



# Mapping Global Water Surface

In a monumental undertaking, the European Commission's science and knowledge service, the Joint Research Centre, in collaboration with Google Earth Engine have mapped the global presence of surface water on the planet over the last 32 years.

The Global Surface Water Explorer produces maps with a 30-meter resolution, which enables users to scroll back in time to measure the changes in the location and persistence of surface water globally, by region or for a specific area.

**3 million** satellite scenes collected **over the past 30 years**

**10 000 computers** running in parallel for **10 million hours**

Over **1823 Terabytes** of data (= **546 million MP3 songs**)

**90 000km<sup>2</sup>** of lakes and rivers have vanished over the last 30 years, due mostly to drought and human activities.

**Over 70%** of the net loss is concentrated in Kazakhstan, Uzbekistan, Iran, Afghanistan and Iraq.

**185 000km<sup>2</sup>** of permanent water bodies have formed, due mostly to reservoirs creation, and climate change, such as accelerated glacier-melting.



## In EUROPE

Europe (including Russia), home to 10% of the globe's population, has more than 20% of the Earth's permanent water. Over the past 30 years, European countries together lost around 19 000km<sup>2</sup> of surface water.

At the same time some parts of Europe gained almost 39 000km<sup>2</sup> of water, which makes Europe the continent with the biggest proportional increase at 3.3%. There are strong indications that the gains in Europe are due to dam construction and changes in surface water management and storage.

Sweden and Finland rank in 10<sup>th</sup> and 12<sup>th</sup> position worldwide as the countries with the largest area of permanent water bodies.

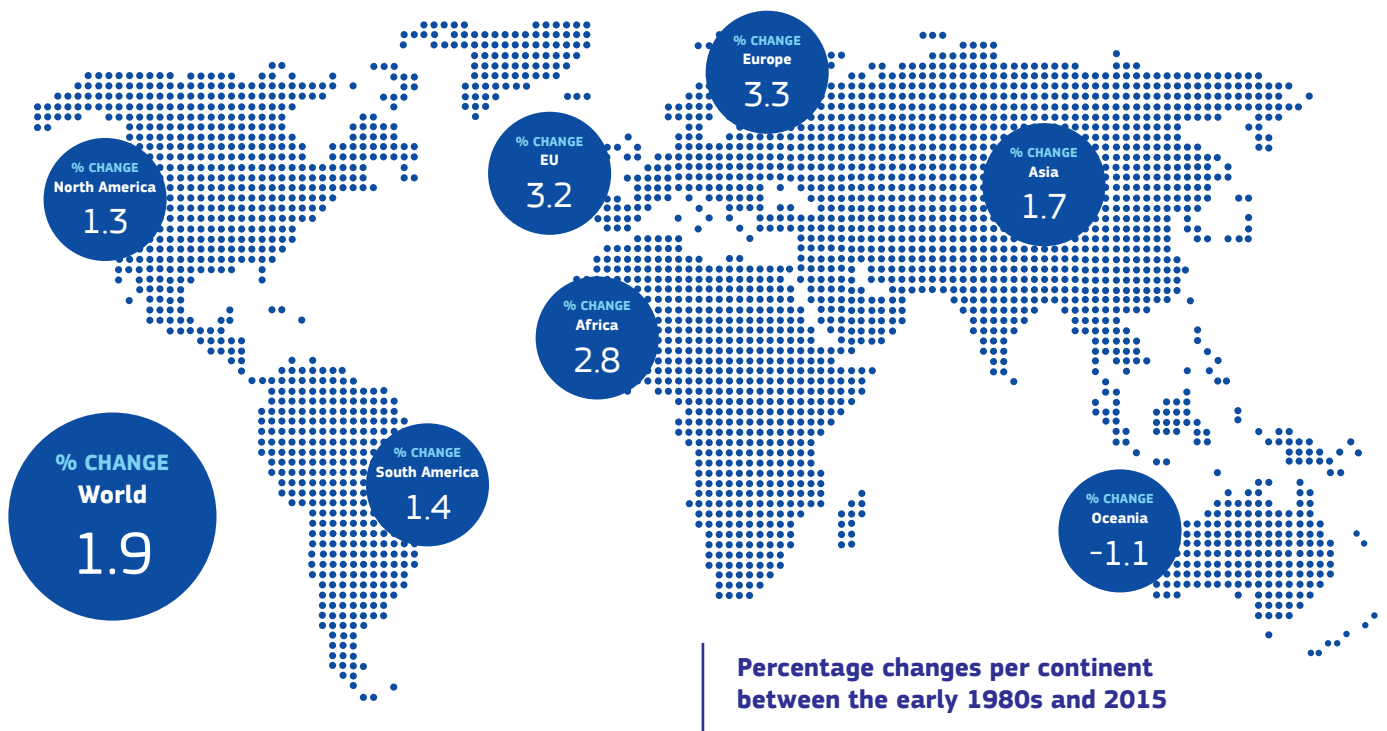
Spain has gained over 790 km<sup>2</sup> of surface water, corresponding to a 46% increase, while in Cyprus, surface water area almost doubled over this period.



## In the WORLD

Over half of the planet's truly permanent surface water is in North America, home to less than 5% of the human population. Europe (including Russia) is home to 10% of the globe's population and has more than 20% of its permanent water. Asia, with 60% of the global

population, accounts for only 9% of truly permanent water. Africa and Latin America have roughly the same share of water, at around 9% each, although the African population (16% of the global) is roughly twice as big as that of Latin America (8.6%).



The Global Surface Water Explorer can be of immediate use for public administrations, researchers, NGOs, and anyone interested in changes in global surface waters.

- Understanding the impact of climate change
- Infrastructural planning
- Improvement of water management
- Water resource reporting and monitoring
- Analysis of risk, resilience and recovery linked to water movement

Global Surface Water Explorer

<https://global-surface-water.appspot.com/>