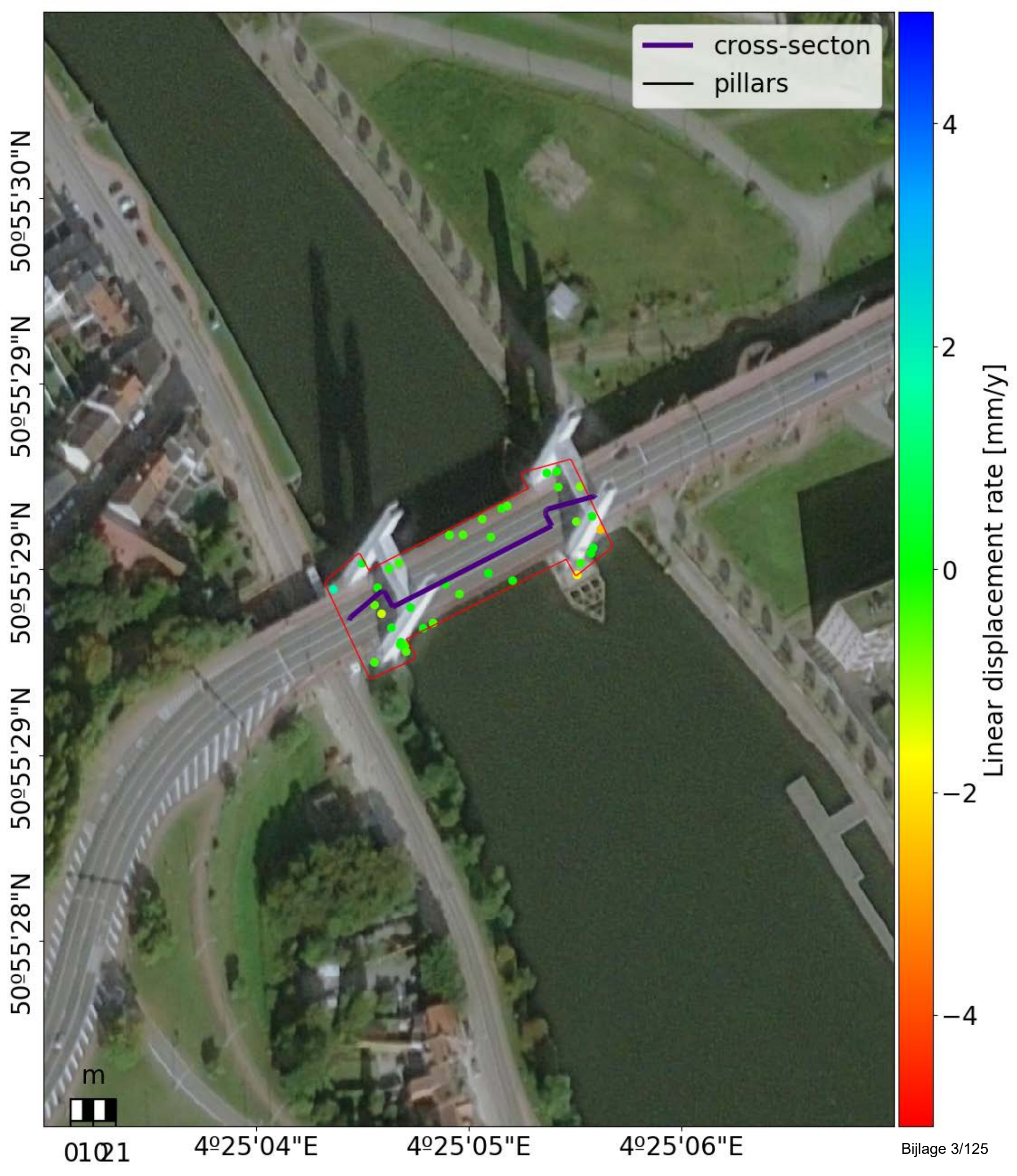
Change Detection

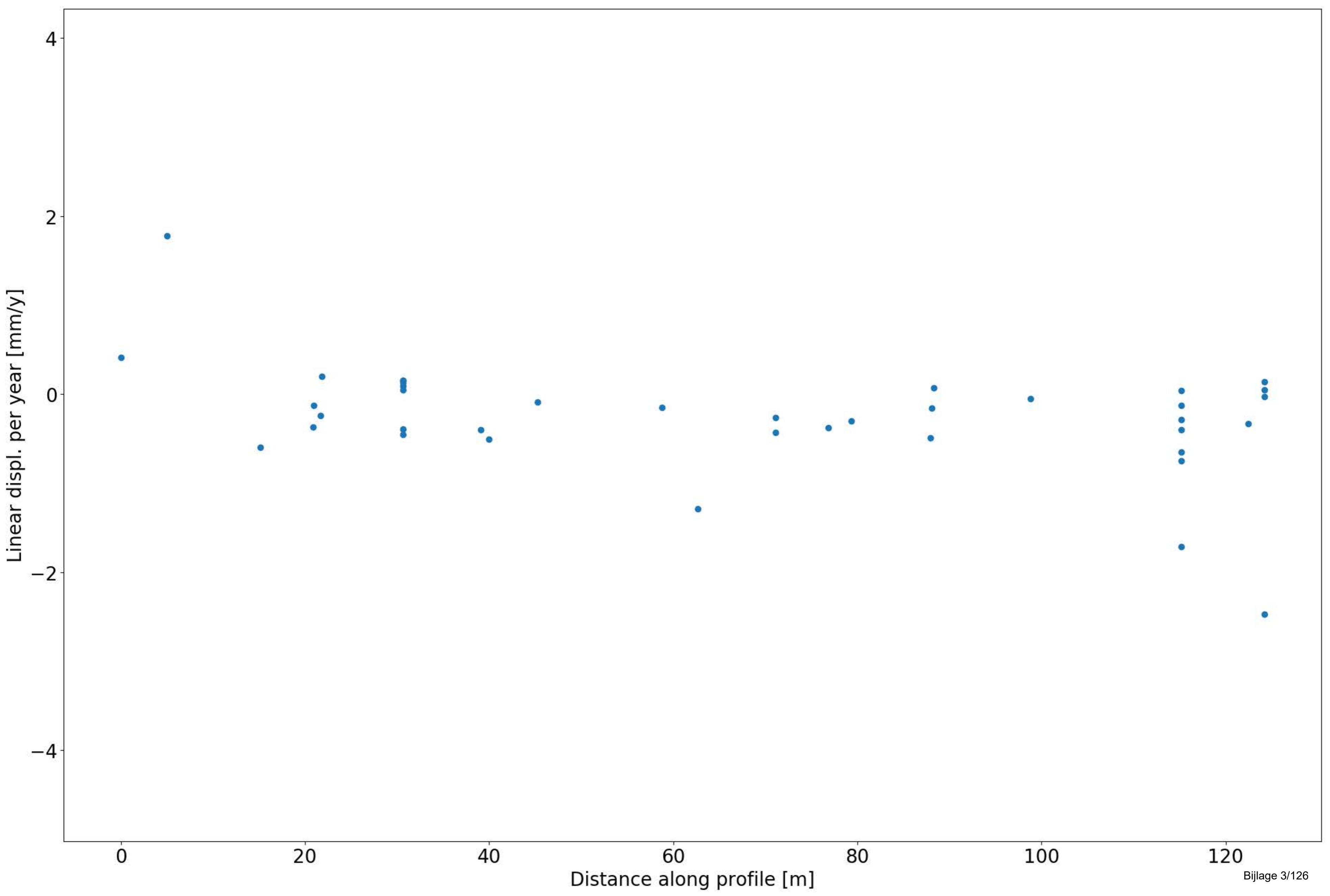
Change detection	Approx. period	Description
Change Middle	December 2016	Change in amplitude after December 2016
Change Middle	August 2018	Increase in displacement rate from August 2018

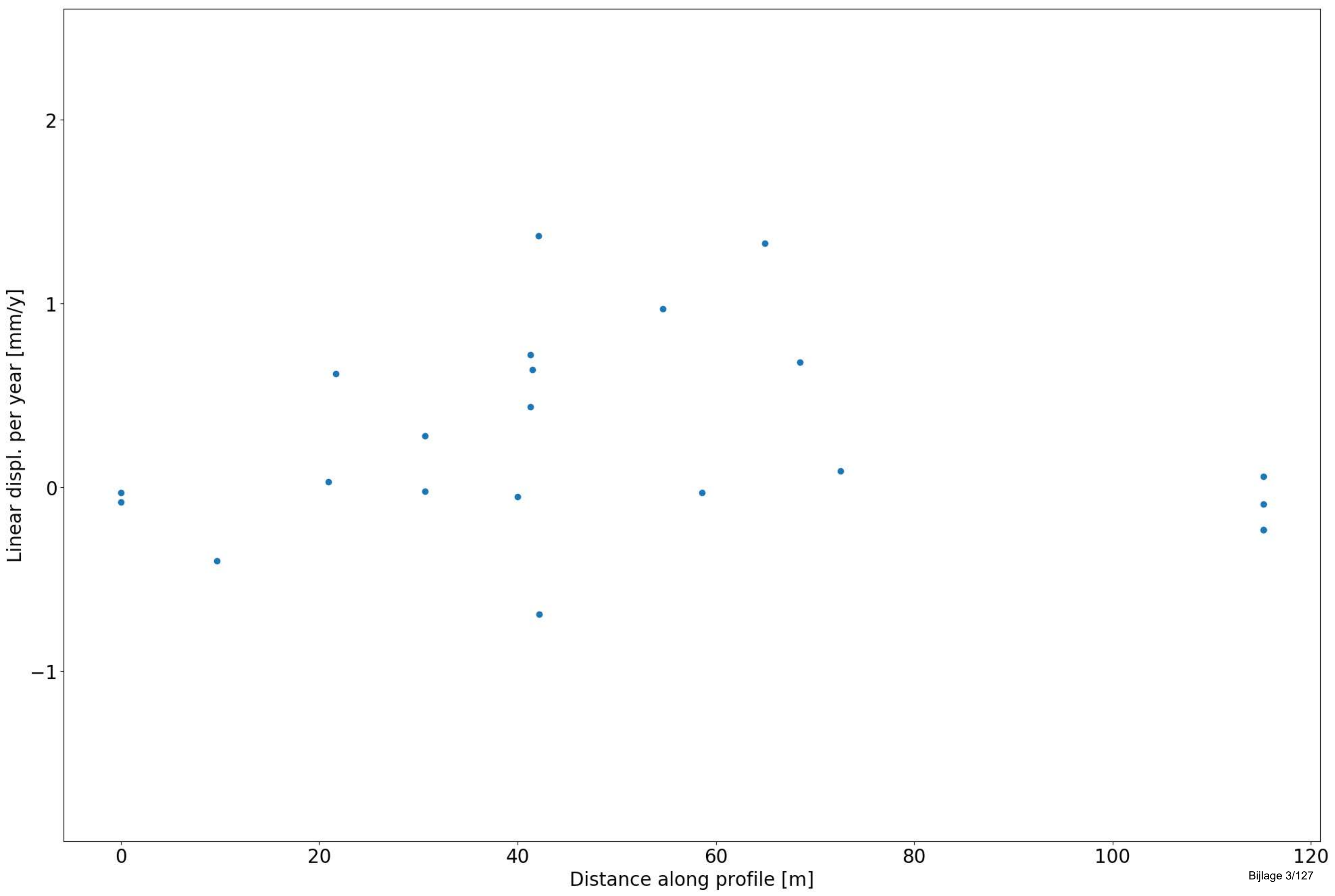
Comments on point density/distribution

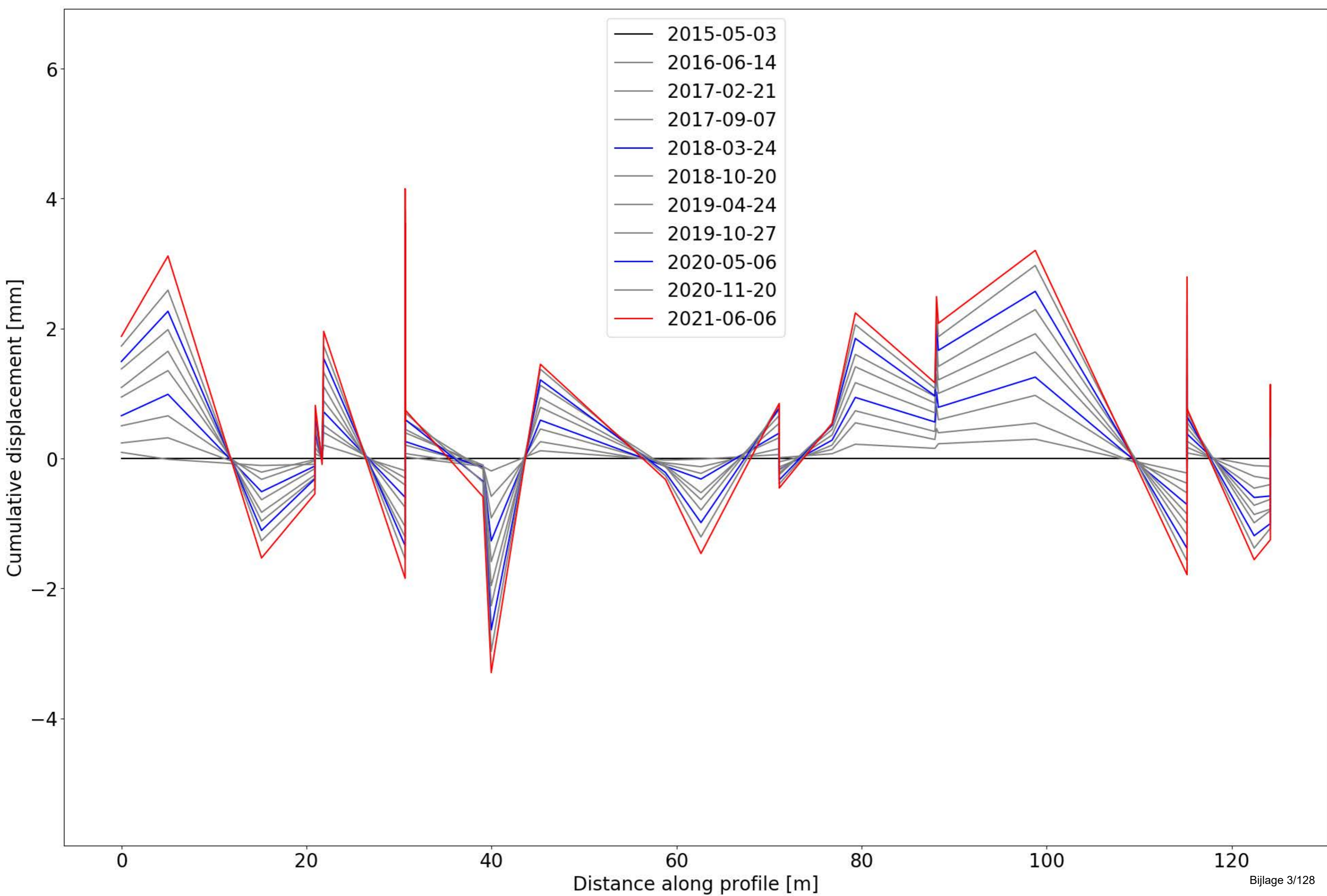
All datasets have InSAR points along most of the length of the bridge, however the all datasets have a low points density/no points between the centre of the bridge and the eastern pillars. For the TSX data the gap in points can be further pinpointed to the southern lanes. This could be due to the new layer of asphalt that was completed in 2015, but it is unknown how large of an area this covered. More investigation would be required to determine the cause.

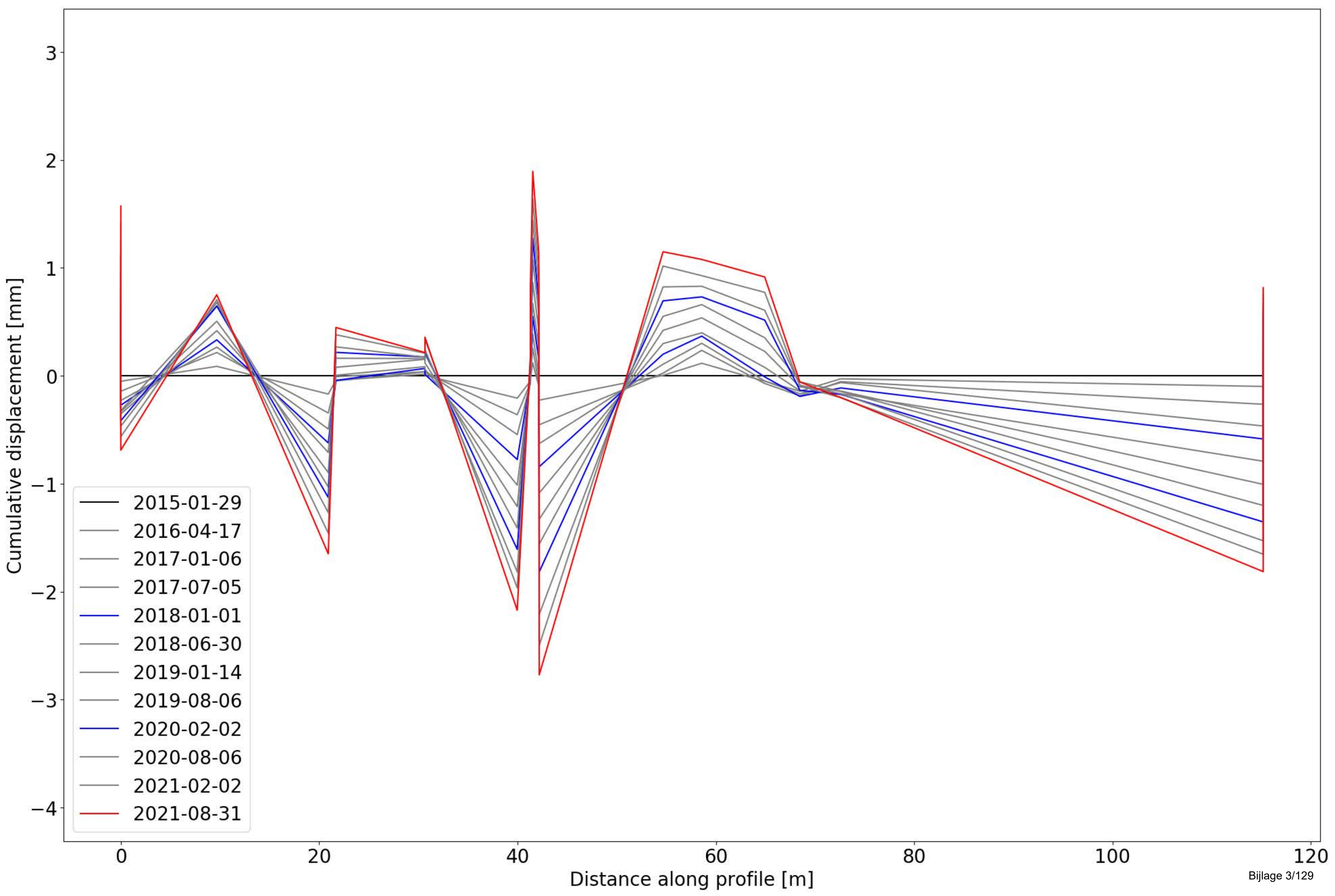


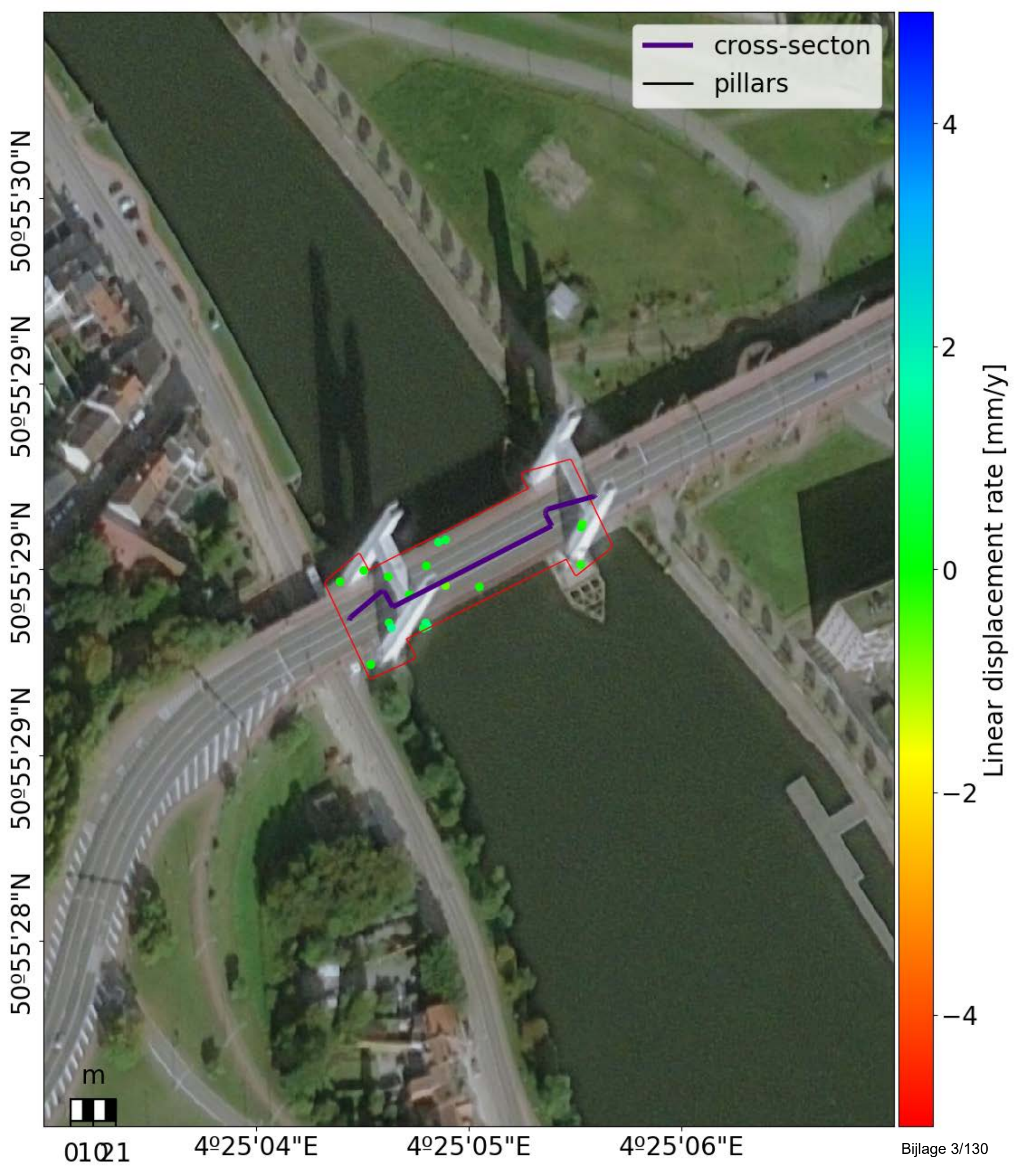


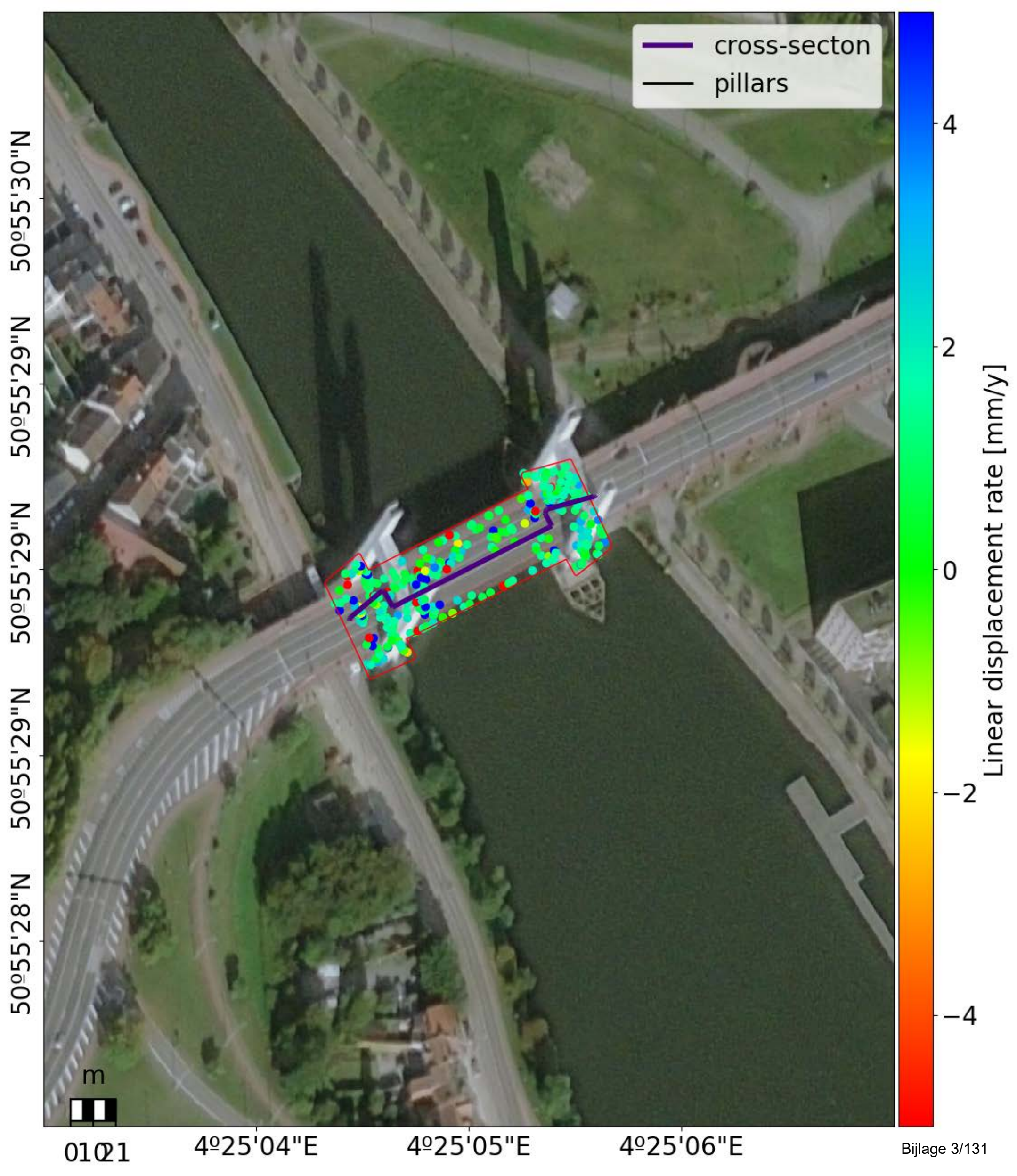


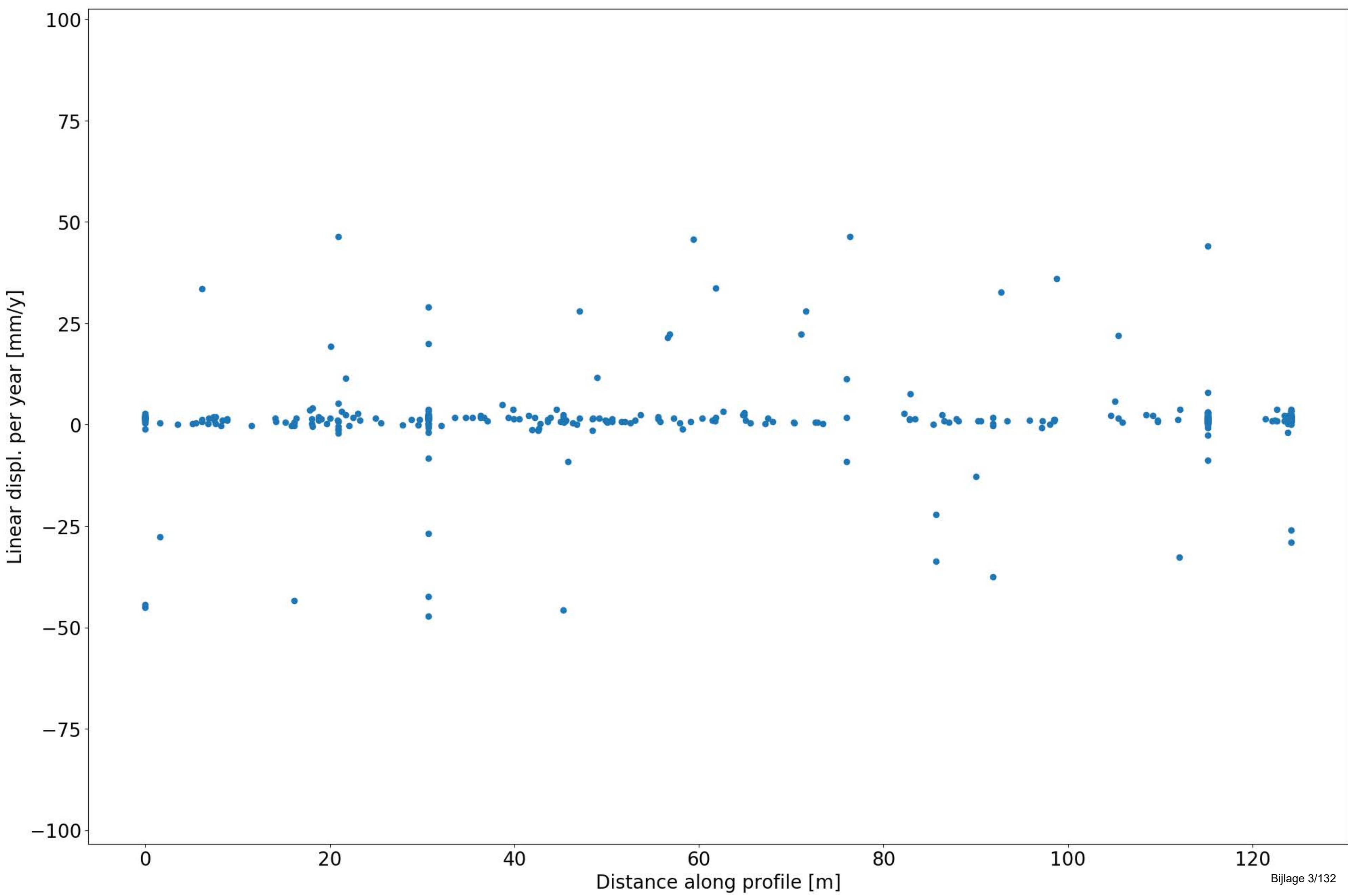


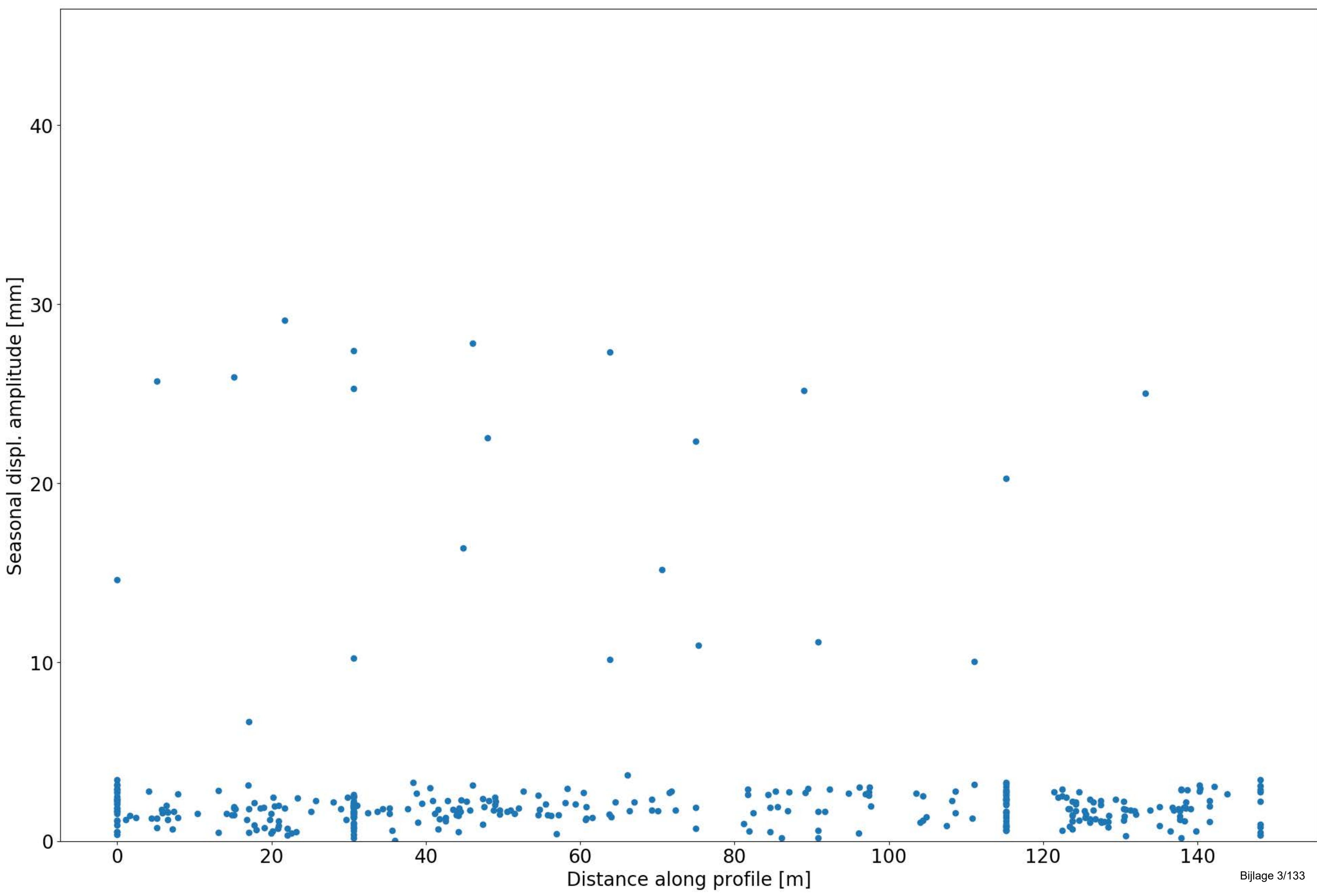


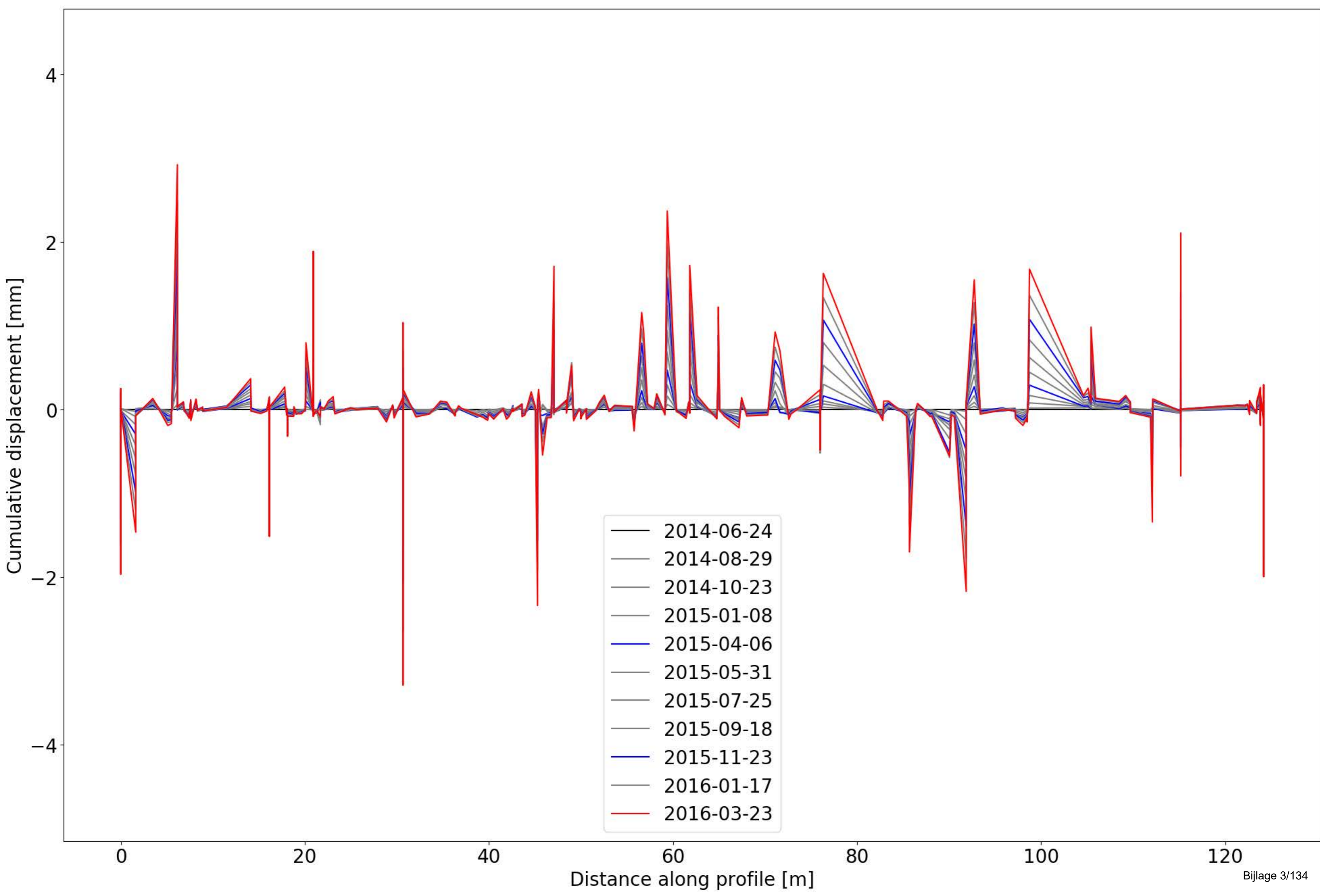


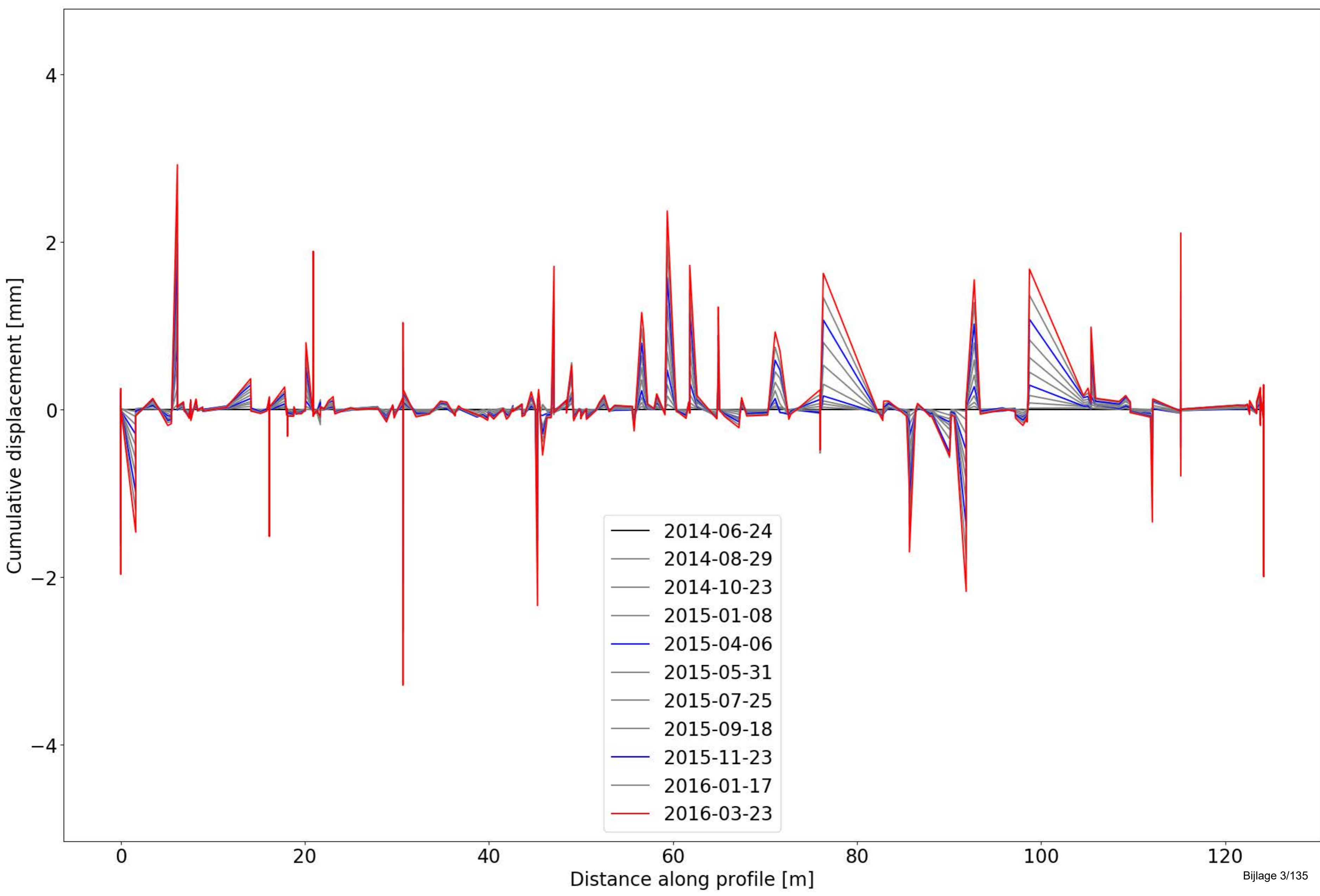












4904 Brug in N262 Parklaan over spoorweg



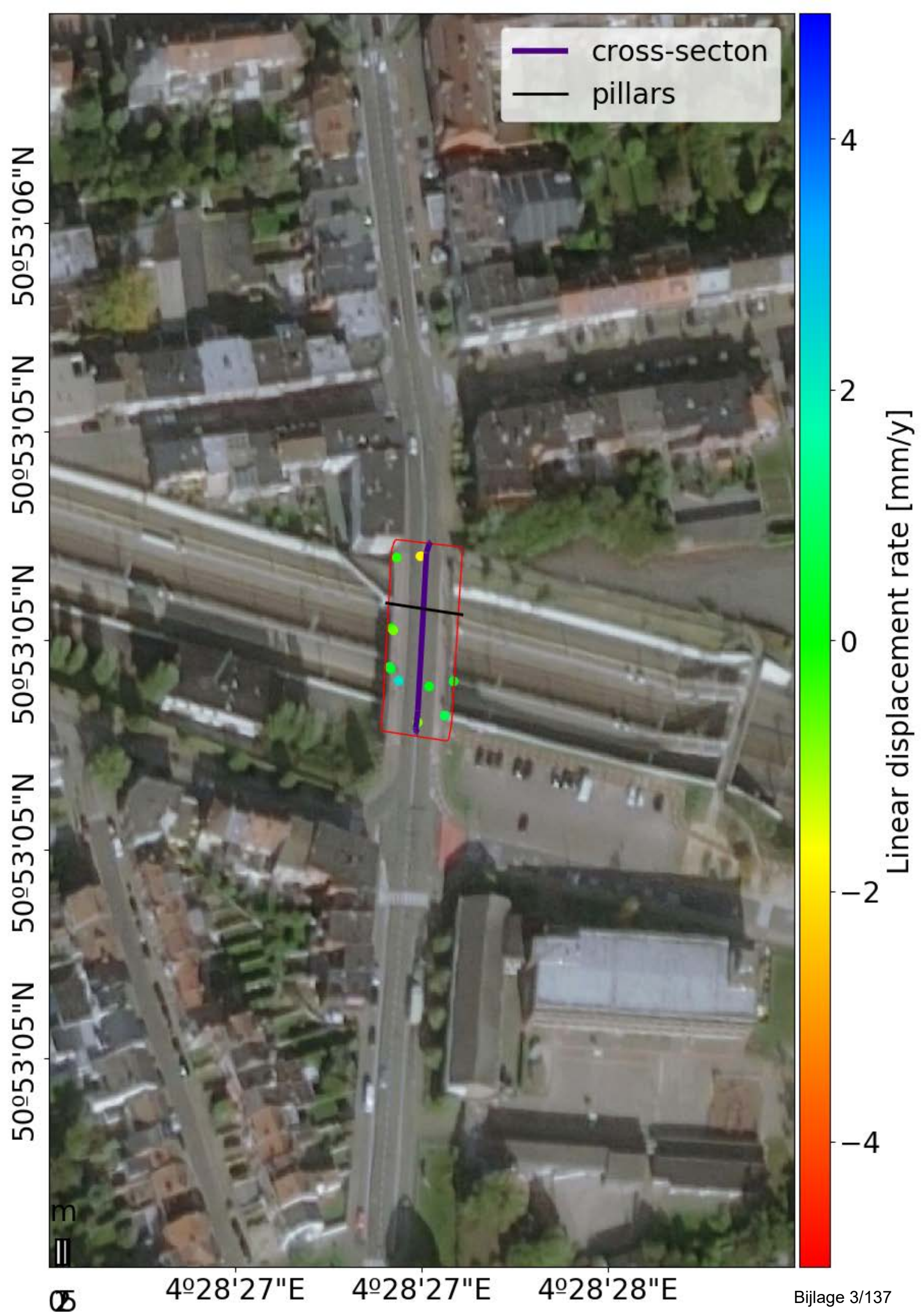
Object Nummer	Name	Long (WGS 84)	Lat (WGS84)	Long (Lambert)	Lat (Lambert)	Length [m]	Width [m]	Material	Description	Information
4904	Brug in N262 Parklaan over spoorweg	50.88459197	4.474054514	157410.01999	174920.11999	12	23	-	(19) NZ-gericht	no maintenance works

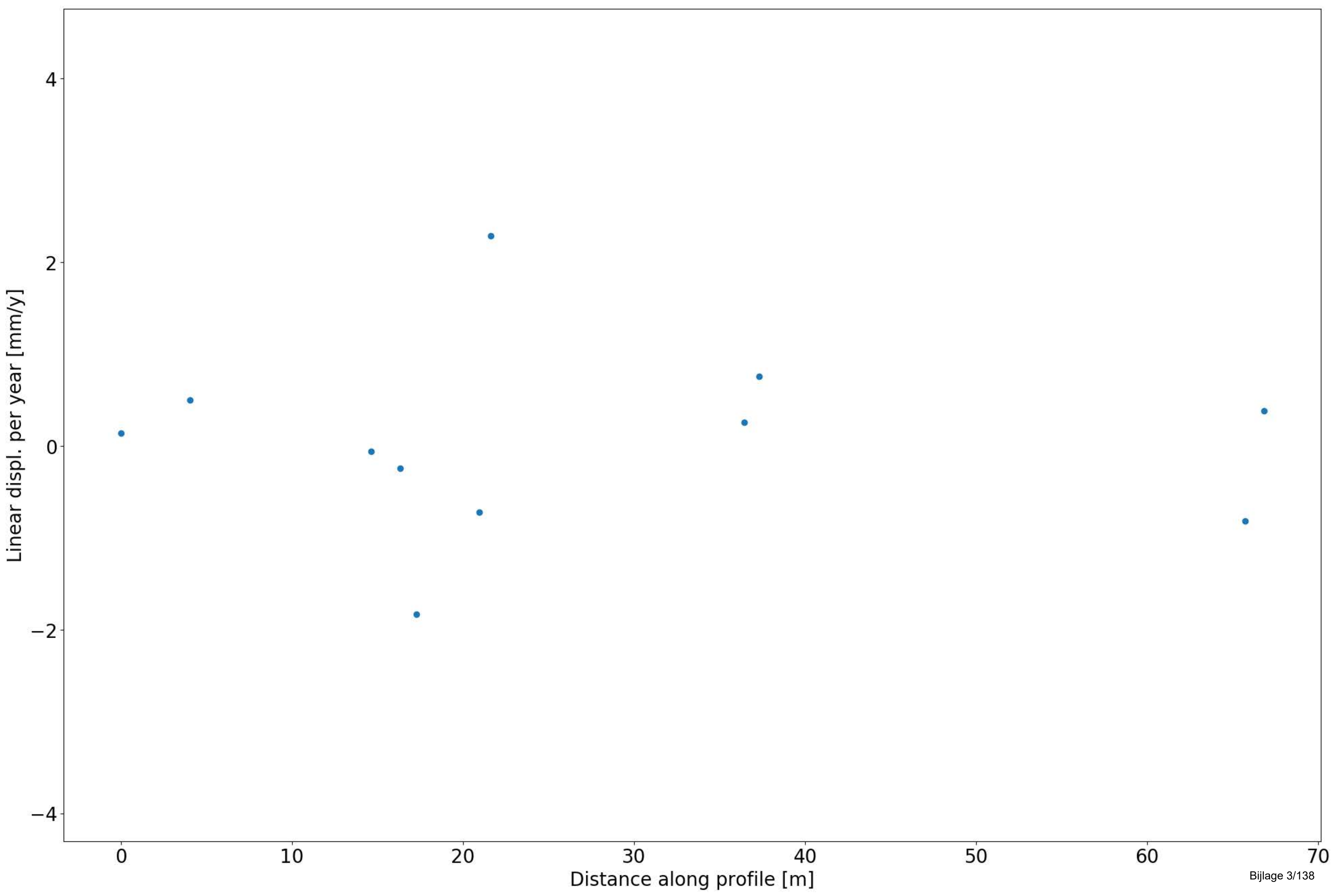
Change Detection

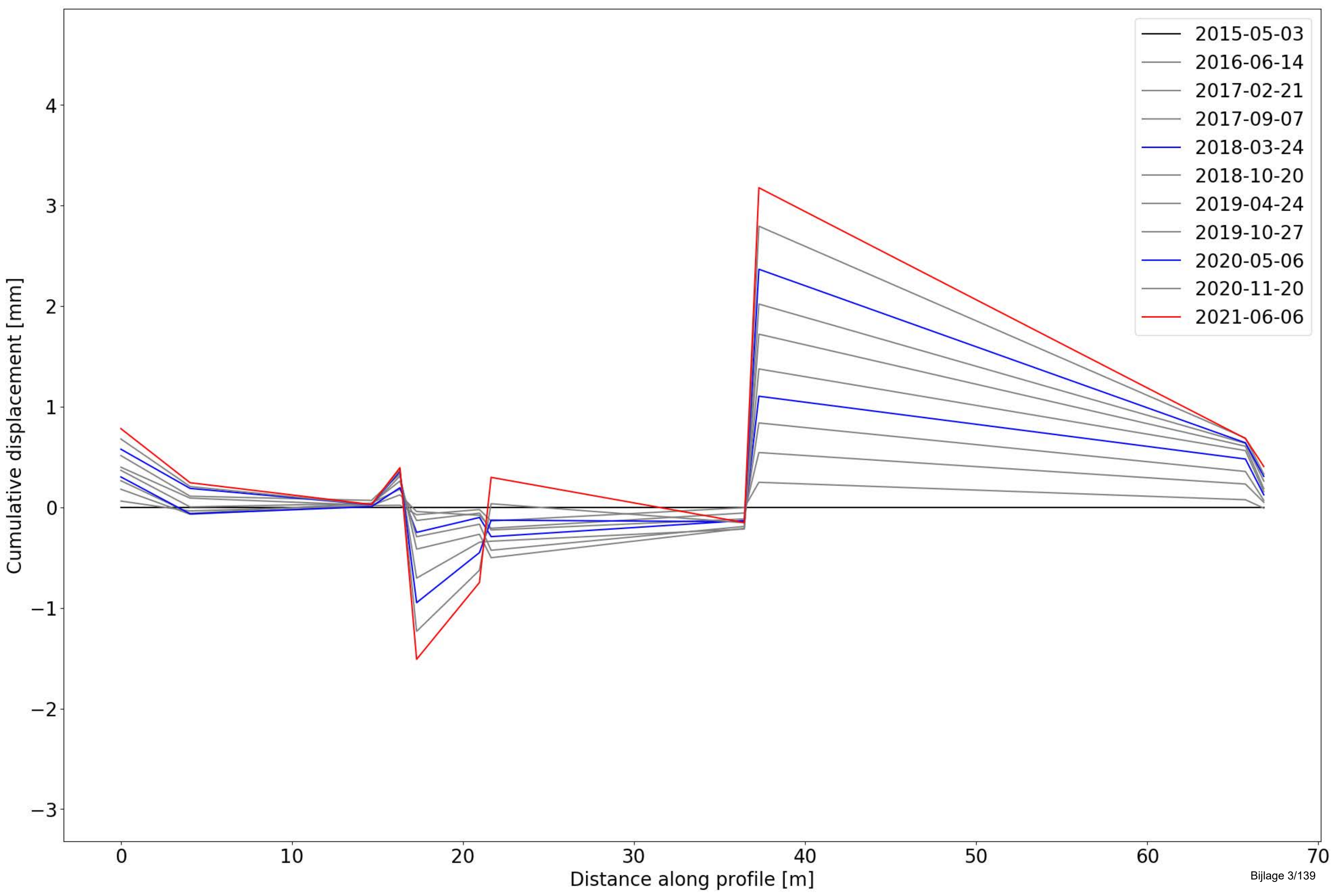
Change detection	Approx. period	Description
Change Middle	April 2019	Increase in displacement rate from April 2019

