

Drought monitoring in Bosnia and Herzegovina

Sector of Applied Meteorology
sabina.hodzic@fhmzbih.gov.ba

DMCSEE Expert meeting Ljubljana (13-14 Nov 2024)

Roles and responsibilities of the HMS's in Bosnia and Herzegovina related to drought

Federal Hydrometeorological Intitute Sarajevo Republic Hydrometeorological Service of RS, Banjaluka

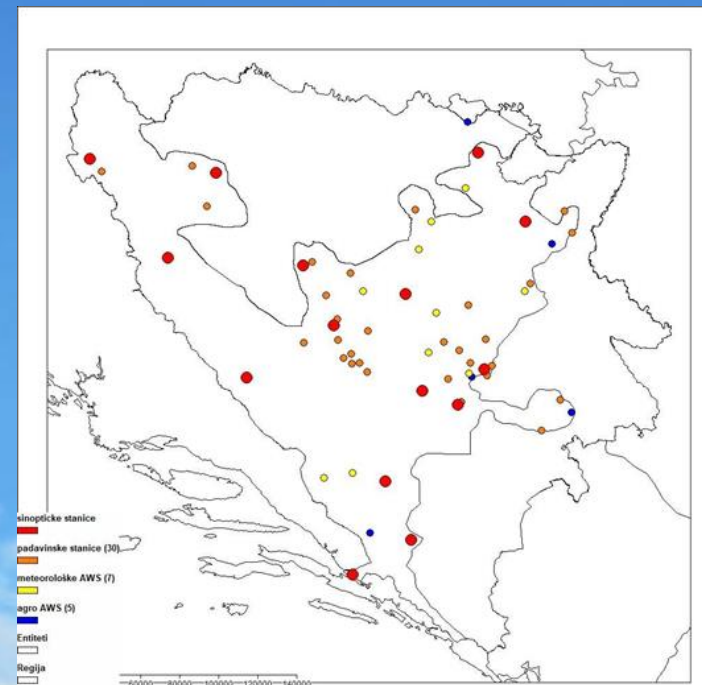
Roles and responsibilities of the HMS's in Bosnia and Herzegovina related to drought includes:

- systematic observation and monitoring of meteorological, hydrological and agrometeorological parameters;
- publishing, and providing information, forecasts, products and services related to the weather, climate and water
- the derivation of drought-relevant parameters, indices and indicators and their comparison with past and expected values.

Meteorological network in FBiH

15 main meteorological station with observer

44 automatic stanica (meteorological, rainfall, agrometeorological, hydrological)



Drought monitoring in FHMI



The SPI and SPEI are multi-scale drought indices that have been widely used. We used, 1-, 3-, 4-, 6-, and 12-month timescales SPI and SPEI were computed using the "SPEI" package in R-statistical software. The flowchart of the methodology is presented in figure 1

