2024.1.18（17 days after the event)

Quick report of preliminary reconnaissance of the 2024 Noto-hanto Earthquake in Japan
―No.2―

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Outline of Reconnaissance Work

Team member (JGS team):

Masakatsu Miyajima (Member of Residential Land Group of JGS)

Takao Hashimoto (Group leader of Residential Land Group of JGS)

(JGS: Japanese Geotechnical Society)

Survey Period: 2024.1.12-1.15

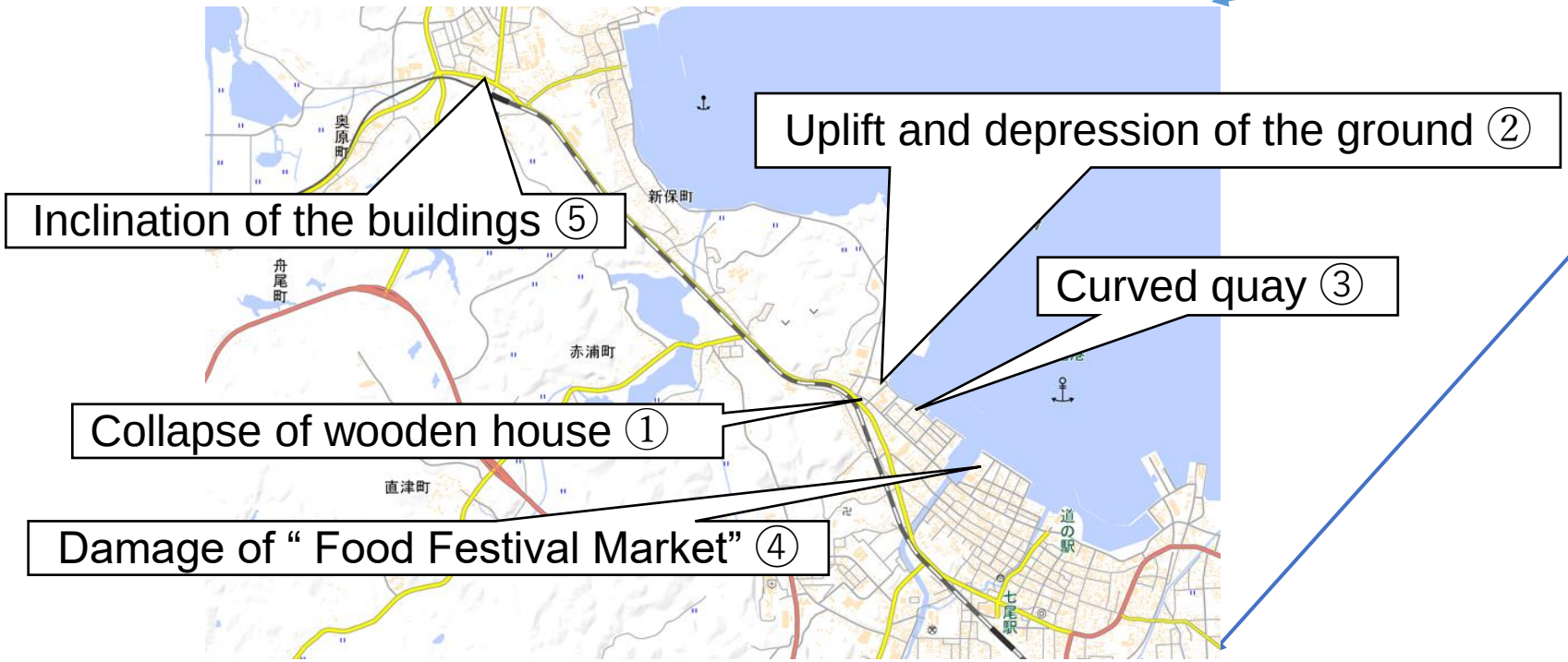
Survey area: Nanao City, Shika Town, Wajima City Monzen, Kanazawa City, Uchinada Town and Niigata City