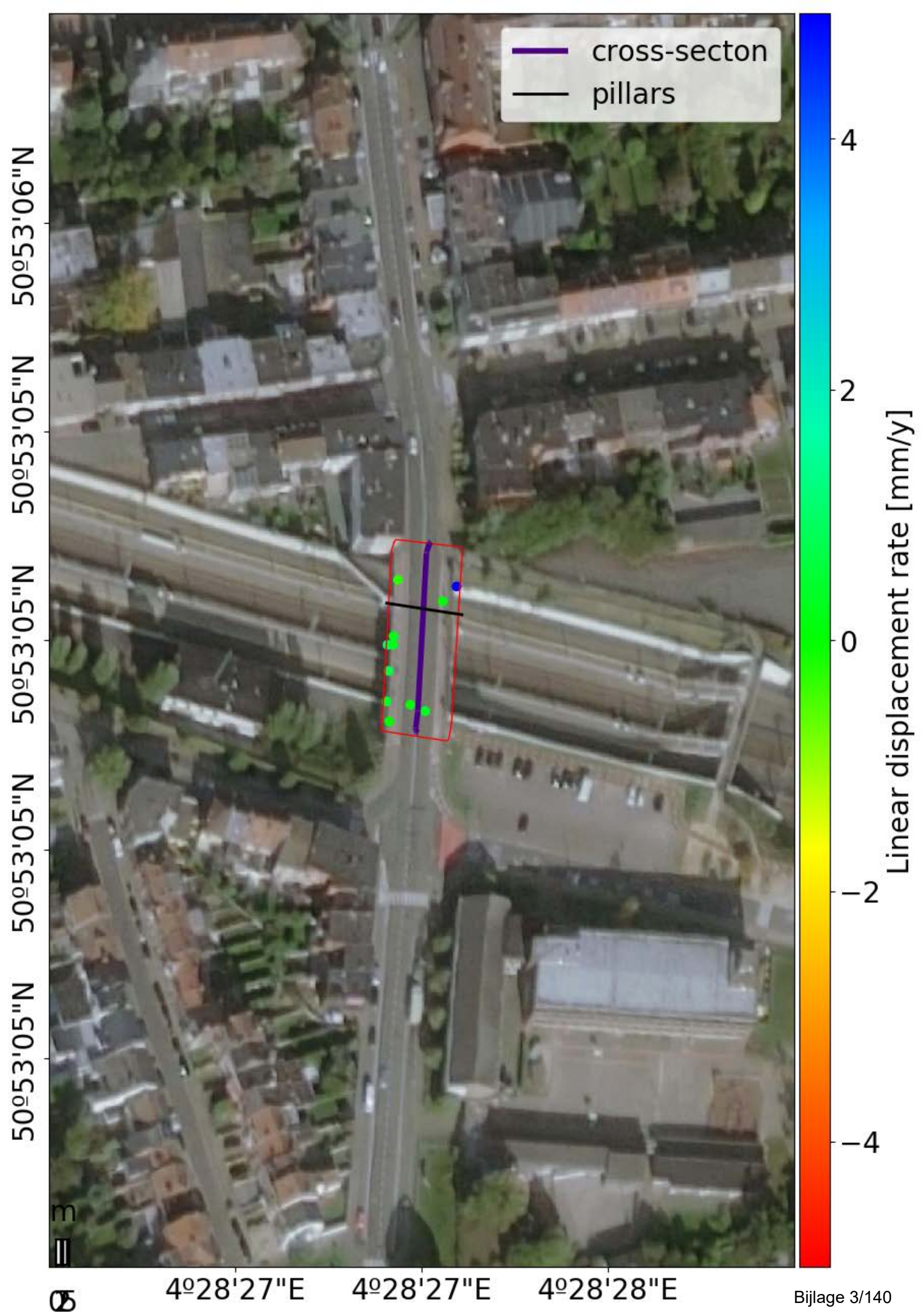
Comments on point density/distribution

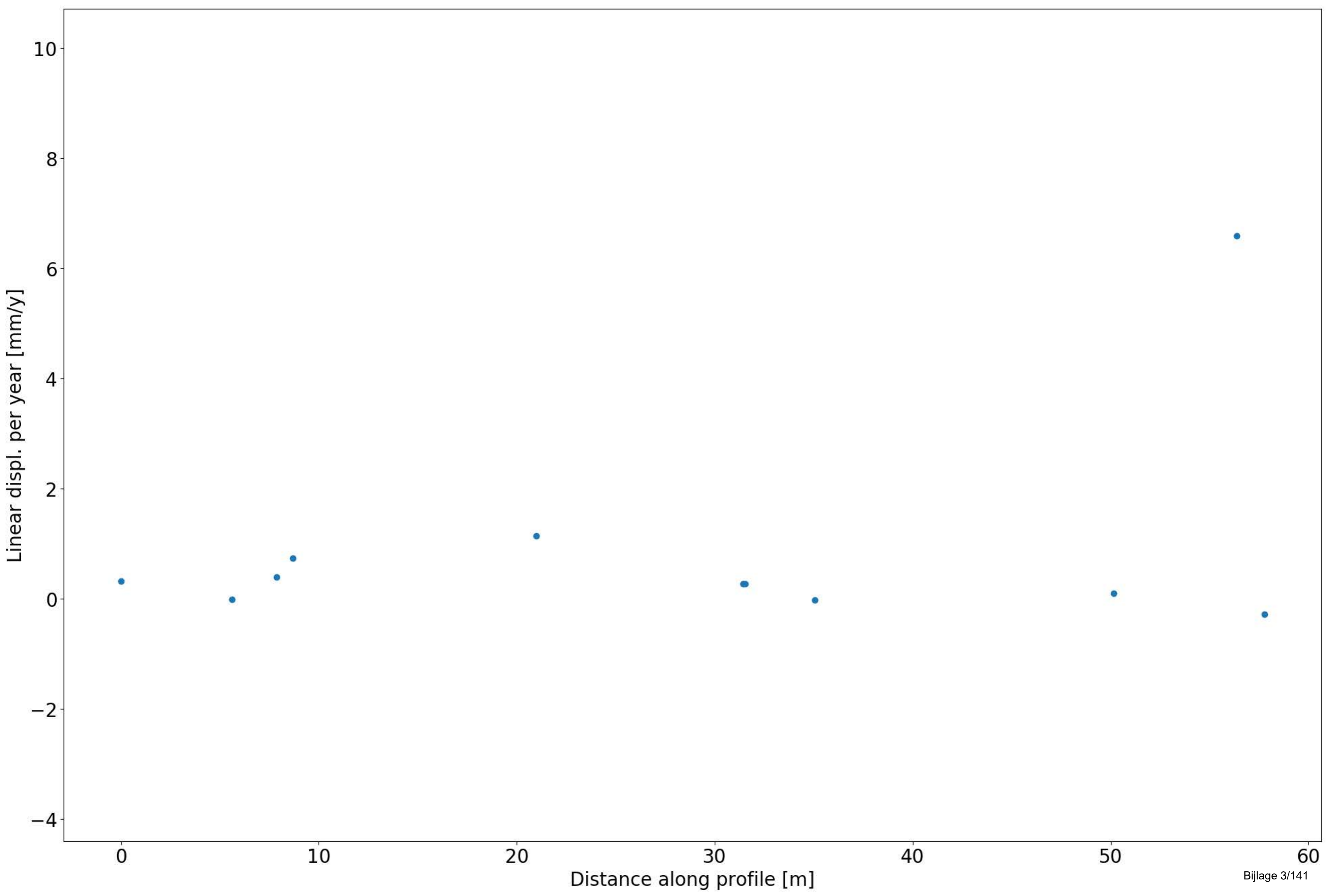
The middle of the eastern lane appears to have a lack of InSAR points. Points are concentrated along the safety barrier at the edges of the bridge and at the corner between the pavement curb and road. Therefore the lack of points on the eastern lane could be a geometric effect, and we would need further information on the height of the safety barriers to prove or disprove this hypothesis.

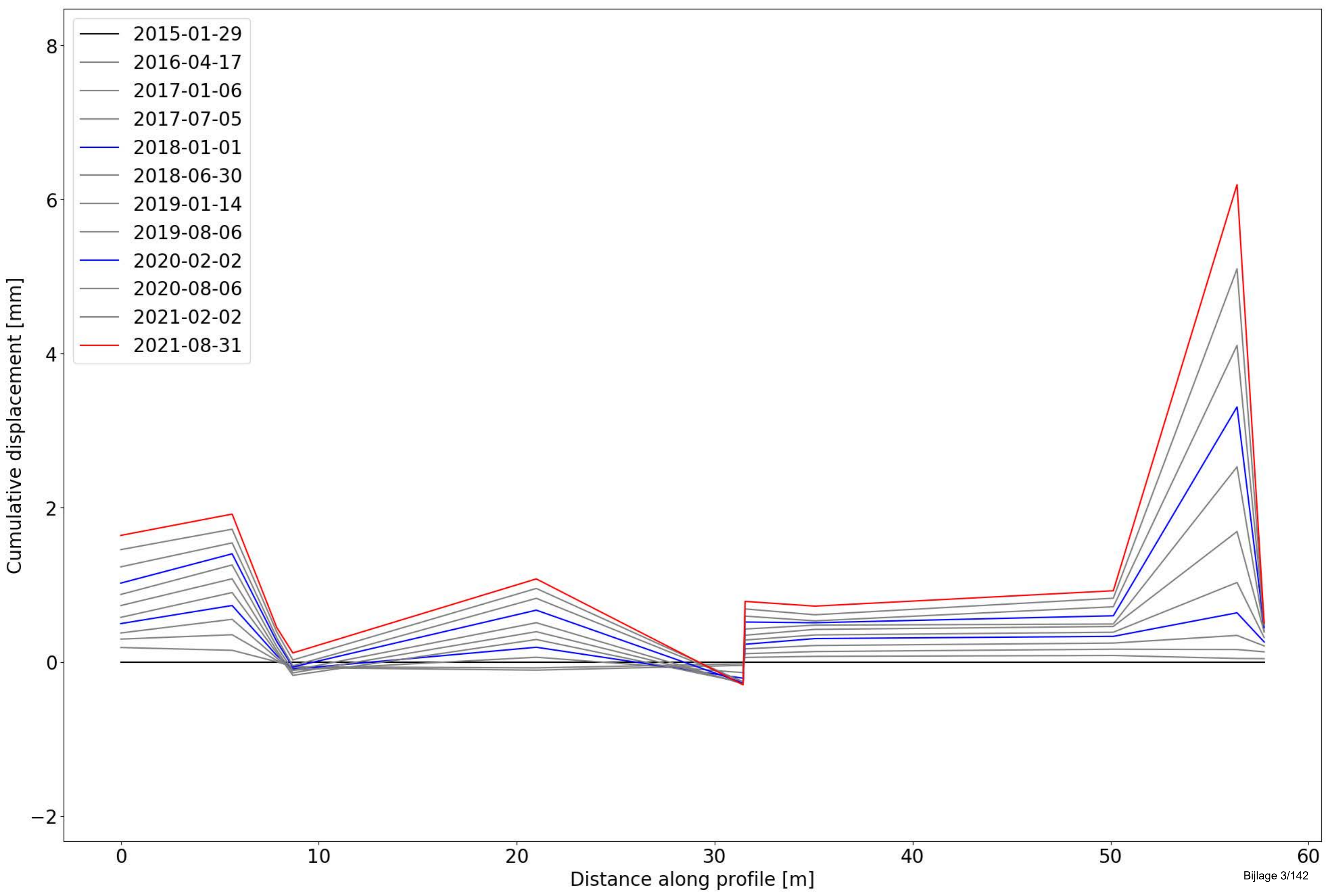


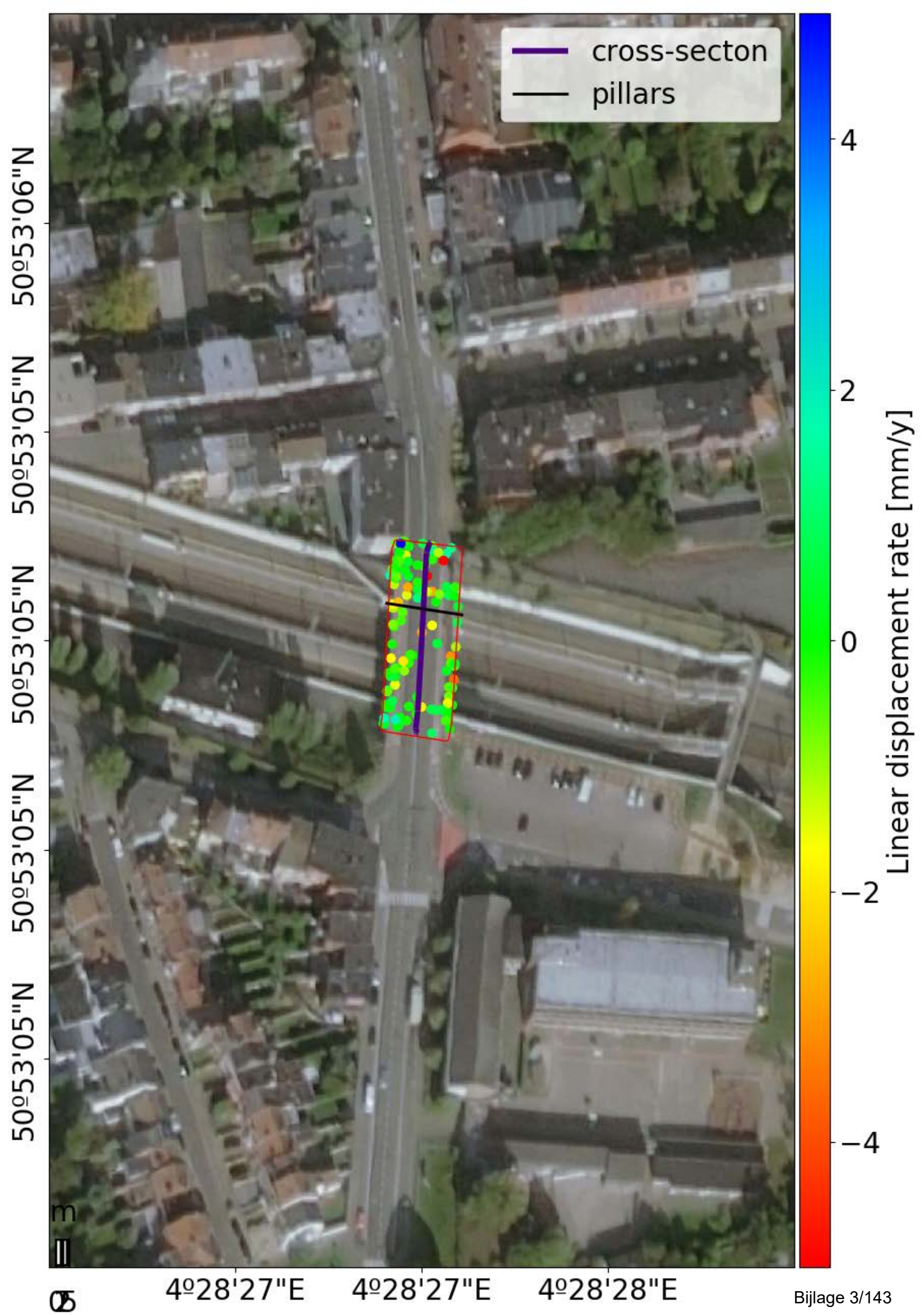


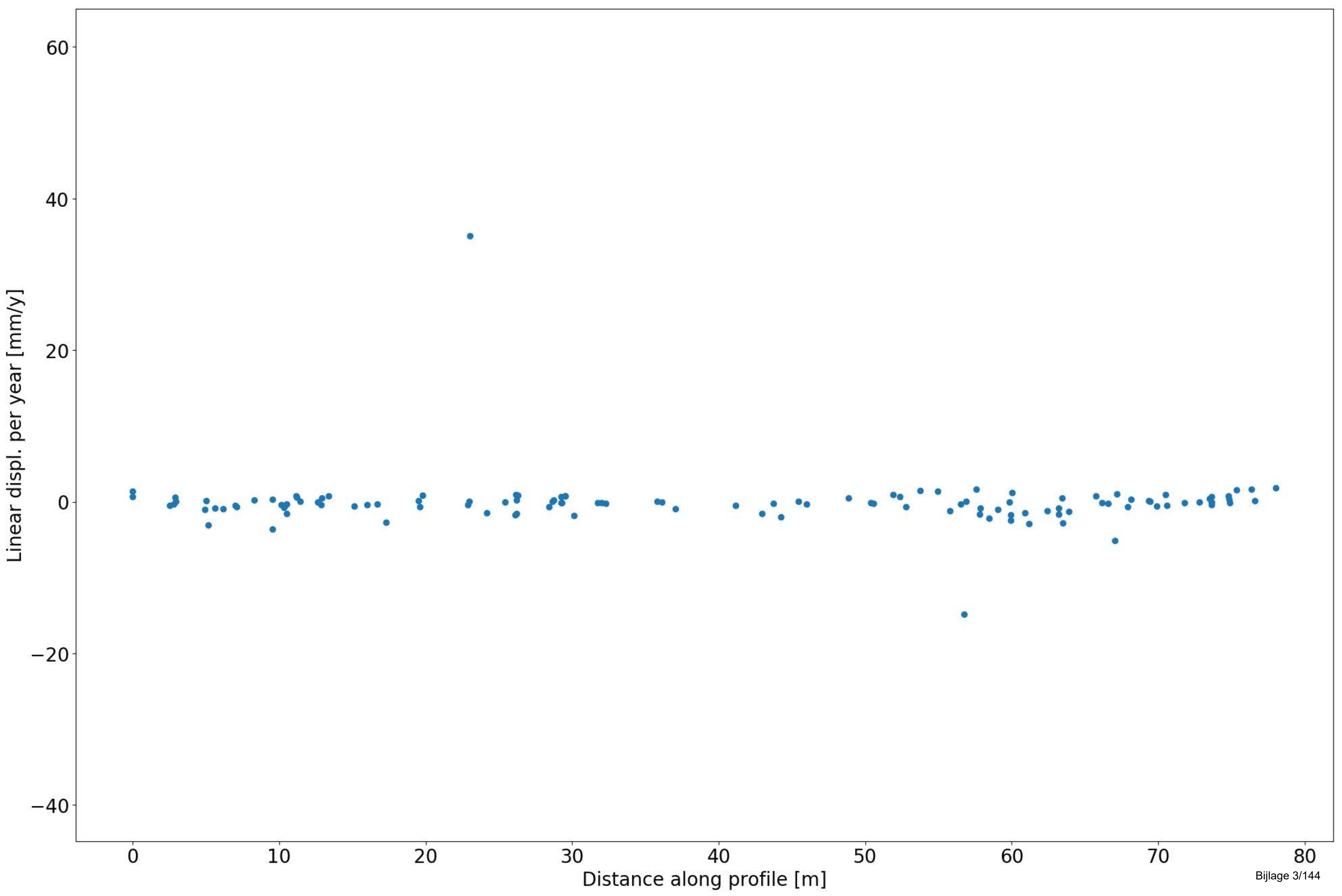


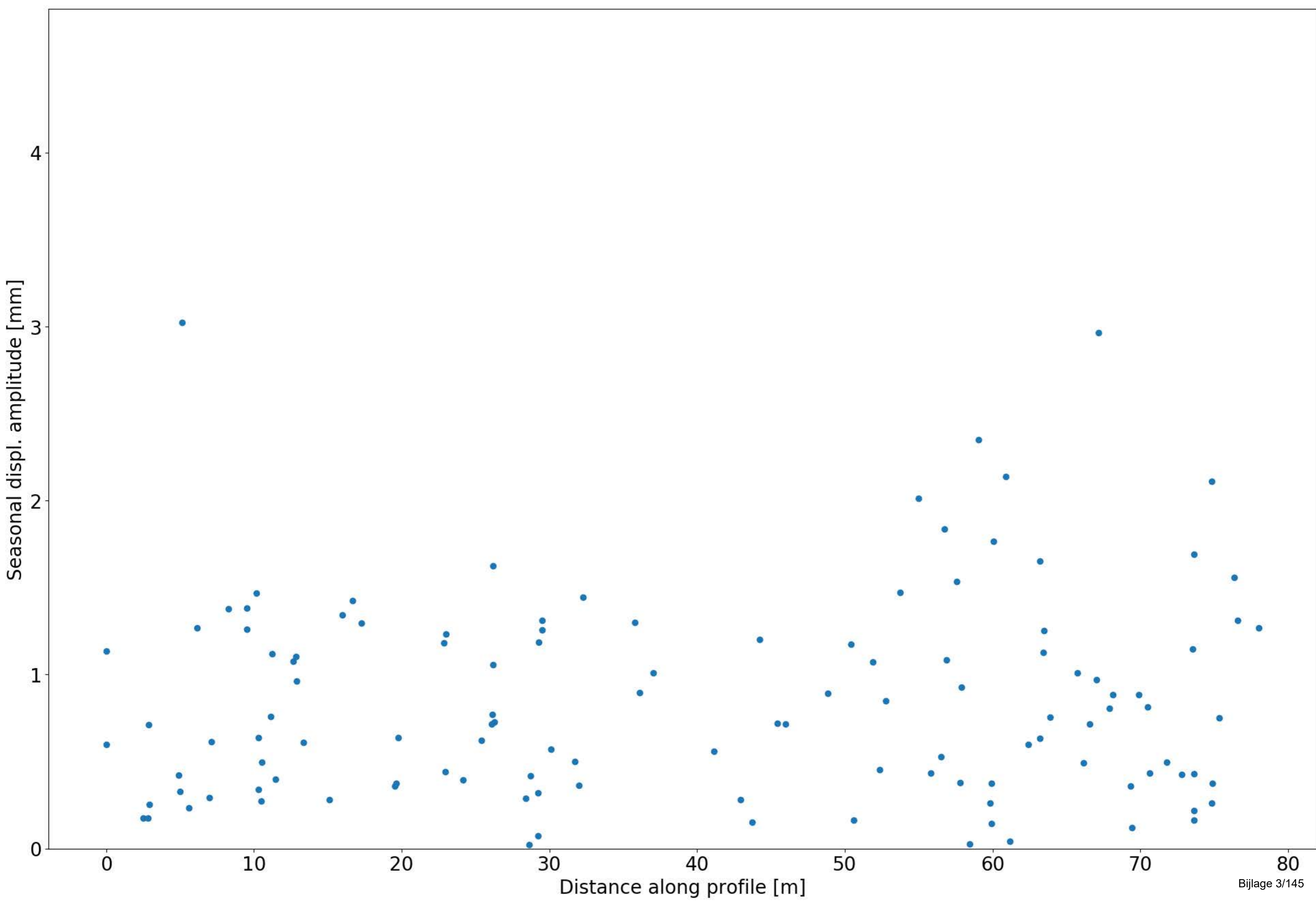


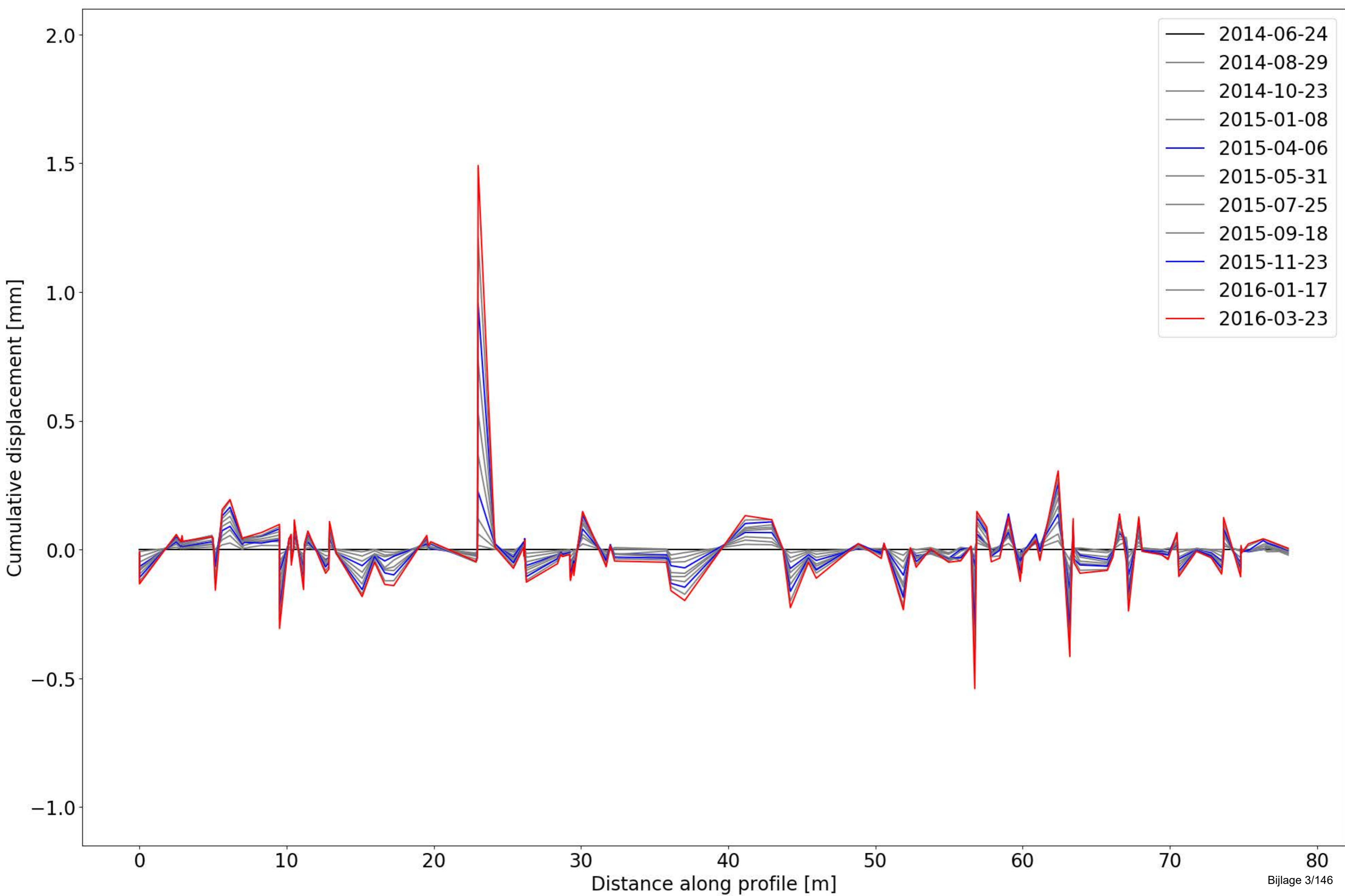




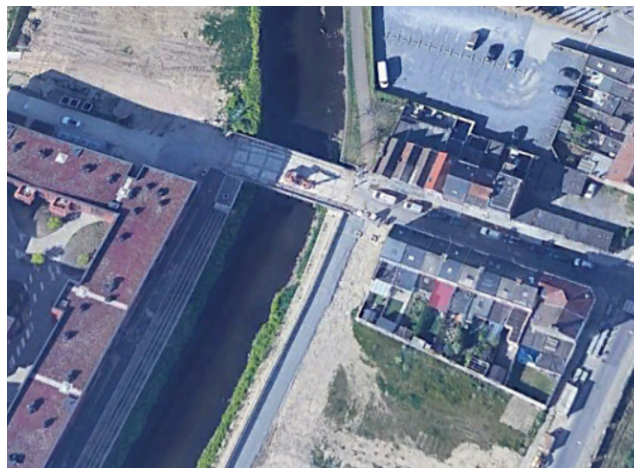








5773 Sluisstraatbrug



Object Nummer	Name	Long (WGS 84)	Lat (WGS84)	Long (Lambert)	Lat (Lambert)	Length [m]	Width [m]	Material	Description	Information
5773	Sluisstraatbrug	50.9177091	4.420303444	153625.00000	178600.07999	26	9.6	-	klein	no maintenance works*

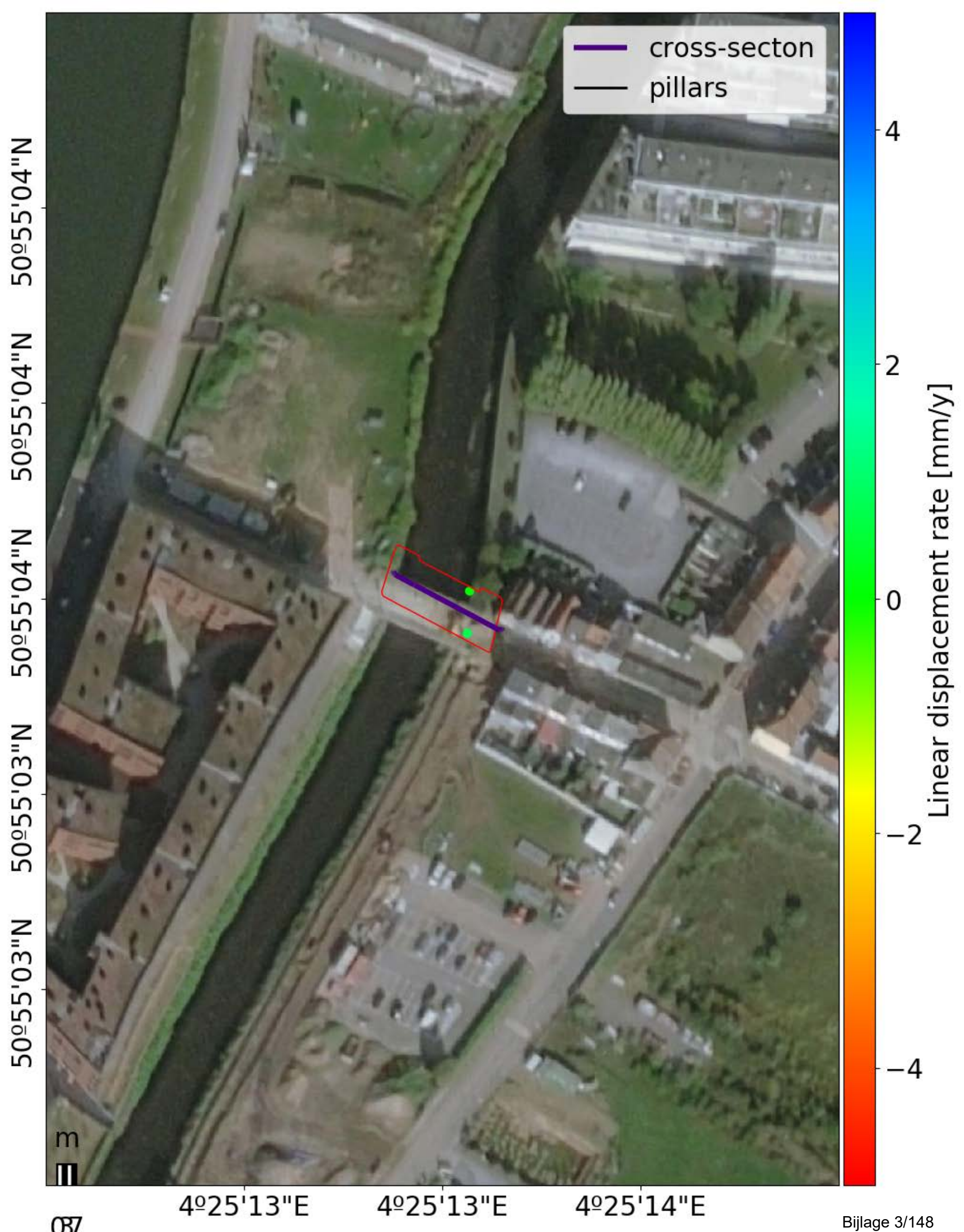
Change Detection

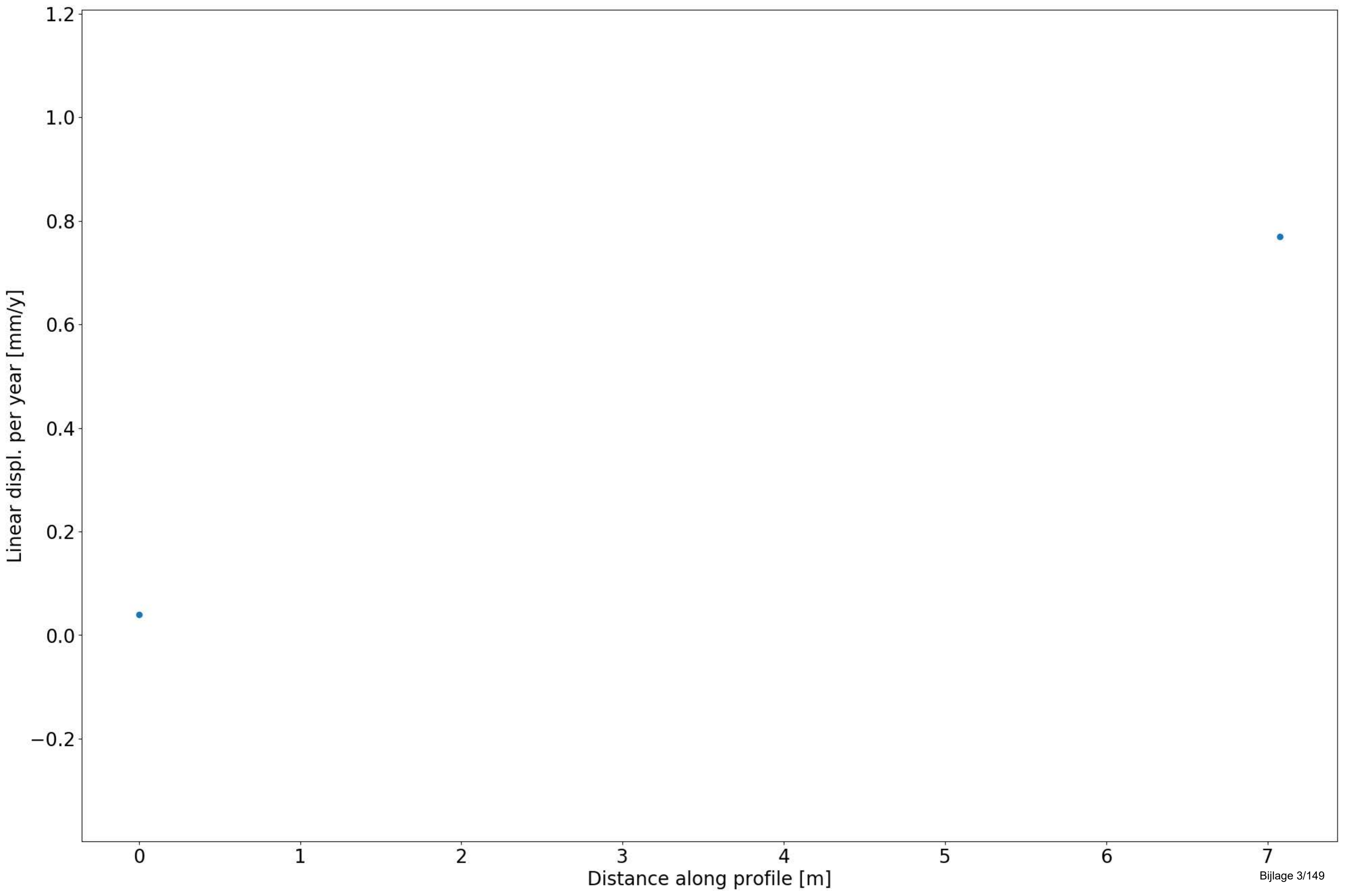
Change detection	Approx. period	Description
Change W	Late 2015	Increase in displacement rate from Jul 2015
Change E	spring 2017	Change in amplitude after April 2017

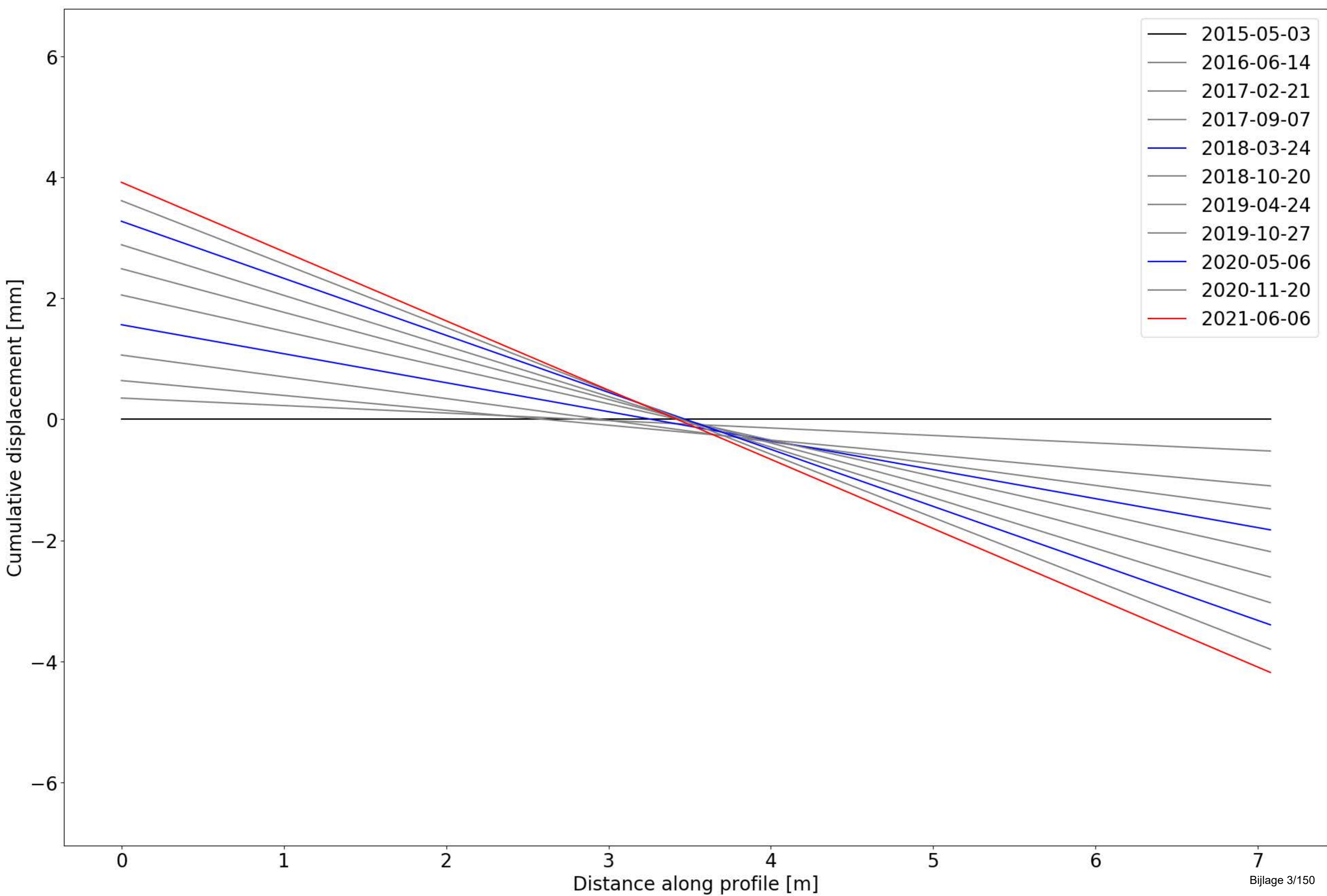
Comments on point density/distribution

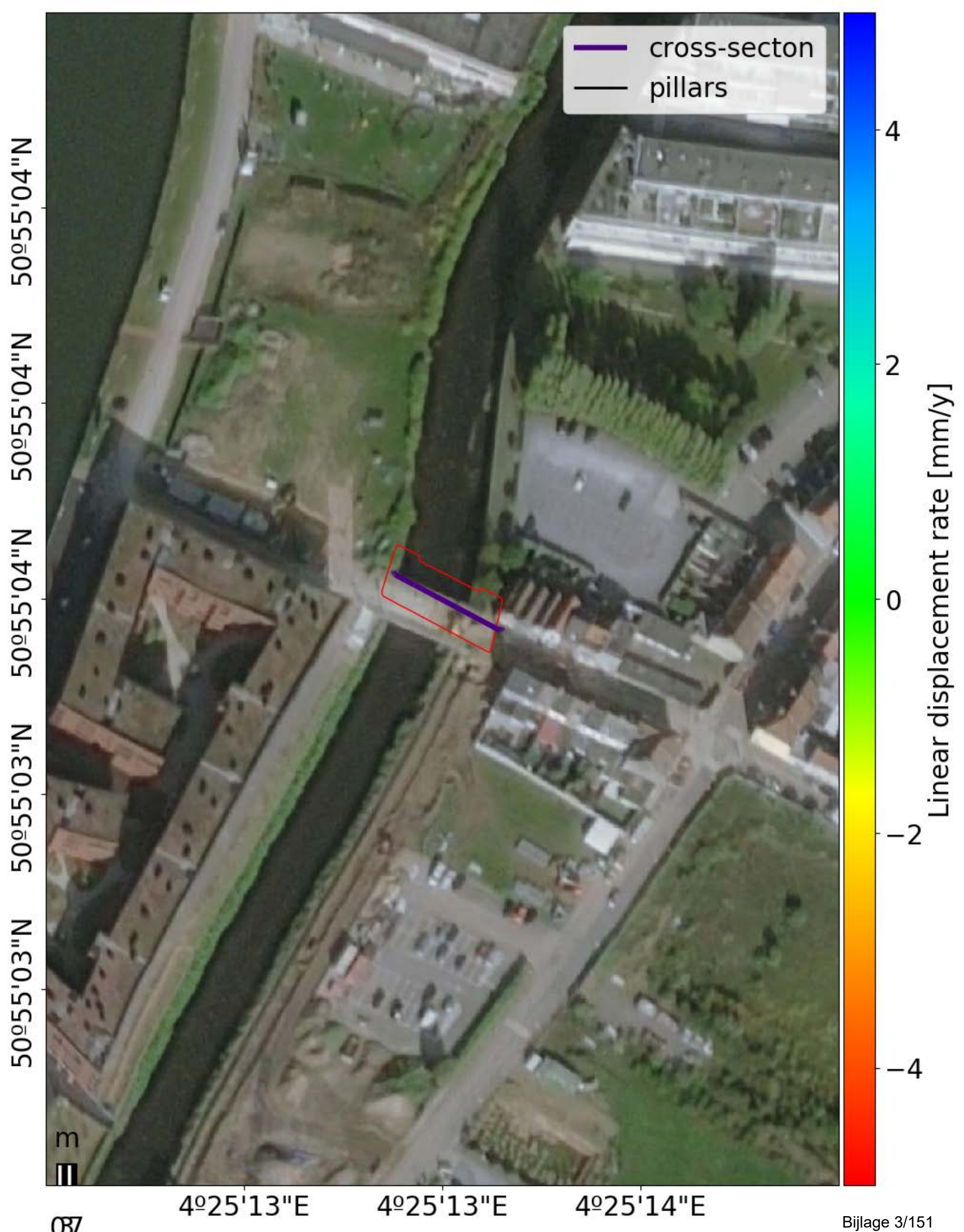
The TSX data has InSAR points along the full length of the bridge, no significant gaps in the data.

The S1 datasets (both ascending and descending) have very low point density (or no points) on the bridge. This is most likely due to the changes detected during the S1 time period.









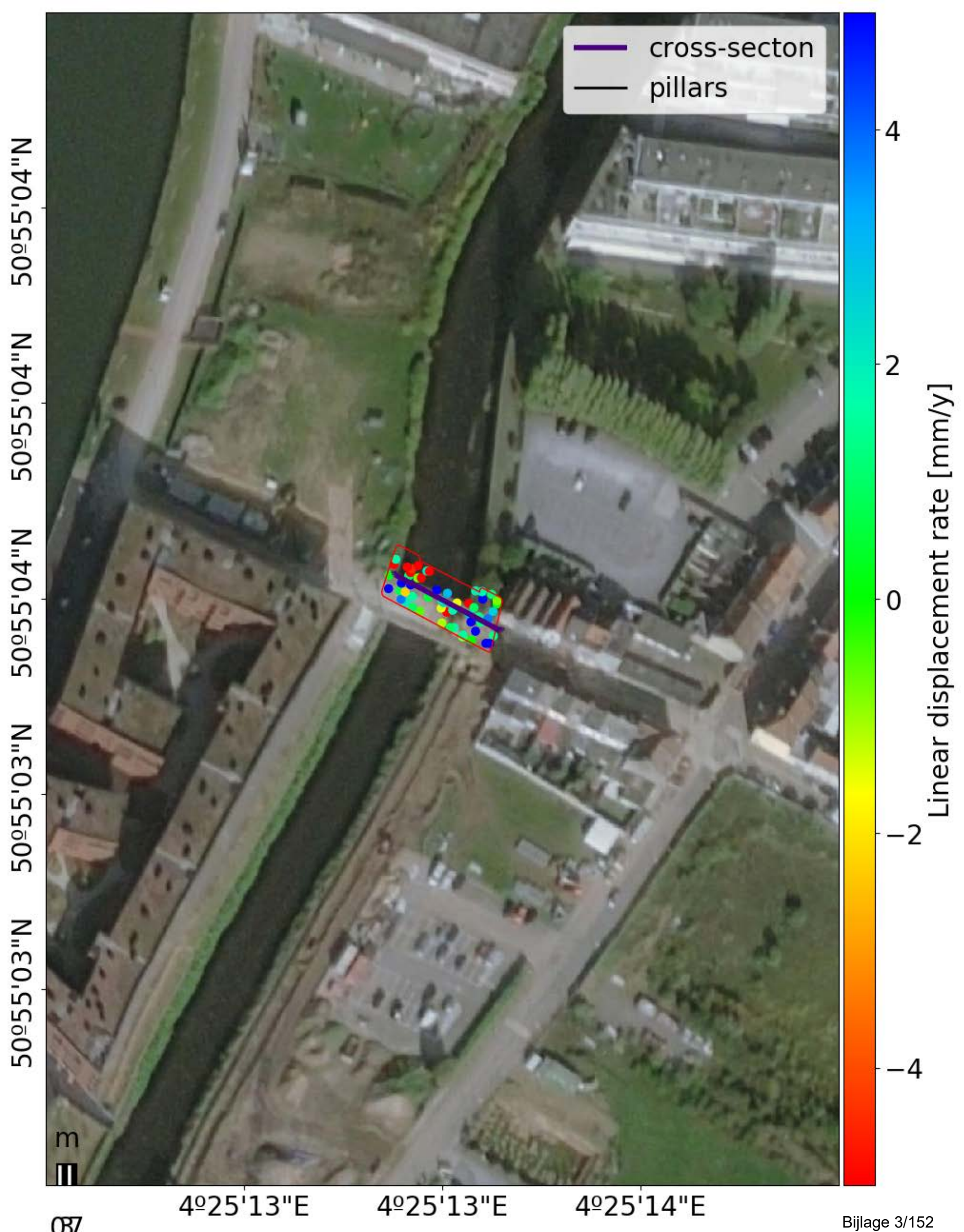
— cross-section
— pillars

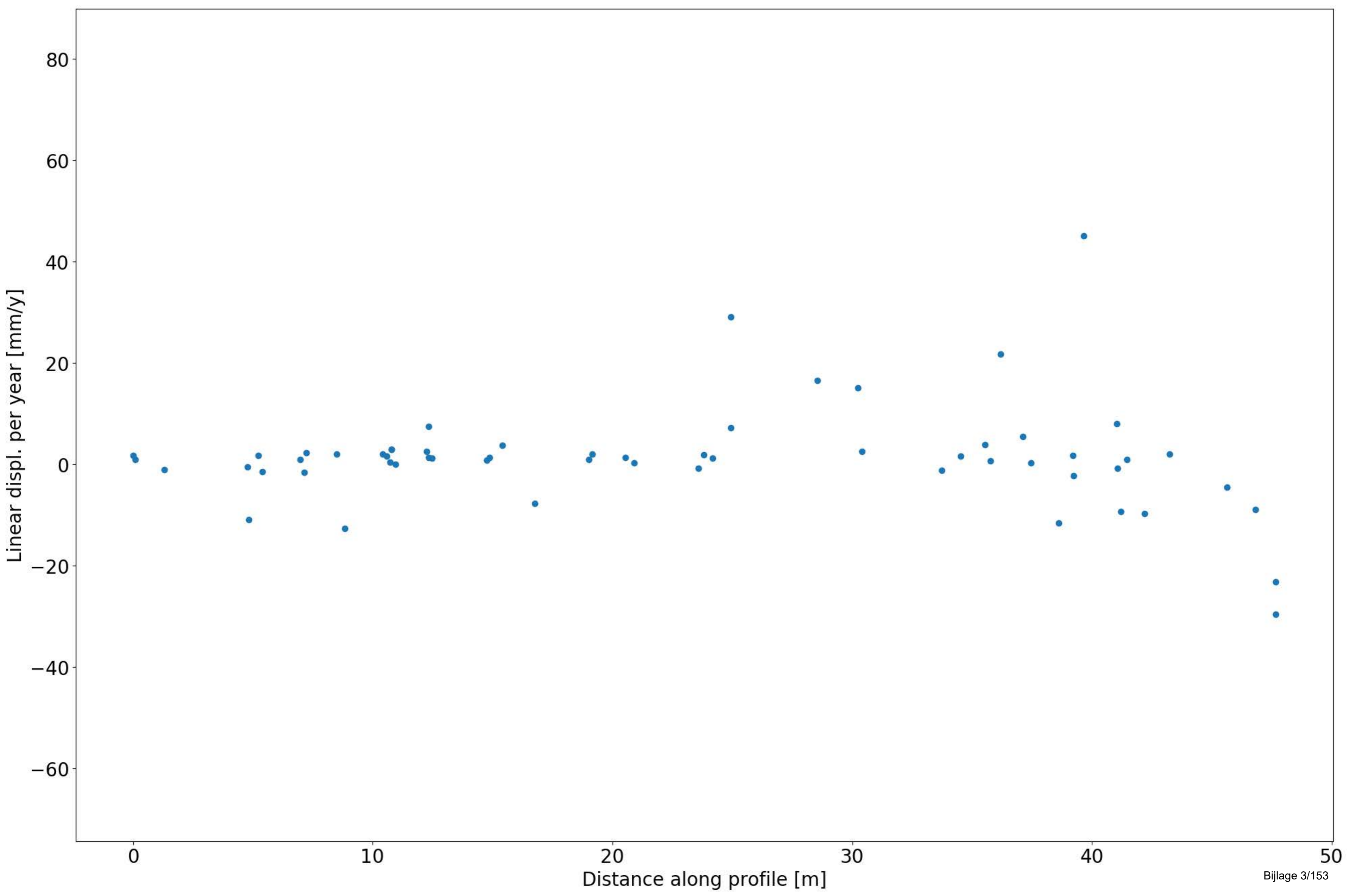
Linear displacement rate [mm/y]

