



2024-02-19T10:00/12:30 (20 min.)

@Chiyoda Campus, Hitotsubashi University
Geospatial Technology for Multifaceted Crisis: Real-time
Crisis Mapping and Long-term Trend Analysis

1

Sensemaking with Smart Maps

Hidenori Fujmura

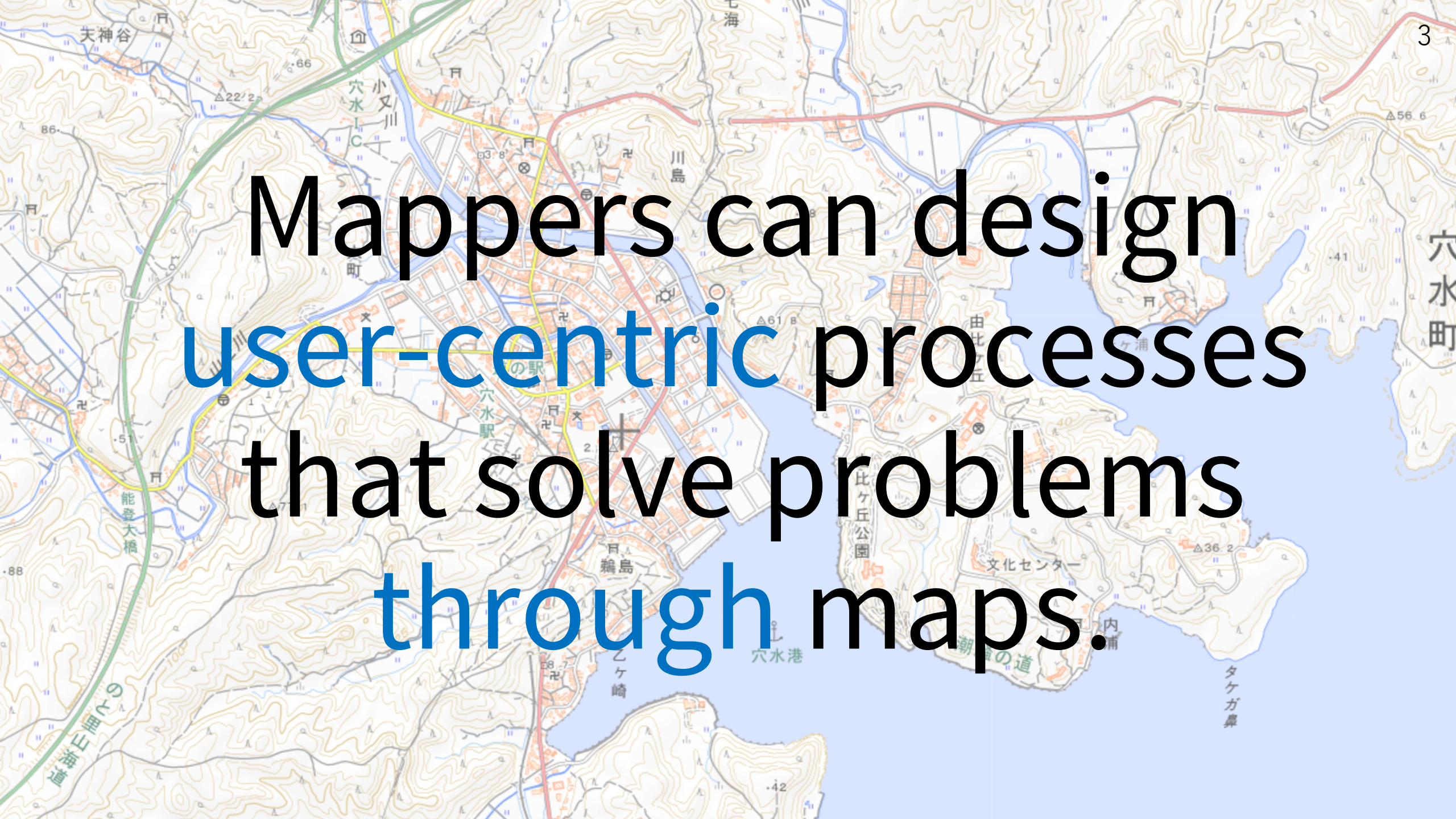
Lead, UN Smart Maps Group, UN Open GIS Initiative

**Director, Research Planning, Geography and Crustal Dynamics
Research Center, Geospatial Information Authority of Japan**

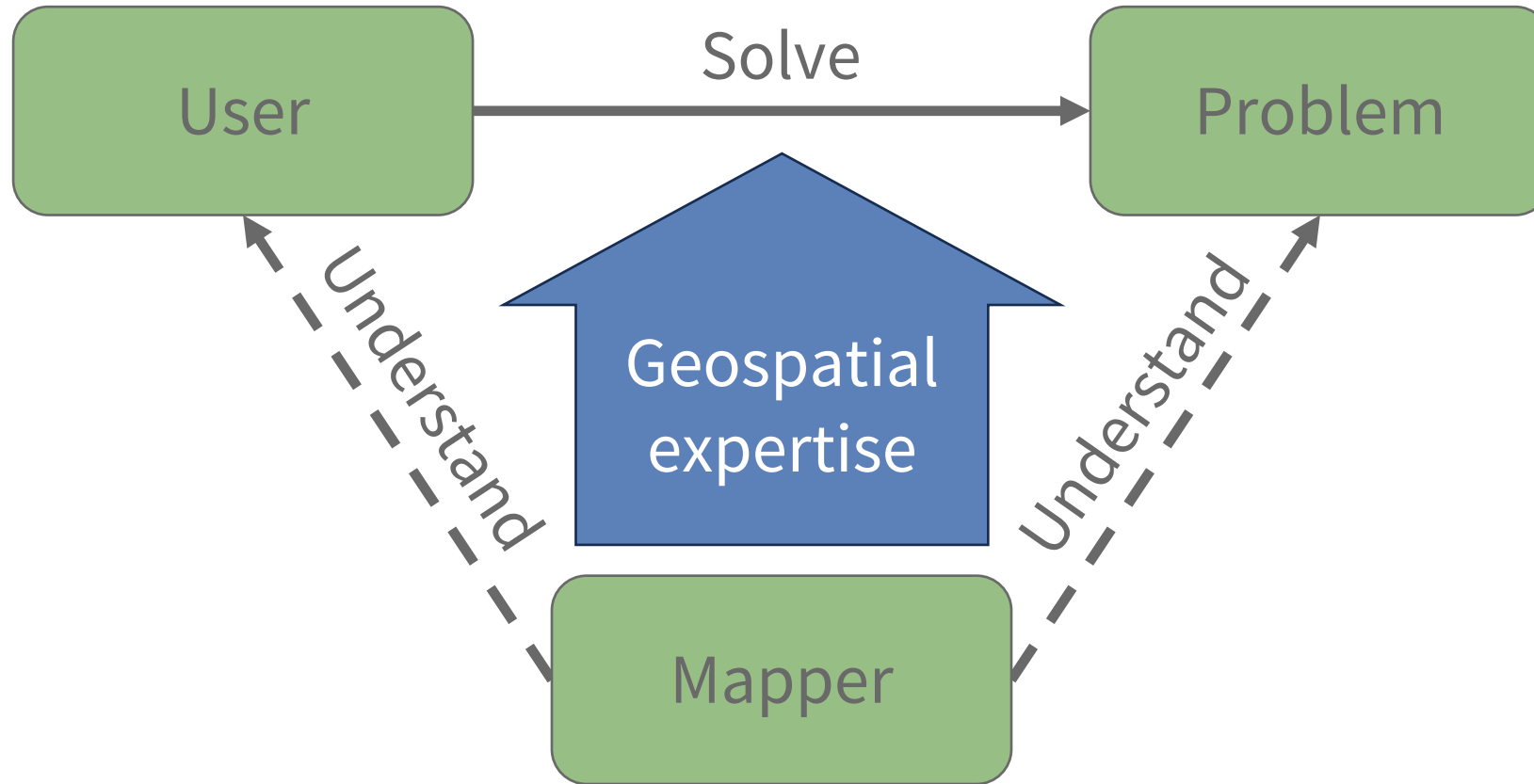


Maps have been common
tools for decisions.

How can Mappers
contribute to decisions?

