



18th SESSION OF THE INFORMAL CONFERENCE OF SOUTH-EAST EUROPEAN NMHSs DIRECTORS (ICSEED-18)

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

Hosted by Israel Meteorological Service

ICSEED-18 Participants

On the 18th SESSION OF THE INFORMAL CONFERENCE OF SOUTH-EAST EUROPEAN NMHSs DIRECTORS (ICSEED-18) in Tel-Aviv 41 participants from 16 South-East European (SEE) countries' National Meteorological and Hydrological Services (NMHSs) as well as representatives from International organizations. Directors of NHMSs from the following countries were present at the meeting: Albania, Bosnia and Herzegovina (FHMZ Federation of B&H and RHMZ Republic of Srpska), Bulgaria, Croatia, Greece, Hungary, Israel, Republic of North Macedonia, Montenegro, Moldova, Romania, Serbia, Slovenia, Turkey and Ukraine.

World Meteorological Organization (WMO) was represented by Mr. Milan Dacić, (Chief of Regional Office for Europe), Dr. Michael Staudinger (president of RAVI) and Ms. Sari Lappi (SEE Project Coordinator).

Representatives from European Centre for Medium Range Weather Forecast-ECMWF, European Meteorological Services Network-EUMETNET, European Organisation for the Exploitation of Meteorological Satellites-EUMETSAT, and World Bank also were present at the session.

Full List of Participants at ICSEED18 is attached in Appendix 1.

Opening of the session

The session started at 08:30 on 4-th November 2019 when **Mr. Ivica Todorovski**, Director of the Hydrometeorological Service of Republic of North Macedonia, ICSEED Chair, opened the meeting. Mr. Michael Staudinger, president of the regional association VI, welcomed the participants as also did Mr. Nir Stav, Director of Israel Meteorological Service and Mr. Daniel Werner Kull, senior disaster risk management specialist at the World Bank.

Agenda ICSEED-18 and the Minutes from the ICSEED-17

The proposed Agenda of the 18-th ICSEED Session was accepted without any objections (Appendix II) as well as Minutes from the ICSEED-17.

Appointment of the new ICSEED chair

Following to tradition, director of hosting NMHS, Mr. Nir Stav has been appointed unanimously as a new chair of the ICSEED and continued to chair the Session.

Presentation of the invited speaker: Mr. Milan Dacić

Mr. Milan Dacić, WMO Representative for Europe, presented the regional priorities endorsed by the regional association. The **top priority areas identified** for the next intersessional period were (not in priority order):

- (1) The future role of NMHSs and the collaboration with the Private sector in the Global Weather Enterprise: WMO providing a platform for dialogue;
- (2) Improving Service Delivery-Disaster Risk Reduction: GMAS Vision;
- (3) Impact based services: Training and sharing information;
- (4) Hydrology: observations network, data exchange/WHOS regional implementation, forecasting and service delivery;
- (5) Arctic and High Mountain Areas: Observations, Research and Services;
- (6) WIGOS – Implementation and Regional Centers.

The Management Group put in place a working mechanism for the region to focus on delivering these priority areas. NMHSs' experts from SEE were incorporated into the RA VI management group, into the working groups and into the task teams. Existing and new Regional Specialized Centres hosted by SEE Member States were recognized by the regional association, including two new recognitions: WIGOS Marine Meteorology Centre for Adriatic Sea Area (Croatia) and Regional Agrometeorological Centre (Romania).

Decision RA VI-17/12 of the regional association called for the establishment of two Sub-regional **Radar Networks in the SEE and Black Sea region**, BLACKRAD and SEERAD which will contribute to a regional network covering the whole of the association:

BLACKRAD - to be operated by 11 Members in the Black Sea subregion: Armenia, Azerbaijan, Bulgaria, Georgia, Kazakhstan, Republic of Moldova, Romania, Russian Federation, The former Yugoslav Republic of Macedonia, Turkey, Ukraine

SEERAD - to be operated by 18 Members in the South-East Europe subregion: Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Greece, Hungary, Israel, Jordan, Lebanon, Montenegro, Romania, Serbia, Slovenia, Syrian Arab Republic, The former Yugoslav Republic of Macedonia, Turkey, Ukraine

Each sub-regional network will operate a **Radar Data Centre (RDC)** to collect the data, generate products and distribute them for the use by Members. The RDC could also optionally be a component of a future Regional WIGOS Centre (RWC). Mr. Dacić emphasized the need for **volunteer(s) from SEE Europe to host the Regional Radar Data Centre(s)** for Black Sea and SE Europe - member(s), having sufficient capability to perform the required tasks and functions defined according to their Terms of Reference as set by the regional association.

