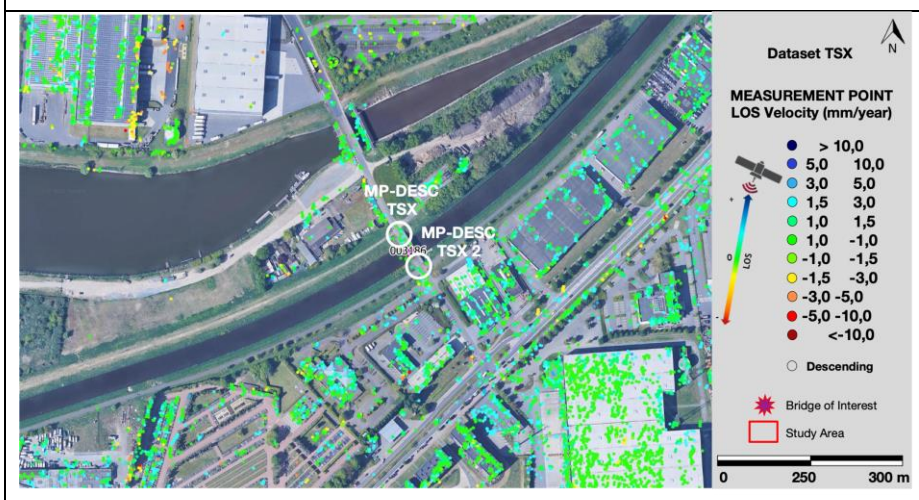
ANNEX 1

Bridge 003186 - Havendoklaanbrug

TerraSAR-X results (Descending orbital geometry)



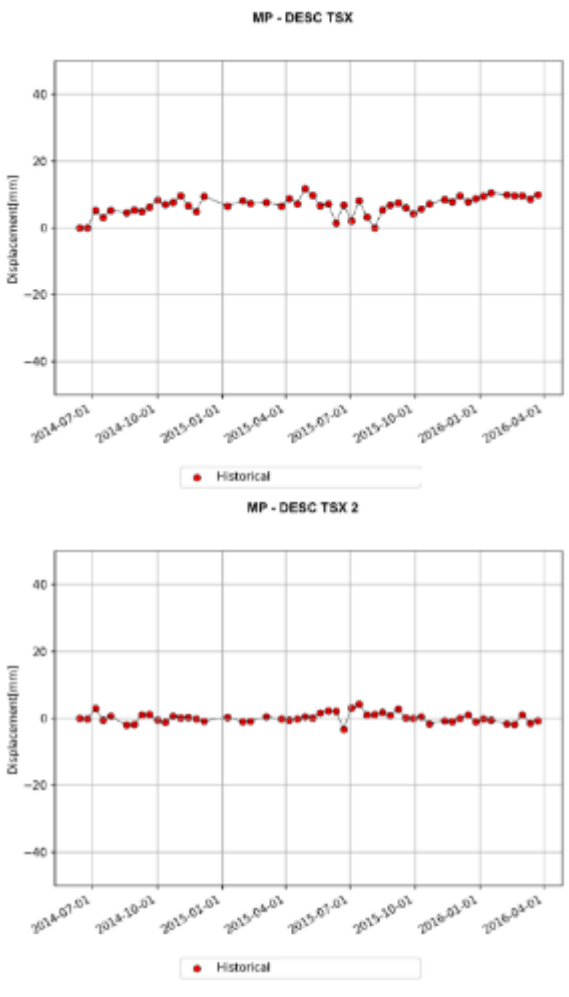
Sentinel-1 results (Ascending and Descending orbital geometry)

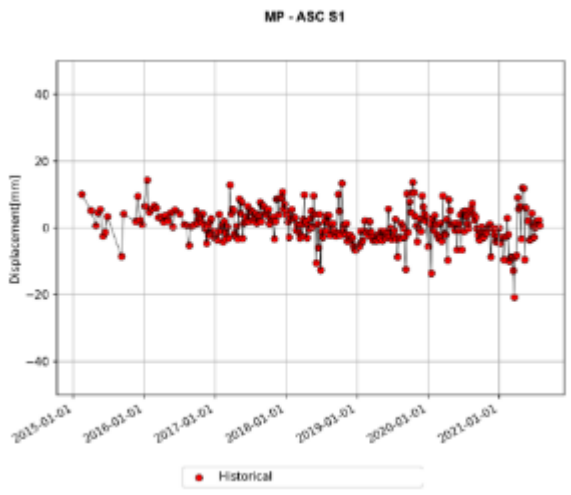
3d view of the scenario (TerraSAR-X)

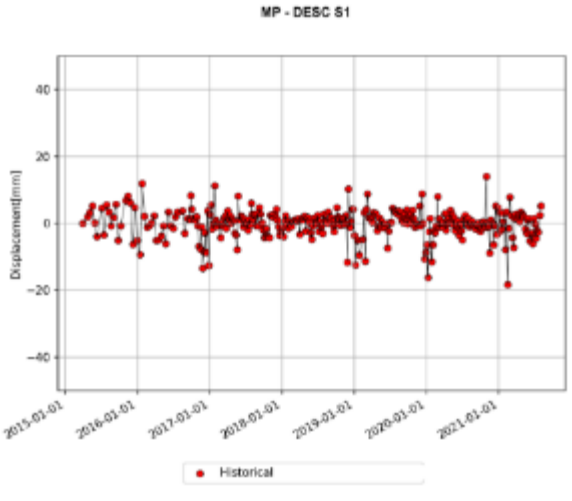
General Information

	TerraSAR-X	*Sentinel-1*
Approximate extension	*0.01 km²*	
Coordinates of the centroid of the bridge	*4°26'18.11"E, 50°56'37.49"N*	
Orbital geometry by which the maximum displacement is recorded	-	-
Mean velocity measured	*0.8 mm/yr*	*N/D*
InSAR MPs coverage	*High*	*Null*

Time series of displacement of some key MPs





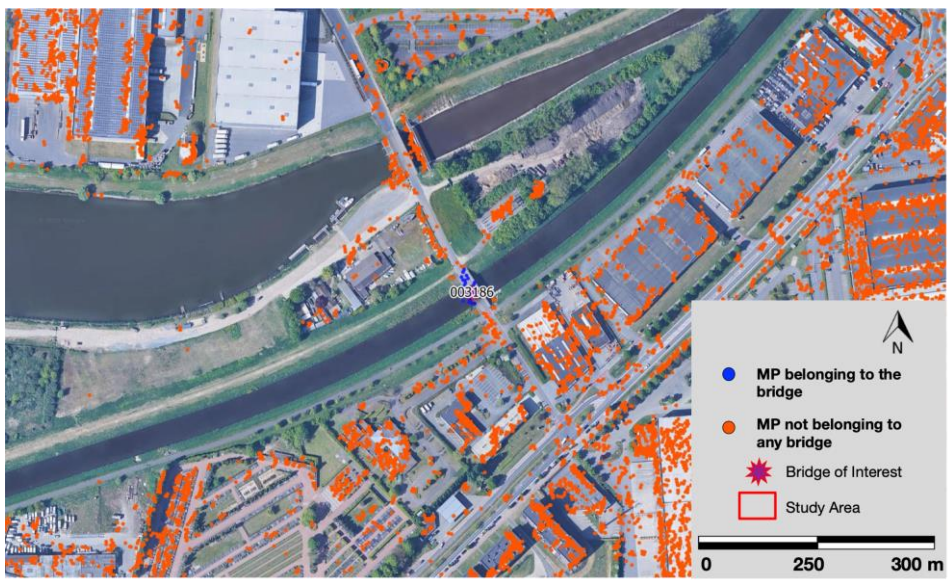


Vectorial decomposition

Vertical (Up-Down) – 50m grid size

Horizontal (East-West) – 50m grid size

Surrounding areas
(Point belonging to the bridge; Points not belonging to any bridge; Points with uncertain belonging to a given bridge)



Alerting system

Filtering out of local disruptions + Availability of MP in case of works

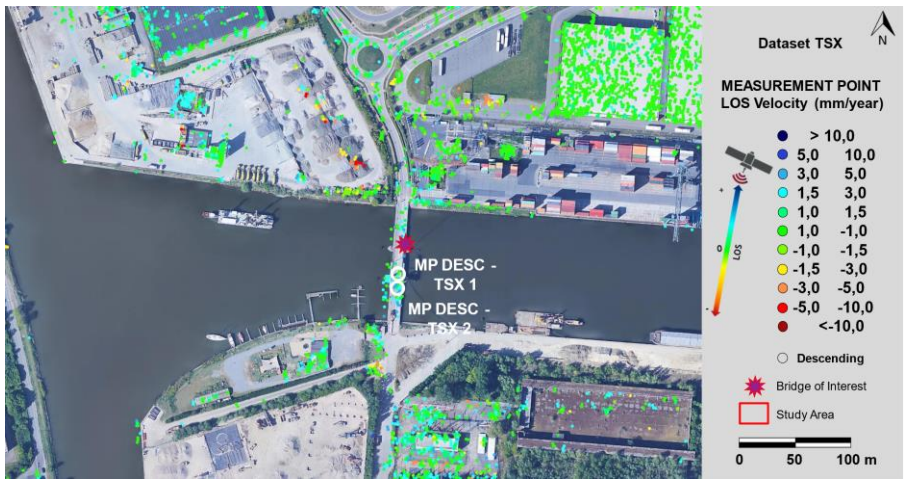
Not needed for this bridge

Notes:

The ***Havendoklaanbrug*** is characterized by a good distribution of MPs moving toward to the sensor for TerraSAR-X (TSX) dataset, which displacement velocity ranges from 0.5 to 2.0 mm/years, the MPs don't show seasonal variations. Th Sentinel-1 datasets (S1) have no coverage of measurement points above the structure.

Bridge 003187 – Willemsbrug

TerraSAR-X results (Descending orbital geometry)



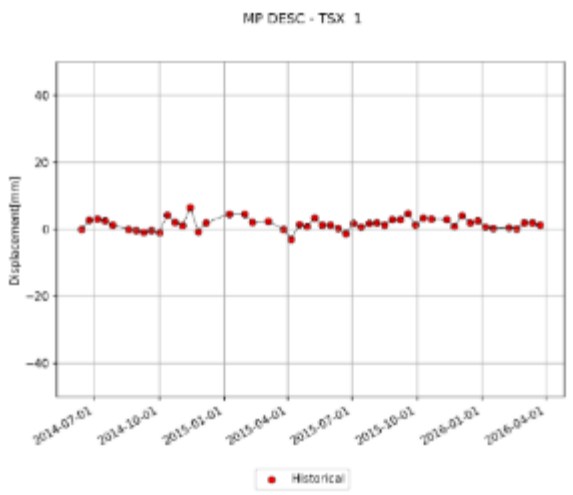
Sentinel-1 results (Ascending and Descending orbital geometry)

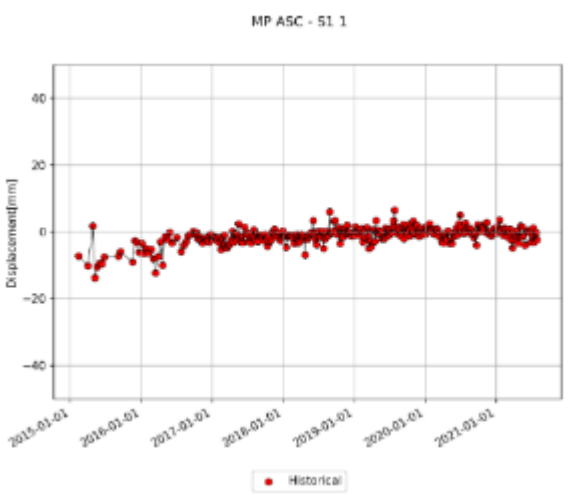
3d view of the scenario (TerraSAR-X)

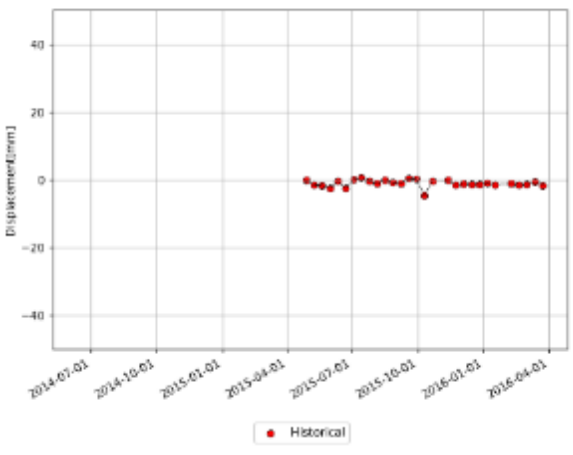
General Information

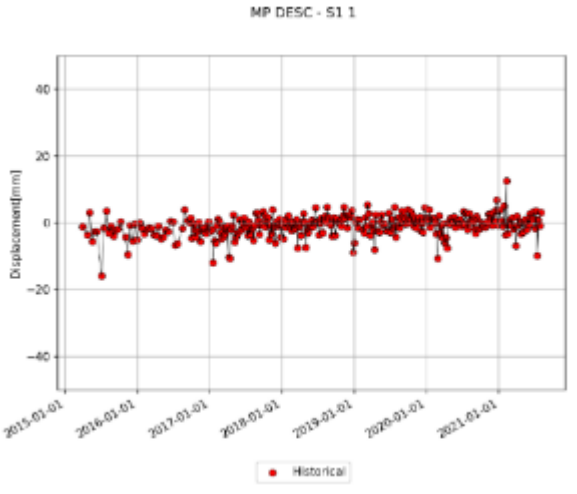
	TerraSAR-X	*Sentinel-1*
Approximate extension	*250 m²*	
Coordinates of the centroid of the bridge	*4°25'11.08 "E, 50°56'41.30 "N*	
Orbital geometry by which the maximum displacement is recorded	-	*Ascending*
Mean velocity measured	*1.7 mm/yr*	*0.25 mm/yr*
InSAR MPs coverage	*Medium*	*Medium*

Time series of displacement of some key MPs







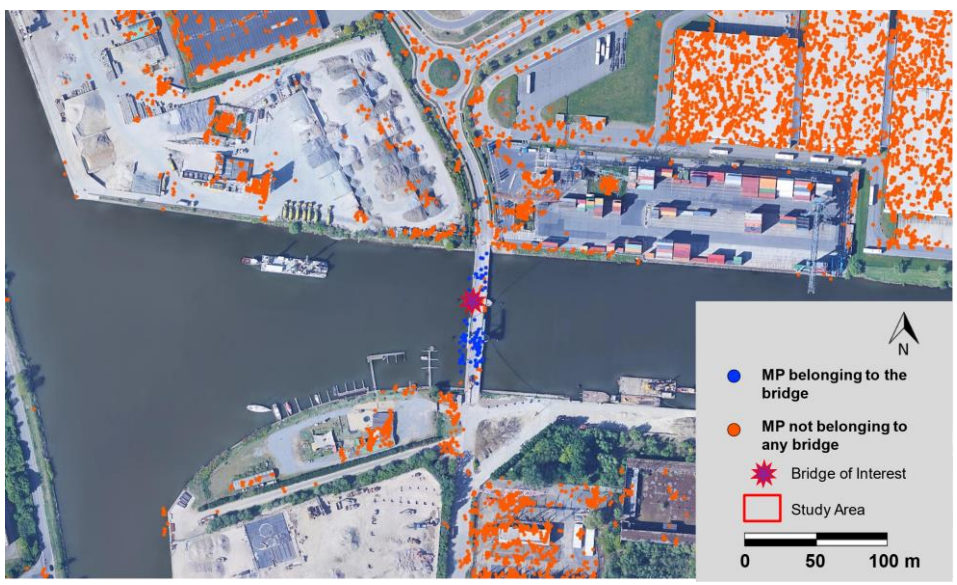


Vectorial decomposition

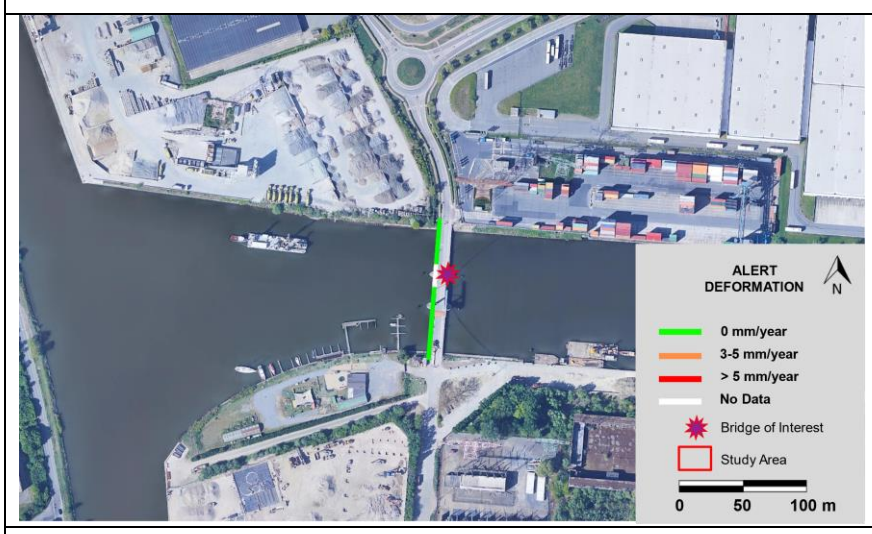
Vertical (Up-Down) – 50m grid size

Horizontal (East-West) – 50m grid size

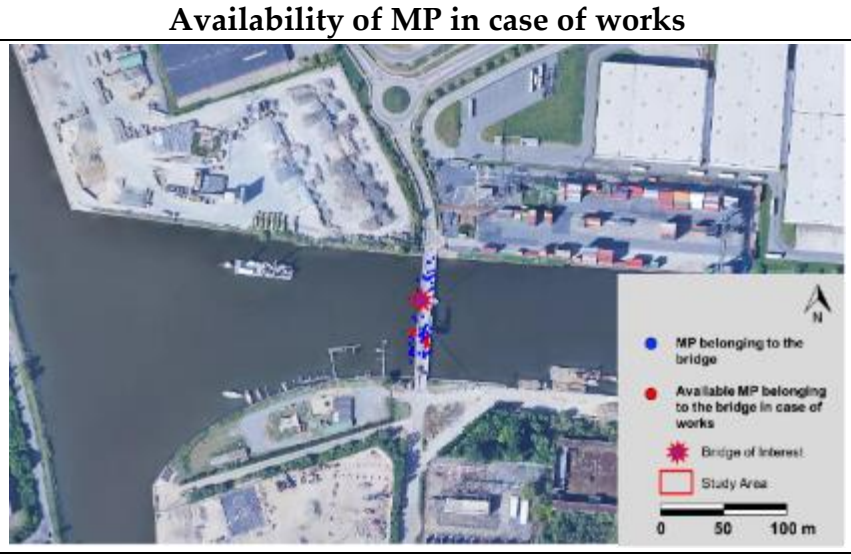
Surrounding areas
(Point belonging to the bridge; Points not belonging to any bridge; Points with uncertain belonging to a given bridge)



Alerting system



Filtering out of local disruptions + Availability of MP in case of works

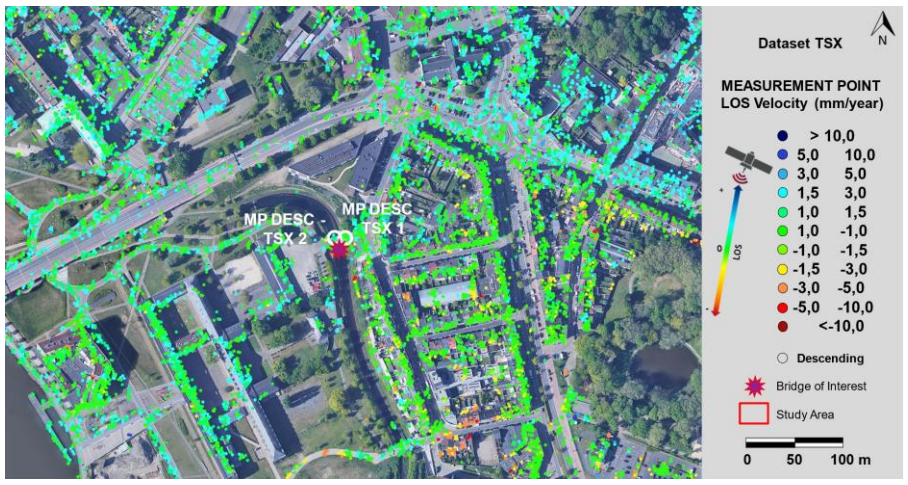


Notes:

The ***Willemsbrug*** is characterized by a good distribution of MPs showing little displacements consistent with the regional deformational trends. Except for this, no long-term deformational trends are visible in the TerraSAR-X (TSX) dataset and in the Sentinel-1 (S1) datasets. With TerraSAR-X it is possible to distinguish local disruptions due to works on the bridge, with a significant change in the time series by the end of April 2015.

Bridge 003189 – Tuchthuisbrug

TerraSAR-X results (Descending orbital geometry)



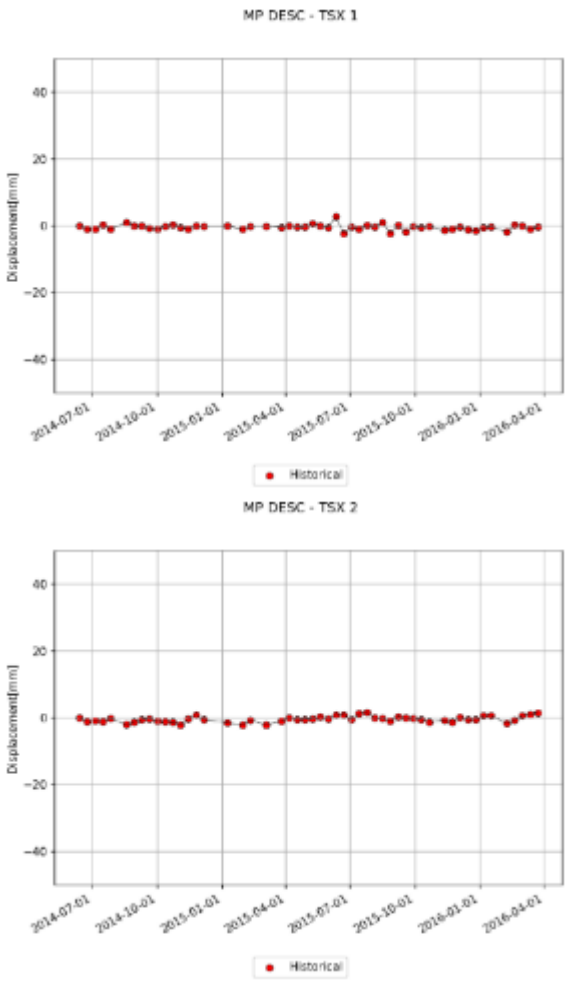
Sentinel-1 results (Ascending and Descending orbital geometry)

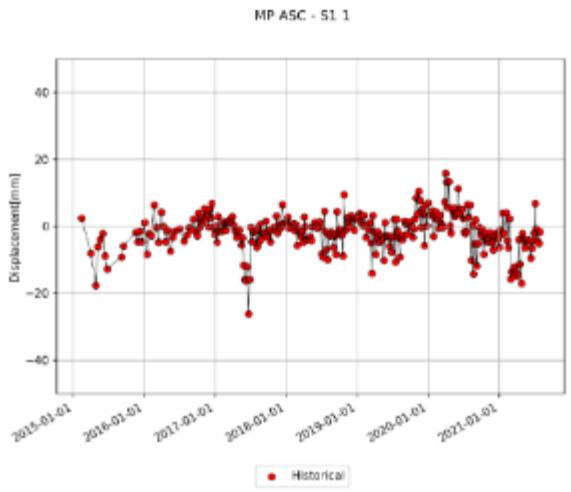
3d view of the scenario (TerraSAR-X)

General Information

	TerraSAR-X	*Sentinel-1*
Approximate extension	*620 m²*	
Coordinates of the centroid of the bridge	*4°25'24.95"E, 50°55'31.57"N*	
Orbital geometry by which the maximum displacement is recorded	-	-
Mean velocity measured	*1.00 mm/yr*	*-0.3 mm/yr*
InSAR MPs coverage	*High*	*Low (available only ascending MPs)*

Time series of displacement of some key MPs



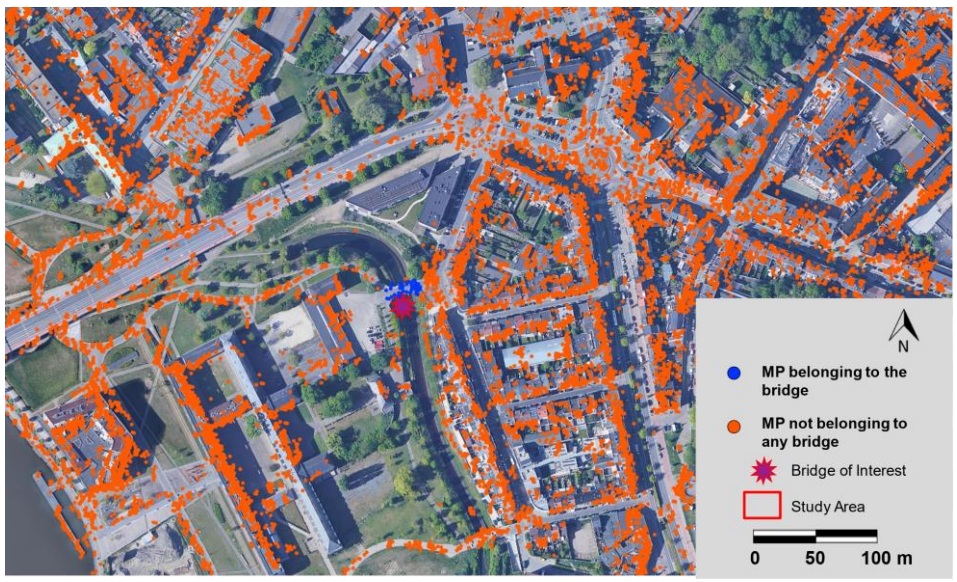


Vectorial decomposition

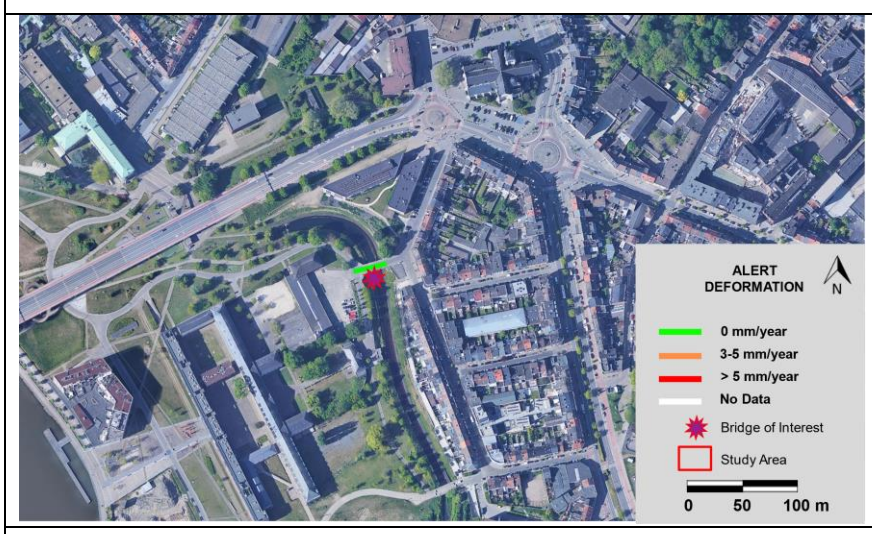
Vertical (Up-Down) – 50m grid size

Horizontal (East-West) – 50m grid size

Surrounding areas
(Point belonging to the bridge; Points not belonging to any bridge; Points with uncertain belonging to a given bridge)



Alerting system



Filtering out of local disruptions + Availability of MP in case of works

Not needed for this bridge

Notes:

The ***Tuchthuisbrug*** is characterized by a good distribution of substantially stable MPs for the TerraSAR-X (TSX) dataset, with a mean displacement velocity of 1.00 mm/yr, with no seasonal variations. MPs for Sentinel-1 (S1) are only available for the ascending dataset, with a sparse distribution, a mean velocity of -0.3 mm/yr and seasonal deformations.

