WHAT DON'T WE KNOW ABOUT THE CASPIAN: IDENTIFICATION OF NEW, MOST ACUTE PROBLEMS OF THE CASPIAN AND PROSPECTS FOR THEIR SOLUTION

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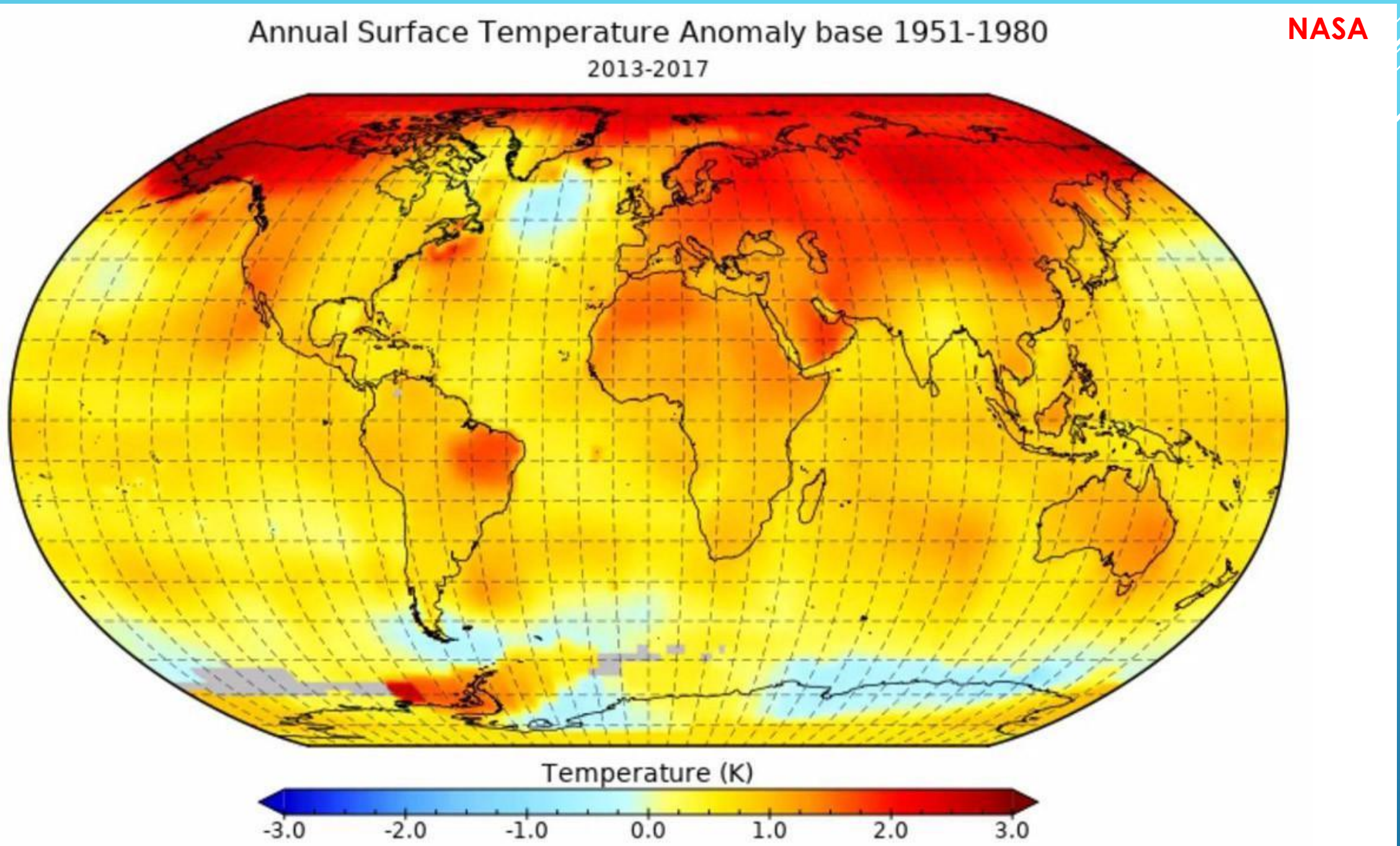
