



UNITED NATIONS GLOBAL GEOSPATIAL INFORMATION  
MANAGEMENT SUBCOMMITTEE ON GEODESY

GLOBAL GEODESY FORUM

**THE POWER OF WHERE –  
THE VALUE OF GEODESY TO SOCIETY**



UN-GGIM

United Nations Committee of Experts on  
Global Geospatial Information Management

Subcommittee on  
Geodesy

*Positioning geospatial information to address global challenges*

[ggim.un.org](http://ggim.un.org)



**Moderator**

**Mr. Nicholas Brown**

*Co-Chair, UN-GGIM Subcommittee on Geodesy*

**Opening Address**

**His Excellency Ambassador Peter Thomson**

*UN Secretary-General's Special Envoy for the Ocean*

**Safer and more resilient communities**

**Dr. Tulu Besha Bedada**

*Director General, Geospatial Information Institute,  
Ethiopia*

**Economic benefits from investment in geodesy**

**Dr. Martine Woolf**

*Leader of Positioning Australia program,  
Geoscience Australia*

**Our lifestyle is improved by geodesy**

**Prof. Paul Becker**

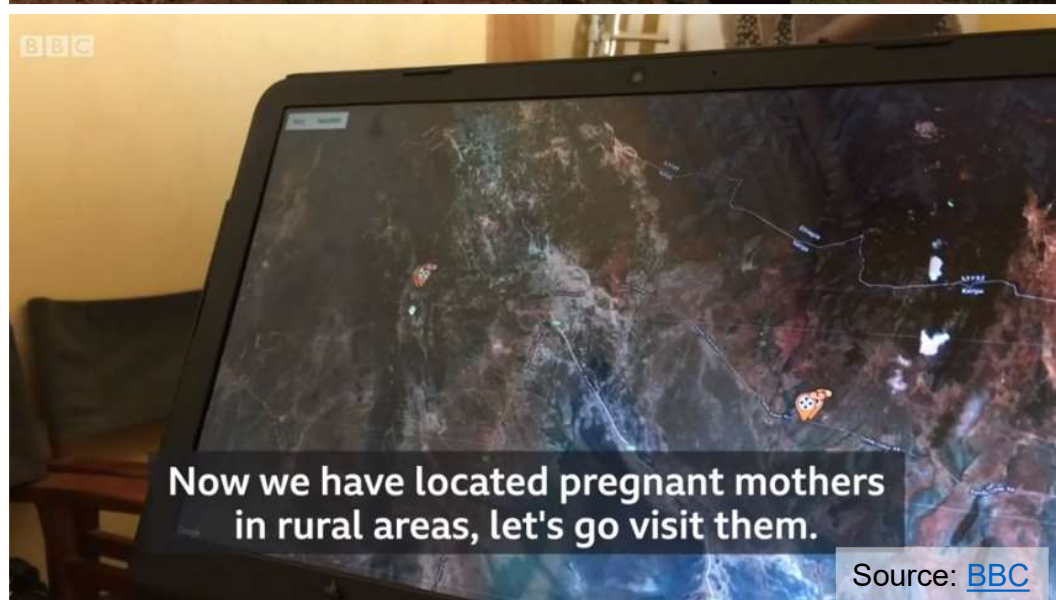
*President of Federal Agency for Cartography and  
Geodesy, Germany*

**Sustainable development has geodesy at its core**

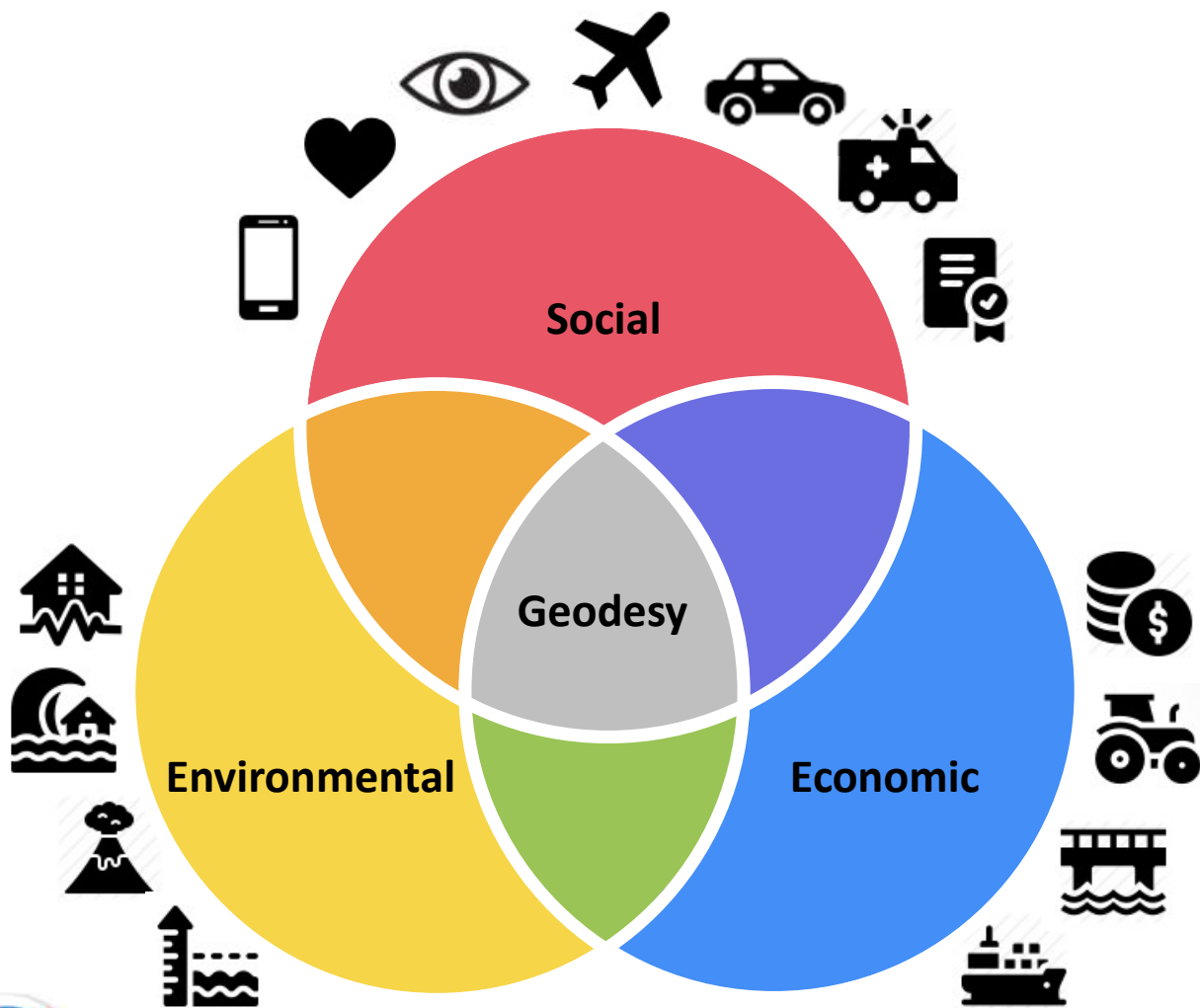
**Mrs. Paloma Merodio Gómez**

*Vice President of the National Institute of Statistics  
and Geography, Mexico*





Source: [BBC](#)



# Geodesy

“Science of measuring the **shape, orientation** and **gravity field** of the Earth and how it changes over **time**.”