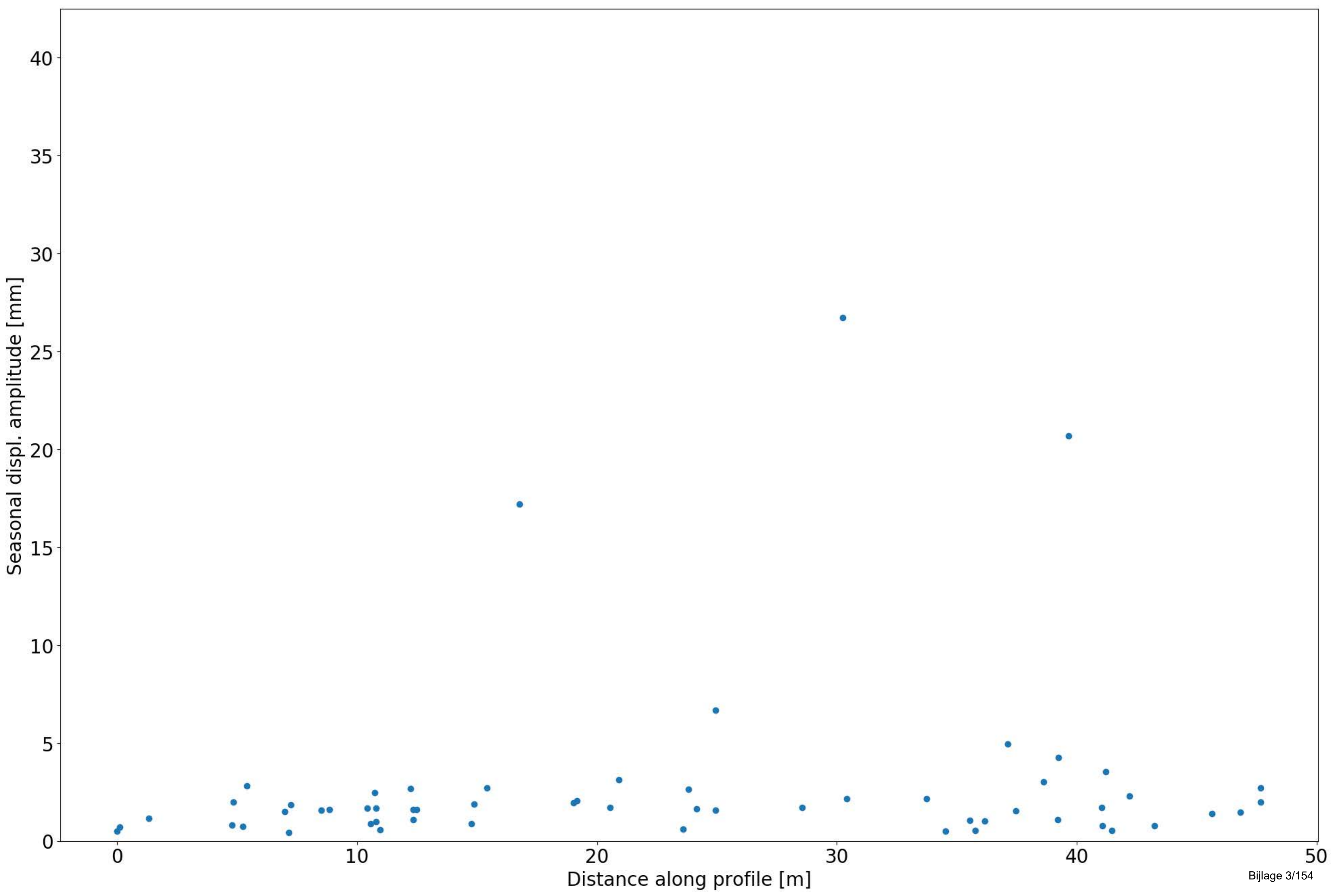
50°55'03"N 50°55'03"N 50°55'04"N 50°55'04"N

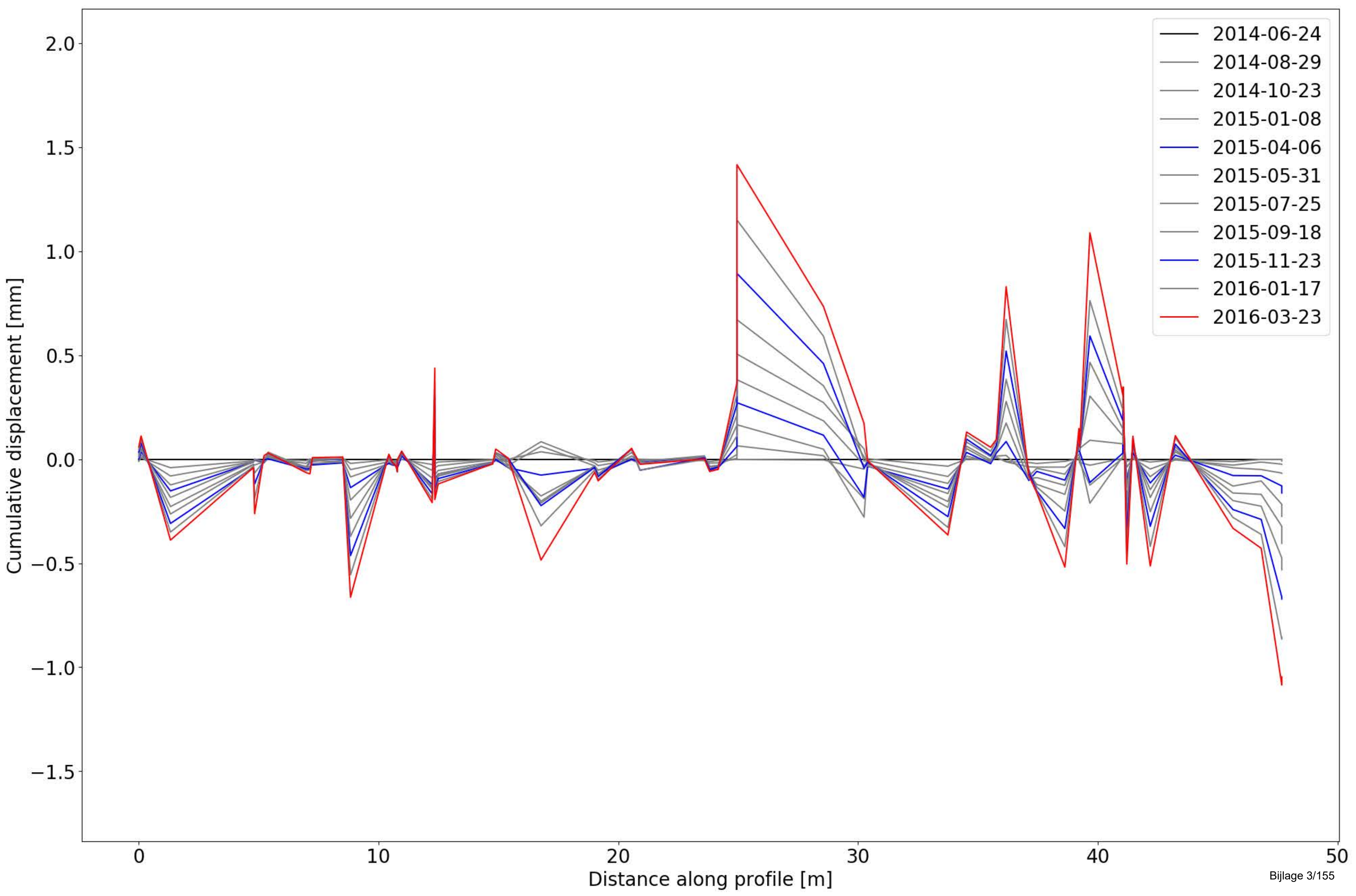
4°25'13"E 4°25'13"E 4°25'14"E

7 m









6135 Verbrande Brug



Object Nummer	Name	Long (WGS 84)	Lat (WGS84)	Long (Lambert)	Lat (Lambert)	Length [m]	Width [m]	Material	Description	Information
6135	Verbrande Brug	50.94782613	4.413293144	153129.97000	181950.07999	38.4	11.6	steel	(3)ophaalbrug (hef)/staal	new top layer (asphalt) in 2021

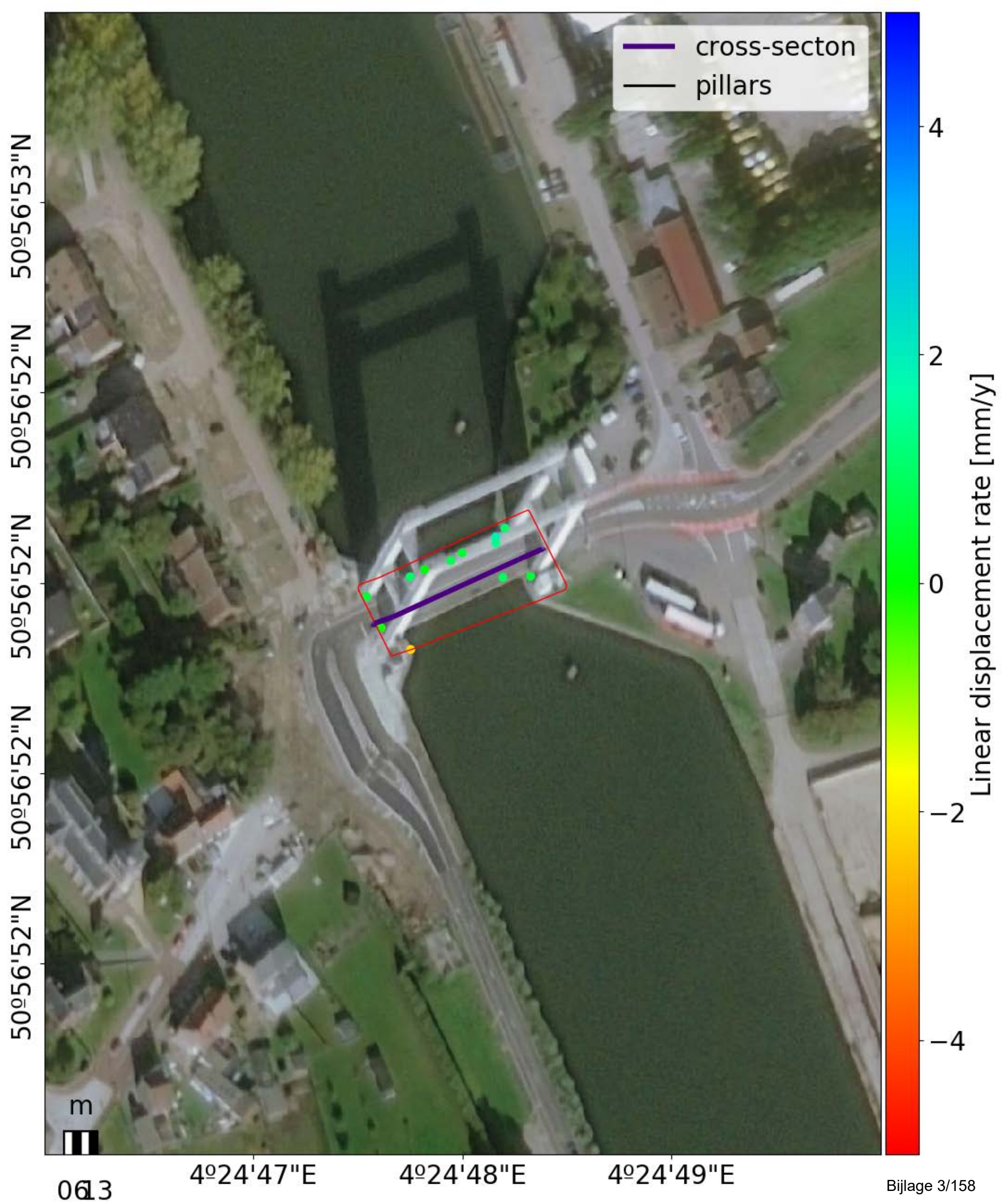
Change Detection

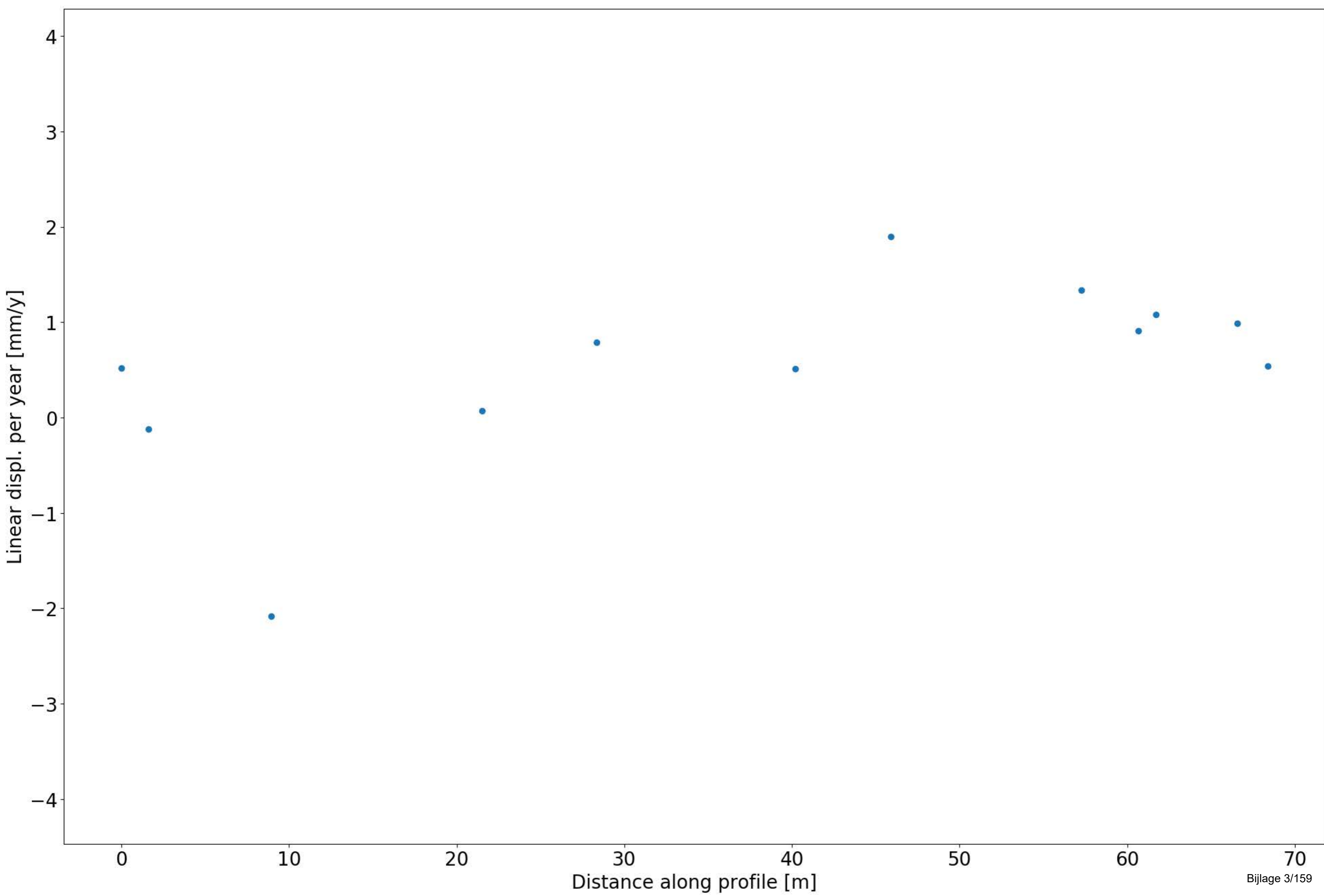
Change detection	Approx. period	Description
Change Middle	January 2020	Increase in displacement rate from January 2020
Change W	January 2020	Increase in displacement rate from January 2020

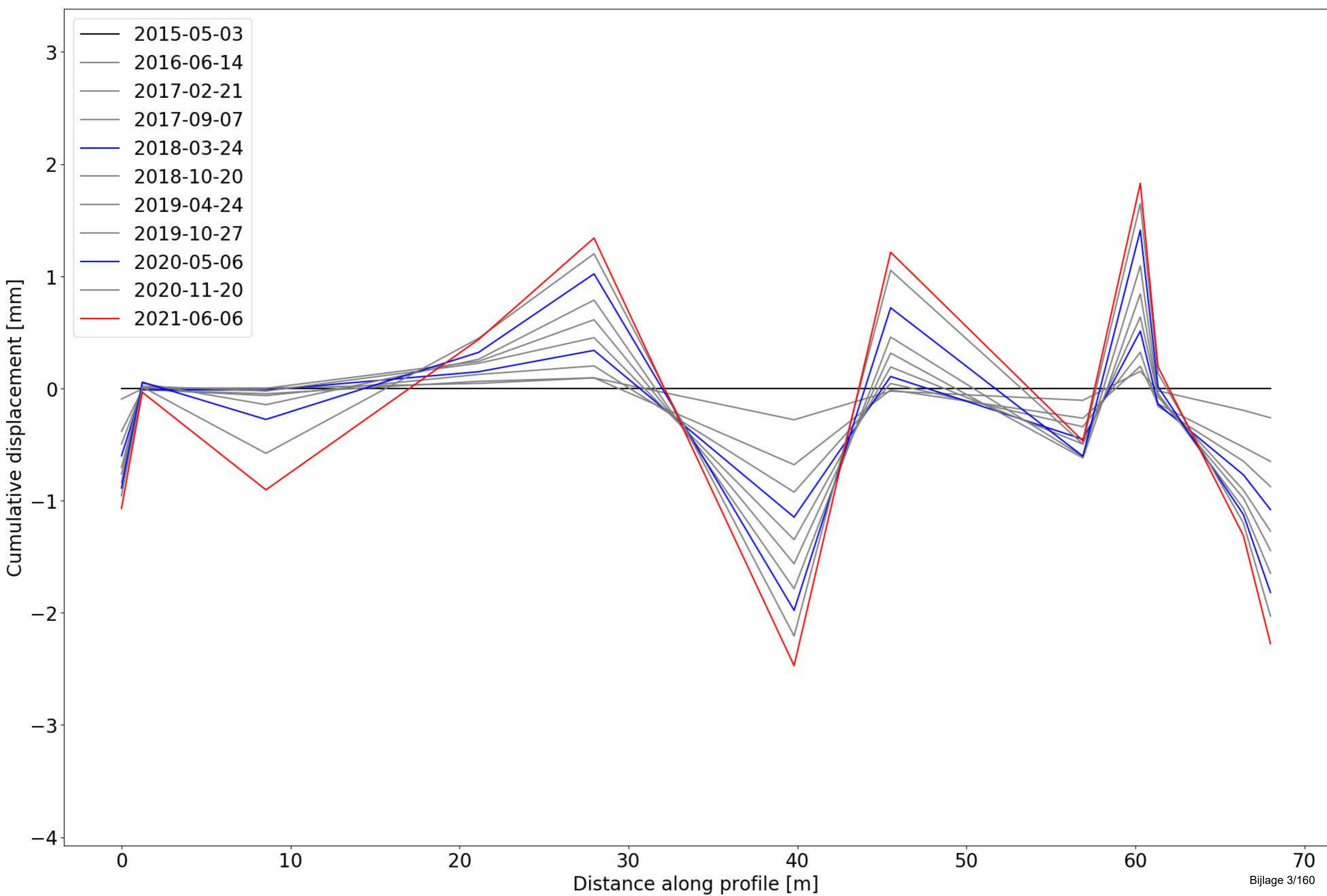
Comments on point density/distribution

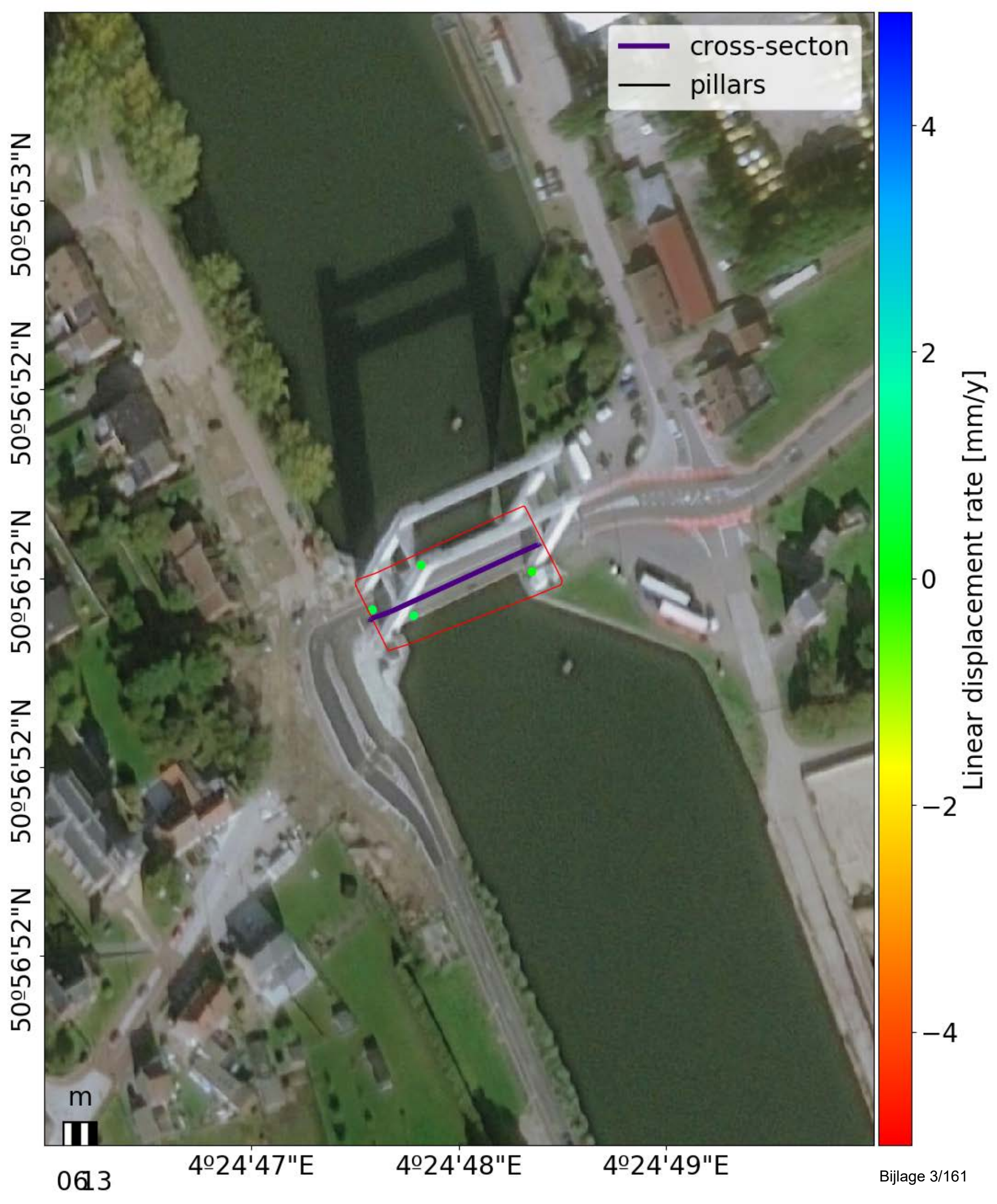
The TSX data has InSAR points along the full length of the bridge, no significant gaps in the data. The S1 ascending and descending datasets have very few points on the bridge and this is most likely related to the new top layer of asphalt which was completed in 2021,

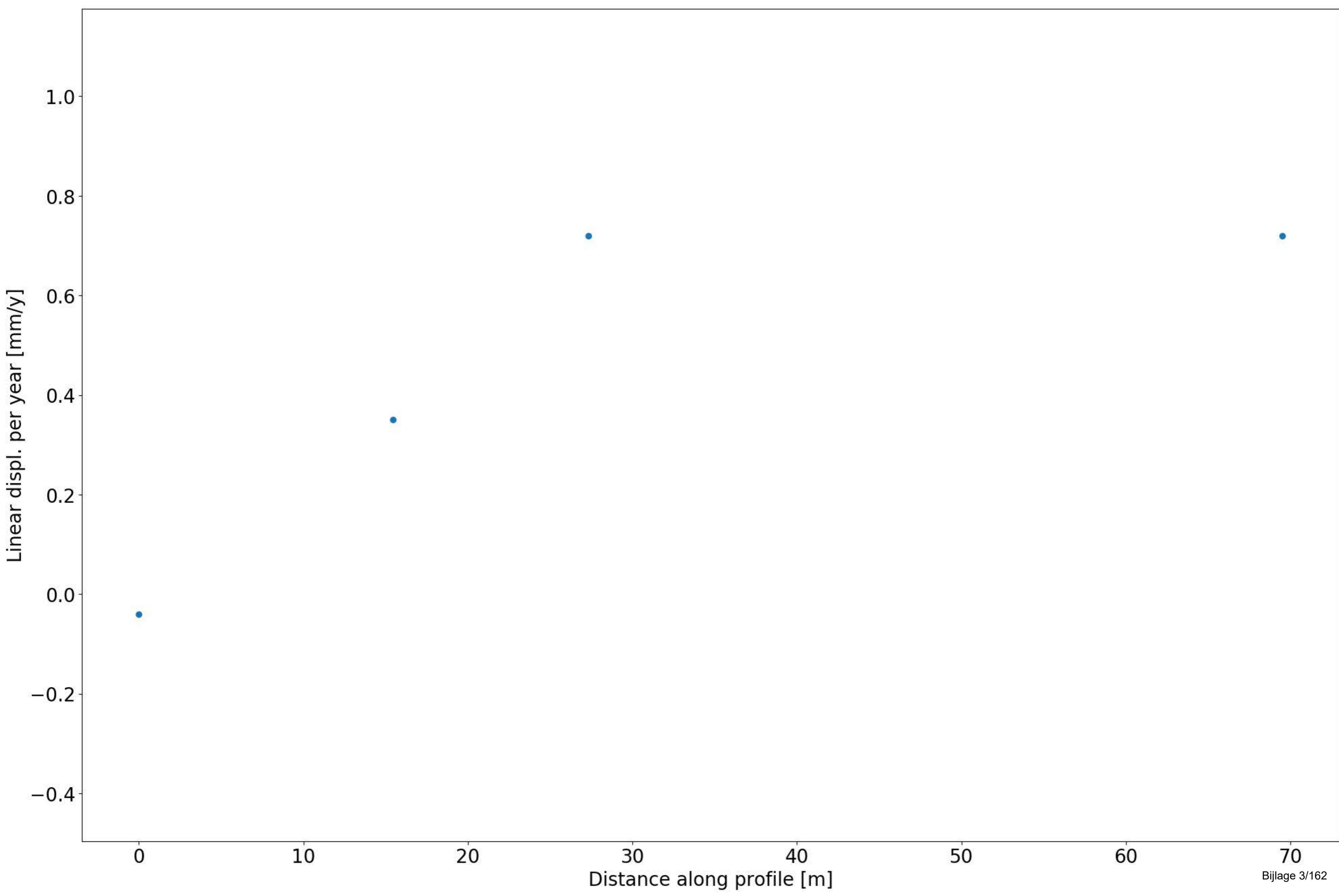
during the time period of S1. The change to the surface results in a loss of coherence for InSAR.

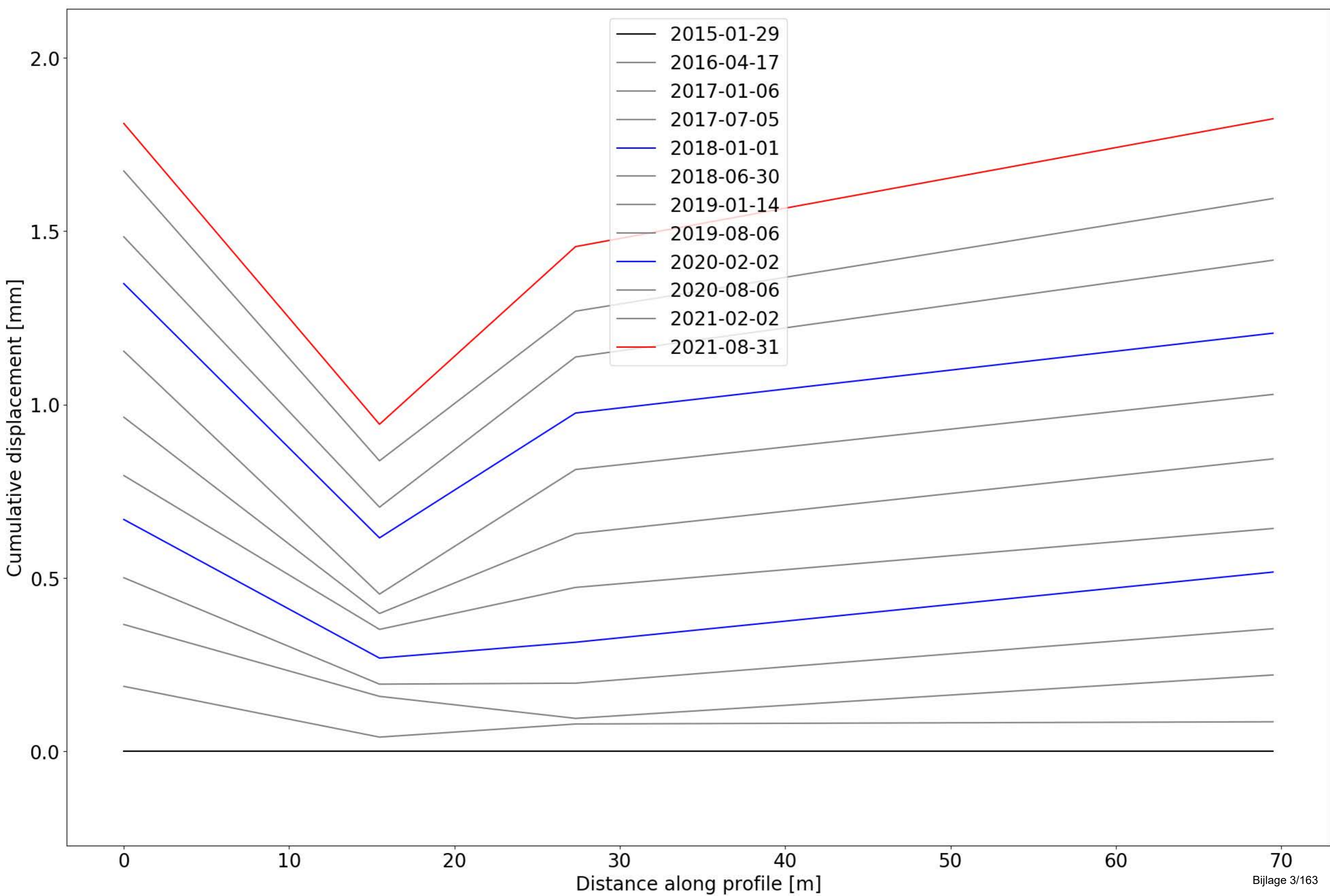


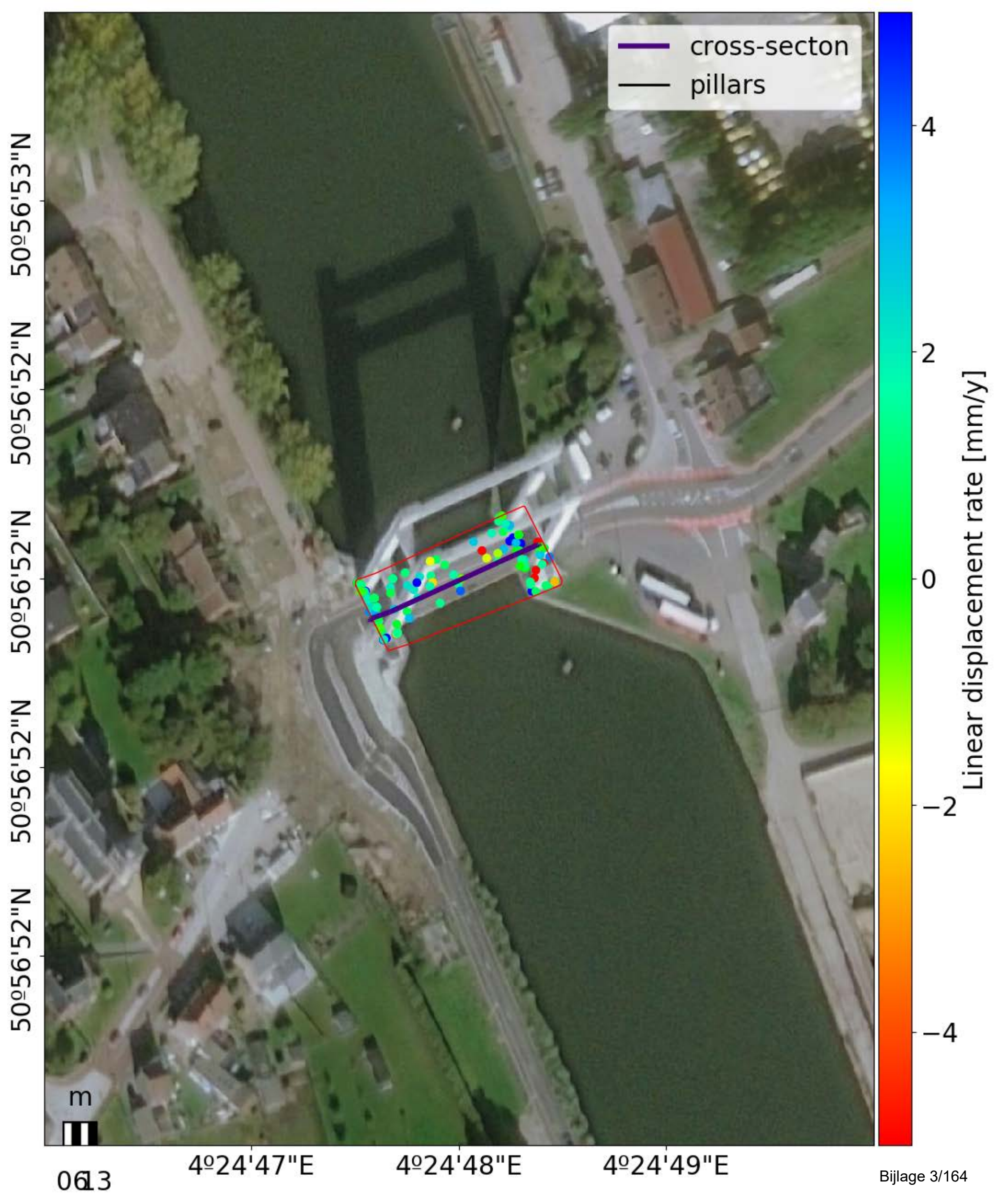


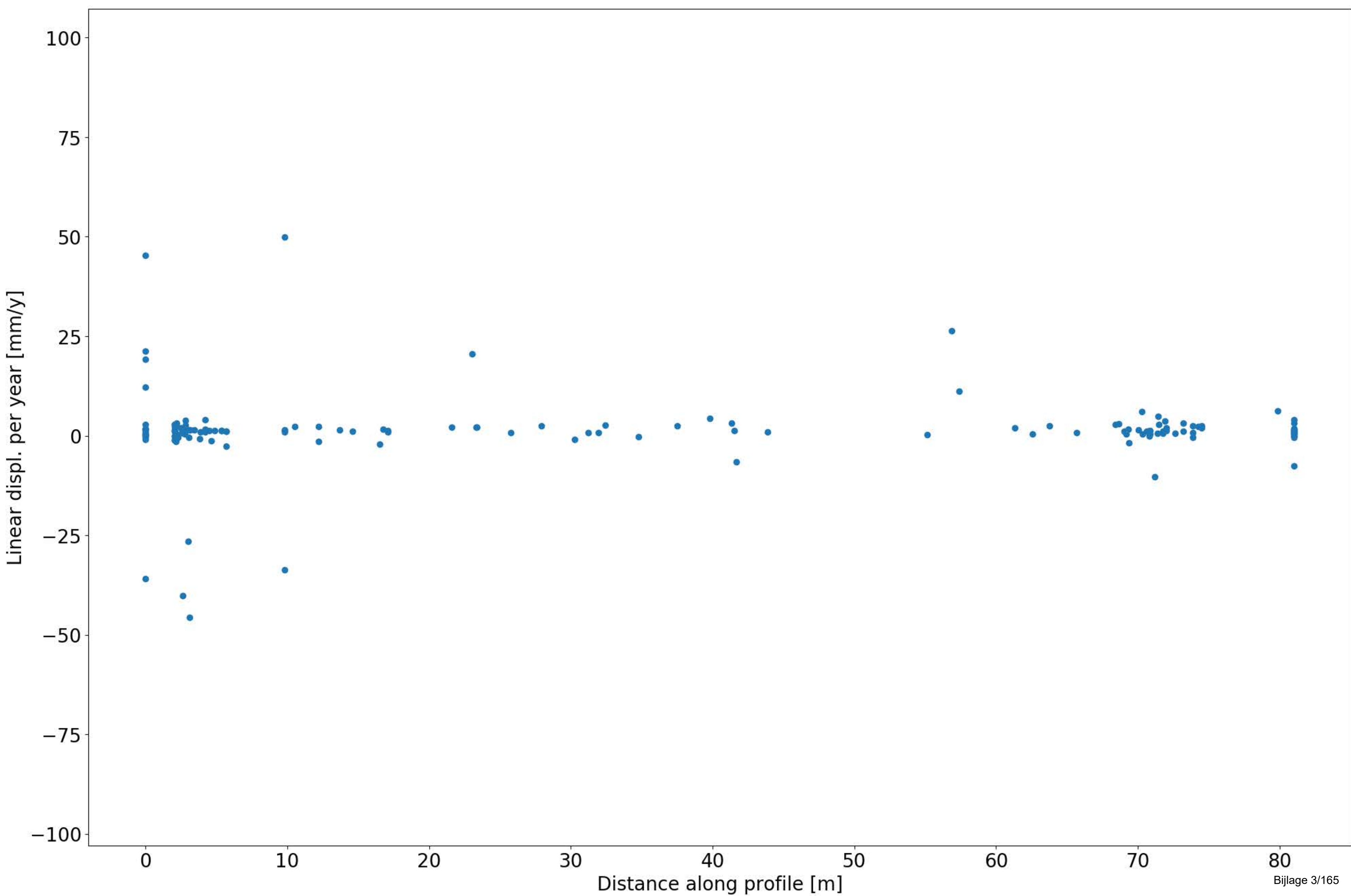


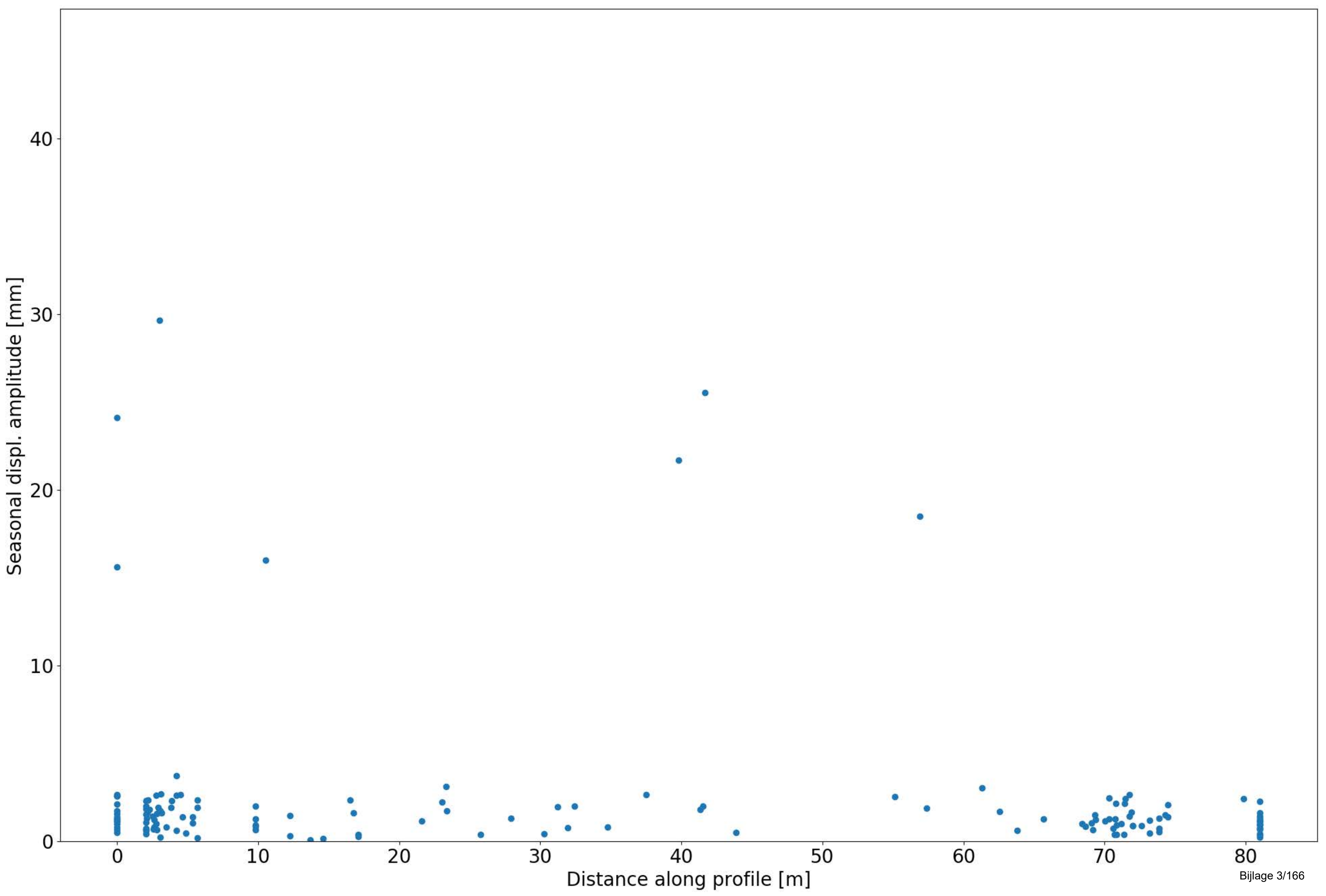


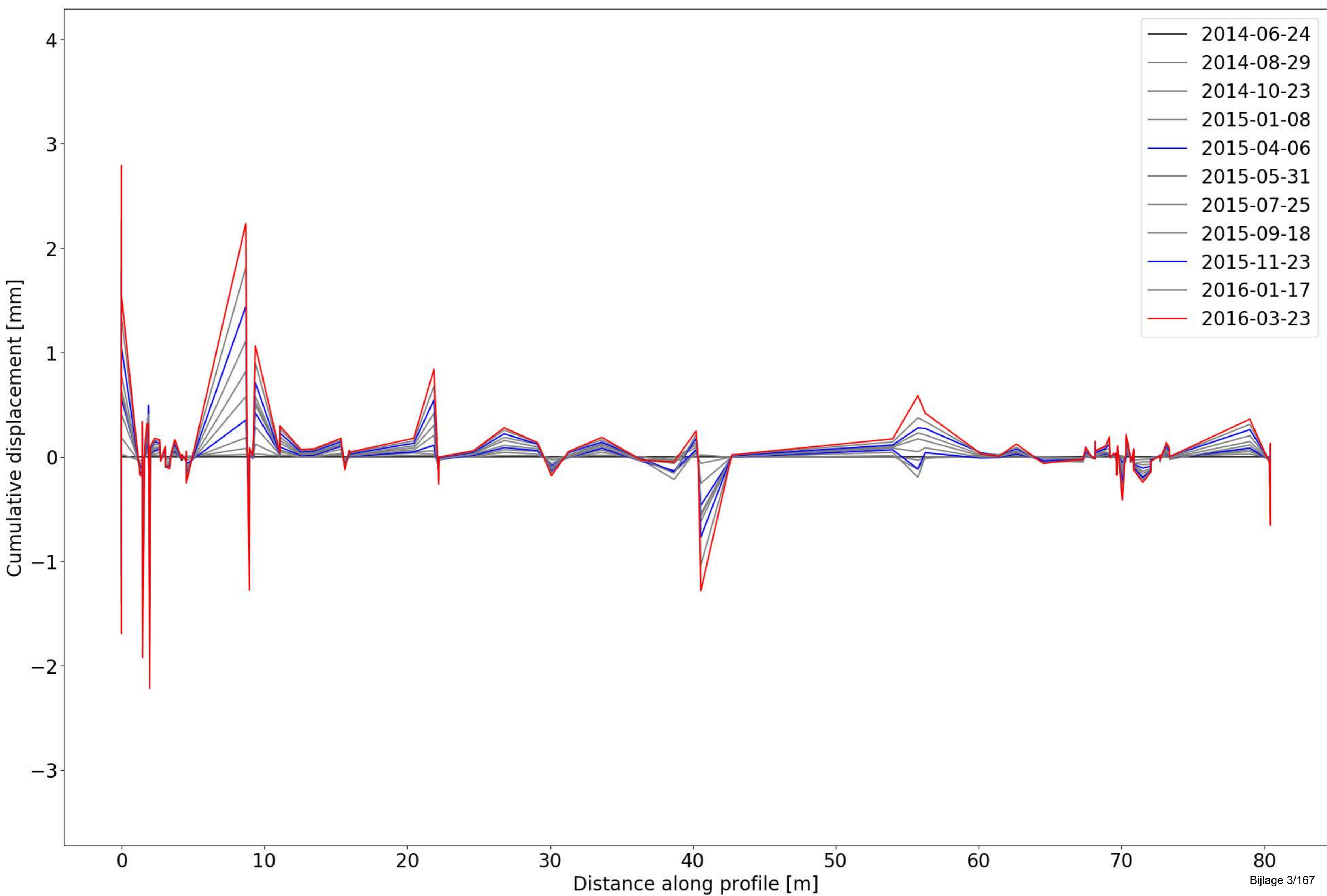












8042 Viaduct in A201 over N262



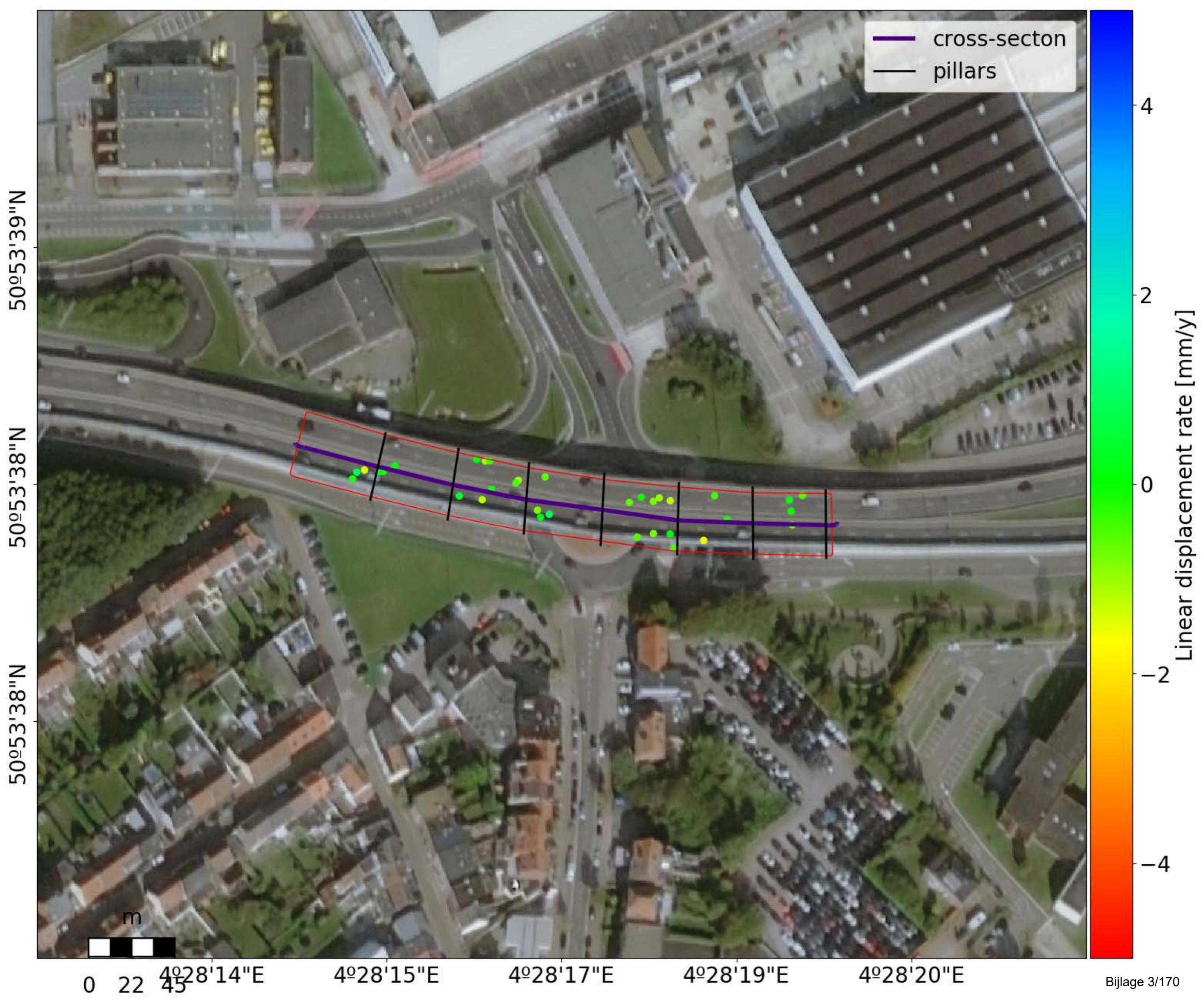
Object Nummer	Name	Long (WGS84)	Lat (WGS84)	Long (Lambert)	Lat (Lambert)	Length [m]	Width [m]	Material	Description	Information
8042	Viaduct in A201 over N262	50.89394319	4.471559801	157233.01000	175960.10999	174.17	18.6	-	(6) breed viaduct / OW	no maintenance works, pillars were treated between 2011 and 2013