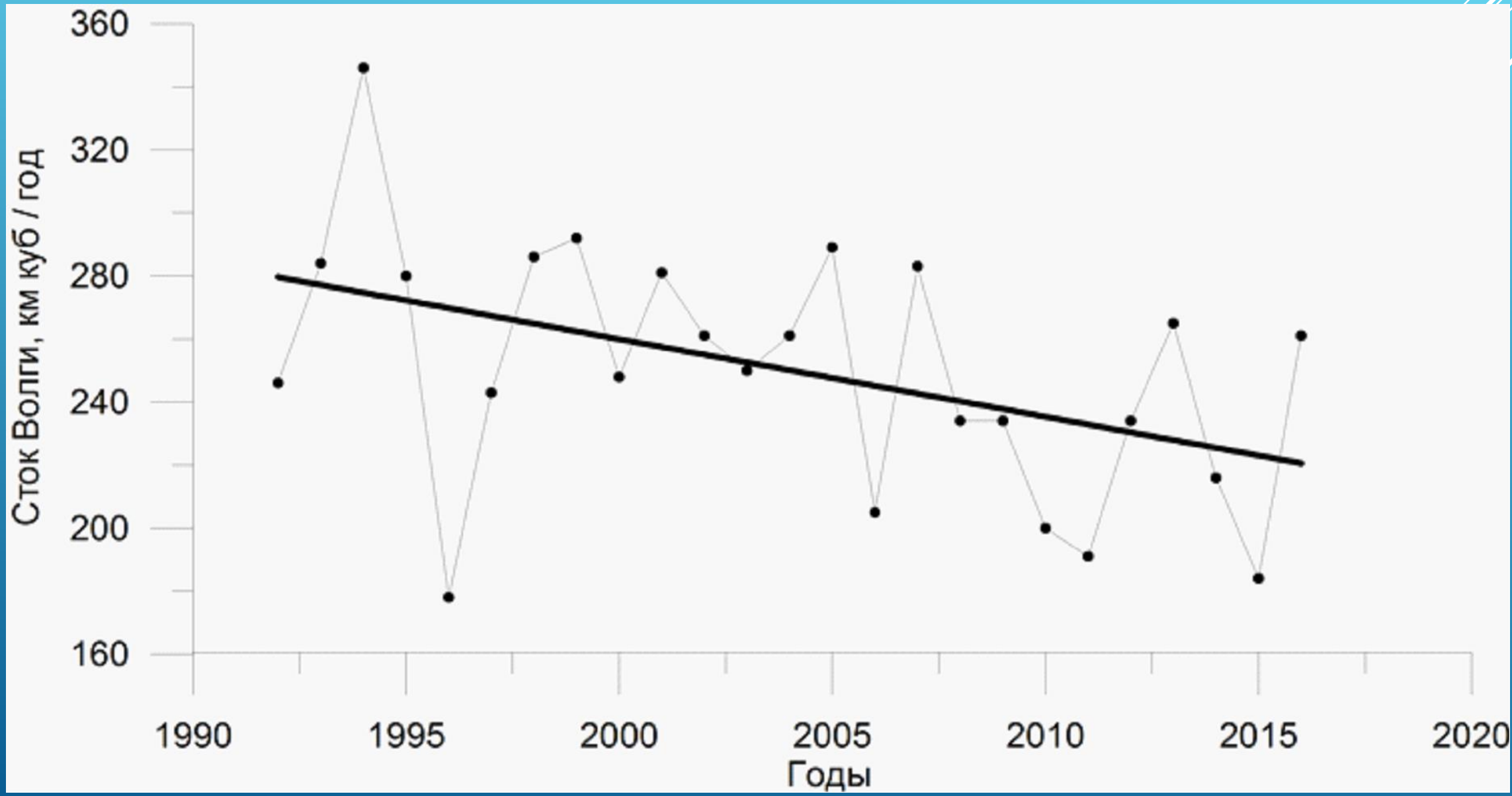
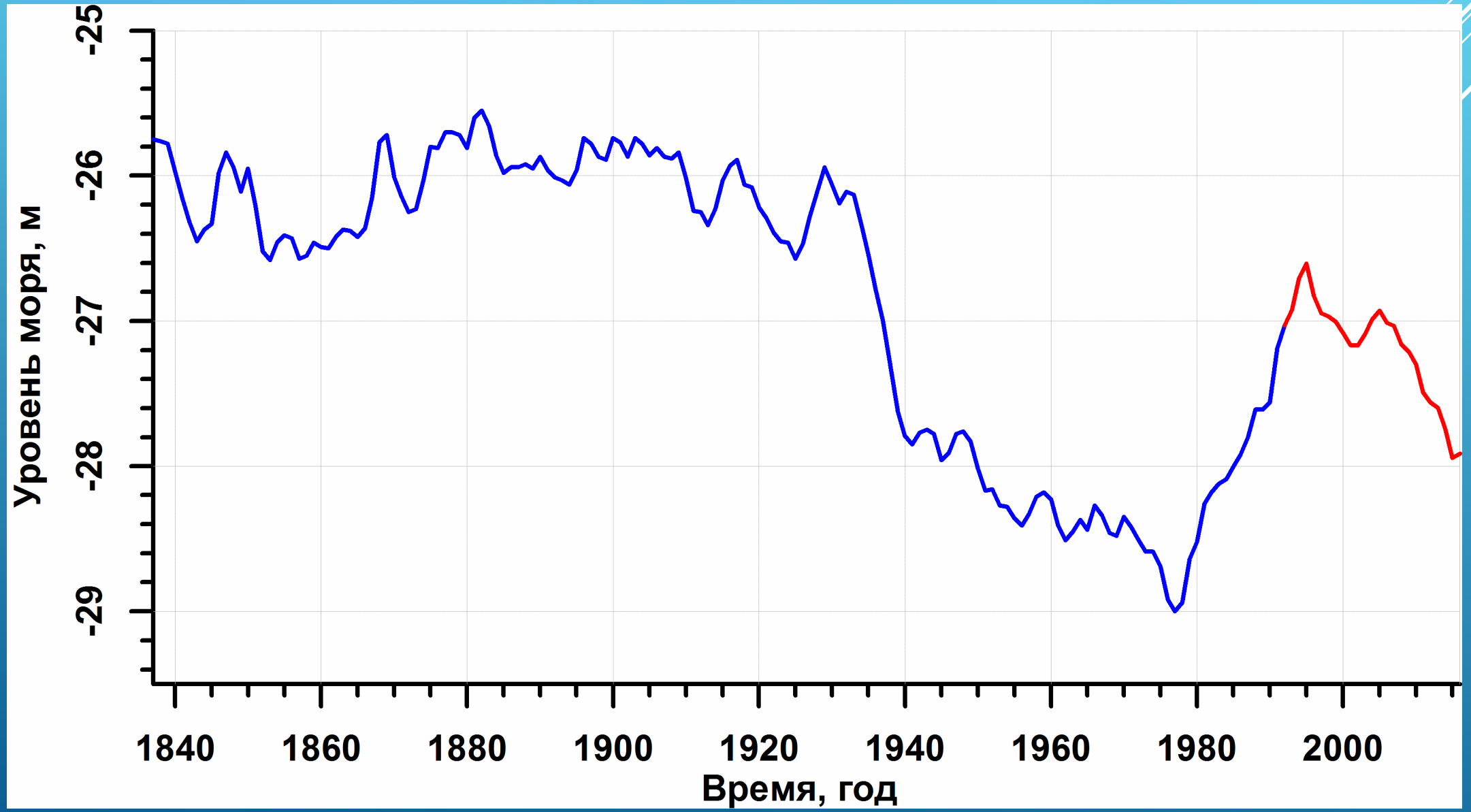