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# Sustain the entire value chain

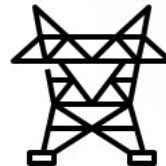
COAL / SUN



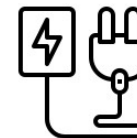
POWER PLANT



POWER LINES



HOME SUPPLY



CHARGED PHONE



Source

Production

Transmission

Access

Application

GEODETIC  
INFRASTRUCTURE



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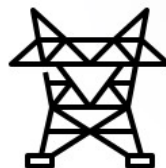
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POWER PLANT



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IAG SERVICES



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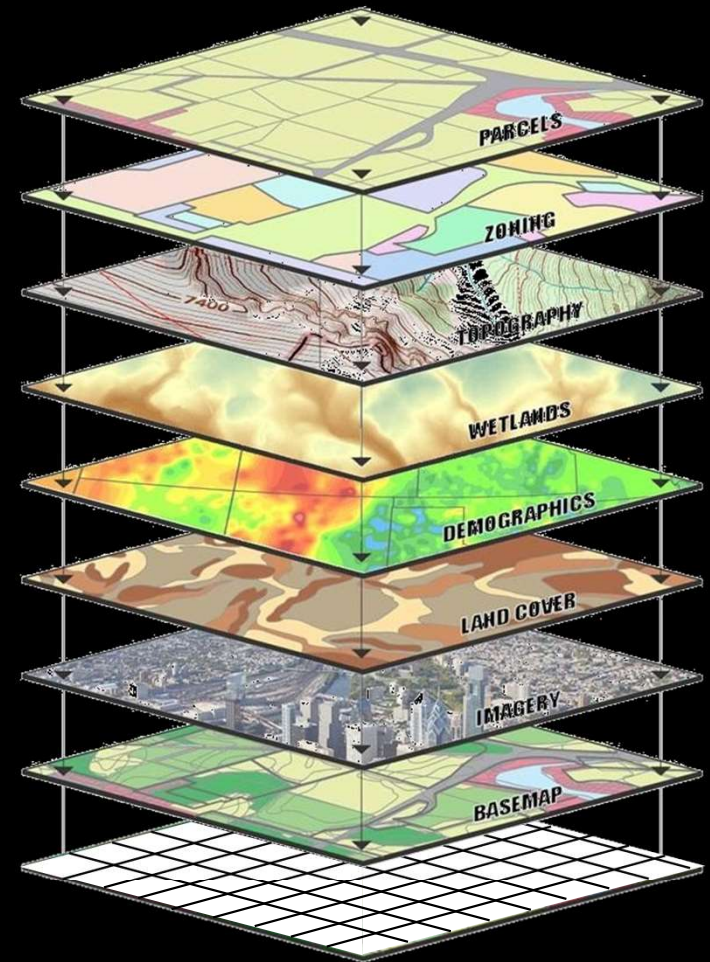
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**COORDINATE REFERENCE FRAME**



# Sustain the entire value chain

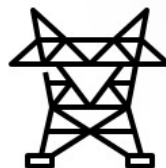
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IAG SERVICES



INTERNET



SATELLITES



LOCATION  
ENABLED



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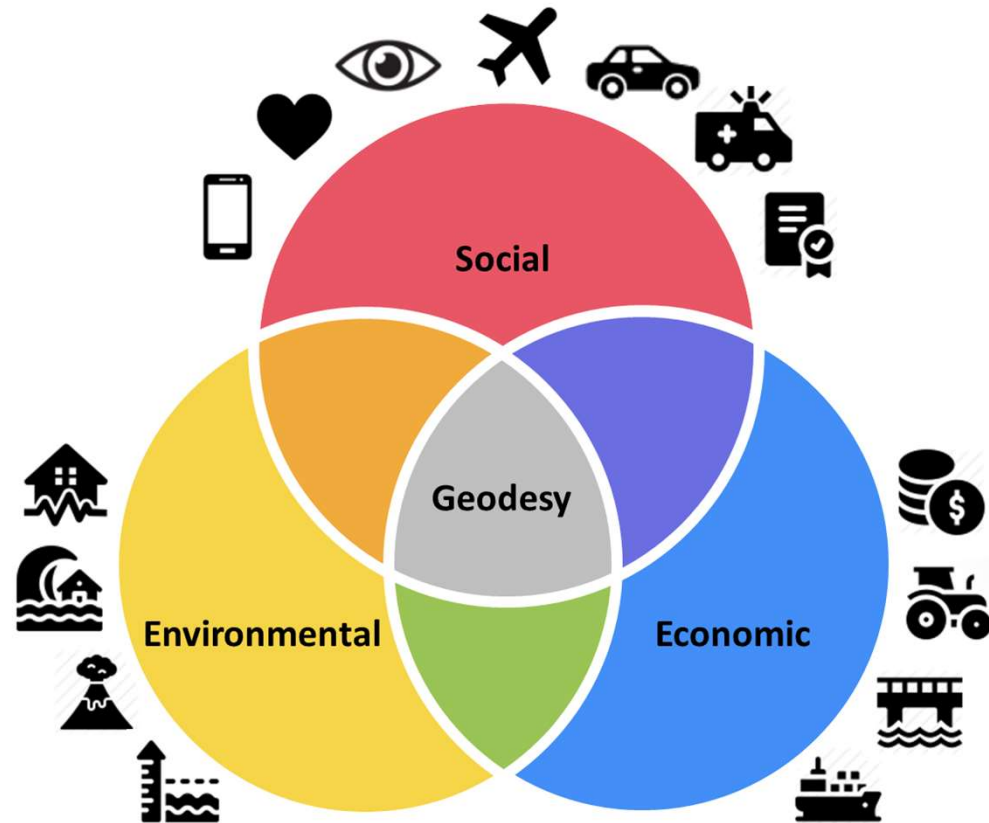
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## Opening Address

***His Excellency Ambassador Peter Thomson***  
*United Nations Secretary-General's Special Envoy for  
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*Global Geodesy Ambassador*



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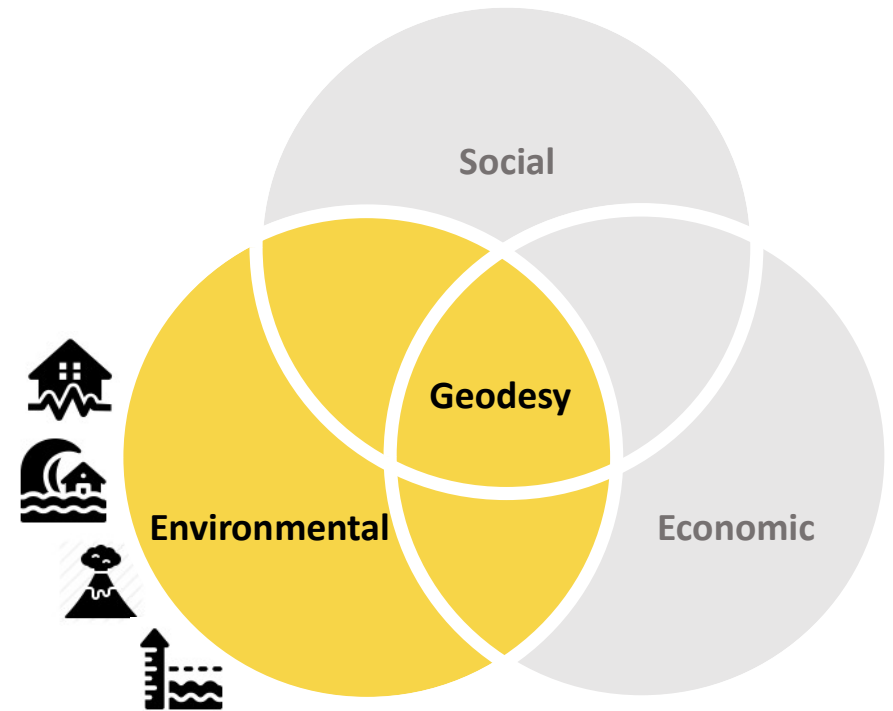
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# THE POWER OF WHERE

