

Linking space to user needs

# How EUSPA collaborates with health companies?

SPACE DATA/SERVICES FOR HEALTH

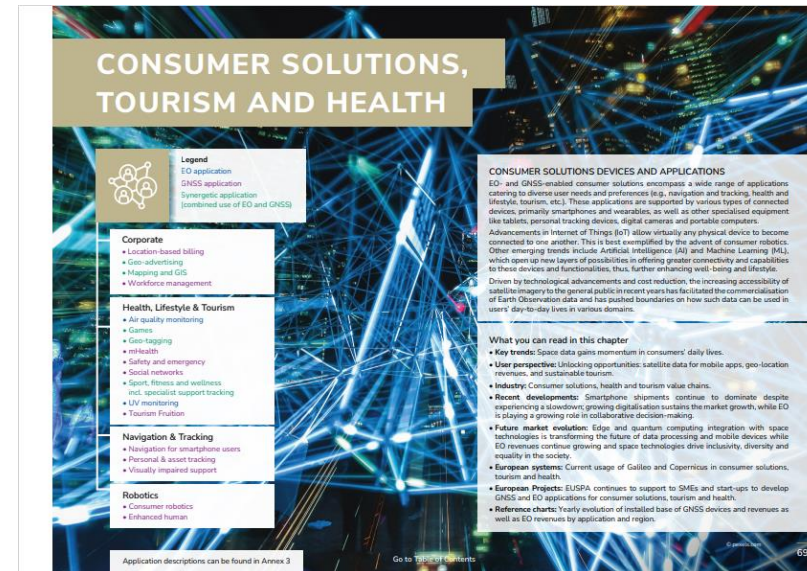
Gerda Kuum, Healthcare Market Segment Leader

04 February 2025



# Health – what is EUSPA working on?

- Market Research
- User Consultation Platform 2024, 2026
- Participation at health tech, pharma events
- Pilot projects -> commercial solutions
- Start-up support – cassini.eu



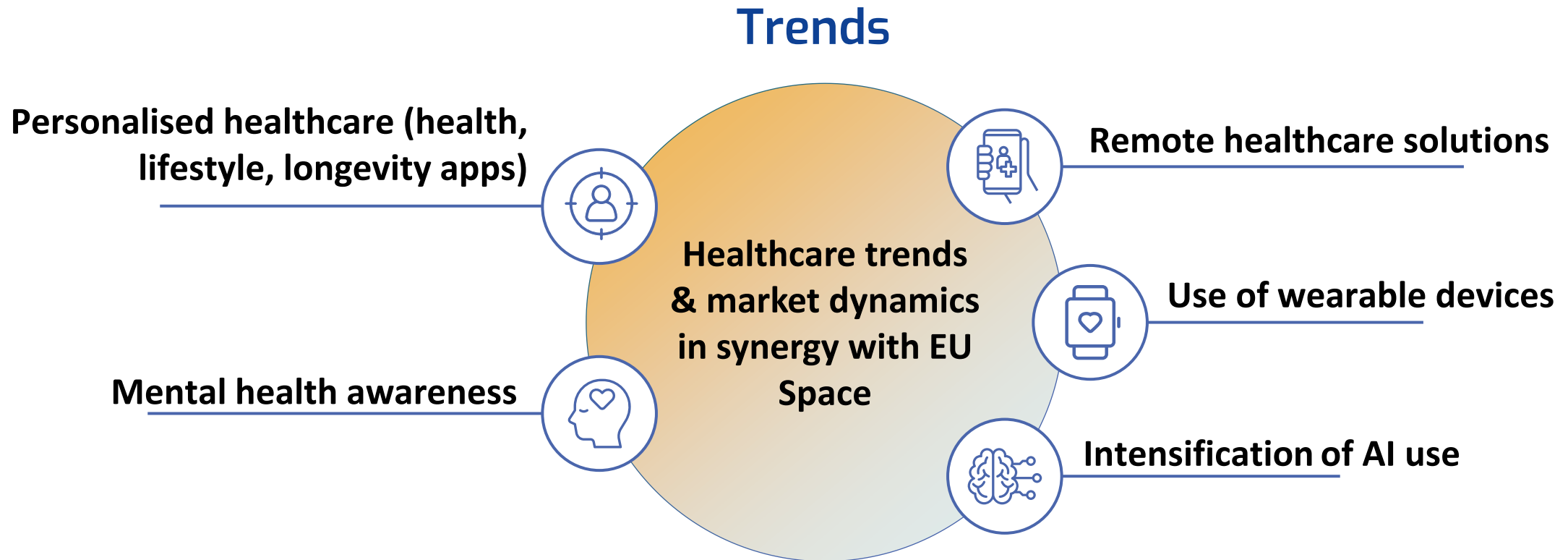
[euspa\\_market\\_report\\_2024.pdf](#)