Bridge 003590 – Brug 1 over de J. F. Kennedylaan Grensstraat

TerraSAR-X results (Descending orbital geometry)

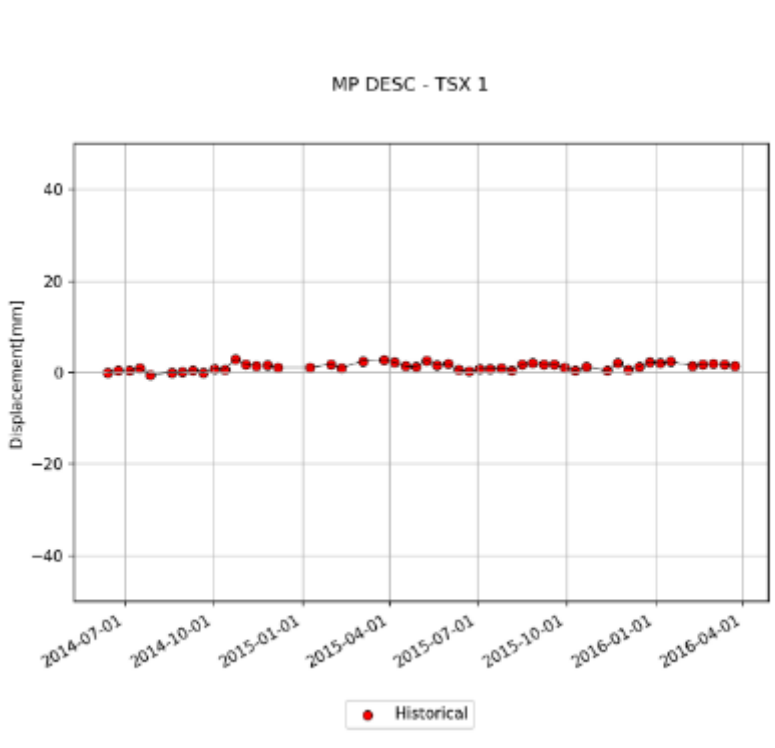
Sentinel-1 results (Ascending and Descending orbital geometry)

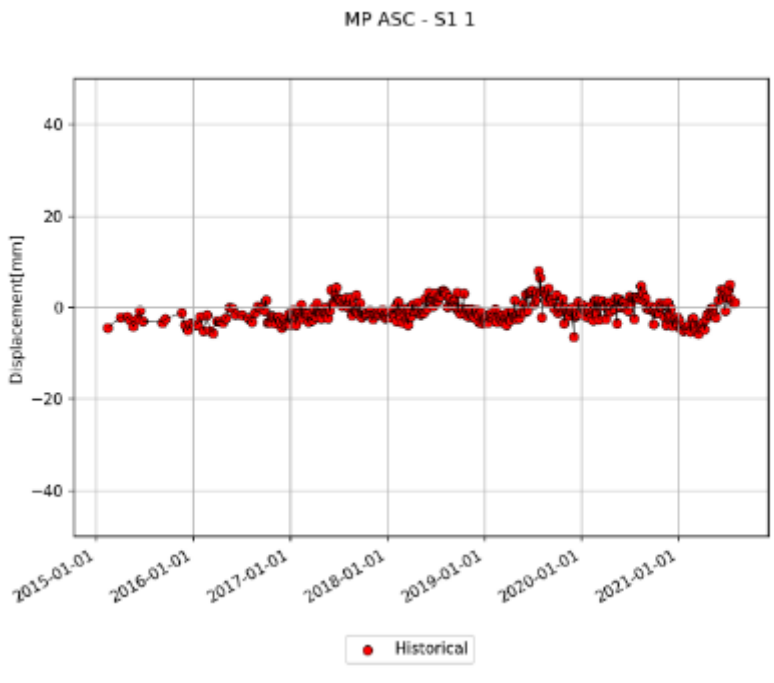
3d view of the scenario (TerraSAR-X)

General Information

	TerraSAR-X	*Sentinel-1*
Approximate extension	*1341 m²*	
Coordinates of the centroid of the bridge	*4°26'1148.59"E, 50°53'2.99 "N*	
Orbital geometry by which the maximum displacement is recorded	-	*Ascending*
Mean velocity measured	*0.4 mm/yr*	*0.03 mm/yr*
InSAR MPs coverage	*High*	*Medium*

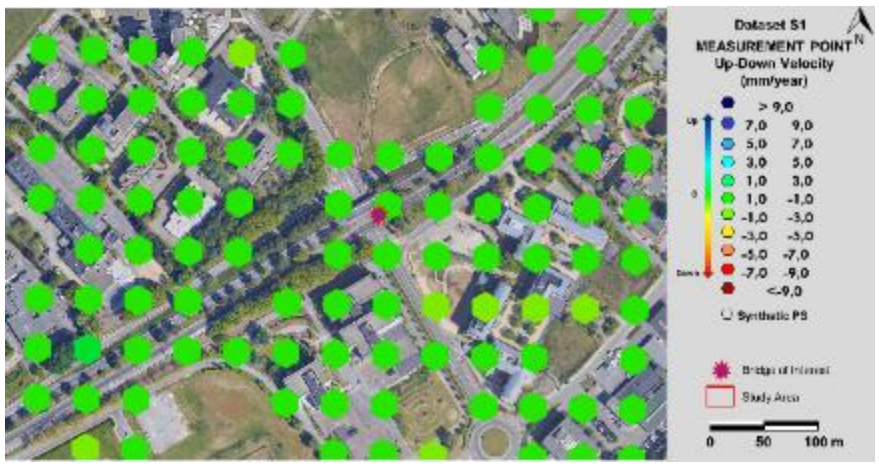
Time series of displacement of some key MPs





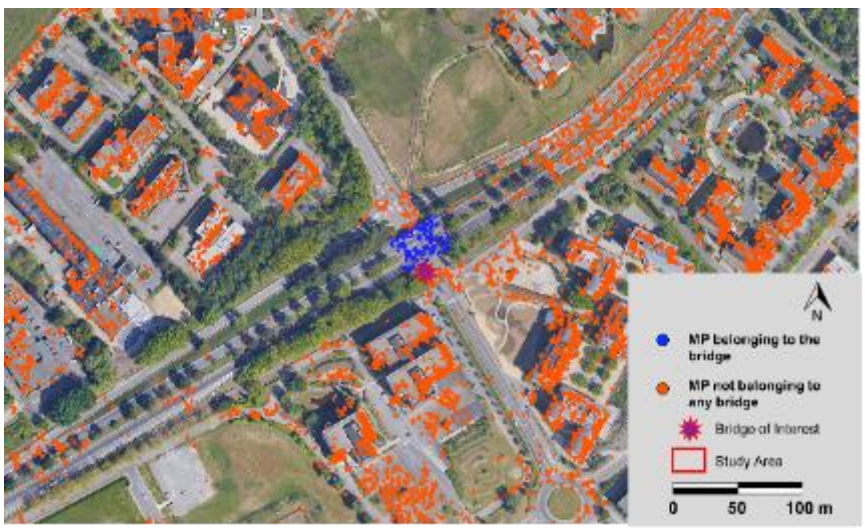
Vectorial decomposition

Vertical (Up-Down) – 50m grid size



Horizontal (East-West) – 50m grid size

Surrounding areas
(Point belonging to the bridge; Points not belonging to any bridge; Points with uncertain belonging to a given bridge)



Alerting system

Filtering out of local disruptions + Availability of MP in case of works

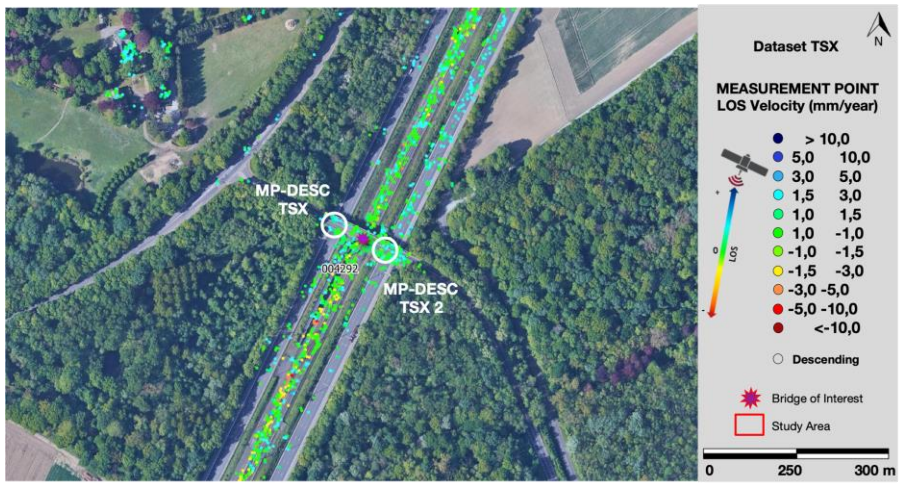
Not needed for this bridge

Notes:

The ***Brug 1 over de J. F. Kennedylaan Grensstraat*** is characterized by a good distribution of MPs and no long-term deformational trends with TerraSAR-X (TSX) dataset and in the Sentinel-1 (S1) datasets.

Bridge 004292 - Brug B14

TerraSAR-X results (Descending orbital geometry)



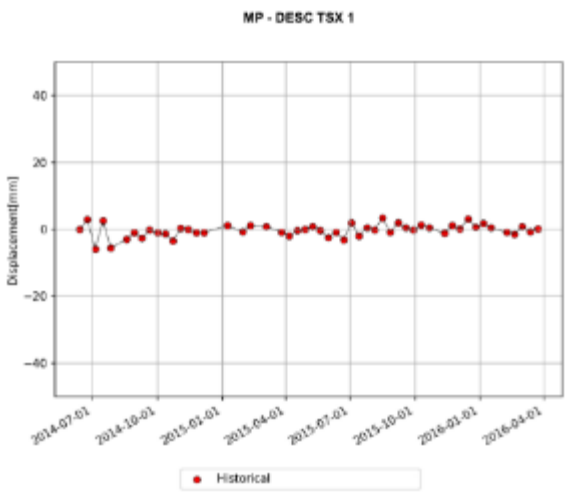
Sentinel-1 results (Ascending and Descending orbital geometry)

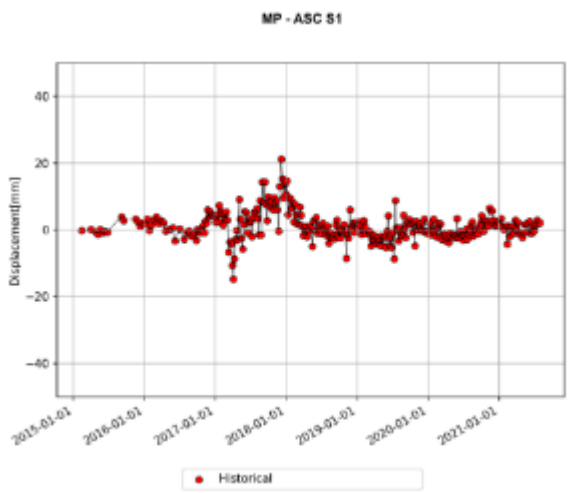
3d view of the scenario (TerraSAR-X)

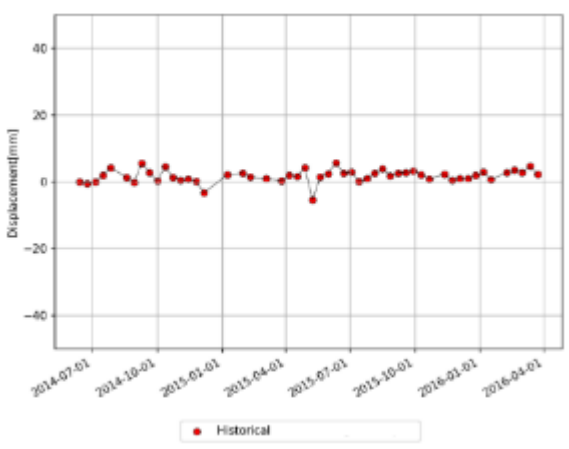
General Information

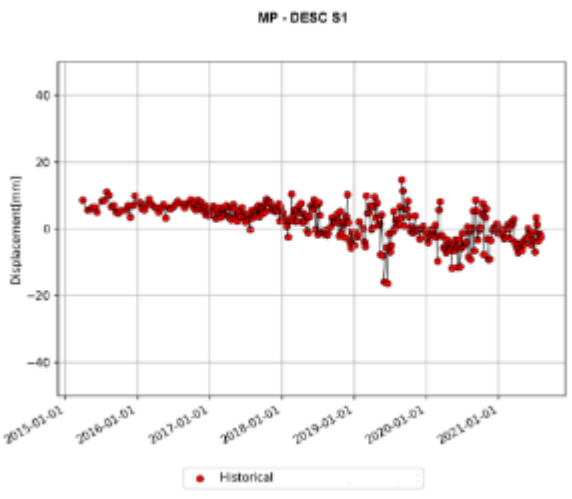
	TerraSAR-X	*Sentinel-1*
Approximate extension	*0.03 km²*	
Coordinates of the centroid of the bridge	*4°27′53.43″E, 50°55′25.45″N*	
Orbital geometry by which the maximum displacement is recorded	-	*Descending*
Mean velocity measured	*0.9 mm/yr*	*0.6 mm/yr*
InSAR MPs coverage	*High*	*Medium*

Time series of displacement of some key MPs



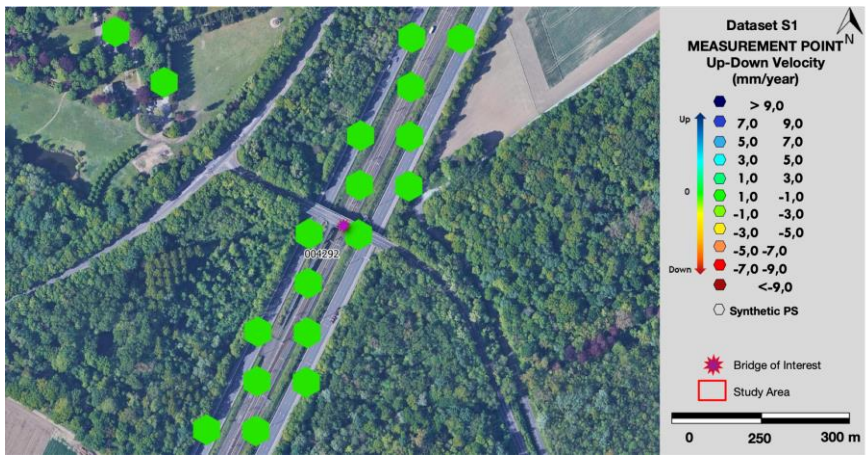




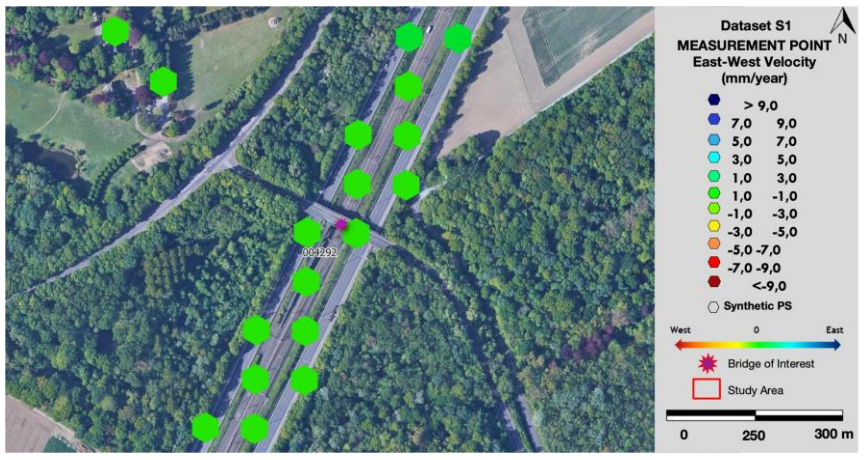


Vectorial decomposition

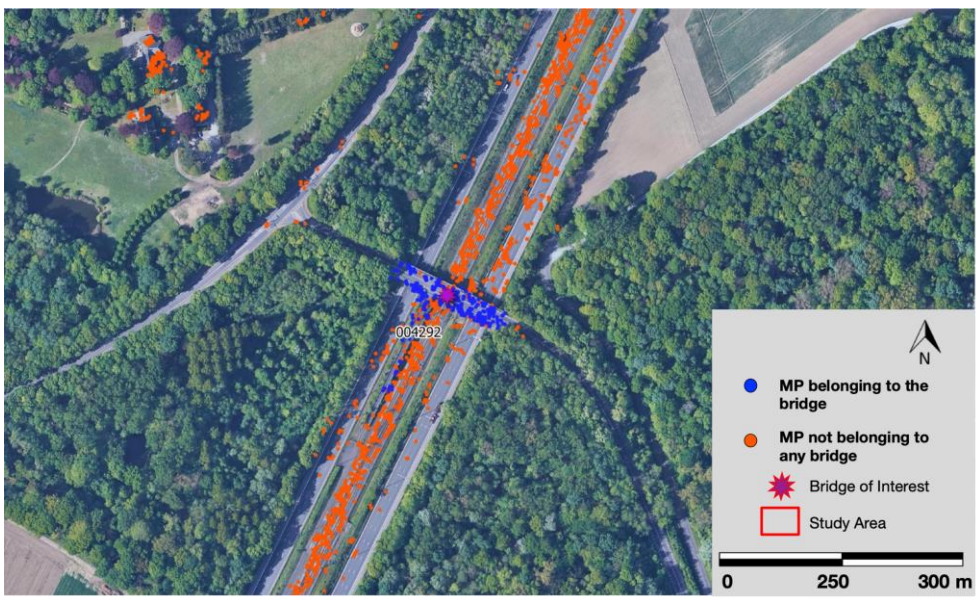
Vertical (Up-Down) – 50m grid size



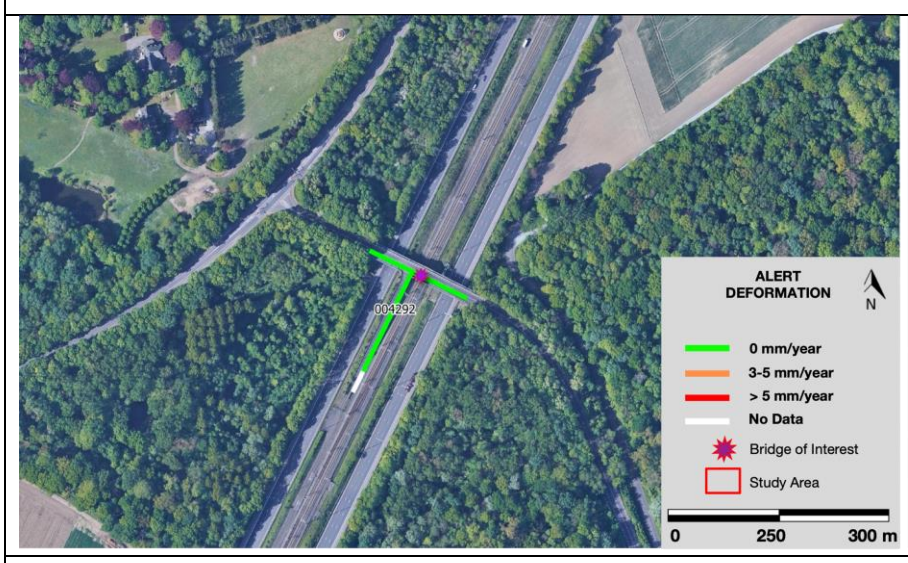
Horizontal (East-West) – 50m grid size



Surrounding areas
(Point belonging to the bridge; Points not belonging to any bridge; Points with uncertain belonging to a given bridge)



Alerting system



Filtering out of local disruptions + Availability of MP in case of works

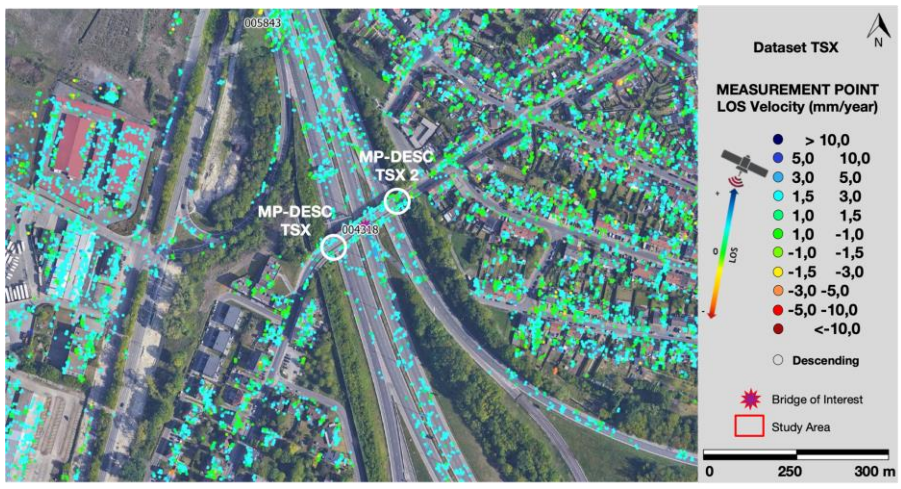
Not needed for this bridge

Notes:

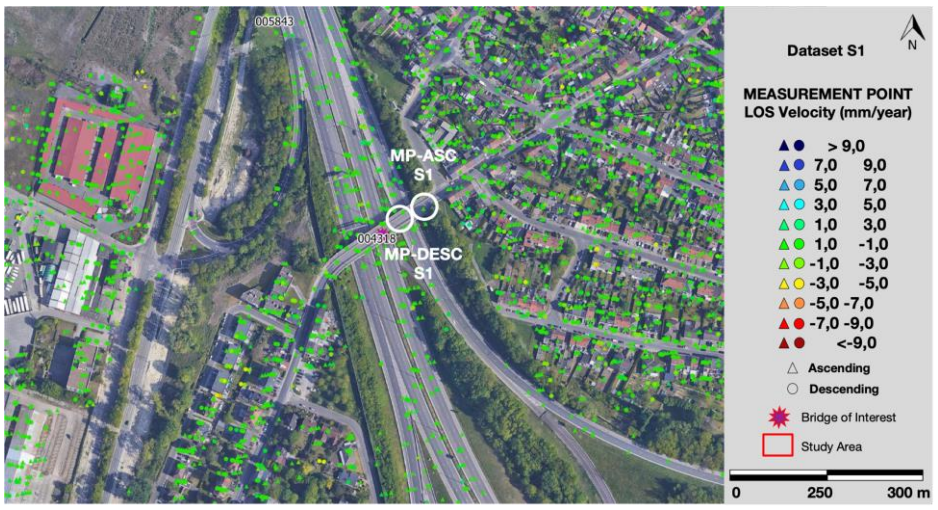
The ***Brug B14*** is characterized by a good distribution of MPs for the TerraSAR-X dataset and a medium coverage for the Sentinel-1 dataset. The former dataset is affected by MPs moving toward to the sensor; more specifically the displacement velocity ranges from 0.5 to 2.5 mm/year. Whereas Sentinel-1 (S1) dataset shows a considerable number of stable measurement point, with a slight displacement toward the sensor.