Mr. Dacić discussed the contribution of the RA VI Member States from SE Europe to the Regional Observation Network. The regional association established a pilot **RBON for RA VI**, comprised initially of the merging of all RBSN and RBCN stations of RA VI, and invited Members of RA VI to consider proposing inclusion of additional surface-based observing stations. The regional Task Team on WIS and WIGOS are to review the candidate RBON stations proposed by Members, and to make recommendation to the president of the Regional Association for including them in the pilot RBON.

The national WIGOS and OSCAR/Surface focal points are requested to actively support the integration of **partner observing networks and stations** in WIGOS, such as those contributing to the observing component of the Global Cryosphere Watch.

Mr. Dacić urged SEE members to **contribute experts to SEECOF including funding of experts participation** in the face-to face sessions is crucial for the RCOF sustainability in SE Europe: there is need for regular institutional budget reserve and annual budget allocations to support the RCOF mechanism.

Addresses by the representatives of international organizations

• ECMWF

Prof. Florian Pappenberger, Director of Forecasts at ECMWF, presented the organizational structure of ECMWF and the operational forecasting systems: High resolution forecast; Ensemble forecast; Ocean waves; and seasonal forecast.

Time line for Integrated Forecasting System cycles was presented, as well as Bologna plans and the European Weather Cloud endeavor (with EUMETSAT).

Other activities and innovations were also presented:

- The hourly data and 06/18 UTC forecast runs from its Boundary Conditions optional programme are now available to all users holding a real-time licence, upon request;
- Open development of ECMWF software;
- New products;
- Additional products for WMO community;
- Forecast performance/verification;
- New outreach tools: Severe event catalogue, Known Forecasting issues list, Changes to forecasting system updates and the User guide to ECMWF products.

Prof. Pappenberger also reviewed training activities offered by ECMWF – NWP, use of products, Software/computing - to develop an understanding of advanced numerical forecasting and to use ECMWF's services and products effectively.

• EUMETSAT/SEEMET

Mr. Joachim Saalmüller gave an update regarding SEEMET. That is a 5-years training program, to regularly train operational staff of SEE meteorological and hydrological services. Courses are 3-5 days long, basic and advanced, designed by using WMO training development plan tool, and a course page in the MET Learning is also available. From 2016, 4 courses were organized. The challenges are: lack of in-house training, lack of training in general, language barrier, different levels of skills and expertise, training in many topics are needed.

Future plans are: one advanced course in 2020 and to continue a new 5-year cycle, asking for the support of ICSEED and confirmation of the next venue(s), from 2021 onwards. Also required are confirmation of the alternating nature between basic and advanced courses, and to take into consideration the geographic distribution of the participants.

Overview of MTG – including time line, new products and call for technical preparations towards the new era – was distributed to the participants.

- **EUMETNET/WGCEF**

Ms. Evelyn Cusack, Chair of EUMETNET/WGCEF (Working Group on Cooperation of European Forecasters) Task Team on Storm Naming, gave background information about WGCEF activities, the rationale for the Storm-naming initiative and described the rules and practices agreed and followed by the two operational storm-naming groups the West and the Southwest.

The motivations for Storm-Naming are many:

- *Reach, engagement and influence* for warnings
- Authoritative Voice
- Single name
- Communication: 'hashtag culture'
- Collaboration with adjoining NMS's
- Useful post-event for reference

In the **West group** are Met Éireann, the UK Met Office and the Netherlands. The three agree each August on a set of names to be used in the coming Storm Season (September to August). The names are in alphabetical order, alternating between genders + some gender neutral. The **SW group** consist of Portugal, Spain, France and Belgium. Both groups fill-in a common storm naming coordination form. According to the current agreed procedures, a storm is named only when Orange Level wind warnings are forecast to impact over a wide area. Orange or Red level gusts can occur in exposed areas without the event being named. NMS which first issues the warning names the Storm in consultation with other partners (discussion between the duty forecasters of the NMS's). Once a storm is named by a NMS the name is retained by the other countries.

