

**Bosnia and Herzegovina  
Federation of Bosnia and Herzegovina  
Federal hydrometeorological institute**



**ICSEED 18  
18<sup>th</sup> SESSION OF THE INFORMAL CONFERENCE OF  
SOUTH-EAST EUROPEAN NHMSs DIRECTORS**

**Tel-Aviv, 4 - 6 November 2019**

**Director  
Almir Bijedić**

# LEGISLATION



**DIRECTIVE 2000/60 / EZ OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 23. 10. 2000. of the EU Water Framework Directive.**

**DIRECTIVE 2007/60 / EZ OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on the assessment and management of flood risks from 23.10. 2007.**



Framework Law on Protection and Rescue of People and Material Goods in Bosnia and Herzegovina (Official Gazette of BH, No. 50/08);

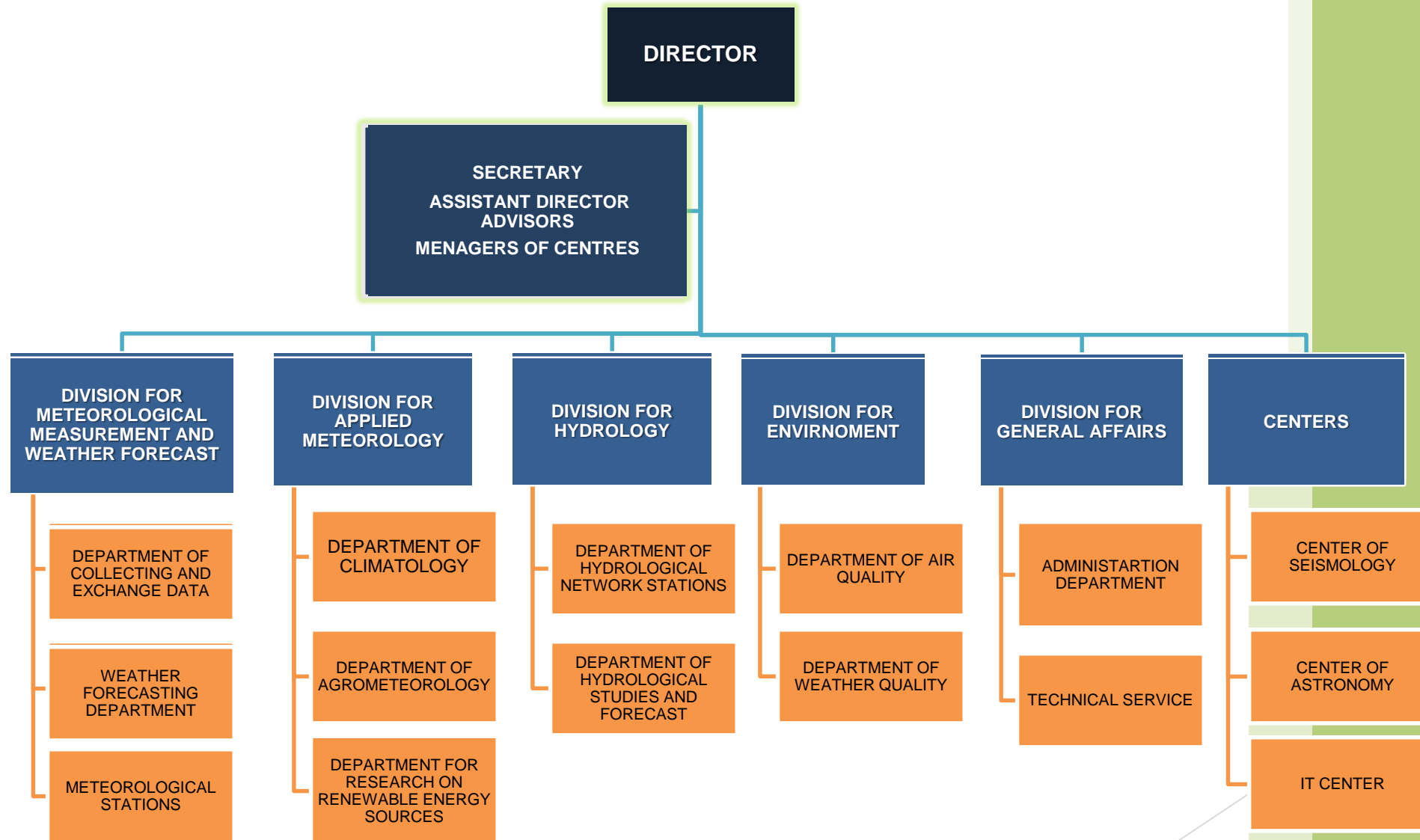


Law on Federal Ministries and other federal administration bodies (Official Gazette of FBH, No. 58/02, 19/03, 38/05 and 2/06);