Bridge 004318 - Brug R8 P. Schoonstraat Oudstrijdersstraat

TerraSAR-X results (Descending orbital geometry)



Sentinel-1 results (Ascending and Descending orbital geometry)

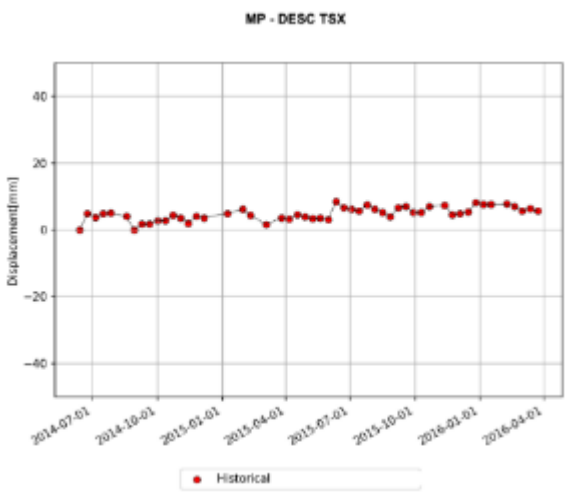


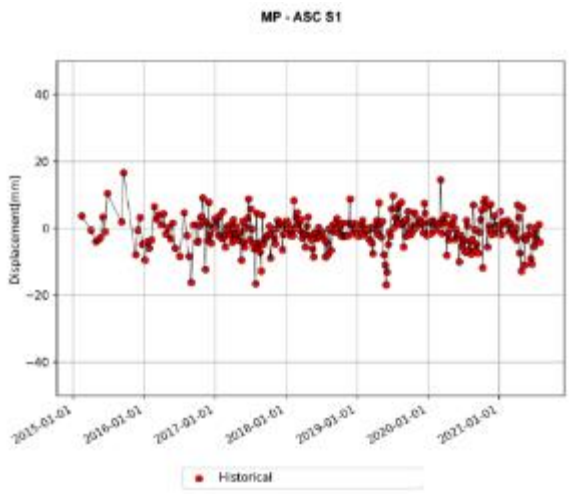
3d view of the scenario (TerraSAR-X)

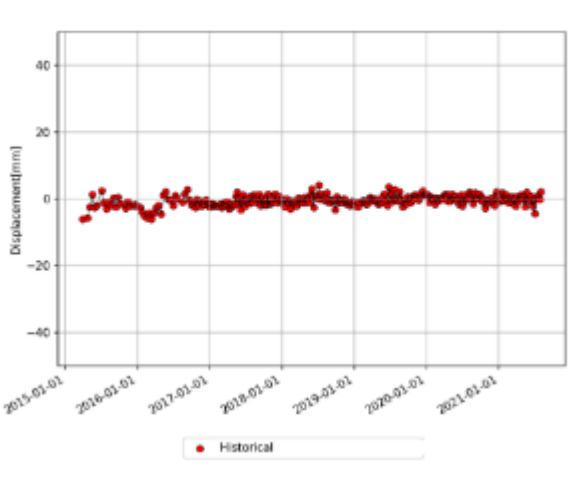
General Information

	TerraSAR-X	*Sentinel-1*
Approximate extension	*0.01 km²*	
Coordinates of the centroid of the bridge	*4°25′50.40″E, 50°54′23.34″N*	
Orbital geometry by which the maximum displacement is recorded	-	*Ascending*
Mean velocity measured	*1.82 mm/yr*	*0.3 mm/yr*
InSAR MPs coverage	*High*	*Medium*

Time series of displacement of some key MPs

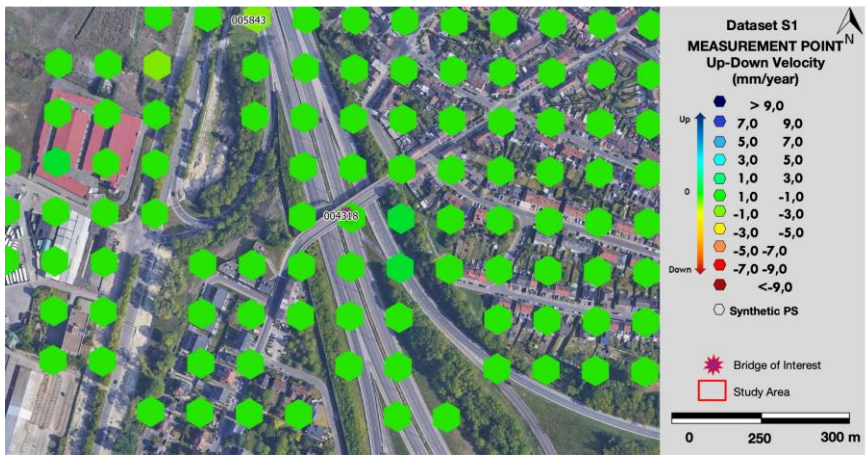




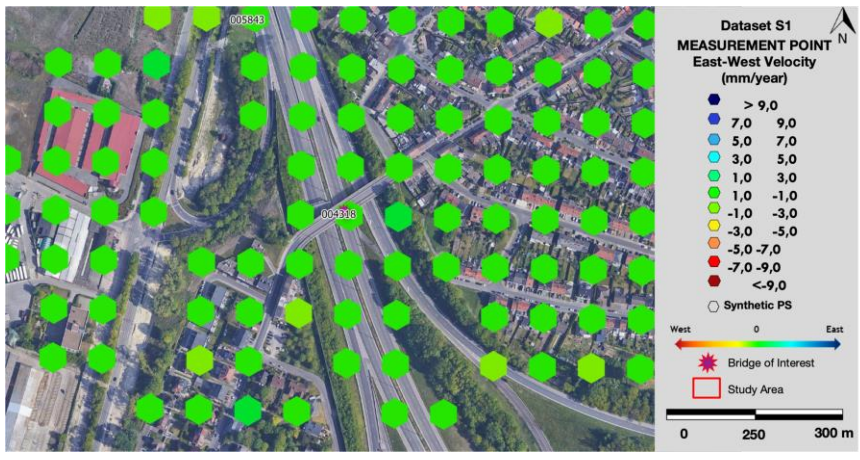


Vectorial decomposition

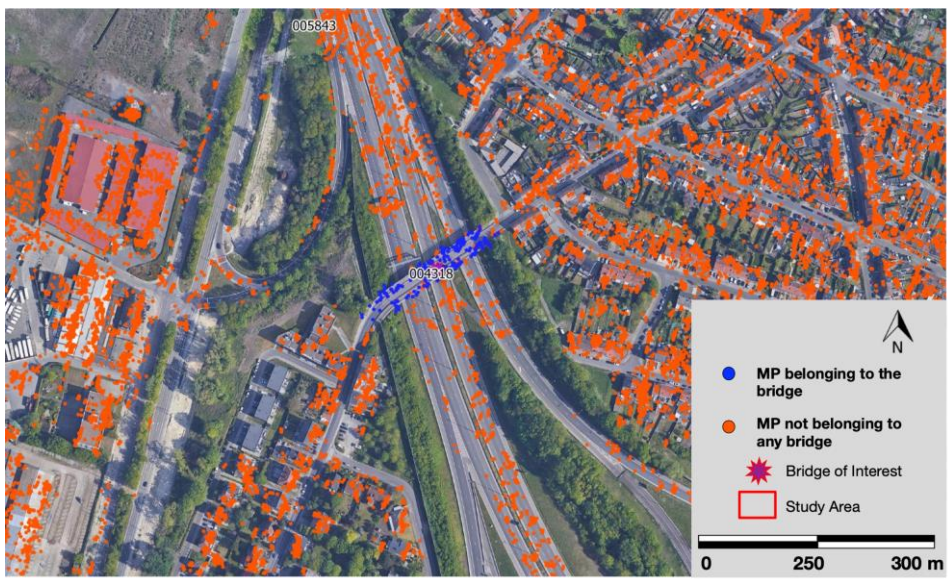
Vertical (Up-Down) – 50m grid size



Horizontal (East-West) – 50m grid size



Surrounding areas
(Point belonging to the bridge; Points not belonging to any bridge; Points with uncertain belonging to a given bridge)



Alerting system

Filtering out of local disruptions + Availability of MP in case of works

Not needed for this bridge

Notes:

The ***Brug R8 P. Schoonstraat Oudstrijdersstraat*** is characterized by a good distribution of MPs moving toward to the sensor. For TerraSAR-X (TSX) dataset the displacement velocity ranges from 1.0 to 3.0 mm/years. The Sentinel-1 (S1) dataset is characterized by an homogenous distribution of stable PS along the bridge with seasonal variation.

Bridge 004323 - Brug R15

TerraSAR-X results (Descending orbital geometry)

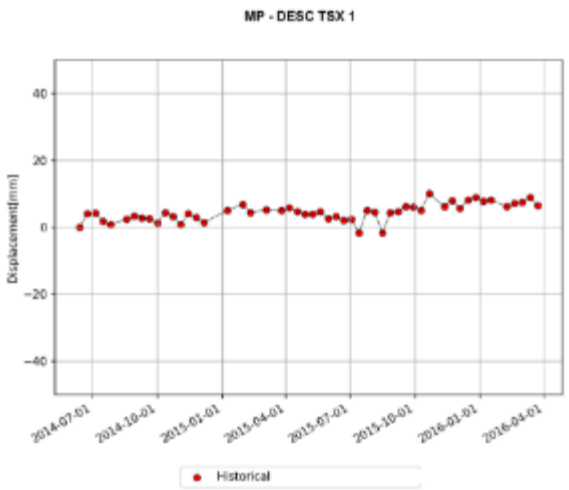
Sentinel-1 results (Ascending and Descending orbital geometry)

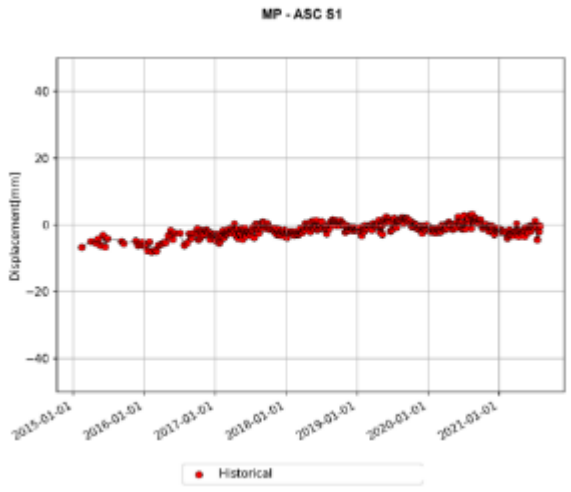
3d view of the scenario (TerraSAR-X)

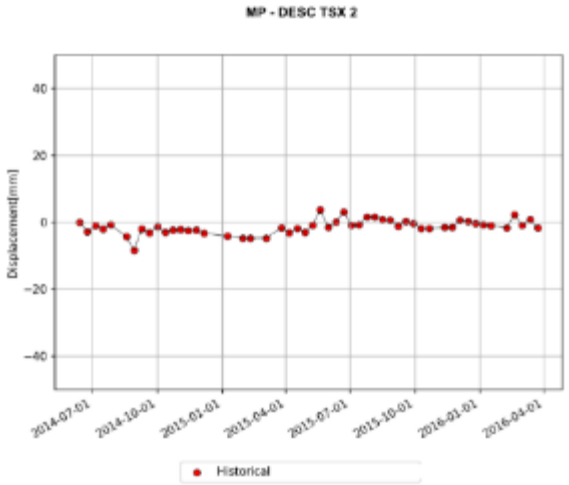
General Information

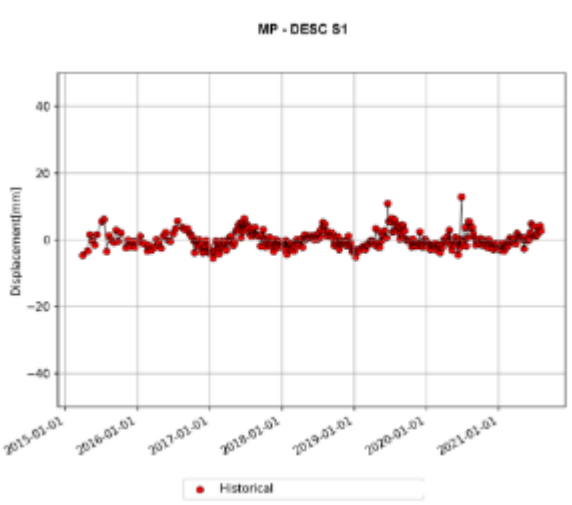
	TerraSAR-X	*Sentinel-1*
Approximate extension	*0.02 km²*	
Coordinates of the centroid of the bridge	*4°26'18.85"E, 50°53'59.62"N*	
Orbital geometry by which the maximum displacement is recorded	-	*Descending*
Mean velocity measured	*1.41 mm/yr*	*0.13 mm/yr*
InSAR MPs coverage	*High*	*Medium*

Time series of displacement of some key MPs



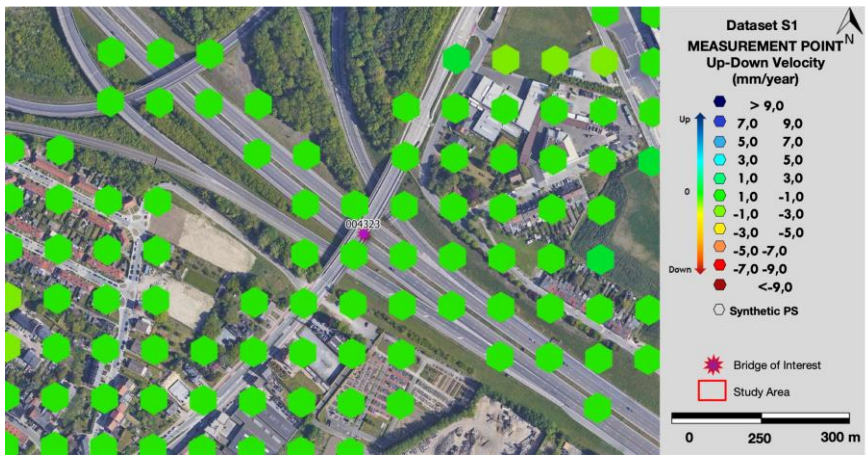




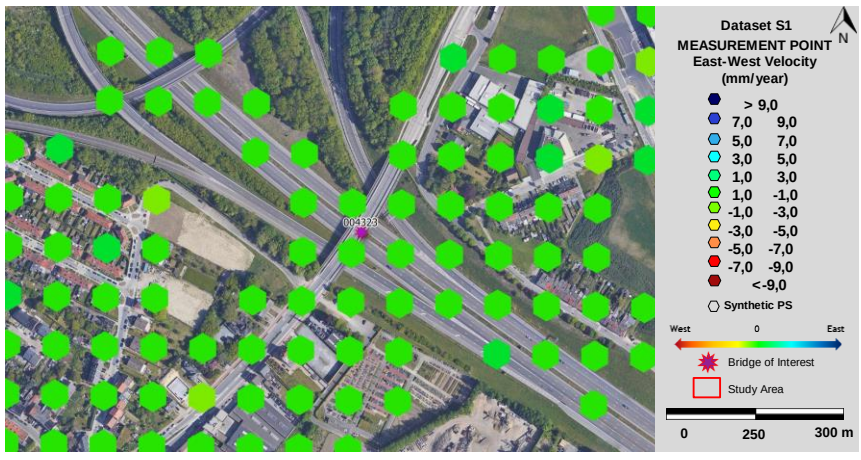


Vectorial decomposition

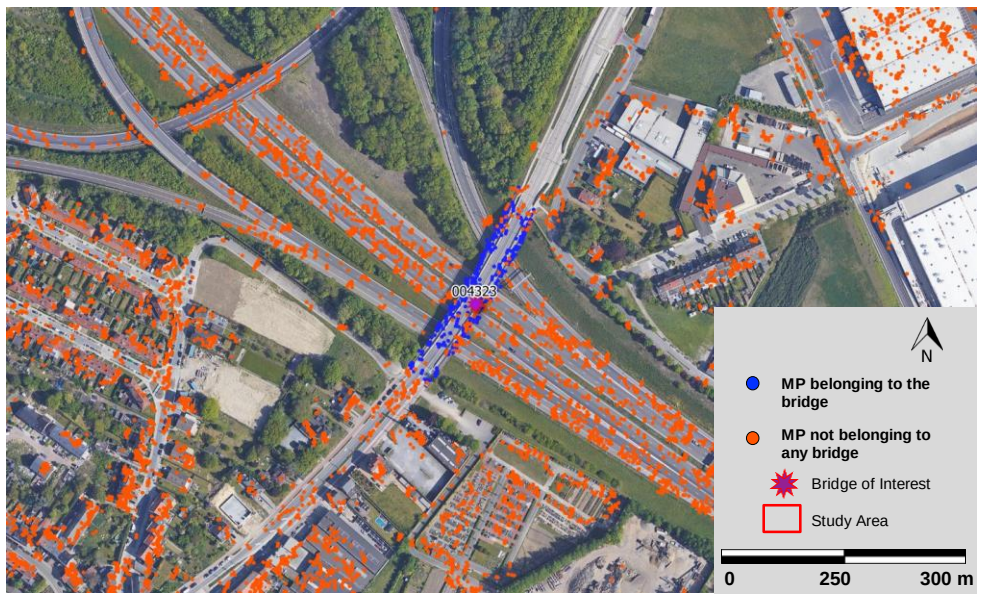
Vertical (Up-Down) – 50m grid size



Horizontal (East-West) – 50m grid size



Surrounding areas
(Point belonging to the bridge; Points not belonging to any bridge; Points with uncertain belonging to a given bridge)



Alerting system

Filtering out of local disruptions + Availability of MP in case of works

Not needed for this bridge

Notes:

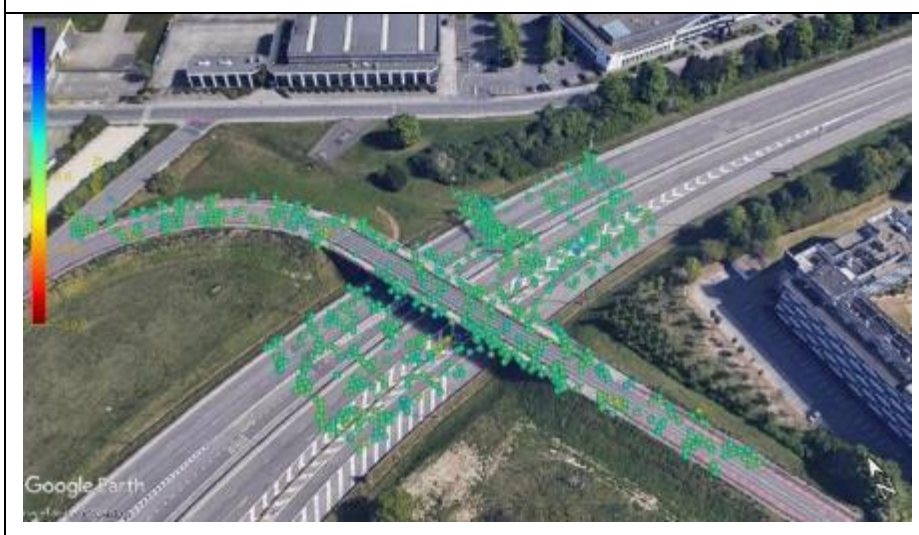
The ***Brug R15*** is characterized by MP moving toward to the sensor with an appreciable seasonal variation. For TerraSAR-X (TSX) dataset, the displacement velocity ranges from 1.0 to 3.0 mm/years, whereas Sentinel-1 (S1) dataset shows a considerable number of stable measurement point, with a low displacement toward to the sensor. Both constellations show a high thermal variation.
The vectorial decomposition, obtained from the Sentinel-1 dataset, defines stable synthetic points even in the horizontal even in the vertical directions.

Bridge 004332 - Brug D5 Steenweg op Zaventem

TerraSAR-X results (Descending orbital geometry)

Sentinel-1 results (Ascending and Descending orbital geometry)

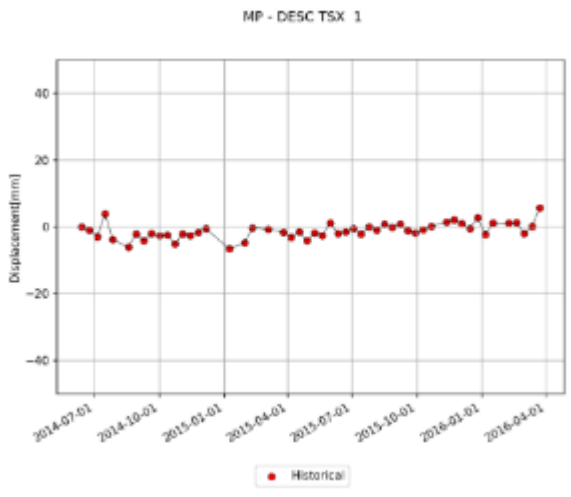
3d view of the scenario (TerraSAR-X)

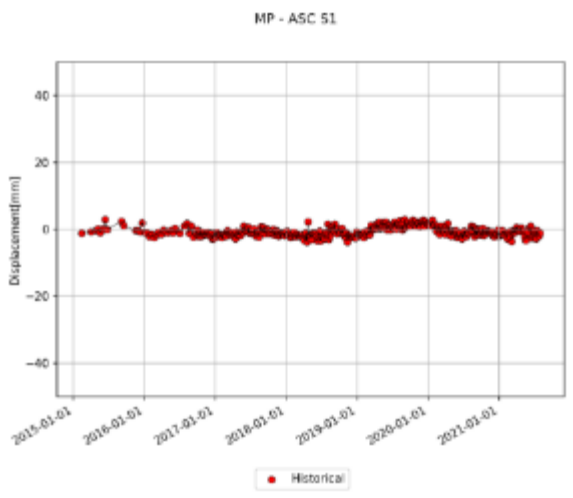


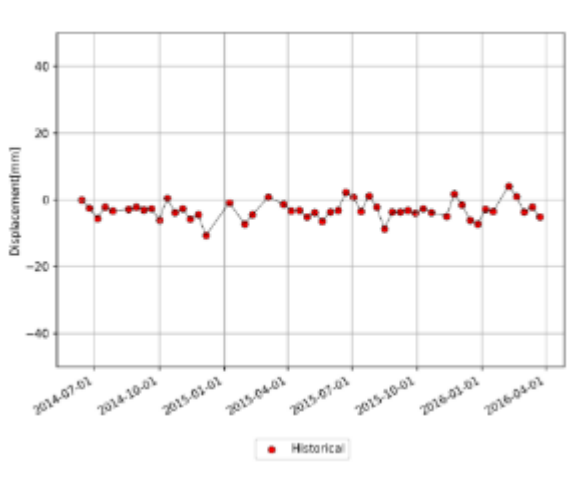
General Information

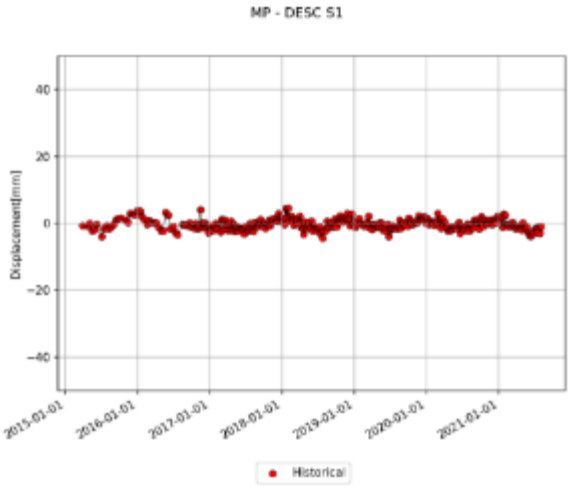
	TerraSAR-X	*Sentinel-1*
Approximate extension	*0.01 km²*	
Coordinates of the centroid of the bridge	*4°27'36.22"E, 50°53'39.13"N*	
Orbital geometry by which the maximum displacement is recorded	-	*Ascending*
Mean velocity measured	*1.25 mm/yr*	*0.01 mm/yr*
InSAR MPs coverage	*High*	*Medium*

Time series of displacement of some key MPs







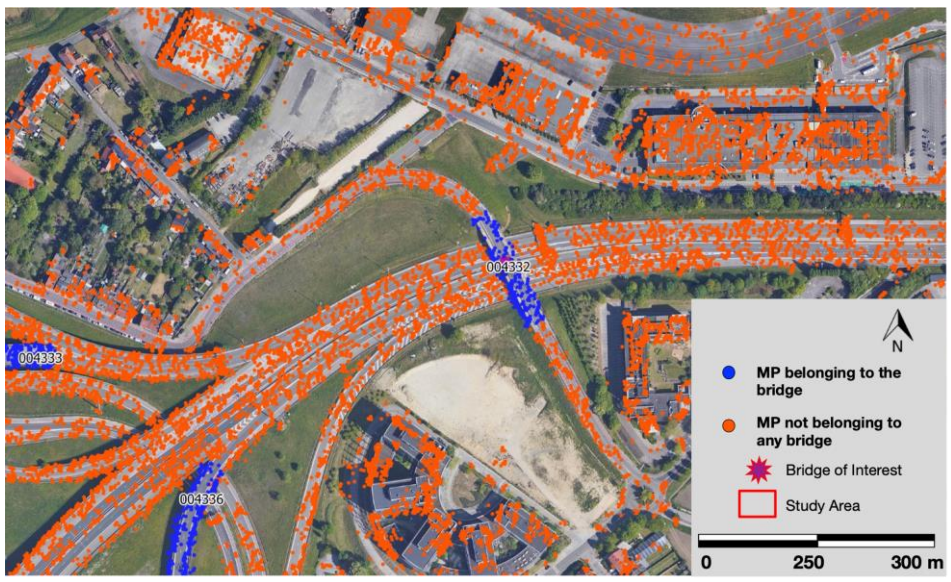


Vectorial decomposition

Vertical (Up-Down) – 50m grid size

Horizontal (East-West) – 50m grid size

Surrounding areas
(Point belonging to the bridge; Points not belonging to any bridge; Points with uncertain belonging to a given bridge)



Alerting system

Filtering out of local disruptions + Availability of MP in case of works

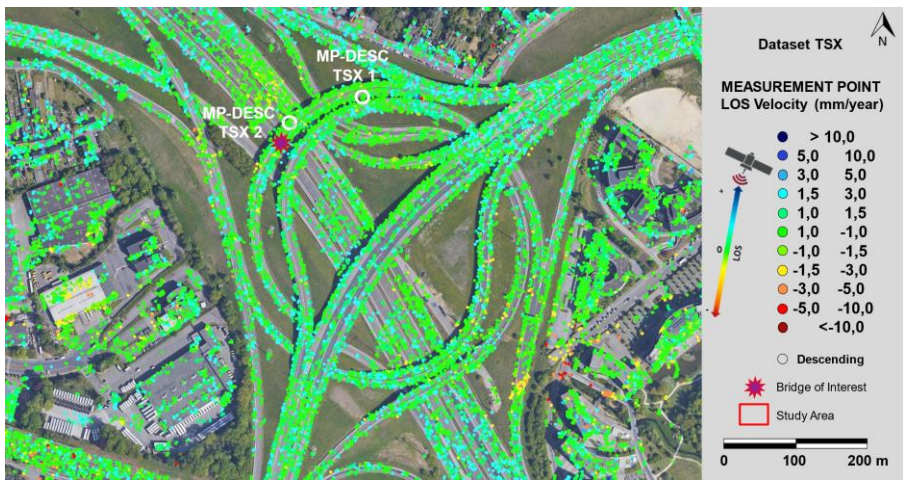
Not needed for this bridge

Notes:

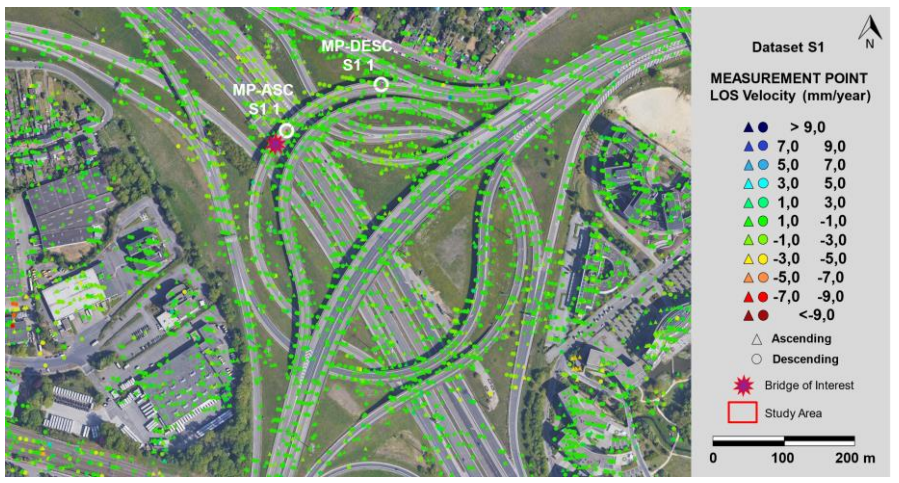
The ***Brug D5 Steenweg op Zaventem*** is characterized by good grade of coverage for both the dataset. Specifically, the MPs of TSX are characterized by a movement toward to the sensor and a displacement velocity ranges from 1.0 to 3.0 mm/years. For the Sentinel-1 (S1) dataset, the MPs along the central part of the bridge are stable with appreciable seasonal variation.

