FIG WORKING WEEK 2025
AND Locate25 THE NATIONAL GEOSPATIAL CONFERENCE
FIG Geospatial Council of Australia
Collaboration, Innovation and Resilience: Championing a Digital Generation
Brisbane, Australia 6–10 April

Geography and the Geospatial Ecosystem: Enabling Opportunities for a Digital Generation

Dr. Greg Scott
Executive Director
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PVBLIC Foundation

PVBLIC FOUNDATION
SDG DATA ALLIANCE

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Creating Impact

SDG DATA ALLIANCE

POWERING
NEW POSSIBILITIES
FOR SOCIAL IMPACT
PVBLIC FOUNDATION

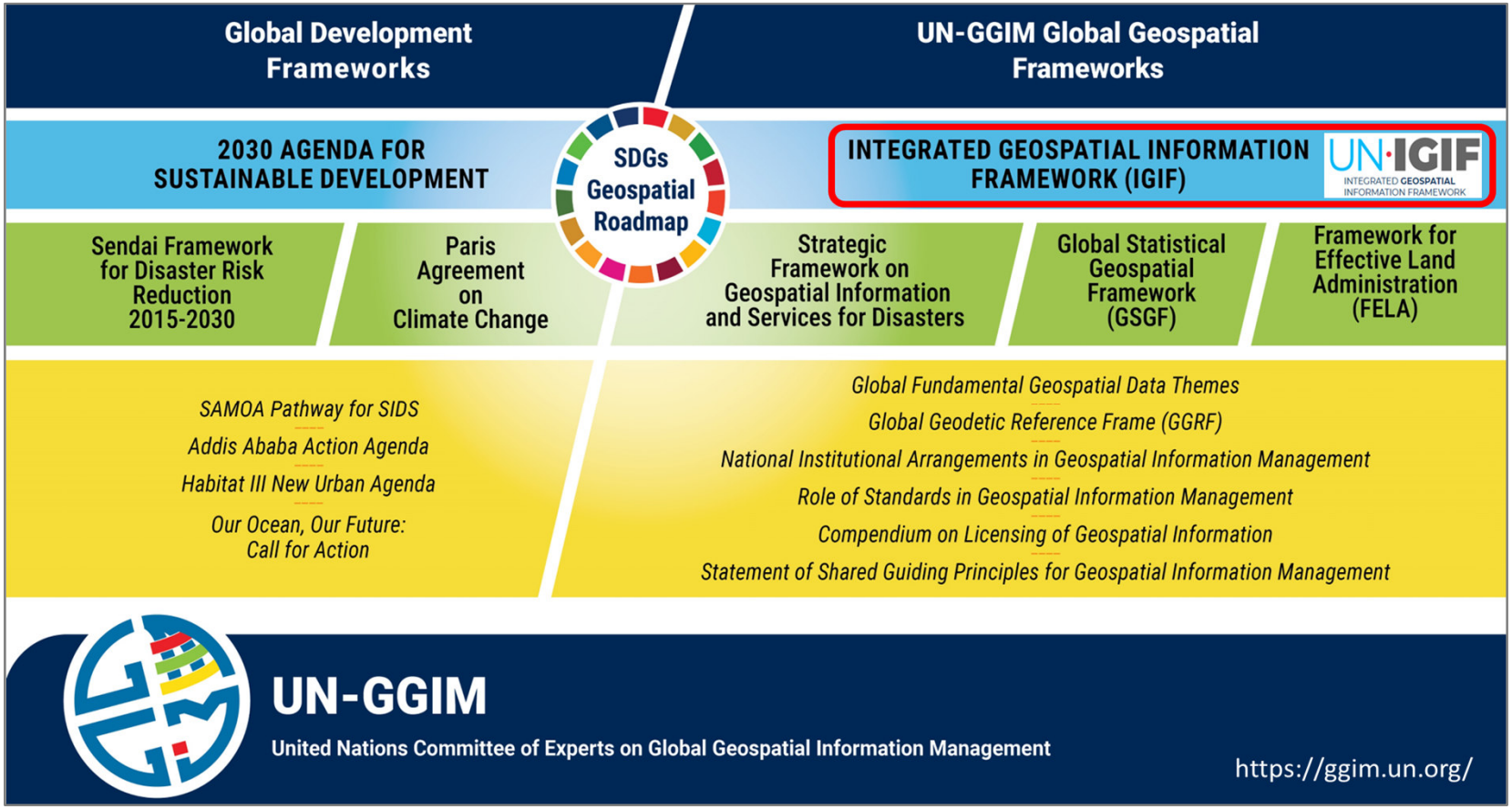
Launched in July 2021, the **SDG Data Alliance** is a strategic **impact program** within **PVBLIC Foundation**, fostering economic resilience in developing nations, through **data-driven insights** and **innovative tools** and **technologies**.

A **multi-stakeholder partnership** comprising the **private sector, foundations, UN organizations,** and **local and national governments**, the Data Alliance brings **geospatial technology capabilities, resources** and **training** to **developing countries** (especially LDCs and SIDS) with the goal of **accelerating** the **achievement of national sustainable economic development**.

Our **vision** is for **governments** to be able to **achieve the SDGs** with **people, data, technology, and processes**, creating a just, healthy, and prosperous world where no one is left behind.