- Law on Hydrometeorological Affairs of Interest for the Republic (Official Gazette of SRBH, Nos. 19/76 and 12/87)
- Law on Protection and Rescue of People and Material Goods from Natural and Other Accidents (Official Gazette of FBH, No. 39/03; 22/06);
- Law on Waters ("Official Gazette of the Federation BH", No. 70/06);
- Federal Operational Flood Defense Plan (Official Gazette of FBH, No. 97/15;)

# FEDERAL HYDROMETEOROLOGICAL INSTITUTE

## Organisation chart

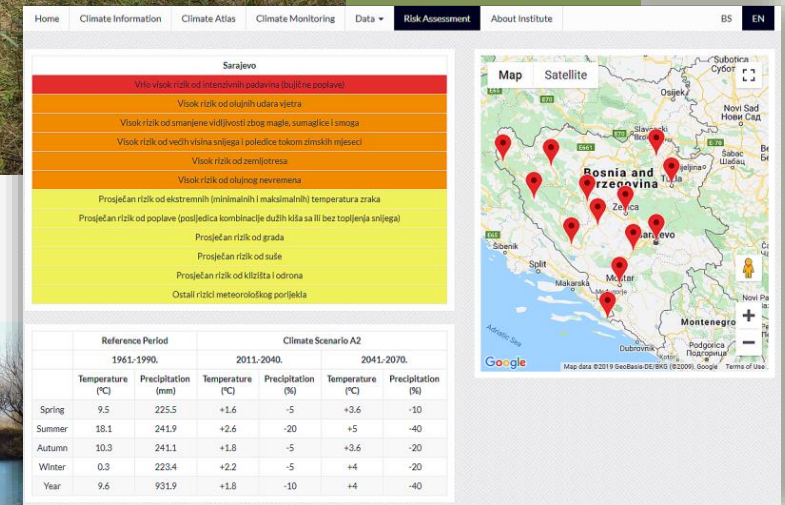
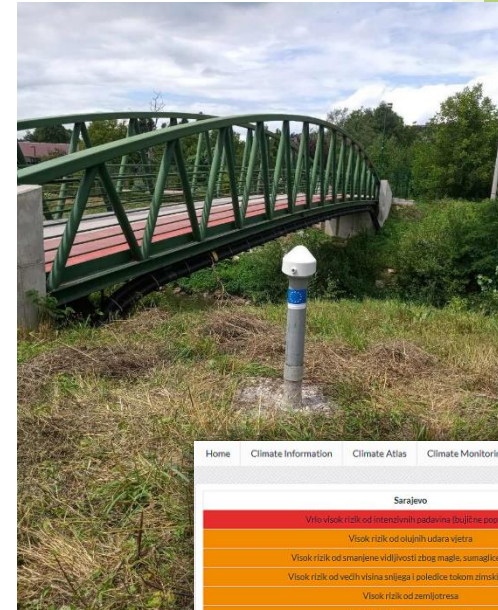


# COMPLITED AND ONGOING PROJECTS

- **Implementation into EFAS membership**
- **WMO: "Development and implementation of a system of regional torrential flood indicators within the South Eastern Europe Region Flash Flood Guidance (SEE - FGG) project.**
- **Assistance Program of the Ministry of Foreign Affairs of Finland: "Rehabilitation and Modernization of the Hydrological and Meteorological Observation Network and Data Exchange Procedures in Serbia and Bosnia and Herzegovina".**
- **TIKA: "Strengthening the IT Sector of the Federal Hydrometeorological Institute.**
- **Super Sava Project - the project is fully funded by DHMZ, the result of which is the Forecast Model for the Sava River Basin**
- **Development of a real-time flood forecasting system in the Sava River Basin District - Pilot Project of the Una River Basin in the Federation of Bosnia and Herzegovina - Sava River Basin Agency.**
- **SAFICA project**
  