Bridge 004333 – Brug R18

TerraSAR-X results (Descending orbital geometry)



Sentinel-1 results (Ascending and Descending orbital geometry)

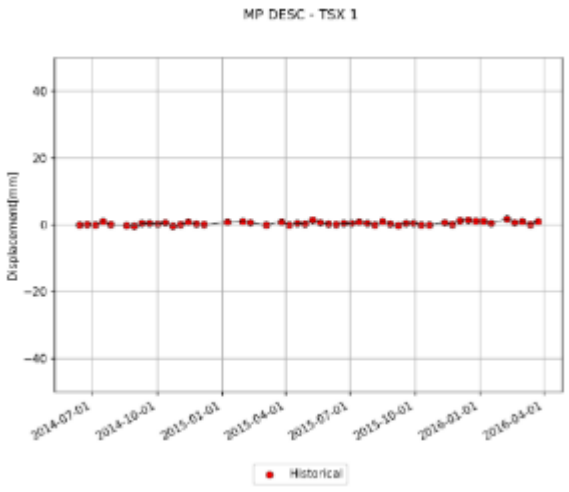


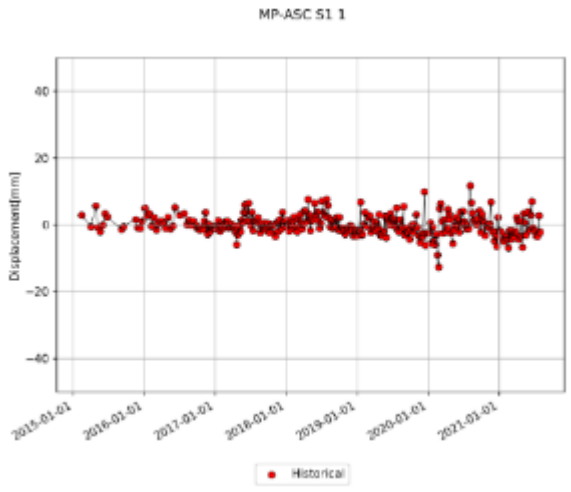
3d view of the scenario (TerraSAR-X)

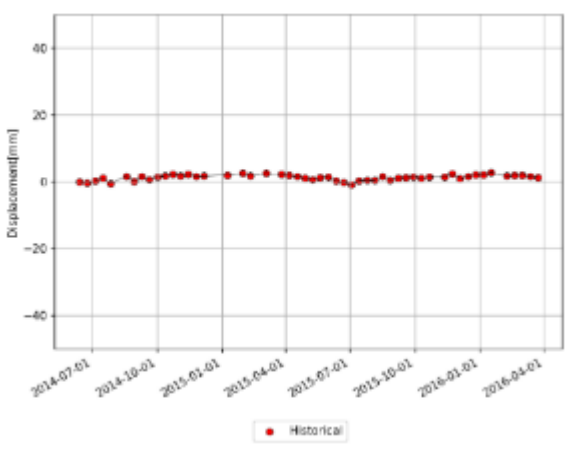
General Information

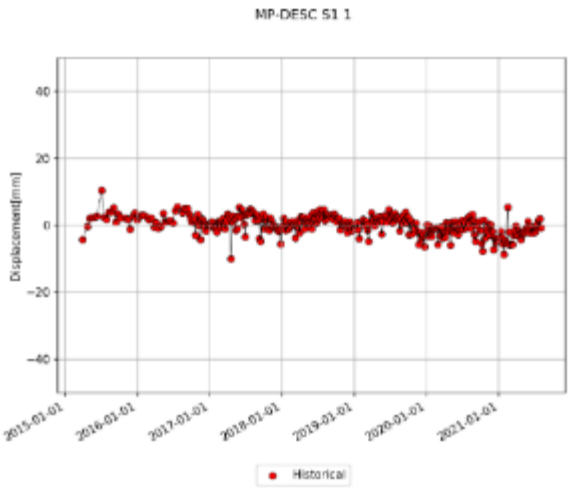
	TerraSAR-X	*Sentinel-1*
Approximate extension	*0.01 km²*	
Coordinates of the centroid of the bridge	*4°27'10.95"E, 50°53'35.43"N*	
Orbital geometry by which the maximum displacement is recorded	-	-
Mean velocity measured	*0.7 mm/yr*	*0.33 mm/yr*
InSAR MPs coverage	*High*	*Medium*

Time series of displacement of some key MPs



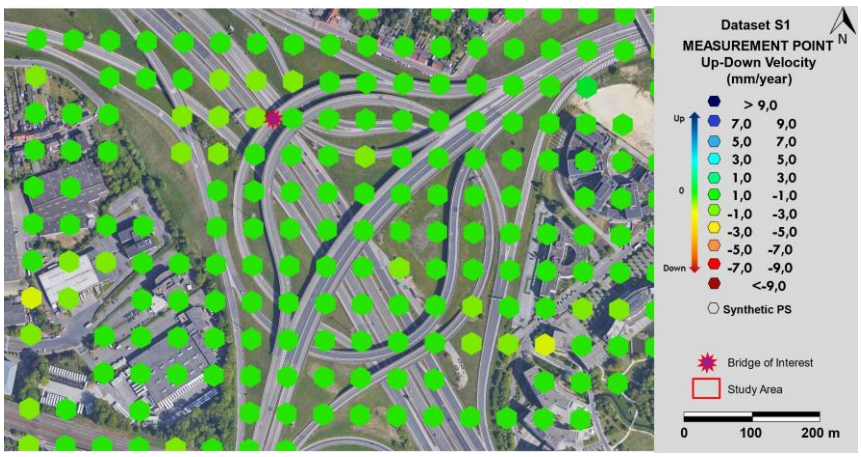




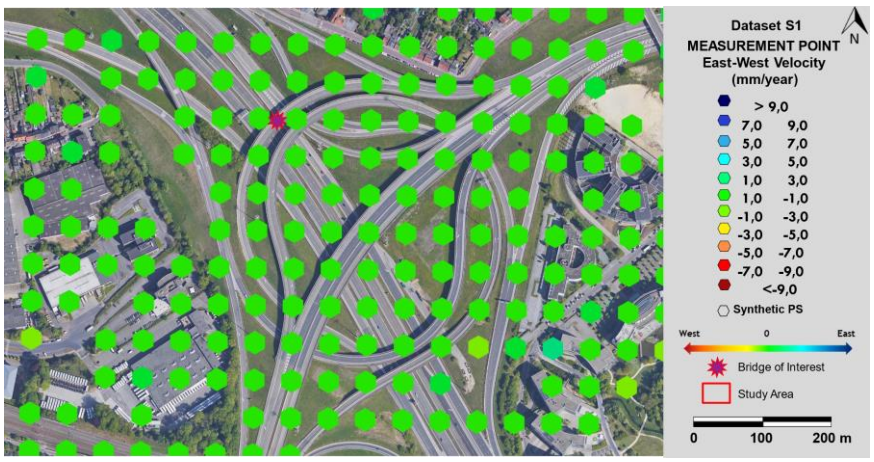


Vectorial decomposition

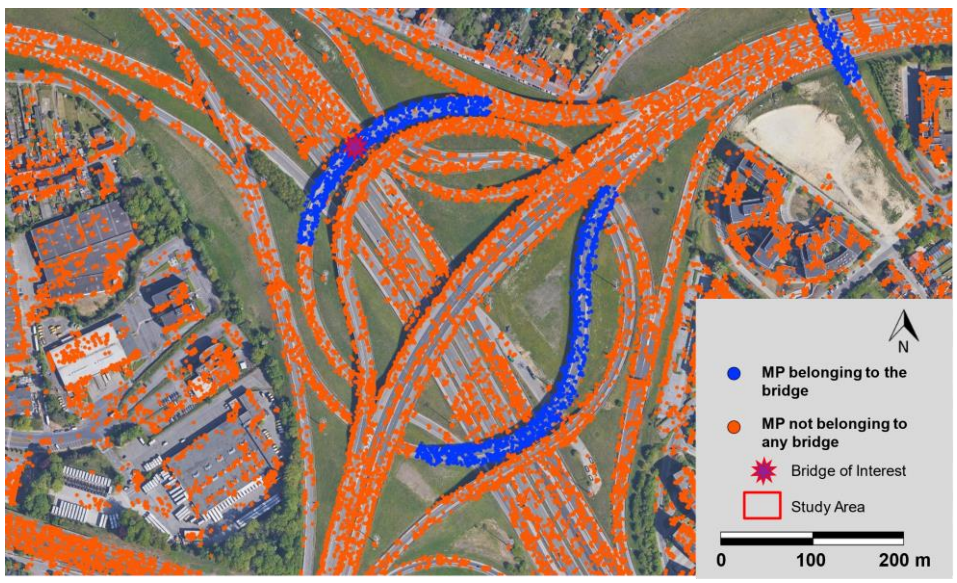
Vertical (Up-Down) – 50m grid size



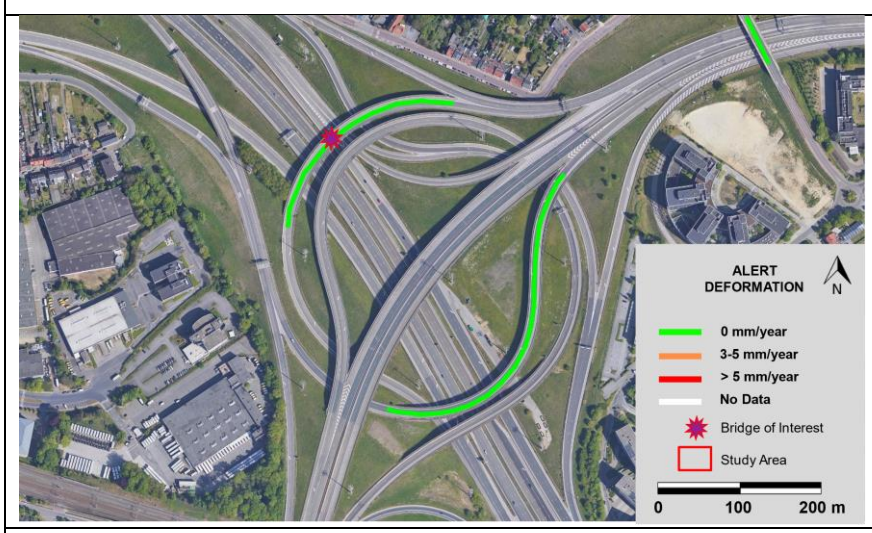
Horizontal (East-West) – 50m grid size



Surrounding areas
(Point belonging to the bridge; Points not belonging to any bridge; Points with uncertain belonging to a given bridge)



Alerting system



Filtering out of local disruptions + Availability of MP in case of works

Not needed for this bridge

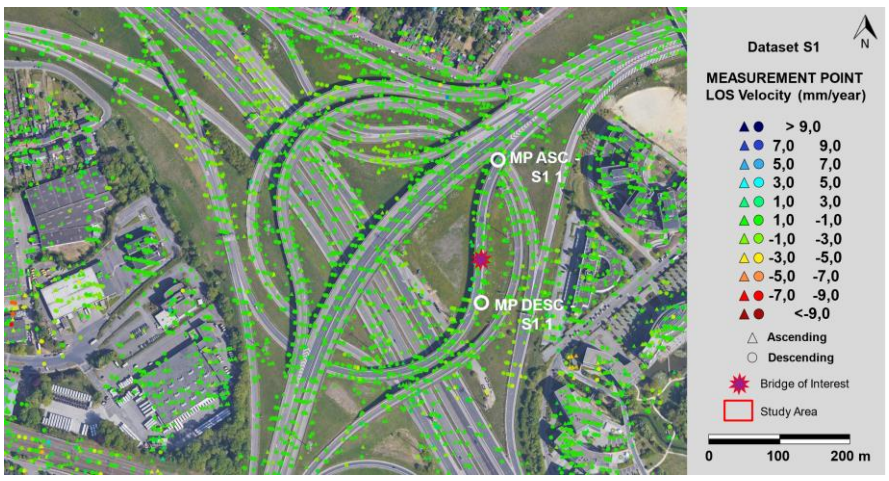
Notes:

The B*rug R18* is characterized by a good distribution of substantially stable MPs. For the TerraSAR-X (TSX) dataset the displacement velocity is generally null, with few MPs whose velocity doesn't exceed 2.99 mm/yr, with light seasonal variations. The Sentinel-1 (S1) datasets don't suggest clear long-period deformations, as very few MPs show deformation, which is always less than 2.0 mm/yr; anyway, clear seasonal deformations are visible.

Bridge 004336 – Brug R21

TerraSAR-X results (Descending orbital geometry)

Sentinel-1 results (Ascending and Descending orbital geometry)

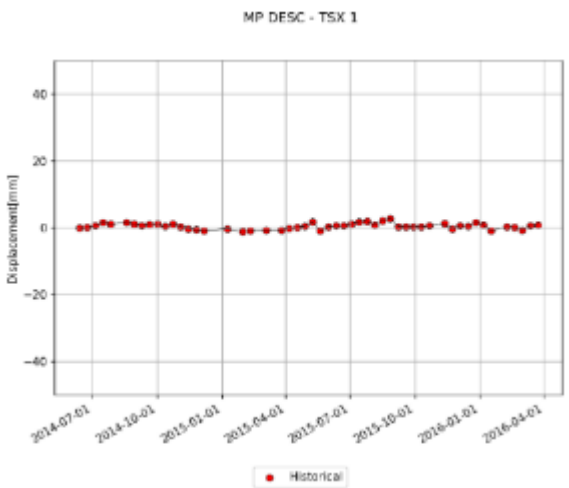


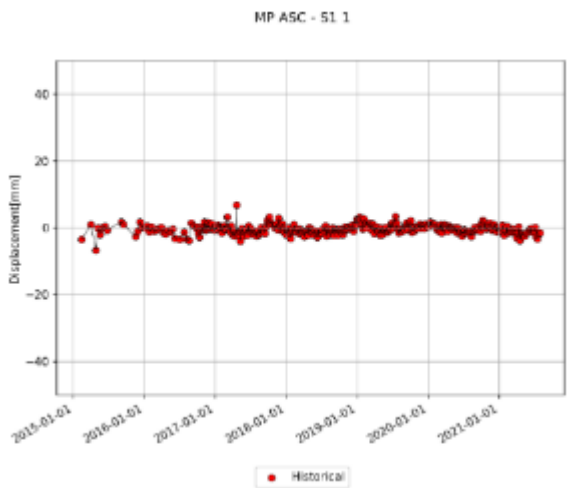
3d view of the scenario (TerraSAR-X)

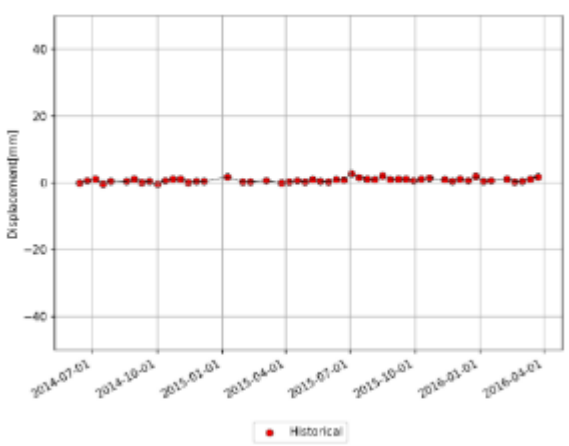
General Information

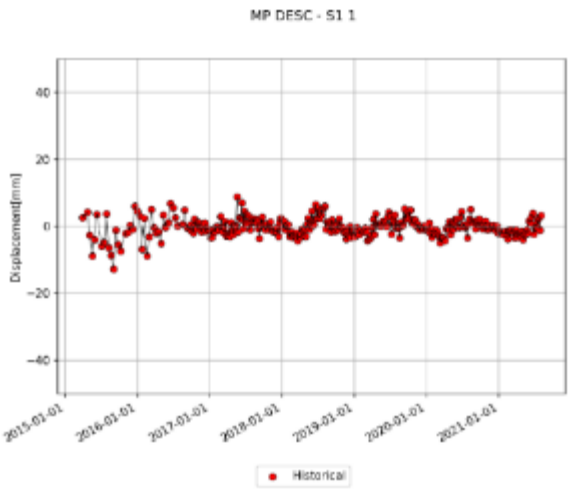
	TerraSAR-X	*Sentinel-1*
Approximate extension	*0.01 km²*	
Coordinates of the centroid of the bridge	*4°27′22.52″E, 50°53′28.76″N*	
Orbital geometry by which the maximum displacement is recorded	-	*Descending*
Mean velocity measured	*0.7 mm/yr*	*-0.33 mm/yr*
InSAR MPs coverage	*High*	*Medium*

Time series of displacement of some key MPs



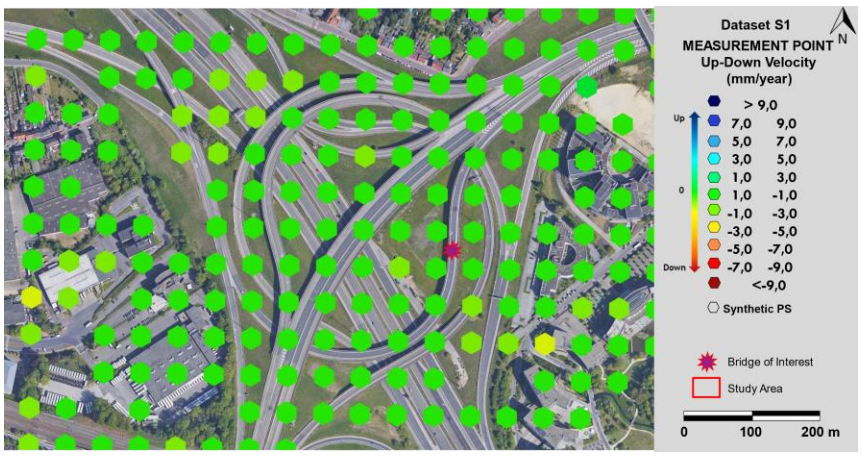




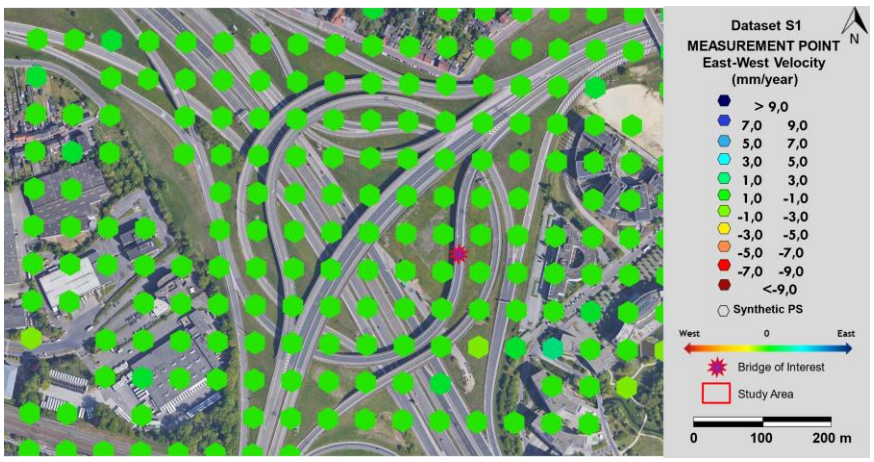


Vectorial decomposition

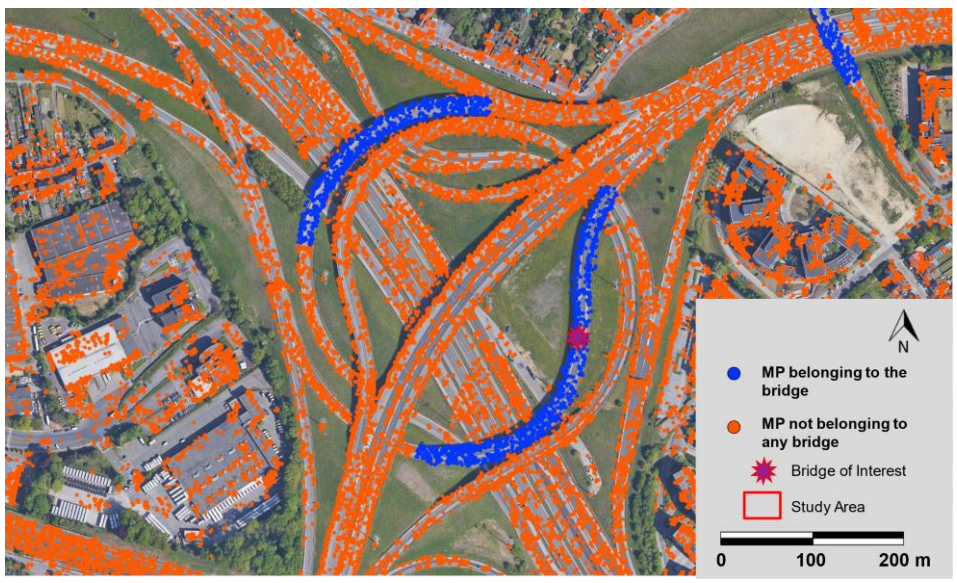
Vertical (Up-Down) – 50m grid size



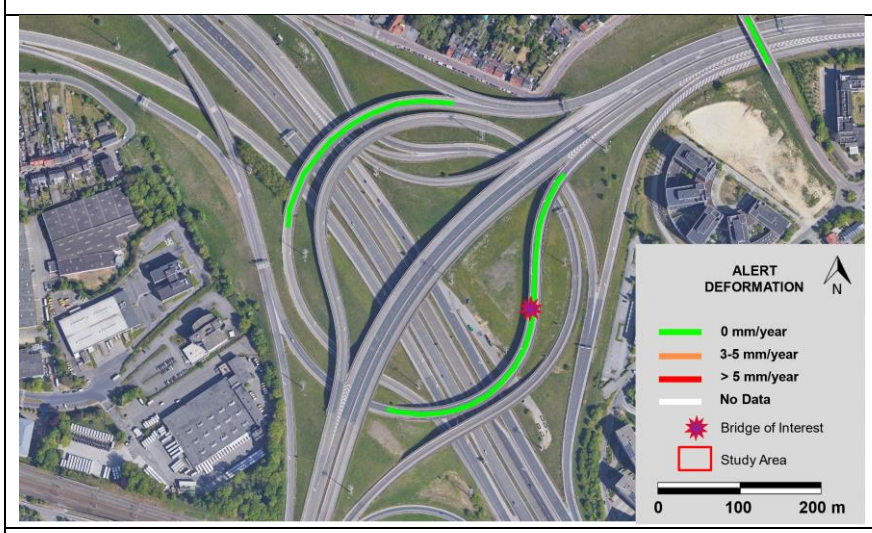
Horizontal (East-West) – 50m grid size



Surrounding areas
(Point belonging to the bridge; Points not belonging to any bridge; Points with uncertain belonging to a given bridge)



Alerting system



Filtering out of local disruptions + Availability of MP in case of works

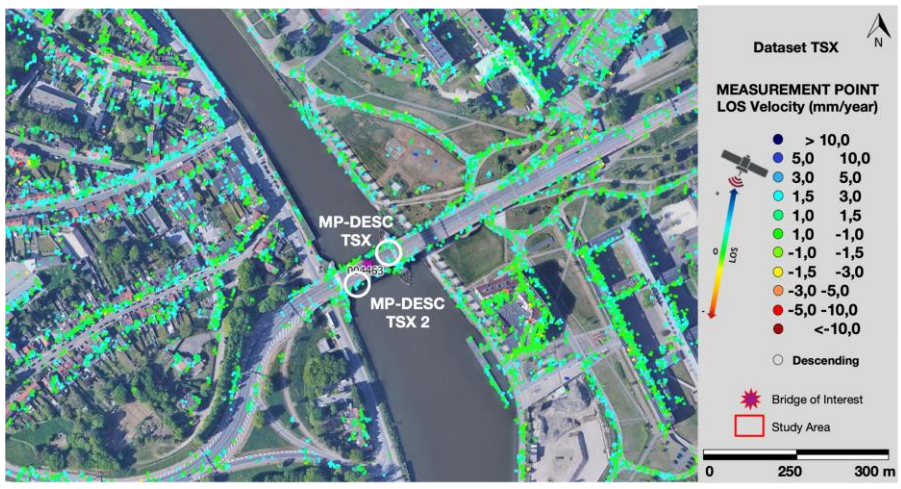
Not needed for this bridge

Notes:

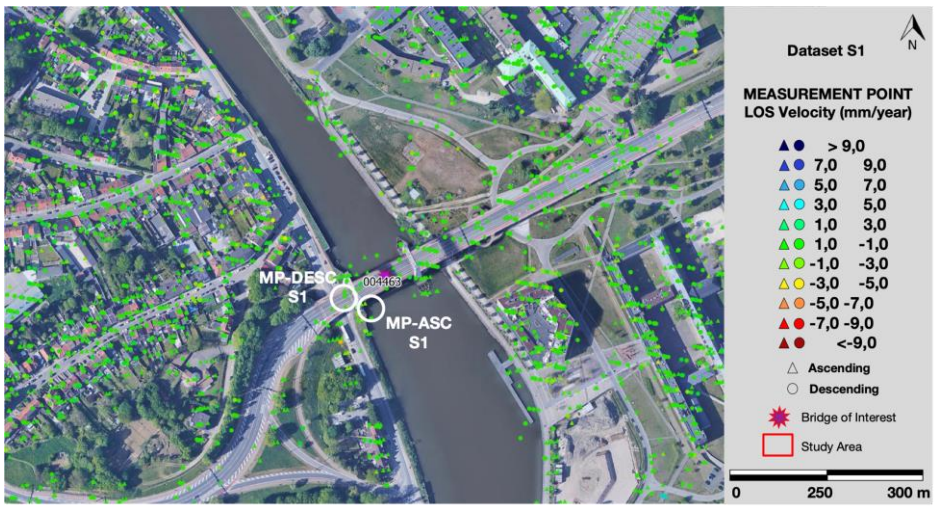
The B***rug R21*** is characterized by a good distribution of substantially stable MPs. For the TerraSAR-X (TSX) dataset the displacement velocity is generally null, with few MPs whose velocity doesn't exceed 2.99 mm/yr, with light seasonal variations. The Sentinel-1 (S1) datasets don't suggest clear long-period deformations, as very few MPs show deformation, which is always less than 2.0 mm/yr; anyway, clear seasonal deformations are visible.