Outline of Personal Damage

(As of 14:00, 14th of Jan. (13 days after the event))

	Place	Dead	Refgee	Population
①	Suzu city	99	3,843	12,610
②	Wajima city	88	7,611	23,192
③	Noto town	6	2,016	15,524
④	Anamizu town	20	1,825	7,360
⑤	Shika town	2	1,150	18,267
⑥	Nanao city	5	1,857	48,352
⑦	Hakui city	1	77	19,893

Damage Site Map of Nanao City (JMA Seismic Intensity:6+)



Inclination of the buildings ⑤

Uplift and depression of the ground ②

Curved quay ③

Collapse of wooden house ①

Damage of “ Food Festival Market” ④

Geospatial Information Authority of Japan map

Nanao City

Collapse of wooden house (Map ①)

Road cracks and ejected sand due to liquefaction (Map②)

Nanao City

Uplift and depression of the ground due to lateral flow of liquefied ground (Map②)

Nanao City

Curved quay (Map③)

Nanao City

Damage of “ Food Festival Market” induced by liquefaction (Map④)

Subsidence of the entrance approach (Map④)

Nanao City

Subsidence and ejected sand due to liquefaction (Map④)

Nanao City

Subsidence and ejected sand due to liquefaction (Map④)

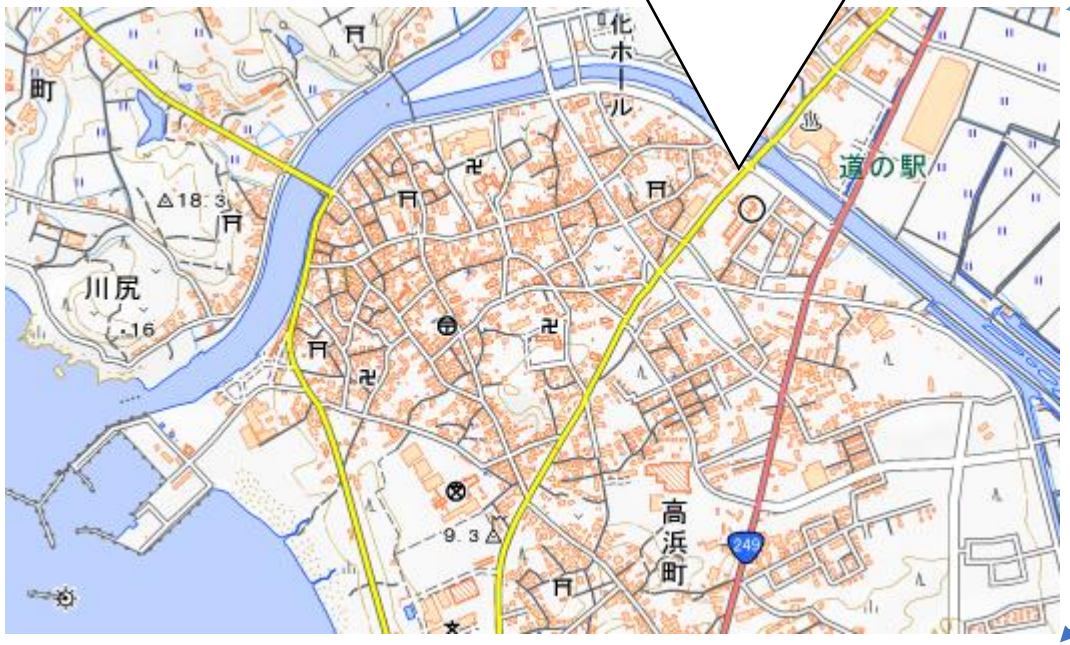
Removal of a large amount of ejected sand in the parking lot (Map④)

Nanao City

Inclination of the buildings in front of Wakura Onsen Station due to liquefaction (Map⑤)

Damage Site Map of Shika Town (JMA Seismic Intensity:7)