Environmental monitoring for  
safer and more resilient  
communities

***Dr Tulu Besha Bedada***

*Director General of the Geospatial Information Institute,  
Ethiopia*



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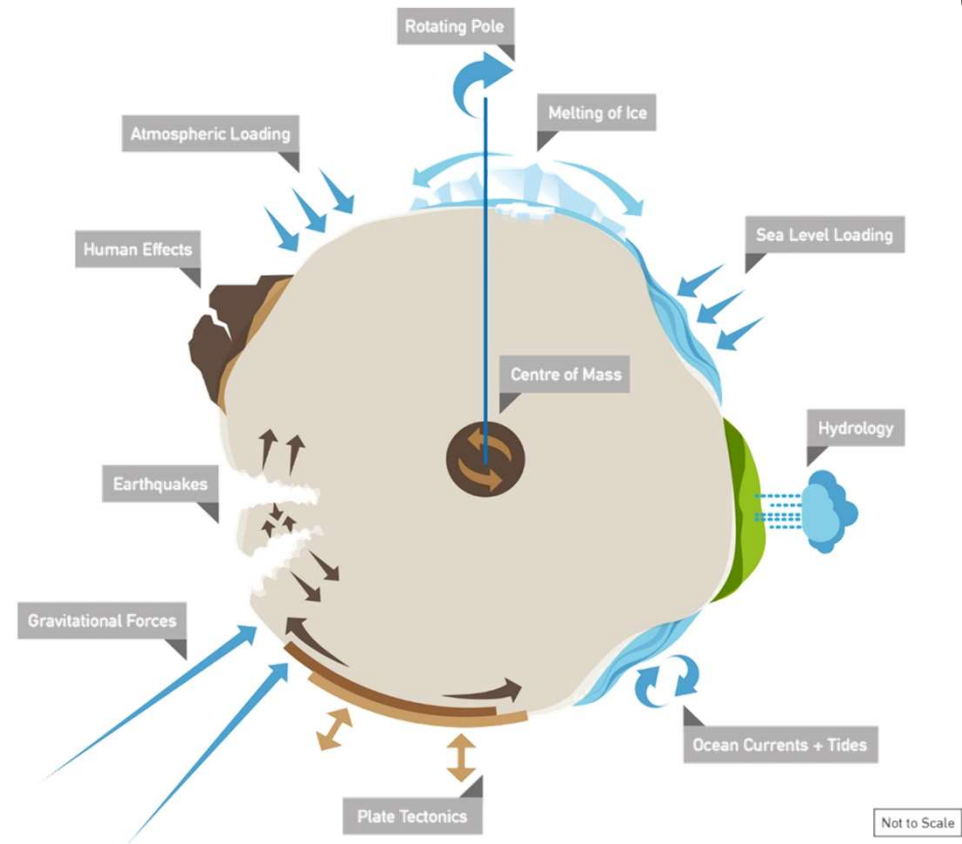
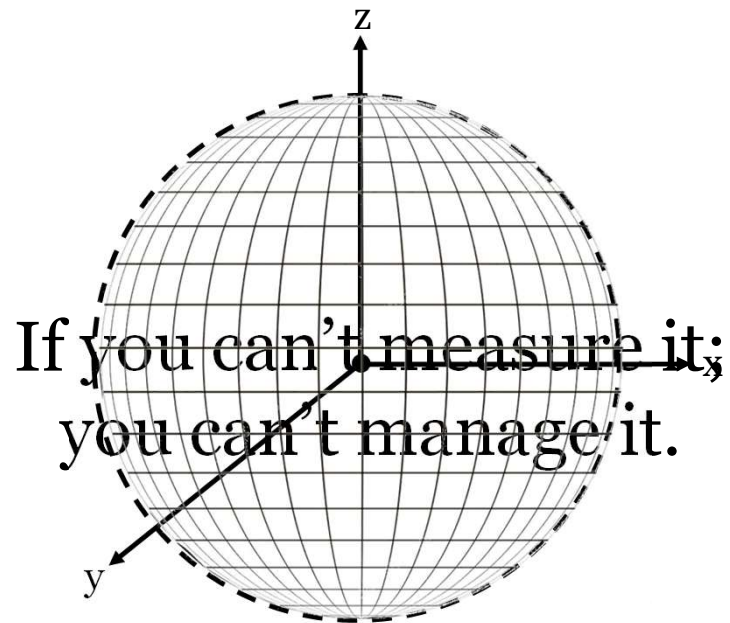
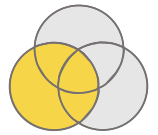
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Source: Dr Anna Riddell, Geoscience Australia

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# Safer, more resilient communities need geodesy



2011 JAPANESE TOHOKU TSUNAMI  
28,000 killed

**Geodesy improves predictions** of tsunami size and impact area to provide early warning information used to optimise evacuation routes, minimise crowding and panic.



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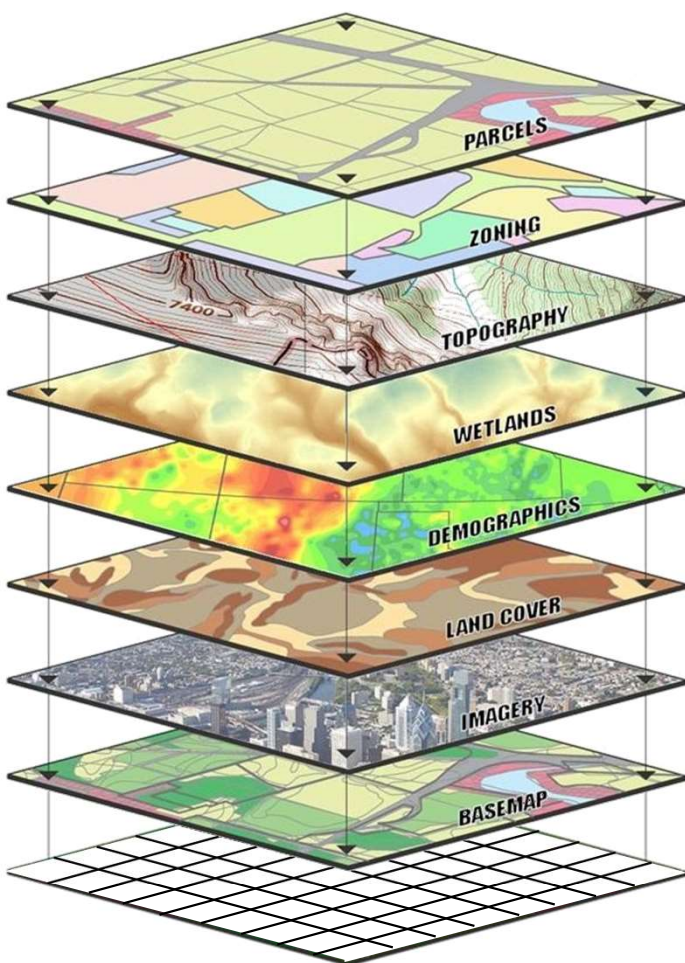
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## COORDINATE REFERENCE FRAME



Source: Digital Globe



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# Safer, more resilient communities need geodesy



Source: The Conversation



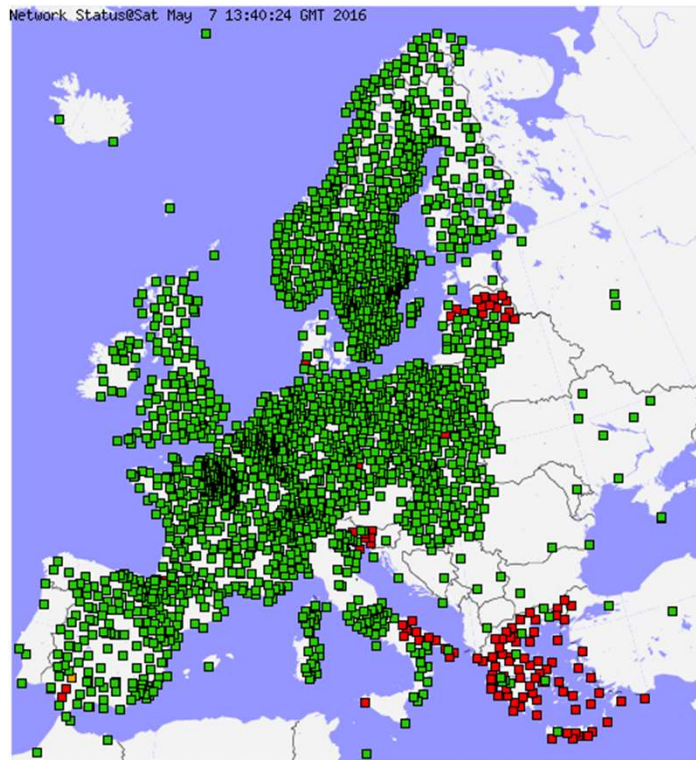
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# Safer, more resilient communities need geodesy