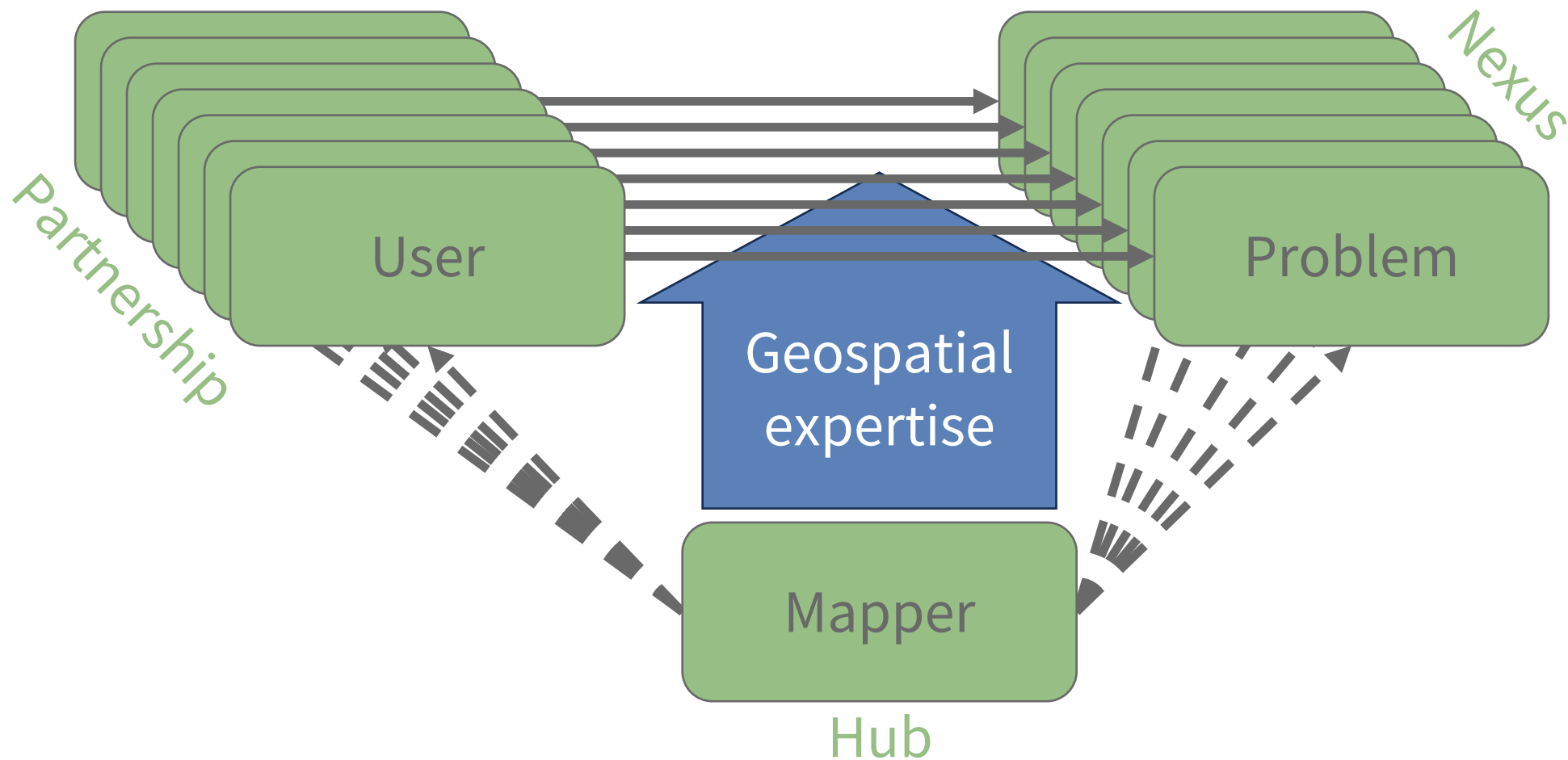
A topographic map of a coastal region, likely in Japan, showing contour lines, roads, and water bodies. The map includes labels for various locations such as 天神谷 (Tenshigaya), 穴水町 (Aizumi-cho), 川島 (Kawashima), 比ヶ丘公園 (Hikegahira Park), 文化センター (Culture Center), and 穴水港 (Aizumi Port). The text "Mappers can design user-centric processes that solve problems through maps." is overlaid on the map, with "user-centric" and "through" highlighted in blue.

Mappers can design
user-centric processes
that solve problems
through maps.



Action #580 “地理空間情報によるパートナーシップ” (Partnership through Geospatial Information) of SDGs Action Plan 2023 of SDGs Promotion Headquarters, the Government of Japan (2023-03)

Mapper as a Partnership Hub



Action #580 “地理空間情報によるパートナーシップ” (Partnership through Geospatial Information) of SDGs Action Plan 2023 of SDGs Promotion Headquarters, the Government of Japan (2023-03)



The UN Open GIS Initiative is an ongoing Partnership Initiative for **Technology in Peacekeeping** of United Nations Department of Operational Support. It has been running by the **United Nations Geospatial** in the Office of Information and Communications Technology (OICT), **since March 2016**.



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Partnership Initiatives

Viable and implementable projects have been initiated since the first Partnership for Technology in Peacekeeping international symposium held in 2014 in Brindisi, - Italy. These initiatives range from quick-impact projects, which use available resources to achieve small-scale yet high-impact results, to strategic cooperation projects that look at leveraging Member States' capacities, technologies and expertise to enhance the effectiveness, efficiency, agility, and responsiveness of specific areas of field operations. Existing partnership relationships continue to thrive between the United Nations and Member States: Austria, Canada, Denmark, France, Germany, Israel, Italy, Japan, Luxembourg, Netherlands, Republic of Korea, Switzerland, the United Kingdom, and the United States of America.

UN Open GIS (Geospatial Information Systems) Initiative

Partners: Finland, Italy, Japan, Republic of Korea, United States of America

Status: Ongoing

The UN Open GIS Initiative, established in 2016, is an ongoing partnership initiative and supported by Member States, International Organizations including UN Agencies, Academia, NGOs, and the Private Sector.

The aim of UN Open GIS is the creation of an extended spatial data infrastructure by utilizing open source GIS solutions that meet the operational requirements of the United Nations (UN Secretariat including UN field missions and regional commissions). The initiative also reaches to UN agencies and operating partners, and to developing countries.

The UN Open GIS Initiative intends to provide a sustainable, hybrid GIS platform (integrating open source software GIS technology with the existing proprietary GIS platform) to effectively and efficiently support enhanced Situational Awareness and to inform decision-making. This will fulfill UN core mandates that refers to or depends on the following: geospatial information, the saving of lives and the support to emergency operations, and the enablement of cost-effective operations.

Various open source GIS solutions have been explored/assessed in the UN field operational environment, with findings of positive outcomes to move forward from the existing proprietary GIS platform toward the hybrid GIS platform. This is particularly on mobile GIS solutions (QField, KoBoToolbox, Geopaparazzi), desktop GIS solution (QGIS), OpenDroneMap, Cloud Free Satellite Imagery, and Hybrid GIS infrastructure.

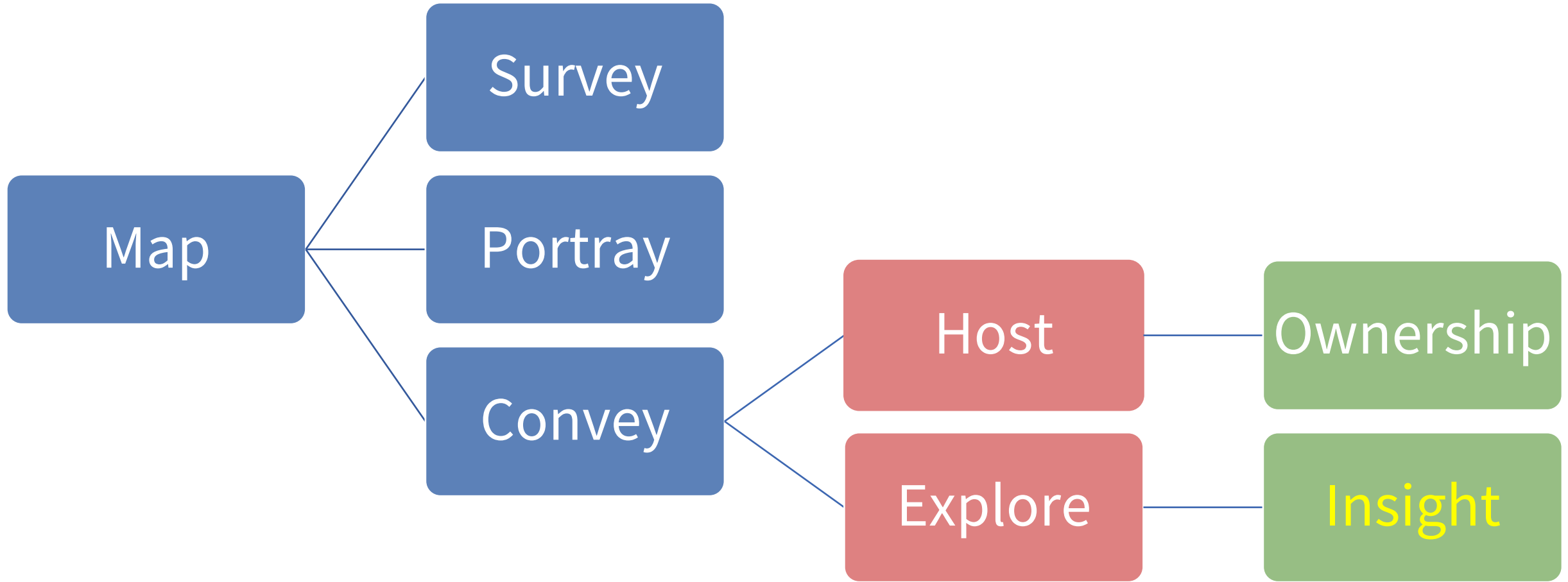
To learn more, visit <https://www.un.org/geospatial>

UN Smart Maps Group



1. Open **Community of Practice**. An open-source multi-sector partnership.
2. Vision: keep **web maps** open for a better world.
3. Mission: **test new technologies** for **future** geospatial operations.