Geography, the Geospatial Ecosystem, and Sustainable Development over the Past Decade

Geography, the Geospatial Ecosystem, and Sustainable Development over the Past Decade

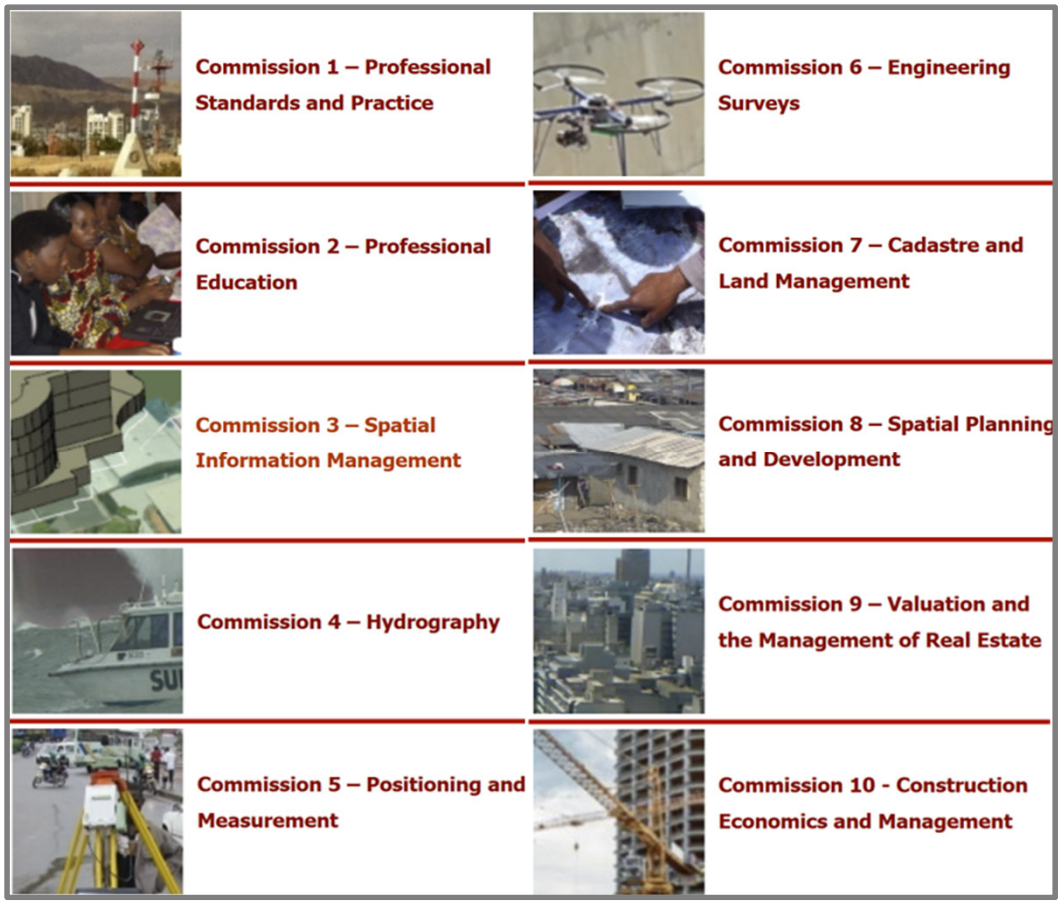


UN-GGIM
UNITED NATIONS COMMITTEE OF EXPERTS ON GLOBAL GEOSPATIAL INFORMATION MANAGEMENT

ECOSOC resolution 2022/24 defined **geospatial information management** and its many interrelated fields as:

"Geospatial sciences, geomatics, surveying, geography, land administration, geodesy, cartography and mapping, remote sensing, hydrography and oceanography, land/sea and geographic information systems and environmental sciences."

Geography, the Geospatial Ecosystem, and Sustainable Development over the Past Decade



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UN-GGIM
UNITED NATIONS
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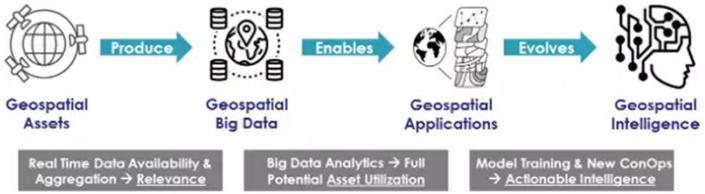
GLOBAL GEOSPATIAL
INFORMATION MANAGEMENT

- We are all in this together as professionals and experts in our respective fields.
- Geospatial, survey, and mapping agencies are increasingly joining hands with property (cadastre, land, planning, registrars and valuation) agencies, as they become more heavily involved in 'location data'.
- These new working trends in our profession are affecting all our disciplines - positively.
- When we think about sustainable development and "Enabling Opportunities for a Digital Generation", we must continue to Collaborate, Innovate, and be Resilient!

Geography, the Geospatial Ecosystem, and Sustainable Development over the Past Decade

- **Artificial Intelligence (AI) and Machine Learning (ML):** Integration into geospatial data analysis to efficiently detect patterns, anomalies, or changes is accelerating.
- **Big Data and Cloud Computing:** To manage, process, and share geospatial data at scale, making advanced technologies more accessible to more users.
- **Internet of Things (IoT):** Integration of IoT devices with geospatial technologies enables real-time data collection and analysis.
- **3D Mapping and Virtual Reality:** Enabling more immersive and intuitive visualization of spatial data.
- **Location-based Services:** Demand for location-based services and location intelligence is growing.
- **Data Collection and Generation:** Drones, satellites, and LiDAR are redefining how geospatial data is collected.
- **Business Model Transformation:** Democratizing access to advanced geospatial technologies, making them more affordable and accessible.