# Benefits of using Earth Observation data in Healthcare solutions:

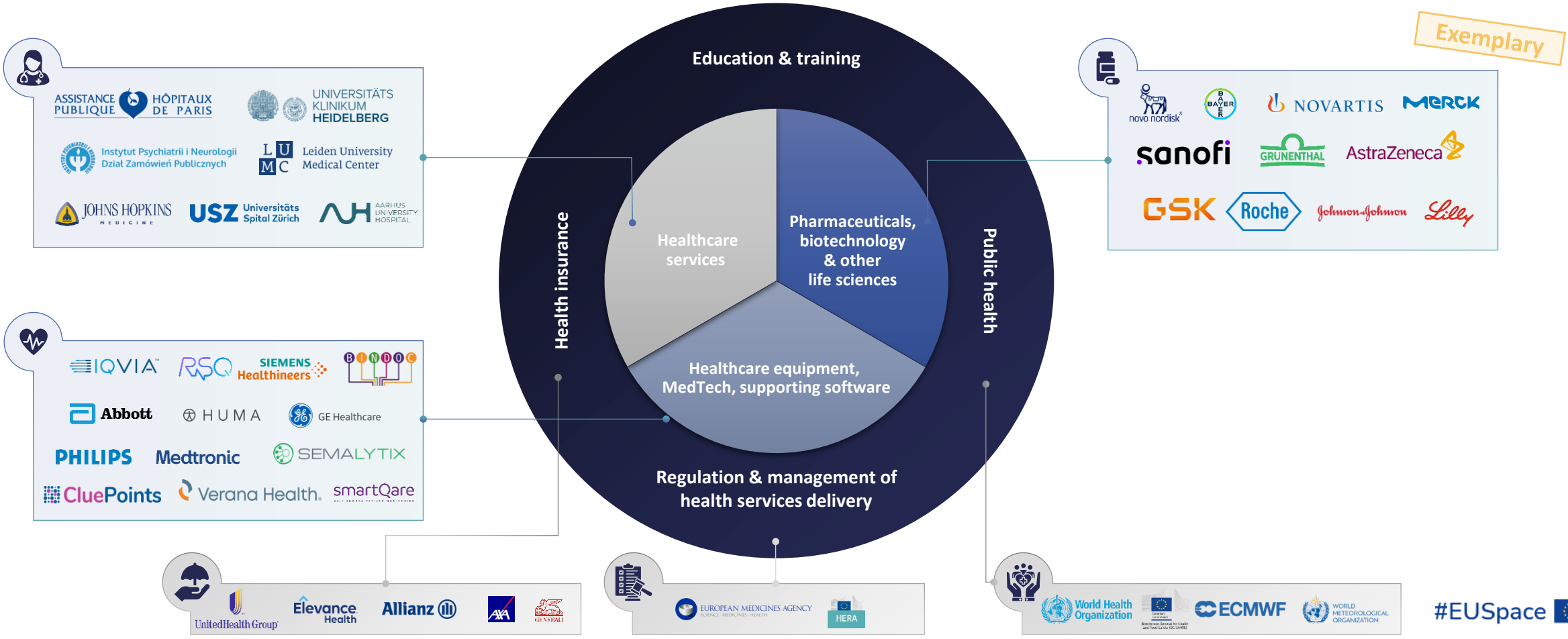
- Complements in-situ/data coming from other sources
- Adds value to existing solutions/products
- Prevents/monitors
- Cost savings