Subsidence and inclination of houses ①



Geospatial Information Authority of Japan map

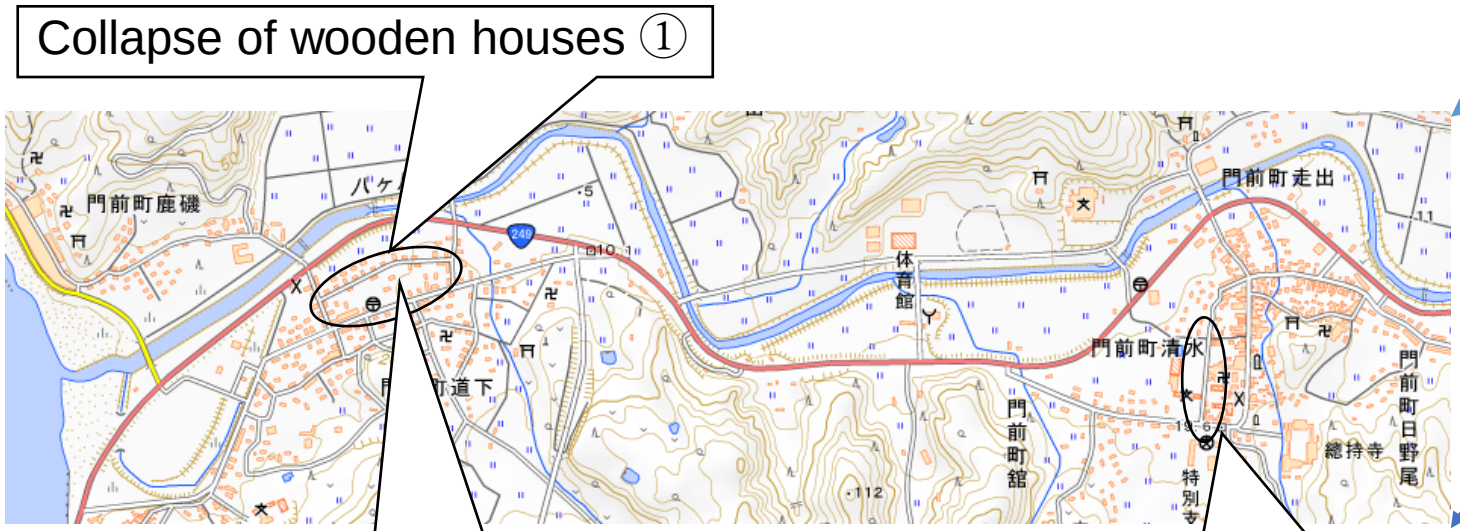
Sika Town

Subsidence and inclination of houses due to liquefaction (Map①)

Sika Town

Subsidence of houses, utility poles due to liquefaction (Map①)

Damage Site Map of Wajaima City Monzen
（JMA Seismic Intensity:6+)



Geospatial Information Authority of Japan map

Wajima City Monzen, Touge

Collapse of wooden houses (Map①)

Wajima City Monzen, Touge

Collapse of wooden houses (Map①)

Wajima City Monzen, Touge

Collapse of wooden houses (Map①)

Wajima City Monzen, Touge

New houses were undamaged even in the affected area (Map①)

Wajima City Monzen, Touge

Uplift of manholes (Map②)