(Status in 2016)



## Geodesy is used to improve weather forecasts

- GNSS data can lead to forecasts of the same accuracy 10 hours earlier



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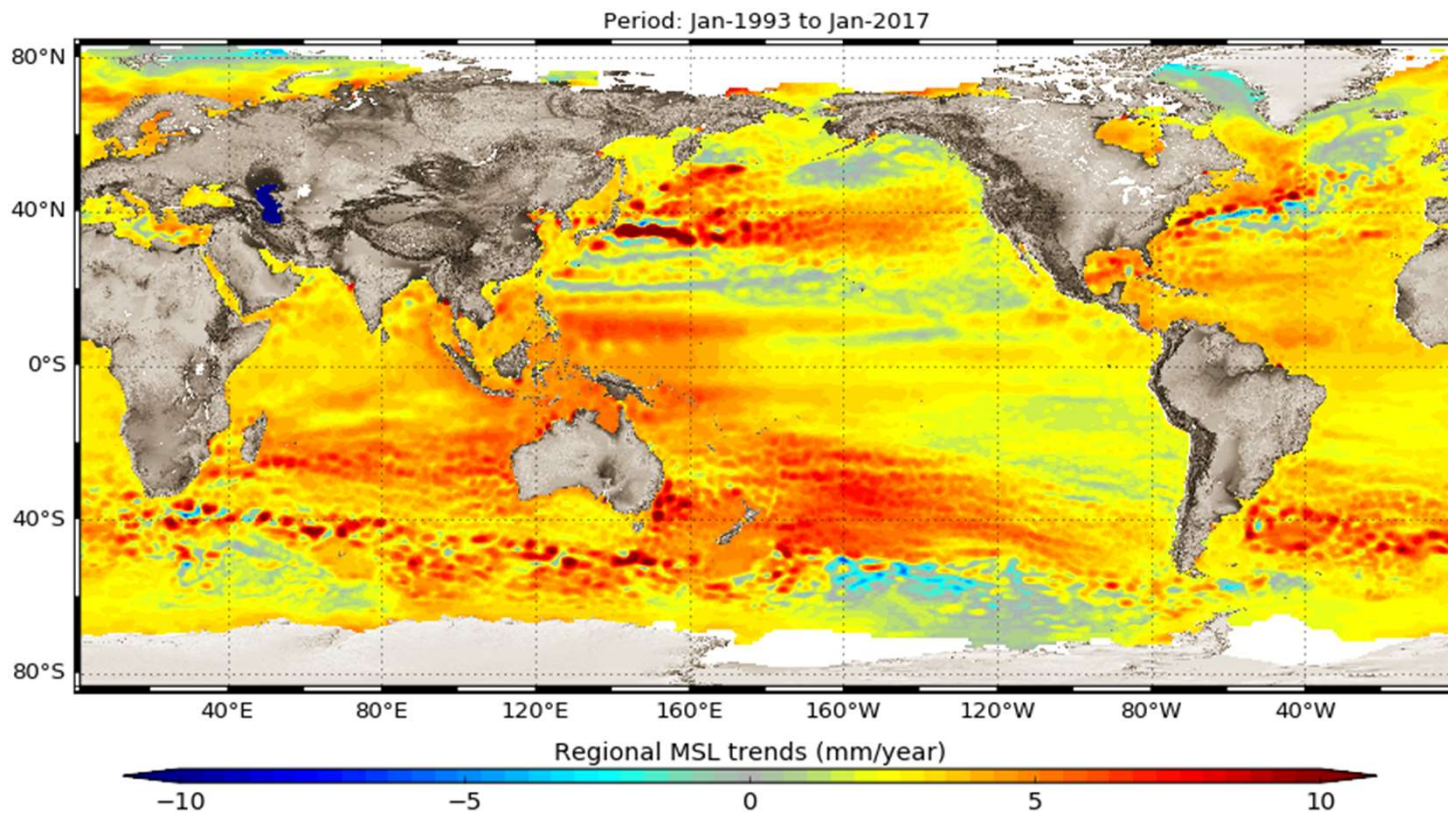
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# Safer, more resilient communities need geodesy



© CNES/LEGOS/CLS, 2017

Source: NASA



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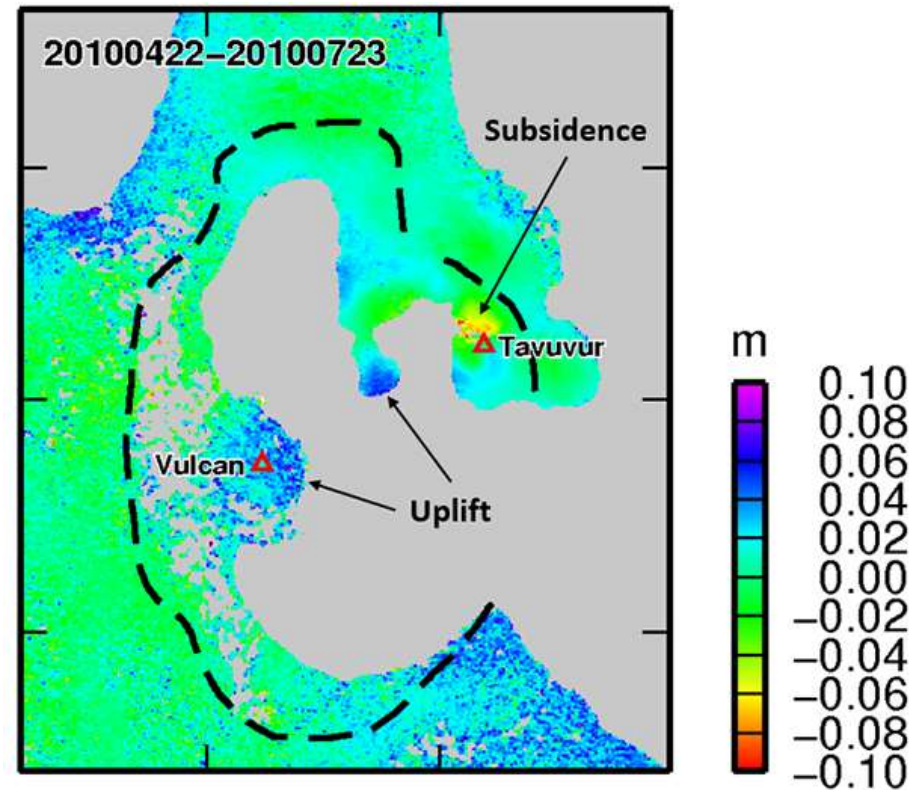
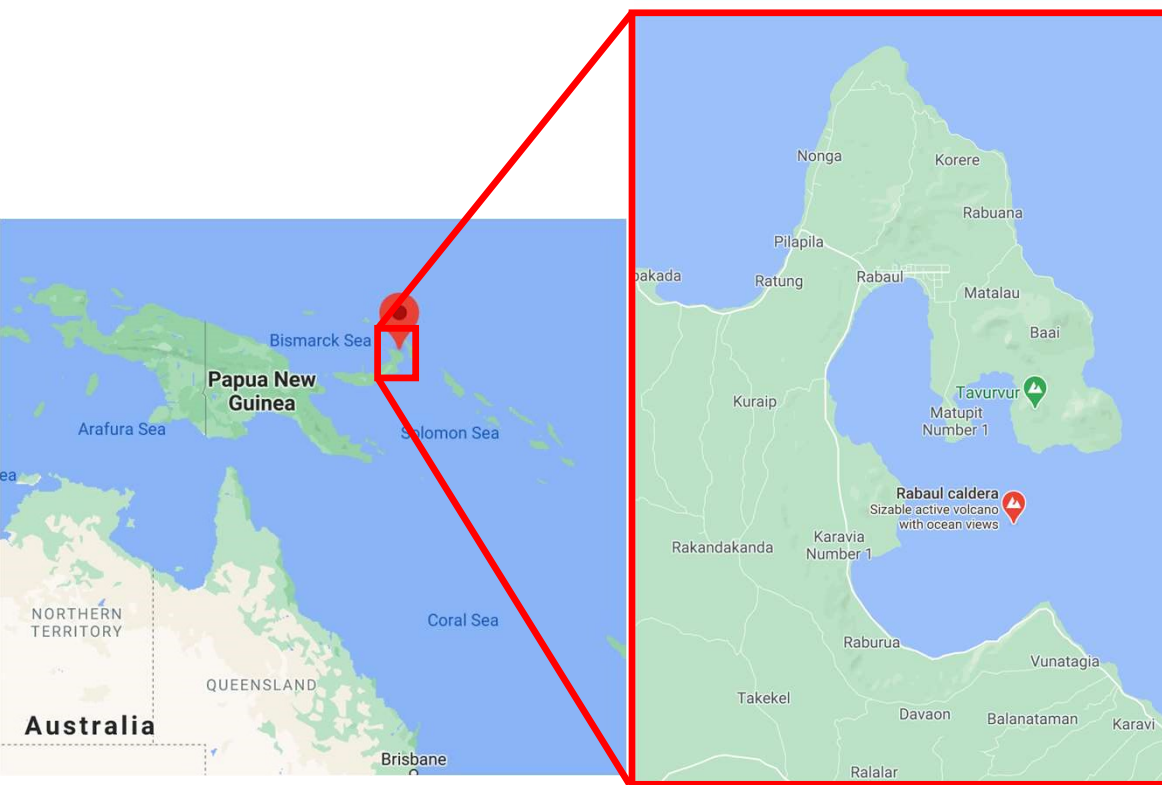
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# Safer, more resilient communities need geodesy