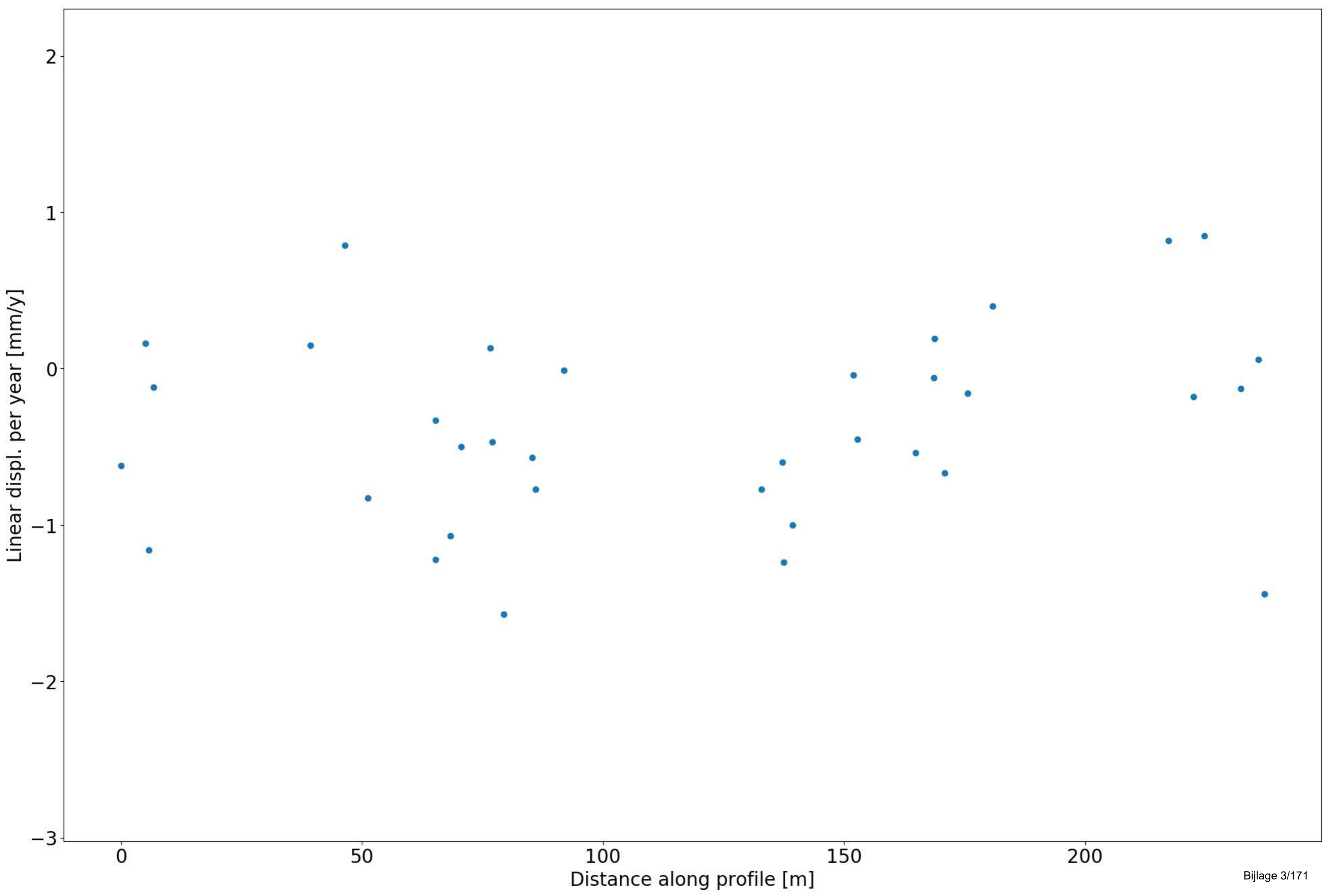
Change Detection

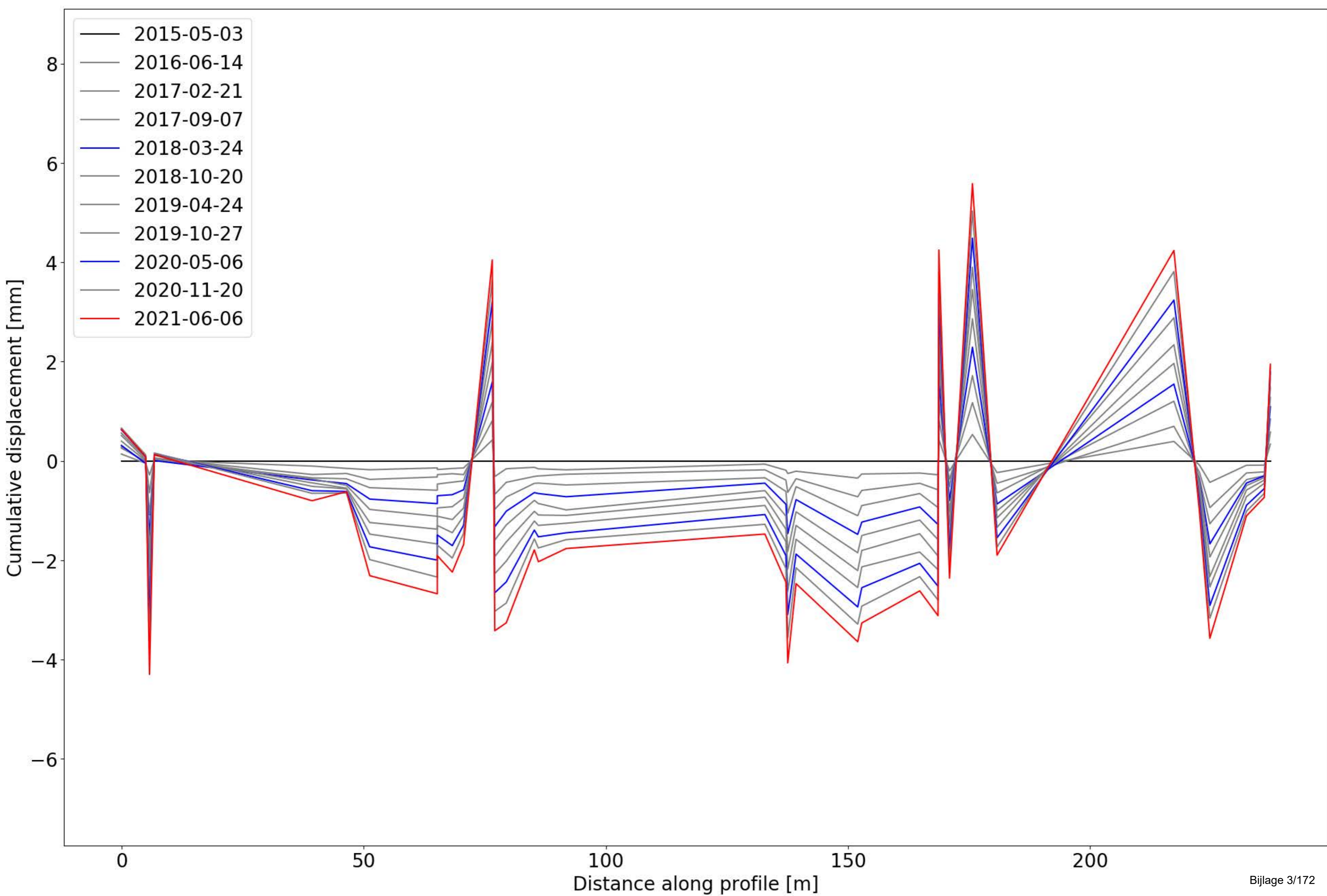
Change detection	Approx. period	Description
Change Middle	April 2018	Increase in displacement rate from April 2018
Change Middle	January 2020	Change in amplitude between April 2018 and January 2020

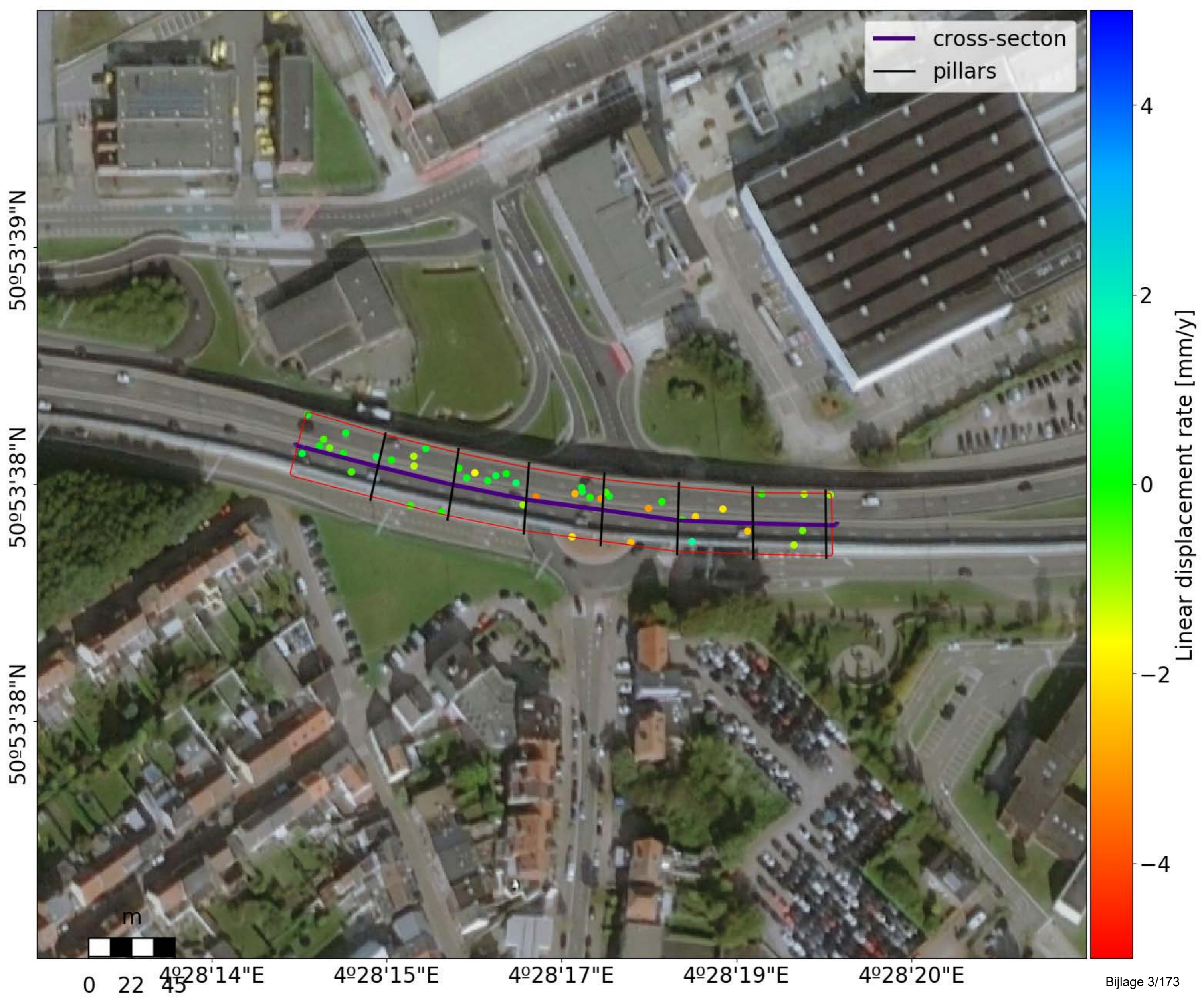
Comments on point density/distribution

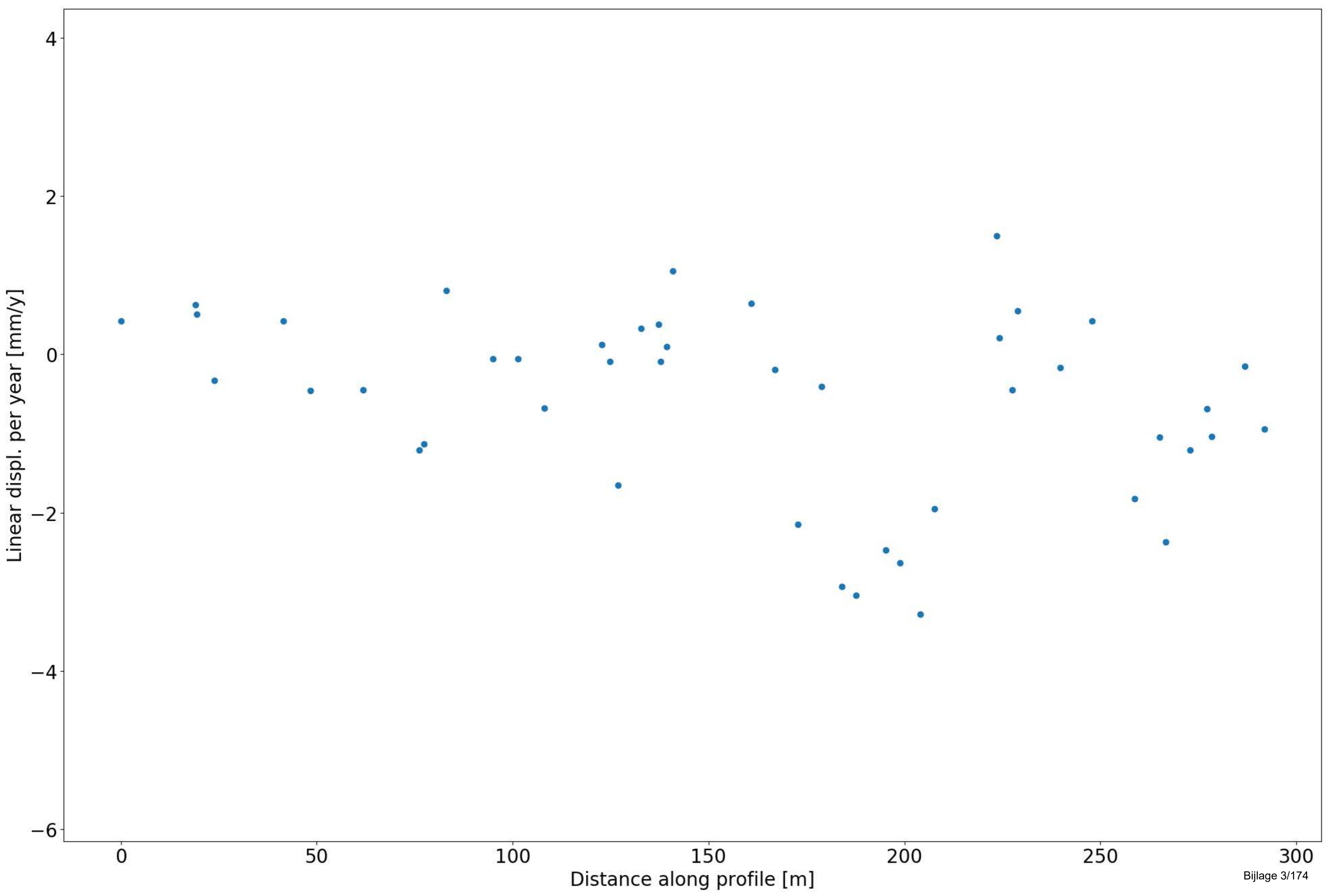
InSAR points along the length of the bridge for all 3 datasets (TSX, S1 asc and S1 dsc), no significant gaps in the data.

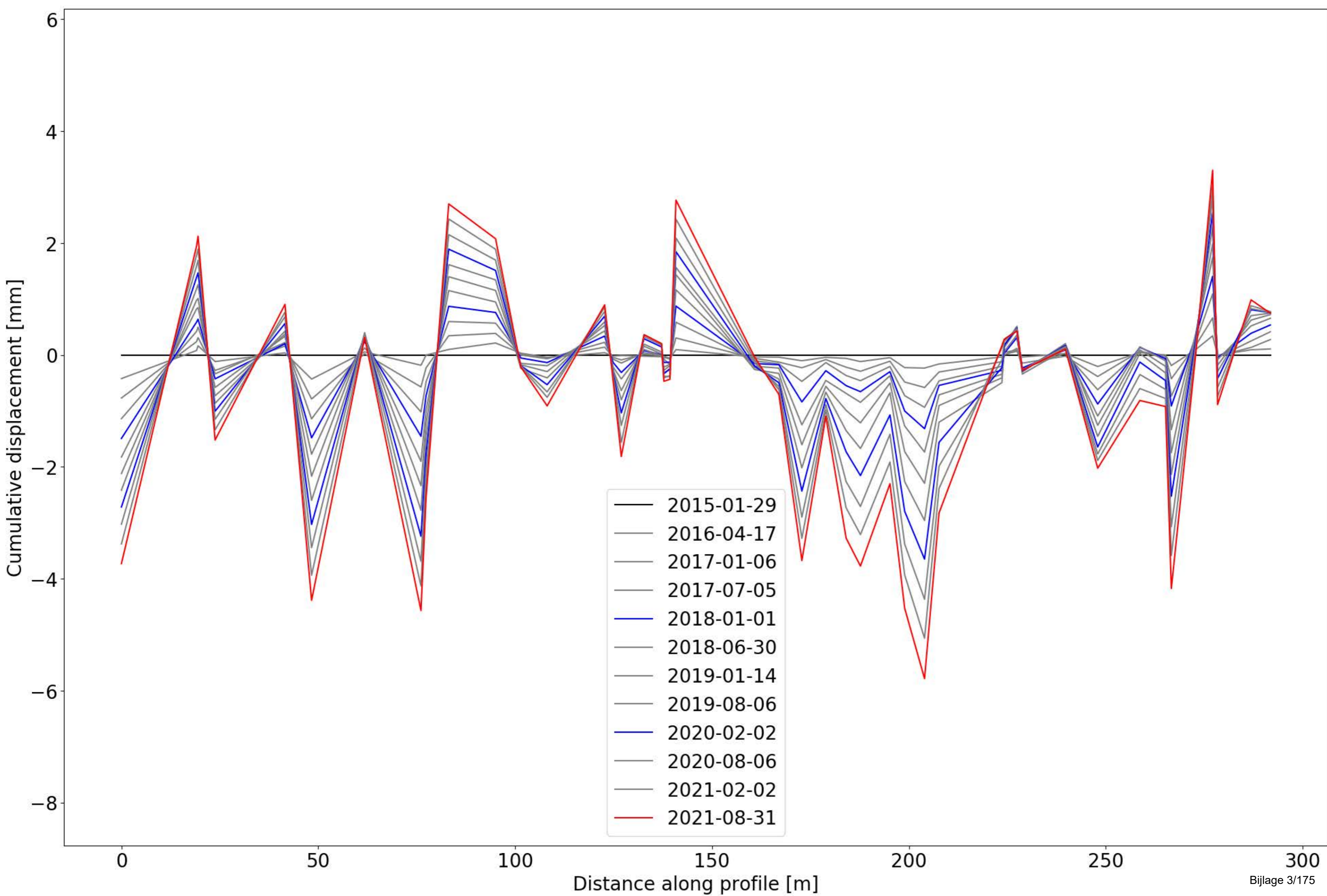


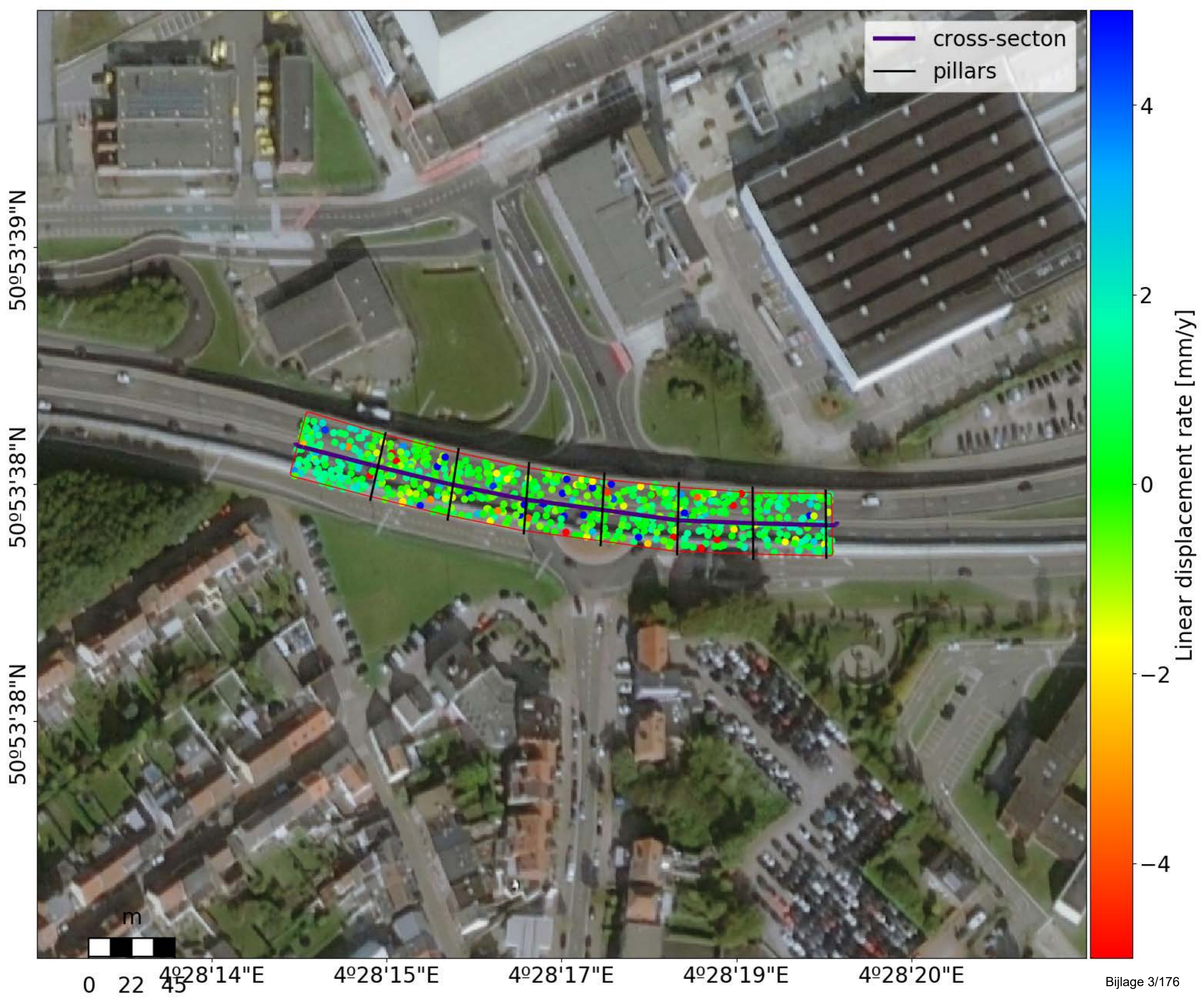


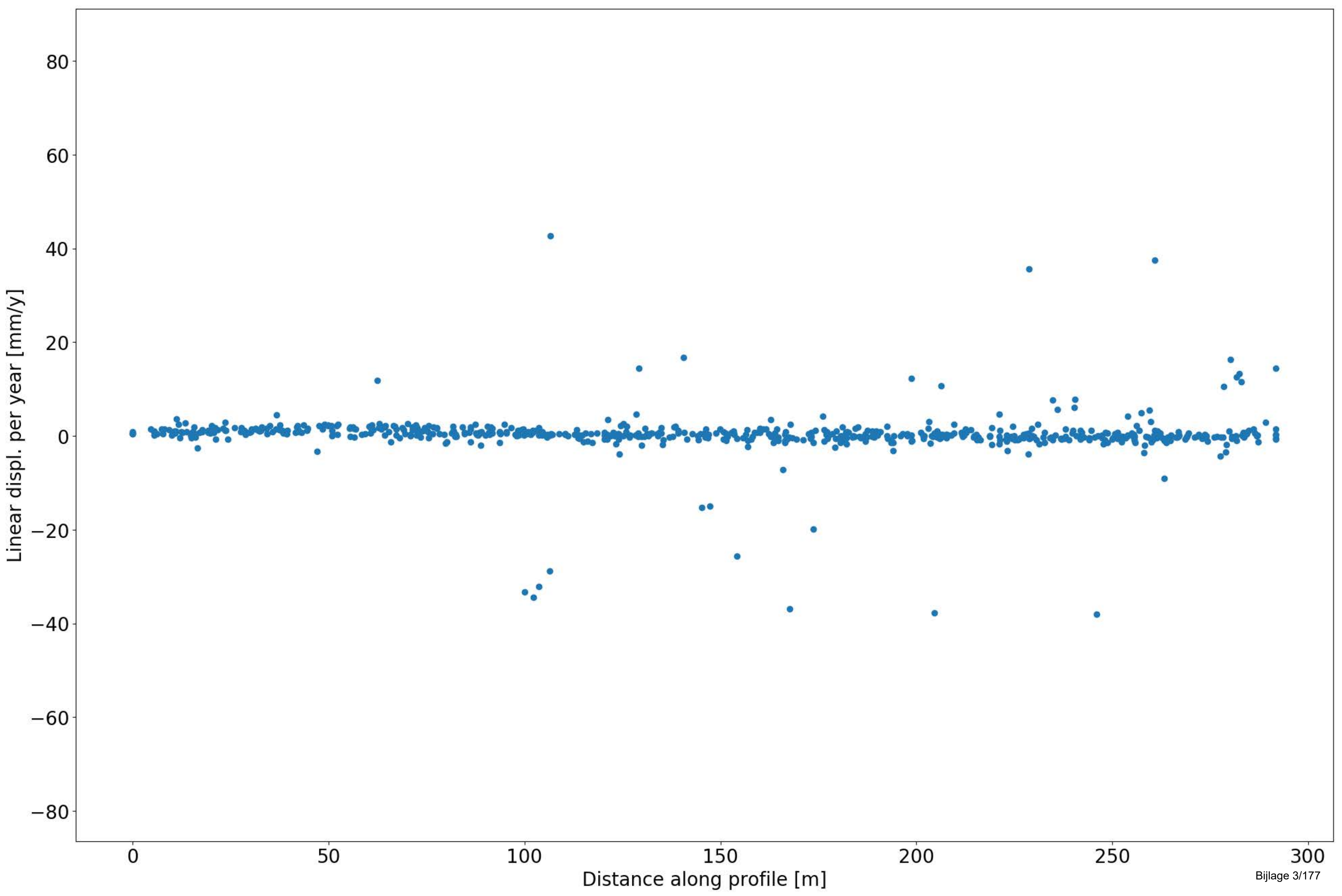


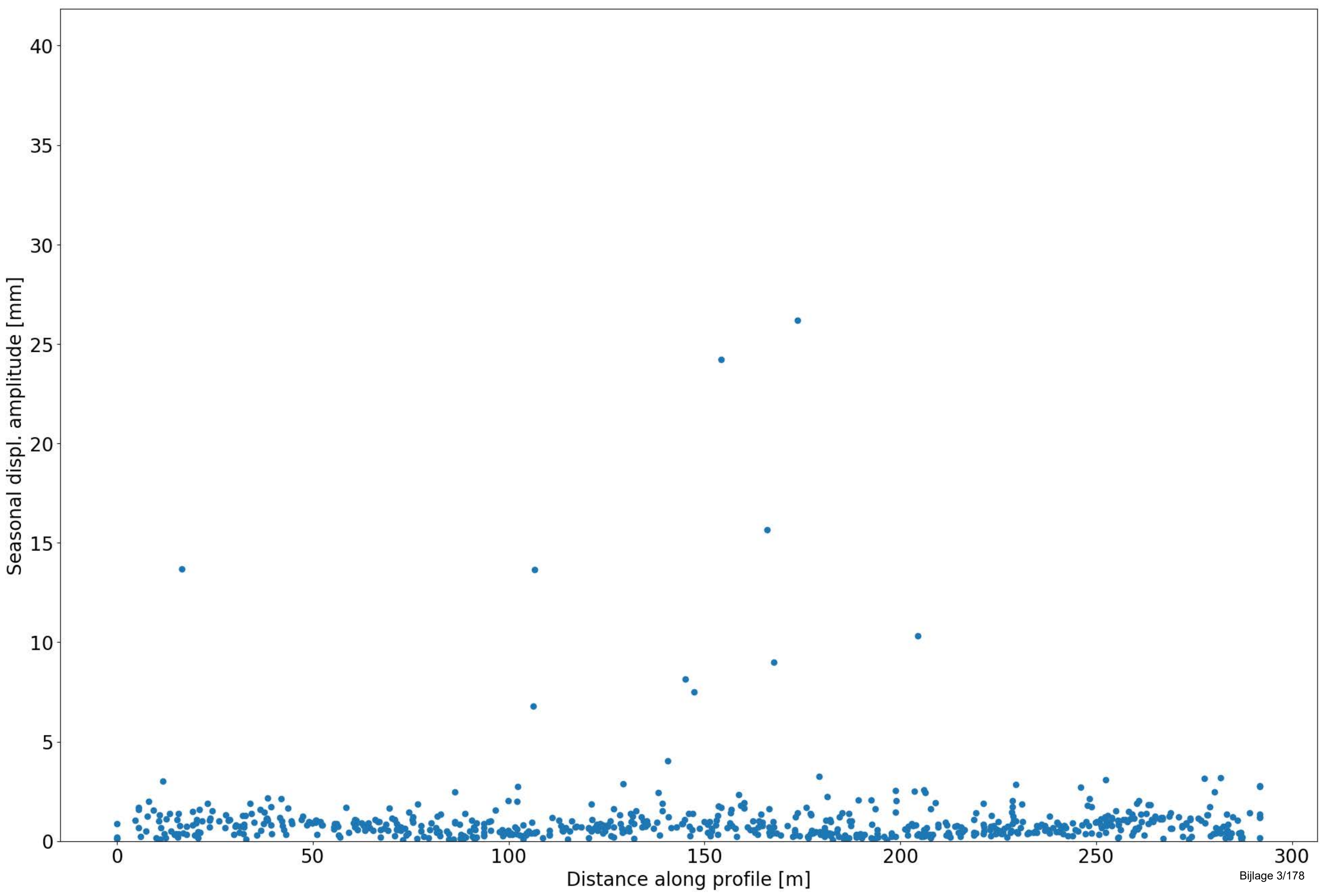


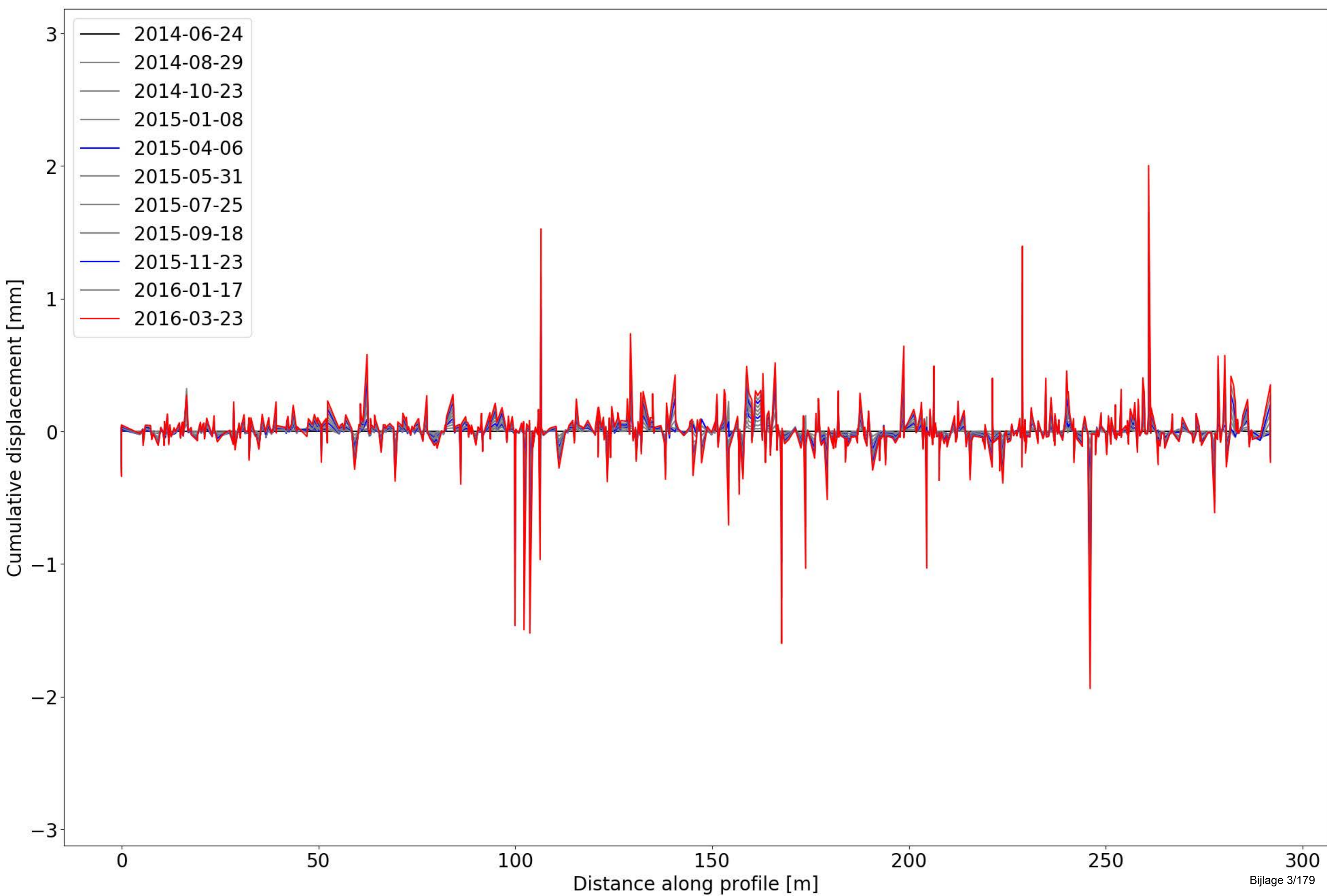












8639 Fiets- en voetbrug Schoeweever Woluwelaan



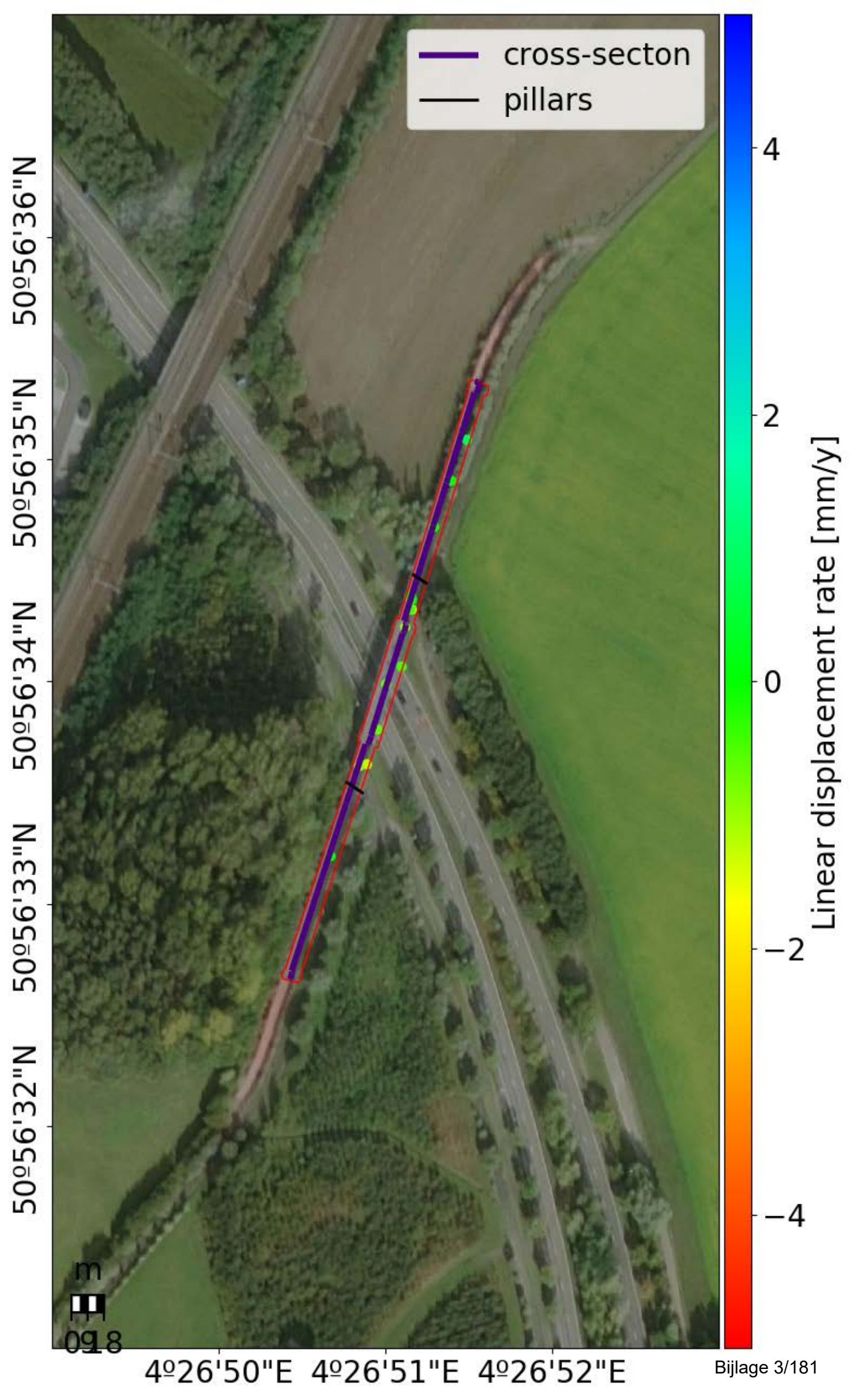
Object Nummer	Name	Long (WGS 84)	Lat (WGS84)	Long (Lambert)	Lat (Lambert)	Length [m]	Width [m]	Material	Description	Information
8639	Fiets- en voetbrug Schoeweever Woluwelaan	50.94268407	4.447578625	155539.97000	181380.08999	90	4.15	steel	(11) staal / smal / bijna NZ	no maintenance works

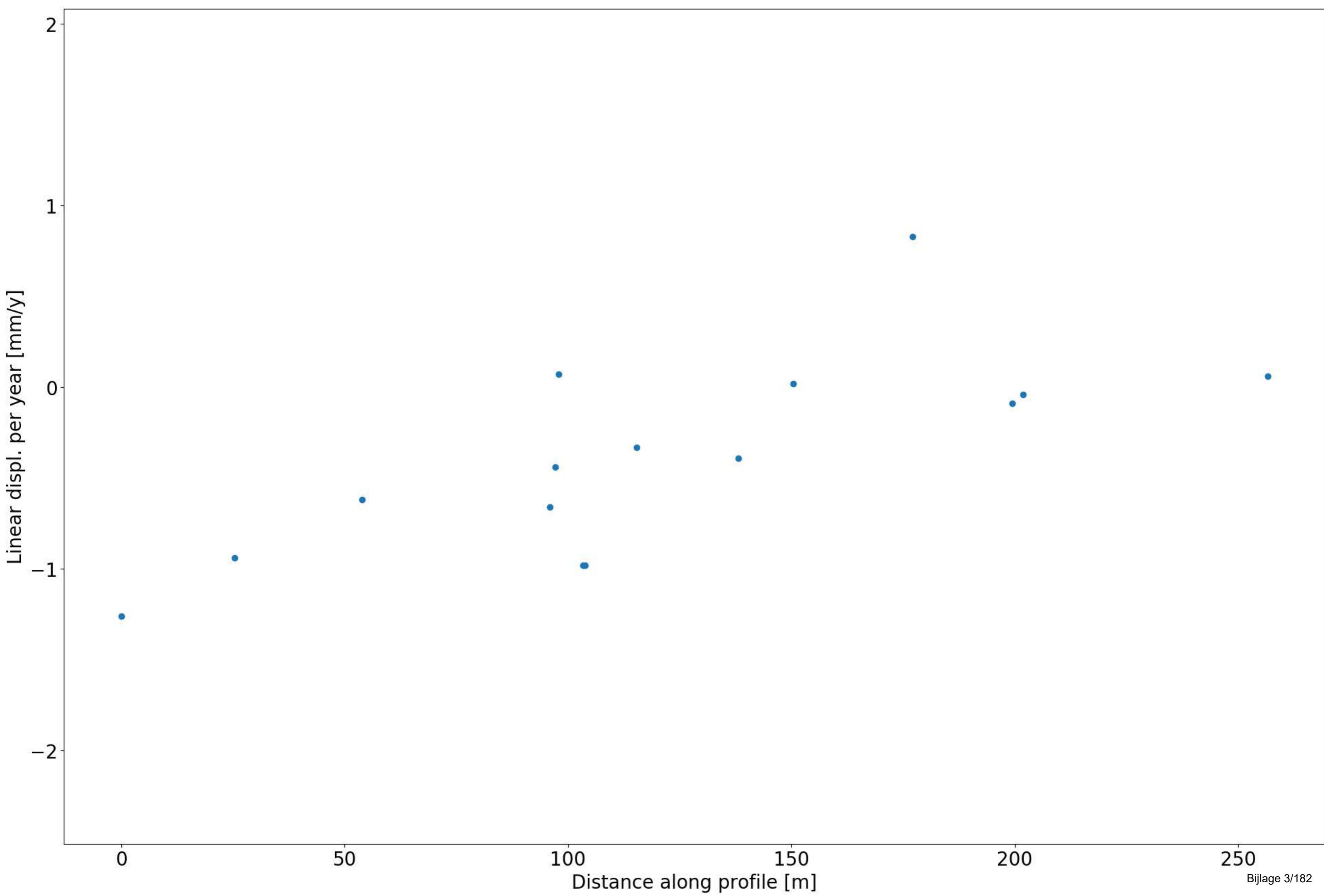
Change Detection

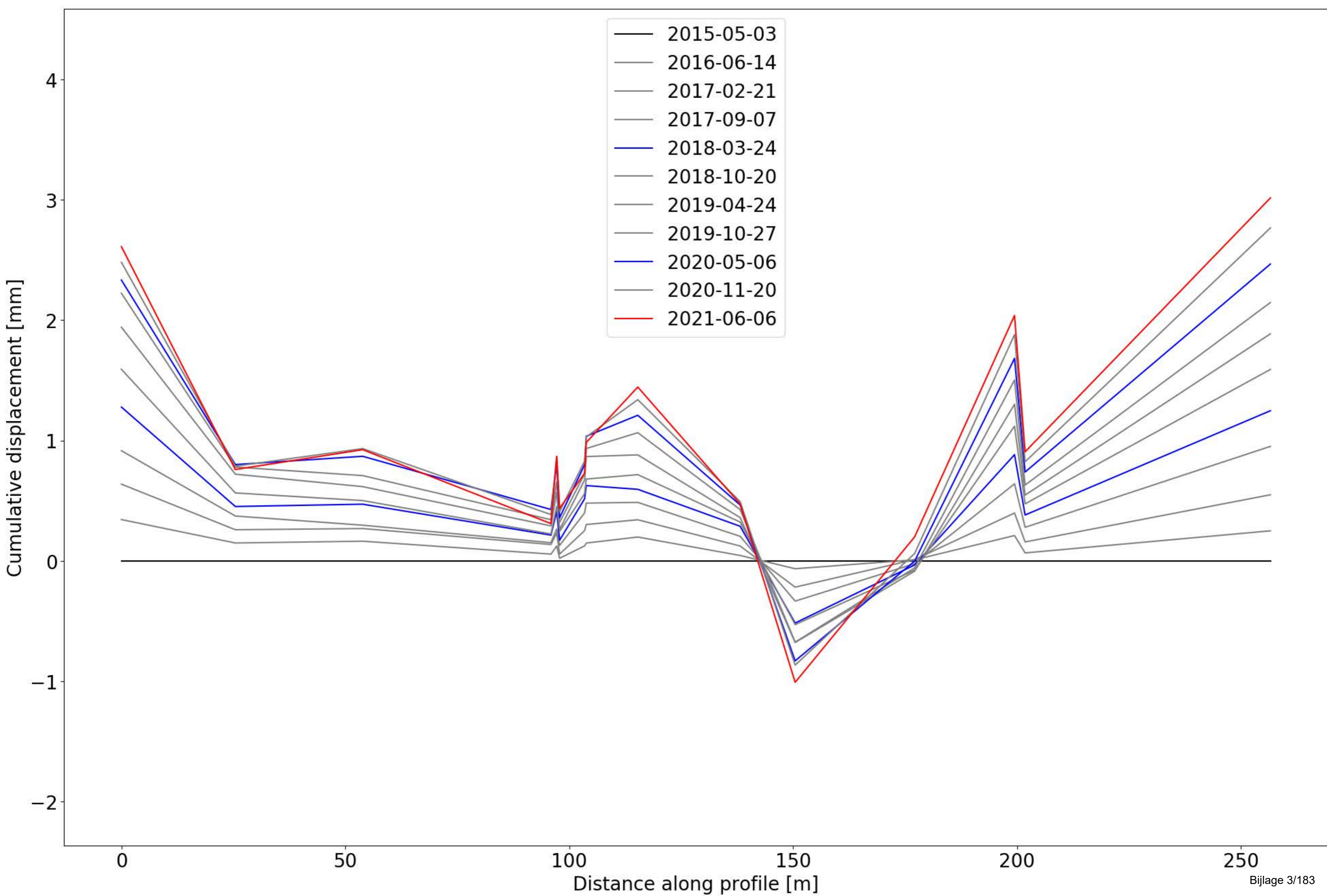
No changes are detected.

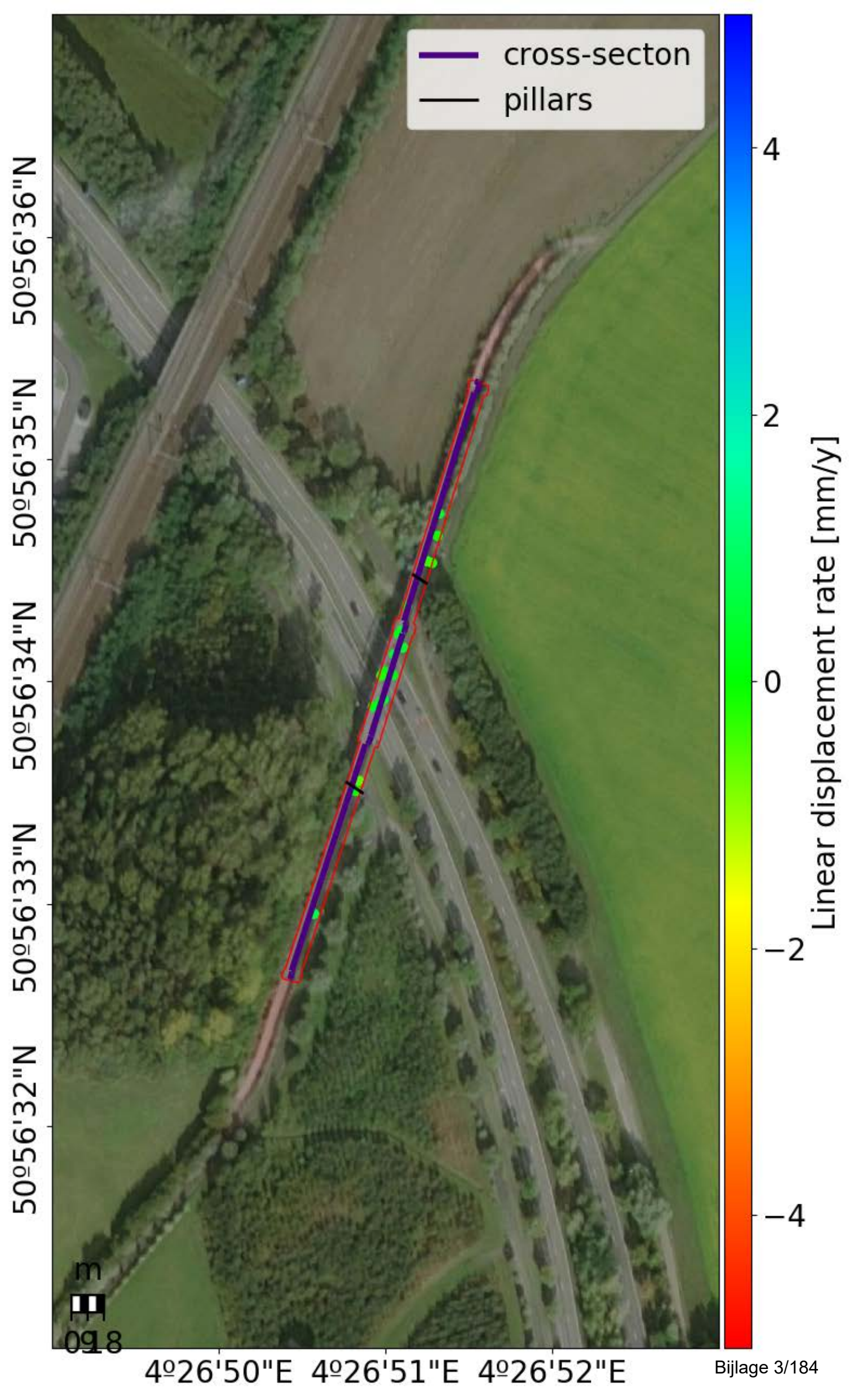
Comments on point density/distribution

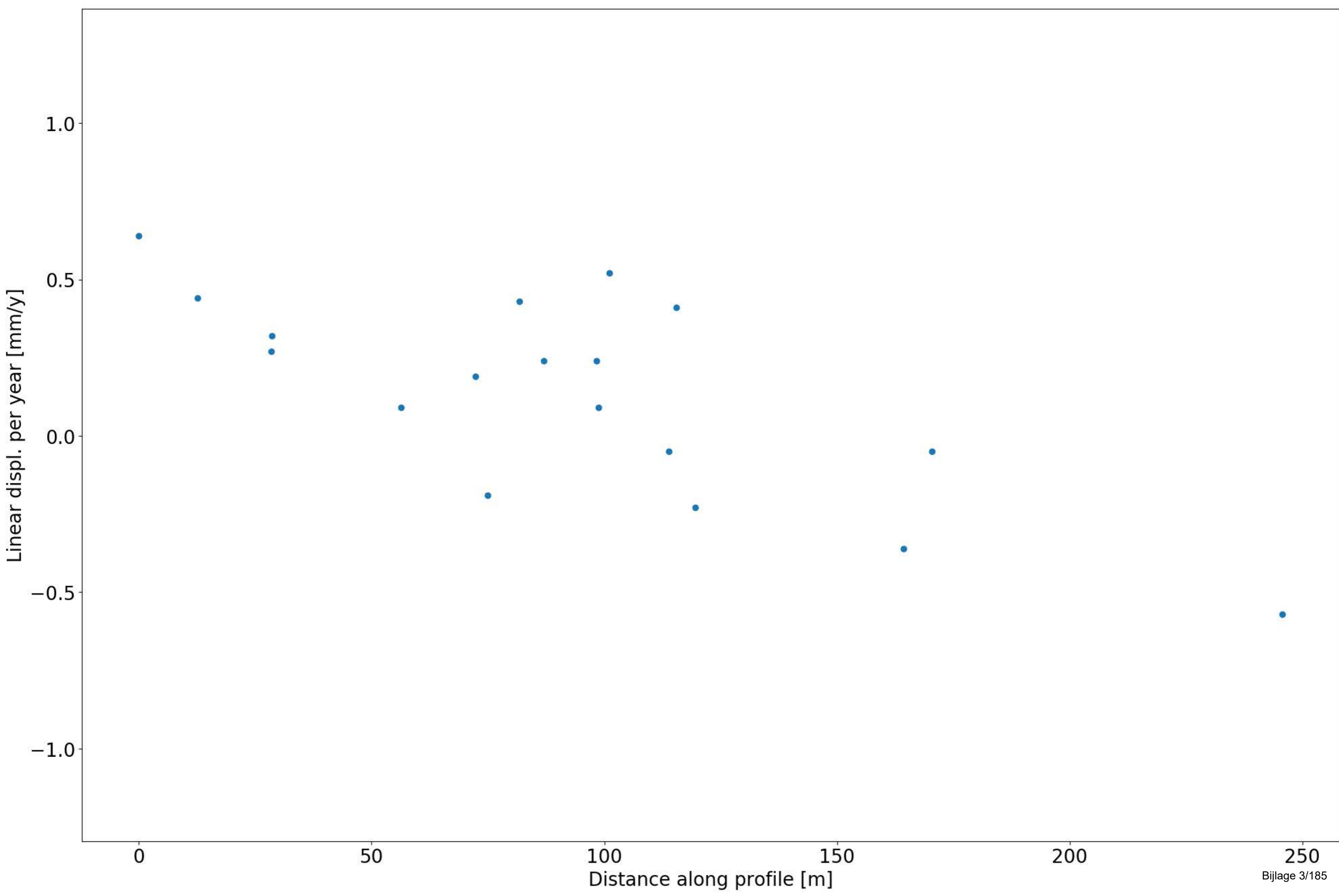
The southern end of the bridge has a lack of points in all three datasets (TSX, S1 asc and S1 dsc). This is mostly likely because it is a narrow bridge (4 m) with trees either side that S1 and TSX cannot penetrate, resulting in a loss of coherence.