Annual Surface Temperature Anomaly base 1951-1980
2013-2017
Temperature (K)
-3.0
-2.0
-1.0
0.0
1.0
2.0
3.0

Volga River runoff

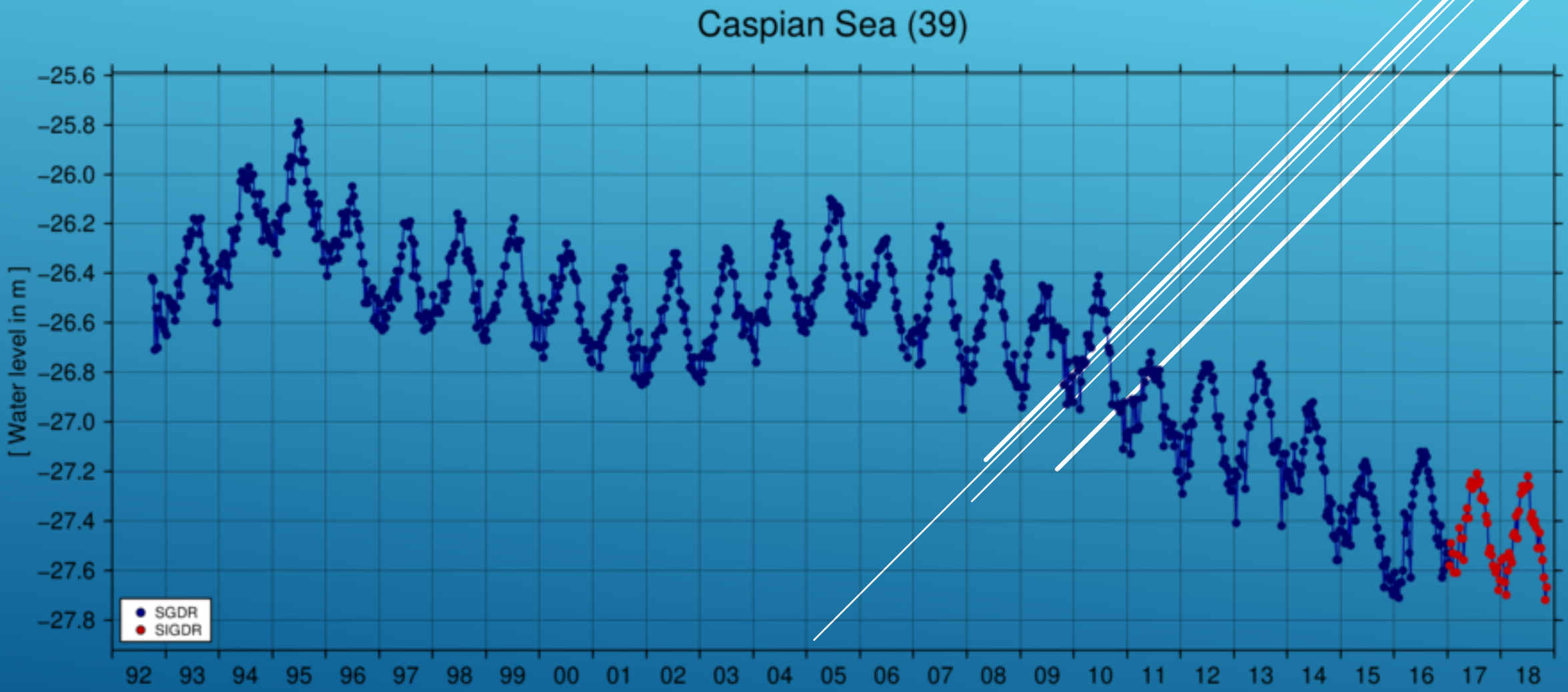


The Caspian Sea level



The Caspian Sea level on 21 November 2018

https://dahiti.dgfi.tum.de/en/39/water_level/



Important gaps

1. Lack of scientific cooperation between Caspian Sea countries on the Caspian Sea studies.
2. Lack of scientific cooperation between science and business
3. Lack of integrated, multidisciplinary, intersectoral research (environmental sciences, territorial development, social sciences, policymakers, resource managers, industries, citizens)
4. A little exchange of data, information, publications.
5. There is no united system of in-situ monitoring.
6. There is no permanent real-time satellite monitoring.
7. Lack of modern instrumentations (research vessels, buoys, drifters, gliders, tide gauge stations, HF radars, meteo radars, etc) and common standards for measurements.
8. Absence of International Regional Satellite Monitoring Center.
9. Absence of International Regional Climate Change Center.

Important scientific gaps (1)

1. Lack of knowledge on Regional climate change >>> water balance >>> sea level >>> SD of coastal/urban regions
2. Lack of knowledge on Regional climate change >>> extreme weather/climate events >>> SD of economy (agriculture, energy, fishery, shipping, transportation, tourism, urban development)
3. Lack of knowledge on Regional climate change >>> land degradation (desertification, salinization, erosion, fires, floods, dust storms) >>> food security >>> quality of life

Important scientific gaps (2)

1. Regional climate (air+sea, change, impact, adaptation)
2. Extreme climate/weather events (amplitude, frequency, duration)
3. Water budget (river runoff, precipitation, evaporation, KBG, groundwater)
4. Sea level (regional variability, trends, forecast)
5. Kara-Bogaz Gol Bay (flux, water budget, water level)
6. Water dynamics, currents (general, mesoscale, submesoscale)
7. Upwellings (eastern and western coasts, structure, dynamics, filaments, seasonal variability, new upwelling regions)

Important scientific gaps (3)

8. Oil pollution (natural, anthropogenic, sources, volumes, regions, transboundary transfer, daily real-time monitoring)
9. Waste generation (plastic pollution, marine litter)

What is needed to fill the gaps?