# EU Space data offers significant synergies with current **healthcare trends**

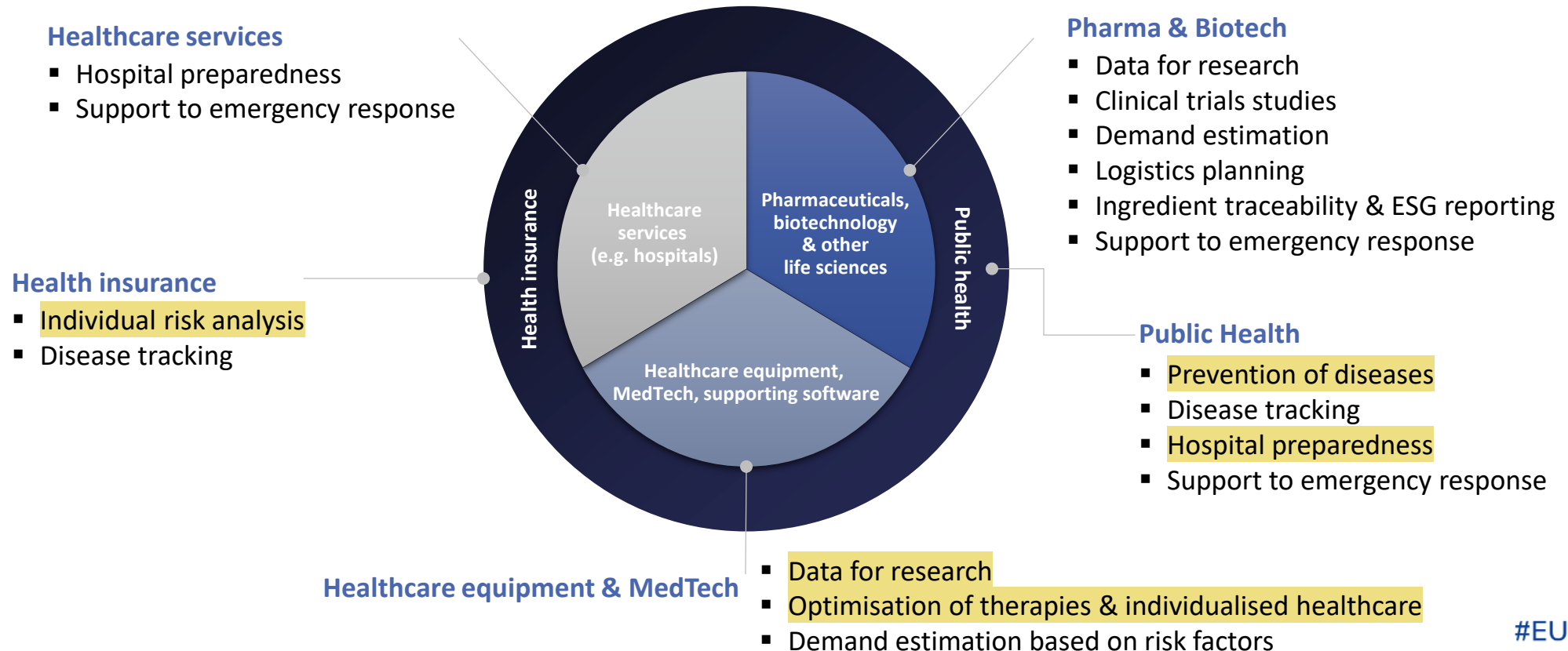


# The healthcare market can be split into 3 core sectors and 4 cross-sectors



# EU space data presents high potential use cases in the healthcare market

## Key use cases of EU Space in healthcare

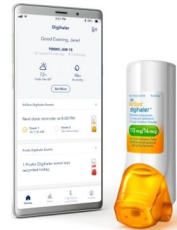


# USE CASES – Copernicus Services

Water quality



Air quality/pollution



Heatwaves/ UV-radiation



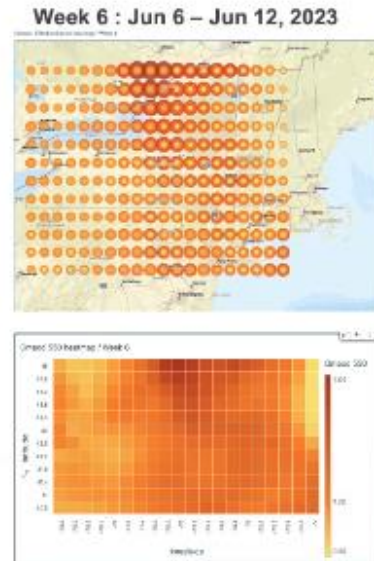
Temperature, humidity, green areas

# Health Issues?

- Respiratory diseases
- Cardiovascular diseases
- Skin diseases
- Mental health
- Wellbeing