Effort is being made to establish additional groups and arrive to **full coverage of Europe**. Establishment of North group, North East group and Central Europe group are considered.

Two further groups are proposed to cover Mediterranean Storms:

- A **Central Mediterranean** group consisting of Italy/Croatia/Slovenia/Montenegro/North Macedonia. A list of names has been proposed based on roman mythology.
- The **Eastern Mediterranean**: currently a tri-lateral group consisting of Cyprus, Greece and Israel started discussions towards establishment of East-Med Storm-naming scheme.

It is recognized that Mediterranean depressions may cause a substantial damage due to heavy rain/heavy snow/flooding/thunderstorms even if the steady winds are not extreme and thus the Storm-naming teams of the region might decide on some-what different criteria for significant storm identification.

- **World Bank**

Daniel Kull, Senior Disaster Risk Management Specialist of the World Bank, expressed the support of the World Bank to the concept of self-organization and regional cooperation to increase regional capacities and ensure improved domestic services.

Country presentations

After the presentation of invited lecturer, country presentations were delivered.

Albania

The representative from Albania, Mr. Elvin Çomo presented some of the tools that are being used by the Institute of Geosciences, Water, Energy and Environment (IGEWE): total of 49 automatic stations; European Flood Awareness System (EFAS); South East Europe Flash Floods Guidance System (SEEFFGS); and DEWETRA, a platform which displays different products such as: Satellite rainfall estimates TRMM, weather forecast COSMO I7, model for forest fires RISICO and Drin River Flood Proof hydrological forecasting model.

The goals of IGEWE are: Design and establishment of an integrated environmental monitoring system for warning extreme events; Improvement of on-line data collection system, establishment of environmental data base, lineage of historical and operational archives; Transmission of environmental information to the governmental and public administration and others, especially in extreme events cases; Improvement of public awareness on environmental aspects; Integrated studies of the impact of environmental elements on different field of economy; To develop/implement capacities and projects for Data Base Management; To develop/implement capacities and projects for Data Quality control and Homogenization; To develop/implement capacities and projects related to GIS and mapping capacities and linked to Data Base Management; To implement a specific Data Base Management System; To give solutions to efficiently digitized the entire hardcopy of hydro-meteorological archive and to semi- automatize actual manual data; and to implement new flood forecasting models in other Albanian rivers.

- Bosnia and Herzegovina

Mr. Almir Bijedic, Director of Bosnia and Herzegovina Federal Hydrometeorological Institute updated on completed projects: Implementation into EFAS membership; Development and implementation of a system of regional torrential flood indicators within the South Eastern Europe Region Flash Flood Guidance (SEE - FGG) project; Rehabilitation and modernization of the Hydrological and Meteorological Observation Network and Data Exchange Procedures;



Strengthening the IT Sector of the Federal Hydrometeorological Institute; Forecast model for the Sava River Basin (Super Sava project); Development of a real-time flood forecasting system in the Sava River Basin District - Pilot Project of the Una River Basin; and the SAFICA project.

Ongoing new projects were also elaborated:

South-East European Multi-Hazard Early Warning Advisory System (SEE MHEWS-A); Support to BH Flood Protection and Water Management (IPA II); Integrating climate change into reducing flood risk in the Vrbas River Basin (UNDP); West Balkans Drina River Basin Management Project (GEF / SCCF); Assistance from the Government of Japan to Bosnia and Herzegovina in Meteorological Equipment; Support for Water Management in the Drina River Basin and Improving Joint Flood Management Activities in the Sava River Basin (WBIF); Improving Air Quality and Air Quality Management in cooperation with the Swedish Meteorological Institute SHMI; Activities are underway for membership of the European Center for Medium-Term Forecasting "ECWMF"; And a new flood forecasting and early warning system project (UNDP).