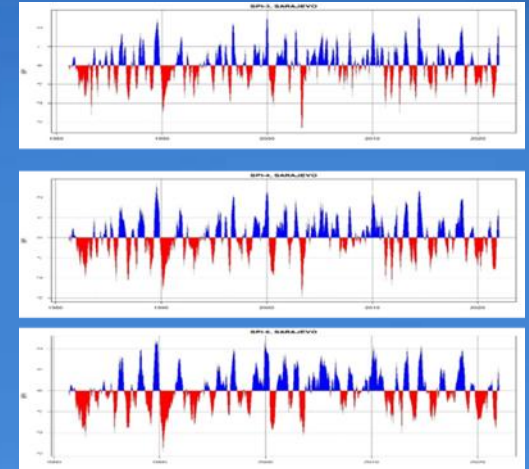
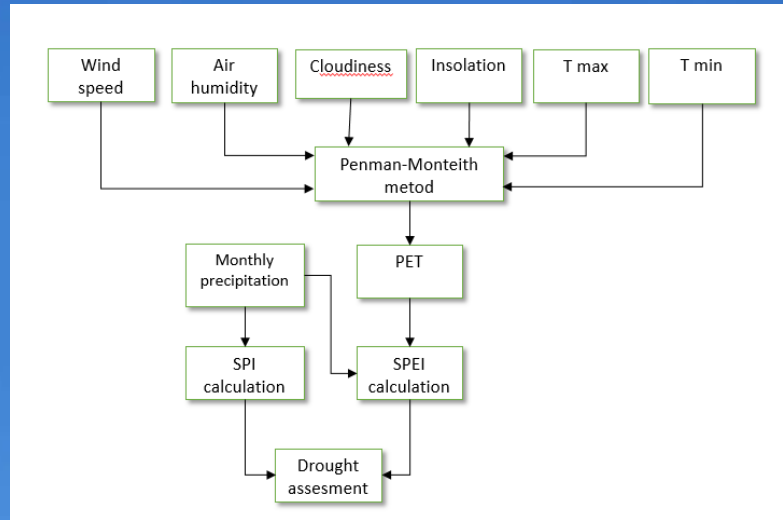
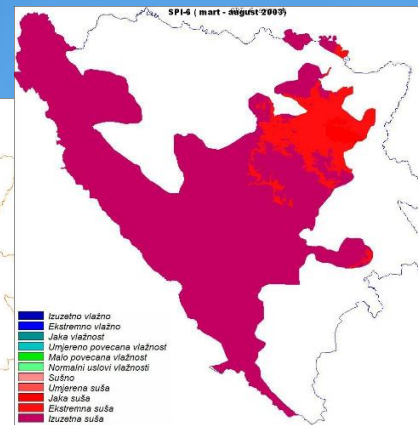
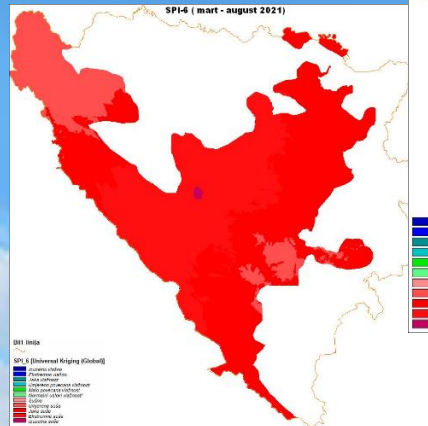
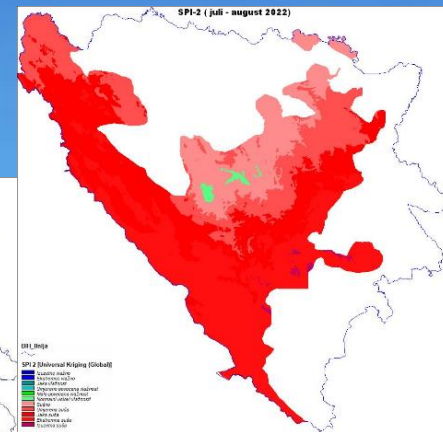
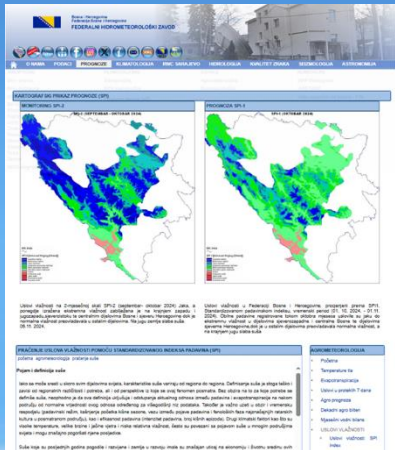


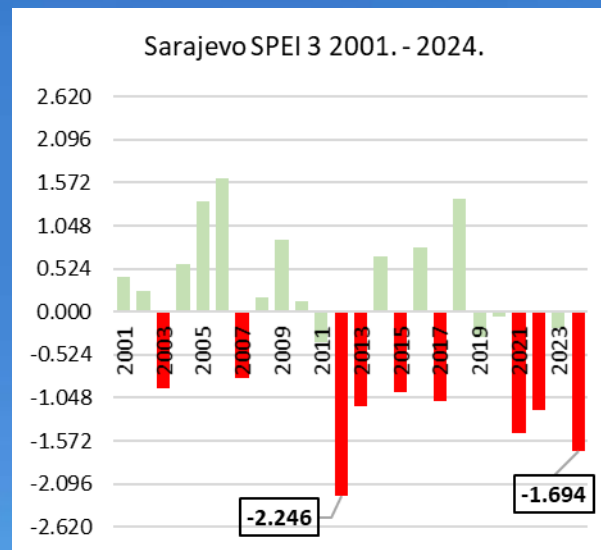
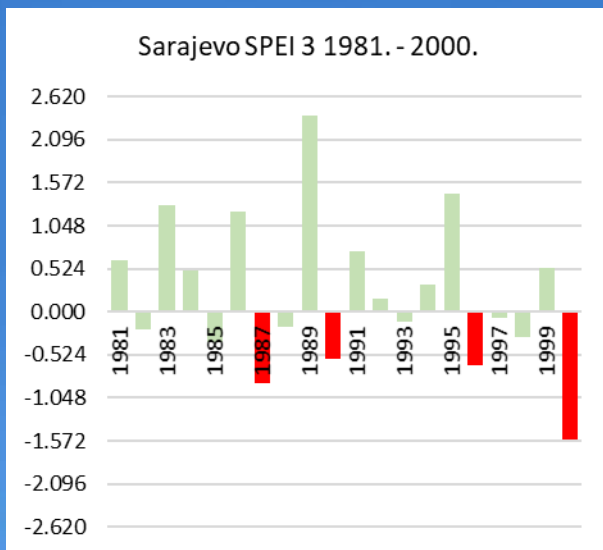
Figure 1. The flowchart of the methodology