Credit: Santosh Kumar Bhoda



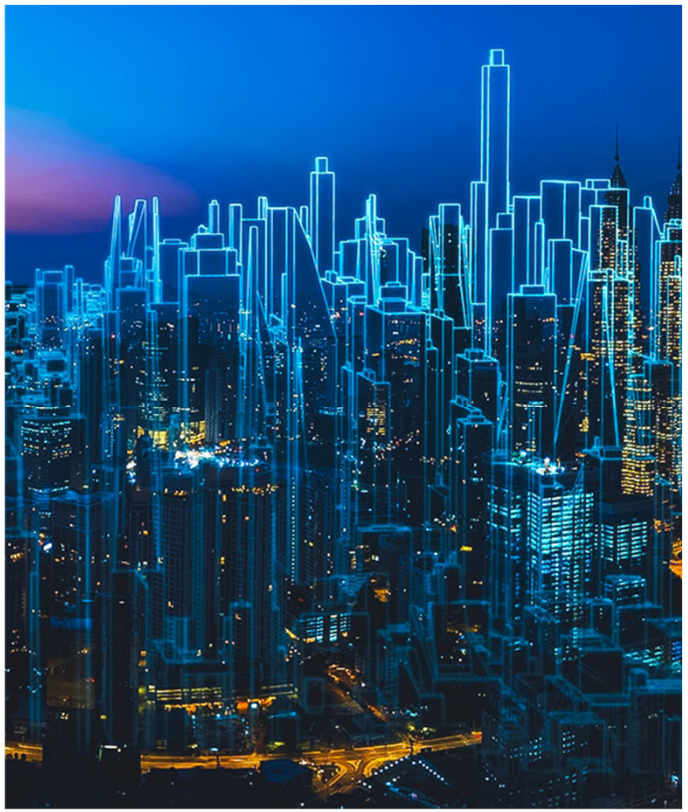
Geography, the Geospatial Ecosystem, and Sustainable Development over the Past Decade

Sustainability is top of the agenda!

- **Sustainability and Environmental Monitoring:** Geospatial technologies are playing a crucial role in monitoring and managing the environment, including climate change, deforestation, and resource management.
- Geospatial technology has emerged as a pivotal tool in environmental conservation, enabling precise mapping, monitoring, and management of natural resources.
- Geospatial technology also enables continuous monitoring and assessment of key climate-related parameters. It provides real-time data on land cover changes, deforestation, glacier melting, sea ice extent, and carbon dioxide emissions.

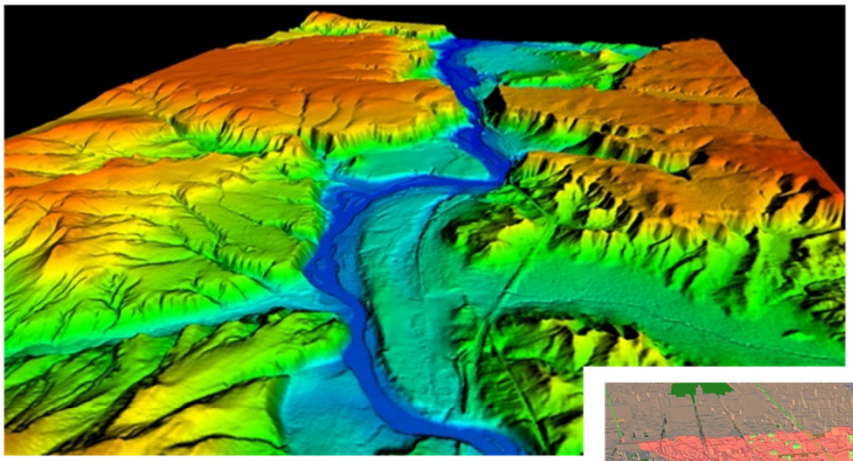
Credit: Santosh Kumar Bhoda

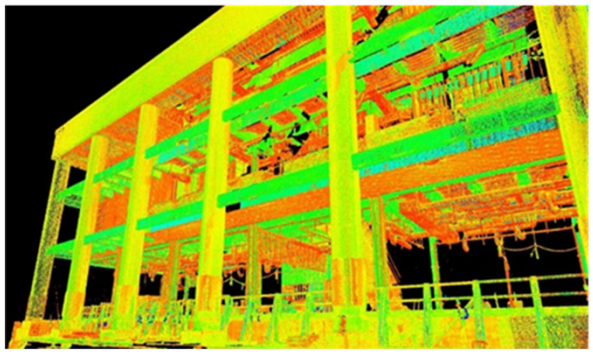
How is Our Professional Community Rising to These Global Challenges?

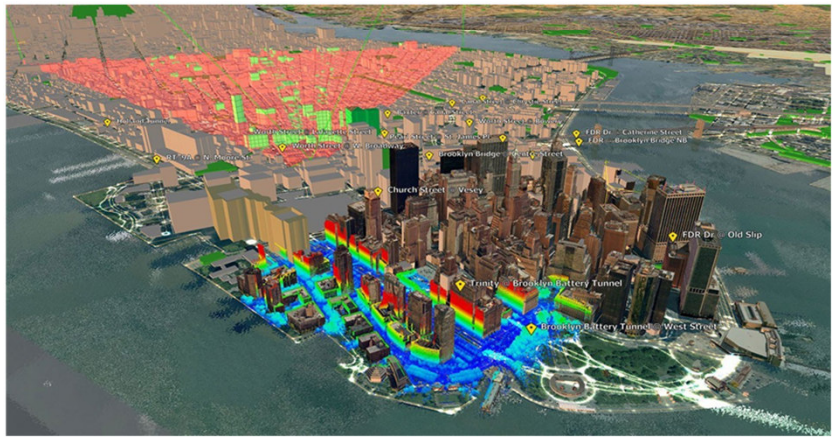


We are Building Geospatial Intelligence into our Cities

How is Our Professional Community Rising to These Global Challenges?