- WMO: SEE-MHEWS project (South-East European Multi-Hazard Early Warning Advisory System), )
- IPA II: "Support to BH Flood Protection and Water Management; Component 1: Hydrological forecasting system in the Sava River Basin in BH - Phase I of the Bosnia River Basin ".
- UNDP Project: "Integrating climate change into reducing flood risk in the Vrbas River Basin".
- GEF / SCCF: Technical Assistance to the Drina River Basin Management ("WEST BALKANS DRINA RIVER BASIN MANAGEMENT PROJECT").
- Assistance from the Government of Japan to Bosnia and Herzegovina in Meteorological Equipment
- WBIF: "Support for Water Management in the Drina River Basin".
- WBIF: "Improving Joint Flood Management Activities in the Sava River Basin" (BH, R Serbia, Montenegro).
- Project with Sweden Air Quality Assistance to Bosnia and Herzegovina in Improving Air Quality and Air Quality Management was initiated by the Swedish Embassy in BH and is being implemented by the Swedish Environmental Agency SEPA in cooperation with the Swedish Meteorological Institute SHMI and institutions in Bosnia and Herzegovina.
  
- *Activities are underway for Bosnia and Herzegovina's membership of the European Center for Medium-Term Forecasting "ECWMMF" conducted by the BH Ministry of Civil Affairs.*

# ACHIEVEMENTS BETWEEN TWO MEETINGS AND PRESENT ACTIVITIES IN FHMI SARAJEVO

1. Improved meteorological and hydrological monitoring
2. Improved hydrological monitoring - flow measurement
3. Improved management system for hydrological and meteorological data
4. Provided independent power supply to facilities in crisis situations
5. Designing a project assignment for establishing a meteorological radar system
6. The New DaWBe Station (EUMETSAT)
7. On going project in Air Quality Department



# IMPROVEMENT OF METEOROLOGICAL AND HYDROLOGICAL MONITORING

## 1. Project: Supply of equipment for the development of hydrological forecasting system for Sava river basin in Bosnia and Herzegovina (Phase 1, Bosna river) -The delegation of the European Union to Bosnia and Herzegovina:

- 7 Precipitation gauge stations
- 6 Complex meteorological stations
- 2 Groundwater level measuring stations
- 6 Hydrological stations

## 2. Assistance from the Government of Japan to Bosnia and Herzegovina in Meteorological Equipment:

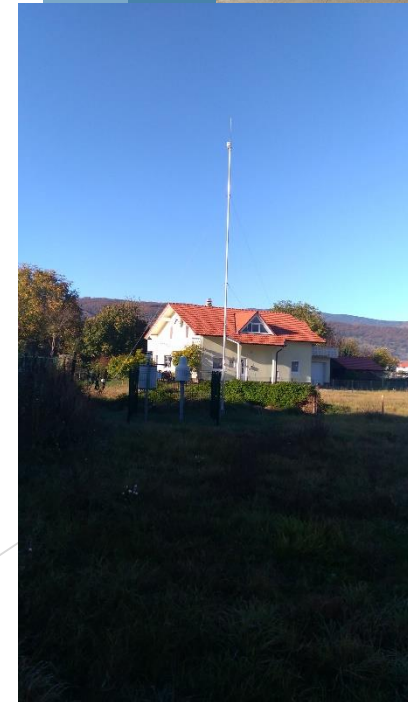
- 5 Agro-meteorological stations

## 3. The West Balkans Drina River Basin Management (WBDRBM) Project

- 1 Agro-meteorological stations
- 1 Complex meteorological stations
- 5 Precipitation gauge stations

## 4. UNDP

- 2 - Complex meteorological stations



5. Assistance Program of the Ministry of Foreign Affairs of Finland: "Rehabilitation and modernization of hydrological and meteorological observation network and data exchange procedures in Serbia and Bosnia and Herzegovina" **(2016)**

- 4 Precipitation gauge stations
- 1 Meteorological stations
- 2 Hydrological stations