<https://www.fhmzbih.gov.ba/latinica/AGRO/SPI-prognoza.php>

Agrometeorological portal:
<https://www.agro.fhmzbih.gov.ba>



SPEI-3 August

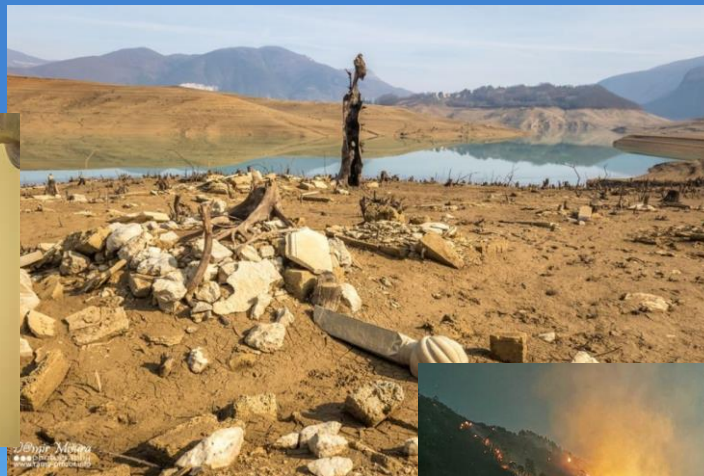
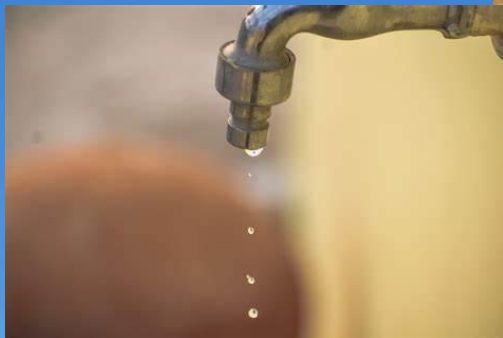


In the 21st century, extremely negative changes were observed regarding the occurrence of drought compared to the last 20 years of the last century, the reference series 1981-2000. year.

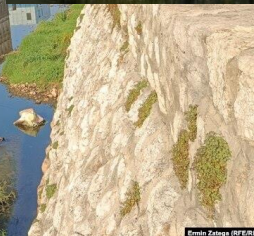
According to the values of SPEI 3, since the beginning of this millennium, each subsequent decade (2001 - 2010, 2011 - 2020, 2021 - 2030), brings with it additional risks and the two most significant changes, which are the increasingly frequent occurrence of drought, with the intensity also increasing.