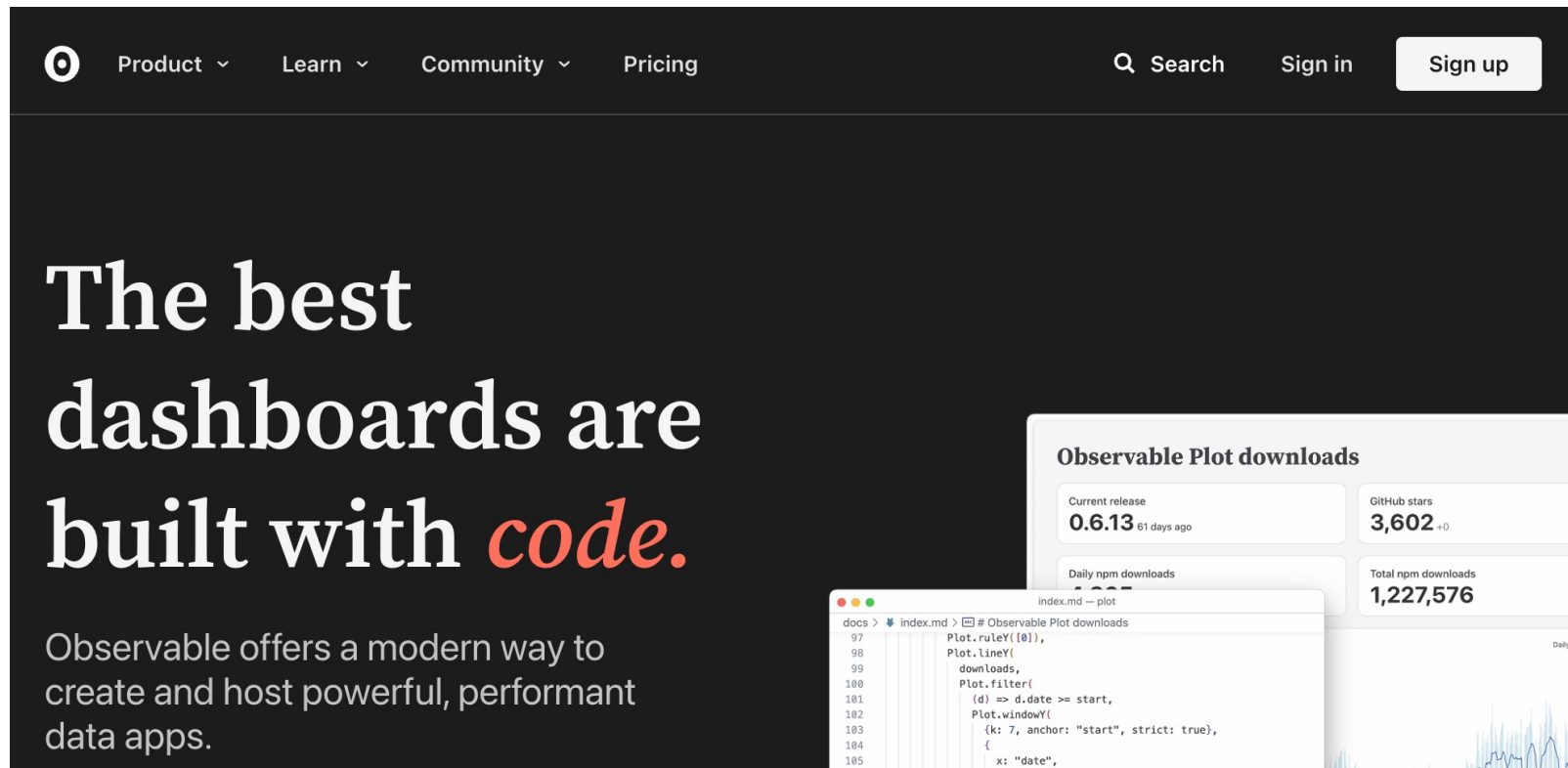
Anatomy of Mapping



Sensemaking

Explore the data for insight.

- The purpose of visualization is **insight**, not a picture. (Ben Shneiderman)
- Someone must explore the data to create insight.
- Smart Maps Group uses **interactive visualization** and large language models (LLMs).



The screenshot shows the Observable website interface. At the top, there is a navigation bar with links for Product, Learn, Community, and Pricing, along with a search bar and Sign in/Sign up buttons. The main content area features a large heading: "The best dashboards are built with *code*." Below this, a text block states: "Observable offers a modern way to create and host powerful, performant data apps." The dashboard itself displays four data cards: "Current release" (0.6.13, 61 days ago), "GitHub stars" (3,602), "Daily npm downloads" (1,227), and "Total npm downloads" (1,227,576). A line chart is visible at the bottom right of the dashboard. A code editor window is overlaid on the dashboard, showing the following code:

```
docs > index.md > # Observable Plot downloads
97 Plot.ruleY([0]),
98 Plot.lineY(
99   downloads,
100   Plot.filter(
101     (d) => d.date >= start,
102     Plot.windowY(
103       {k: 7, anchor: "start", strict: true},
104       {
105         x: "date",
```

We use existing web-based data visualization platform Observable.

What if Smart Maps is applied to...

UCDP Georeferenced Event Dataset (GED) Global version 23.1

This dataset is UCDP's most disaggregated dataset, covering individual events of organized violence (phenomena of lethal violence occurring at a given time and place). These events are sufficiently fine-grained to be geo-coded down to the level of individual villages, with temporal durations disaggregated to single, individual days.

Available as:



Please cite:

- Davies, Shawn, Therese Pettersson & Magnus Öberg (2023). Organized violence 1989-2022 and the return of conflicts between states?. *Journal of Peace Research* 60(4).
- Sundberg, Ralph and Erik Melander (2013) Introducing the UCDP Georeferenced Event Dataset. *Journal of Peace Research* 50(4).

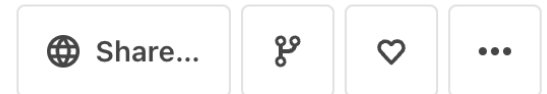
Uppsala Conflict Data Program / Georeferenced Event Dataset
https://ucdp.uu.se/downloads/index.html#ged_global

<https://observablehq.com/d/8c1b592ba7abe90d>



Hidenori FUJIMURA

UN Smart Maps Lead. We keep web maps open for a better world.



 **Public** By  Hidenori FUJIMURA  Edited Feb 15  Fork of UCDP GED Global version 23.1

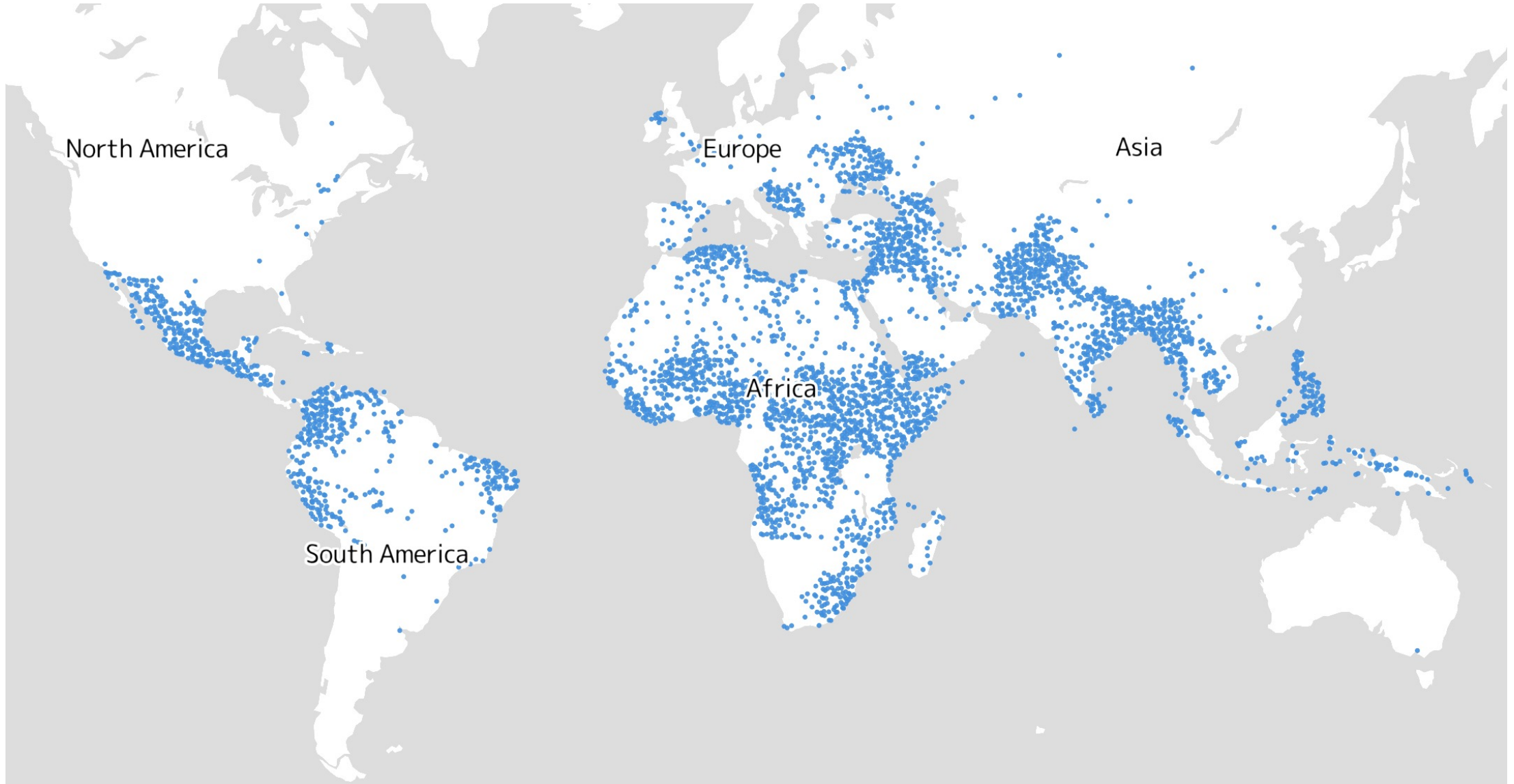
(cf-ipfs) UCDP GED Global version 23.1

- [uppsala-conflict](#)

```
maplibregl = ▶ Object {AJAXError: class, Evented: class, LngLat: class, MercatorCoordinate: class, Point: f(t, e), addProtocol: f(t, e),
```