Bridge 004363 - Hefbrug Vilvoordebrug Vuurkruisenlaan-Rubensstraat Europabrug

TerraSAR-X results (Descending orbital geometry)



Sentinel-1 results (Ascending and Descending orbital geometry)

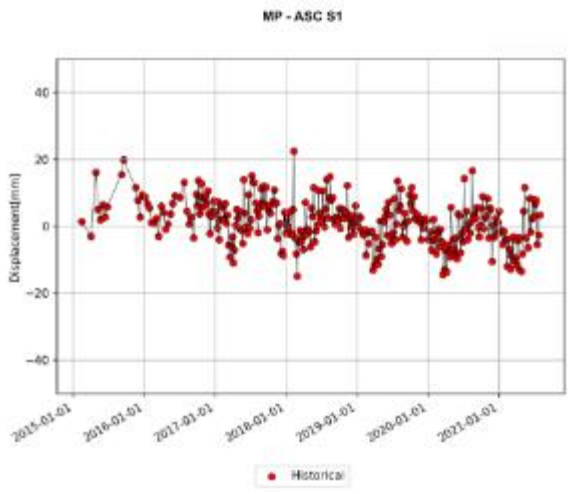


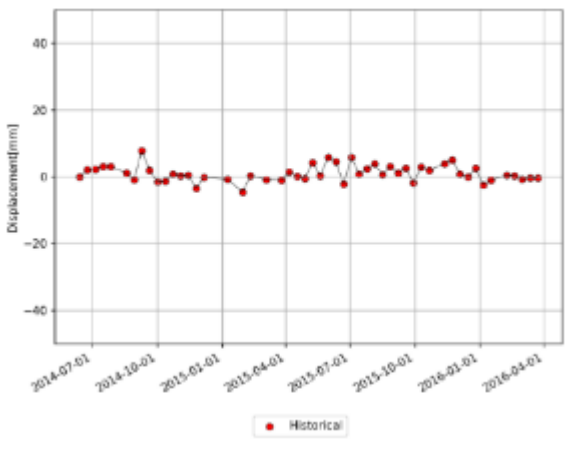
3d view of the scenario (TerraSAR-X)

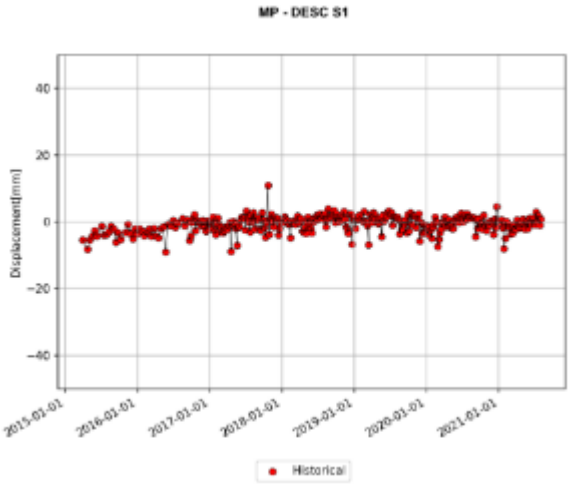
General Information

	TerraSAR-X	*Sentinel-1*
Approximate extension	*0.01 km²*	
Coordinates of the centroid of the bridge	*4°25′4.93″E, 50°55′29.03″N*	
Orbital geometry by which the maximum displacement is recorded	-	*Ascending*
Mean velocity measured	*1.4 mm/yr*	*0.01 mm/yr*
InSAR MPs coverage	*High*	*Medium*

Time series of displacement of some key MPs





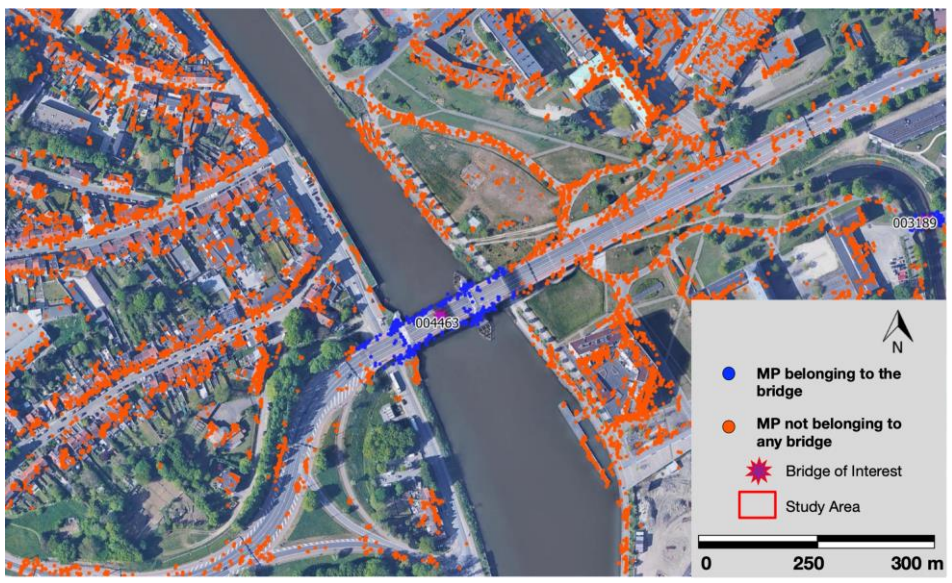


Vectorial decomposition

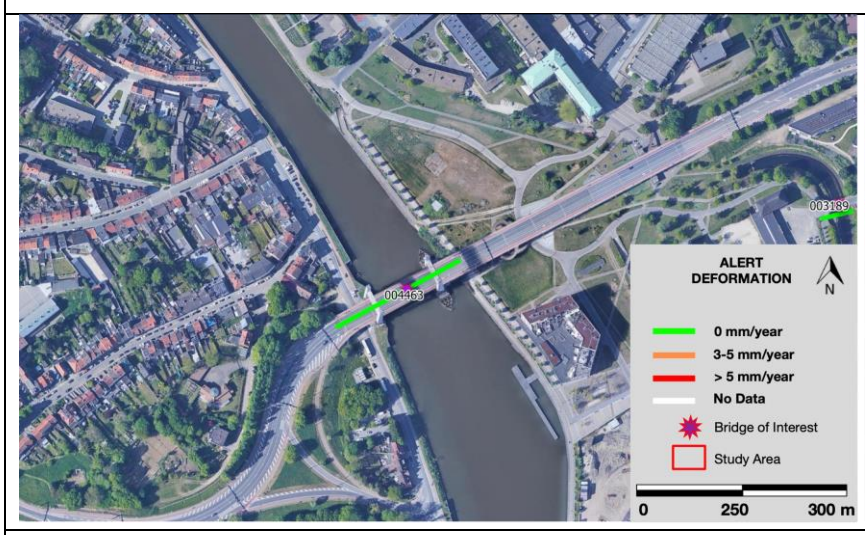
Vertical (Up-Down) – 50m grid size

Horizontal (East-West) – 50m grid size

Surrounding areas
(Point belonging to the bridge; Points not belonging to any bridge; Points with uncertain belonging to a given bridge)



Alerting system



Filtering out of local disruptions + Availability of MP in case of works

Not needed for this bridge

Notes:

The ***Hefbrug Vilvoordebrug Vuurkruisenlaan-Rubensstraat Europabrug*** is characterized by a good distribution and coverage of the MPs for both dataset. Specifically, the TerraSAR-X dataset shows a movement toward to the sensor in the southern and eastern part of the structure with deformation velocity ranges from 1.0 to 3.0 mm/year. The Sentinel-1 dataset (S1) determines the presence of MPs moving away to the sensor for the ascending orbital geometry with a high thermal variation.

Bridge 004904 – Brug in N262 Parklaan over spoorweg

TerraSAR-X results (Descending orbital geometry)

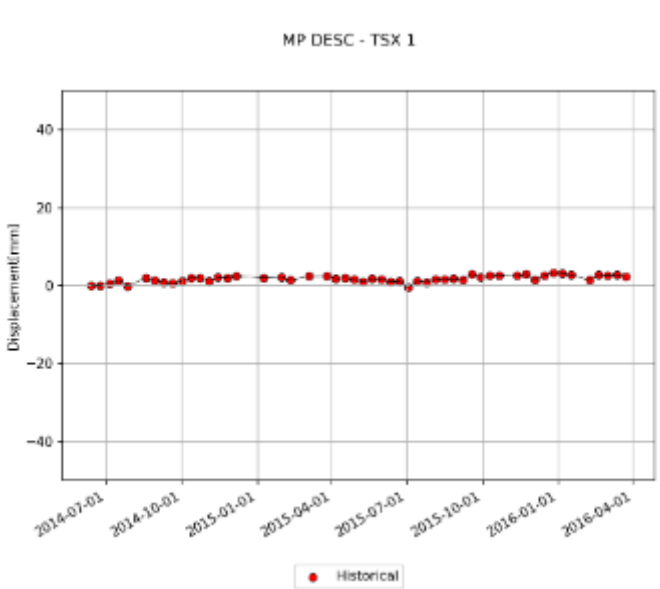
Sentinel-1 results (Ascending and Descending orbital geometry)

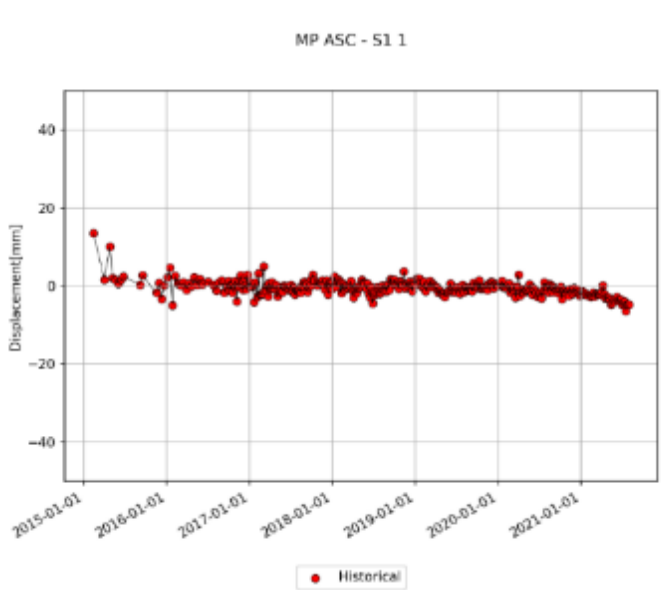
3d view of the scenario (TerraSAR-X)

General Information

	TerraSAR-X	*Sentinel-1*
Approximate extension	*900 m²*	
Coordinates of the centroid of the bridge	*4°28'27.38 "E, 50°53'4.88 "N*	
Orbital geometry by which the maximum displacement is recorded	-	*Ascending*
Mean velocity measured	*0.4 mm/yr*	*0.14 mm/yr*
InSAR MPs coverage	*High*	*Medium*

Time series of displacement of some key MPs





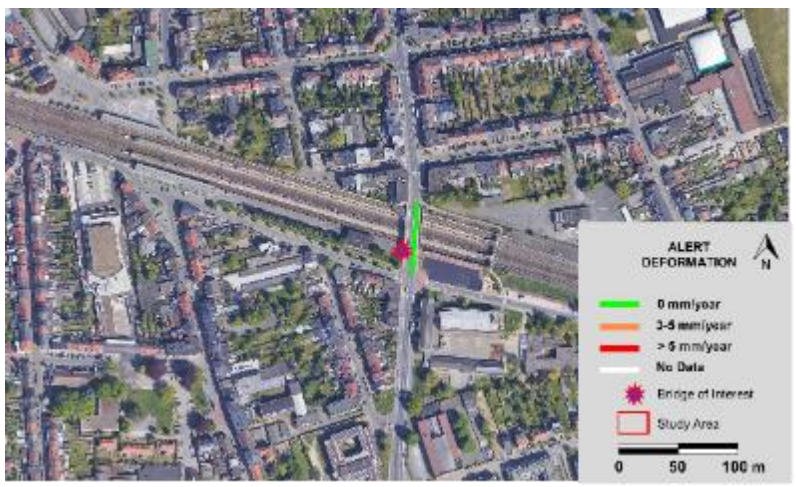
Vectorial decomposition

Vertical (Up-Down) – 50m grid size

Horizontal (East-West) – 50m grid size

Surrounding areas
(Point belonging to the bridge; Points not belonging to any bridge; Points with uncertain belonging to a given bridge)

Alerting system



Filtering out of local disruptions + Availability of MP in case of works

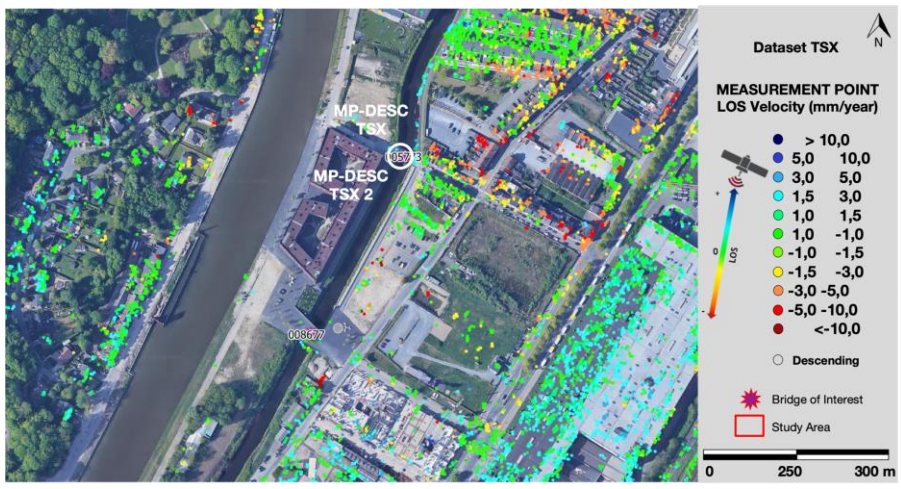
Not needed for this bridge

Notes:

The ***Brug in N262 Parklaan over spoorweg*** is characterized by a good distribution of MPs showing no long-term deformational trends with TerraSAR-X (TSX) dataset and in the Sentinel-1 (S1) datasets.

Bridge 005773 - Sluisstraatbrug

TerraSAR-X results (Descending orbital geometry)



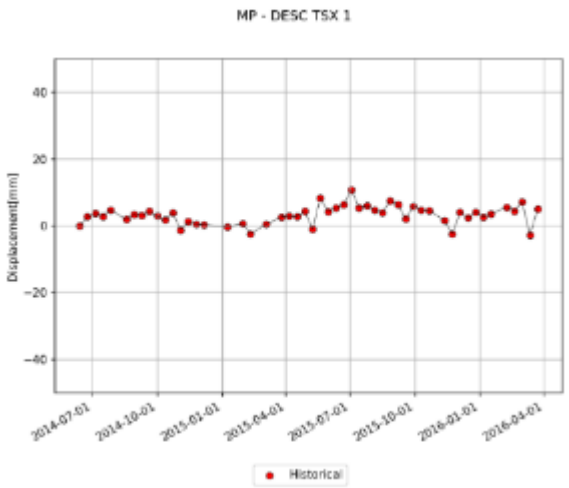
Sentinel-1 results (Ascending and Descending orbital geometry)

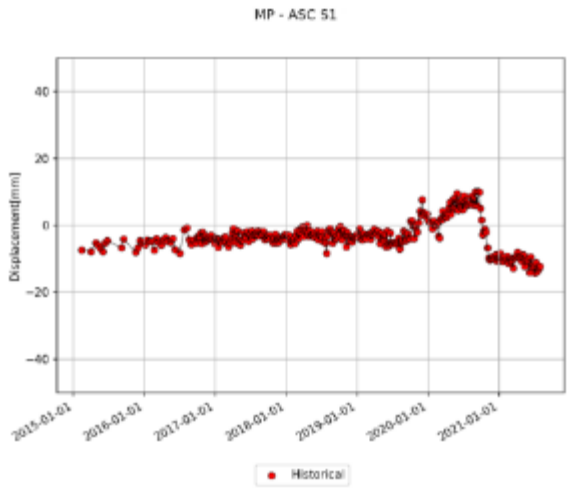
3d view of the scenario (TerraSAR-X)

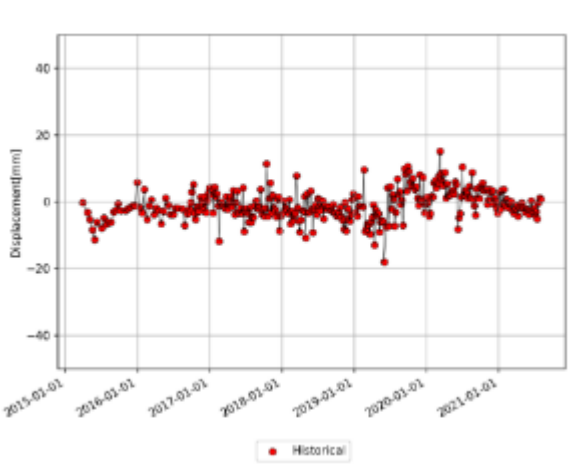
General Information

	TerraSAR-X	*Sentinel-1*
Approximate extension	*0.01 km²*	
Coordinates of the centroid of the bridge	*4°25'13.52"E, 50°55'3.57"N*	
Orbital geometry by which the maximum displacement is recorded	-	*Ascending*
Mean velocity measured	*1.5 mm/yr*	*0.1 mm/yr*
InSAR MPs coverage	*High*	*Medium*

Time series of displacement of some key MPs

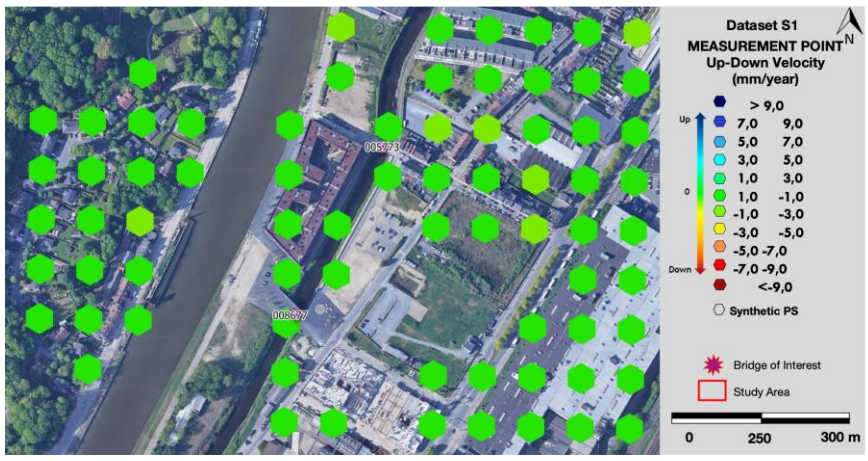




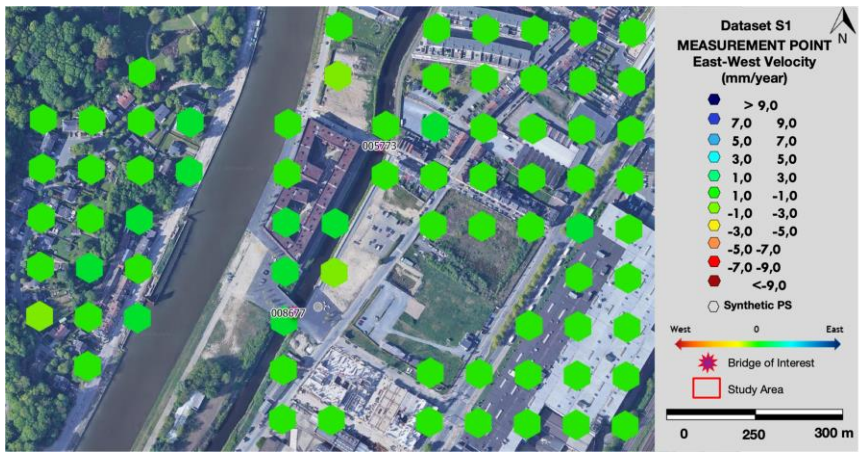


Vectorial decomposition

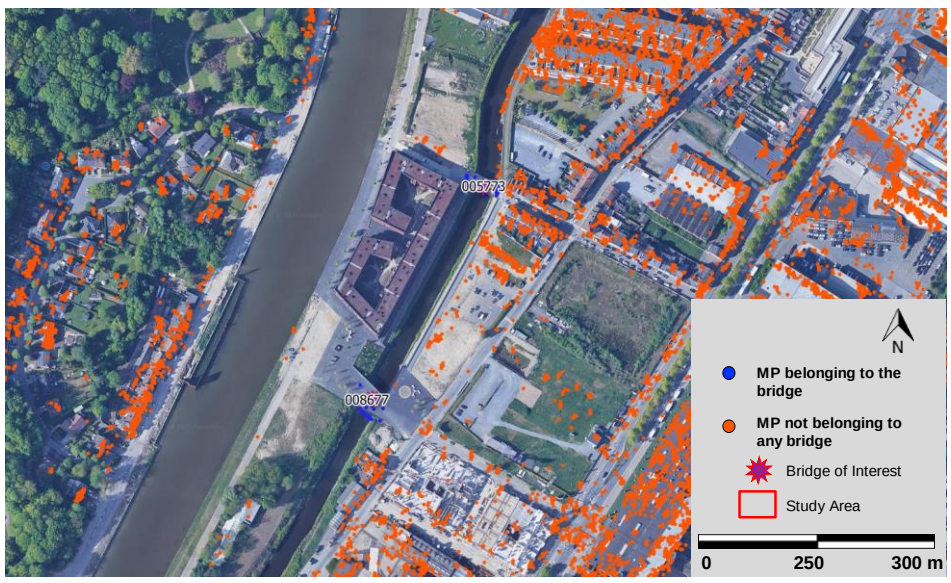
Vertical (Up-Down) – 50m grid size



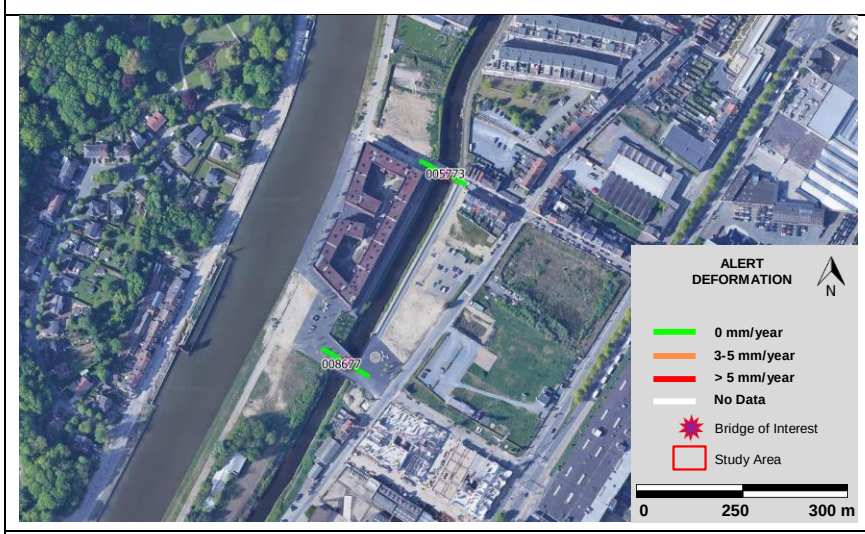
Horizontal (East-West) – 50m grid size



Surrounding areas
(Point belonging to the bridge; Points not belonging to any bridge; Points with uncertain belonging to a given bridge)



Alerting system



Filtering out of local disruptions + Availability of MP in case of works

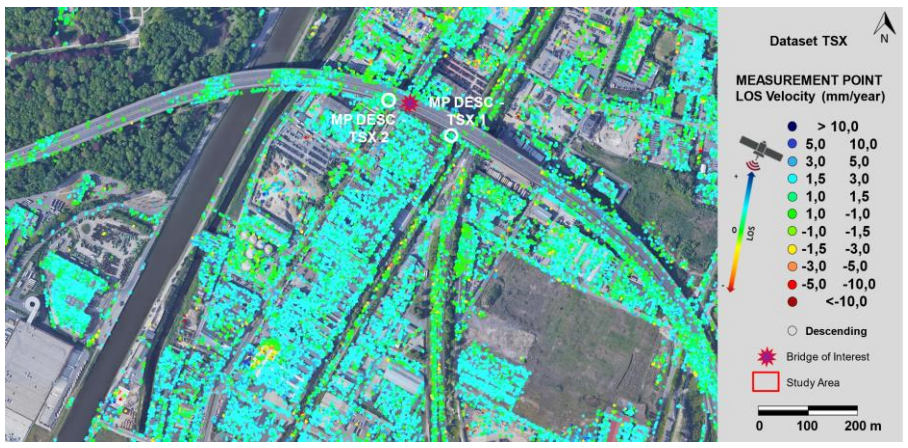
Temporary Scatterers have been detected

Notes:

The ***Sluisstraatbrug*** is characterized by MP moving toward to the sensor with a high grade of coverage for the TerraSAR-X dataset (TSX). Specifically, The MPs of TSX are characterized by a displacement velocity ranges from 1.0 to 3.0 mm/years. Whereas the density and coverage of the Sentinel-1 (S1) dataset is lower than TSX. In particular, the descending orbital geometry lacks information on displacement. Nonetheless, the MPs in ascending orbital geometry cover the bridge identifying a slight movement toward to the sensor.
The vectorial decomposition, obtained from the Sentinel-1 dataset, defines a weak displacements in the westward direction.
Temporary Scatterers have been detected in the surrounding areas but not belonging to the bridge.