With More Geospatial Data, Modelling and Analytics

How is Our Professional Community Rising to These Global Challenges?

The disruptive nature of digital transformation, technology, innovation, and their exponential impacts, means that society's expectations on how, and at what level of detail, we record what is happening where and when are changing at a rapid pace.

Combined with Disruptive Technologies, AI, Innovation & Smart Digital Transformations

Many Countries Continue to Face Systemic Challenges and Impediments

Where in the World are We?

As of 31 March 2025, the current world population is…

8.214 billion

The population of developing countries (excluding China – 1.4 billion) now numbers…

5.3 billion

If we include China, 84% of the world's population is from the developing world.

Less than 1.5 billion people live in the developed world!

95% of population growth is in the developing world.

How many of the world's population live in cities?

TOP 20 LARGEST COUNTRIES BY POPULATION (LIVE)

1	India	1,460,607,488	11	Mexico	131,673,339
2	China	1,416,905,391	12	Japan	123,266,293
3	U.S.A.	346,810,453	13	Egypt	117,904,293
4	Indonesia	285,158,706	14	Philippines	116,549,337
5	Pakistan	254,221,626	15	DR Congo	111,928,609
6	Nigeria	236,300,733	16	Vietnam	101,444,774
7	Brazil	212,607,725	17	Iran	92,203,483
8	Bangladesh	175,150,899	18	Turkey	87,632,234
9	Russia	144,203,649	19	Germany	84,194,663
10	Ethiopia	134,606,869	20	Thailand	71,631,950

Many Countries Continue to Face Systemic Challenges and Impediments

Since 2007, more than half the world's population live in cities, where 70% of global GDP is generated. **Today, 56% (4.4 billion) people live in urban areas, projected to rise to 70% by 2050**, when 2 out of 3 people will live in cities. **90% of that growth will be in Asia and Africa**.

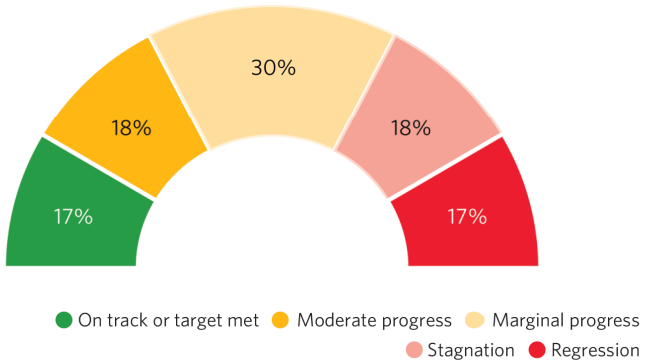
Many Countries Continue to Face Systemic Challenges and Impediments

2024 Sustainable Development Goals Report

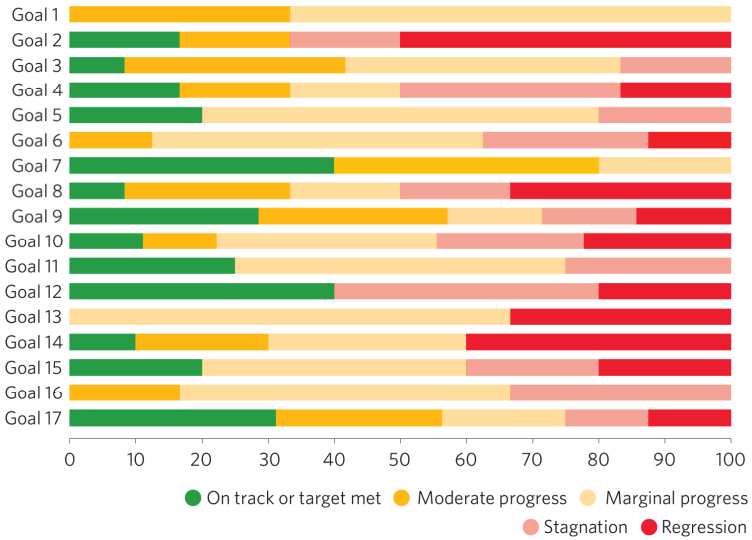
I. The current status of the SDGs: severely off track

The progress assessment carried out in 2024 reveals that the world is severely off track to realize the 2030 Agenda. Of the 169 targets, 135 can be assessed using available global trend data from the 2015 baseline to the most recent year, along with custodian agency analyses; 34 targets lack sufficient trend data or additional analysis. Among the assessable targets, only 17 per cent display progress sufficient for achievement by 2030. Nearly half (48 per cent) exhibit moderate to severe deviations from the desired trajectory, with 30 per cent showing marginal progress and 18 per cent moderate progress. Alarmingly, 18 per cent indicate stagnation and 17 per cent regression below the 2015 baseline levels.[1] This comprehensive assessment underscores the urgent need for intensified efforts to put the SDGs on course. Detailed analysis by target can be found at the end of this report.

Overall progress across targets based on 2015–2024 global aggregate data



Progress assessment for the 17 Goals based on assessed targets, by Goal (percentage)



https://unstats.un.org/sdgs/report/2024/

Many Countries Continue to Face Systemic Challenges and Impediments

The Urban Digital Divide

Many Countries Continue to Face Systemic Challenges and Impediments

The Geospatial Digital Divide

Many Countries Continue to Face Systemic Challenges and Impediments

Our World is Data Rich…
and a Data Desert!