6. UNDP Project: "Integrating climate change into reducing flood risk in the Vrbas Basin". **(2016)**

- 10 Precipitation gauge stations
- 1 Meteorological stations

7. Automatic weather stations **(until 2012.)**

- 3 Meteorological stations

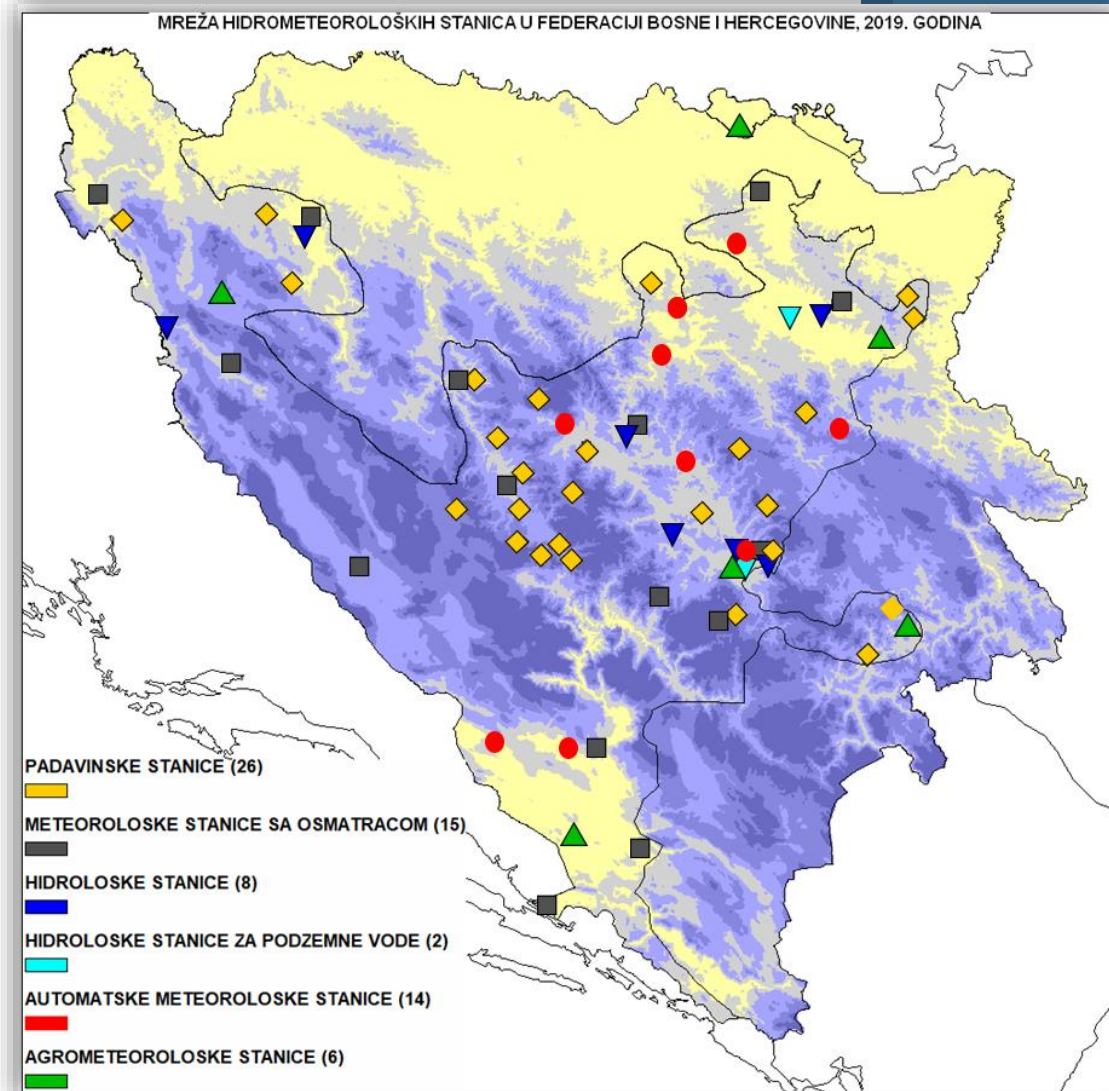


# IMPROVEMENT OF METEOROLOGICAL AND HYDROLOGICAL MONITORING

- 26 Precipitation gauge stations
- 14 Automatic meteorological stations
- 15 Meteorological stations with observer
- 2 Groundwater level measuring stations
- 8 Hydrological stations
- 6 Agro-meteorological stations

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**71 stations total**





# NEW EQUIPEMENT FOR HYDROLOGICAL MEASUREMENT

1. **Project: Supply of equipment for the development of hydrological forecasting system for Sava river basin in Bosnia and Herzegovina (Phase 1, Bosna river) -The delegation of the European Union to Bosnia and Herzegovina:**

Land-field work equipment:

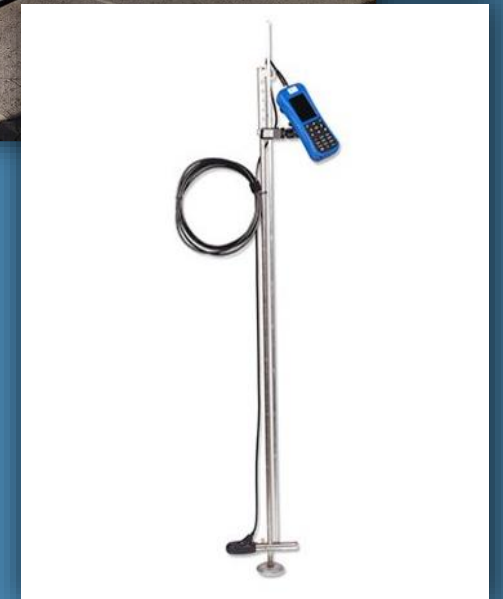
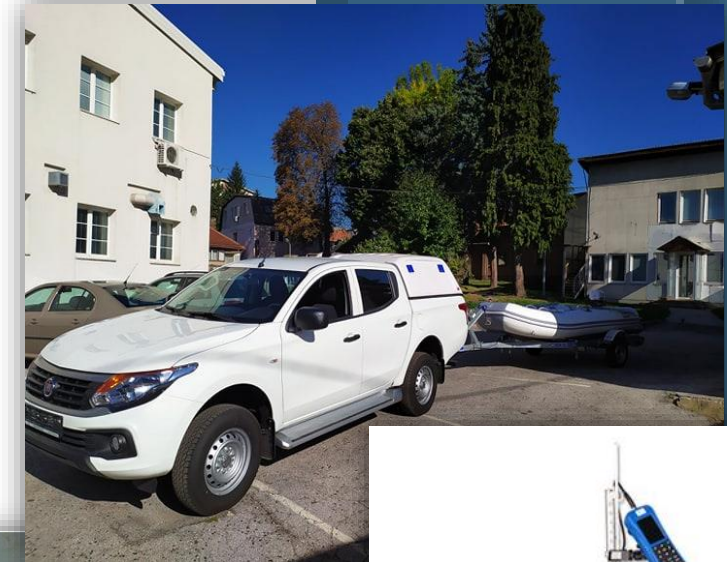
- Digital current meter, model MF Pro
- Inflatable Boat, Model Cadet ALU
- Outboard engine, Model oyster Big foot 6 kW
- Acoustic Doppler current profiler for shallow water, Model StreamPro ADCP
- All-terrain engine vehicle, Model – Fiat FullBack

2. **The West Balcans Drina River Basin Menagement (WBDRBM) Project**

3. Foreign Ministry Assistance Program of Finland: „Rehabilitation and modernization of the hydrological and meteorological observations network data exchange procedures in Serbia and Bosnia and Herzegovina.“

4. FHMI

- Current meter



# IMPROVED MANAGEMENT SYSTEM FOR HYDROLOGICAL AND METEOROLOGICAL DATA

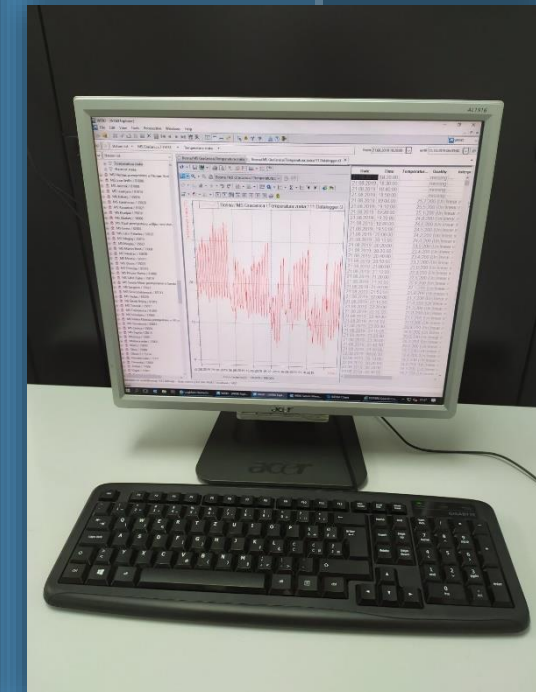
**Project: Supply of equipment for the development of hydrological forecasting system for Sava river basin in Bosnia and Herzegovina (Phase 1, Bosna river) -The delegation of the European Union to Bosnia and Herzegovina:**

## **Hardware:**

- SODA server.
- MSSQL database server,
- MSSQL client server and
- Backup server,
- 2 Workstations
- 4 Laptops PC, three are filed-based.