Bridge 004317-005843-005844-005845 – Viaduct 47

TerraSAR-X results (Descending orbital geometry)



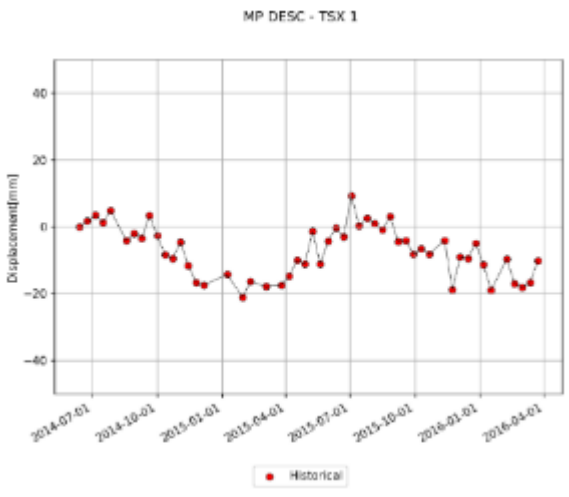
Sentinel-1 results (Ascending and Descending orbital geometry)

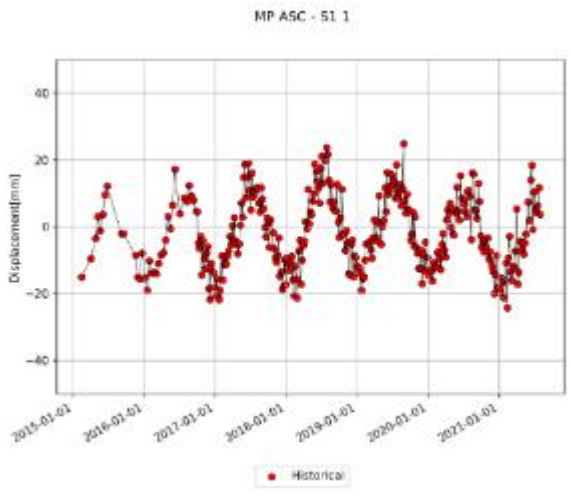
3d view of the scenario (TerraSAR-X)

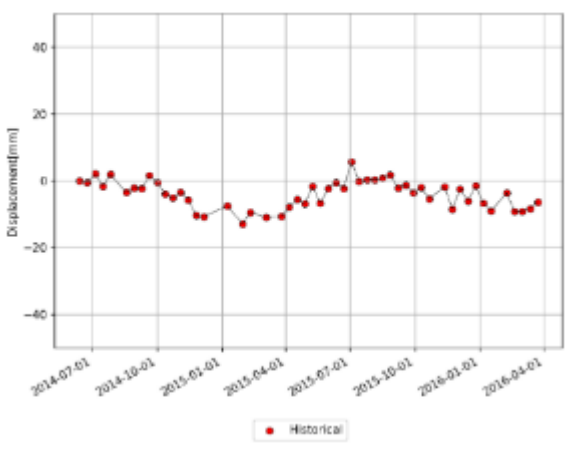
General Information

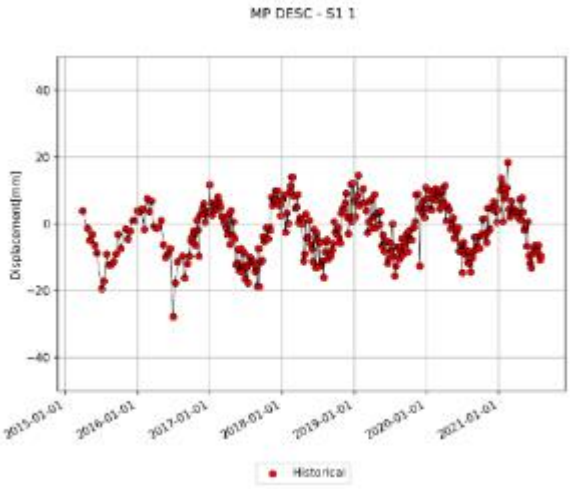
	TerraSAR-X	*Sentinel-1*
Approximate extension	*0.07 km²*	
Coordinates of the centroid of the bridge	*4°25′21.42″E, 50°54′46.35″N*	
Orbital geometry by which the maximum displacement is recorded	-	*Ascending*
Mean velocity measured	*1.50 mm/yr*	*0.2 mm/yr*
InSAR MPs coverage	*High*	*Medium*

Time series of displacement of some key MPs







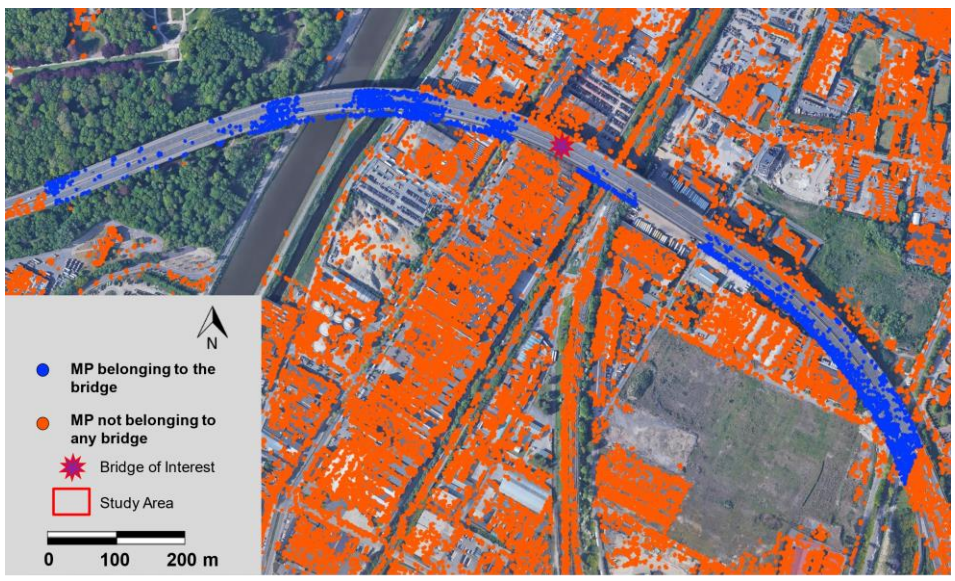


Vectorial decomposition

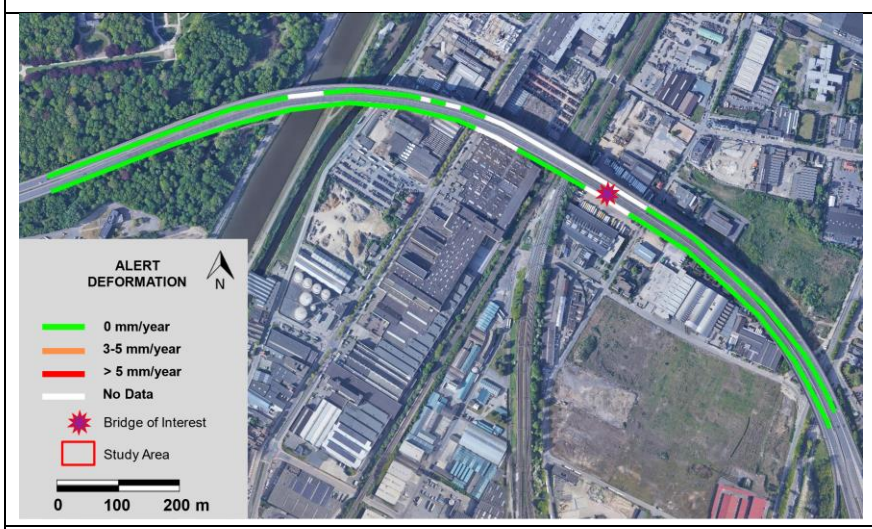
Vertical (Up-Down) – 50m grid size

Horizontal (East-West) – 50m grid size

Surrounding areas
(Point belonging to the bridge; Points not belonging to any bridge; Points with uncertain belonging to a given bridge)



Alerting system



Filtering out of local disruptions + Availability of MP in case of works

Not needed for this bridge

Notes:

The ***Viaduct 47*** is characterized by a good distribution of substantially stable MPs. For both TerraSAR-X (TSX) and Sentinel-1 dataset seasonal deformations with amplitudes of tens of millimeters are visible. Considering the relatively short temporal interval of the time series, clear long-term deformational trends are not present. Either, the Sentinel-1 (S1) datasets don't show clear long-period deformations, while seasonal deformations characterized by amplitudes of tens of millimeters are easily detected.

Bridge 006135 - Verbrande Brug

TerraSAR-X results (Descending orbital geometry)

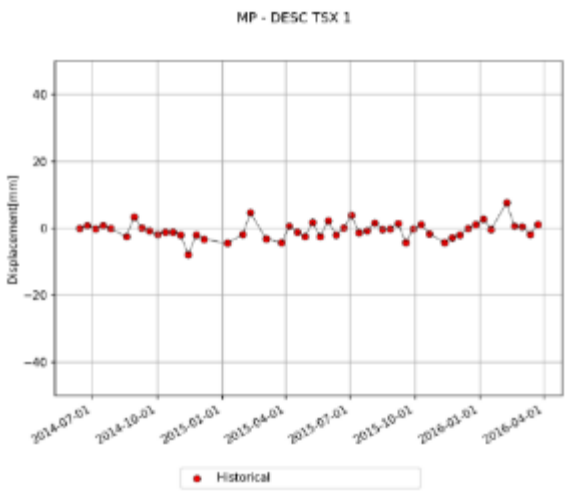
Sentinel-1 results (Ascending and Descending orbital geometry)

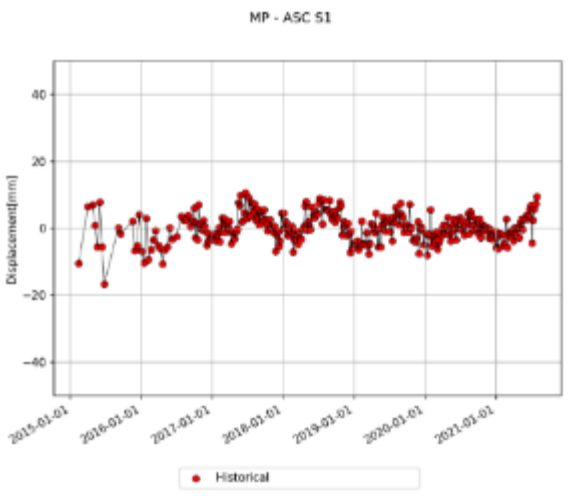
3d view of the scenario (TerraSAR-X)

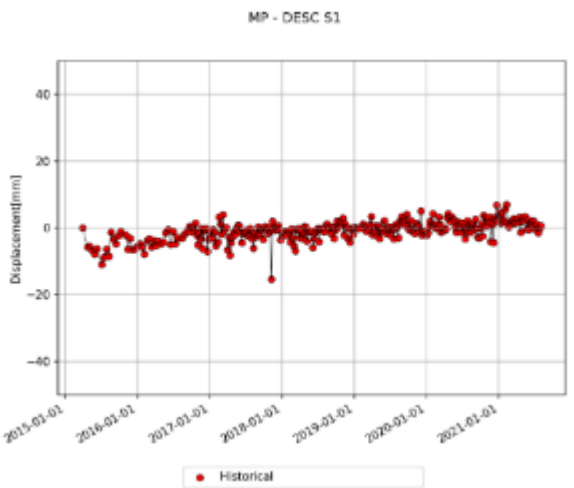
General Information

	TerraSAR-X	*Sentinel-1*
Approximate extension	*0.01 km²*	
Coordinates of the centroid of the bridge	*4°24′47.88″E, 50°56′52.22″N*	
Orbital geometry by which the maximum displacement is recorded	-	*Ascending*
Mean velocity measured	*0.9 mm/yr*	*0.5 mm/yr*
InSAR MPs coverage	*High*	*Low*

Time series of displacement of some key MPs

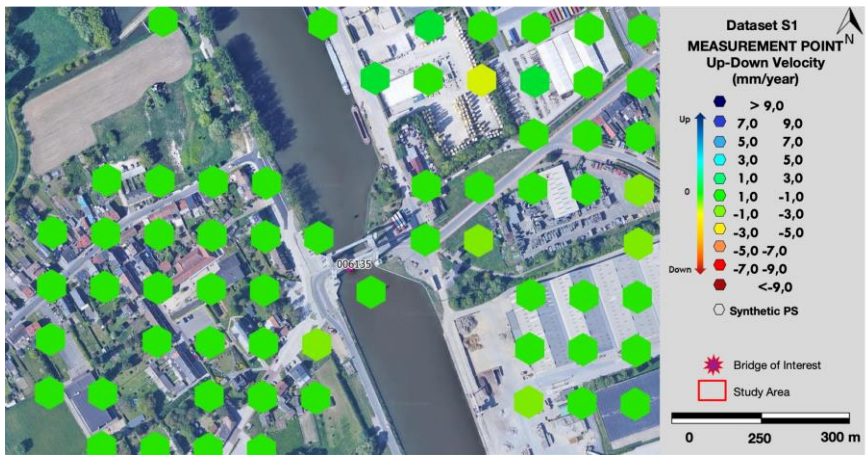




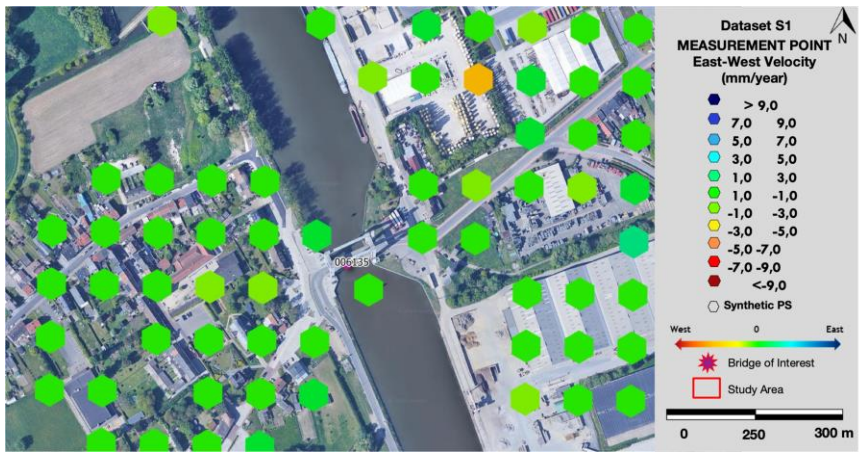


Vectorial decomposition

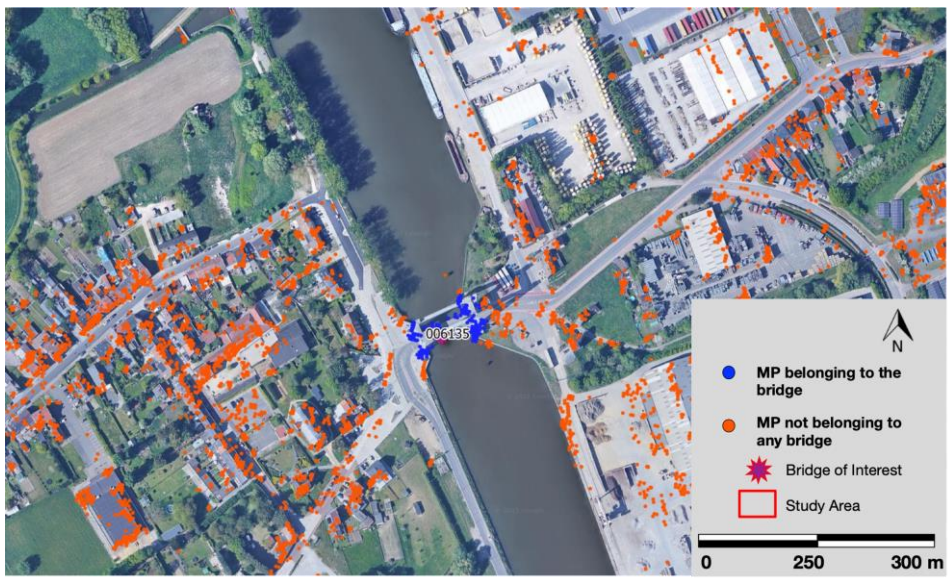
Vertical (Up-Down) – 50m grid size



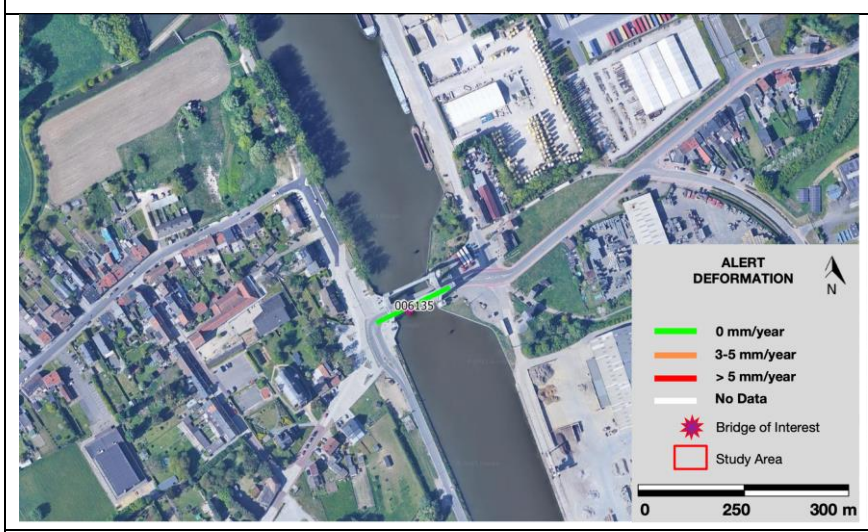
Horizontal (East-West) – 50m grid size



Surrounding areas
(Point belonging to the bridge; Points not belonging to any bridge; Points with uncertain belonging to a given bridge)



Alerting system



Filtering out of local disruptions + Availability of MP in case of works

Not needed for this bridge

Notes:

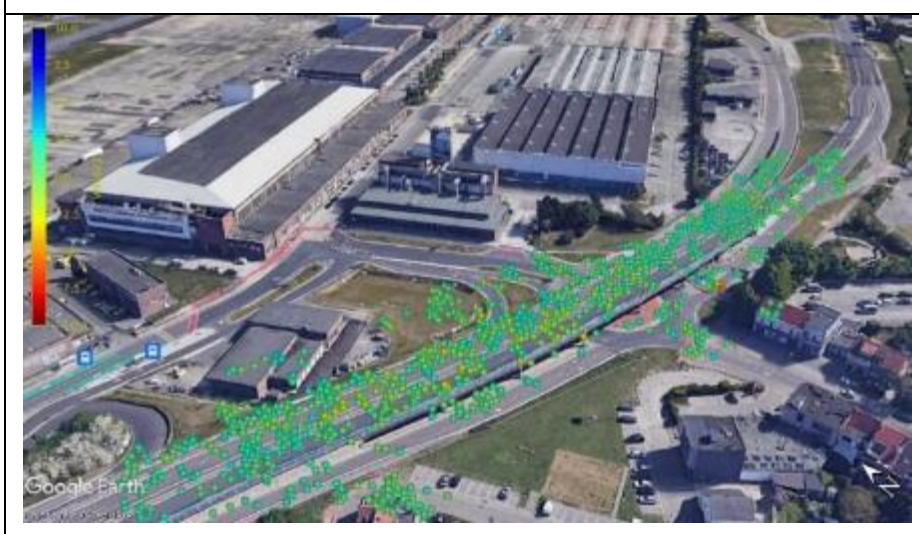
The ***Verbrande Brug*** is characterized by good distribution of stable point with some MP moving toward to the sensor. For TerraSAR-X (TSX) dataset the displacement velocity ranges from 0.5 to 2.5 mm/years, the MPs don't show relevant seasonal variations. Whereas for Sentinel-1 (S1) dataset shows more stable points with a high seasonal variation. The MP coverage of TSX dataset is higher than the MP density of S1 dataset.

Bridge 008042 - Viaduct in A201 over N262

TerraSAR-X results (Descending orbital geometry)

Sentinel-1 results (Ascending and Descending orbital geometry)

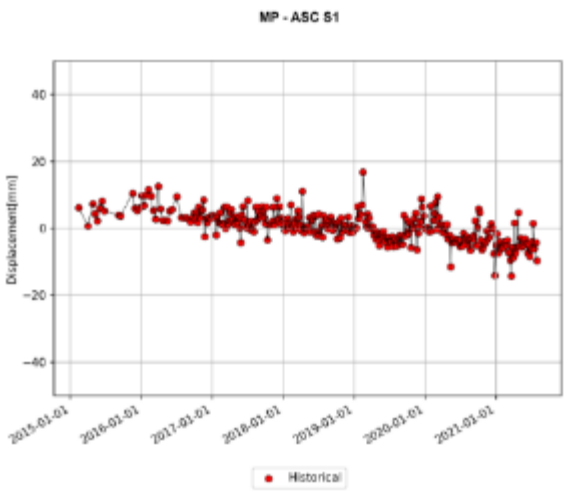
3d view of the scenario (TerraSAR-X)

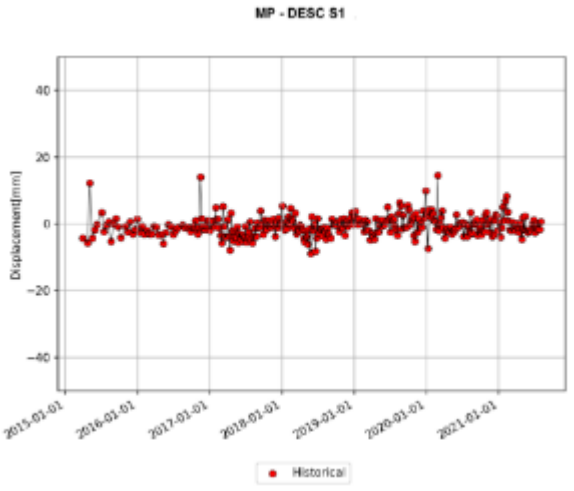


General Information

	TerraSAR-X	*Sentinel-1*
Approximate extension	*0.02 km²*	
Coordinates of the centroid of the bridge	*4°28'17.65"E, 50°53'38.27"N*	
Orbital geometry by which the maximum displacement is recorded	-	*Descending*
Mean velocity measured	*0.8 mm/yr*	*-0.3 mm/yr*
InSAR MPs coverage	*High*	*Medium*

Time series of displacement of some key MPs

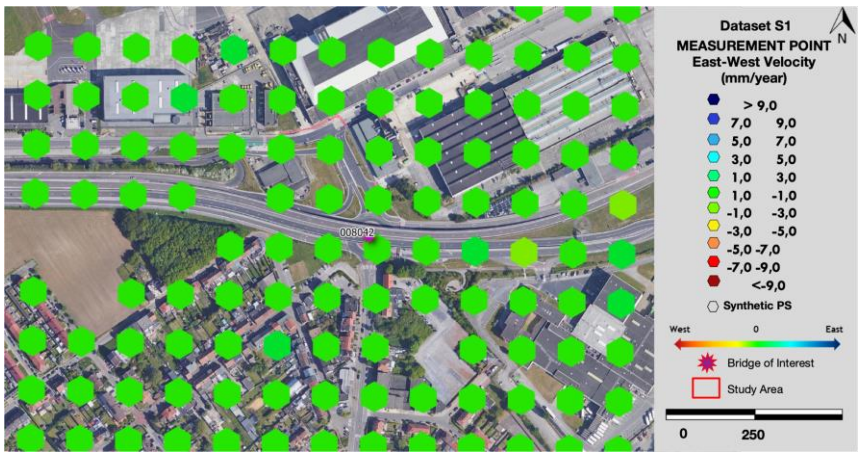




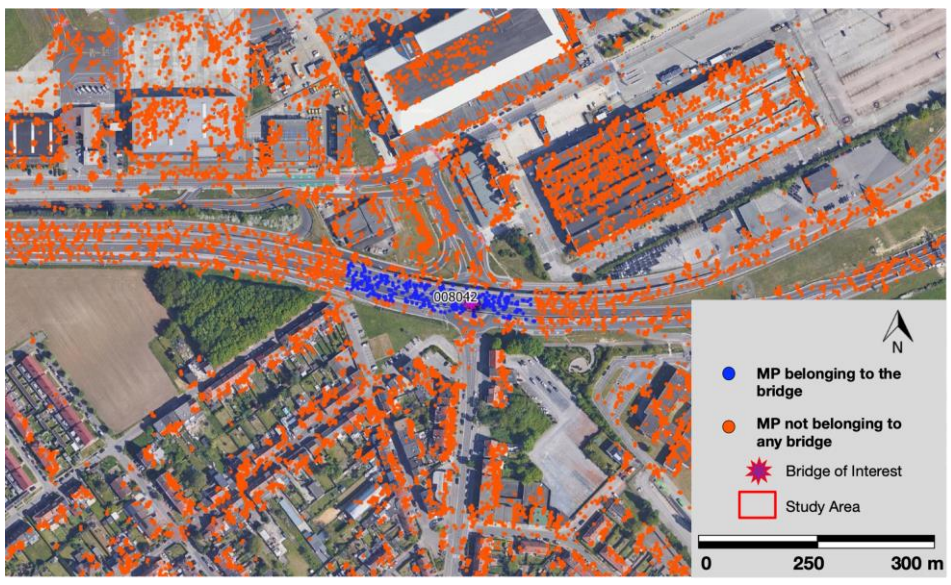
Vectorial decomposition

Vertical (Up-Down) – 50m grid size

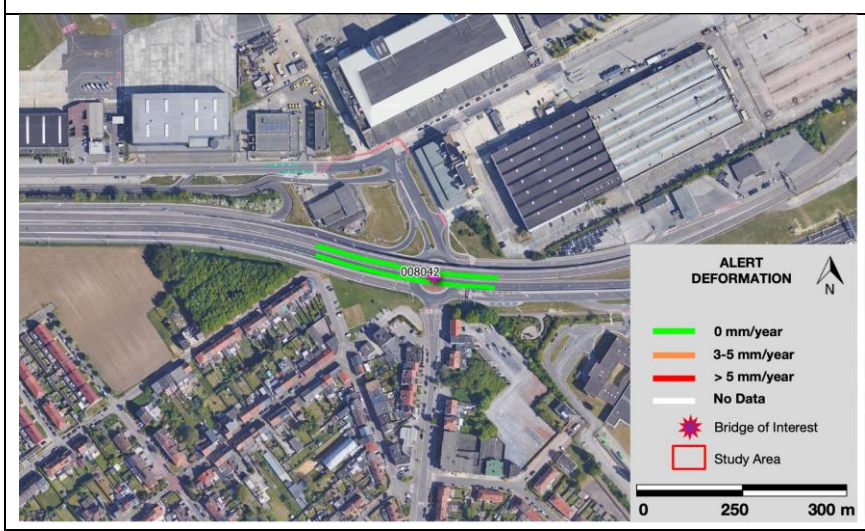
Horizontal (East-West) – 50m grid size



Surrounding areas
(Point belonging to the bridge; Points not belonging to any bridge; Points with uncertain belonging to a given bridge)



Alerting system



Filtering out of local disruptions + Availability of MP in case of works

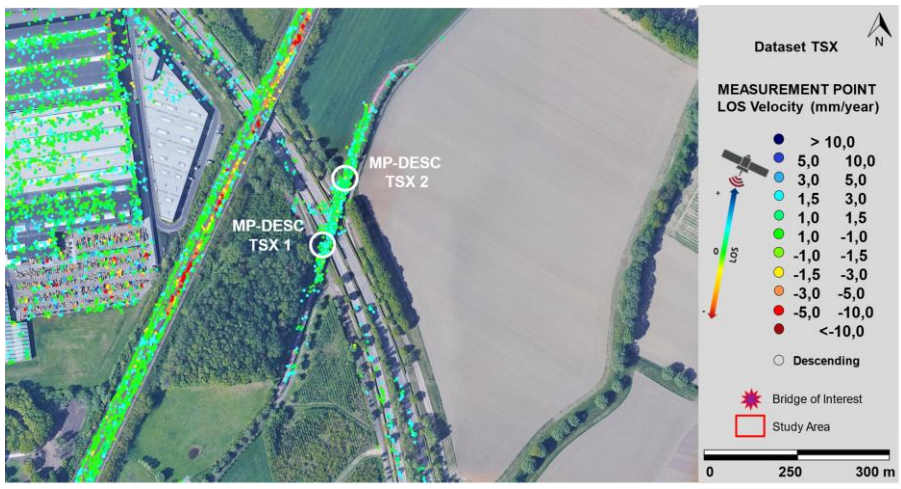
Not needed for this bridge

Notes:

The ***Viaduct in A201 over N262*** is characterized by a good distribution and coverage of the MPs for the TerrsaSAR-X dataset and Sentinel-1 dataset. Specifically, the TerraSAR-X dataset shows a movement toward to the sensor in the eastern part of the bridge with deformation velocity ranges from 0.5 to 3.0 mm/year; whereas in the western part of the structure there are a cluster of stable MPs. The Sentinel-1 (S1) dataset moves away to the sensor for both orbital geometry with an appreciable seasonal variation.