Wajima City Monzen, shimizu

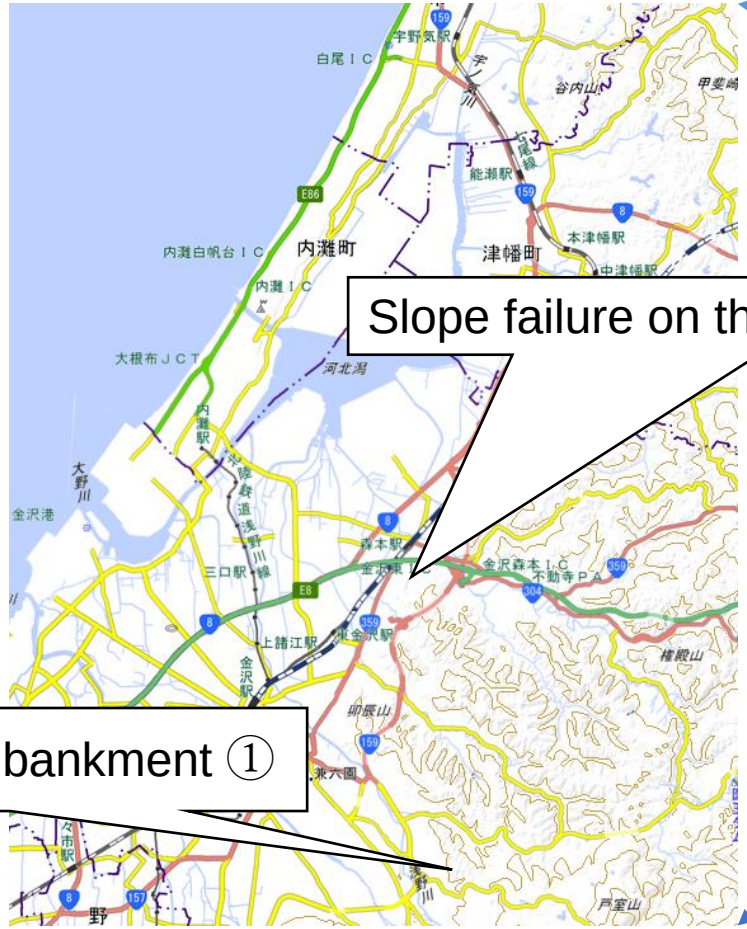
Extensive damage to Soujiji Temple (Map③)

Collapse of wooden house (Map③)

Wajima City Monzen, shimizu

Traffic obstructions caused by collapsed houses and floating manholes (Map③)

Damage Site Map of Kanazawa City (JMA Seismic Intensity:5+)



Slope failure on the high school grounds ②

Landslides on embankment ①

Geospatial Information Authority of Japan map

Kanazawa City

Damage to houses caused by landslides on embankment of developed residential areas (Map①)

Kanazawa City

Damage to houses caused by landslides on embankment of developed residential areas (Map①)

Kanazawa City

Damage to houses caused by landslides on embankment of developed residential areas (Map①)