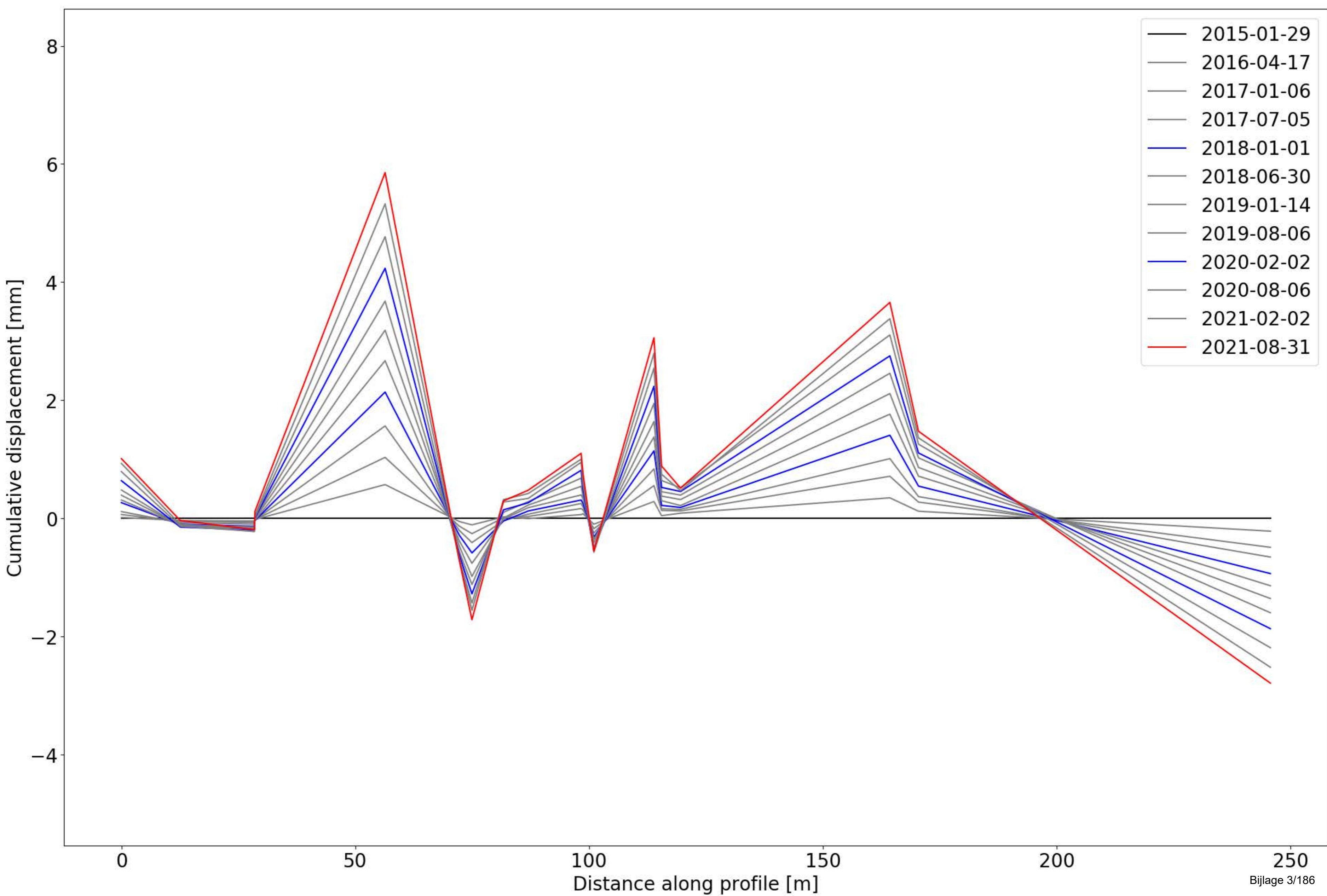


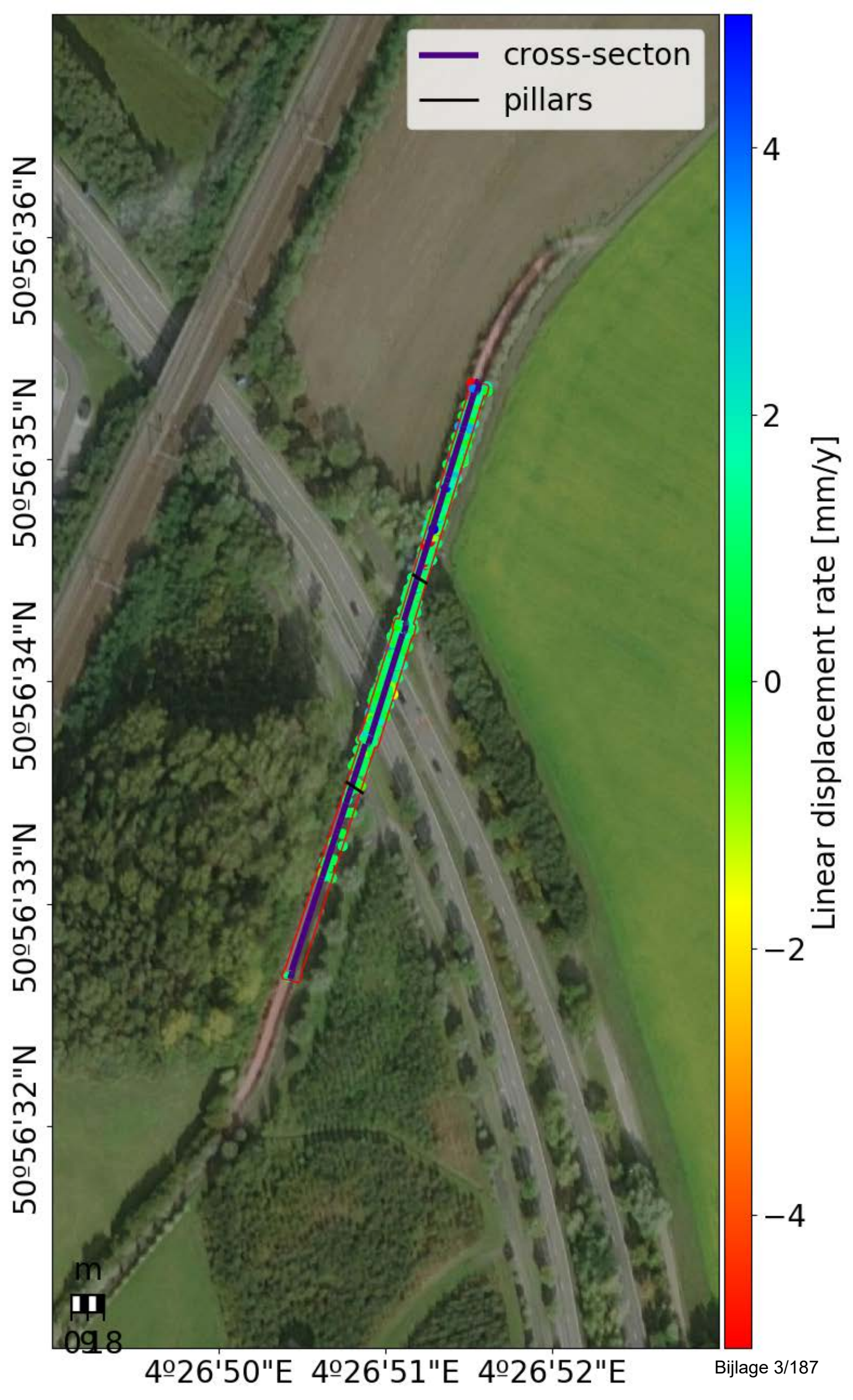


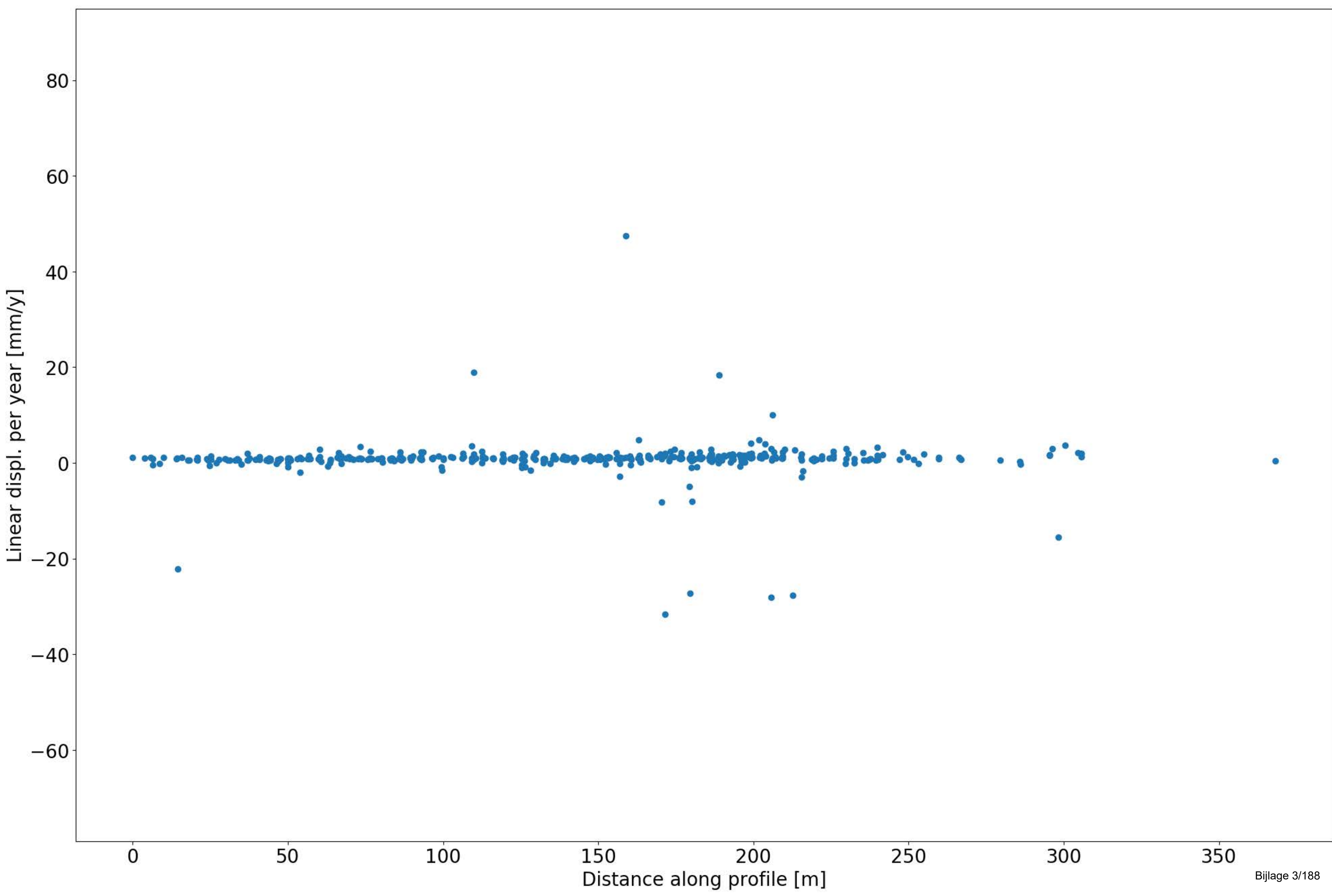


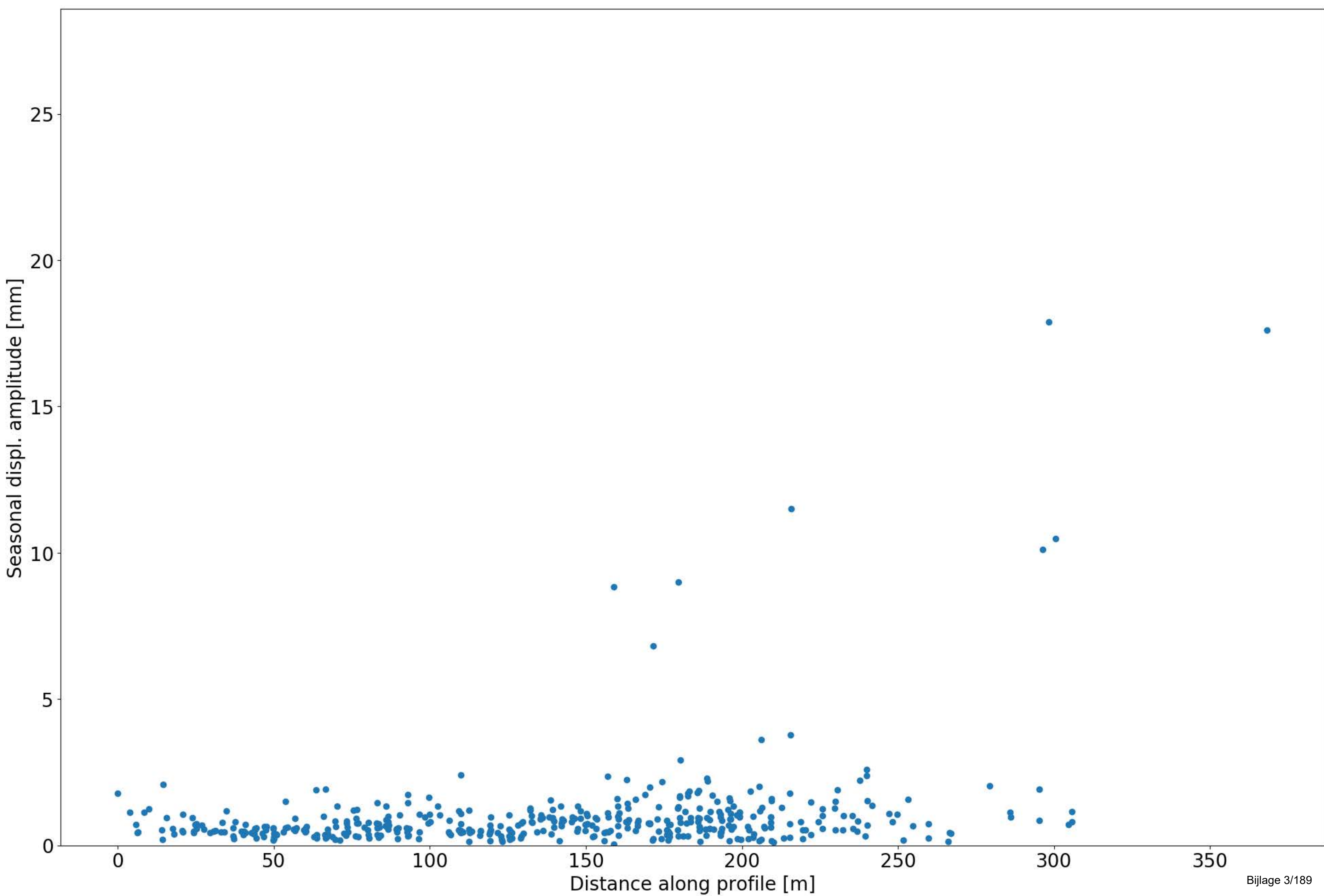


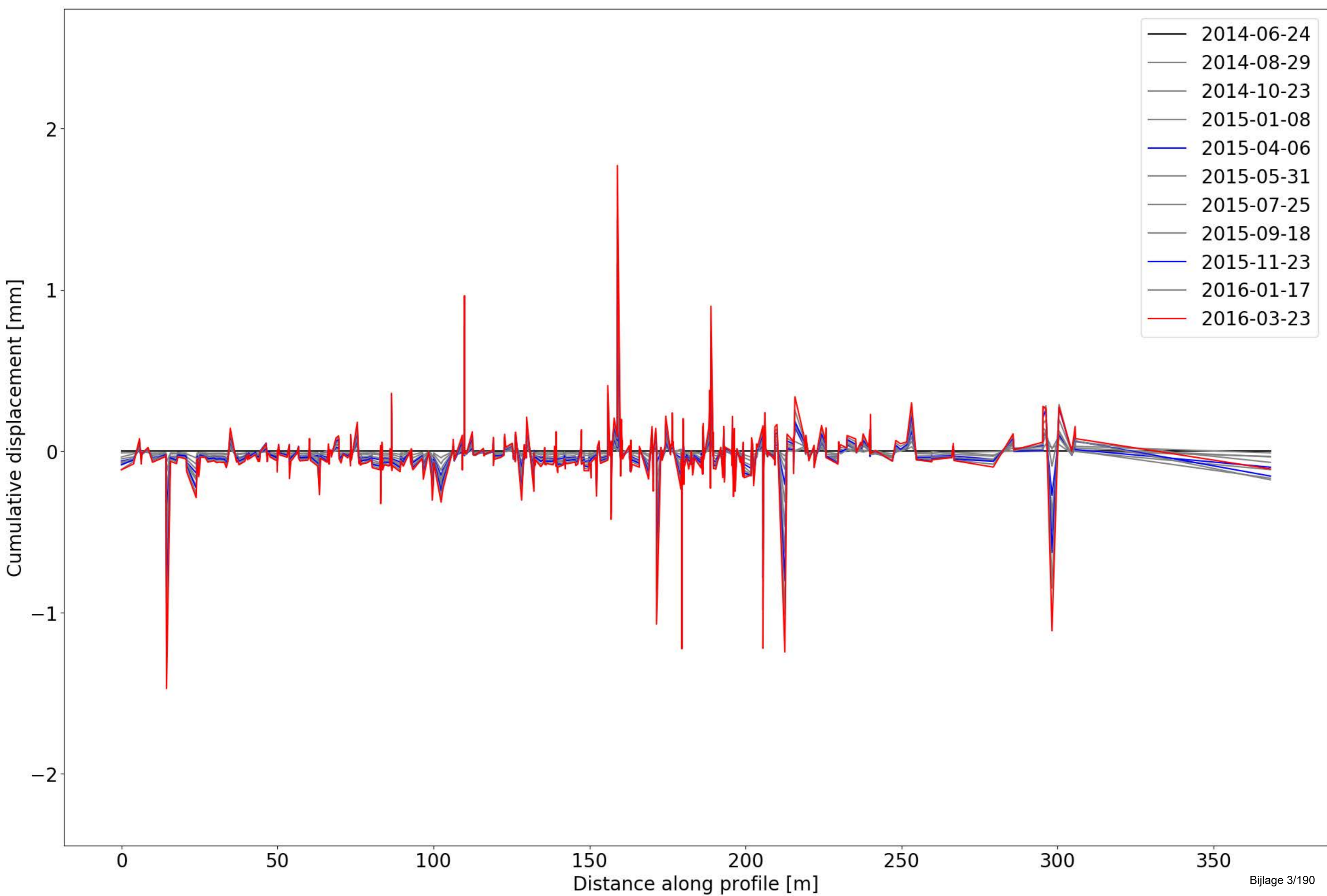












8677 Brug over de Zenne met verbindingsweg naar sluis



Object Nummer	Name	Long (WGS 84)	Lat (WGS 84)	Long (Lambrt)	Lat (Lambrt)	Lengte [m]	Width [m]	Material	Description	Information
8677	Brug over de Zenne met verbindingsweg naar sluis	50.91614546	4.419149856	153544.00000	178426.07999	30.28	9.9	-	(14) afgewerkt in 2014 - Vrij breed	bridge was built/finished in 2014-2015

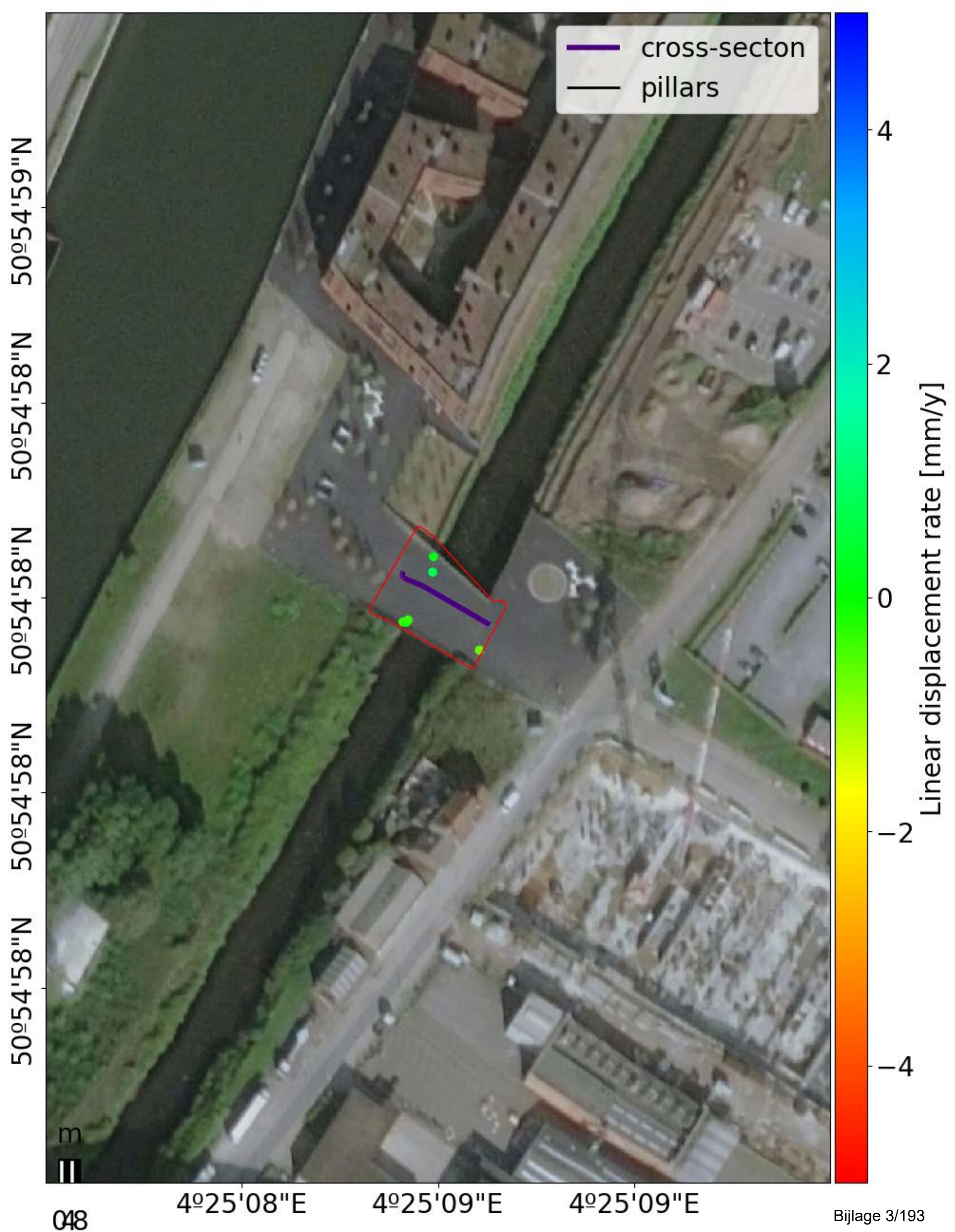
Change Detection

Change detection	Approx. period	Description
Change (all bridge)	2014 -2015	Change in amplitude during construction work (2014-2015)

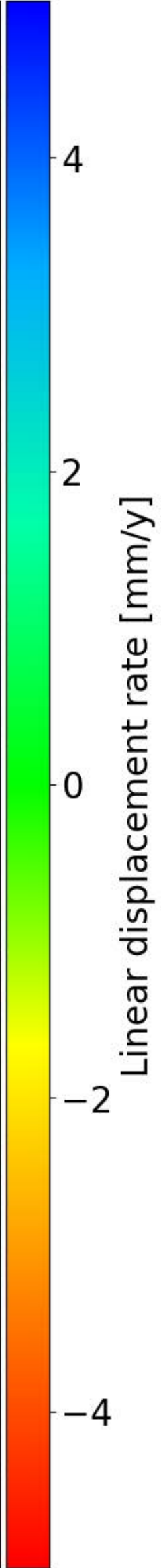
Change (all bridge)	August 2018	Change in displacement rate from August 2018
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Comments on point density/distribution

All three datasets have points on the abutments but not in the centre of the bridge. The bridge was built/finalised in 2014/2015 which explains the lack of data on the bridge itself, the points that are there are on the abutments/banks.



— cross-section
— pillars

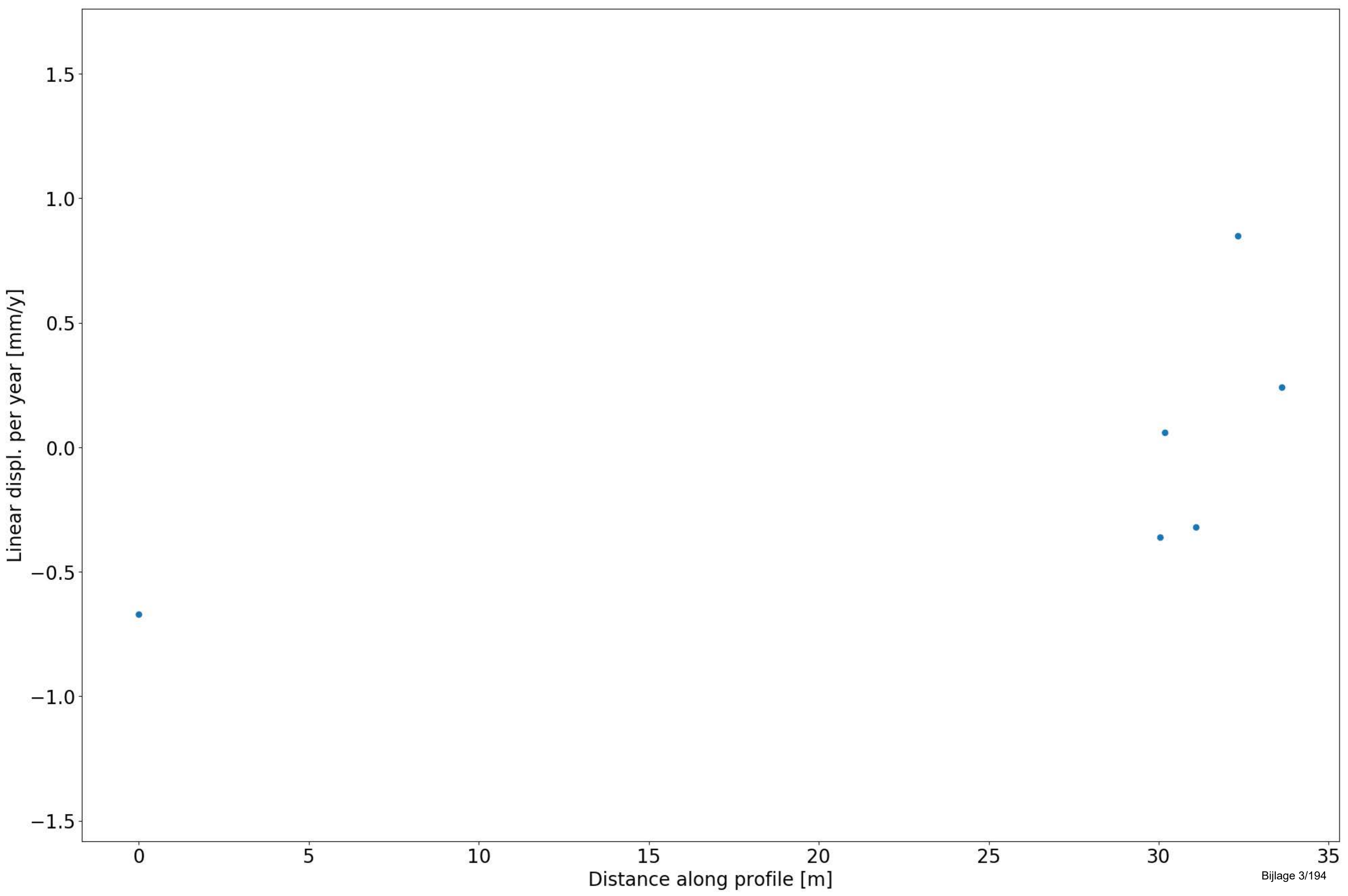


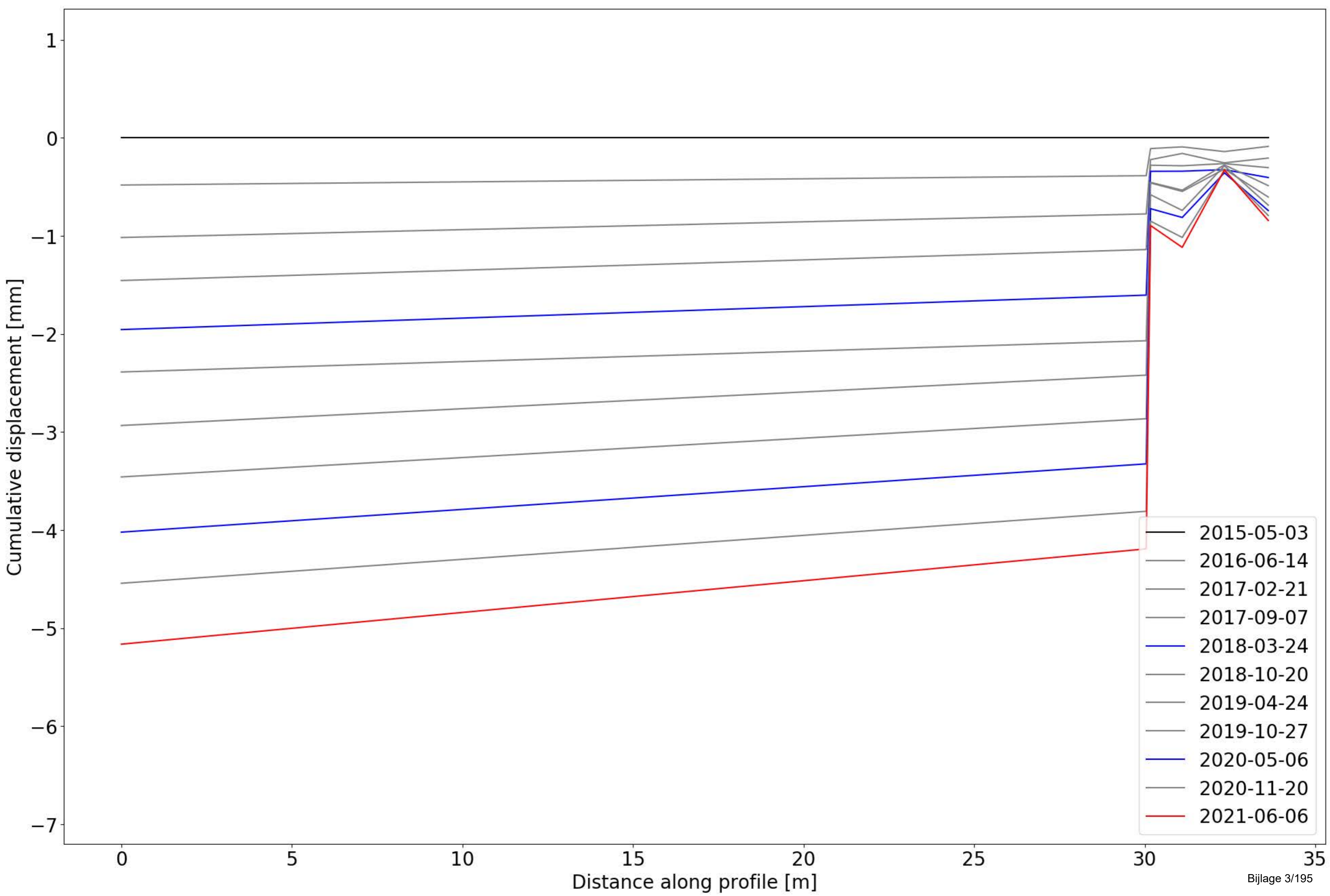
50°54'58"N 50°54'58"N 50°54'58"N 50°54'58"N 50°54'59"N

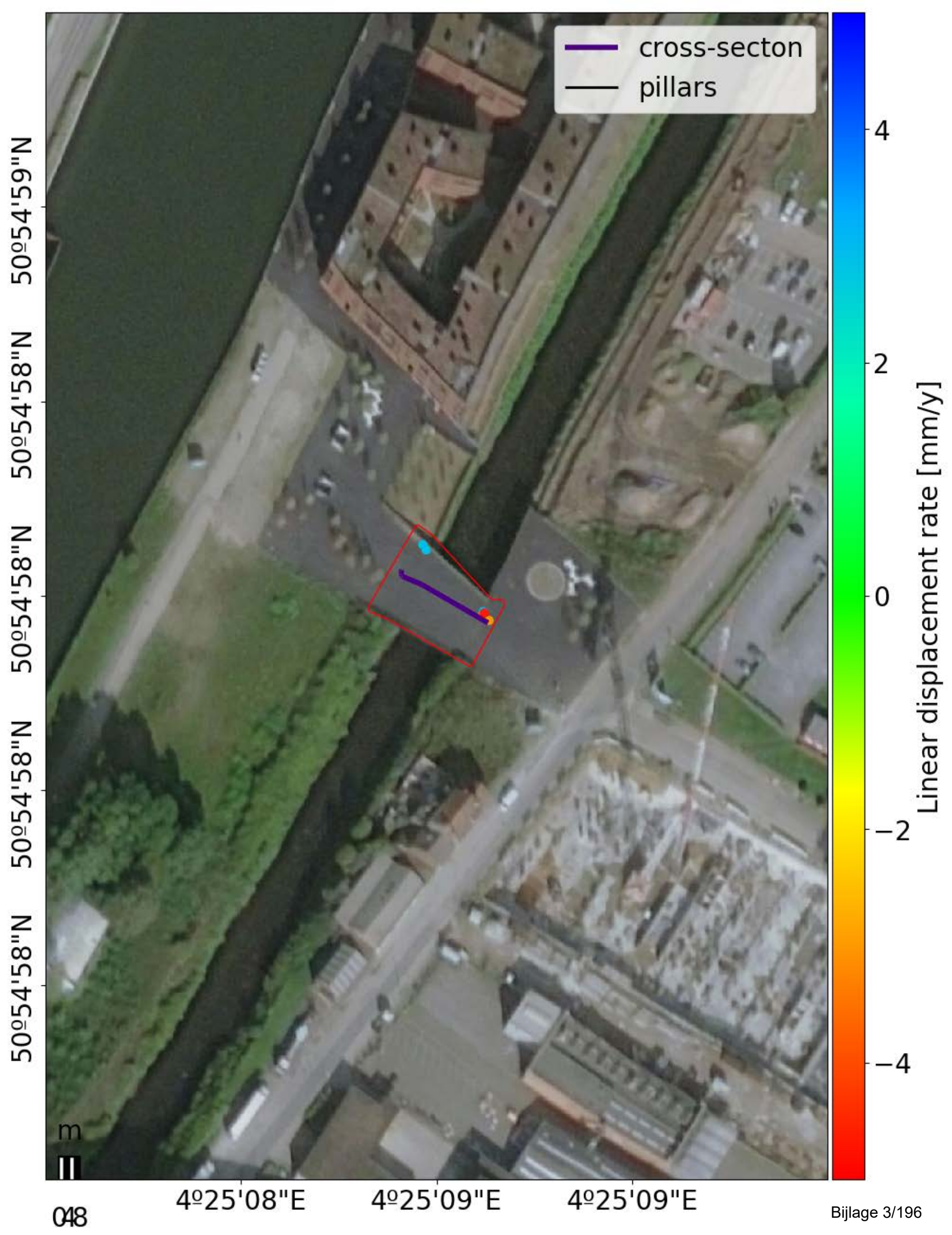
4°25'08"E 4°25'09"E 4°25'09"E

048 m

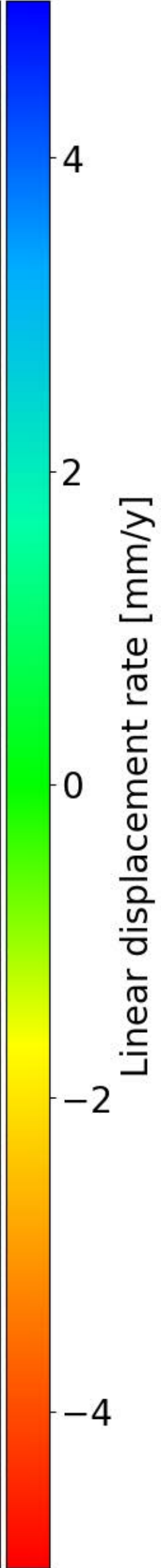
048







— cross-section
— pillars

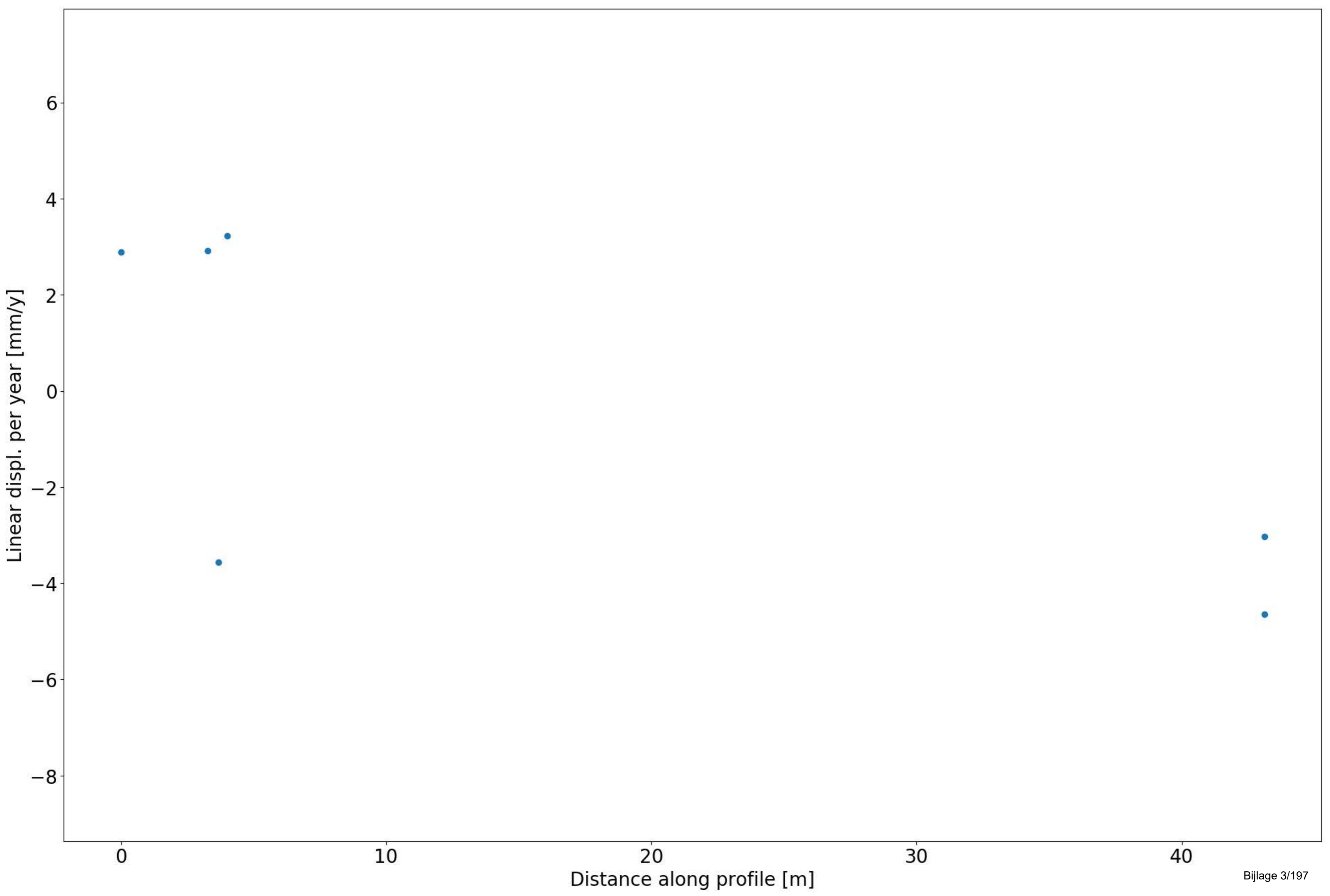


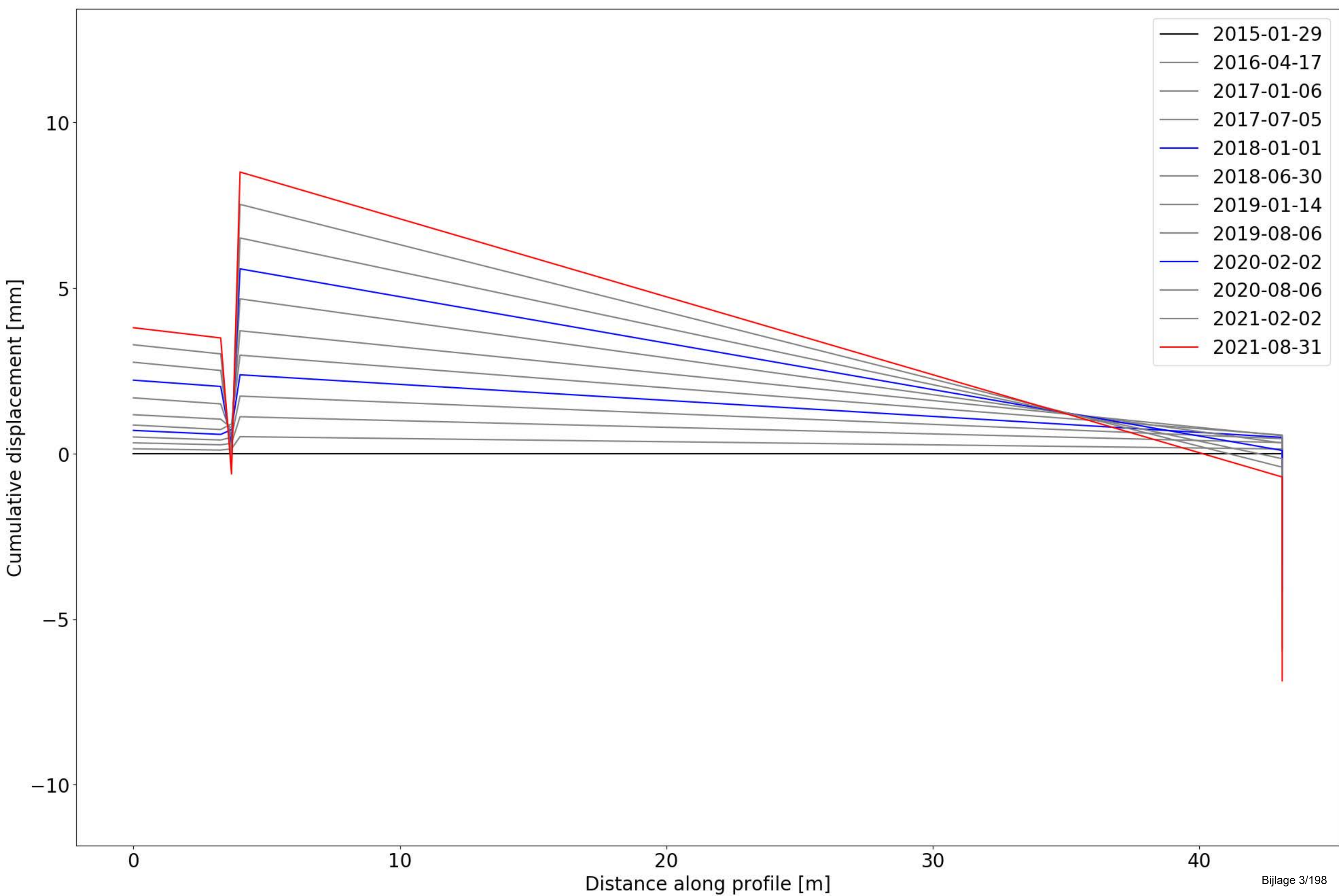
50°54'58"N 50°54'58"N 50°54'58"N 50°54'58"N 50°54'59"N