The availability of, and accessibility to, data, as a basic human right, **remains the missing link.**

Despite the significan… …quisition and geospa… **technologies** across the … …ecade, many **devel… countries still lack the** … …, tools and tech… to **track progress** tow… …lopment asp…

These gaps make it **challe…** …s to **achieve the S…** and make **informed develop…ent d…cisions** that lead to **bett… policies and investments.**

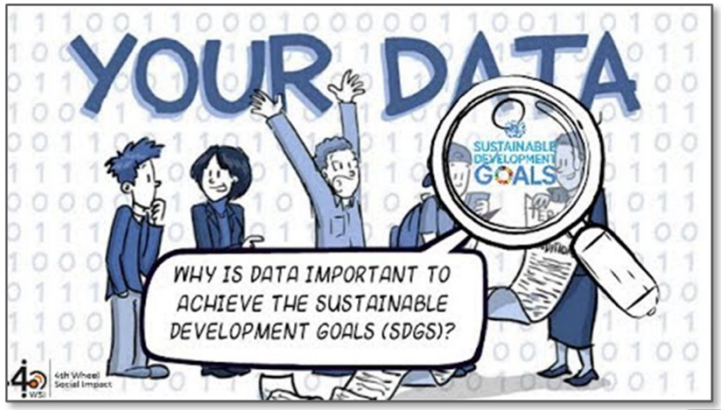
Countries continue to face **impediments** that limit their ability to address the **adverse impacts** of **climate change**, **inequality, limited resources**, **vulnerability to external shocks**, **geographic remoteness**, and **institutional challenges**.

Why?

Because much of our data is still largely invisible. Agencies do not know how to best use it and extract the real value, purpose and impact from it!

How can Our Professional Community Create Enabling Opportunities for a Digital Generation?

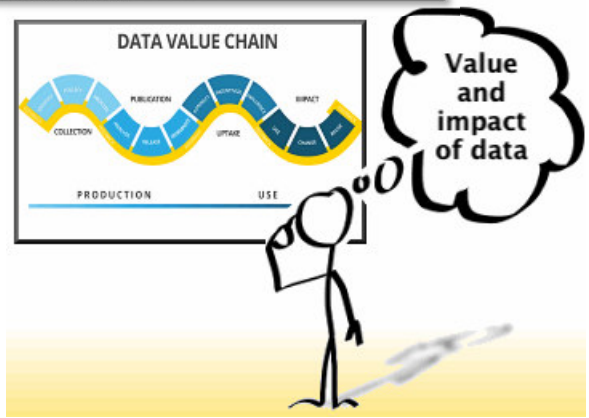
Ensuring our Data has Impact!



If data is **arranged, organized and structured**, it then becomes the building blocks of information.

Then the real digital data value begins…

From (often integrating) **Data**
we build **Information**
enabling us to create **Knowledge** (or **Understanding**) which provides with it **Insights**
enabling us to then make **Decisions**
in such a way as to take **Action**
that has measurable **Impact**.



The Data Value Chain:

Data > Information > Knowledge/Understanding > Insights > Decisions > Action > Impact

How can Our Professional Community Create Enabling Opportunities for a Digital Generation?

Small Island Developing States (SIDS)

At the **Fourth International Conference on SIDS (SIDS4)** in Antigua & Barbuda in May 2024, world leaders adopted the **'Antigua & Barbuda Agenda for SIDS: A Renewed Declaration for Resilient Prosperity' (ABAS)**. On 16 July, the UN General Assembly endorsed the adoption of the ABAS.

As a key element of the ABAS, a **SIDS Centre of Excellence (CoE),** inclusive of a **SIDS Global Data Hub**, was launched at **SIDS4**.

The **SIDS CoE** and the **SIDS Global Data Hub** will address the many ongoing data challenges faced by SIDS, providing new **data, enabling tools, technologies, capacities and information systems**.

The **SDG Data Alliance** developed, demonstrated and **published** a 'prototype' **SIDS Global Data Hub** to provide tangible insights into what capabilities will be possible for SIDS in the future.

How can Our Professional Community Create Enabling Opportunities for a Digital Generation?

Supporting the ABAS and SIDS

Since SIDS4, the **SDG Data Alliance** has continued its momentum to **support SIDS** and the **implementation of the ABAS**, particularly with the **SIDS Global Data Hub**.

This included at **regional** and **global convenings**, including the **UN General Assembly (UNGA)** and **COP**, as well as dedicated regional SIDS Workshops in the **Caribbean** and **Pacific.**

Our strategy for engaging with SIDS to bring them into the SIDS Global Data Hub process is to **engage with countries and stakeholders directly** as regional groupings, initially conducting 'deep dive' 5-day technical **capacity-building** sessions.

How can Our Professional Community Create Enabling Opportunities for a Digital Generation?

Applying Data and Solutions to real Problems

Aligning national data assets

Housing
Parcels
Coastal data
Road assets and conditions
Emergency services
Gas pipelines, oil, power lines
Water networks
Building Layers
Population
Schools and education
Health facilities and services
Statistical values

…to national priorities

Disaster resilience
Oceans and resources
Economic prosperity
Employment
Social well-being
Tourism
Urbanisation
Climate mitigation
Health services
Land tenure
Rising sea levels
Environment

How can Our Professional Community Create Enabling Opportunities for a Digital Generation?

Applying Data and Solutions to real Problems

Real Questions:
To increase climate resilience for my Island country…..