Achievements between two meeting and present activities were also presented: Improved meteorological and hydrological monitoring; new equipment for hydrological measurements; improved management system for hydrological and meteorological data; independent power supply to facilities in crisis situations; designing a project assignment for establishing a meteorological radar system; new DaWbee Station (EUMETSAT); ongoing project in Air Quality Department;

International activities included basic South Eastern Europe Meteorological (SEEMET) training course was organized by FHMZ in May 2019, II Water Congress BH was held in November 2019, and A SEE-MHEWS meeting in the premises of the Federal Meteorological Institute was held in October 2019, suggesting the Vrbas river basin as a pilot for the flood forecasting and warning.

Main challenges and need of FHMZ are insufficient budget and lack of staff.

- Bulgaria

Prof. Hristomir Branzov, Director of the National Institute of Meteorology and Hydrology of Bulgaria updated that since 2019, NIMH is under the auspices of Ministry of Education and Science and is no longer in the structure of Bulgarian Academy of Sciences.

NIMH functions as the operational hydrometeorological service, the main research organization in the area of meteorology, water and hydrology, observation of atmosphere



and related environmental sciences, and an educational organization providing doctoral studies.

National partner network includes the New Bulgarian University, the Agriculture Academy and the Bulgarian ports Infrastructure's company.

In 2019 a complete reconfiguration and technical modernization of the regional and national telecommunication centre was carried out and the automation of meteorological and hydrological networks continues. In all weather stations, mercury thermometers are replaced by electronic psychrometers.

The main research projects are the Satellite Information Downscaled to Urban Air Quality in Bulgaria (SIDUAQ); Danube River Enhanced Flood forecasting cooperation (DAREFORT); INTERREG program Bulgaria-Greece (FLOODGUARD project); research and evaluation of high waters and precipitation for risk management in case of floods; analysis and evaluation of existing monitoring surface water network; preparation of concept for development of new hydrological stations with modern measuring instruments; Adapting agriculture to climate change (NIMH-BG); and an agreement with the ministry of education and science to develop research based education program.

Major RI projects are: research infrastructure for sustainable development in the area of marine research (Euro-Argo), creation of a network of anchored meteorological buoys along the Bulgarian Black Sea coast and national Geo-information center for reducing the risks from extreme events including severe weather.

Prof. Branzov also informed about the international activities: NIMH hosted two international meetings, became a member of the SAPP operational program of ECMWF and took part in WMO activities and two MoUs were signed, with the Meteorological Service of Islamic Republic of Iran and the Hydrometeorological service of Republic of Serbia.

Future-planned activities are adoption of Law of National Institute of Meteorology and Hydrology and celebrate 130 years from the establishment of national meteorological service and 100 years of national hydrological service

- Croatia

Dr. Branka Ivancan Picek, director of Croatian Meteorological and Hydrological Service presented the resources and legal framework of DHMZ. A new law on meteorological and hydrological activities in the Republic of Croatia was accepted by the parliament and the government in 2019.

The Croatian meteorological, hydrological and air quality observation networks were presented, as well as key components of major modernization projects: modernization of the National Weather Observation (METMONIC, 45M EUR), modernization of the Continuous Air Quality Monitoring network (AirQ, 15M EUR), and improvement of the flood risk management (VEPAR, 33M EUR).

Forecast and NWP activities include: Aladin regional model 4 & 2Km runs (4 times a day), implementation of INCA nowcasting system and running high resolution (12.5km) regional climate model in the EURO-CORDEX domain.

Other activities are new and specialized web portals and applications and twitter, planning a new building for DHMZ, and national as well as international promotion activities such as participation in creation of ECMWF communication strategy, workshop with Croatian amateur meteorologists, support to 22 national meeting and completion of GLOBE schools, calendar for 2019 with WMO photo entries, participation at Zagreb energy week and at festival of science and a monograph about the research activities in DHMZ.

- Cyprus

Dr. Kleanthis Nicolaides, Director of the Department of Meteorology of Cyprus (DoM) presented the DoM, having quality certifications of CyMet, ISO 9000 – 2015, NSA and EASA (ICAO Civil Aviation). Cooperation with international organizations were elaborated: WMO: Southeast Europe Conference (SeeCOF) and Mediterranean Conference (MedCOF), CTBTO (ultra-frequency acoustic stations), EUMETNET: EMMA, AVIMED, Space Weather and OPERA (supporting only), ECOMET, BLUE Med, ICSEED, SEECOP and contributing to Copernicus.