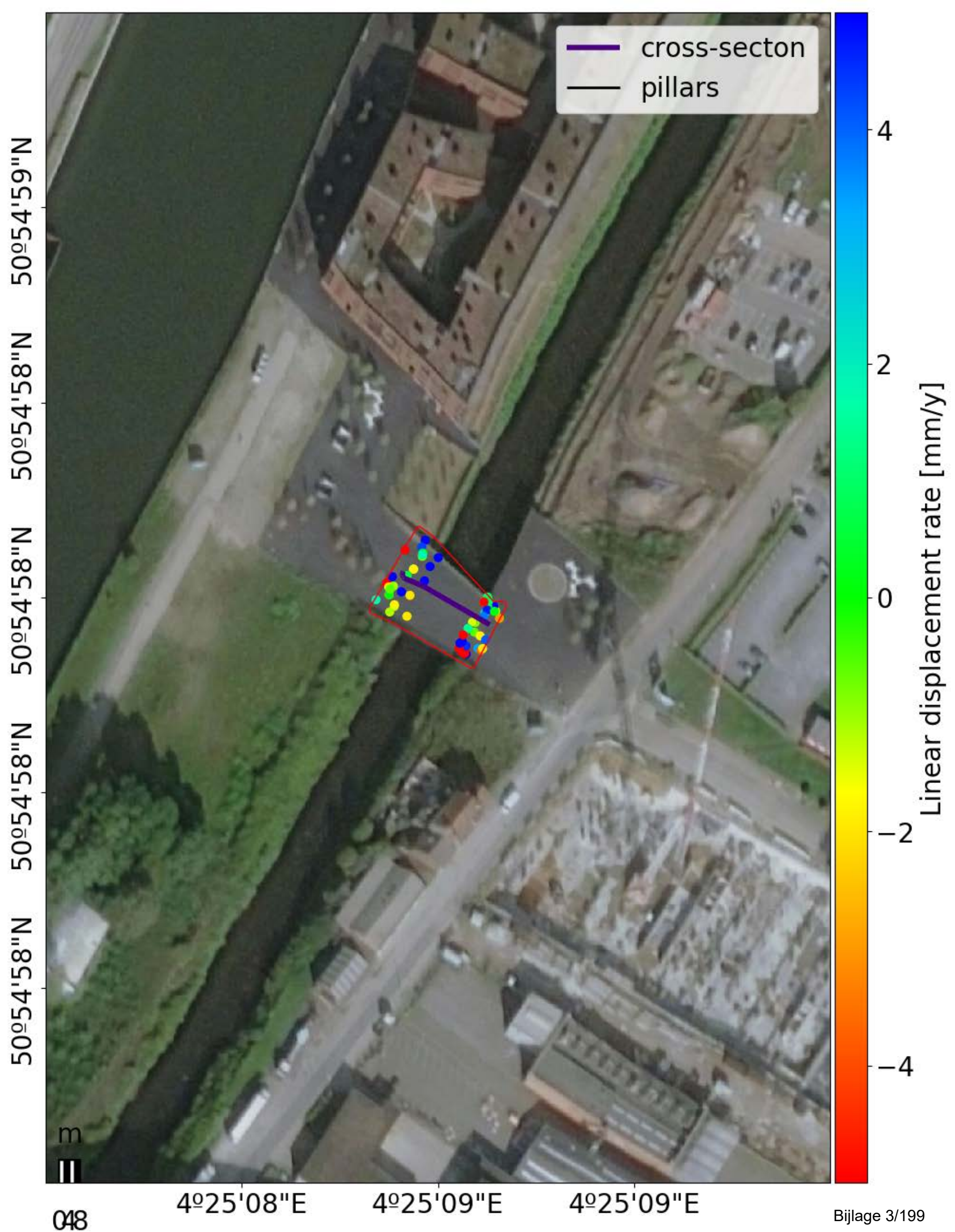
4°25'08"E 4°25'09"E 4°25'09"E

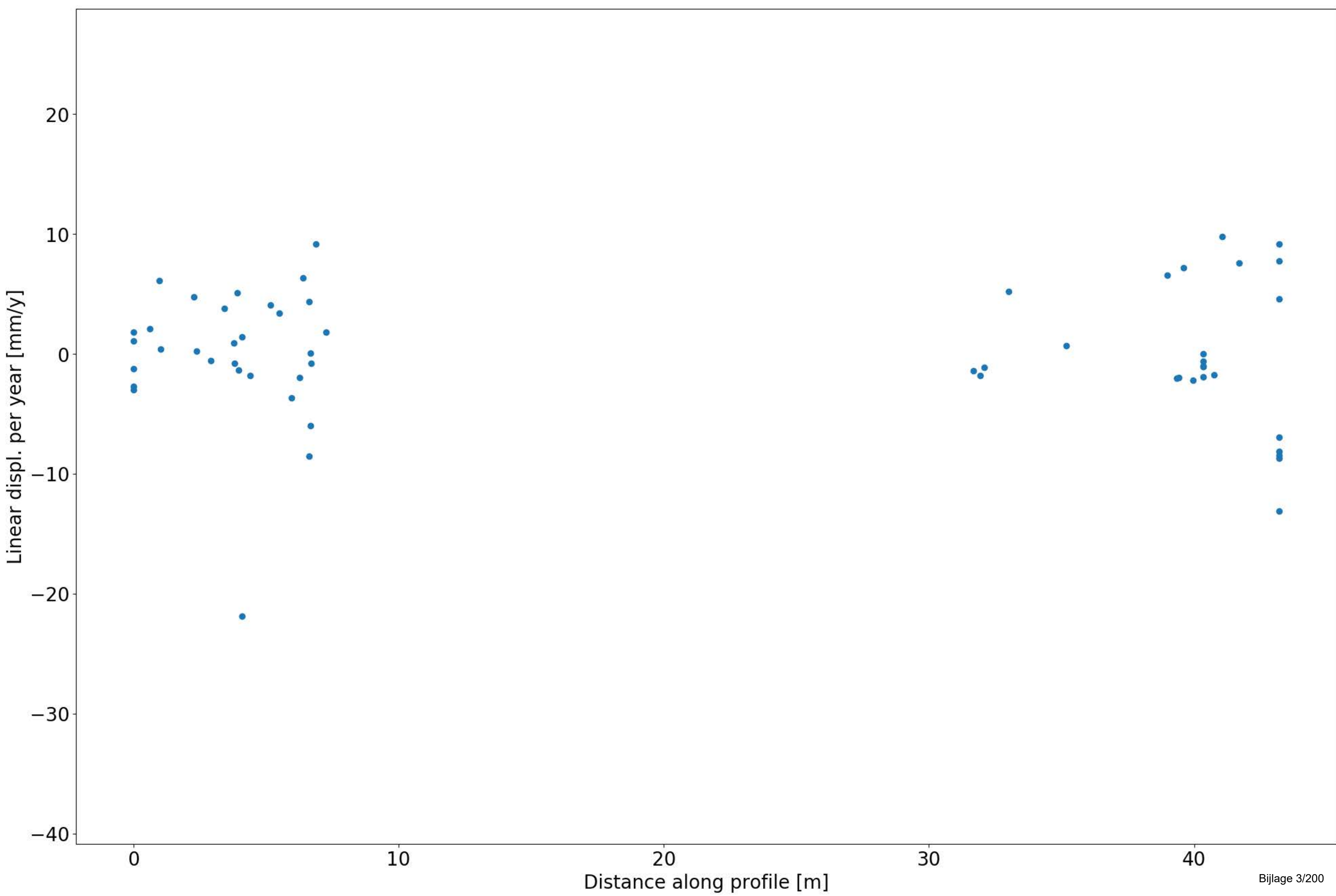
048 m

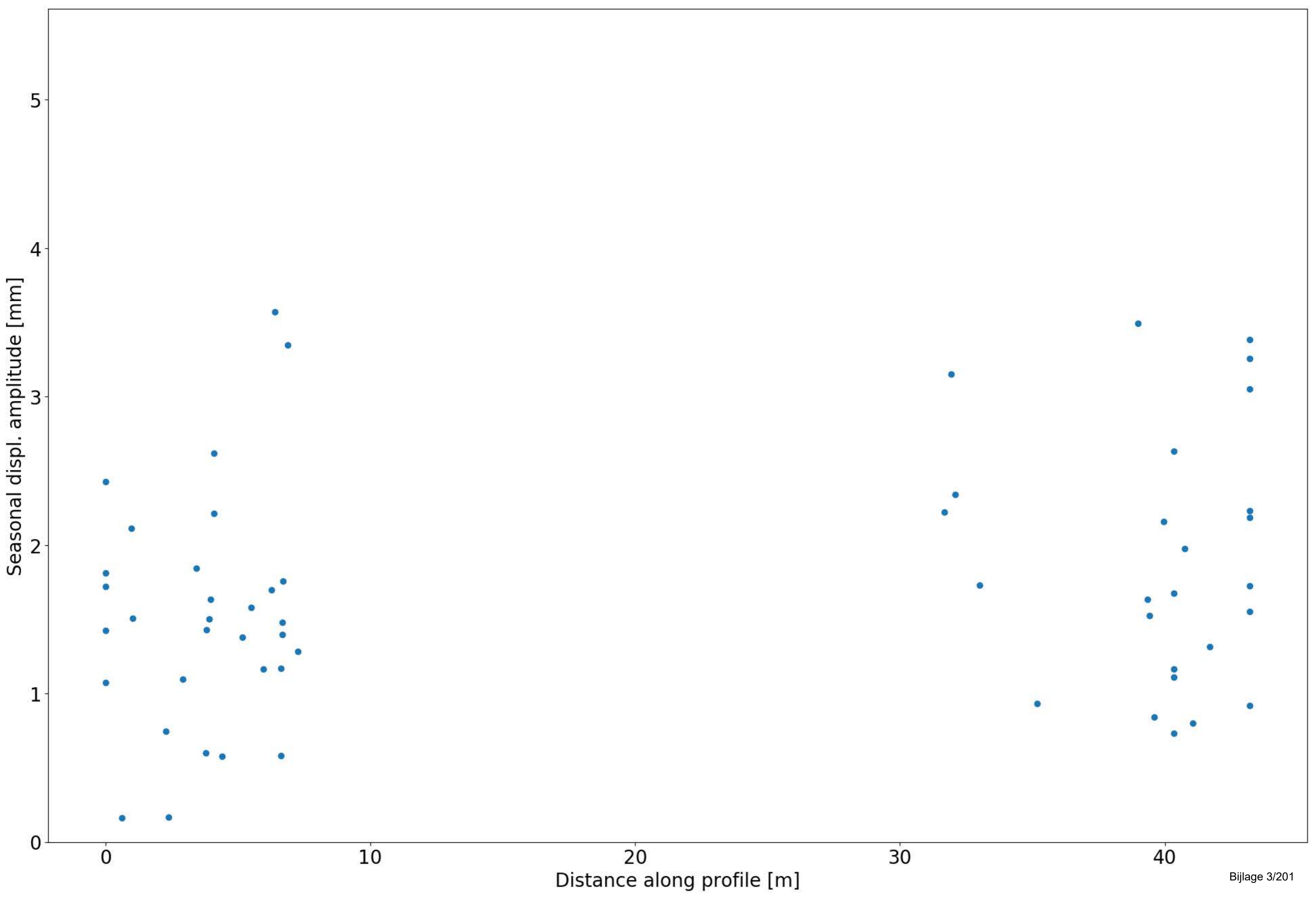
048

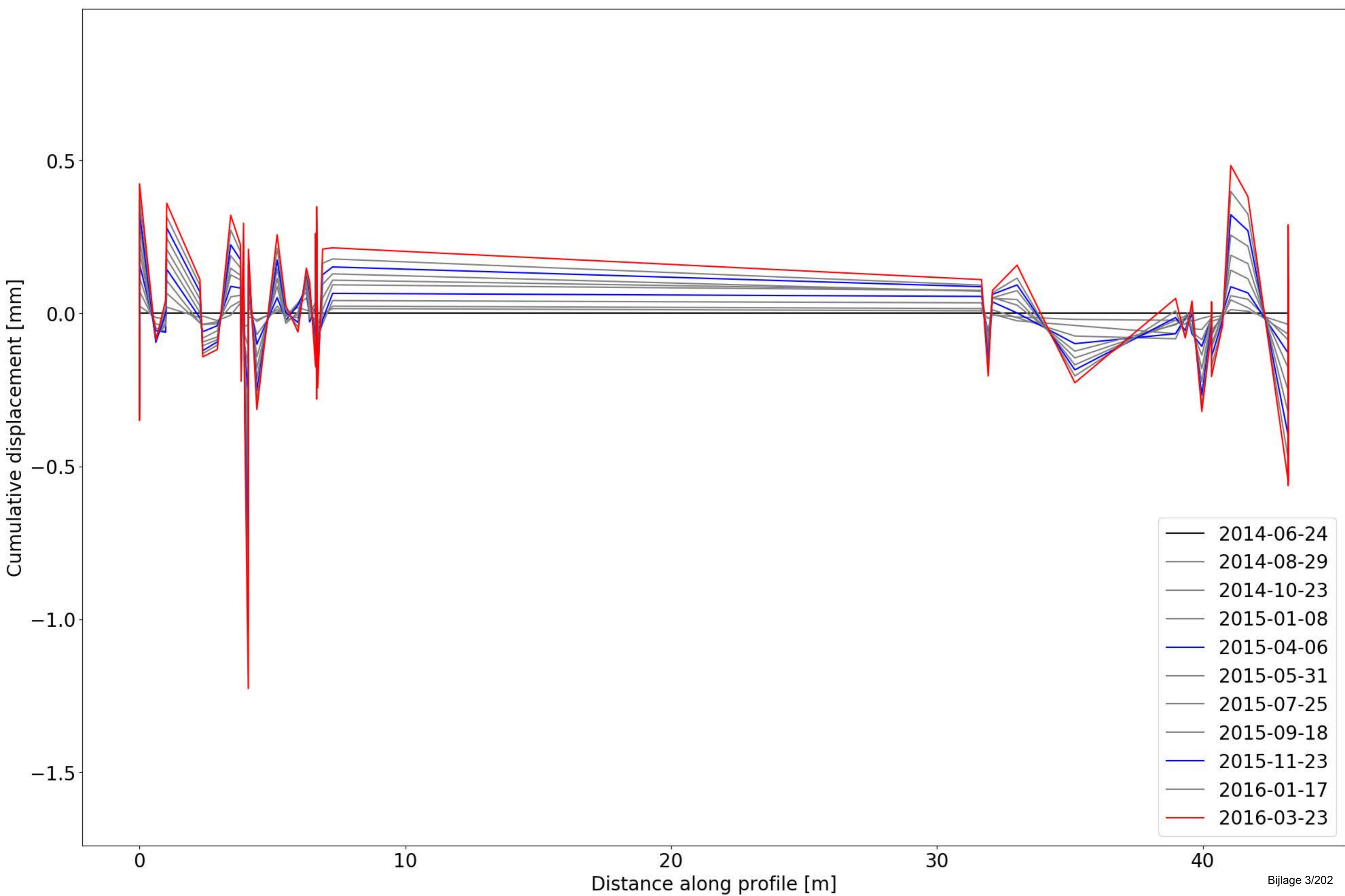




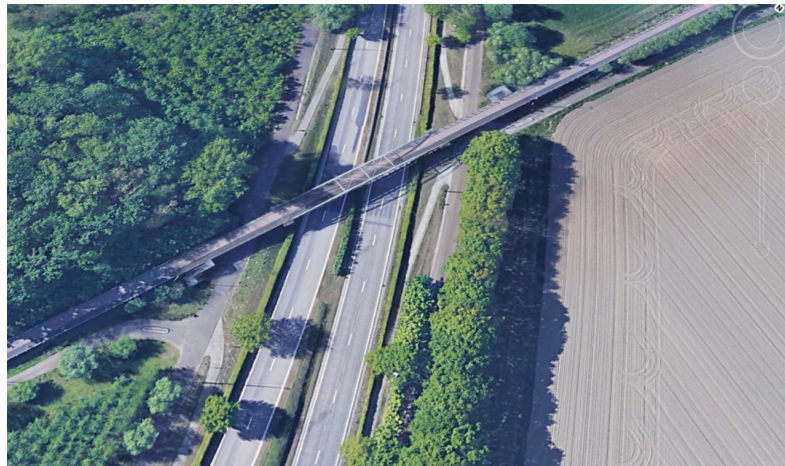








8763 Fietsbrug over E19 + Noordelijke spoorontsluiting luchthaven



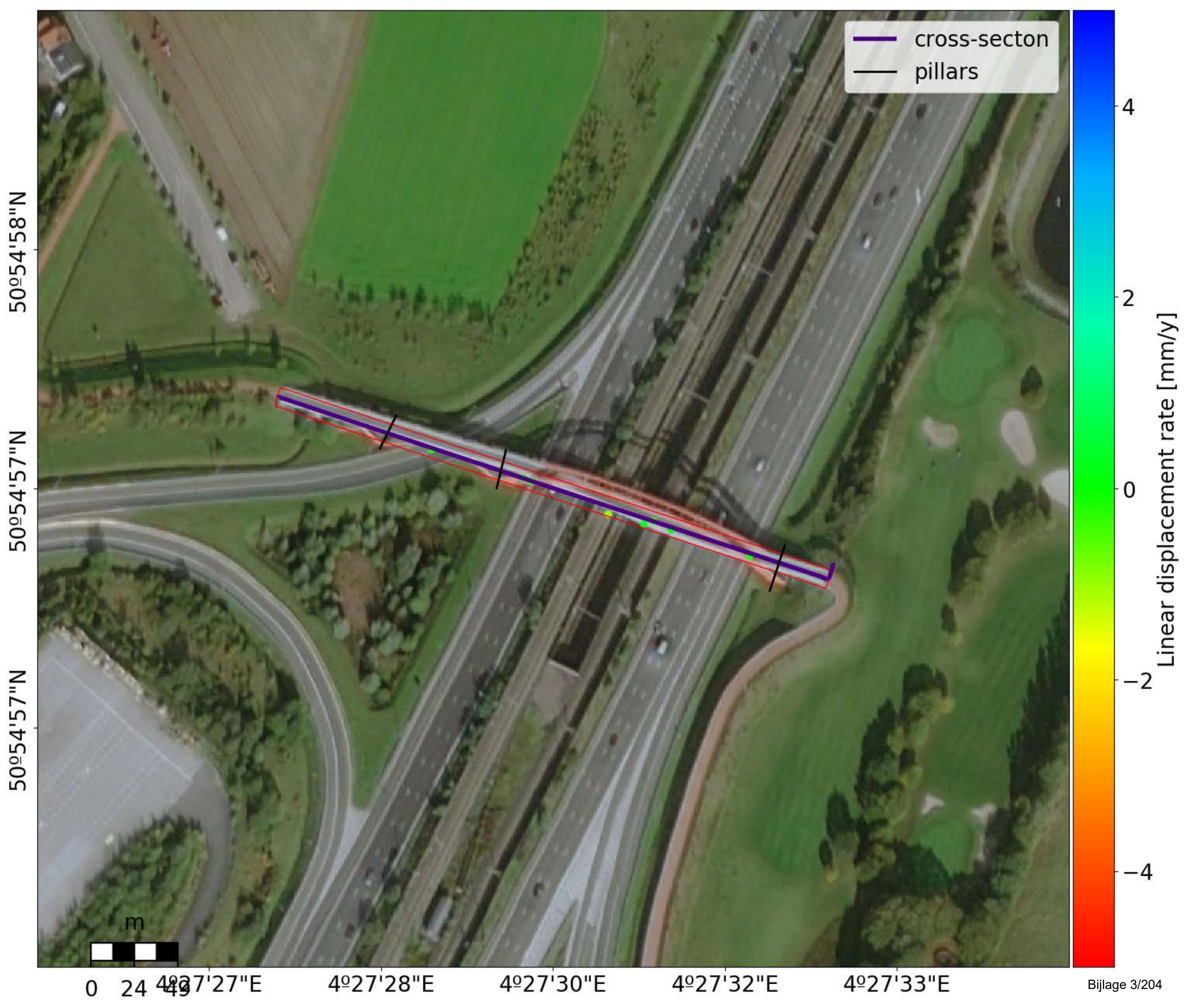
Object Nummer	Name	Long (WGS 84)	Lat (WGS84)	Long (Lambert)	Lat (Lambert)	Length [m]	Width [m]	Material	Description	Information
8763	Fietsbrug over E19 + Noordelijke spoorontsluiting luchthaven	50.91579795	4.45875287	156329.00000	178390.10000			steel	(13) staal - smal	no maintenance works

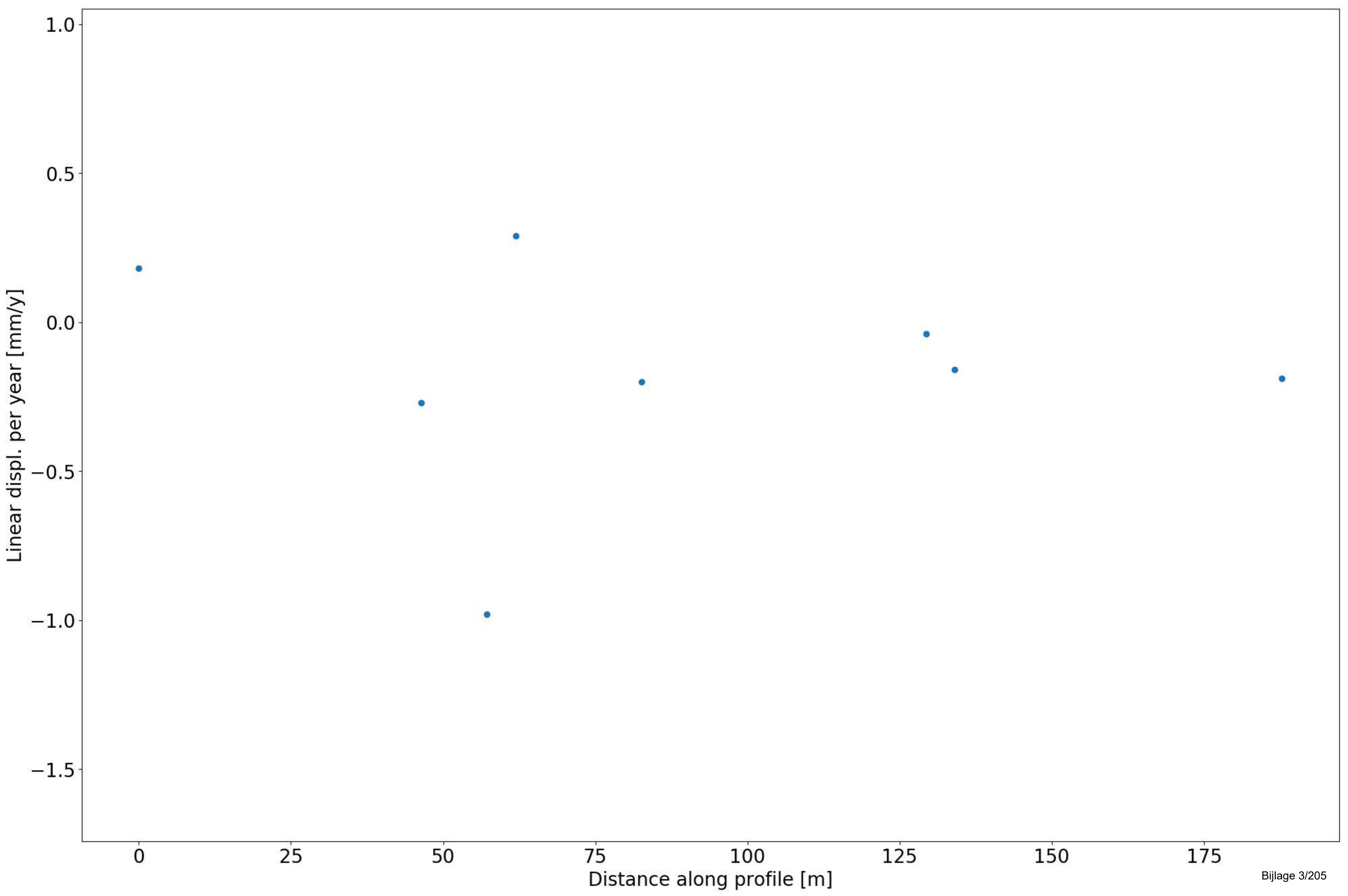
Change Detection

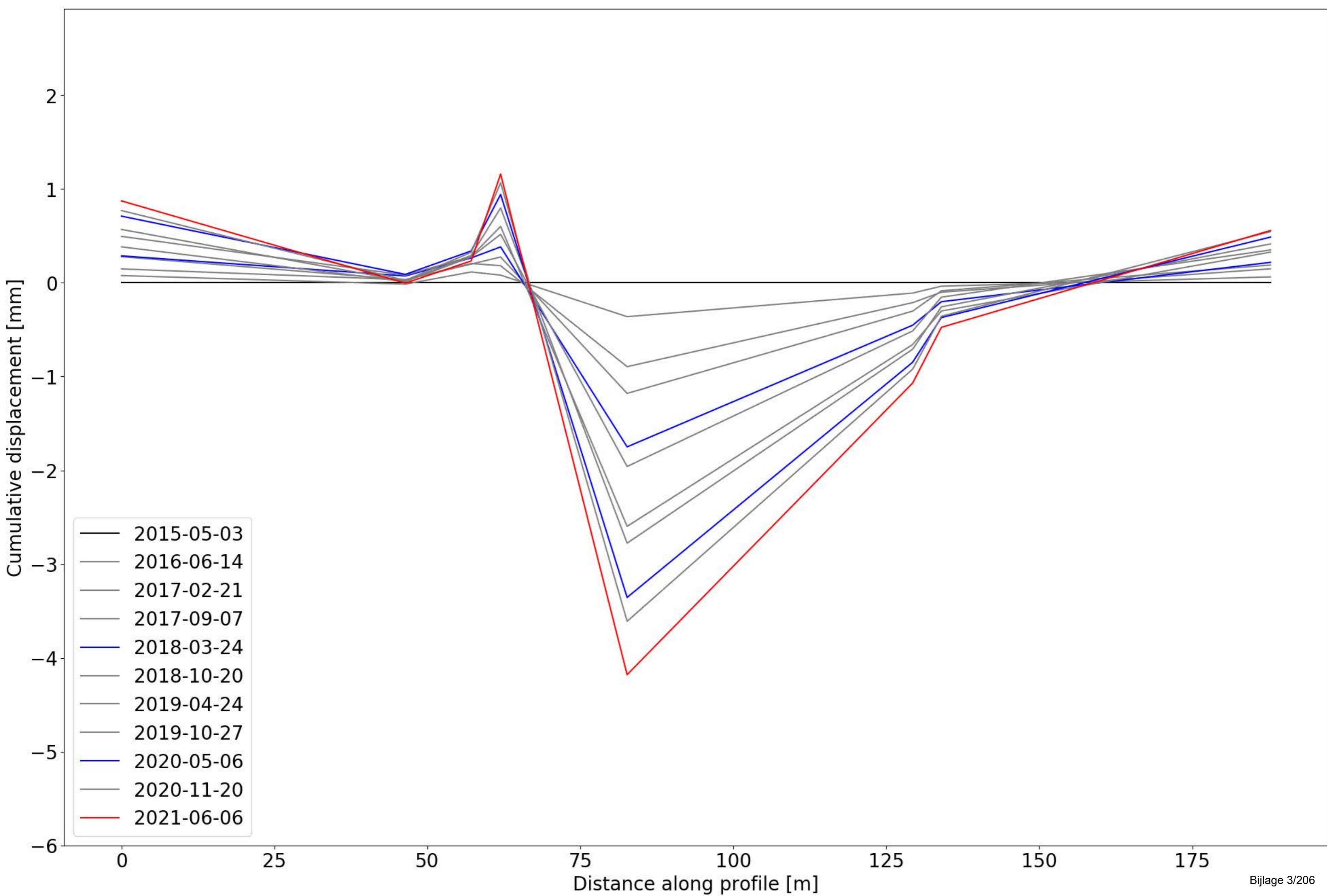
No changes are detected.

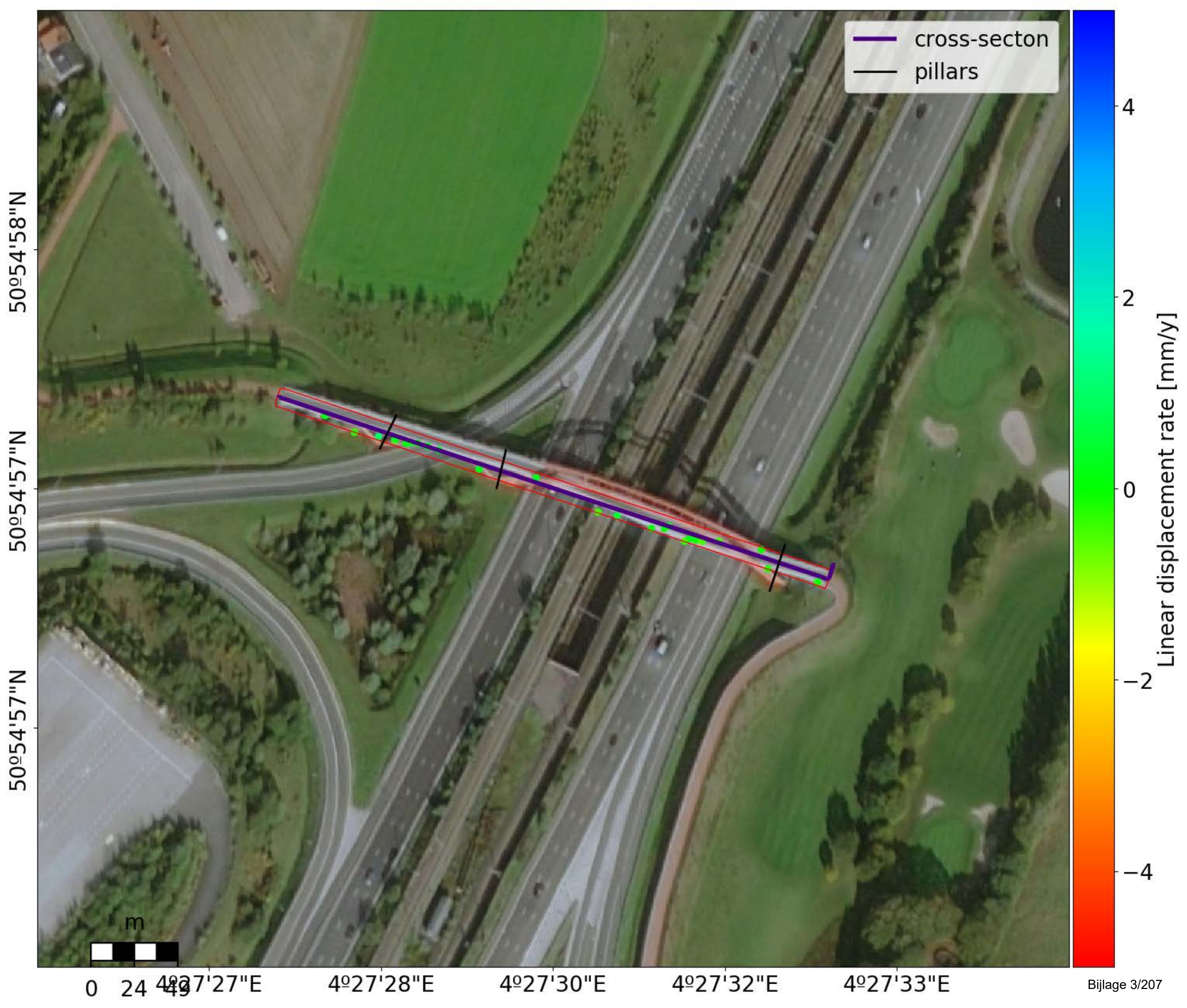
Comments on point density/distribution

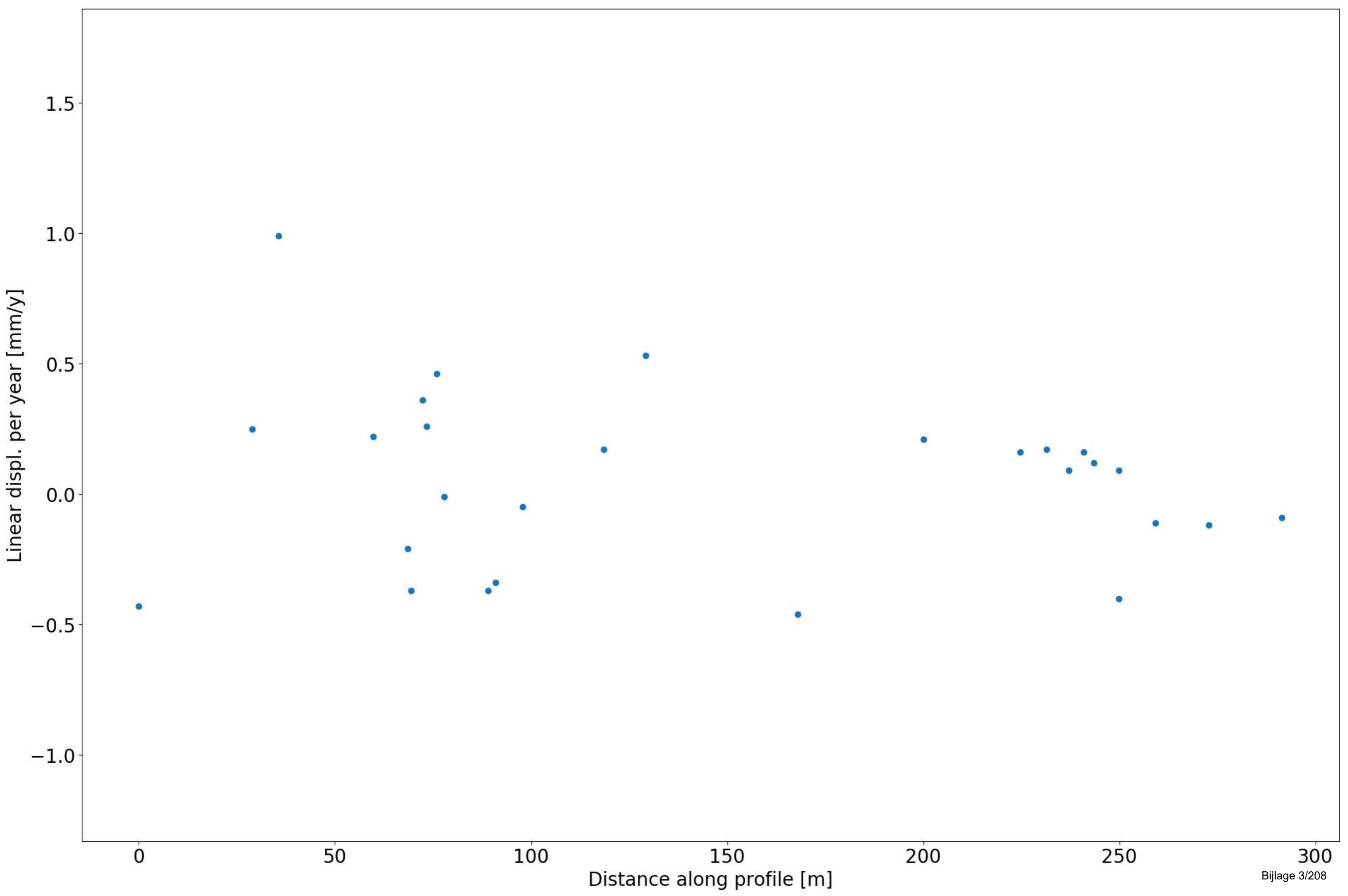
Both TSX and S1 dsc have InSAR points along the length of the bridge. S1 asc has a lack of points to the western end. No changes were detected and no maintenance works recorded, so the reason for the lack of points is uncertain.

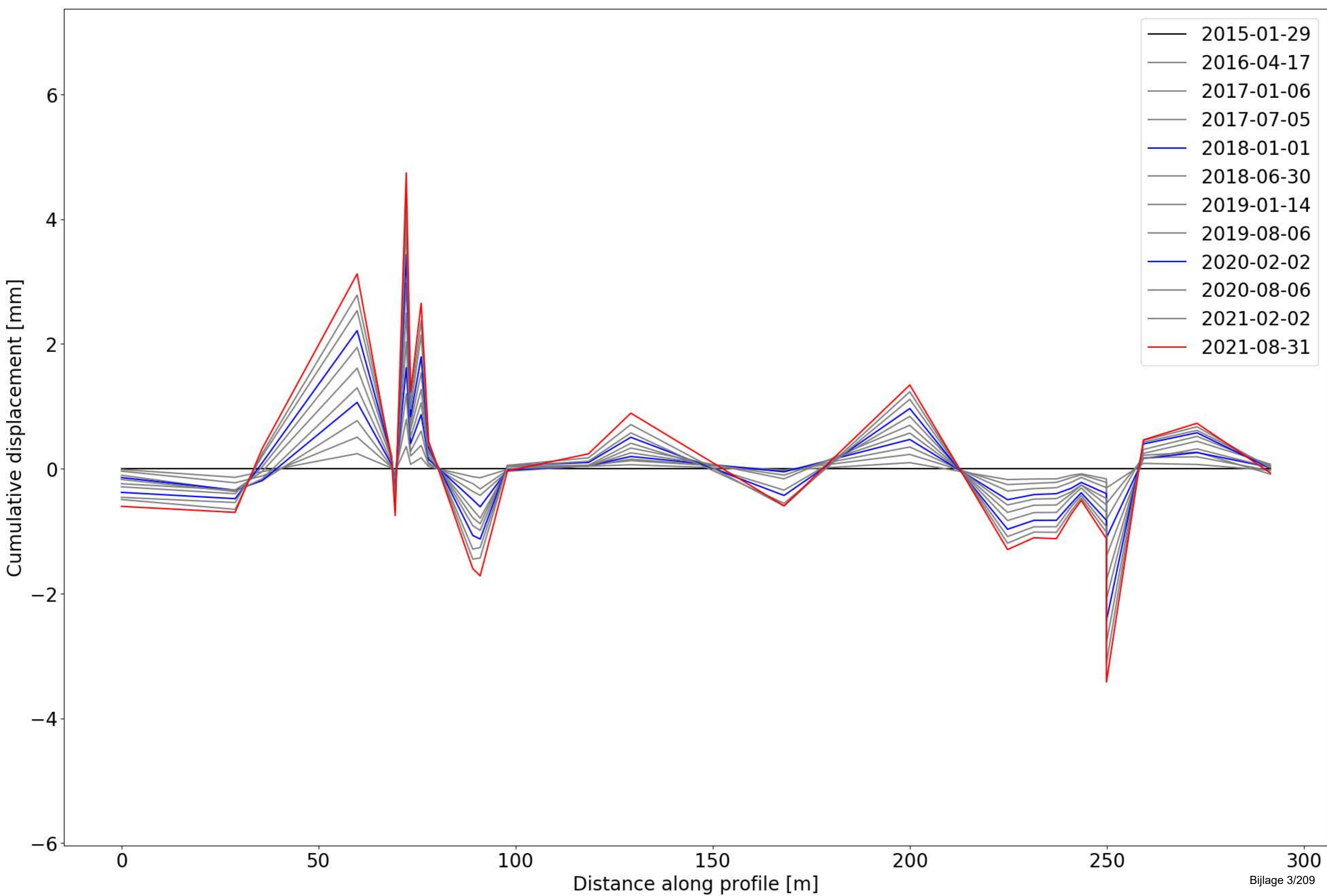


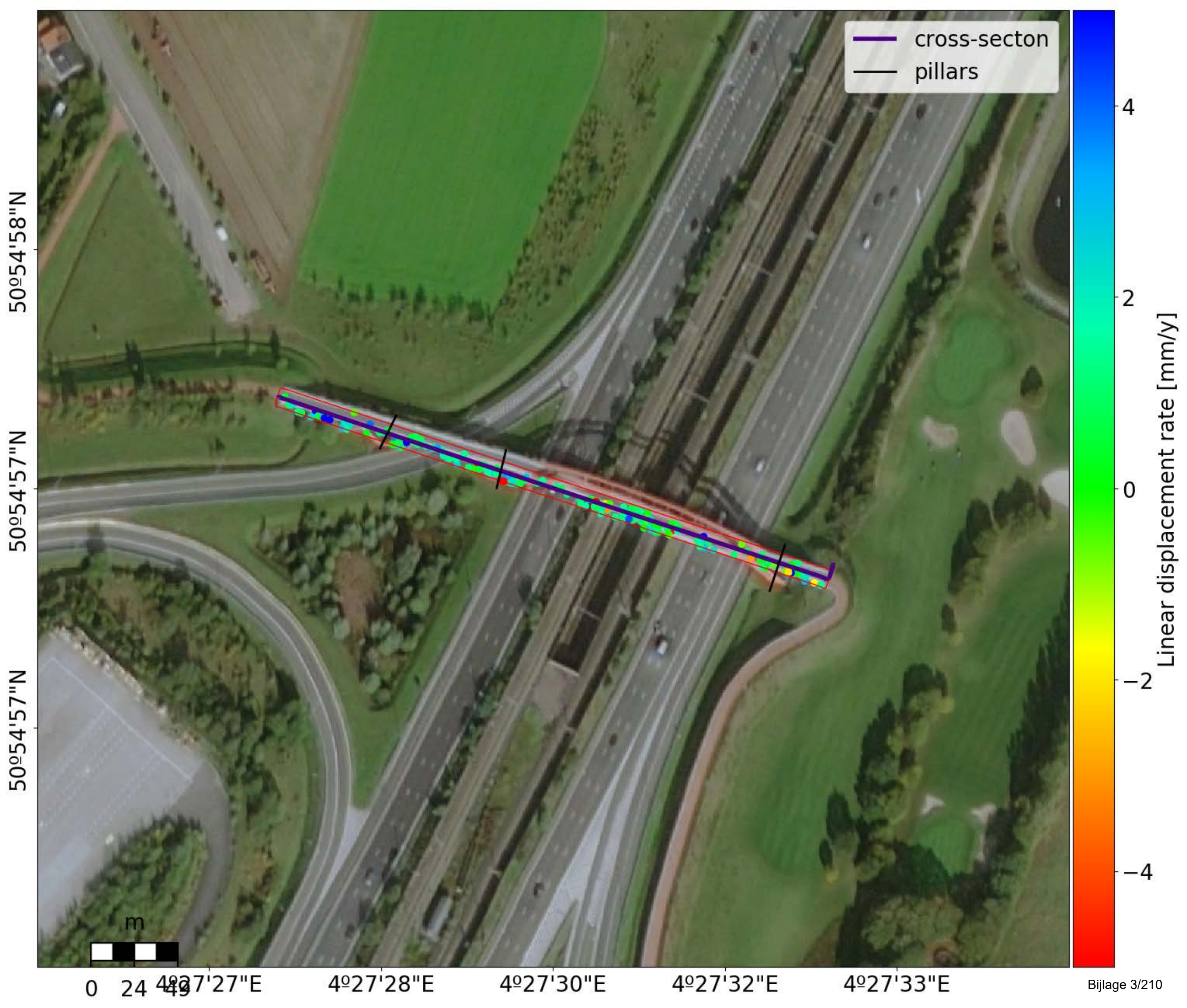


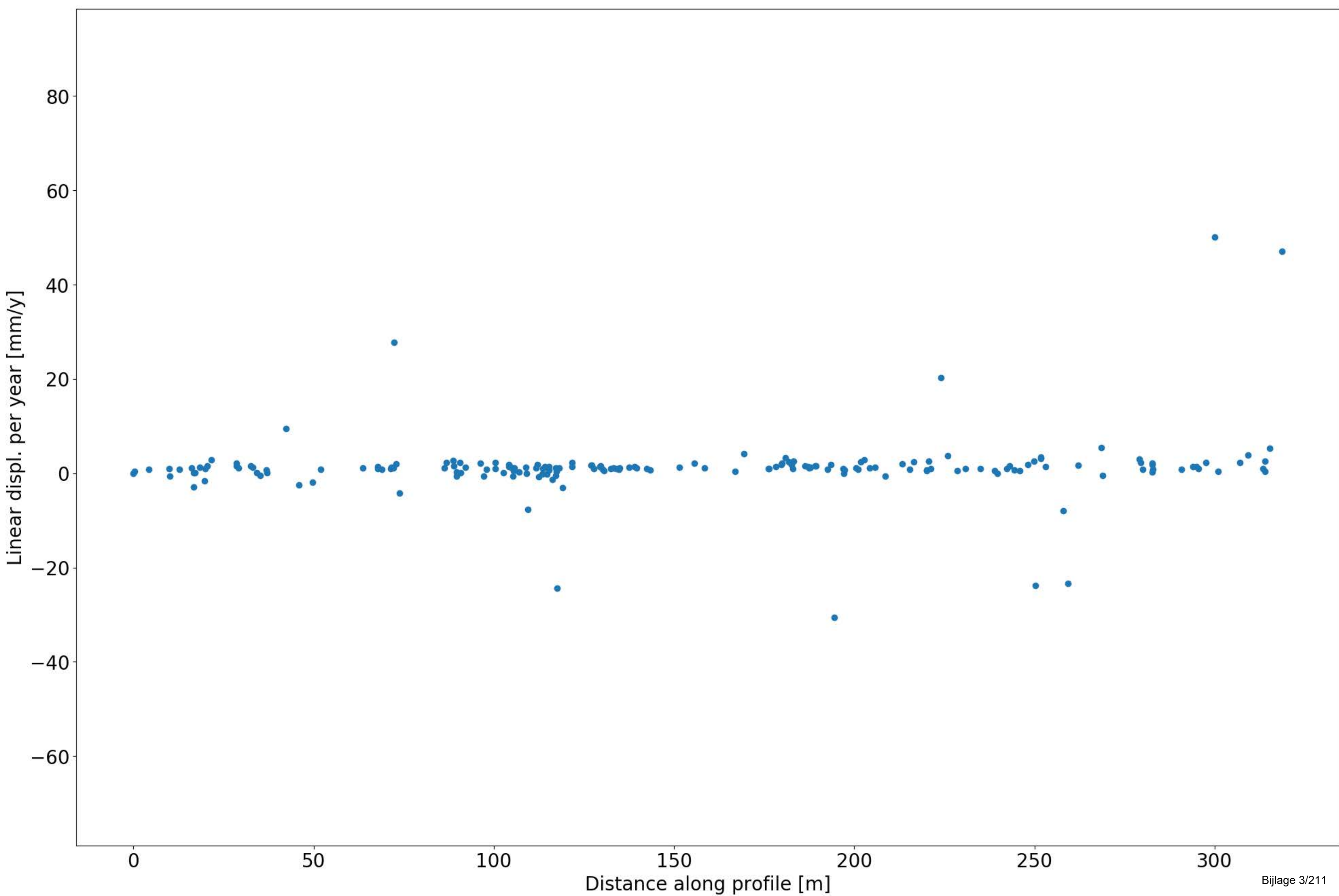


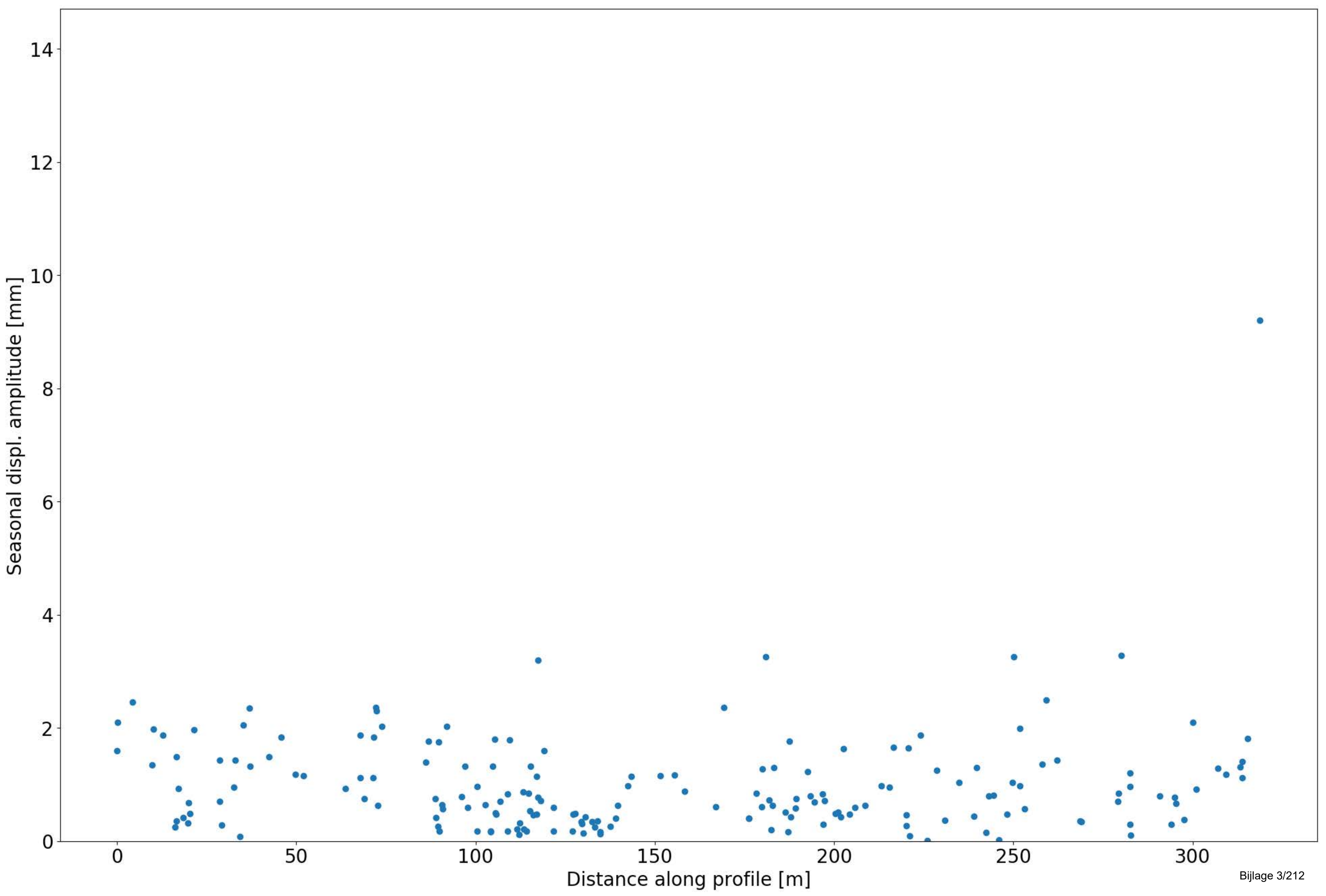


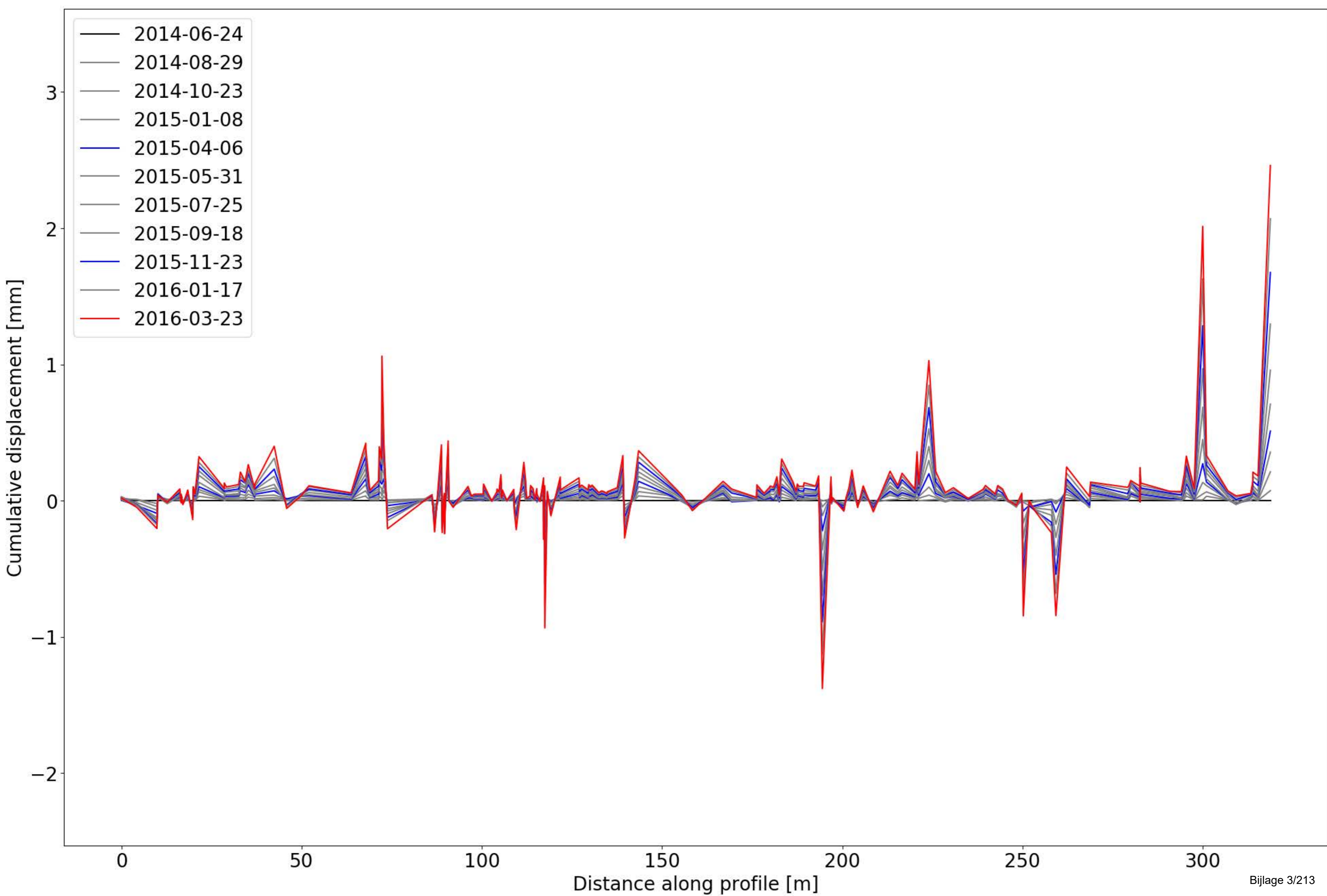












9084 Voet- en fietsbrug Kleine Steenstraat



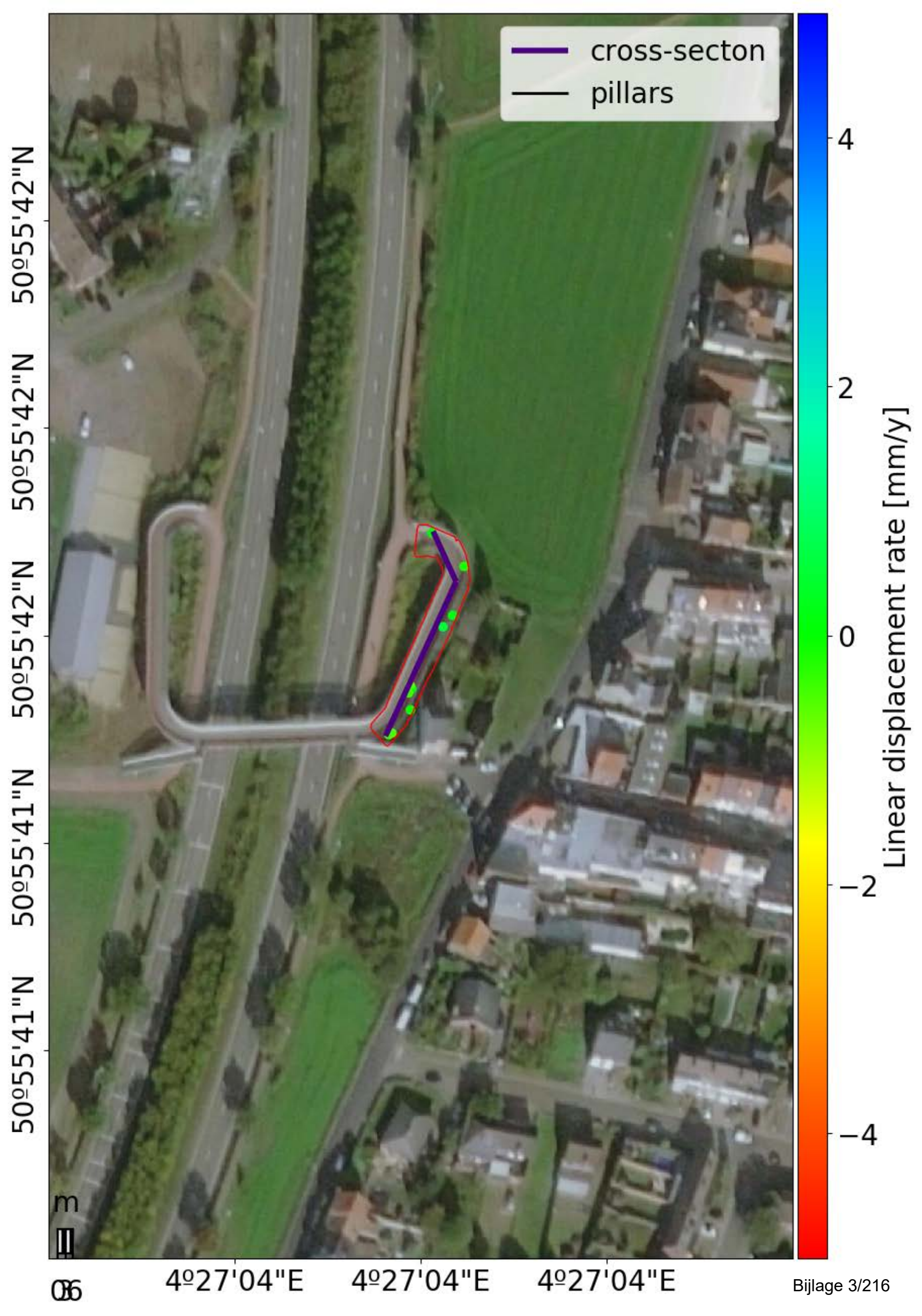
Object Nummer	Name	Long (WGS 84)	Lat (WGS84)	Long (Lambert)	Lat (Lambert)	Length [m]	Width [m]	Material	Description	Information
9084	Voet- en fietsbrug Kleine Steenstraat	50.92800256	4.450483888	155745,98000	179747,10000	100m+		-	(12) oost-west (smal) / staal	no maintenance works

Change Detection

Change detection	Approx. period	Description
Change W ramp	January 2018	Change in amplitude after January 2018

Comments on point density/distribution

Both the TSX and S1 data have InSAR points along the full length of the bridge, no significant gaps in the data.