# Pollution data combined with Patient's Digital Inhaler data

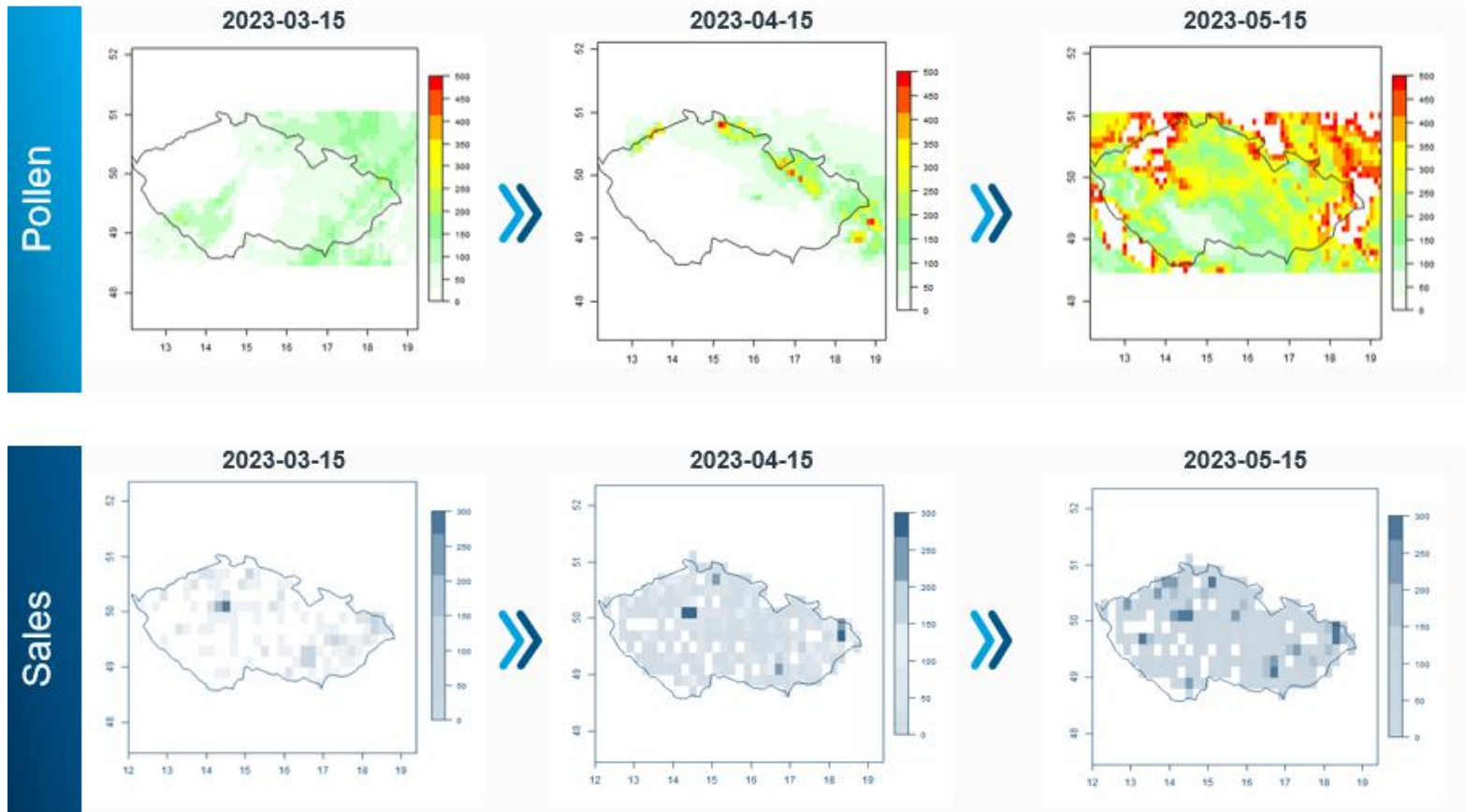


OMAOD=Organic matter aerosol optical depth + AQI data + Patients' Digital inhaler data

Source: [Copernicus services supports Global Pharmaceuticals | EU Agency for the Space Programme \(europa.eu\)](#) Sept 2023