Bridge 008639 - Fiets- en voetbrug Schoewever Woluwelaan

TerraSAR-X results (Descending orbital geometry)



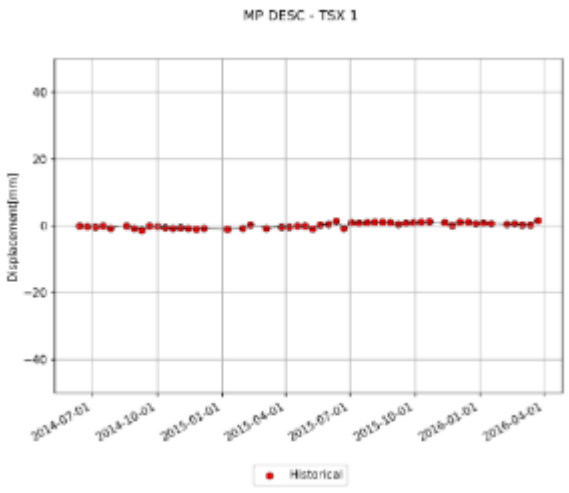
Sentinel-1 results (Ascending and Descending orbital geometry)

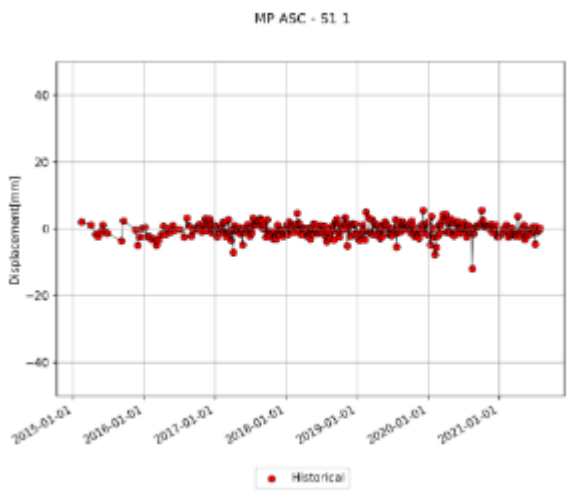
3d view of the scenario (TerraSAR-X)

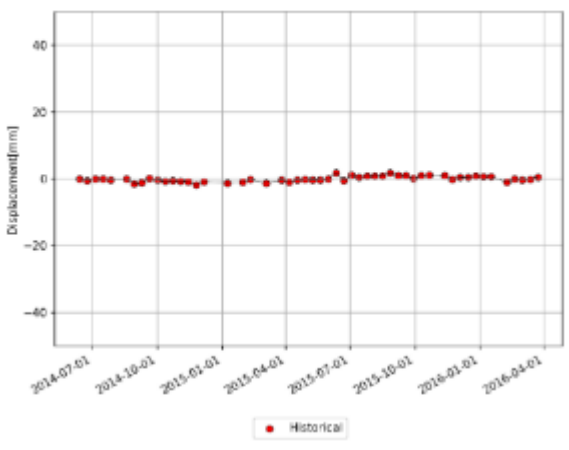
General Information

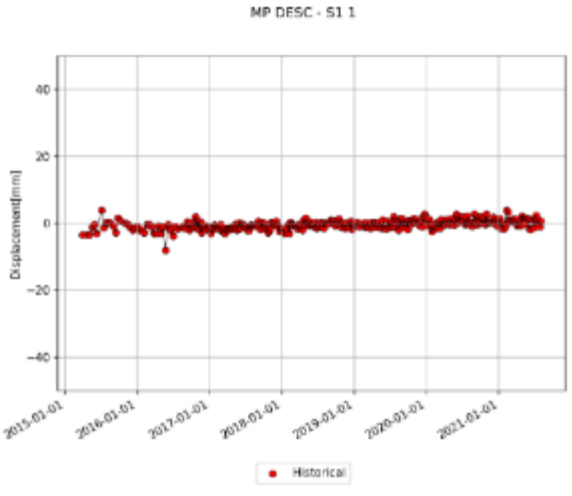
	TerraSAR-X	*Sentinel-1*
Approximate extension	*3'120 m²*	
Coordinates of the centroid of the bridge	*4°26'50.82"E, 50°56'33.87"N*	
Orbital geometry by which the maximum displacement is recorded	-	*Ascending*
Mean velocity measured	*1 mm/yr*	*0.6 mm/yr*
InSAR MPs coverage	*High*	*Medium*

Time series of displacement of some key MPs







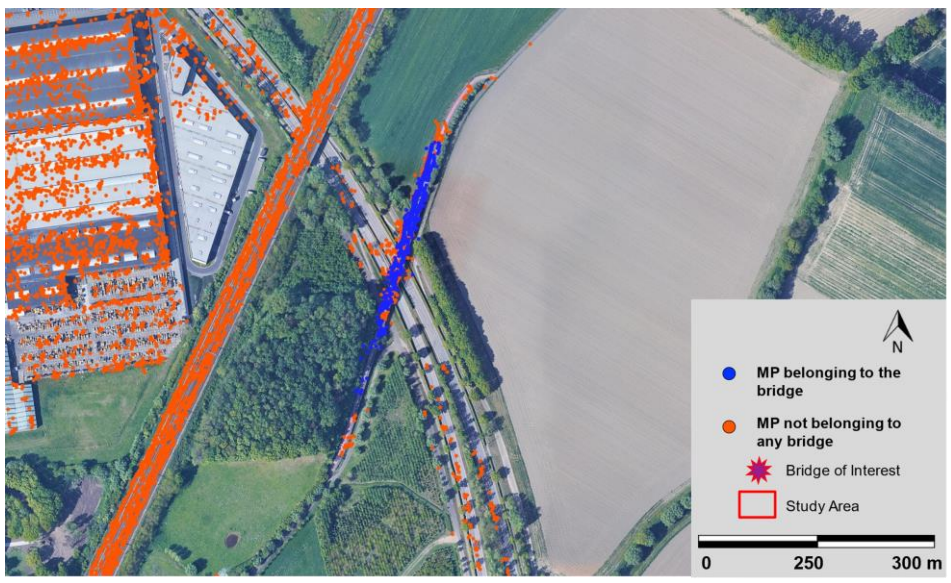


Vectorial decomposition

Vertical (Up-Down) – 50m grid size

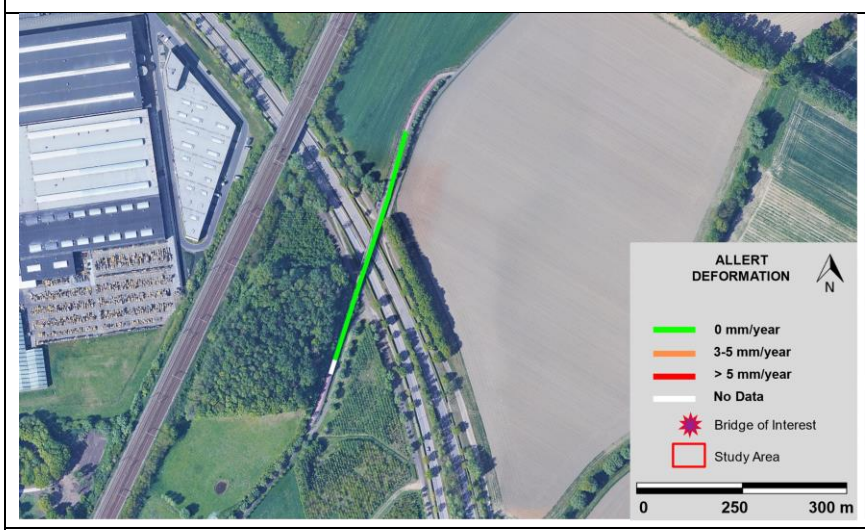
Horizontal (East-West) – 50m grid size

Sorrounding areas
(Point belonging to the bridge; Points not belonging to any bridge; Points with uncertain belonging to a given bridge)



Alerting system

Filtering out of local disruptions + Availability of MP in case of works

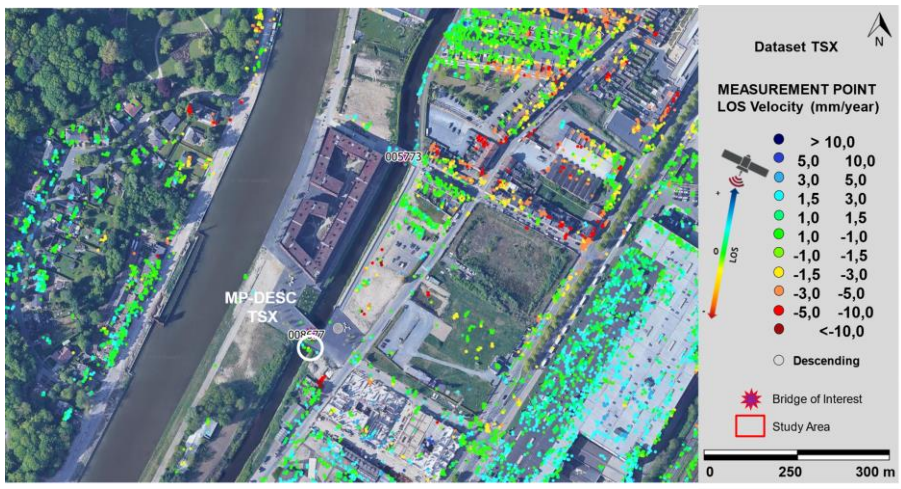


Notes:

The ***Fiets- en voetbrug Schoewever Woluwelaan*** is characterized by stable for both datasets. In general, the bridge is characterized by a good distribution of MPs and no long-term deformational trends with TerraSAR-X (TSX) dataset and in the Sentinel-1 (S1) datasets.

Bridge 008677 - Brug over de Zenne met verbindingsweg naar sluis

TerraSAR-X results (Descending orbital geometry)



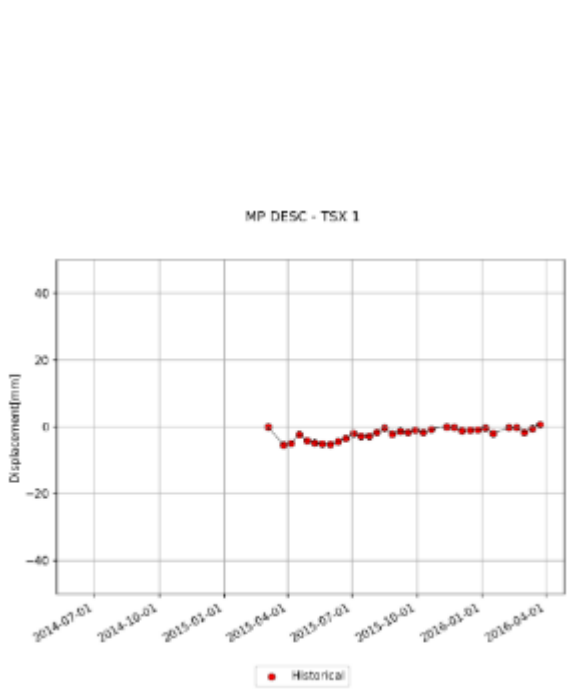
Sentinel-1 results (Ascending and Descending orbital geometry)

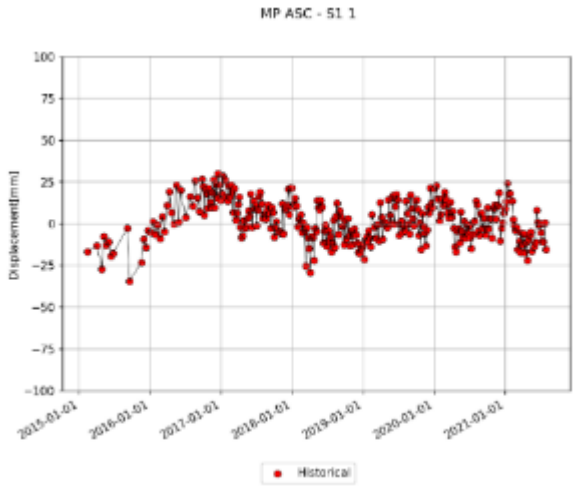
3d view of the scenario (TerraSAR-X)

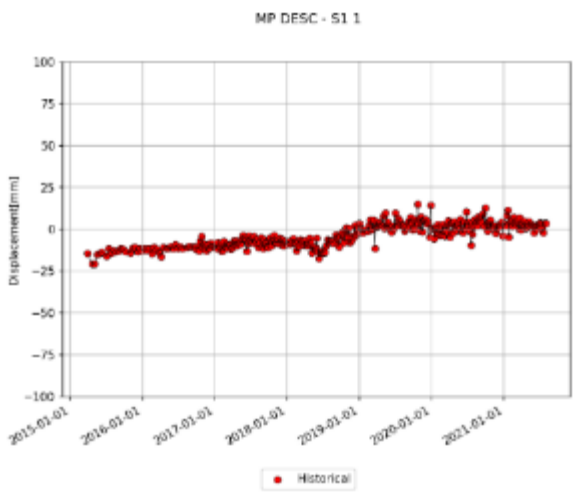
General Information

	TerraSAR-X	*Sentinel-1*
Approximate extension	*300 m²*	
Coordinates of the centroid of the bridge	*4°25'8.66"E, 50°54'58.11"N*	
Orbital geometry by which the maximum displacement is recorded	-	*Ascending*
Mean velocity measured	*0.5 mm/yr*	*1.3 mm/yr*
InSAR MPs coverage	*High*	*Medium*

Time series of displacement of some key MPs

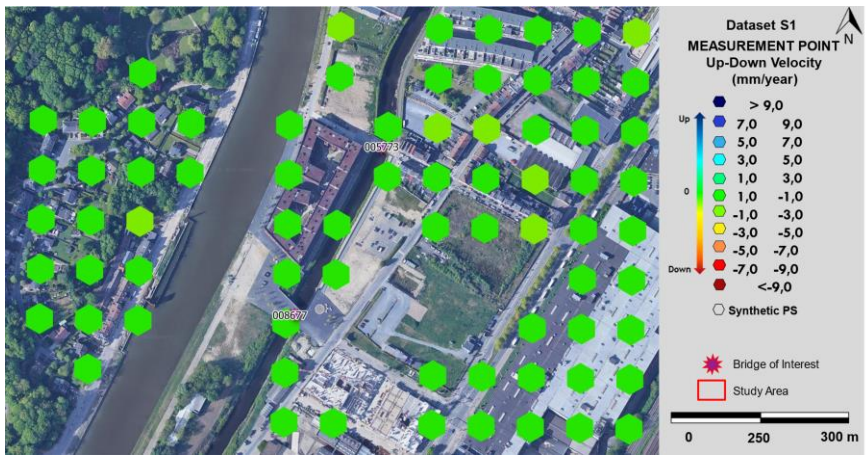




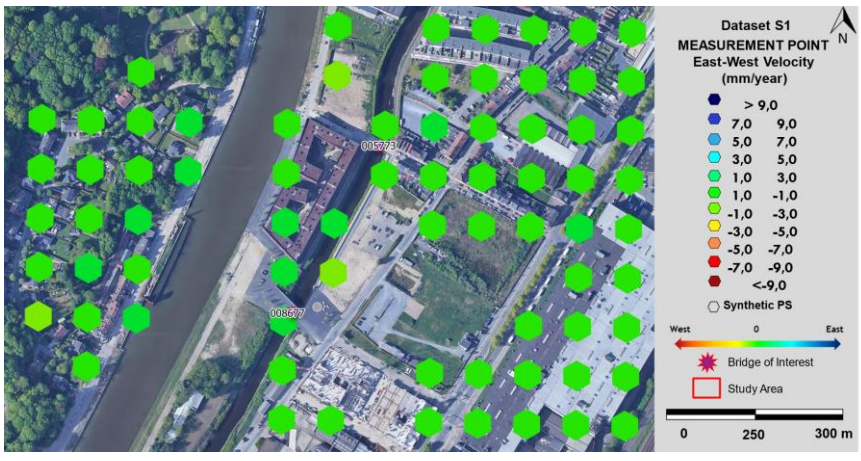


Vectorial decomposition

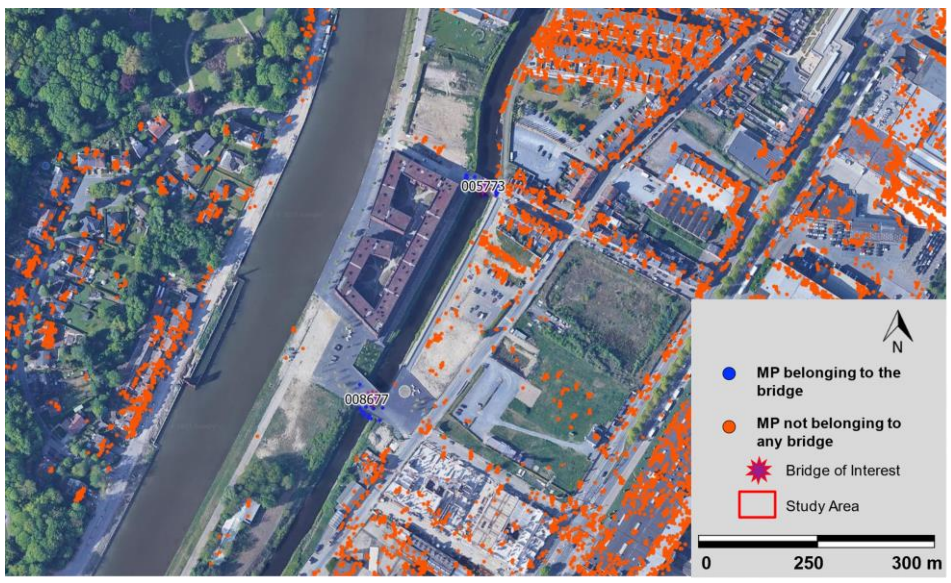
Vertical (Up-Down) – 50m grid size



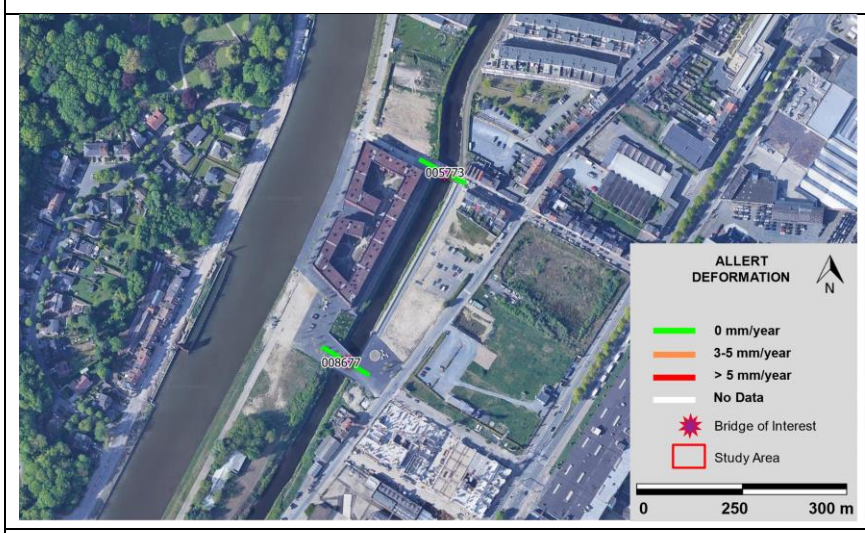
Horizontal (East-West) – 50m grid size



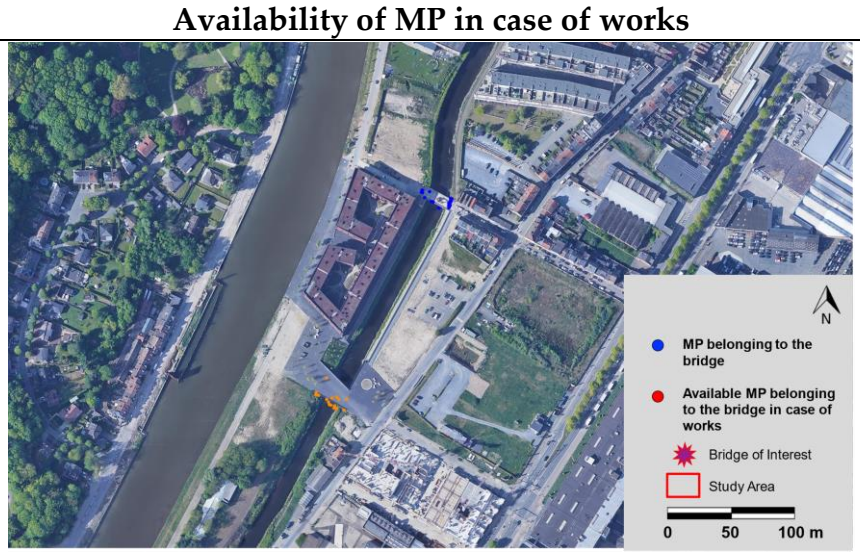
Sorrounding areas
(Point belonging to the bridge; Points not belonging to any bridge; Points with uncertain belonging to a given bridge)



Alerting system



Filtering out of local disruptions + Availability of MP in case of works

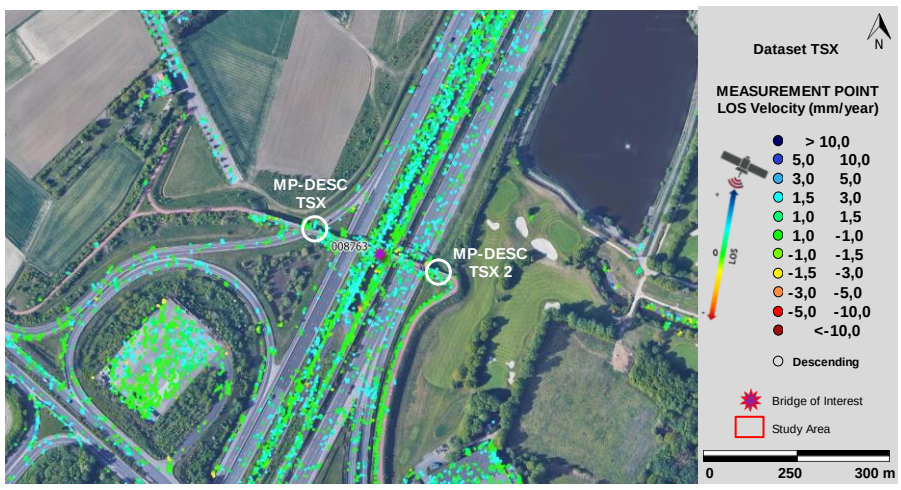


Notes:

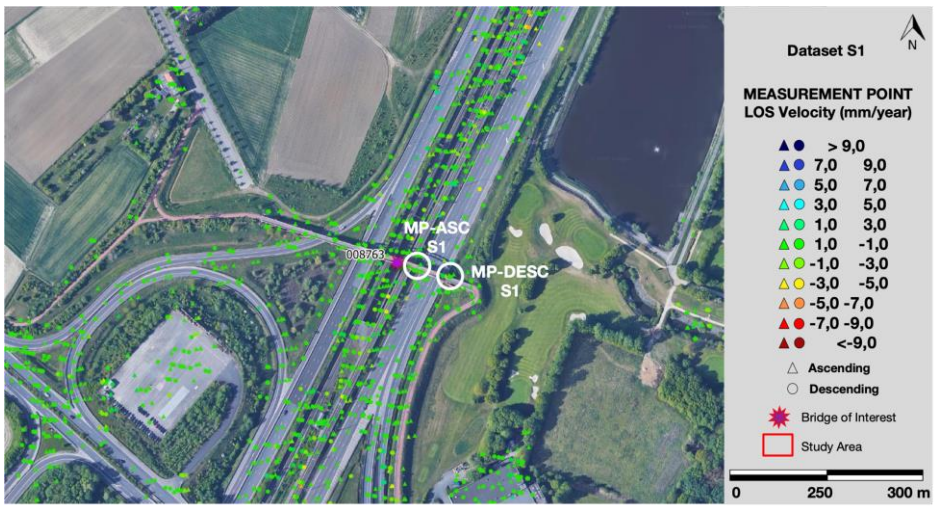
The ***Brug over de Zenne met verbindingsweg naar sluis*** is characterized by MP moving toward to the sensor. By and large the bridge is characterized by a good distribution of MPs and no long-term deformational trends with TerraSAR-X (TSX) dataset and in the Sentinel-1 (S1) datasets. The construction process of the building has been identified by the temporary scatterers approach as shown by the time series of the TSX dataset.