## **Software:**

- SODA
- MSSQL database
- WISKI client
- WEB PUBLIC
- and ESRI ArcGIS desktop standard+ArcGIS spatial analyst extension



# PROVIDING INDEPENDENT POWER SUPPLY OF ELECTRICITY FACILITIES

## Two Genetors Acquired:

- Fixed generator 25 kW
- Mobile generator 4 kW



# DEVELOPMENT OF A PROJECT ASSIGNMENT FOR ESTABLISHING A SYSTEM OF METEOROLOGICAL RADARS IN THE FBH

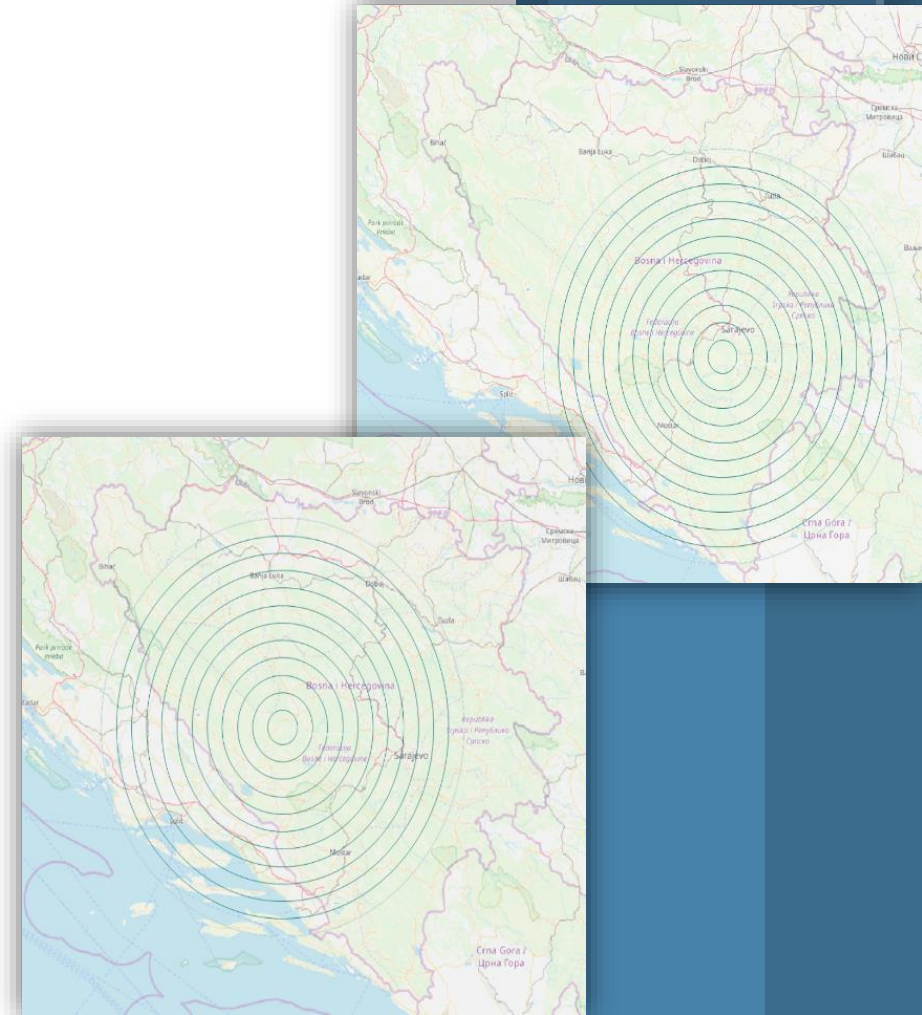
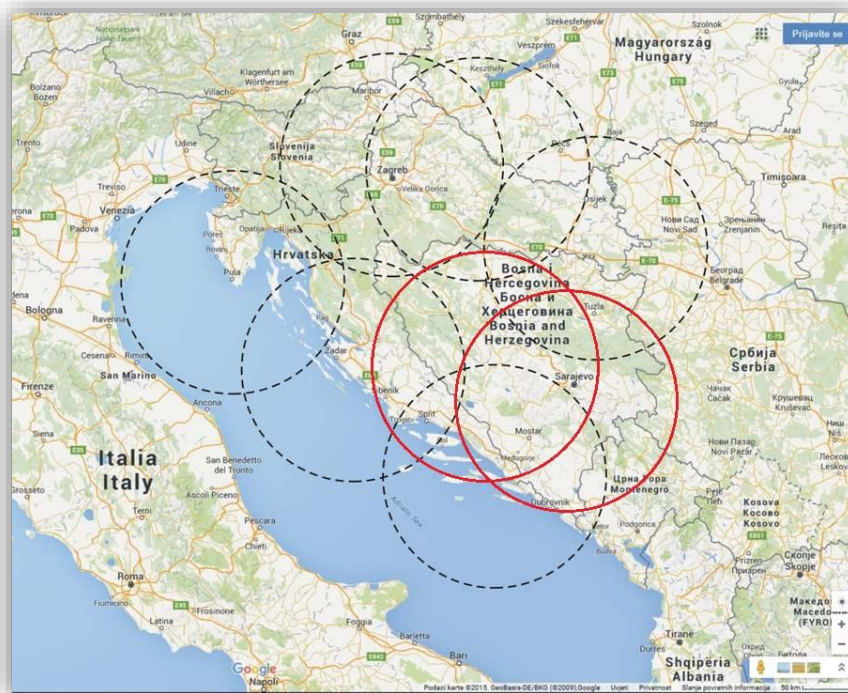
The development of an task for the establish radar system in the FBiH is underway.