# Pollen data combined with sales of anti-allergy drugs

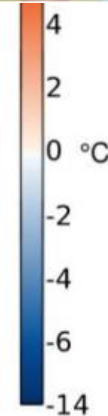
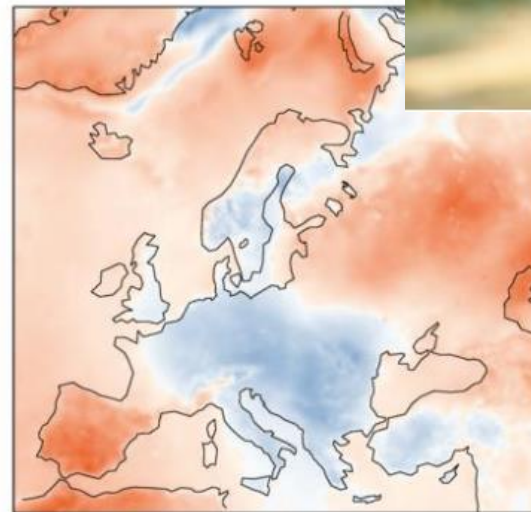
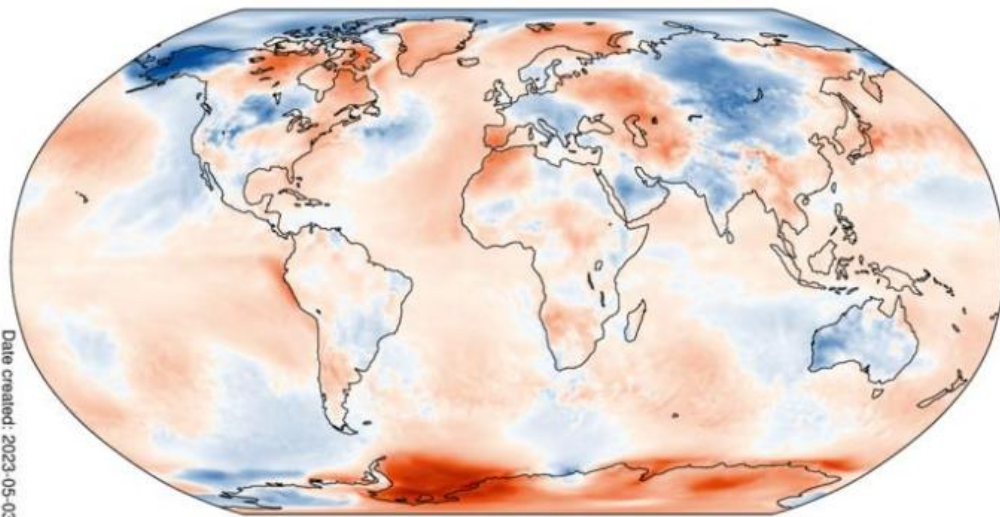


Can predict anti-allergy drug demand, optimize production, distribution and apply tailored marketing strategies.