Bridge 008763 - Fietsbrug over E19 + Noordelijke spoorontsluiting luchthaven

TerraSAR-X results (Descending orbital geometry)



Sentinel-1 results (Ascending and Descending orbital geometry)

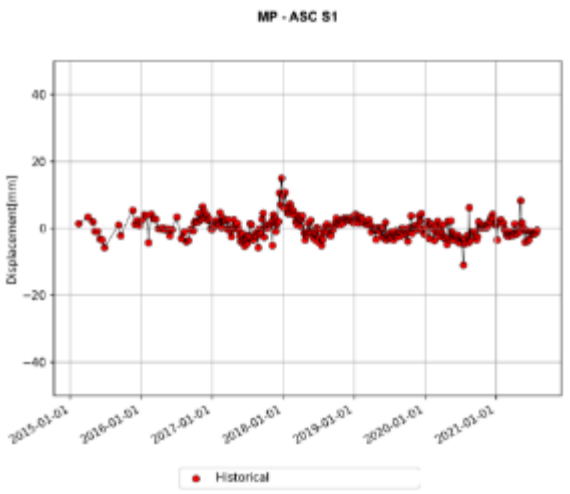


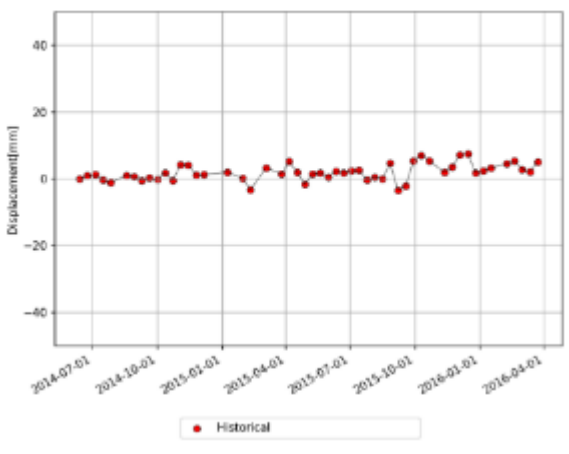
3d view of the scenario (TerraSAR-X)

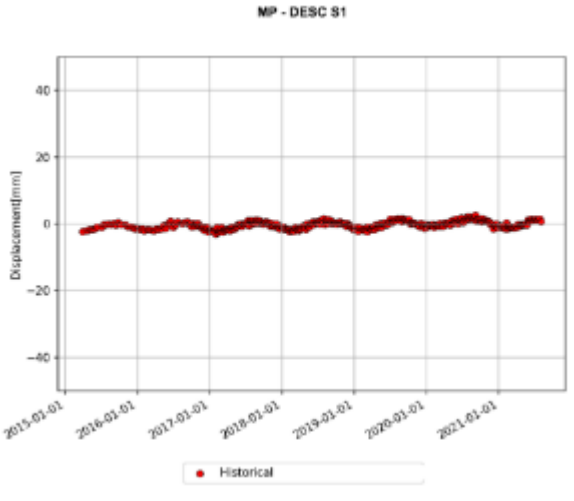
General Information

	TerraSAR-X	*Sentinel-1*
Approximate extension	*0.02 km²*	
Coordinates of the centroid of the bridge	*4°27′29.73″E, 50°54′57.16″N*	
Orbital geometry by which the maximum displacement is recorded	-	*Descending*
Mean velocity measured	*1.2 mm/yr*	*0.13 mm/yr*
InSAR MPs coverage	*High*	*Low*

Time series of displacement of some key MPs

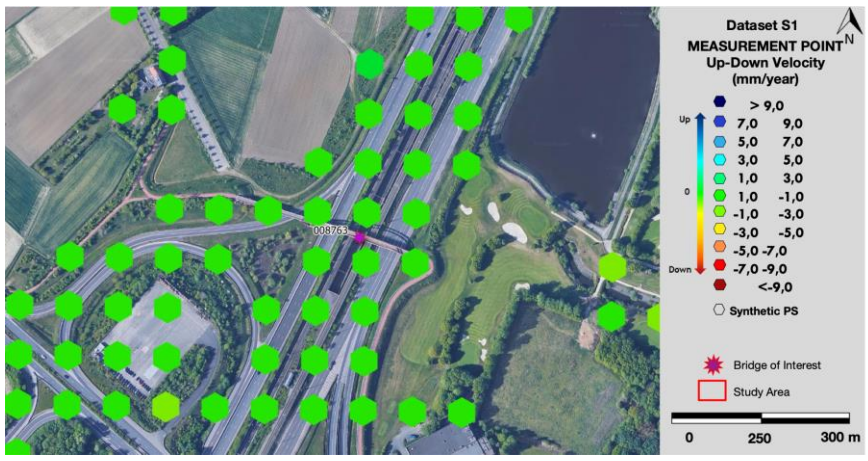




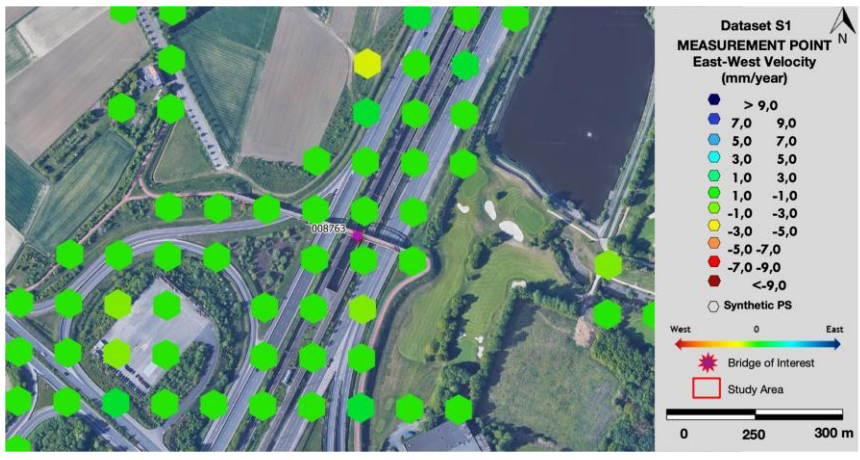


Vectorial decomposition

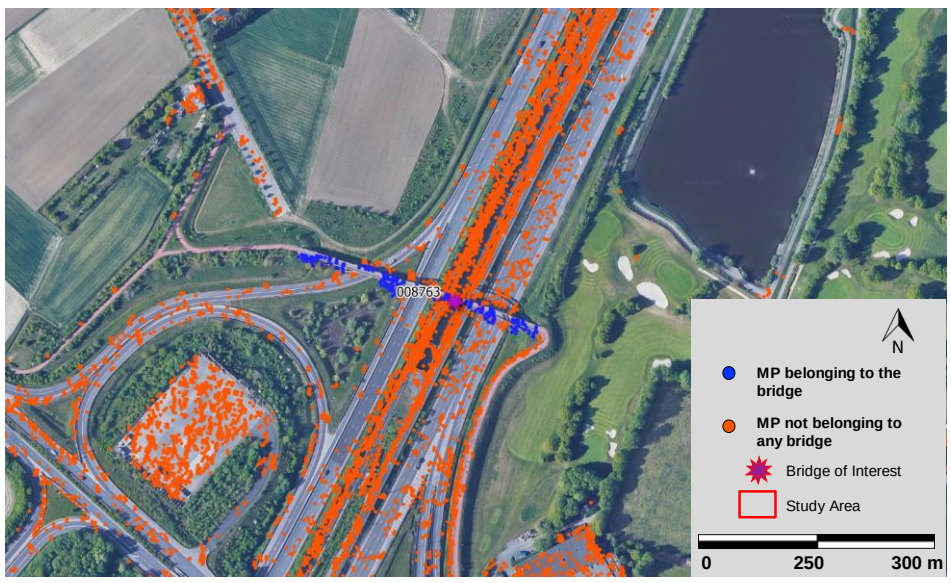
Vertical (Up-Down) – 50m grid size



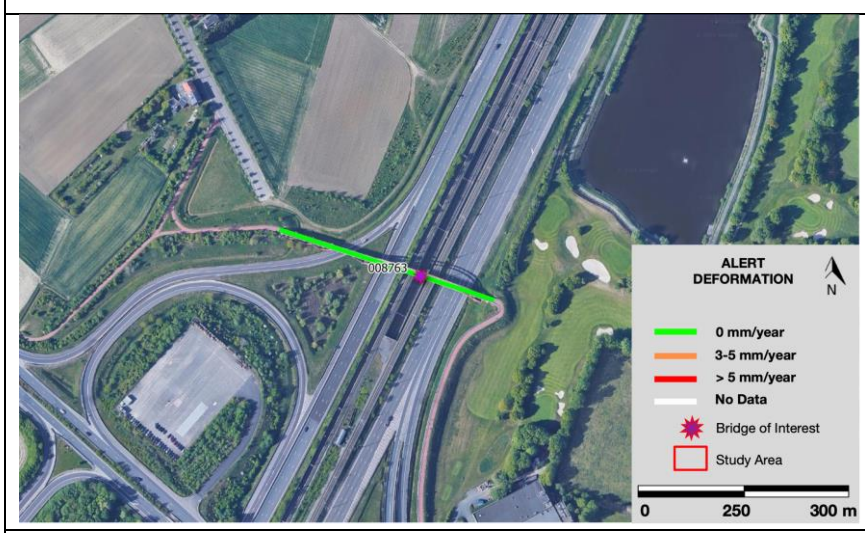
Horizontal (East-West) – 50m grid size



Surrounding areas
(Point belonging to the bridge; Points not belonging to any bridge; Points with uncertain belonging to a given bridge)



Alerting system



Filtering out of local disruptions + Availability of MP in case of works

Not needed for this bridge

Notes:

The ***Fietsbrug over E19 + Noordelijke spoorontsluiting luchthaven*** is characterized by homogenous distribution of MPs moving toward to the sensor. For TerraSAR-X (TSX) dataset the displacement velocity ranges from 1.0 to 3.0 mm/years, the MPs don't show seasonal variations. Whereas for Sentinel-1 (S1) dataset shows more stable points with a high seasonal variation. The MPs coverage of TSX dataset is higher than the MPs density of S1 dataset where the PS distribution don't satisfy the bridge coverage.
The vectorial decomposition, obtained from the Sentinel-1 dataset, marks stable synthetic measurement points for the principal directions axes.

Bridge 009084 - Voet- en fietsbrug Kleine Steenstraat

TerraSAR-X results (Descending orbital geometry)

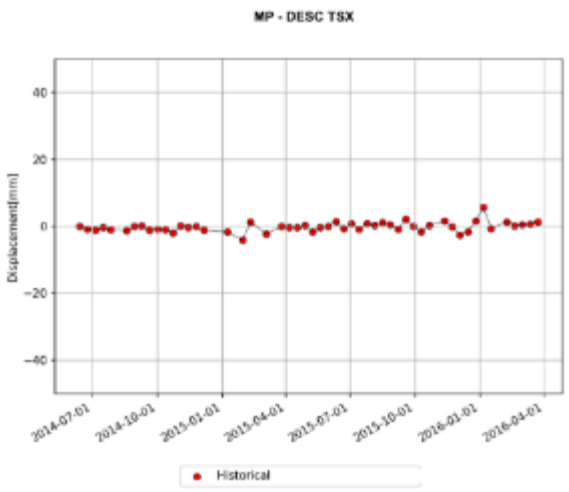
Sentinel-1 results (Ascending and Descending orbital geometry)

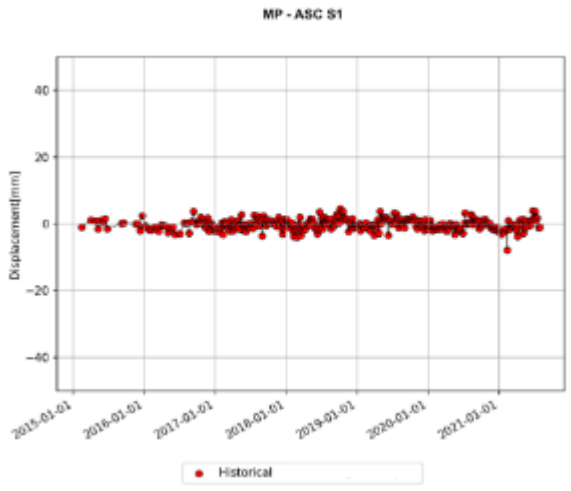
3d view of the scenario (TerraSAR-X)

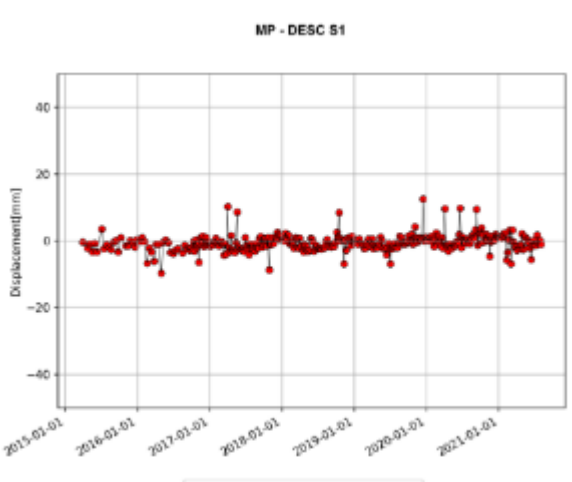
General Information

	TerraSAR-X	*Sentinel-1*
Approximate extension	*0.02 km²*	
Coordinates of the centroid of the bridge	*4°27'1.96"E, 50°55'41.12"N*	
Orbital geometry by which the maximum displacement is recorded	-	*Ascending*
Mean velocity measured	*1.25 mm/yr*	*0.16 mm/yr*
InSAR MPs coverage	*High*	*Medium*

Time series of displacement of some key MPs





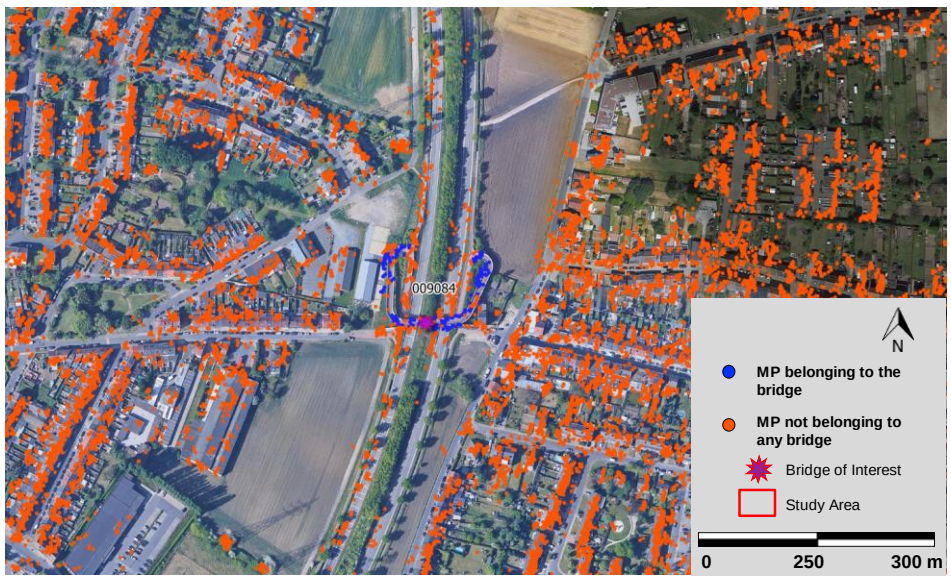


Vectorial decomposition

Vertical (Up-Down) – 50m grid size

Horizontal (East-West) – 50m grid size

Surrounding areas
(Point belonging to the bridge; Points not belonging to any bridge; Points with uncertain belonging to a given bridge)



Alerting system

Filtering out of local disruptions + Availability of MP in case of works

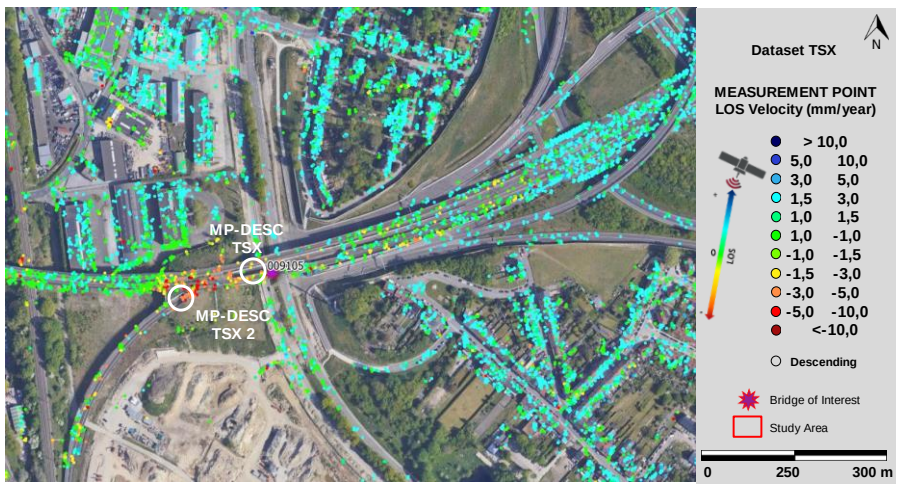
Not needed for this bridge

Notes:

The ***Voet- en fietsbrug Kleine Steenstraat*** is characterized by stable measurement points and a modest thermal variation. For TerraSAR-X (TSX) dataset the PS data results move toward to the sensor with ranges from 1.0 to 3.0 mm/years in the south-west part of the infrastructure. Whereas for Sentinel-1 (S1) dataset the deformation rates are lower than TSX dataset. The MPs coverage of TSX PS data are slightly higher than the MP density of S1 dataset; thanks to the higher spatial resolution of TerraSAR-X sensor.
The vectorial decomposition, obtained from the Sentinel-1 dataset, defines a stable synthetic measurement point with a slight movement to upward direction.

Bridge 009105 - Spoorwegbrug in Spoorlijn 25N over R22

TerraSAR-X results (Descending orbital geometry)



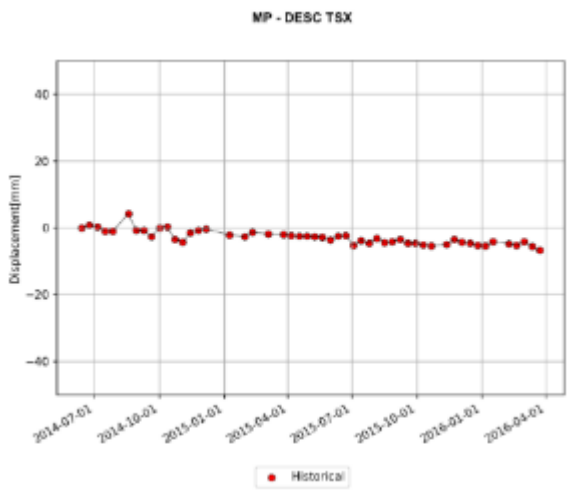
Sentinel-1 results (Ascending and Descending orbital geometry)

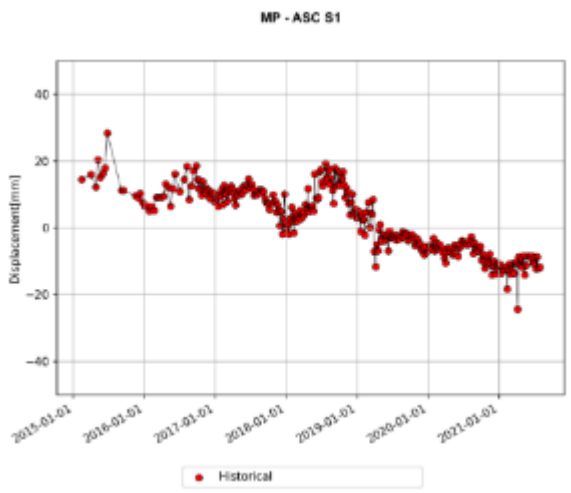
3d view of the scenario (TerraSAR-X)

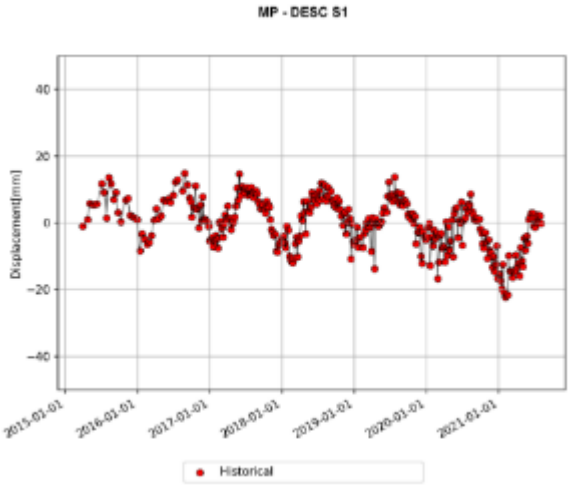
General Information

	TerraSAR-X	*Sentinel-1*
Approximate extension	*0.014 km²*	
Coordinates of the centroid of the bridge	*4°25′37.94″E, 50°54′2.04″N*	
Orbital geometry by which the maximum displacement is recorded	-	*Descending*
Maximum velocity measured	*-12.4 mm/yr*	*-7.5 mm/yr*
Mean velocity measured	*-3.5 mm/yr*	*-2.3 mm/yr*
InSAR MPs coverage	*High*	*Medium*

Time series of displacement of some key MPs

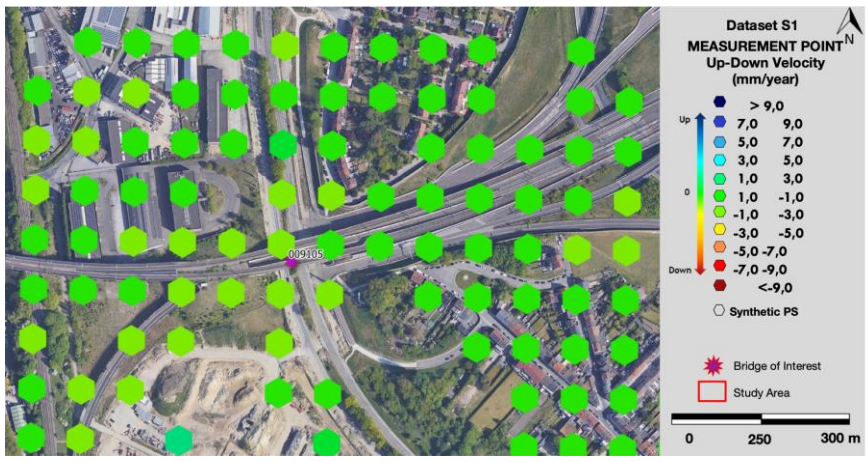






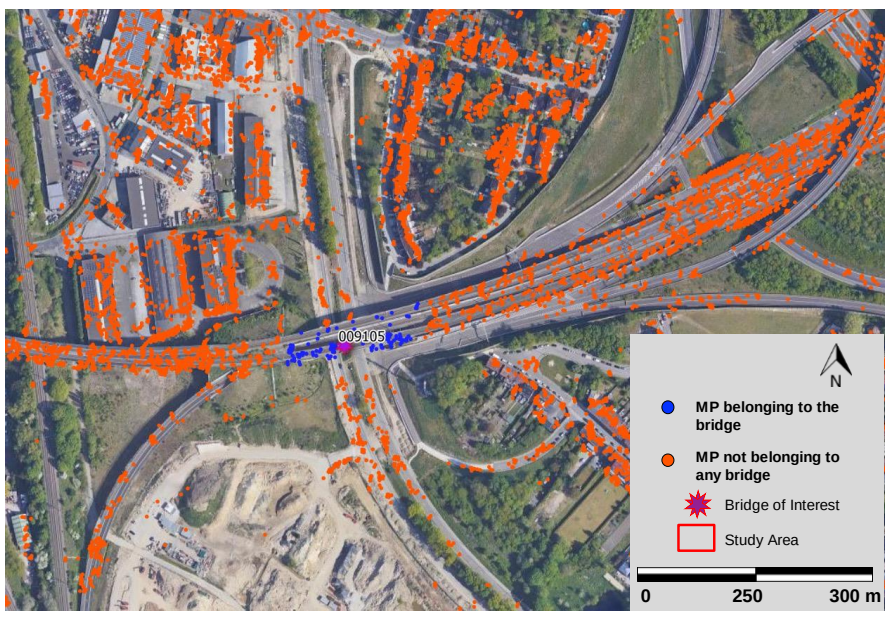
Vectorial decomposition

Vertical (Up-Down) – 50m grid size

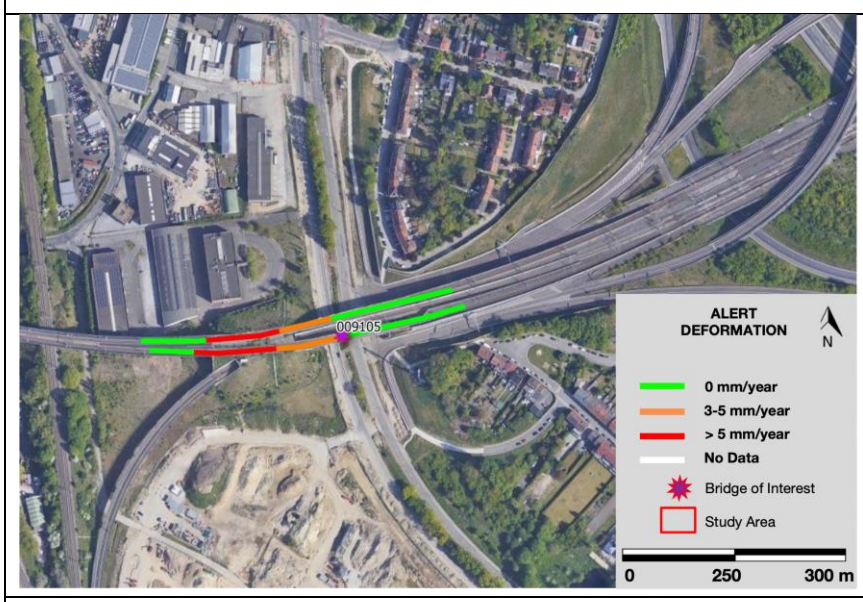


Horizontal (East-West) – 50m grid size

Surrounding areas
(Point belonging to the bridge; Points not belonging to any bridge; Points with uncertain belonging to a given bridge)



Alerting system



Filtering out of local disruptions + Availability of MP in case of works

Not needed for this bridge

Notes:

The ***Spoorwegbrug in Spoorlijn 25N over R22*** is characterized by MP moving away to the sensor with a high seasonal variation. For TerraSAR-X (TSX) dataset the displacement velocity ranges from -3.0 to -12.0 mm/years. Whereas for Sentinel-1 (S1) dataset the deformation velocity ranges from -2.0 to -8.0 mm/years. The MP coverage of TSX dataset is higher than the MP density of S1 dataset; thanks to the higher spatial resolution of TerraSAR-X sensor.
The vectorial decomposition, obtained from the Sentinel-1 dataset, defines the displacements in the vertical direction, downward, are dominant.