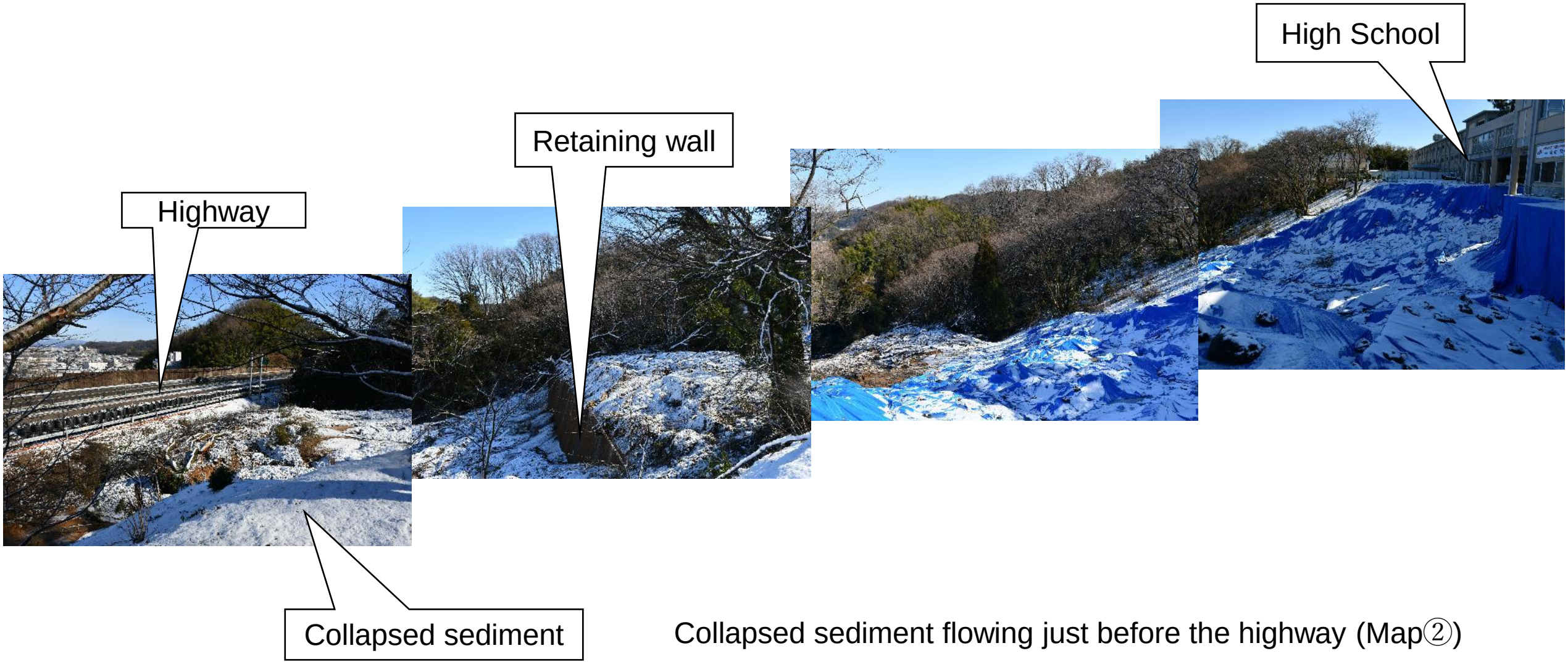
Kanazawa City

Damage to houses caused by landslides on embankment of developed residential areas (Map①)

Kanazawa City

Slope failure on the high school grounds (Map②)

Kanazawa City



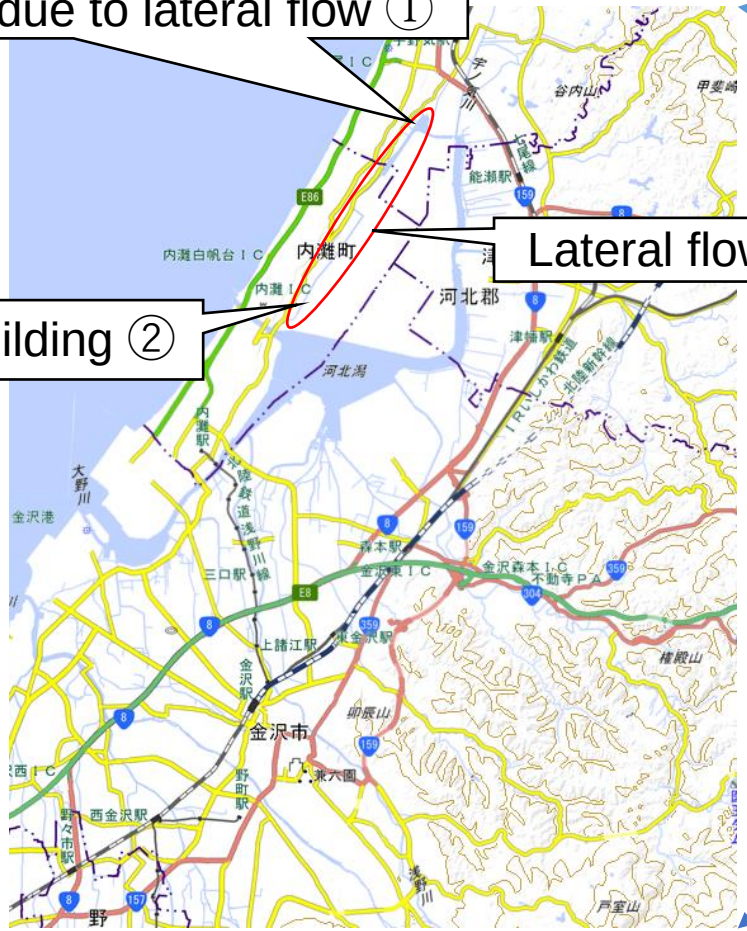
Collapsed sediment flowing just before the highway (Map②)