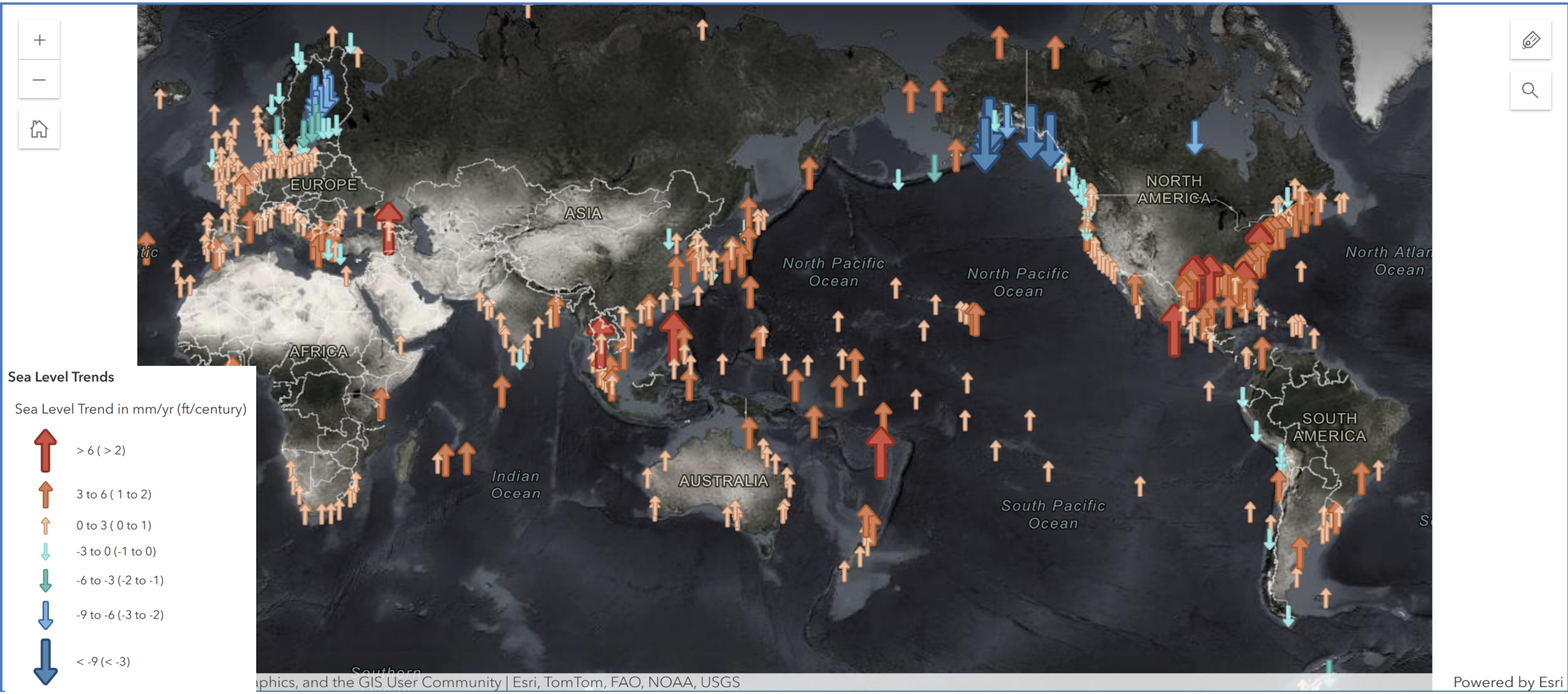
How do I better understand my vulnerability to coastal erosion, sea-level rise, storm surge, and other inundation?
Where are my greatest vulnerabilities?
Who may be impacted?
What associated adaptation/mitigation measures do I need to take?
When?

Climate | SIDS Global Data Hub

Global Sea Level Trends

arcgis.com/apps/instant/basic/index.html?appid=e45f6a6b08c144d08ec14fe46b9b7e0f

Global Sea Level Trends



Contextualizing Data

What is the hottest year on record?

COP29

2024 is the hottest year on record, EU scientists say

By **Kate Abnett** and **Alison Withers**

December 9, 2024 9:36 AM EST · Updated 7 hours ago

BRUSSELS, Dec 9 (Reuters) - This year will be the world's warmest since records began, with extraordinarily high temperatures expected to persist into at least the first few months of 2025, European Union scientists said on Monday.

The data from the EU's Copernicus Climate Change Service (C3S) comes two weeks after U.N. climate talks yielded a $300 billion deal to tackle climate change, a package poorer countries blasted as insufficient to cover the soaring cost of climate-related disasters.

C3S said data from January to November had confirmed 2024 is now certain to be the hottest year on record, and the first in which average global temperatures exceed 1.5 degrees Celsius (2.7 degrees Fahrenheit) above the 1850-1900 pre-industrial period.

The previous hottest year on record was 2023.