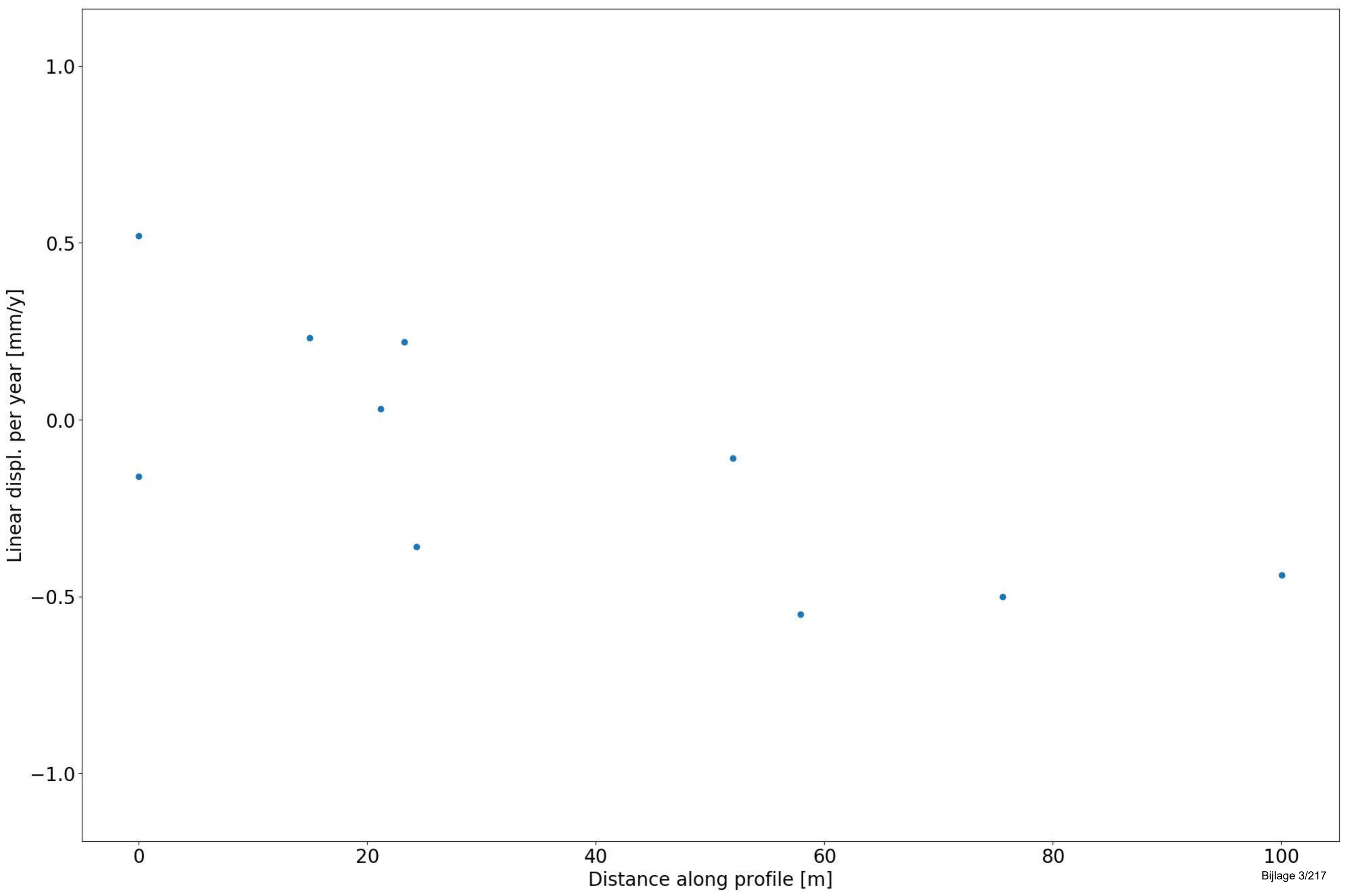
— cross-section
— pillars

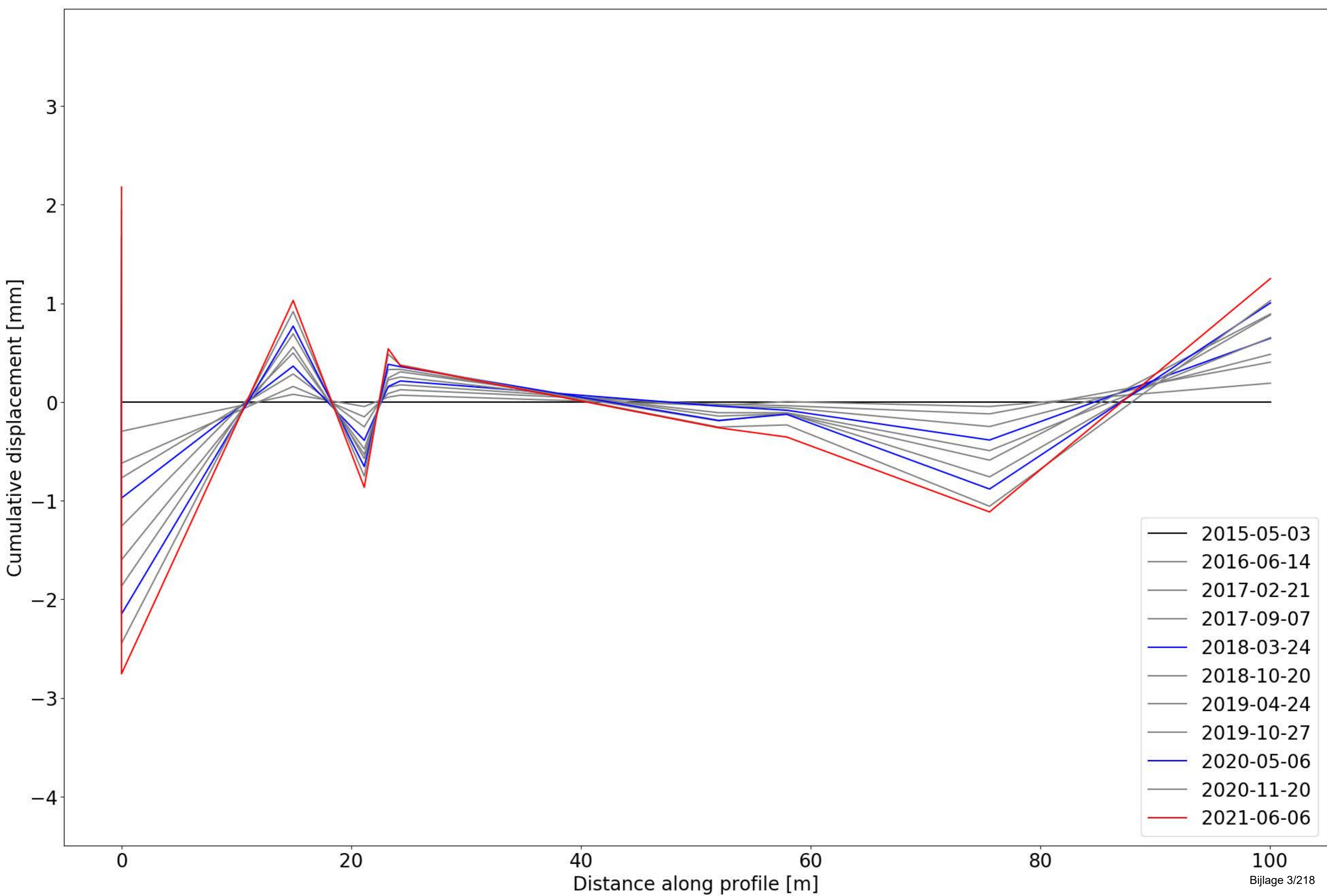
4
2
0
-2
-4

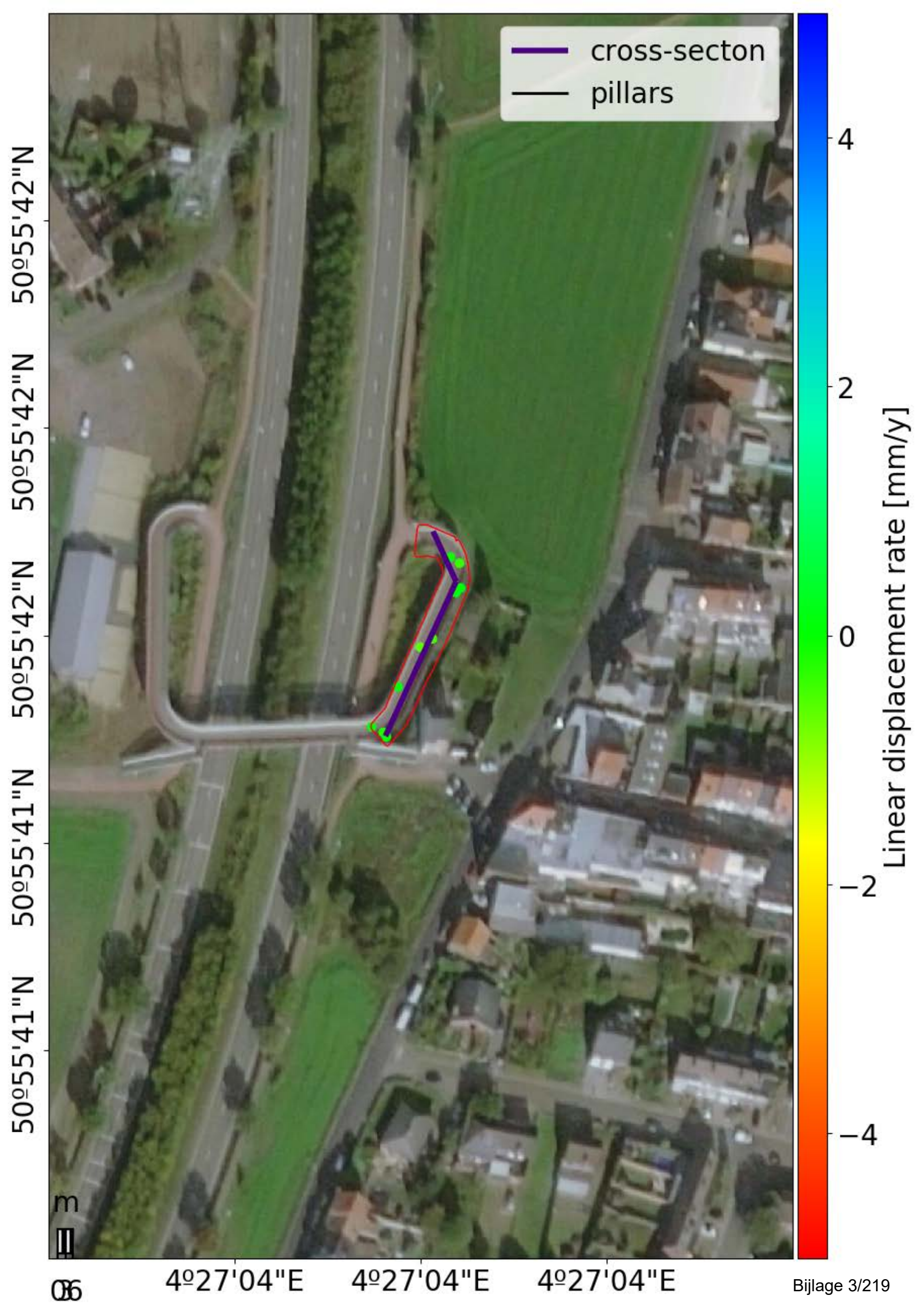
Linear displacement rate [mm/y]

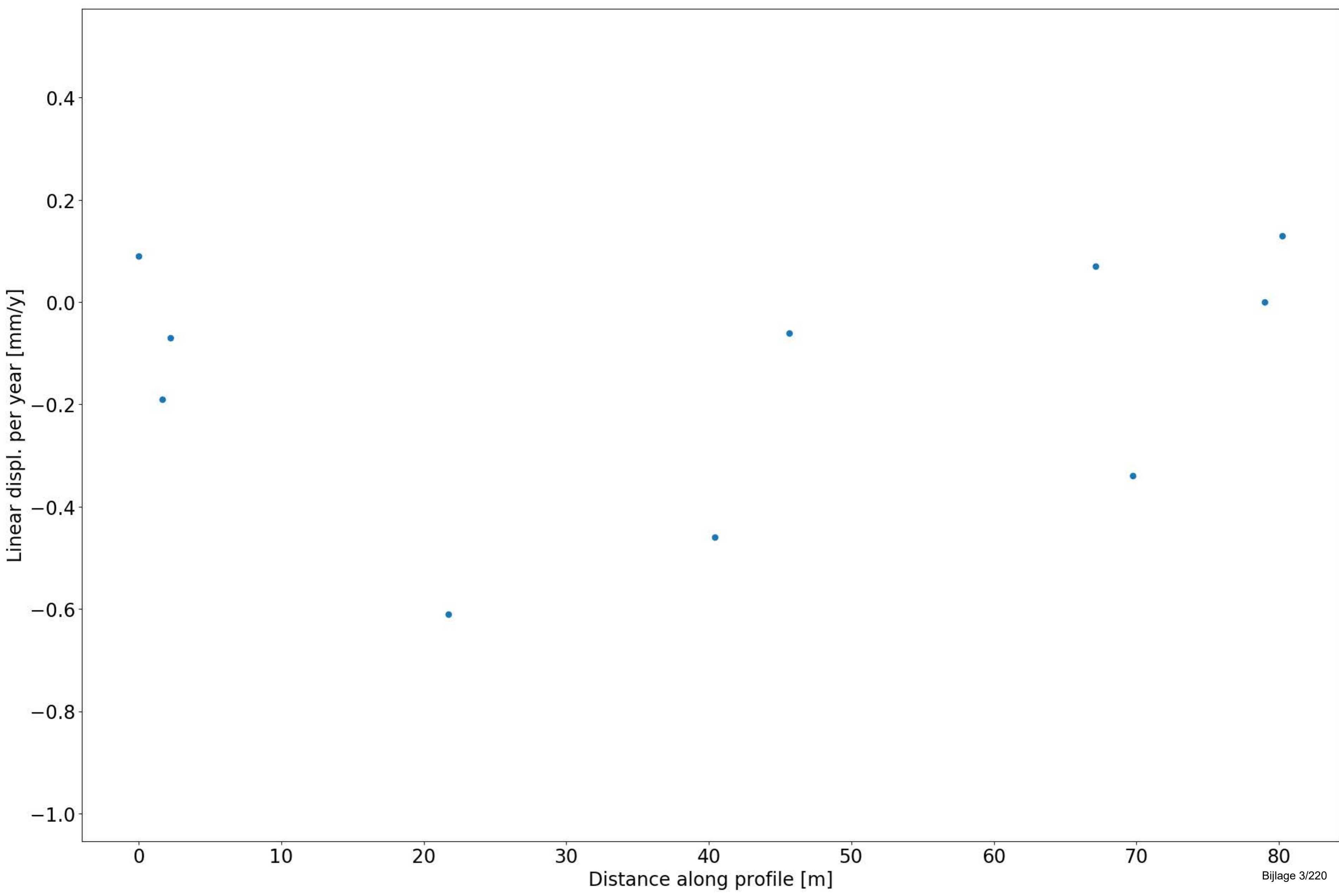
50°55'41"N 50°55'41"N 50°55'42"N 50°55'42"N