Source: Geoscience Australia



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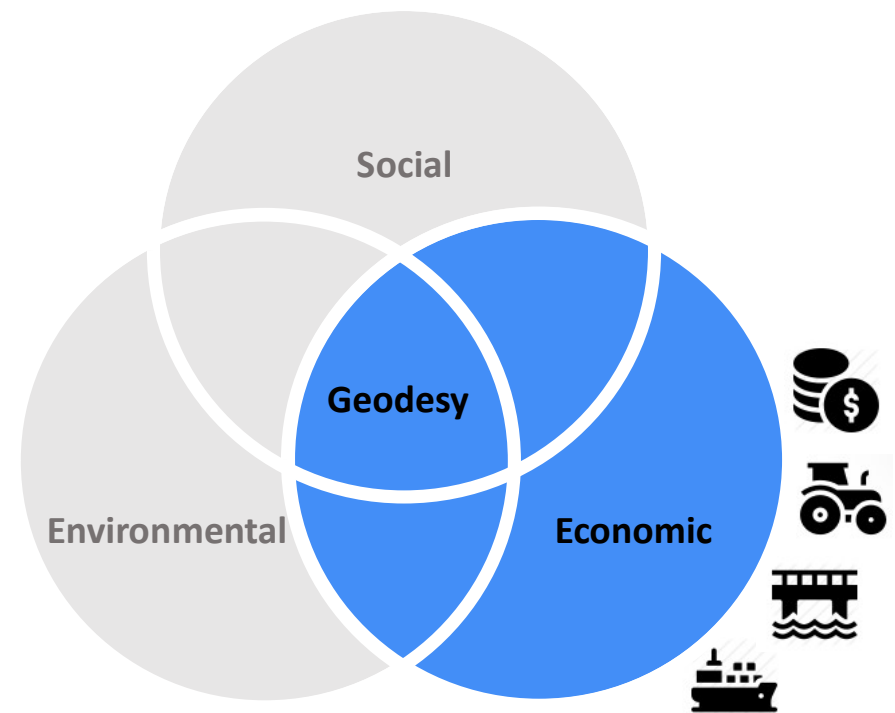


# THE POWER OF WHERE

Economic benefits from investment in geodesy

***Dr Martine Woolf***

*Leader of the Positioning Australia program, Australia*



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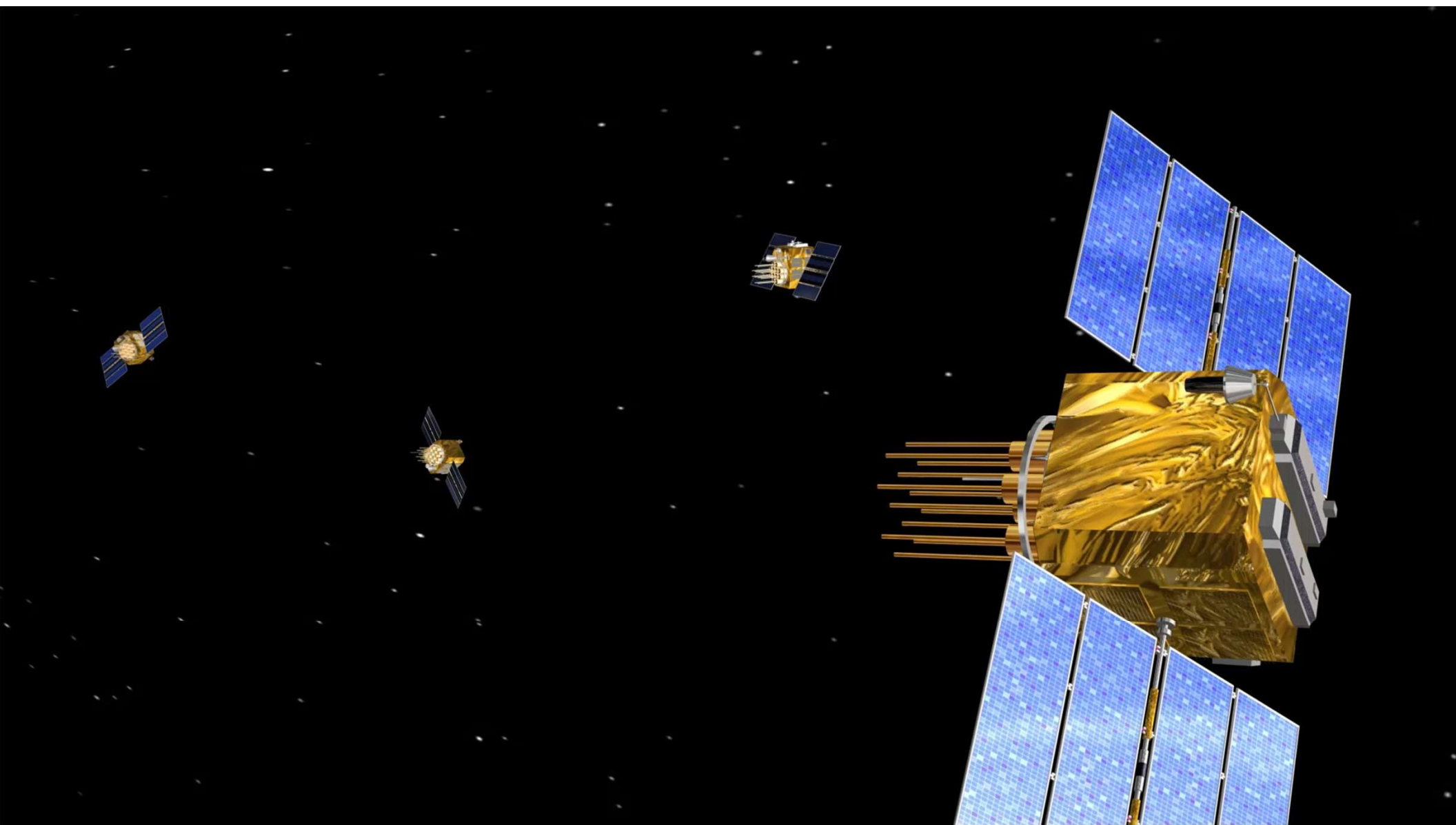
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# Reliance on geodesy