<link>

UCDP GED



UCDP GED

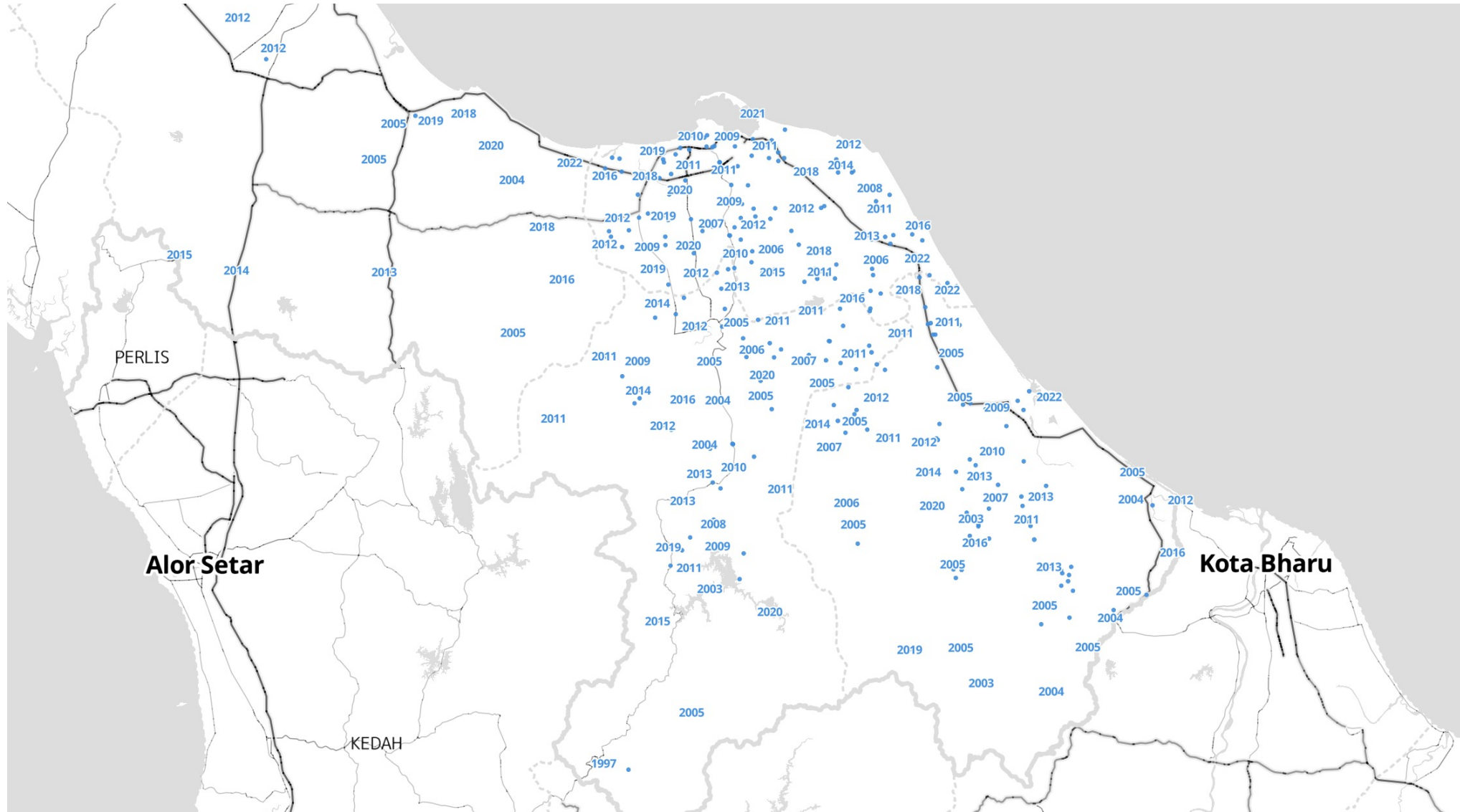


```

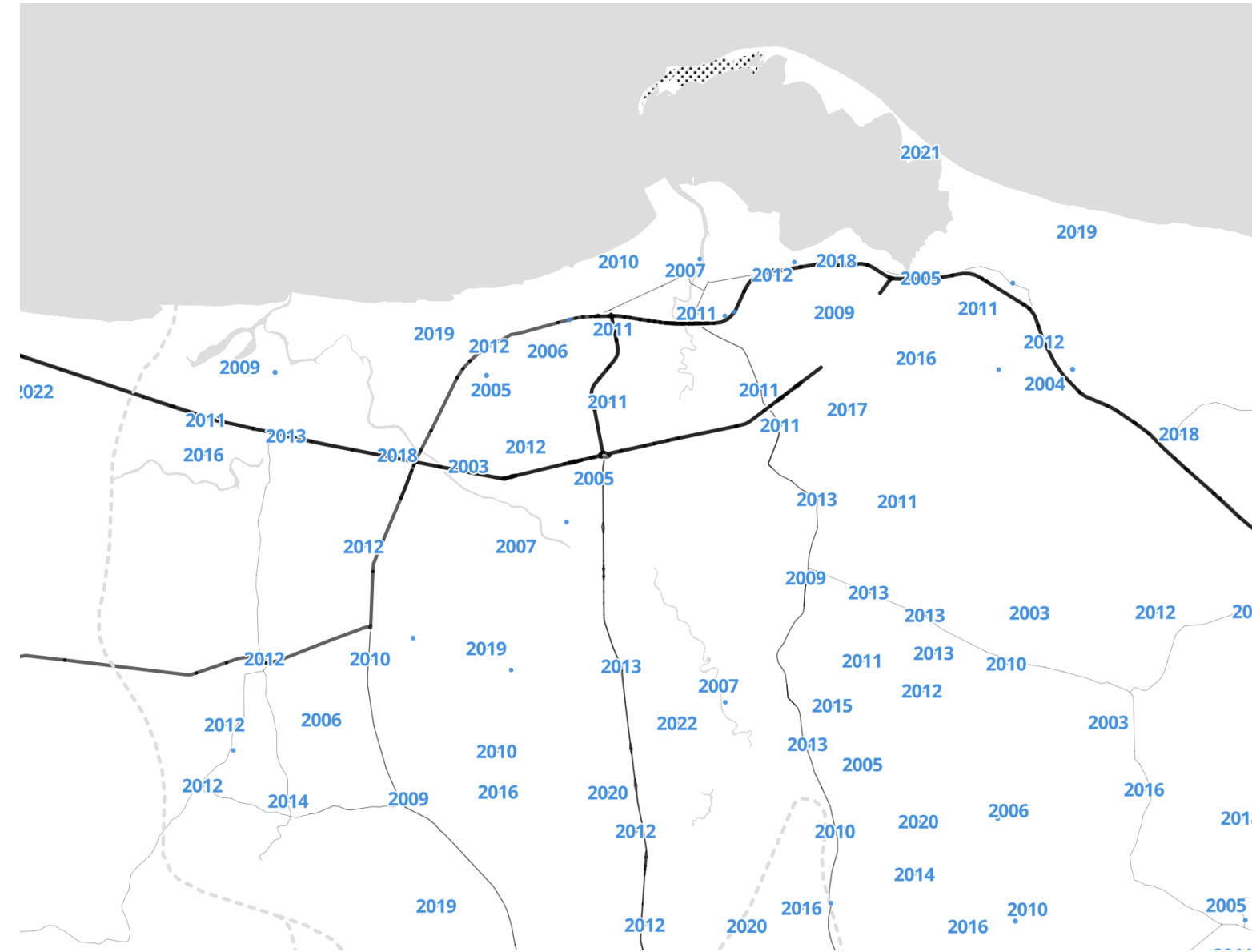
{
  id: 'event',
  source: 'event',
  'source-layer': 'event',
  type: 'circle',
  maxzoom: 22,
  paint: {
    'circle-radius': [
      'interpolate',
      ['exponential', 2],
      ['zoom'],
      2, 2,
      14, ['min', MAX_RADIUS, ['get', 'best']]
    ],
    'circle-color': '#418fde',
    'circle-opacity': 0.9
  },
  layout: {
  }
}