Source: [Copernicus fuels healthtech innovation | EU Agency for the Space Programme \(europa.eu\)](#)  
June 2024

# Copernicus past temperature data combined with **Statistics on Intracerebral Hemorrhage (stroke) cases**

Surface air temperature anomaly for April 2023



Source: [Copernicus climate data's potential to support healthcare predictions | EU Agency for the Space Programme](#)  
December 2024

Date created: 2023-05-03

(Data: ERA5. Reference period: 1991-2020. Credit: C3S/ECMWF)

# Copernicus data and GNSS combined for monitoring **sun exposure** - SiHealth

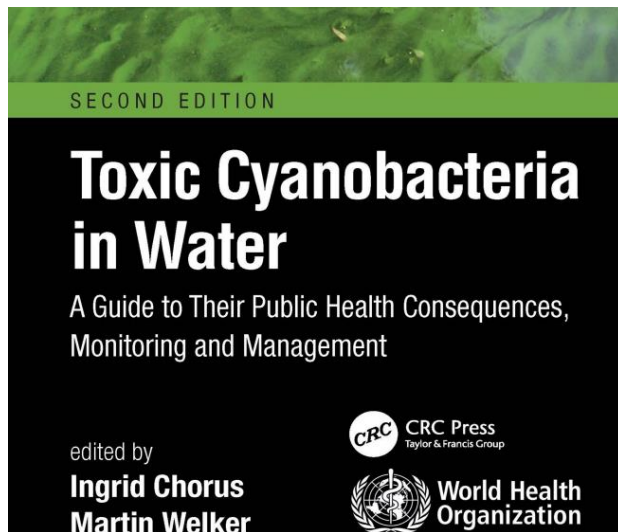
- It utilizes EO data from Meteosat MSG and Sentinel-5B to calculate and measure solar radiation exposure in various bands (UV, VIS, IR) and employs GNSS to monitor individual exposure levels.
- Assesses your skin sensitivity to Sunlight
- Tracks your solar radiation dose
- Customizes sun protection advice based on your skin features
- Prevents from erythema (sunburn) and long-term photo-induced skin diseases



<https://www.sihealth.co.uk/>

# Health effects of cyanobacteria

- Various cyanobacteria *can* produce a large range of (neuro)toxins
  - Direct effects of bathing in contaminated water: vomiting, severe headache, vertigo, respiratory distress etc.
  - E.g. a study shows that liver problems were > 2 times higher in areas where drinking water is contaminated
  - Cyanobacterial neurotoxins were found in brains of people dying from ALS disease and dementia (and were almost absent in control group)
- Exposure via bathing, drinking water, accumulated in sea food/fish, even via aerosols and respiration! *But still little is known on thresholds etc.*



*Journal of Environmental Science and Health Part C*, 27:36–55, 2009  
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 ISSN: 1059-0501 (Print); 1532-4095 (Online)  
 DOI: 10.1080/1059050802668016



## Freshwater Cyanobacterial Blooms and Primary Liver Cancer Epidemiological Studies in Serbia

Zorica Svirčev,<sup>1</sup> Svetislav Krstić,<sup>2</sup> Marica Miladinov-Mikov,<sup>3</sup> Vladimir Baltić,<sup>3</sup> and Milka Vidović<sup>4</sup>

<sup>1</sup>Department of Biology and Ecology, Faculty of Sciences, University of Novi Sad, Serbia  
<sup>2</sup>Faculty of Natural Sciences, Institute of Biology, Skopje, Macedonia  
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<sup>4</sup>Institute of Chemistry, Technology and Metallurgy, Belgrade, Serbia

A large part of Central Serbia experiences continual shortage of sufficient ground water resources. For that reason, more than 20 reservoirs serve as drinking water suppliers. Significant and persistent cyanobacterial “blooms” have been recognized in nine of them. Samples for cyanotoxin analyses were taken during and after “blooms” in Čelije