Damage Site Map of Uchinada Town

Ground deformation due to lateral flow ①

Subsidence of RC building ②

Lateral flow of liquefied ground ③



Geospatial Information Authority of Japan map

Uchinada Town

Ground deformation due to lateral flow (Map①)

Uchinada Town

Subsidence of RC building due to liquefaction (Map②)

Uchinada Town

Subsidence of RC building due to liquefaction (Map②)

Uchinada Town

Meandering of the road due to lateral flow of liquefied ground (Map③)

Uchinada Town

Lateral flow of liquefied ground in the dunes hinterland (Map③)

Uchinada Town

Lateral flow of liquefied ground in the dunes hinterland (Map③)

Uchinada Town

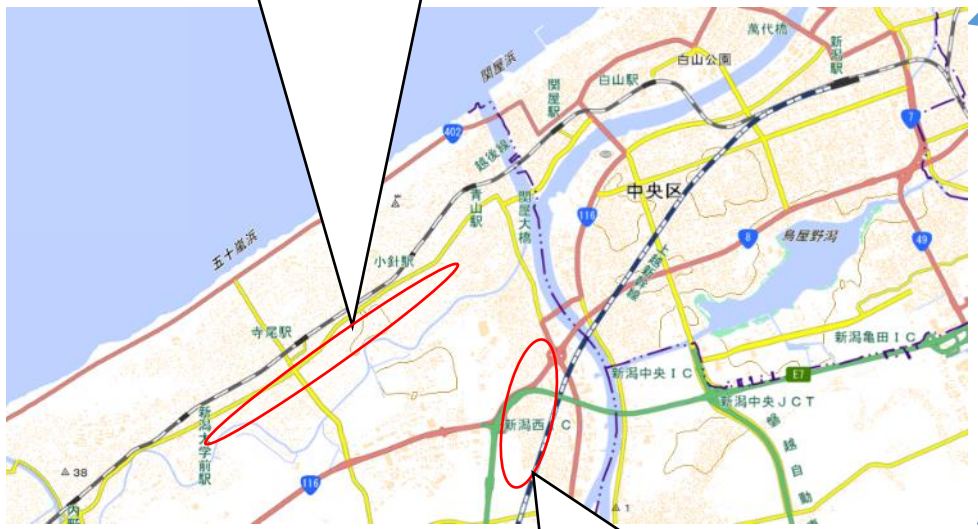
A car trapped in a deformed garage (Map③)

Uchinada Town

A house with ground improvement was no damage (Map③)

Damage Site Map of Niigata City (JMA Seismic Intensity:6-)

Lateral flow of liquefied ground ①



liquefaction on flat ground②

Geospatial Information Authority of Japan map

Niigata City

Lateral flow of liquefied ground in the dunes hinterland (Map①)

Niigata City

Subsidence and inclination of utility pole and apartments (Map①)

Niigata City

Uplift of the ground due to lateral flow　(Map①)

Niigata City

Uplift of the ground due to lateral flow　(Map①)

Niigata City

Inclination of houses and large amounts of ejected sand due to liquefaction on flat ground (Map②)

Concluding remarks

- The massive earthquake that struck a depopulated and aging area is revealing a variety of issues.
- Water and power outages are still on going in the affected areas, and relief efforts are expected as soon as possible.
- The ground motion itself was very large, but it became clear that the effects of liquefaction and the resulting ground deformation were also large in the affected area.
- The lateral flow of liquefaction in the hinterland of the dunes caused the severe damage to buildings and roads. In particular, it was noticeable in Uchinada Town and Nishi Ward in Niigata City.

The reconnaissance work was conducted as an activity of the residential land group of JGS (Japanese Geotechnical Society). We express sincere appreciation to the group members.

We would like to express our deepest sympathies to those affected by the disaster and pray for the repose of the souls of those who lost their lives. We pray for the earliest possible recovery of the affected areas.