```

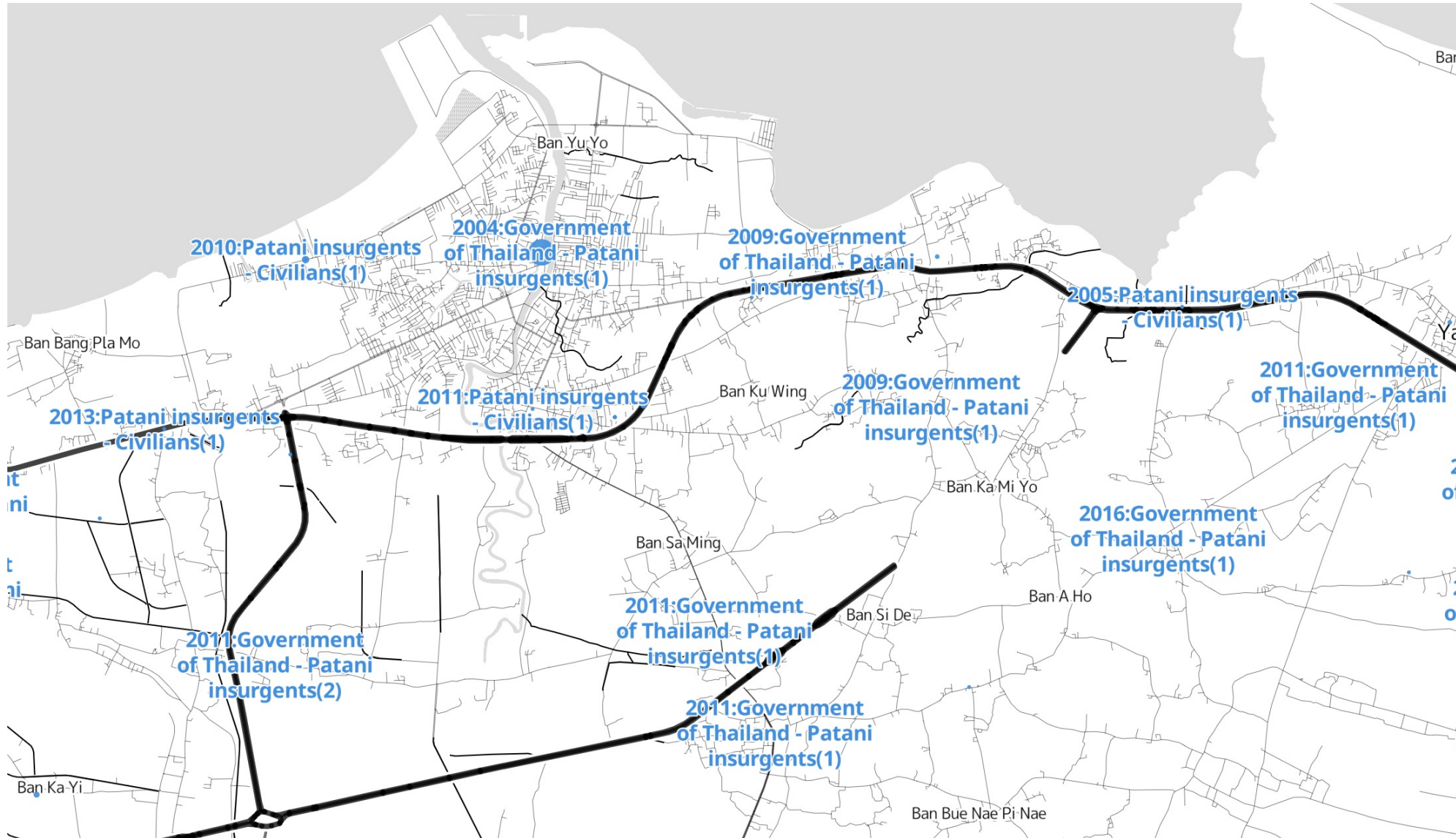
UCDP GED



UCDP GED



```
{
  id: "event-anno",
  minzoom: 8,
  type: "symbol",
  source: "event",
  "source-layer": "event",
  layout: {
    "text-field": [
      "step",
      ["zoom"],
      [
        "concat",
        ["get", "year"]
      ],
      10.1,
      [
        "concat",
        ["get", "year"],
        ":",
        ["get", "dyad_name"],
        "(",
        ["get", "best"],
        ")"
      ],
    ],
  },
}
```

UCDP GED



Observable docs

 [Observable ↗](#) [Forum ↗](#) [⋮](#)

Getting started

- Overview
- Platform and notebooks FAQ
- Observable Framework ↗

Notebooks

- Cells >
- Data >
- Inputs >
- Collections
- Debugging >
- [Forking](#)

Forking

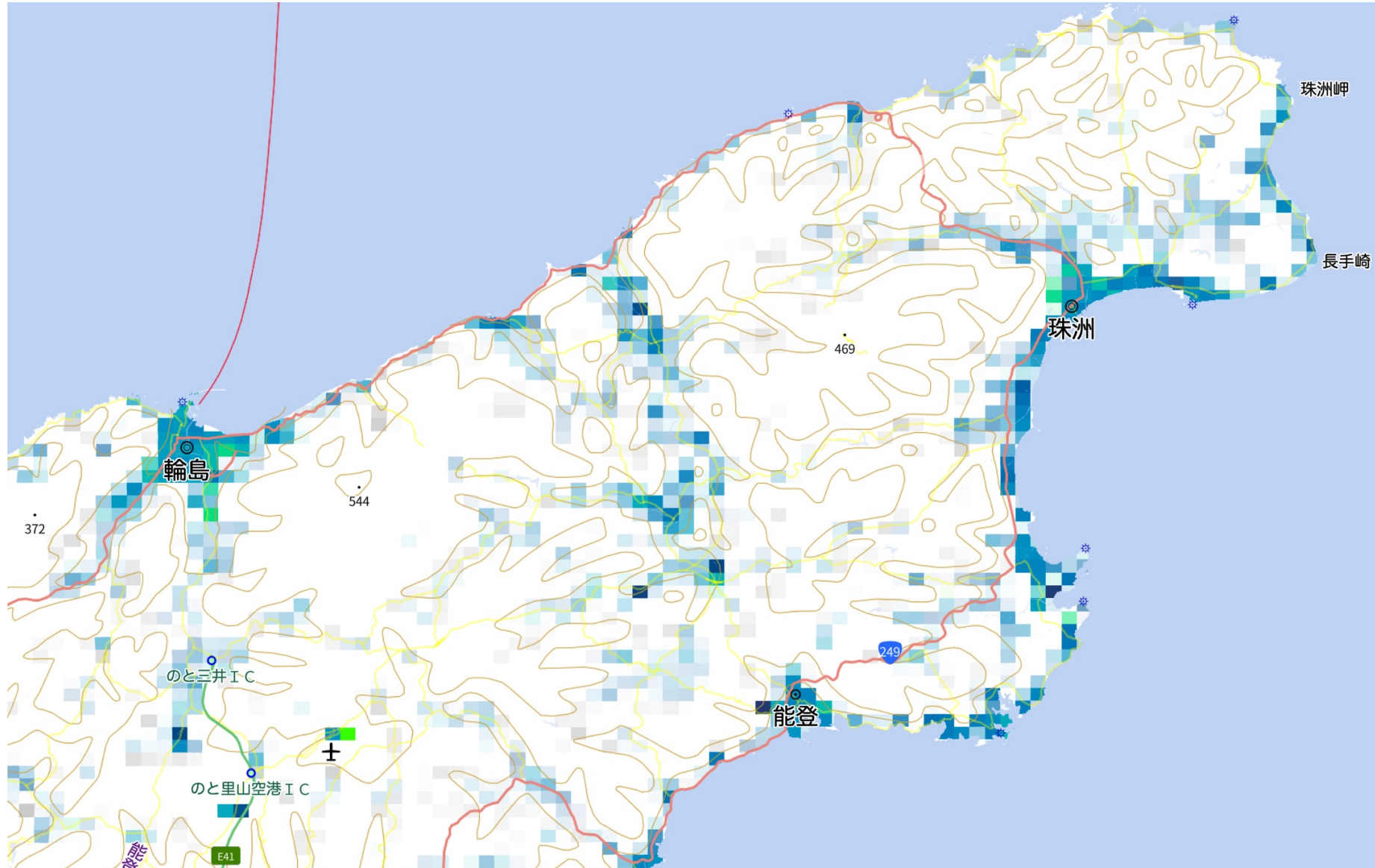
Notebooks [Learn about notebooks vs. projects](#)

Creating a fork of a notebook means to make your own copy, like suddenly making a fork in the road and going your own way. This is a fundamental concept in software development, but if this idea is new to you, think of it as making a copy of a recipe.