- The loss of GPS service would average a \$USD 1 billion per-day impact to the United States alone.
- The economic impact to the UK from a loss of GNSS is \$USD 6.7b every 5 days

## Economic Benefits of the Global Positioning System (GPS)

Final Report

Source: [NIST, 2019](#)

## Economic impact to the UK of a disruption to GNSS

Showcase Report

April 2017



Source: [London Economics, 2017](#)



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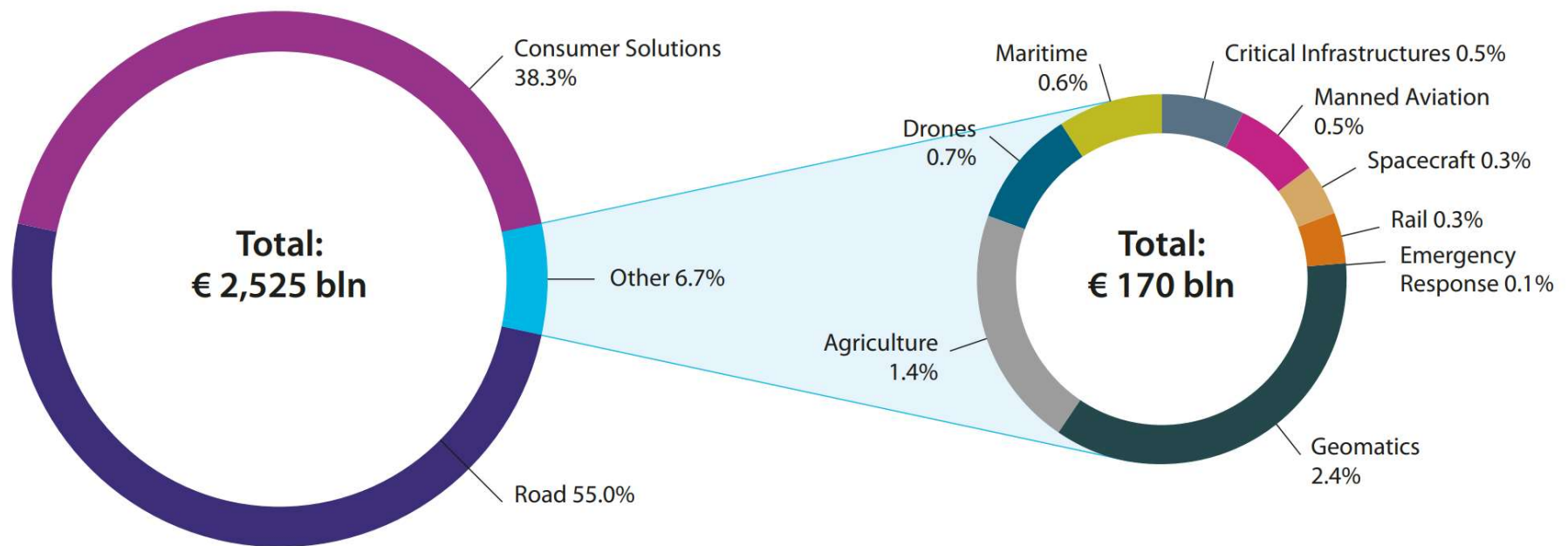
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# Economic benefits from investment in geodesy



Cumulative Revenue 2019-2029 by segment



Source: GSA Market Report 2019



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# Economic benefits from investment in geodesy



Australian Government  
Geoscience Australia



POSITIONING  
AUSTRALIA

“Accurate and reliable positioning for everyone”

Positioning Australia program will deliver:

1. 10 cm accurate positioning service across Australia and its maritime zones
2. 3-5 cm accurate positioning service in areas with mobile phone coverage
3. Open source tools and software to deliver positioning and navigation services
4. Enabling business and industry to use positioning and navigation services



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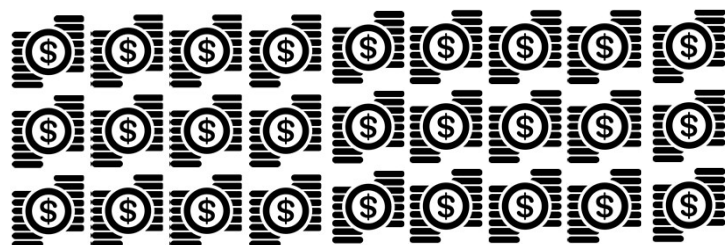
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# Economic benefits from investment in geodesy



**\$225 MILLION  
INVESTMENT**



**\$6.2 BILLION  
BENEFIT**

Agriculture

**\$2.2**  
BILLION



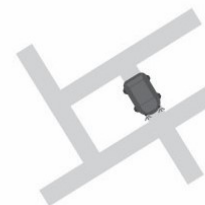
Construction

**\$1.2**  
BILLION



Road

**\$1.1**  
BILLION



Resources

**\$1.58**  
BILLION



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# Economic benefits from investment in geodesy



IGS INTERNATIONAL  
GNSS SERVICE



International Laser Ranging Service



IVS

INTERNATIONAL  
VLBI SERVICE  
FOR GEODESY  
AND ASTROMETRY



IAGG



IAGGOS



ISO



IDS



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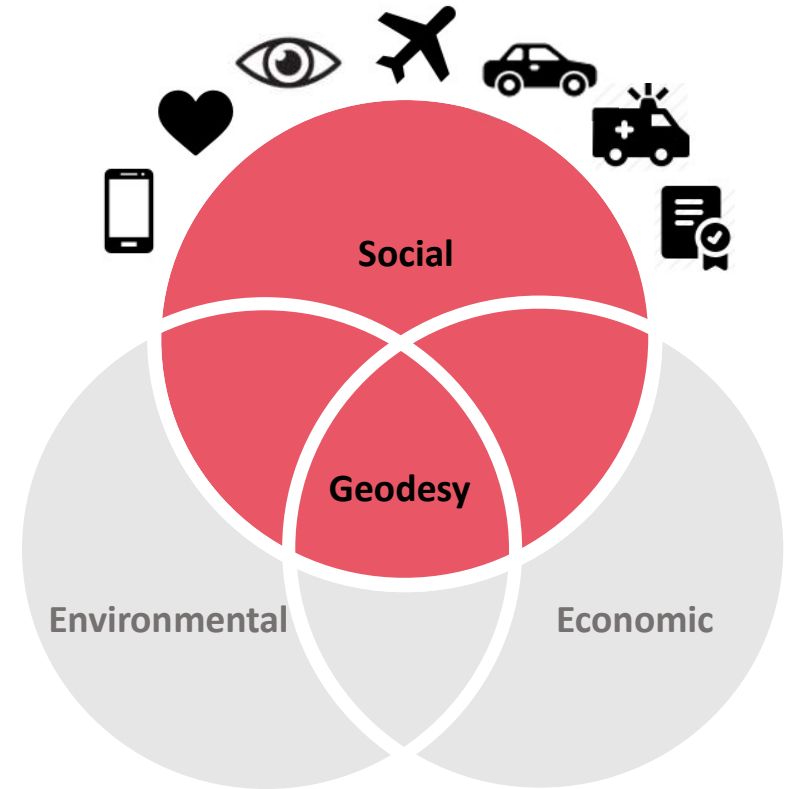
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Our lifestyle is improved by  
geodesy

**Professor Paul Becker**

*President of Federal Agency for Cartography and  
Geodesy, Germany*



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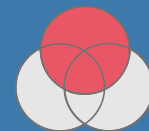
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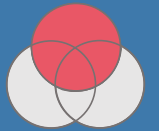