Drought monitoring impact

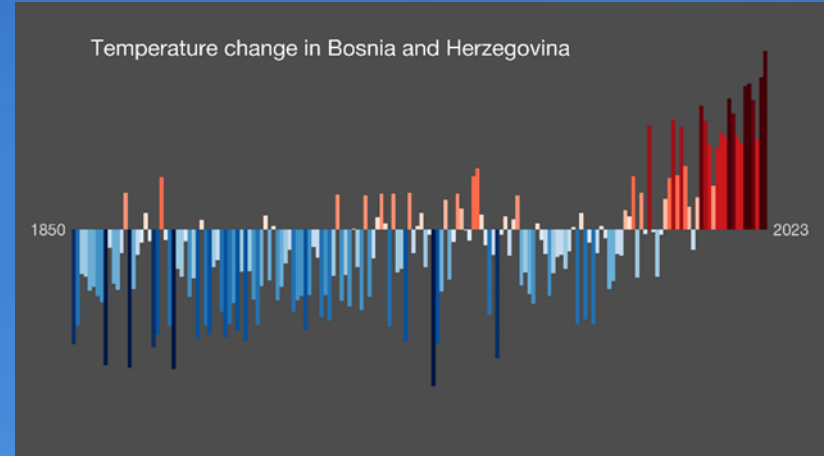
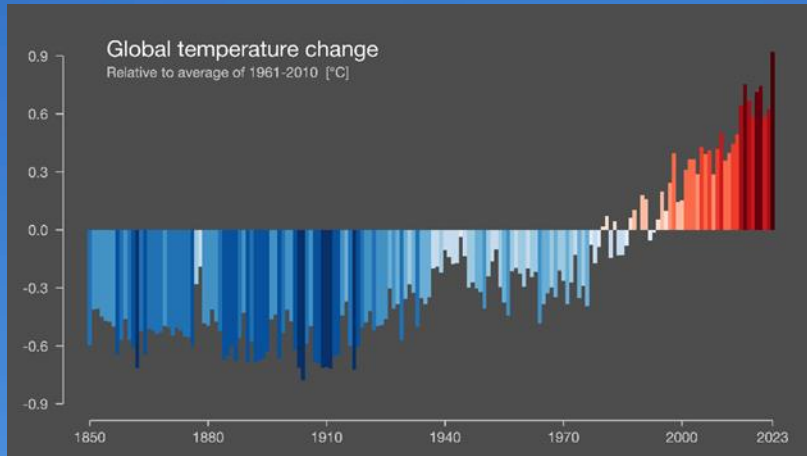
Droughts can have long-lasting direct, indirect, compound and cascading impacts across economic sectors, systems, borders, and regions (UNDRR 2021).



Korito Miljacke, august 2024

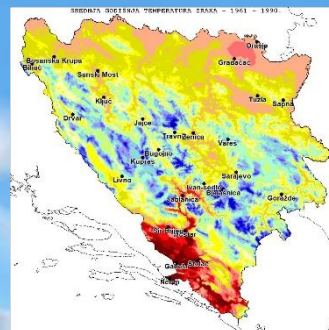


The role of the Meteorological Services's in monitoring of climate and climate change in Bosnia and Herzegovina

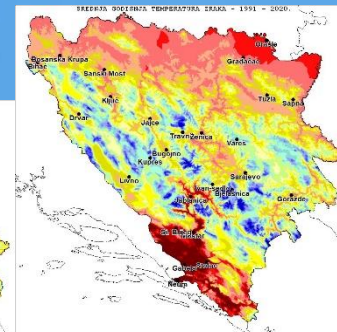


National Adaptation Plan – NAP of Bosnia and Herzegovina with proposed measures, 2021

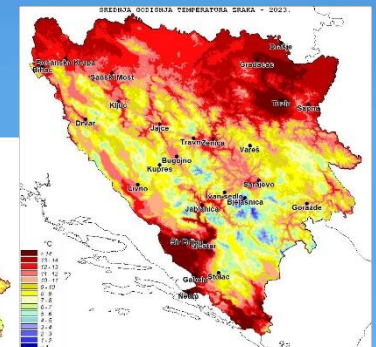
<https://unfccc.int/sites/default/files/resource/NAP-Bosnia-and-Herzegovina%20.pdf>



1961-1990



1991-2020



2023

Challenges

- To establish drought early warning systems on national level;
- To upgrade and modernize the hydro-meteorological observation network, data management and forecasting system and to provide sustainable organisational, human and technical resources to maintain and operate it;
- To clarify the mandates and communication routes for alerts, advisories, warnings and alarms from state level to different levels •
- To enhance cooperation and networking between hydro meteorological sector and different stakeholders and end-users of hydmet data, services and early warnings;
- To strengthen against drought preparedness and management strategies including contingency plans at local, entity and national level;
- To develop sustainable irrigation systems, etc
- To train drought vulnerability and risk assessment;

Thank you for your attention

Federal Hydrometeorological Institute of Bosnia and Herzegovina