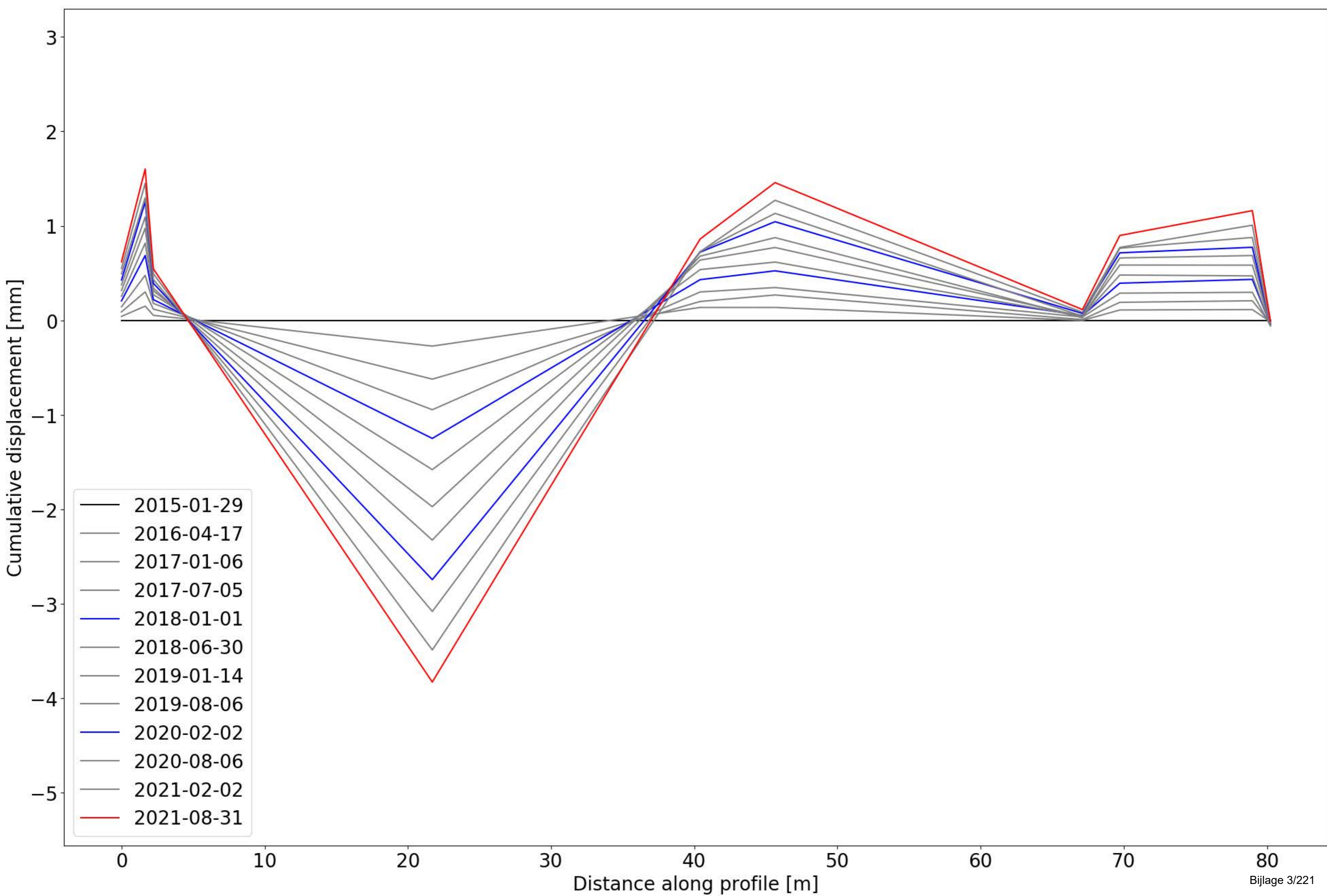
86 4°27'04"E 4°27'04"E 4°27'04"E

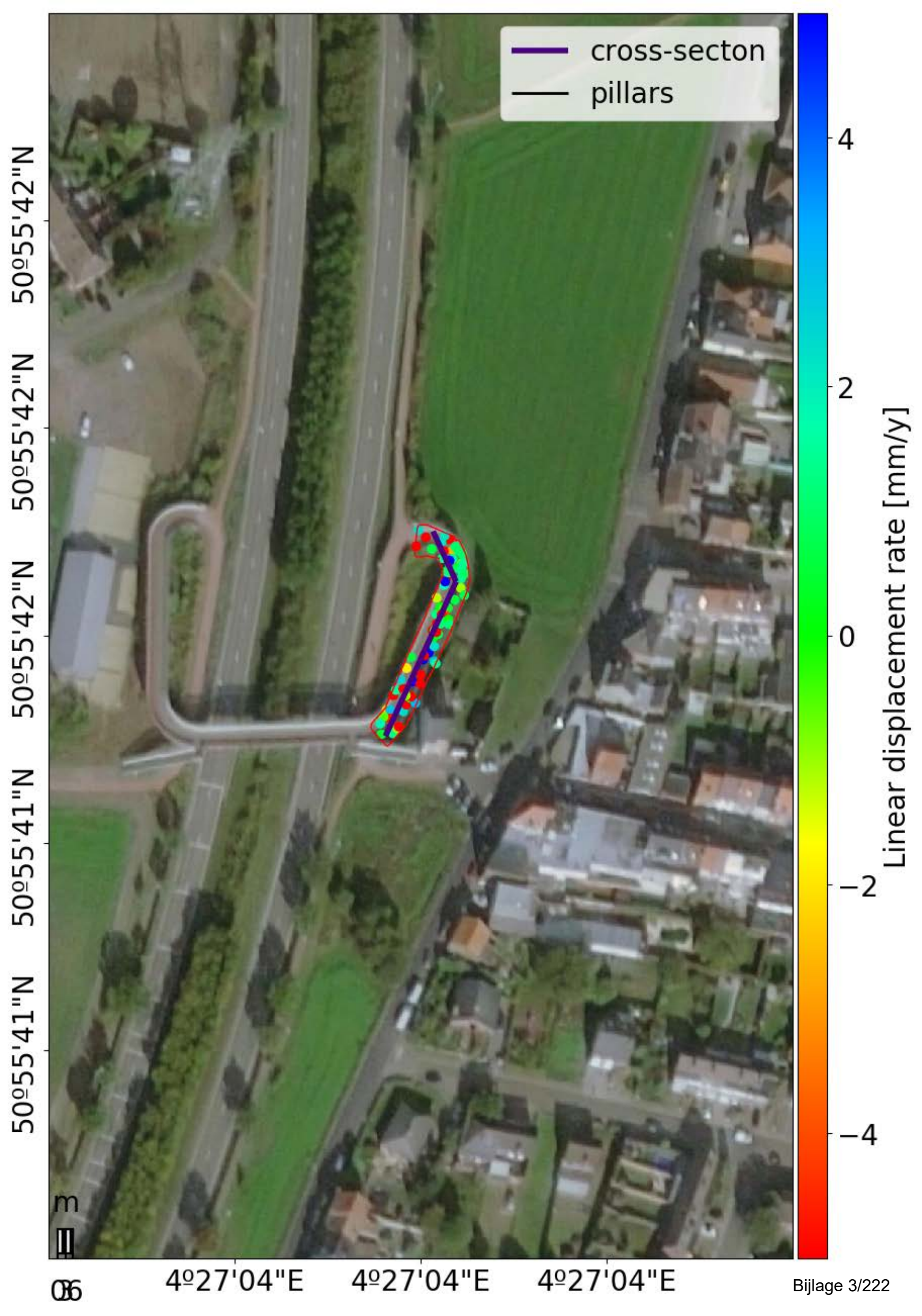


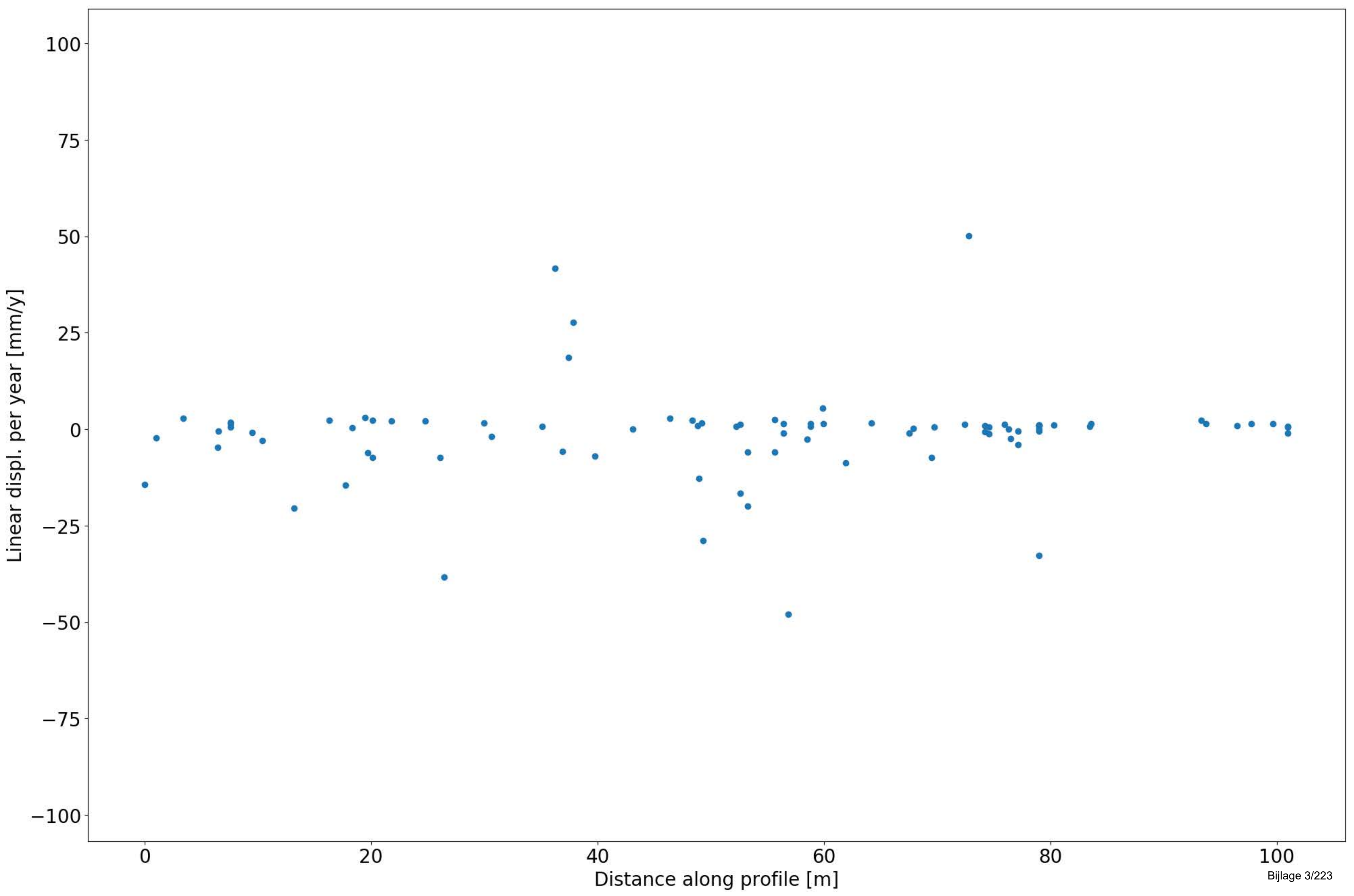


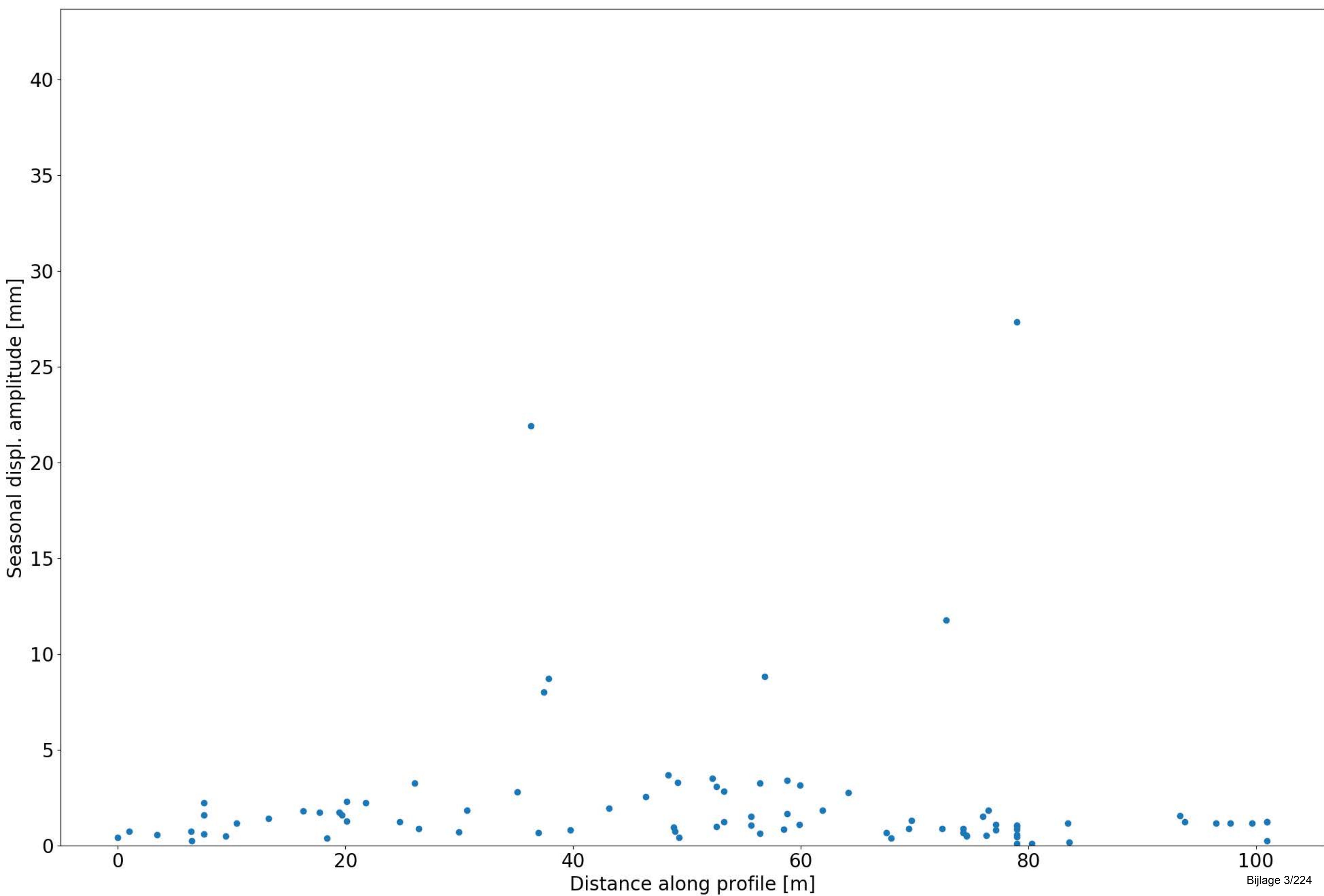


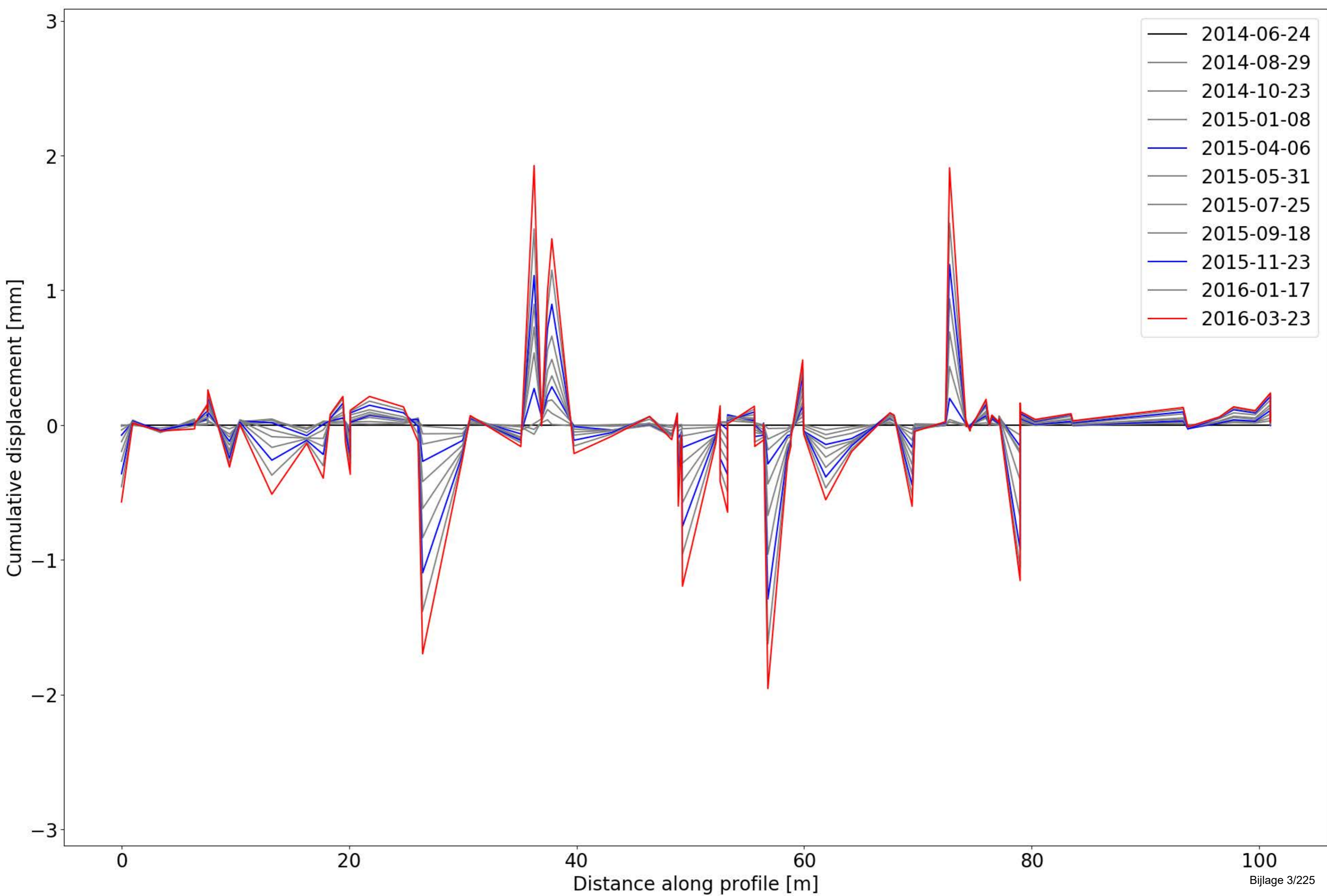


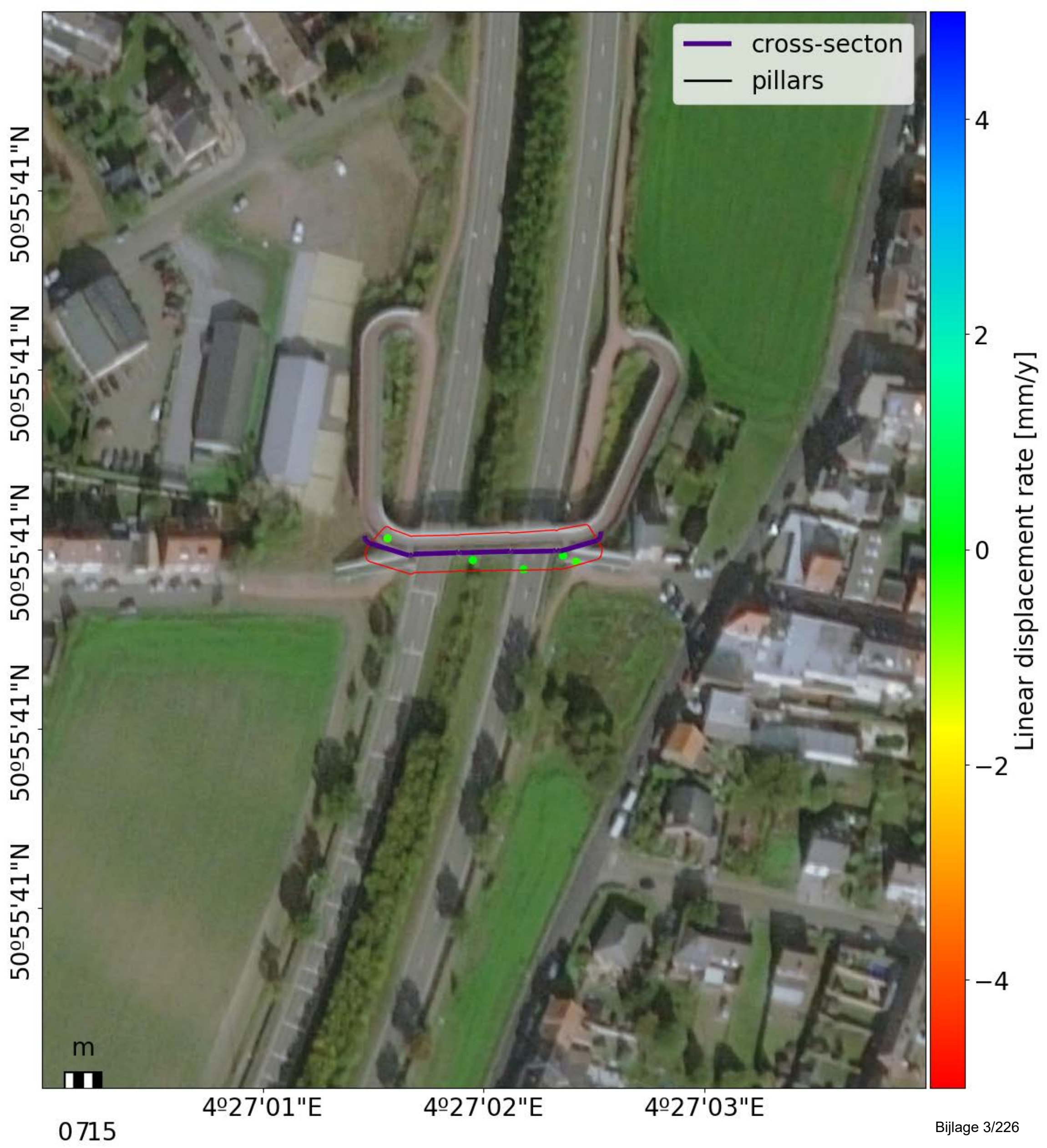


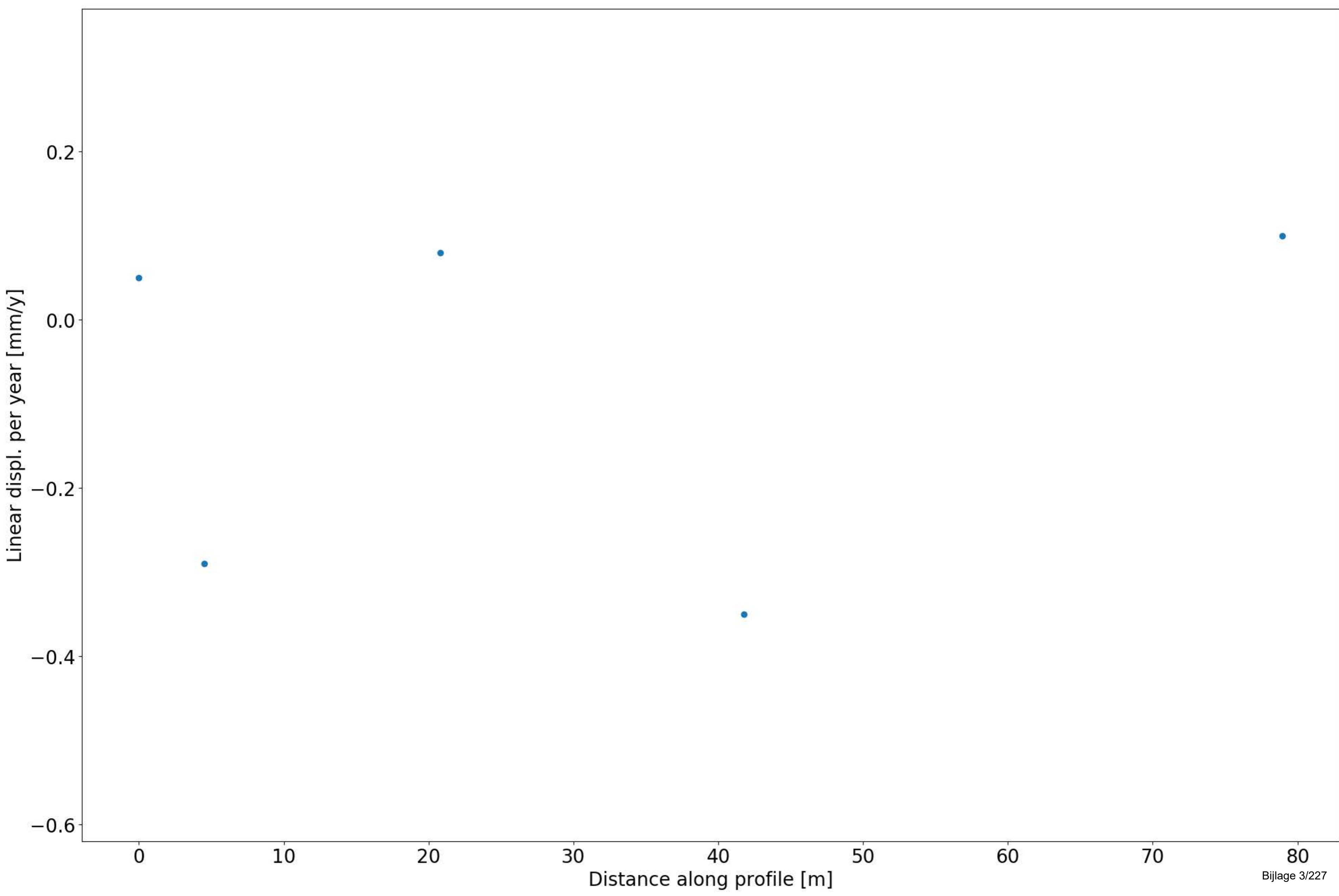


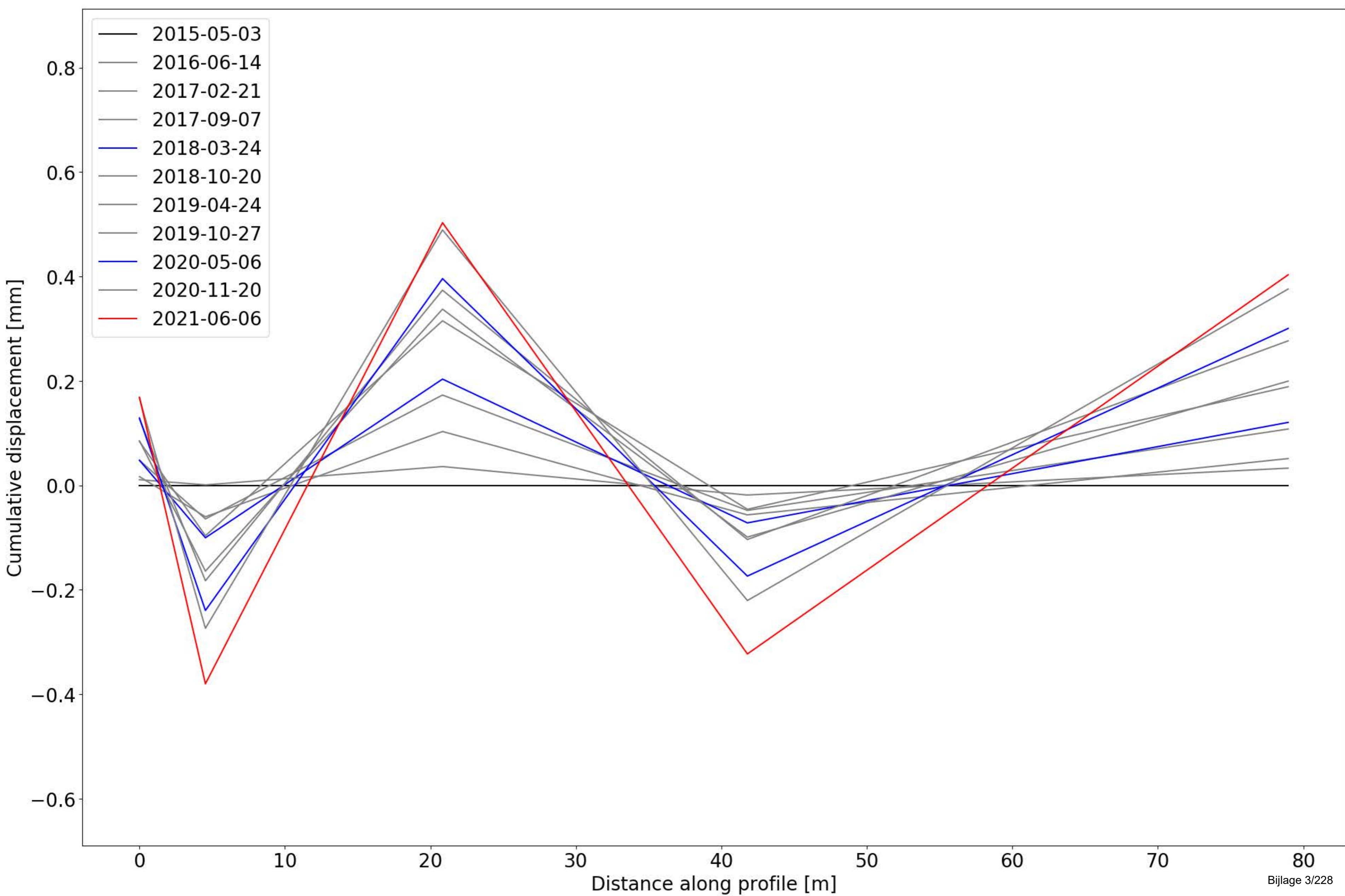


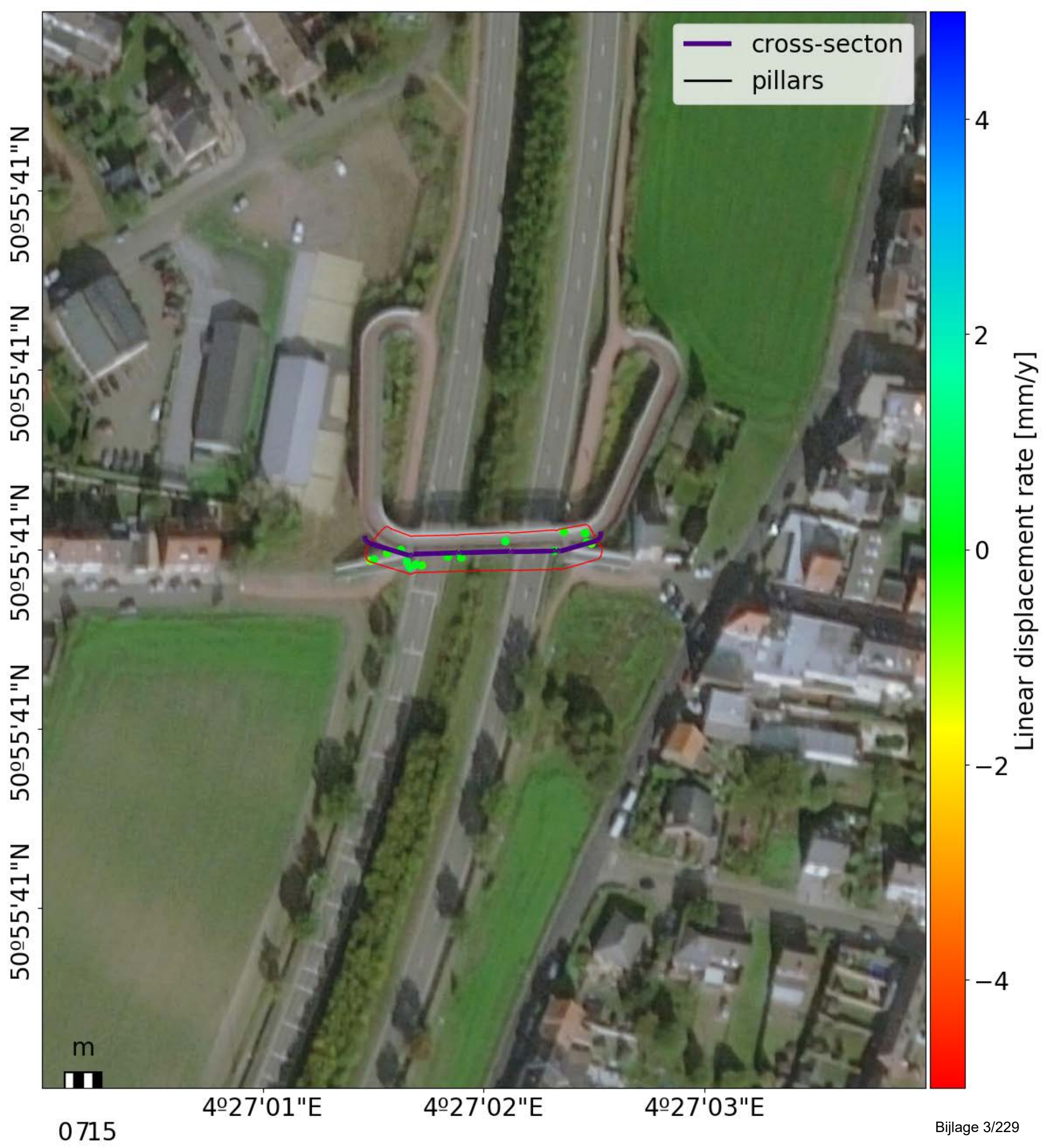


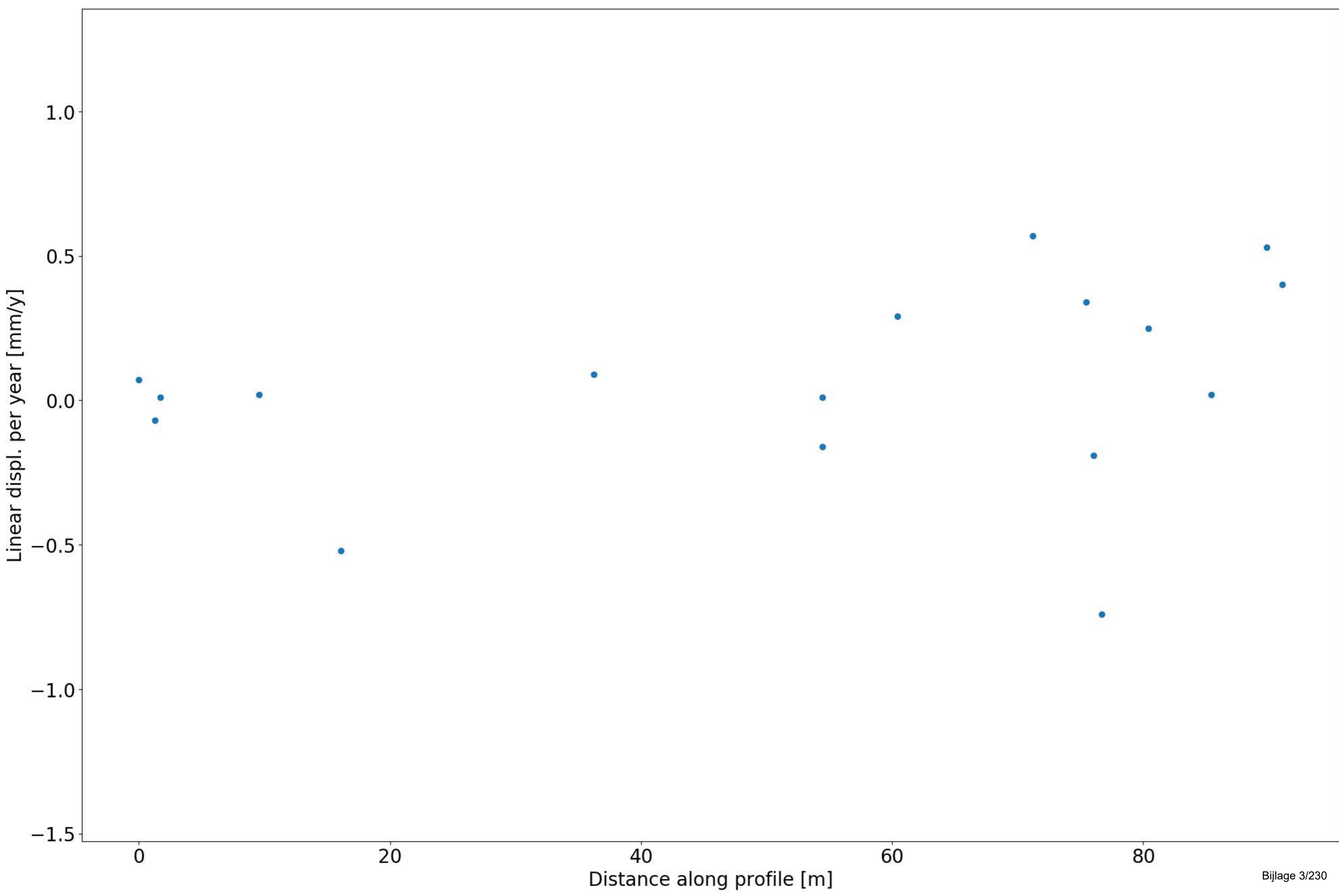


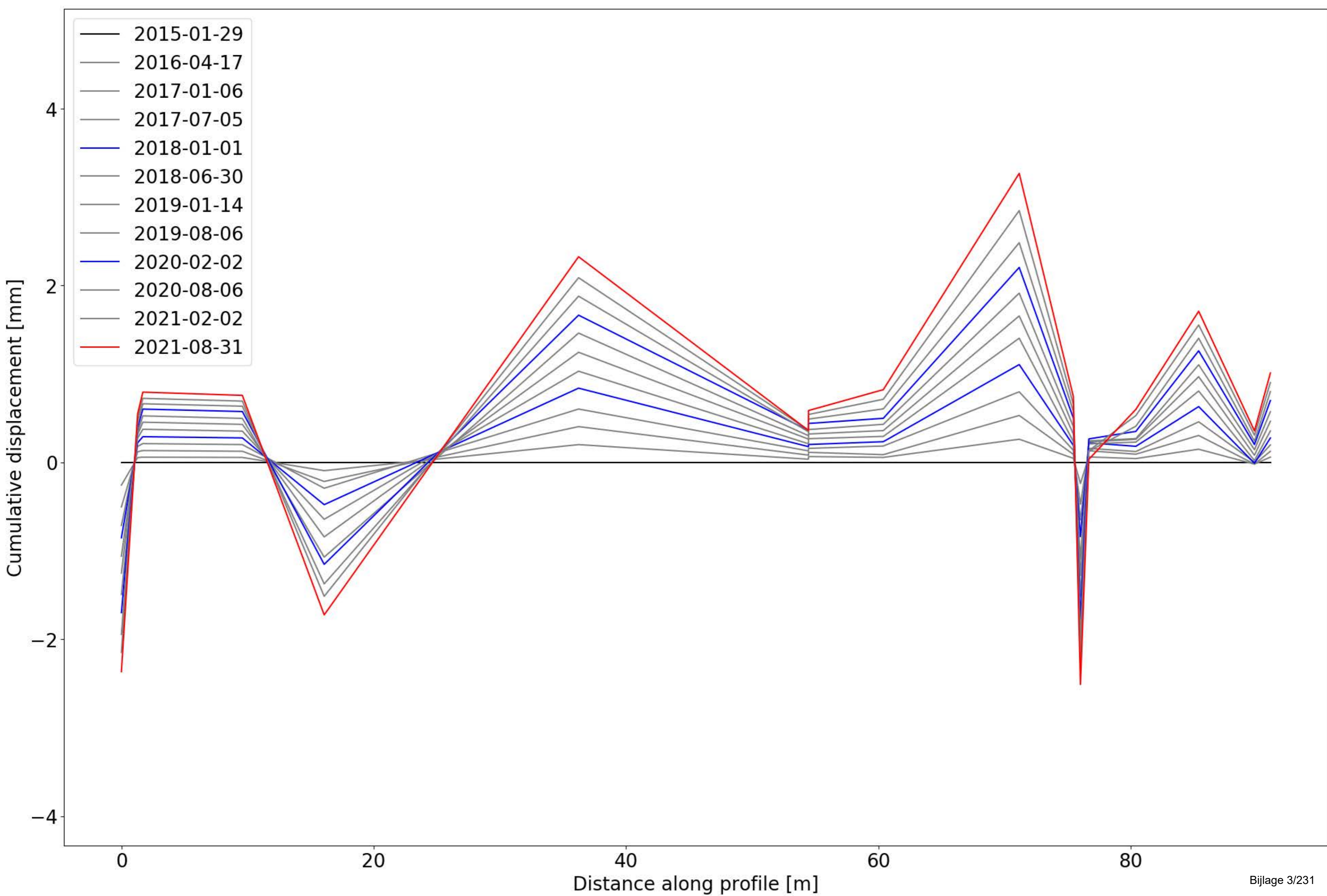


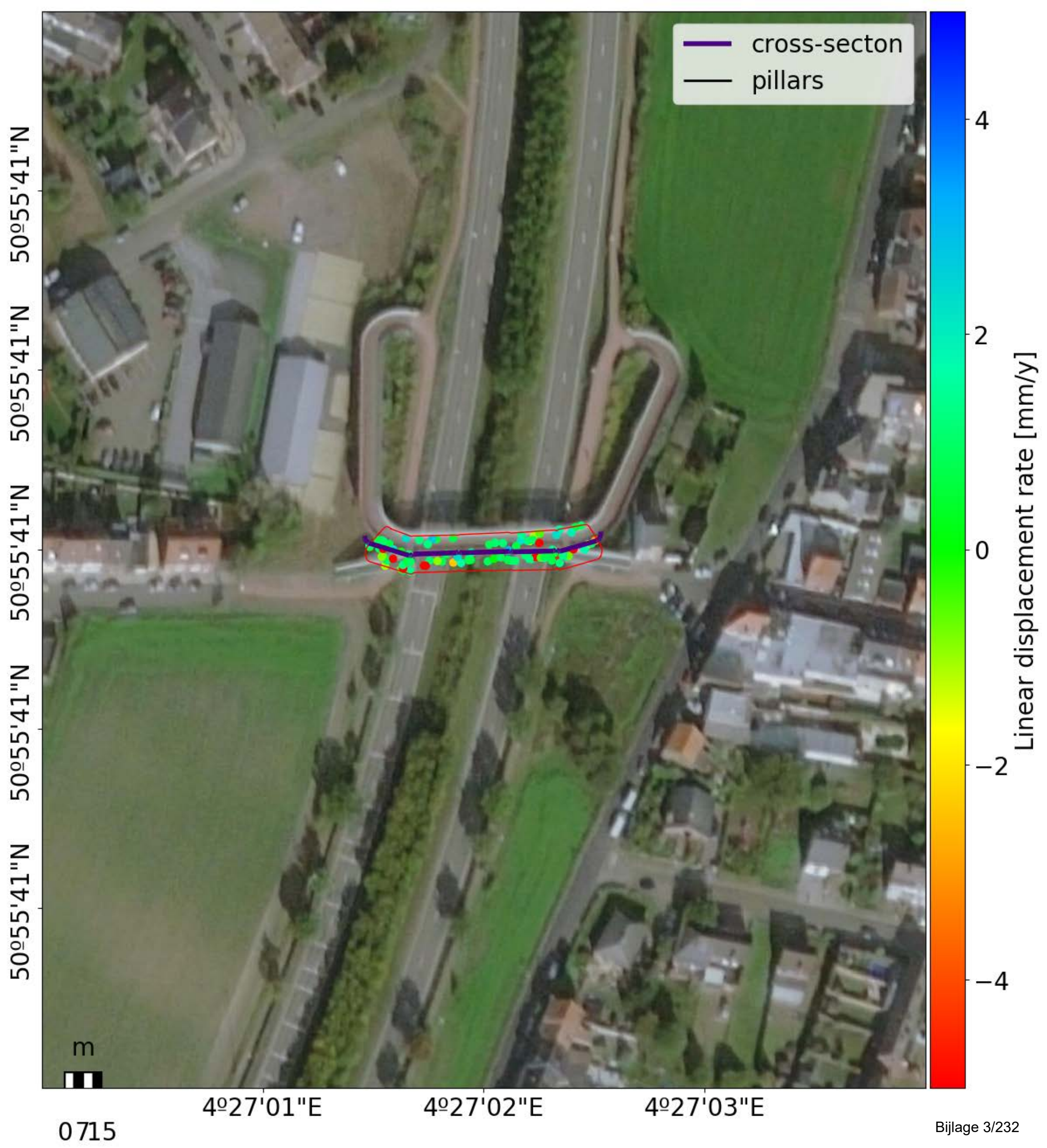


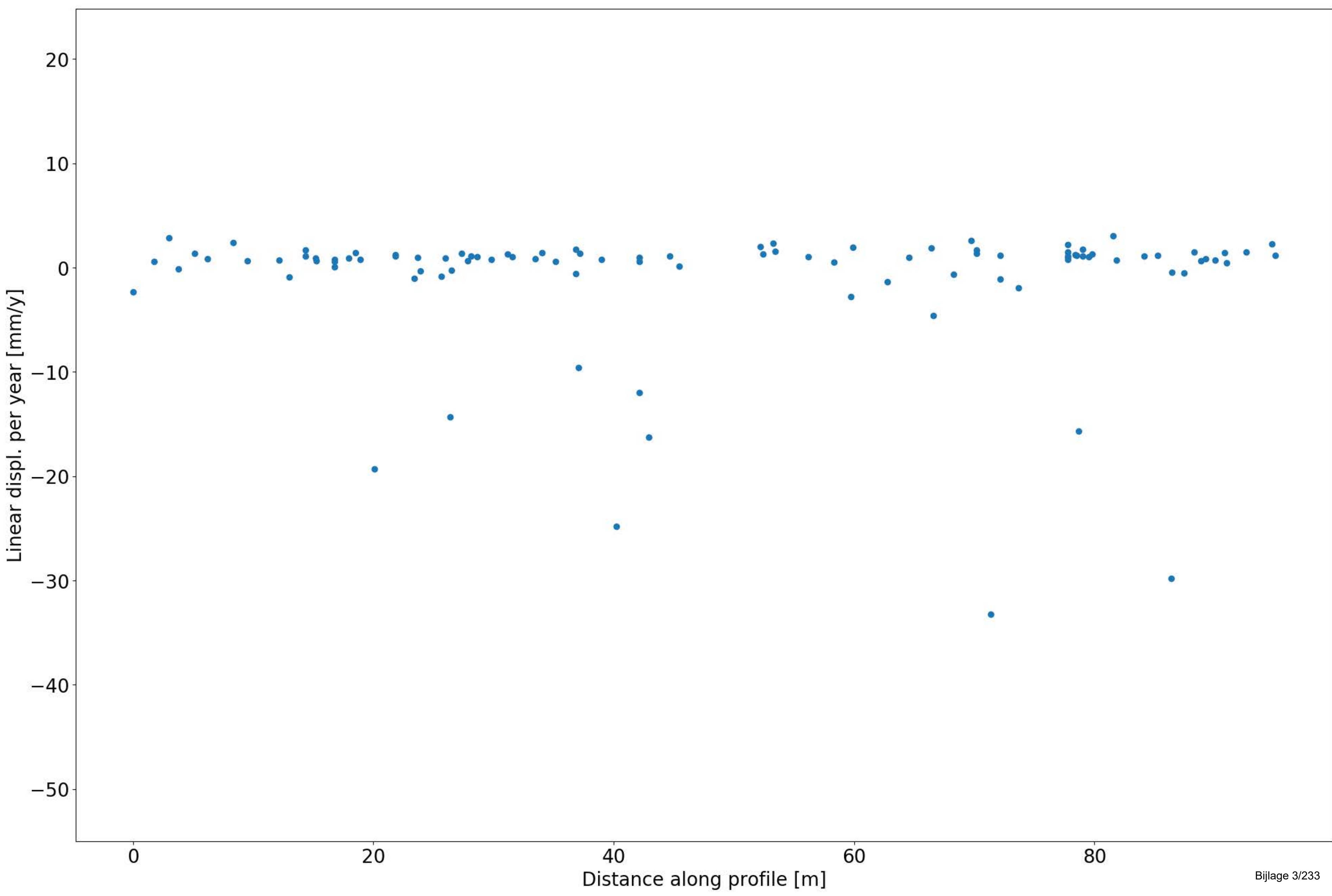


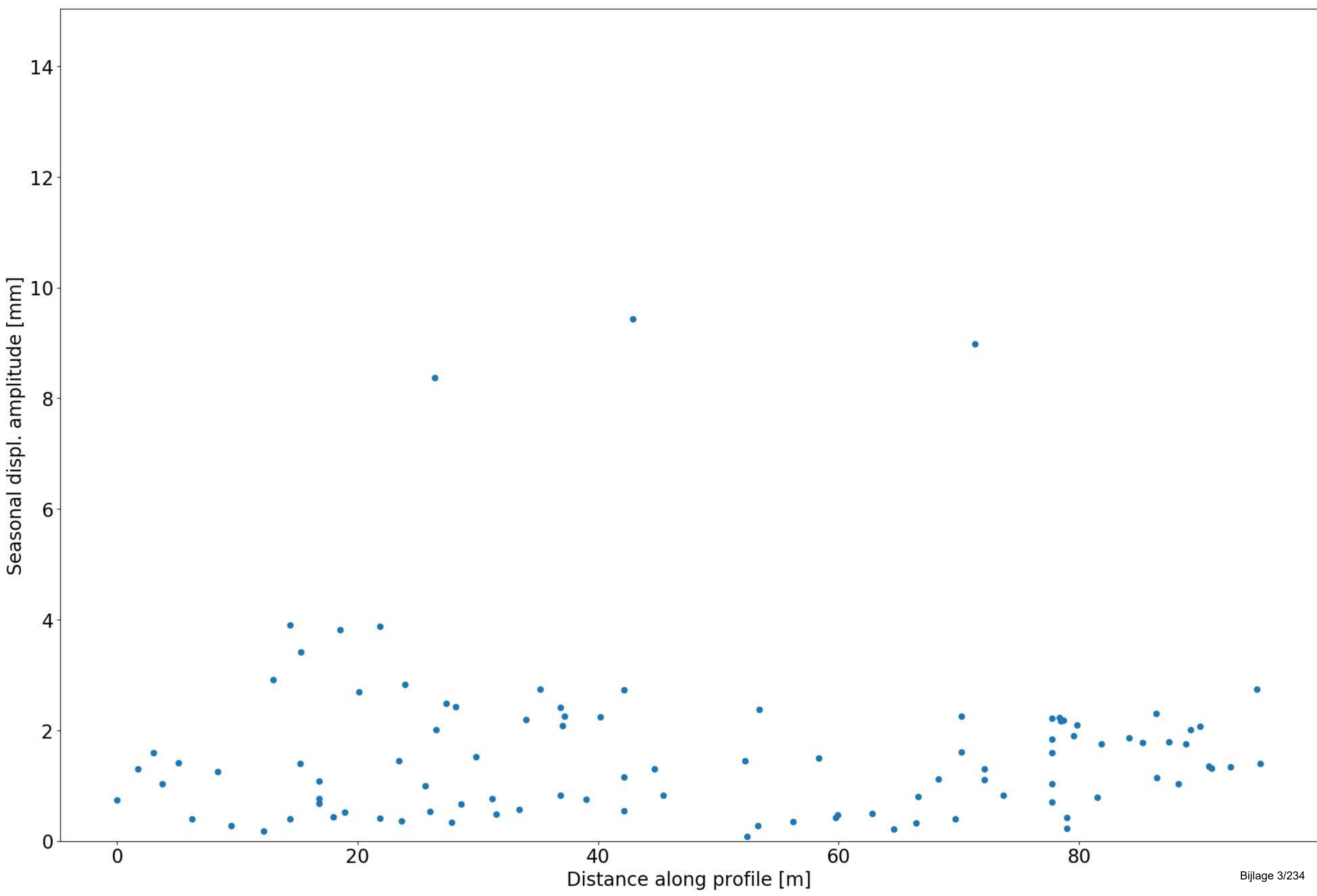


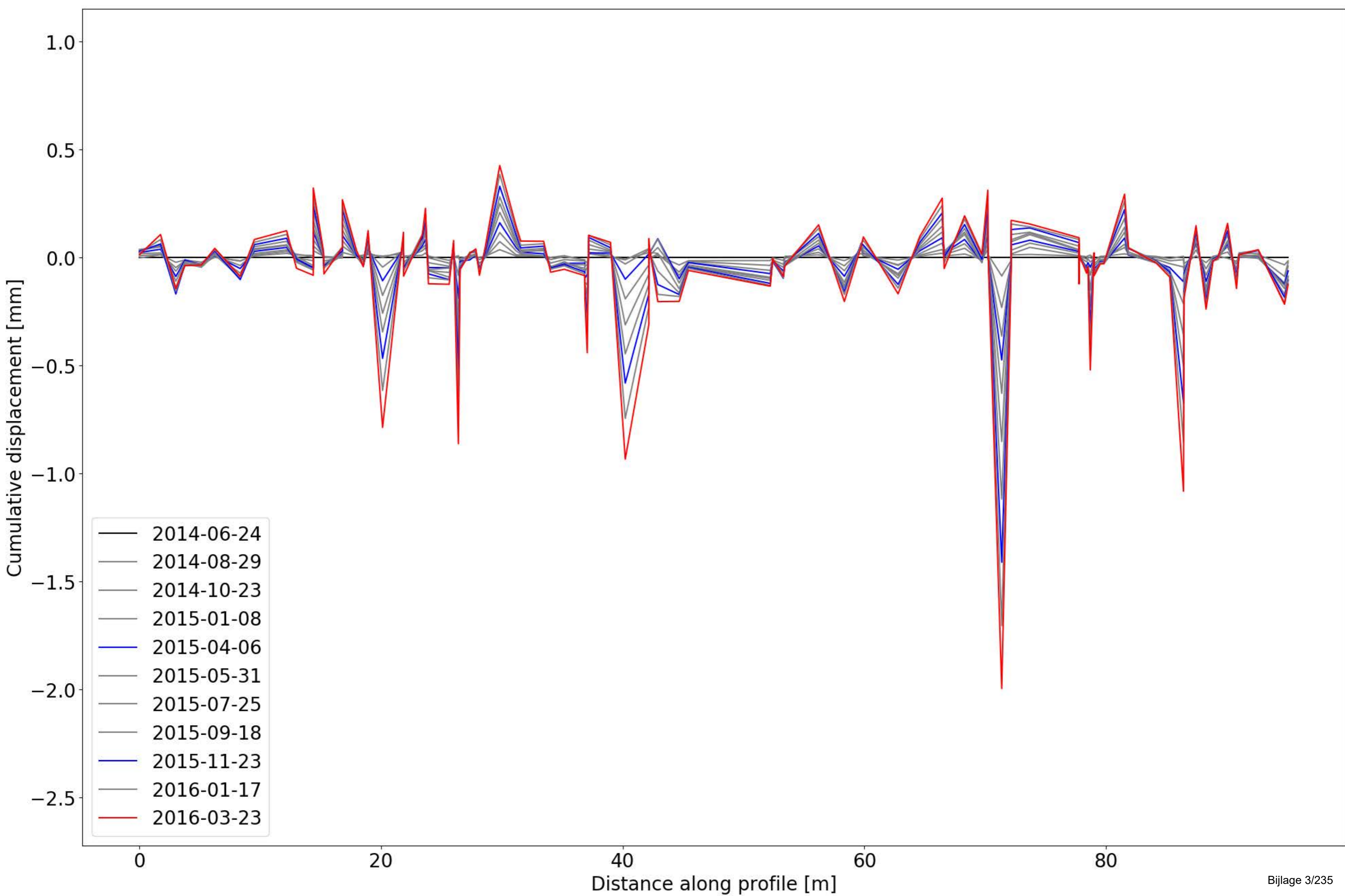


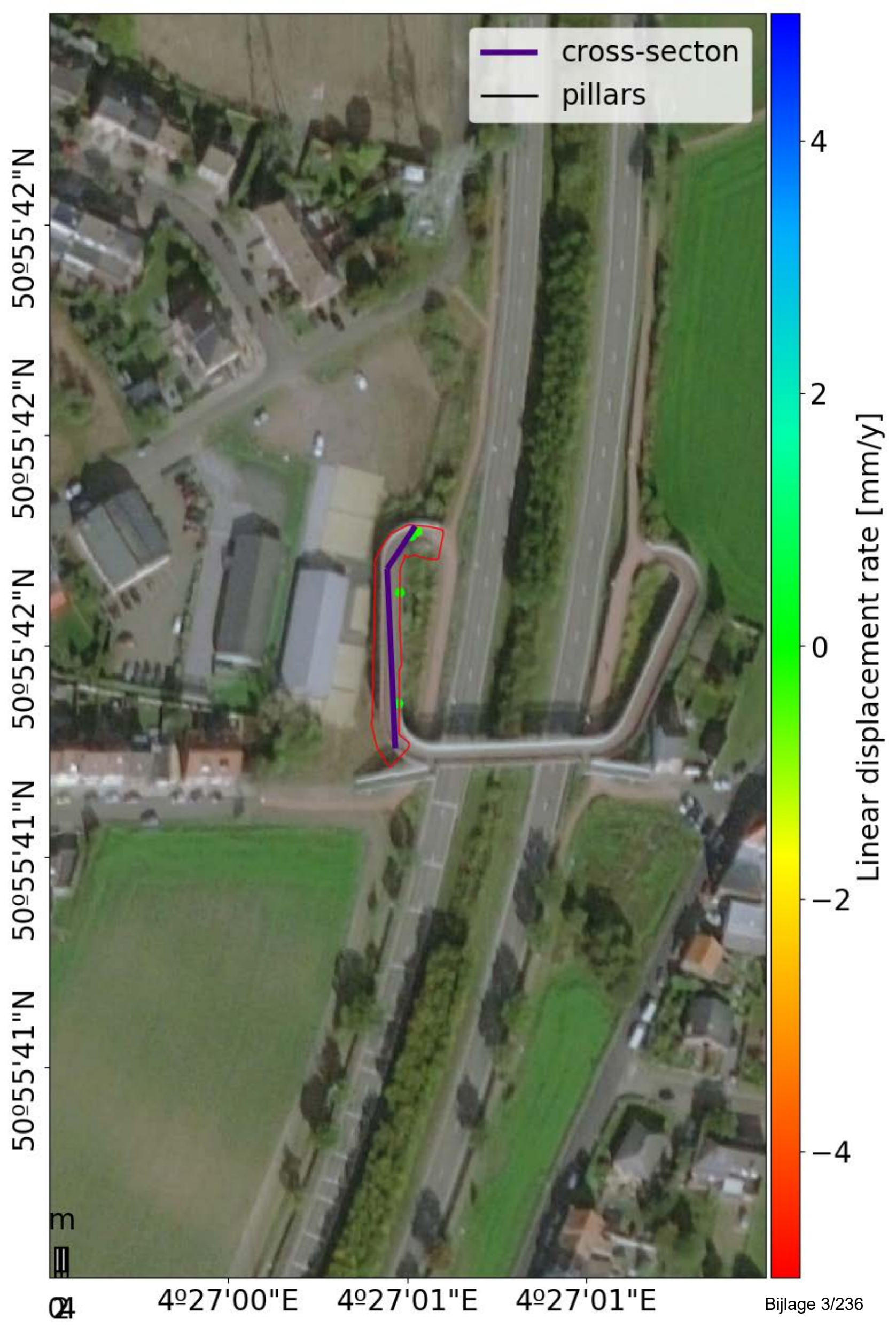


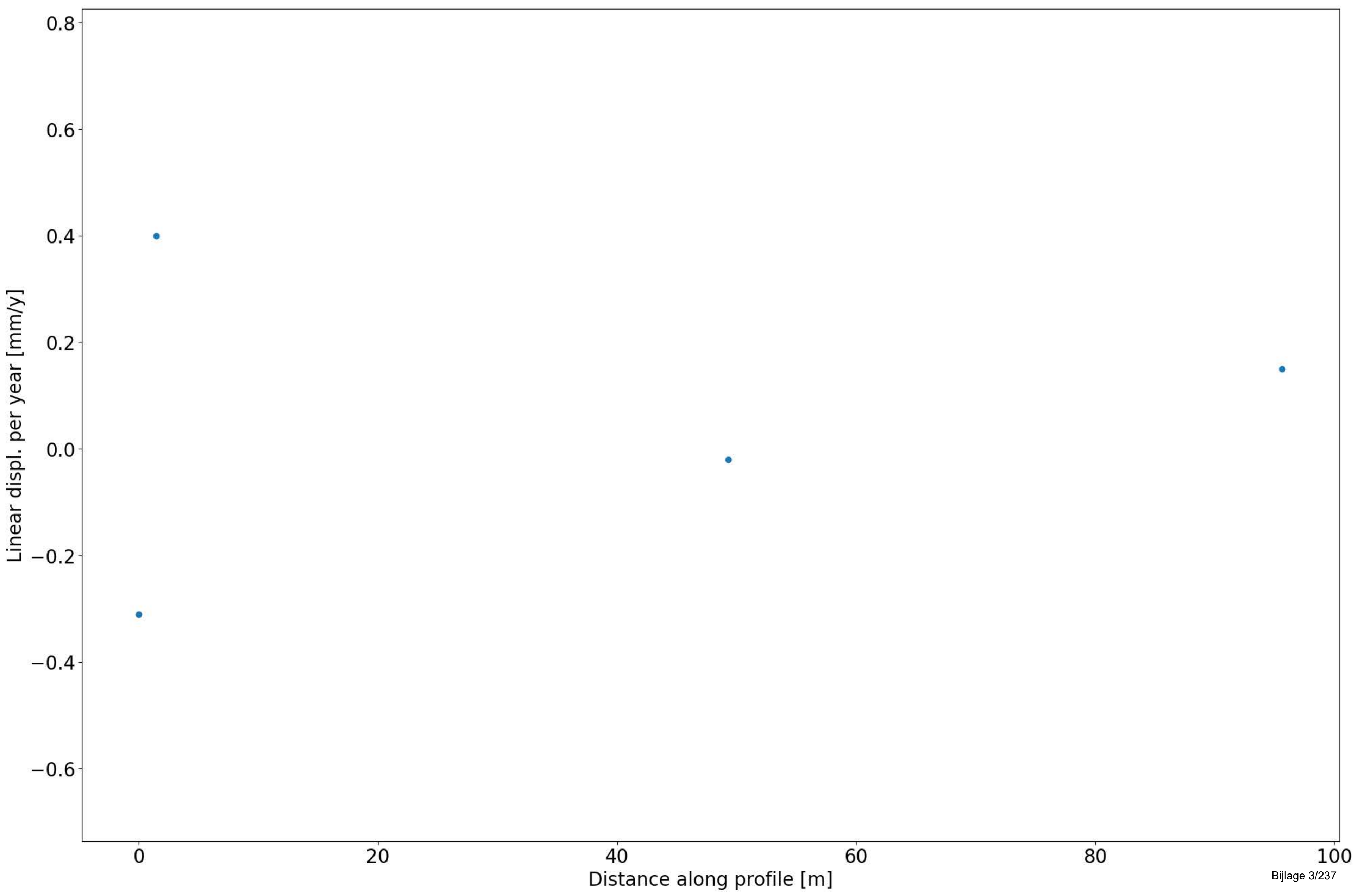


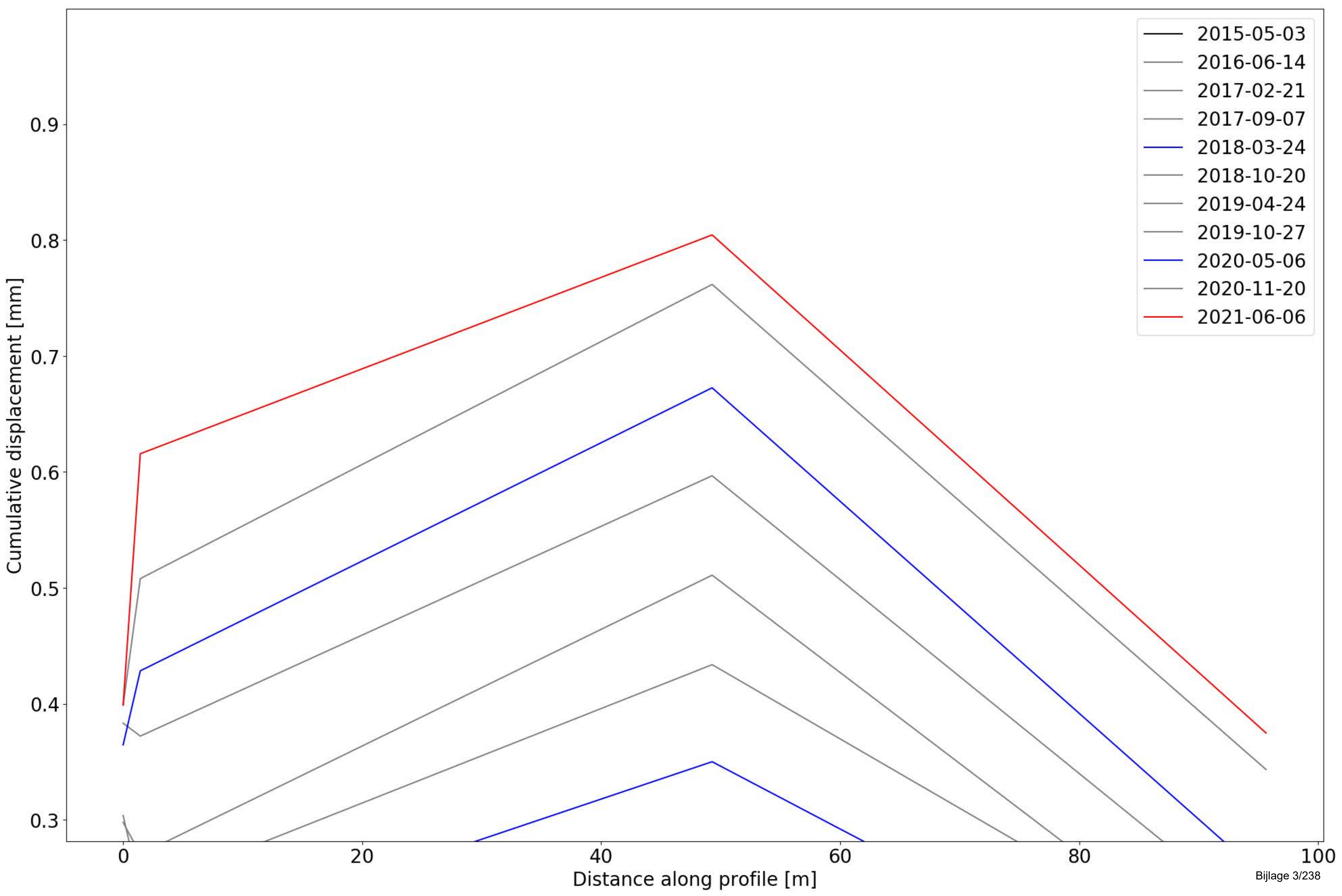


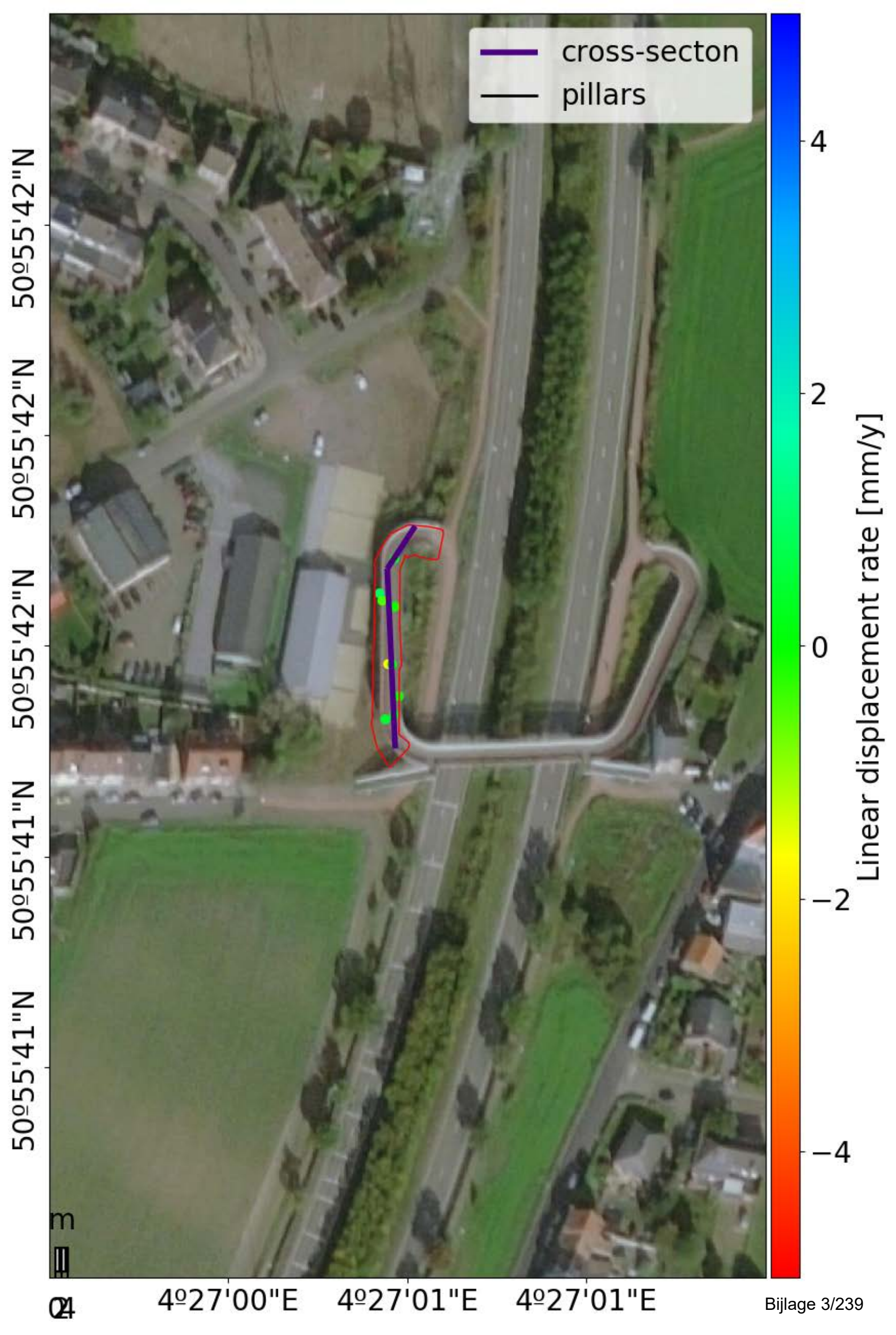


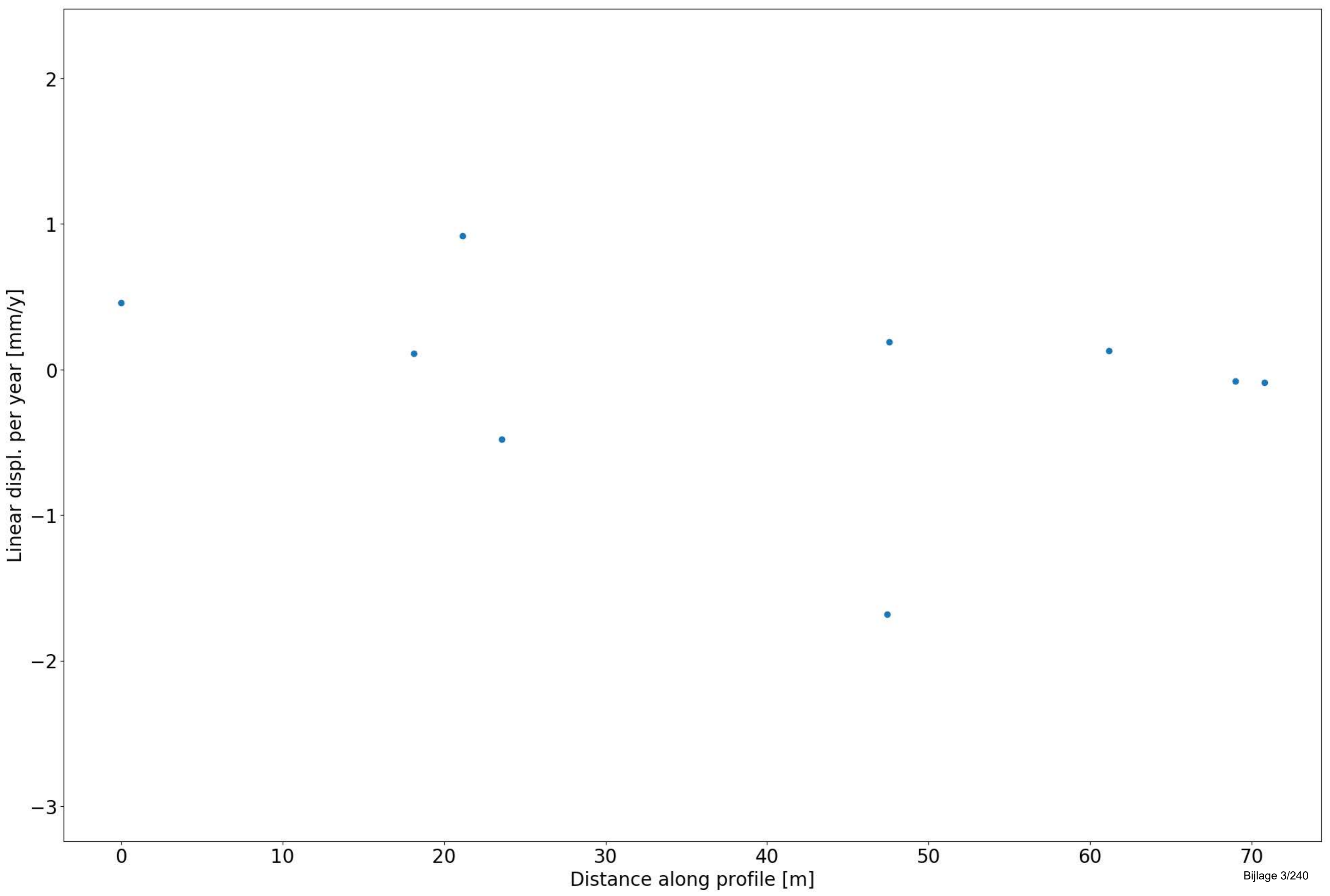


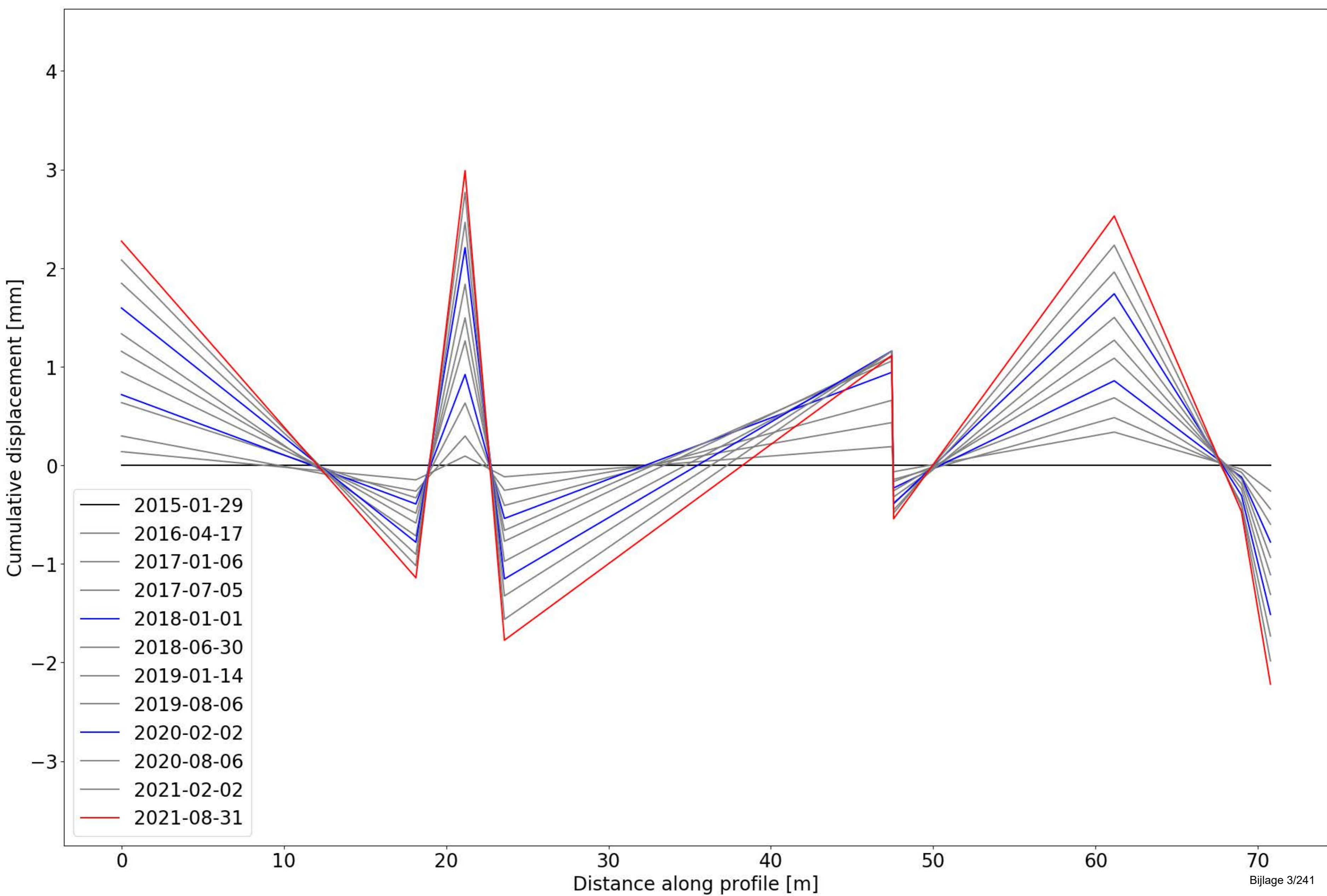


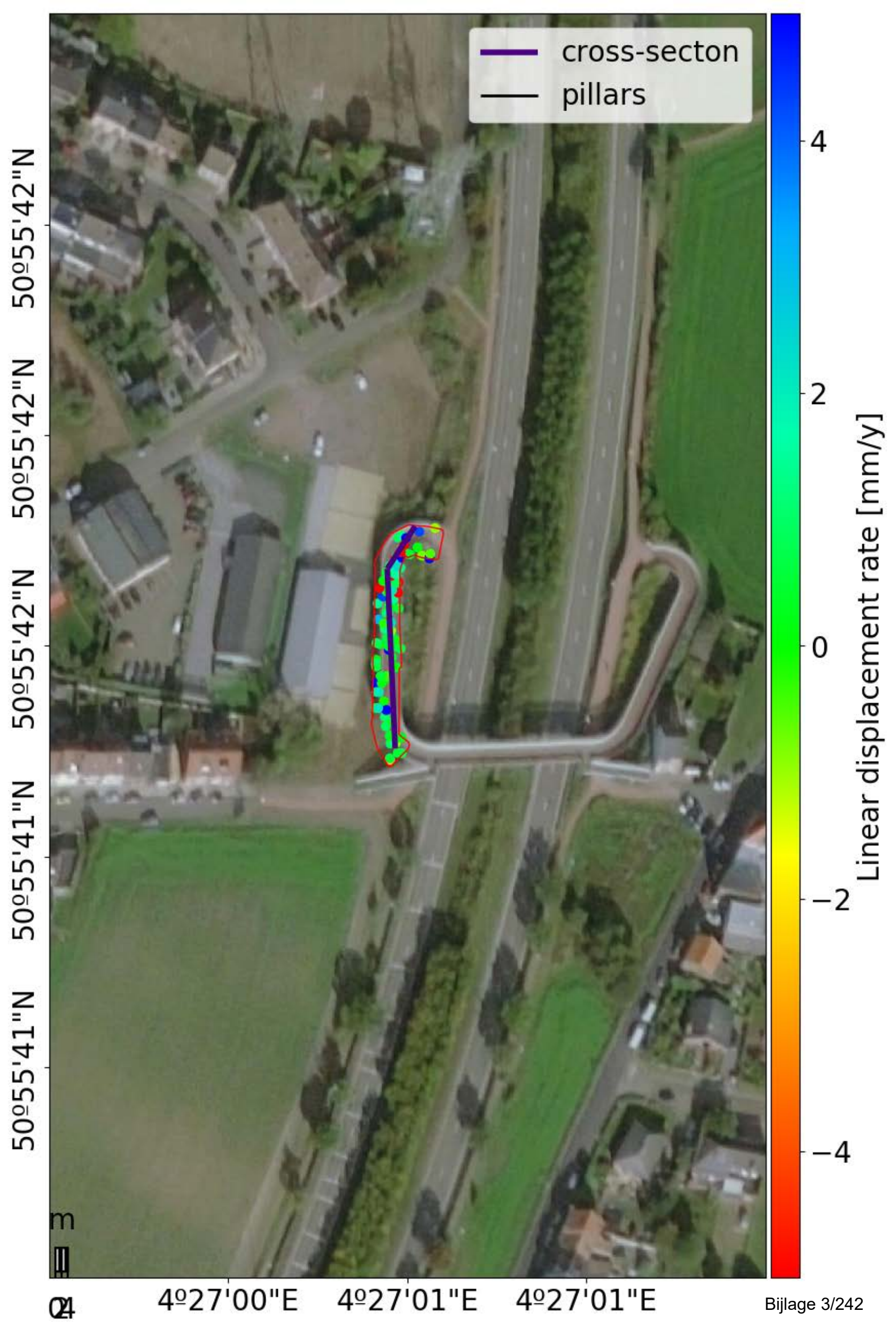


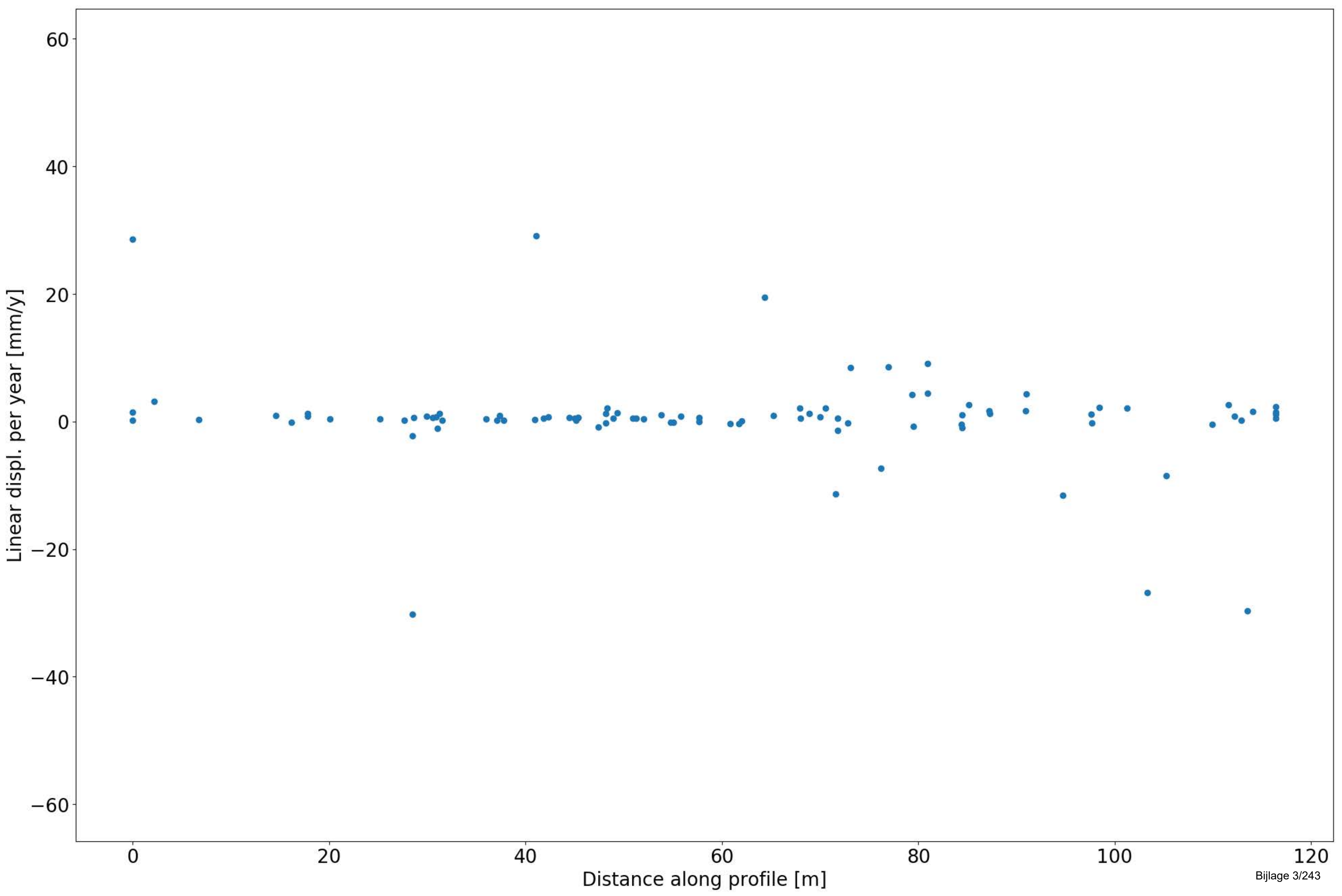


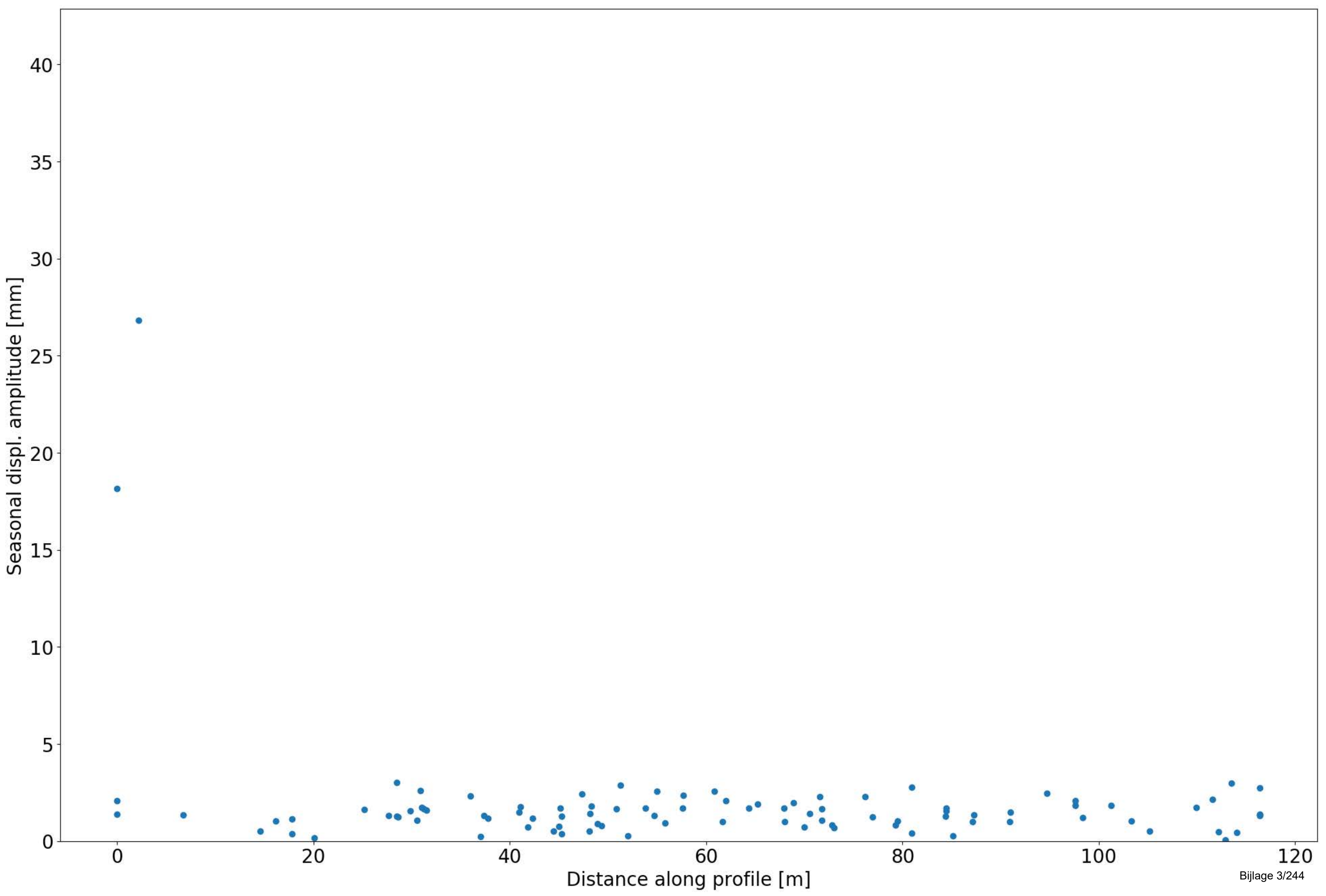


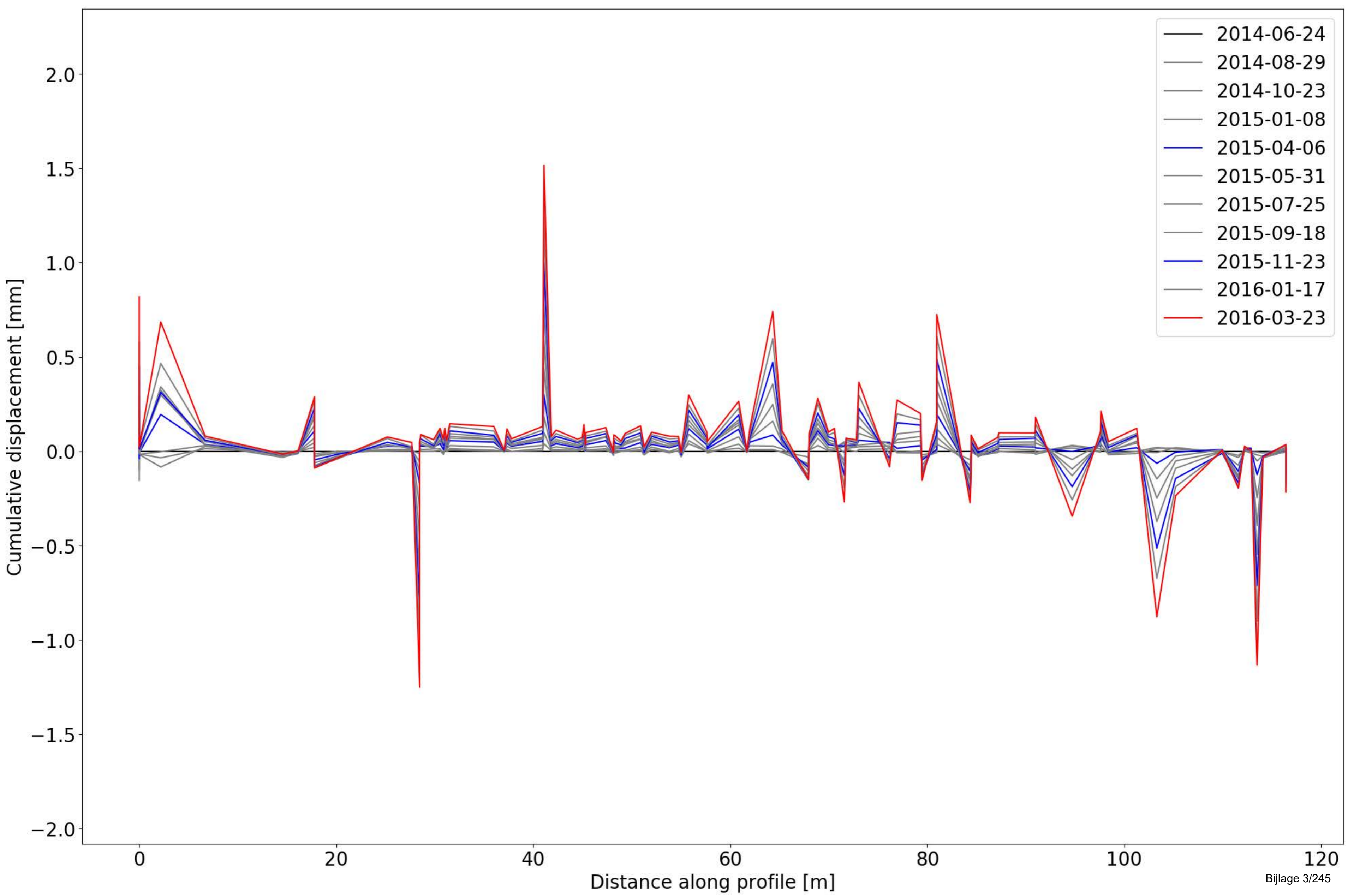












9105 Spoorwegbrug in Spoorlijn 25N over R22



Object Nummer	Name	Long (WGS84)	Lat (WGS84)	Long (Lambrt)	Lat (Lambrt)	Length [m]	Width [m]	Material	Description	Information
3186	Havendoklaanbrug	50.94376858	4.438474077	154899.97000	181500.08999	31.6	10.74	-	(1) kleine brug	no maintenance works

Change Detection

Change detection	Approx. period	Description
Change	Since 2016	Differential movement in different bridge blocks

Comments on point density/distribution

InSAR points along the length of the bridge for all three datasets (TSX, S1 asc and S1 dsc), no significant gaps in the data.