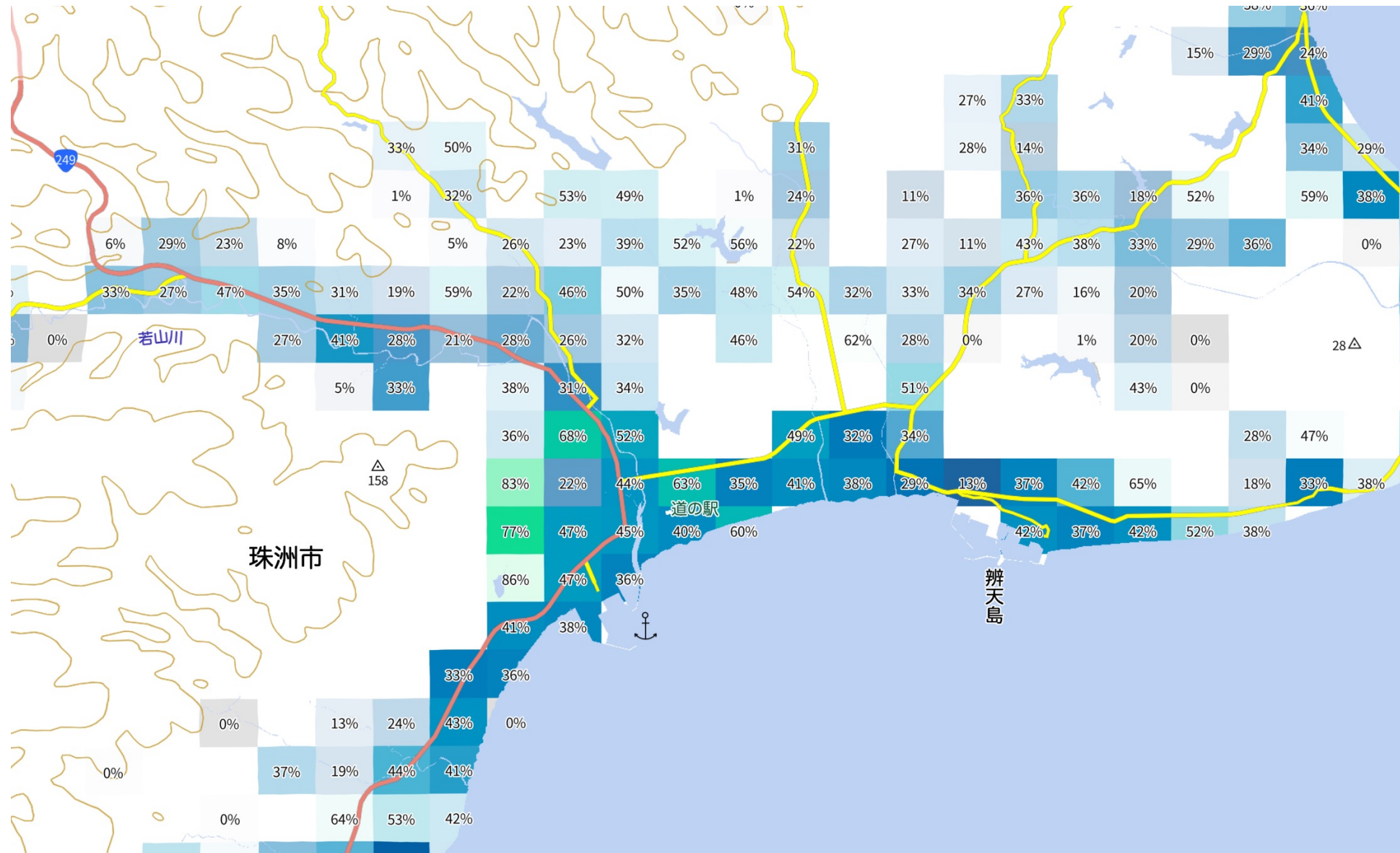
Once you have a copy, you can make changes without affecting the original—the forked copy of the recipe is yours to save, modify, or discard as you choose.

You can fork public notebooks, or notebooks where edit access has been shared with you. If you have been invited to only view a notebook, you will not be able to fork the notebook. In that event, the fork button will not appear and fork will not be a choice in the notebook menu.

Interactive mapping of population est.



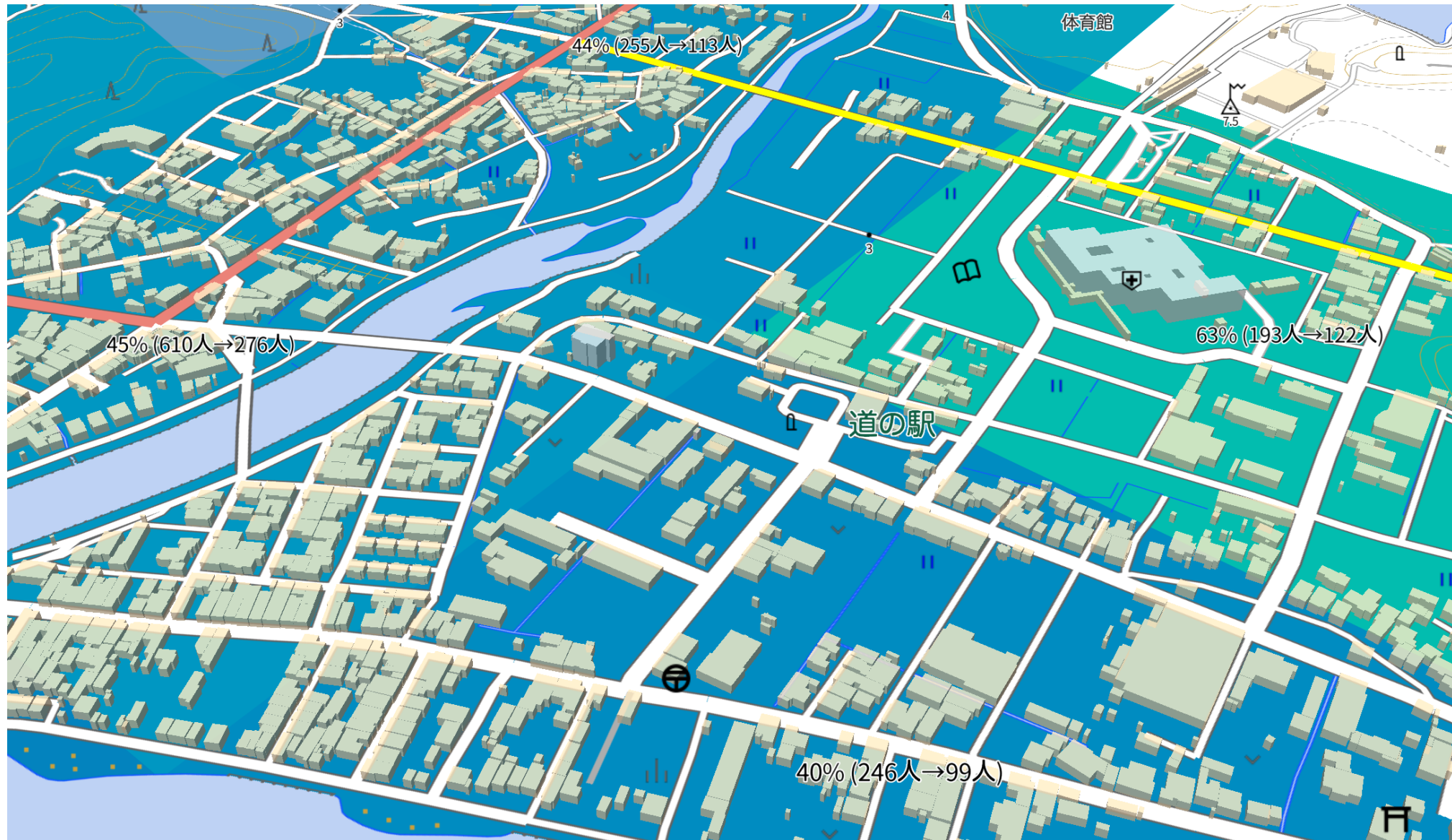
Population est. 2015 to 2050.