1. Political decisions
2. Bilateral agreements
3. Special international cooperation programs on the Caspian Sea
4. Administration decisions
5. Special funding at national and international levels
6. Standardization of measurements
7. Modern instrumentation
8. Establishment of International Regional Satellite Monitoring and Climate Change Center

Sustainable Development Goals (17 SDGs)

SDG13: Take urgent action to combat climate change and its impacts

SDG14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development

SDG15: Sustainably manage forests, combat desertification, halt and reverse land degradation, halt biodiversity loss

Common message from IWG SDCSR

Agreement on the legal status of the Caspian Sea signed by leaders of Azerbaijan, Iran, Kazakhstan, Russia and Turkmenistan on 12 August 2018 in Aktau (Kazakhstan) opens new opportunities to address emerging challenges related to regional climate change, extreme weather and climate events, environmental problems, food security and quality of life of local population. International Working Group on Sustainable Development of the Caspian Sea Regions, established in Baku in May 2018, appeals to combine efforts of science, business, authorities, education and local population to achieve SDGs.

Instruments

The intensification of oil and gas production and their transportation, the development of ports and tourism inevitably increase the risks of marine pollution. Activities to increase economic benefits often conflict with measures to protect marine ecosystems, leading to a variety of conflicts. Therefore, along with an increase in the economic growth of the coastal regions, it is necessary to create tools that will contribute to the preservation of the marine environment and the rational use of marine resources and eliminate such contradictions. These tools include Integrated Coastal Zone Management (ICZM) (Mikhaylichenko, 2006) and Marine Spatial Planning (MSP). MSP allows to analyze existing and planned activities affecting the marine resources of a territory, which helps to achieve balanced economic, social and environmental development (Schubert, 2018). Another new tool for achieving sustainable development goals is the creation of ocean / maritime clusters (Hansen et al., 2018).

Our proposal

To organize the First Caspian Congress!

Thank you for your attention!