*Acta Neurol Scand* 2009; 120: 216–225 DOI: 10.1111/j.1600-0404.2008.01150.x

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 ACTA NEUROLOGICA  
 SCANDINAVICA

## Cyanobacterial neurotoxin BMAA in ALS and Alzheimer’s disease

Pablo J, Banack SA, Cox PA, Johnson TE, Papapetropoulos S, Bradley WG, Buck A, Mash DC. Cyanobacterial neurotoxin BMAA in ALS and Alzheimer’s disease.  
*Acta Neurol Scand* 2009; 120: 216–225.  
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**Objective** – The aim of this study was to screen for and quantify the neurotoxic amino acid β-N-methylamino-L-alanine (BMAA) in a cohort of autopsy specimens taken from Alzheimer’s disease (AD), amyotrophic lateral sclerosis (ALS), Huntington’s disease (HD), and non-neurological controls. BMAA is produced by cyanobacteria found in a variety of freshwater, marine, and terrestrial habitats. The possibility of geographically broad human exposure to BMAA had been suggested by the discovery of BMAA in brain tissues of Chamorro patients with ALS/Parkinsonism dementia complex from Guam and more recently in AD patients from North America. These observations warranted an independent study of possible BMAA

**J. Pablo<sup>1</sup>, S. A. Banack<sup>2</sup>, P. A. Cox<sup>2</sup>, T. E. Johnson<sup>3</sup>, S. Papapetropoulos<sup>1</sup>, W. G. Bradley<sup>1</sup>, A. Buck<sup>1</sup>, D. C. Mash<sup>1</sup>**

<sup>1</sup>Department of Neurology, Miller School of Medicine, University of Miami, Miami, FL, USA; <sup>2</sup>Institute for Ethnomedicine, Jackson Hole, WY, USA; <sup>3</sup>Thermo Fisher Scientific, San Jose, CA, USA

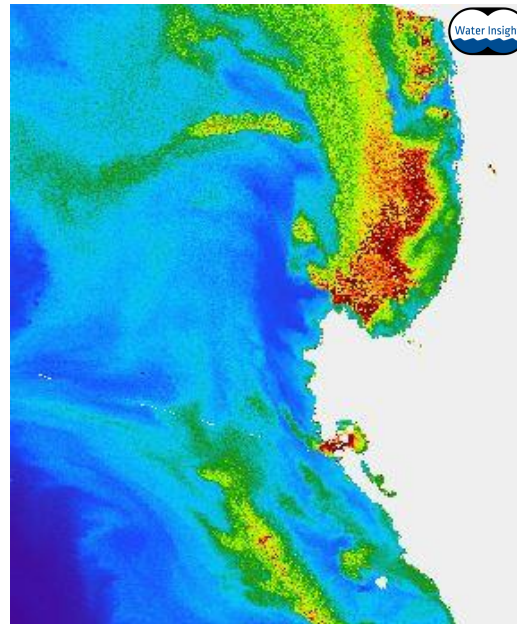


# What Earth observation can do

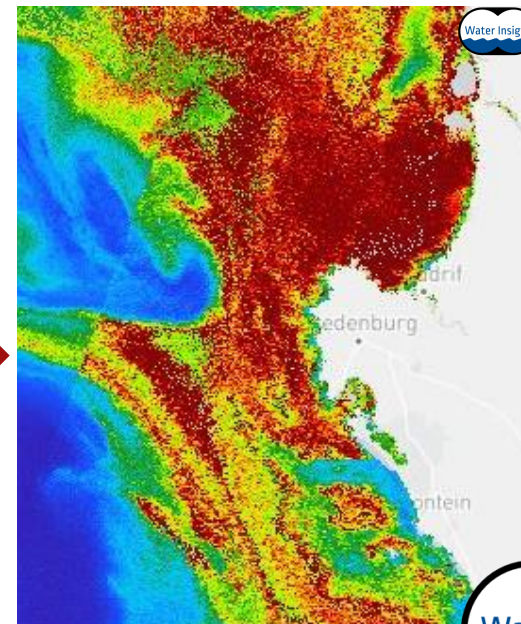
- Monitoring blooms in offshore of difficult to access areas
- Monitoring over large areas at once (instead of a few point samples)
- Much more frequent and faster than in situ sampling + processing
- Early warning for: recreation, aquaculture, drinking water, irrigation
- Obtain insights: effective monitoring, take measures, environmental protection