## Intended localities:

- Bjelašnica
- Kupres

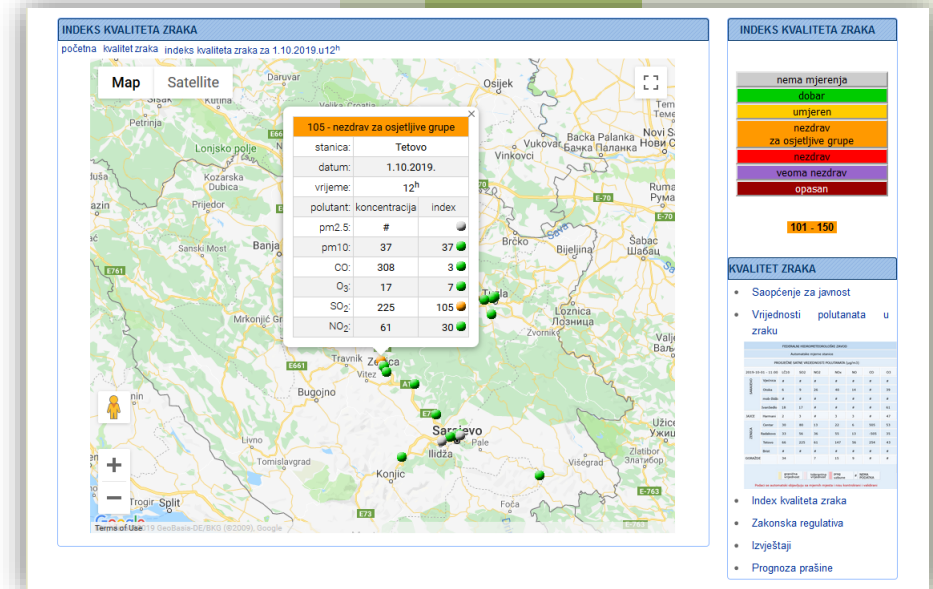
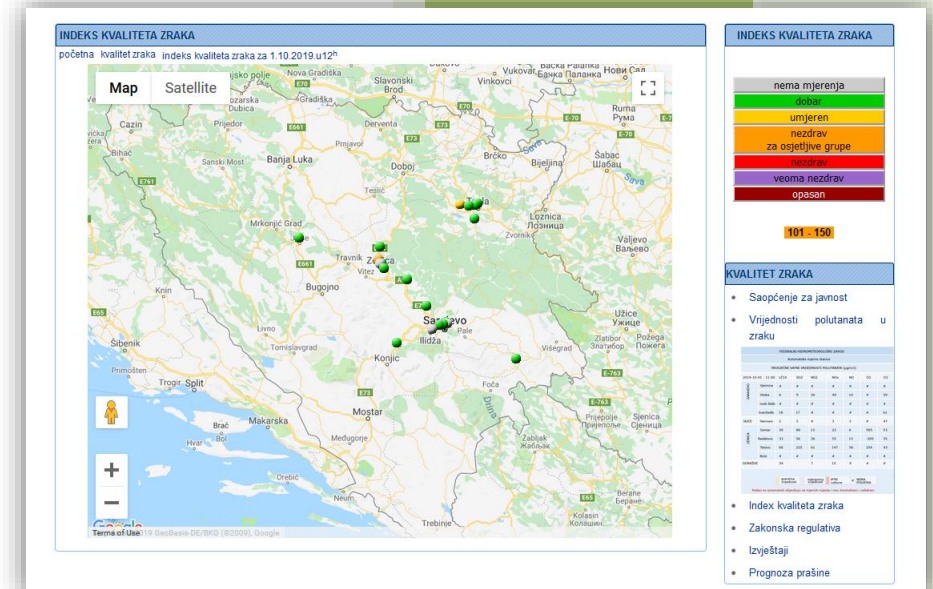
## Our plans:

- Establish a composite radar image with radars in Croatia
- Membership in EUMETNET program OPERA



# ON-GOING PROJECT IN AIR QUALITY DEPARTMENT

1. The project "Assistance to Bosnia and Herzegovina in Improving Air Quality and Air Quality Management" was initiated by the Swedish Embassy in BH and is being implemented by the Swedish Environmental Agency SEPA in cooperation with the Swedish Meteorological Institute SHMI and institutions in Bosnia and Herzegovina, among which Hydrometeorological institutes play a key role in our country. The project involves strengthening the air quality monitoring system and improving the air management system in our country. The project will run until 2021.
2. Development of specific Air Quality Index, which in 2019 is included in the legislation in the Federation of BH. Project was supported by UNEP Sarajevo and Umweltbundesat Austria
3. Establishment of automatic up-to-date data transmission to the European Environment Agency. Project was supported by EEA.
4. SAFICA – „Sarajevo field campaign“, Atmospheric aerosol measurements in Sarajevo. Partners of project: University of Rijeka, University of Sarajevo, Institute for public health KS.



# HIGHLIGHTS OF 2019

- The Eighteenth World Meteorological Congress (Cg-18) was held from 3 to 14 June 2019 at the International Conference Centre of Geneva (CICG).
- Basic South Eastern Europe Meteorological (SEEMET) training course was organized by the Federal Hydrometeorological Institute of Bosnia and Herzegovina (FHMZ) with the EUMETSAT and EUMETCAL support and was held from 14 to 17 May 2019.
- II Water Congress BH from 7 to 8.11.2019., Sarajevo, BH



# SEE-MHEWS PROJECT

## VISIT OF WMO REPRESENTATIVES TO FEDERAL HYDROMETEOROLOGICAL INSTITUTE

On 28.10.2019. as a part of the SEE-MHEWS project (South-East European Multi-Hazard Early Warning Advisory System), a meeting was held in the premises of the Federal Meteorological Institute, being one of the beneficiary institutions of this project in the Federation of Bosnia and Herzegovina.

The meeting was attended by

- Ms. Sari Lappi, Project Coordinator - WMO Representative;
- Mr. Milan Dacic Head of WMO Europe Regional Office;
- Dr. Yuri Simon representative of the Hydrological Sector of the Russian Meteorological and Hydrological Service;
- representatives of the Sava River Basin Agency;
- representatives of the Adriatic Sea Watershed Agency;
- representatives of JP Elektroprivreda BiH;
- representatives of JP Elektroprivreda HZHB and
- the meeting hosts the Federal Hydrometeorological Institute.

As a part of SEE-MHEWS project the assessment of Southeast Europe meteorological and hydrological services in flood forecasting and warning has been completed. The objective of the assessment was to provide the information to support the selection of the river basin for the pilot phase of the project. One of the proposals for the pilot project is Vrbas River Basin, and the topic of today's meeting was readiness of the Federal Water Institutions for the implementation of the pilot project.



# PROJECT IN PREPARATION

## ACTIVITIES TO DATE

- Activities are underway for Bosnia and Herzegovina's membership of the European Center for Medium-Term Forecasting "ECWMF" conducted by the BH Ministry of Civil Affairs.

## NEW ACTIVITIES

- A new UNDP project in the field of flood risk reduction in Bosnia and Herzegovina is under preparation.
- The focus of the project "Scaling Up Climate Resilient Flood Risk Management in Bosnia Herzegovina " is the development of a flood forecasting and early warning system, watercourse regulation, and the creation of an investment framework to reduce the population's exposure to floods. FHMI is among the beneficiary institutions, we hope that the issue of Bosnia and Herzegovina's ECMWF membership will be addressed in a sustainable way through this project."



# OUR NEEDS AND PROBLEMS

The projects are a great opportunity to develop the Federal Hydrometeorological Institute, however, maintaining the overall system is a very difficult job.

The biggest problems:

- Insufficient budget
- Lack of staff
- Memberships in International Institutions (ECMWF; EUMETSAT, EUMETNET ...)
- Electricity costs and calibration

The FBiH Government has expressed its readiness to support the Federal Hydrometeorological Institute. It raises the budget every year, but it is not enough.



**THANK YOU FOR YOUR ATTENTION**