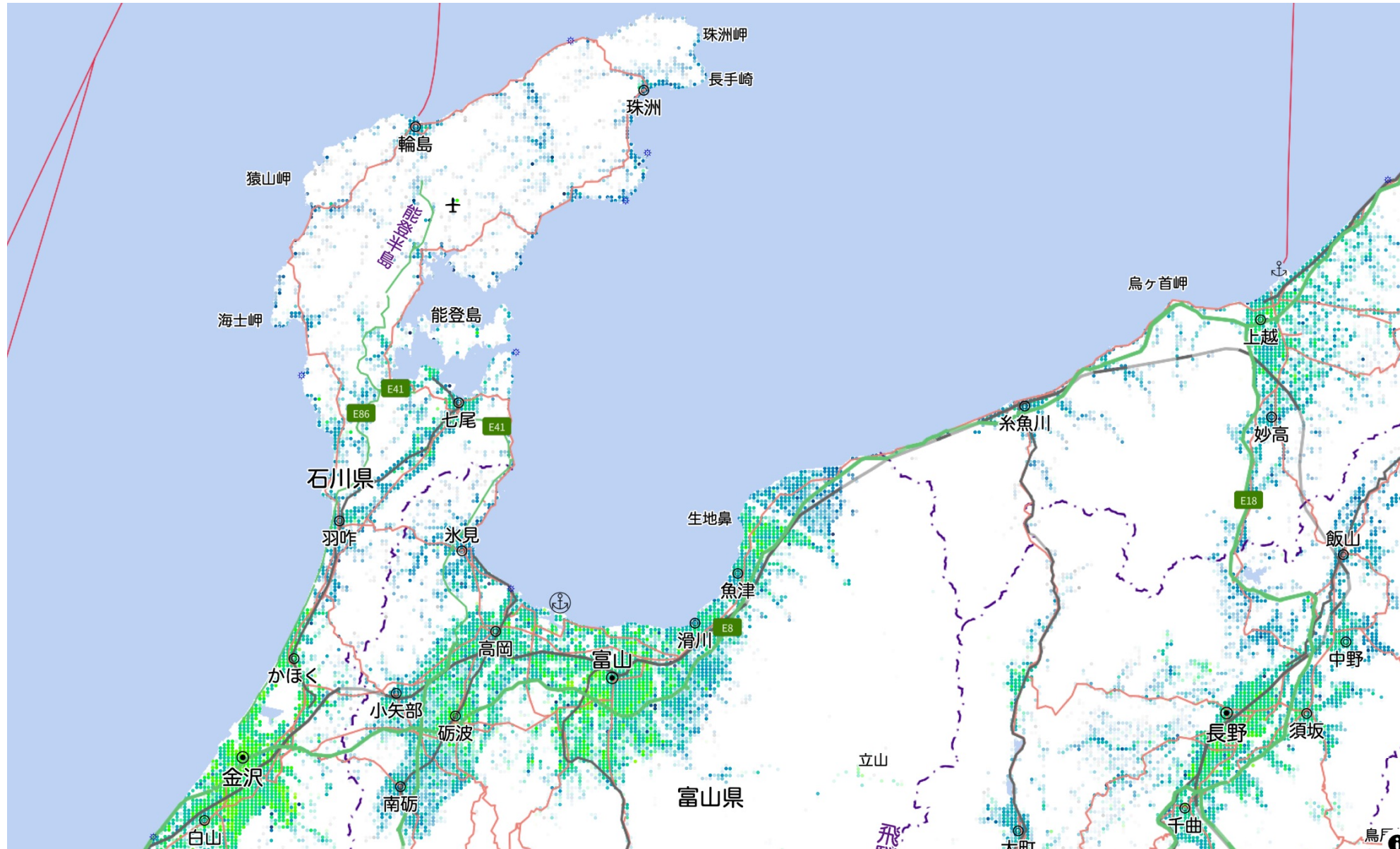
Population est. 2015 to 2050.



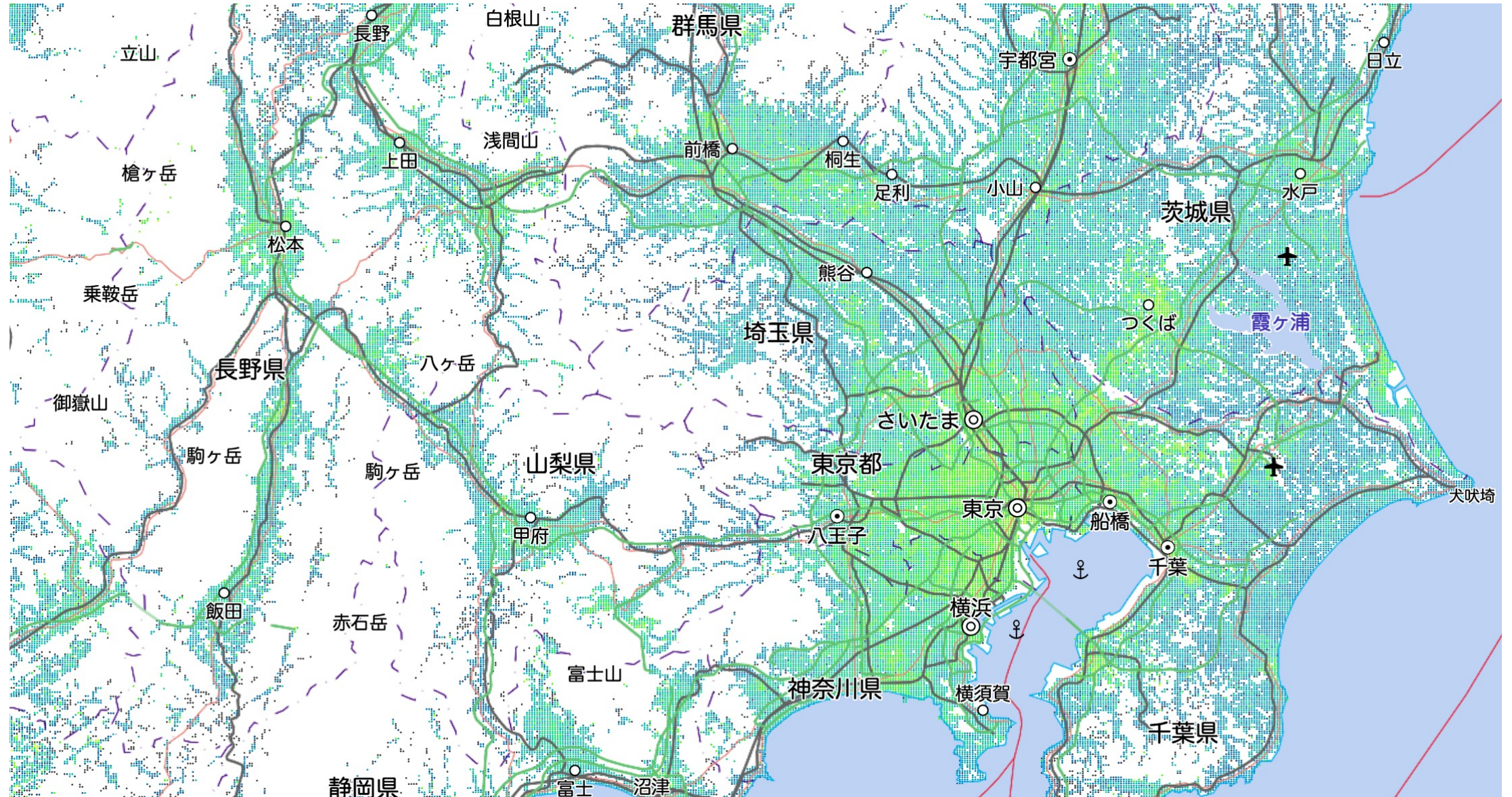
Population est. 2015 to 2050.



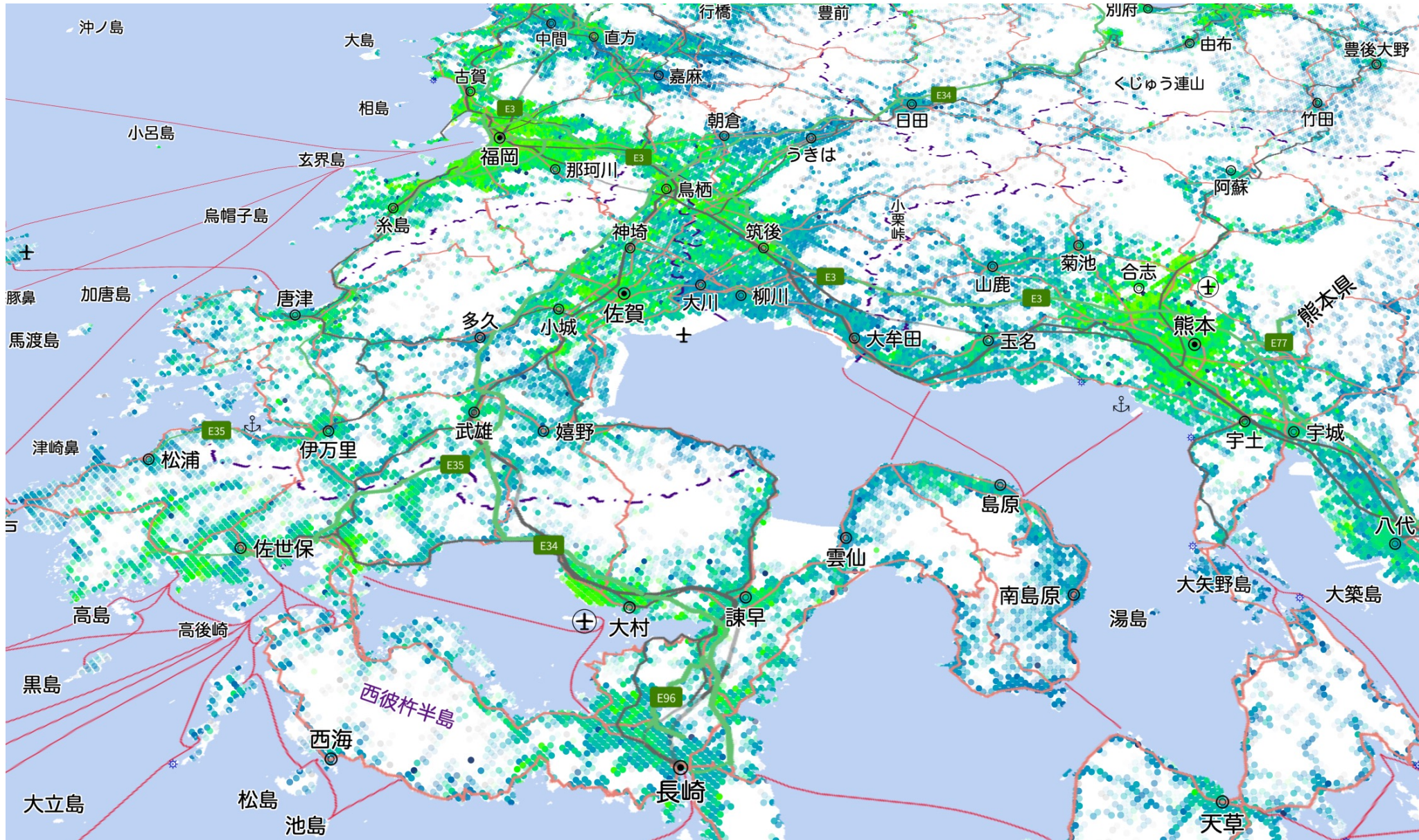
Population est. 2015 to 2050.