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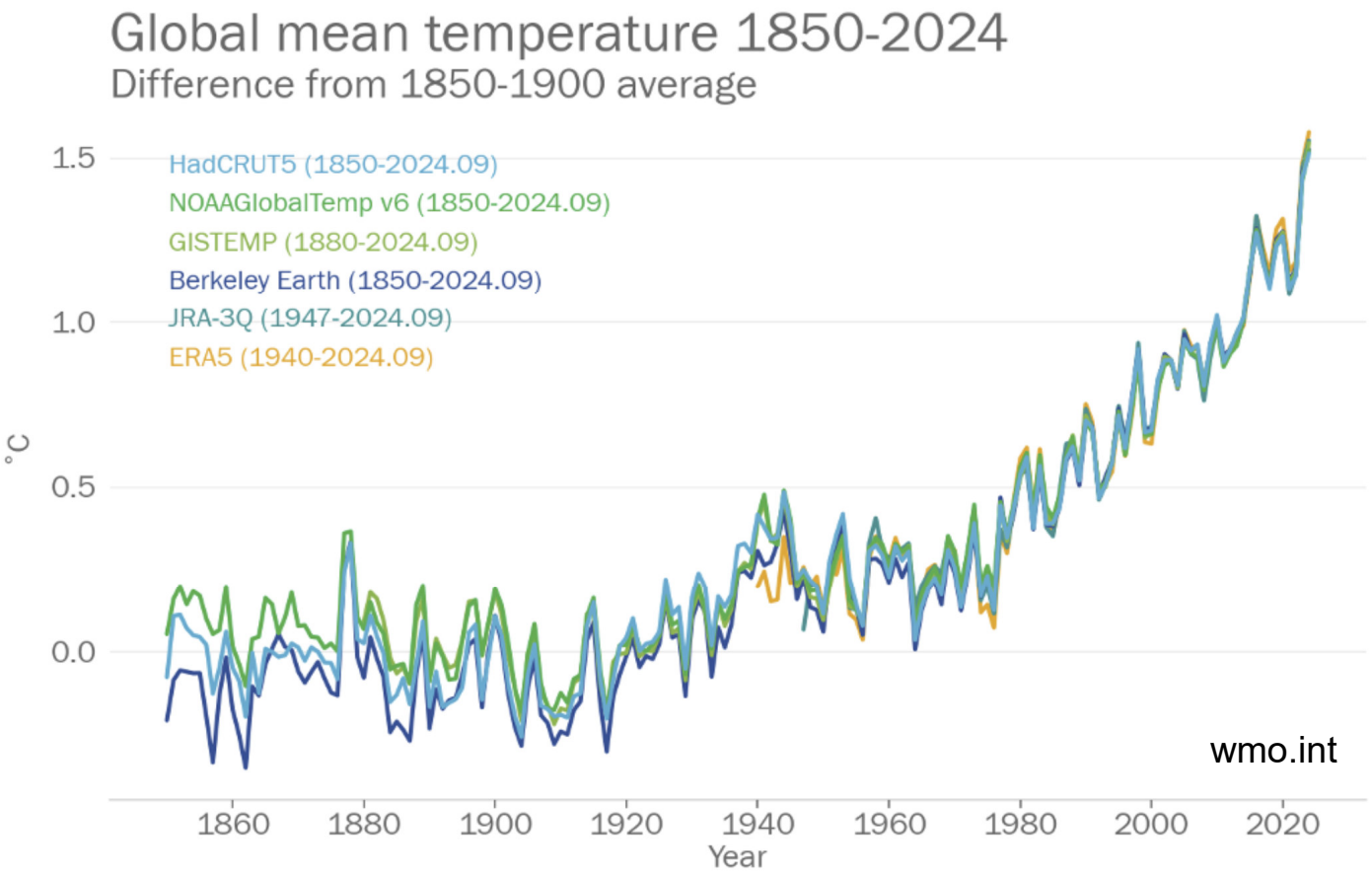
Contextualizing Data

What is the hottest year on record?

Land-Ocean Temperature Index (C)

Year	No_Smoothing	Lowess(5)
1880	-0.18	-0.10
1881	-0.09	-0.14
1882	-0.11	-0.17
1883	-0.18	-0.21
1884	-0.29	-0.24
1885	-0.33	-0.27
1886	-0.32	-0.28
1887	-0.37	-0.28
1888	-0.18	-0.27
1889	-0.11	-0.26
1890	-0.36	-0.26
1891	-0.23	-0.26
1892	-0.28	-0.27
1893	-0.32	-0.27
1894	-0.31	-0.25
1895	-0.23	-0.23
1896	-0.12	-0.21
1897	-0.12	-0.19
1898	-0.28	-0.17
1899	-0.18	-0.18
1900	-0.09	-0.21



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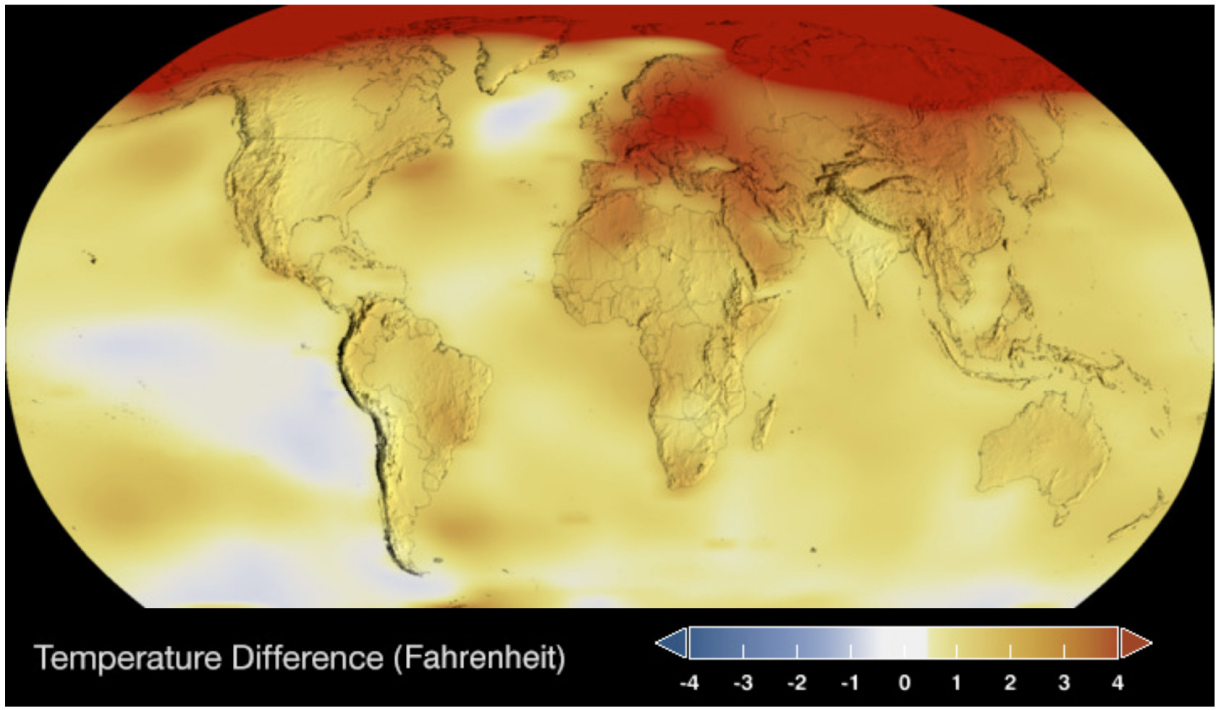
Contextualizing Data