# Our lifestyle is improved by geodesy



I do not need a drill.  
I need a hole in the wall



Source: Kreezalid

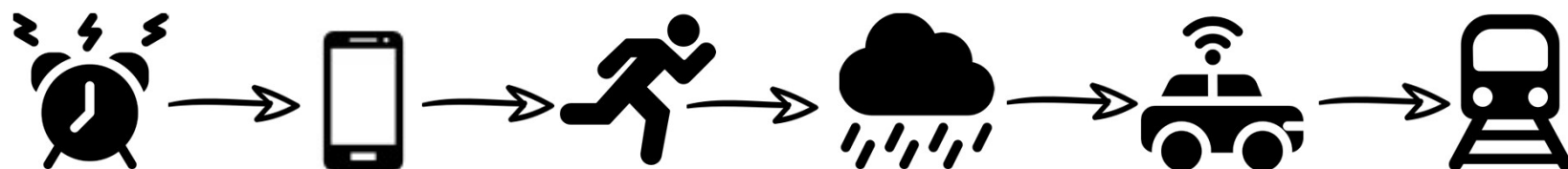


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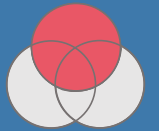
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# Our lifestyle is improved by geodesy



Source: RFDS



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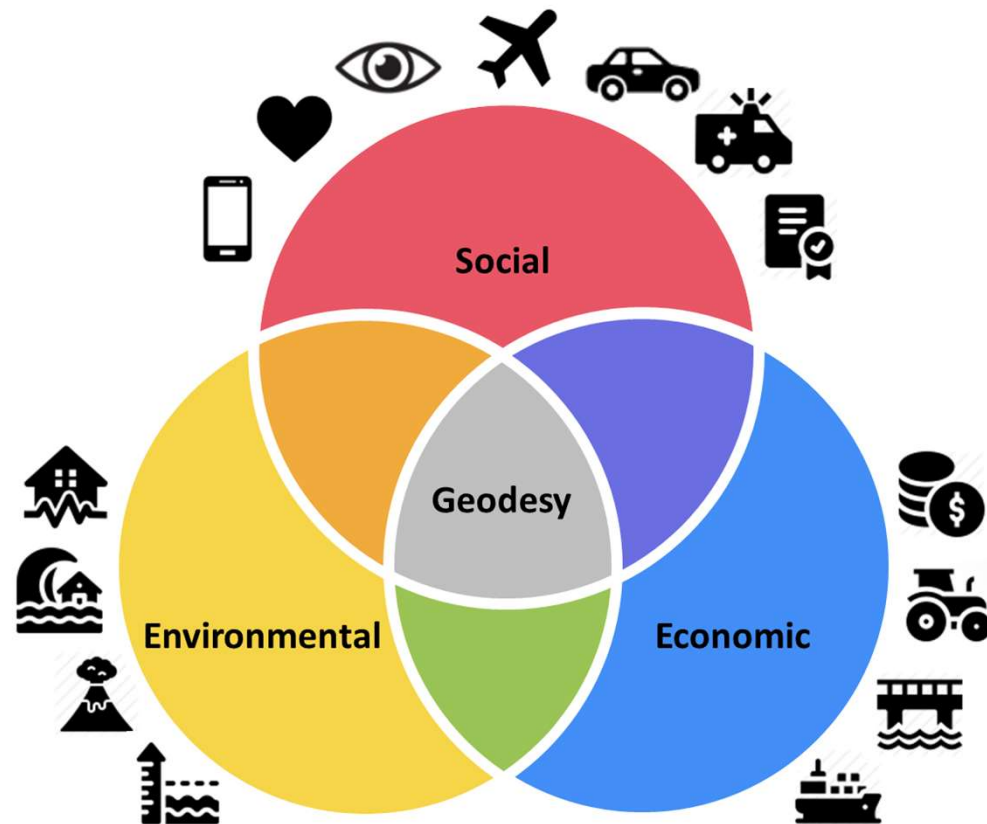
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Sustainable development has geodesy at its core

**Mrs Paloma Merodio Gómez**

*Vice President of the National Institute of Statistics and Geography, Mexico*

*President of UN-GGIM Americas*



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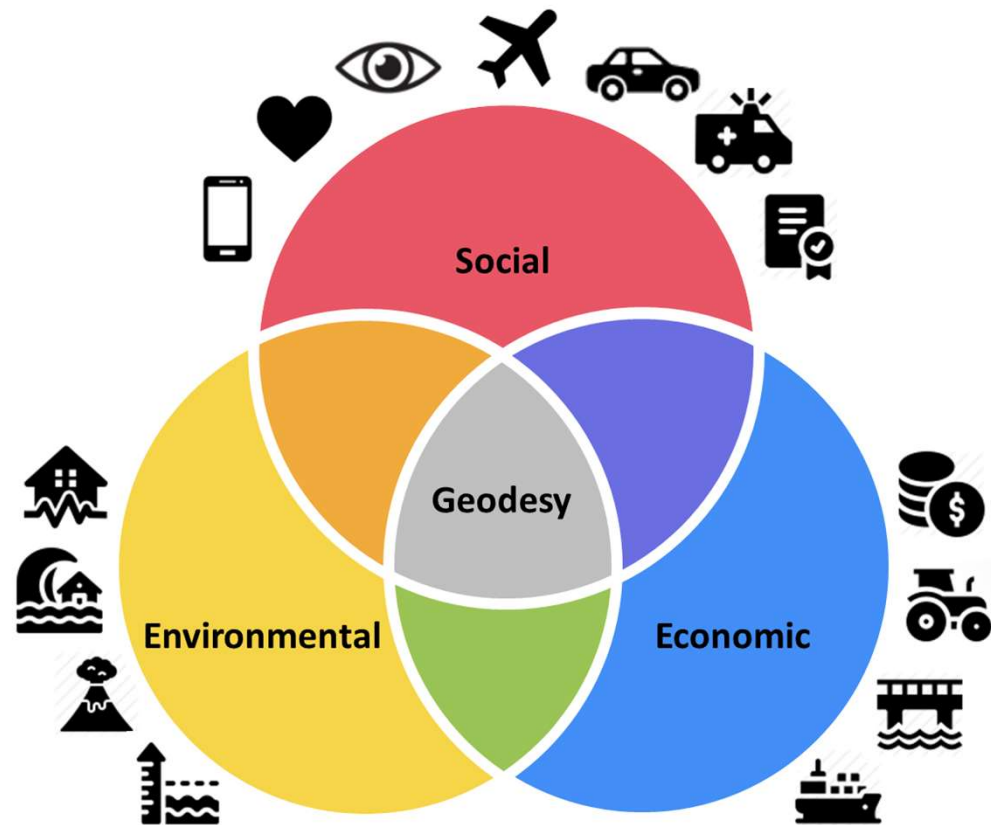
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## Sustaining the geodesy value chain