Population est. 2015 to 2050.



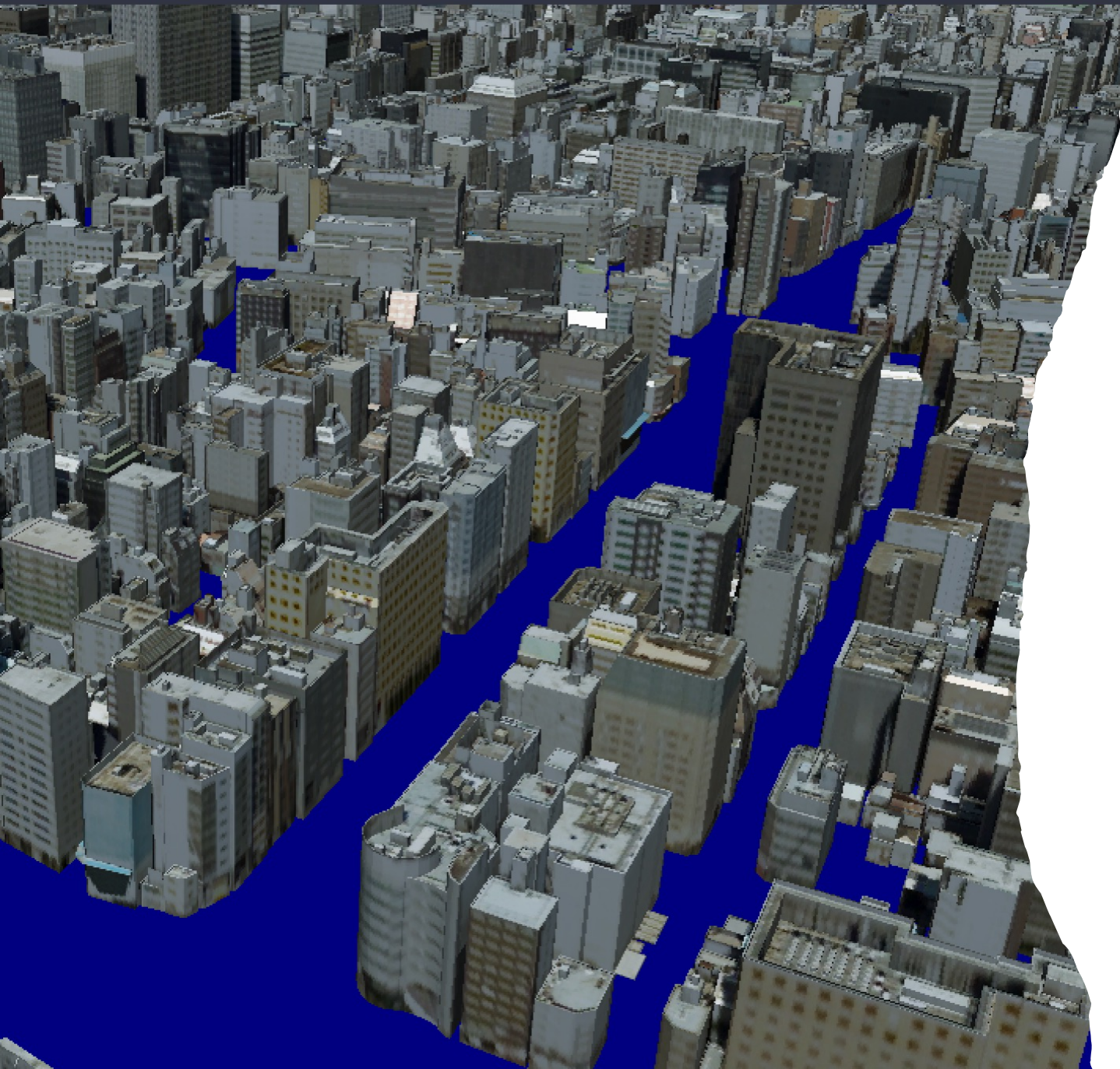
Population est. 2015 to 2050.





Point Cloud

- Open Data from Nagasaki prefecture.

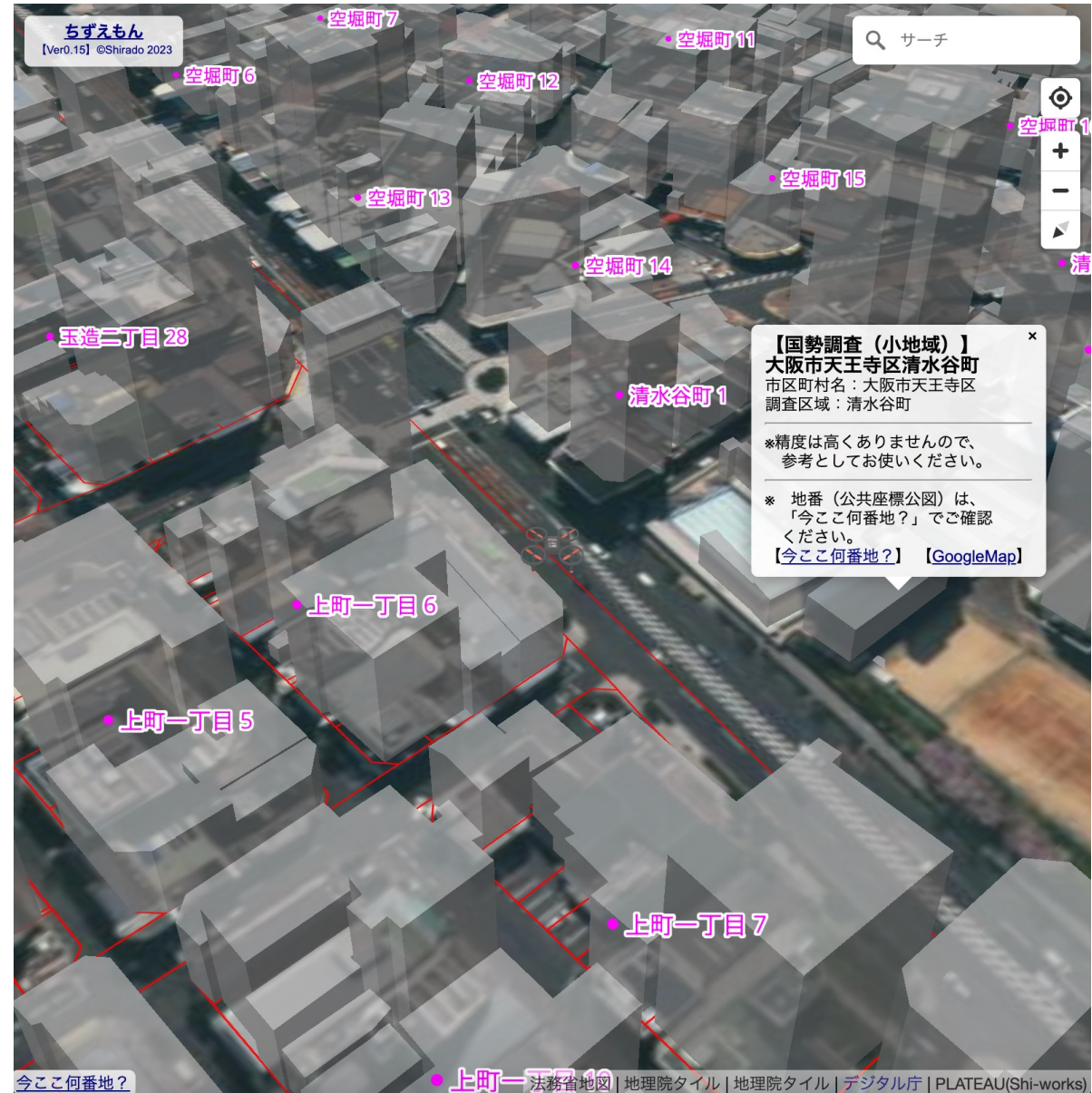


City Model

- 3D Tiles released by a Government Ministry (Project PLATEAU by MLIT)

Combined open cloud-native data in a simple web map.

Detailed city data from 2 ministries, 1 agency and 1 authority.



We promote **open,**
personal, and **interactive**
mapping that support
sensemaking.

Open Community supports Secured Data

Secured Data

We transfer technology and respect secured data.



Open Community

We test new open-source technologies with open data.

Open Data

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Open License

UN Smart Maps is committed to sharing
Open Source Software and Open Data.



Open Practice

UN Smart Maps is a Community of Practice.
We share best practices and lessons
learned.



Open Community

Anyone can join UN Smart Maps. We
welcome contributions from anyone.