What is the hottest year on record?

Data source: NASA/GISS
Credit: NASA's Scientific Visualization Studio



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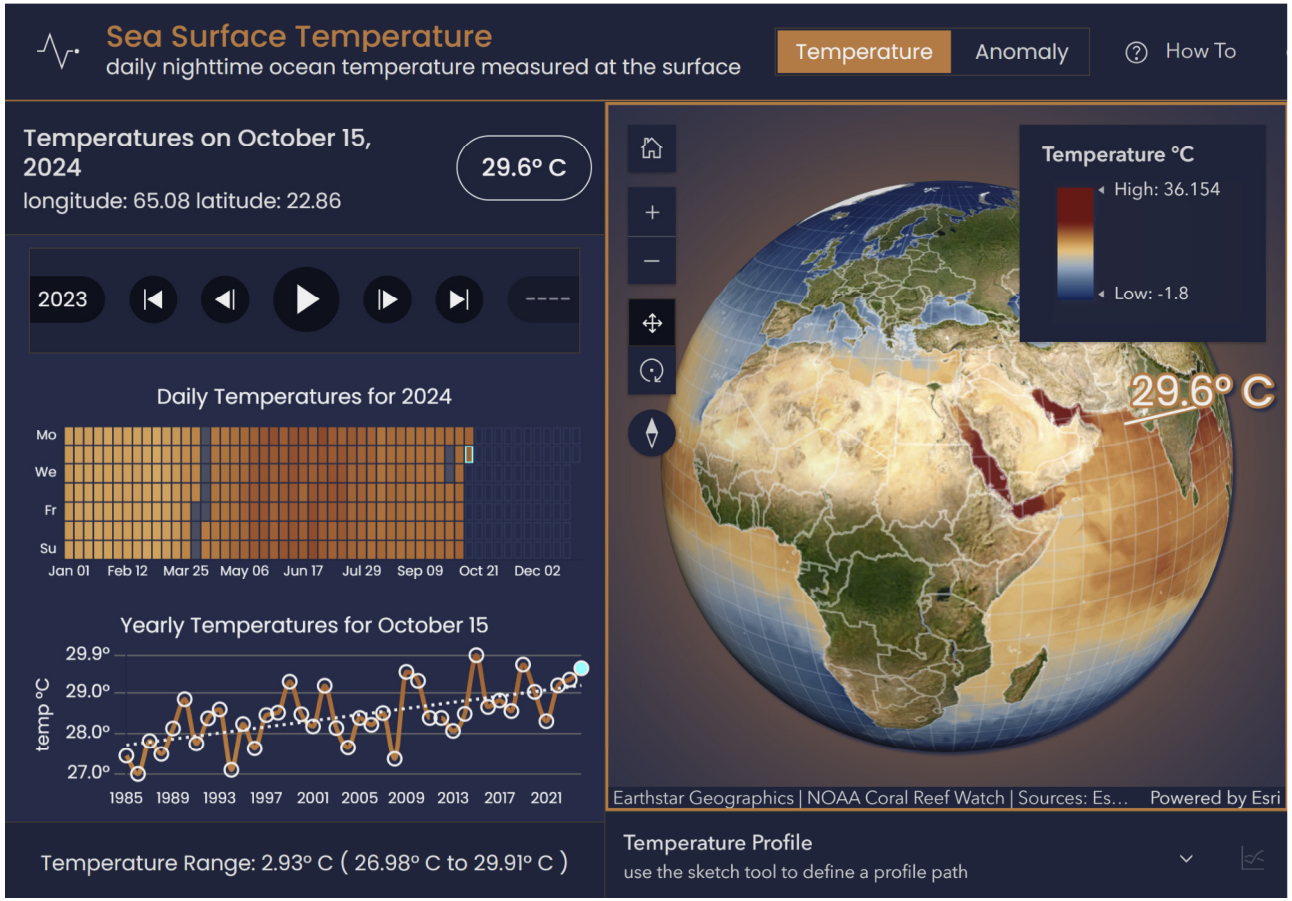
Contextualizing Data

SIDS Global Data Hub
SIDS Voices | SIDS Future | SIDS Solutions
Charting the Course Toward Resilient Prosperity



CLIMATE

SIDS are particularly vulnerable to the adverse impacts of climate change, including, erratic precipitation, increasingly frequent and extreme weather phenomena, more frequent and severe tropical cyclones, floods and drought, diminishing fresh water resources, desertification, coastal erosion, land degradation and sea-level rise, which represent the gravest of threats to the survival and viability of their people, natural ecosystems, and overall sustainable development. The impacts and implications of climate change on SIDS include humanitarian, economic, social, cultural, ecological and, as exacerbated by other factors, security consequences.

Explore Climate

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For more information

SDG.ORG

SIDS.SDG.ORG

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