**Mr Nicholas Brown**

*Director of National Geodesy, Geoscience Australia*

*Co-Chair UN-GGIM Subcommittee on Geodesy*



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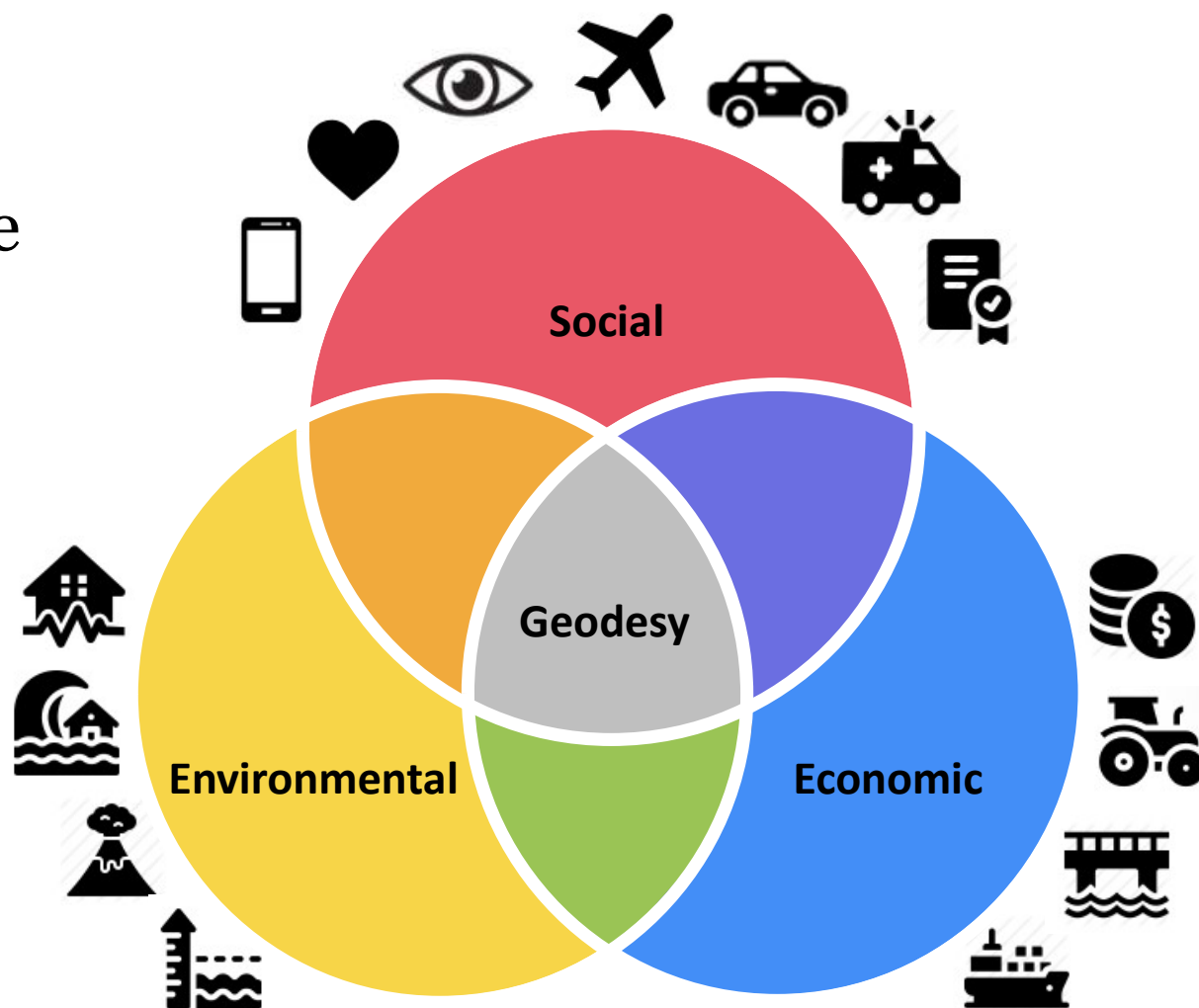
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We need to work together to sustain the geodesy value chain.



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# Sustain the entire value chain

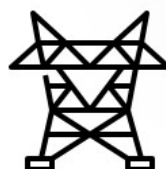
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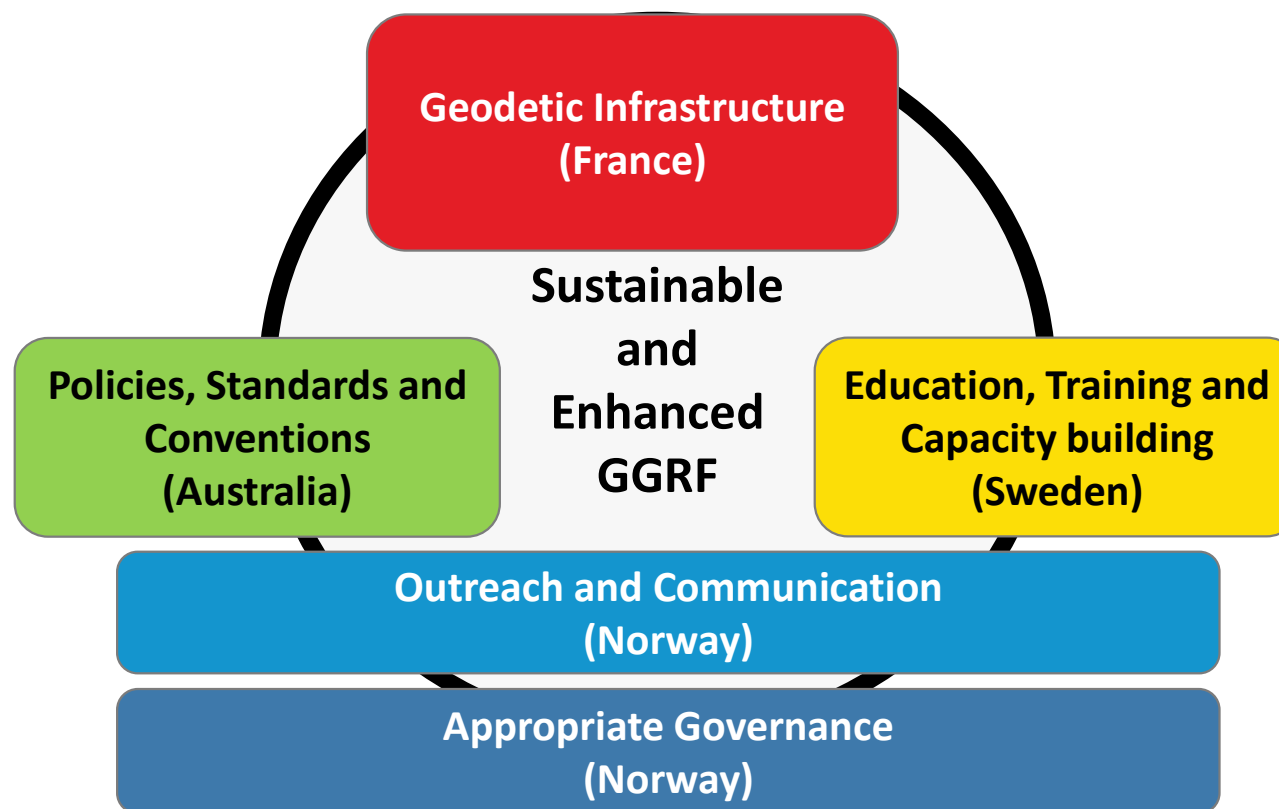
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## SUBCOMMITTEE ON GEODESY VISION

An accurate, sustainable and accessible Global Geodetic Reference Frame to support science and society



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# Addressing the issues

DRAFT DOCUMENT FOR CONSULTATION

UNITED NATIONS COMMITTEE OF EXPERTS ON GLOBAL GEOSPATIAL  
INFORMATION MANAGEMENT

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## Subcommittee on Geodesy

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Version: 22 July 2020

### **Position Paper on Sustaining the Global Geodetic Reference Frame**

Strategy and Action Plan to sustain all the  
elements of the geodesy value chain

DRAFT DOCUMENT FOR CONSULTATION

UNITED NATIONS COMMITTEE OF EXPERTS ON GLOBAL GEOSPATIAL  
INFORMATION MANAGEMENT

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## Subcommittee on Geodesy

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Version: 20 July 2020

### **Concept Paper on Establishing a Global Geodetic Centre of Excellence**

Dedicated people focussed on improving  
collaboration and coordination amongst the  
global geodetic community



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# Next steps

Please review and provide feedback on:

- Position Paper on Sustaining the Global Geodetic Reference Frame
- Concept Paper on Establishment of the Global Geodetic Centre for Excellence
- <http://ggim.un.org/meetings/GGIM-committee/10th-Session/documents/>

We will be hosting UN-GGIM Regional Geodesy Forums (**dates are to be confirmed**) in the coming months. We encourage discussion on:

- Position Paper and Concept Paper
- Options to sustain the Global Geodetic Reference Frame
- Options for contributing to the Global Geodetic Centre of Excellence



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“If you want to go far, go together.”

*-- African proverb*



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