Copernicus – example of a bloom



Chlorophyll-a  
30 January 2023



Chlorophyll-a  
February 2023



# What will we work on in 2025?

- Health Insurance
- Medtech solutions/wearables
- Wellbeing

# Thank you!

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<https://www.euspa.europa.eu/eu-space-programme/eu-space-market-and-users/UCP-2024>

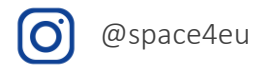




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# Rapid digitalisation, personalised care, & preventive health are driving growth & innovation across healthcare

## Summary of market findings

### Healthcare services

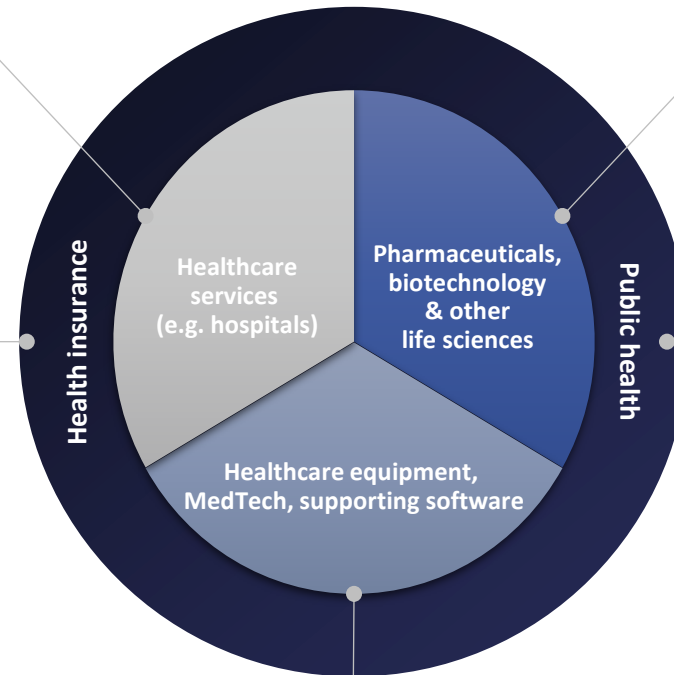
- Key trends: Focus on **prevention & digitalisation**
- **Largest market in the EU** (77% expenditures), but largely fragmented
- Potential to leverage healthcare equipment & MedTech associated to prevention & digitalisation

### Health insurance

- Key trends: **Personalised solutions**
- Premiums expected to grow at 3.45% CAGR (2024-2028)
- Key needs: cost reduction

### Healthcare equipment & MedTech

- Key trends: **Large digitalisation, remote care and wearables**
- Limited market (€160 billion in 2022), however, **rapidly growing** (11.4% growth in 2022) despite serious disruptions caused by the pandemic
- **Diverse synergies with EU space data**



### Pharma & Biotech

- Key trends: **AI for drug discovery & analysis, personalised healthcare**
- **Largest market** (15.4% expenditures in EU) **after healthcare services**
- €44,5 billion invested in R&D activities in Europe in 2022, being **49.2% in clinical trials**

### Public Health

- Key trends: **prevention, disease tracking, increase access to healthcare & decrease inequities in the EU**
- Preventive health expenditure per capita grew from 4.6% to 32.3% between 2013-2019 and 2019-2020 in the EU, being the highest-growing function
- Europe is strengthening partnerships (e.g., WHO) and setting initiatives (e.g., HERA) for preparedness & disease tracking