Dr. Kleanthis expressed Cyprus strong objection to the practice of disseminating in the official WMO GTS data from meteorological stations in North Cyprus, which are not official Cyprus meteorological stations (as detailed in the WMO OSCAR data base).

The dense climate station network were presented, as well as the project to convert more and more stations to AWS stations. The measurements network includes also two x-band

radars (operated by the private sector) from which a mosaic is formed. Radar images are also shared with IMS for the creation of East Mediterranean mosaic.

Also presented was the NWP WRF, which is running twice per day, with initial & boundary conditions from the 0.50×0.50 NCEP (National Centers for Environmental Prediction) Global Forecasting System (GFS) analyses, at 6-hour intervals. It is a 3-domain setup with 2-way nesting for Domain 2 and Domain 3. Post-Processing with NCL, output is provided in graphical form (maps, icons, disseminated through http, soon in apps), text form and XML. Clients are aviation, marine, energy, academic organizations, tourism industry, technical organizations, health sector, and the general public.

Dr. Nicolaides elaborated on ongoing projects: Data Quality Control and data base; Dust Model SEECOP; A more detailed WRF; and MHEWS and he emphasized the challenges due to low budget and limited number of employees.

- Greece

- Hungary

Dr. Kornélia Radics, president of the Hungarian Meteorological Service (OMSZ) described the observation network that includes: meteorological stations (~300 stations and ~460 traditional rain stations), lightning detection network (11 sites), 4 radars (5th in a tender process) & radiosondes. A tender for automatic launch of radiosondes has been published. Dr. Radics described several preparation efforts at OMSZ towards Meteosat Third Generation (MTG).

Dr. Radics elaborated on general and severe weather forecasting: a new unit is responsible for Public Warning, Wind Warning for Lakes & Hail forecasting for agriculture. OMSZ implemented verification method for Hail forecasting and extended the hail forecasting season. A change in the thunderstorm warning was also implemented. A new post has been created for increasing social media involvement (facebook profile, youtube channel).

Dr. Radics reviewed developments in the field of aviation: production of auto metar, IWXXM implementation, and SIGMET cross border coordination (with Austria, Croatia, Romania, Serbia & Slovenia – eGAFOR).

Other activities include NWP models developments, climate studies, including regional climate modeling and statistical climatology, computer infrastructure development, air quality measurements and services, and outreach activities to the public.

OMSZ participated in 14 international and 10 national projects, and hosted 9 meetings in 2019. In 2020 OMSZ will celebrate its 150th anniversary.

- Israel

Mr. Nir Stav, Director of the IMS, introduced IMS's progress and plans: conducting a thorough climate change report, initiating a joint flood forecasting centre with the Israeli Hydrological Service, promoting new-media channels (facebook, new web site and YouTube), introducing a new warning interface for the public, installing AWOS on a ship, and repairing the rain radar. In the field of international collaboration, he had mentioned the WGCEF Euro-forecaster Meeting that was held in Tel-Aviv in November 2018, the training course "Meteorological Warnings & Emergency Response to Hazardous Weather" at the RTC in December 2018, the MoU with Cyprus and the tri-lateral meeting with Cyprus and Greece, also in December 2018.

- Macedonia

Mr. Ivica Todorovski, Director of Hydrometeorological Service of Republic of North Macedonia presented the measurement and observation network.

Also were presented the projects and activities for 2018-2019 in the hydrology sector: Adaptation to Climate Change through Transboundary Flood Risk Management in the Western Balkans (Drim/Bojana) – (GIZ); Revitalization of Hydrological and Meteorological monitoring network in the Polog Region - (UNDP); Monitoring Programme for the Strumica River Basin (UNDP); Member of the South-East Europe Flash Flood Guidance System SEE FFG System - (WMO); and Hydrometric measurements for interested parties.

Other projects and activities that were presented are: CLIDATA – upgrading data management system; Uploading national annexes of climate parameters for EUROCODES; Improving resilience to floods in the Polog region (UNDP); Improving climate observation, data management, and control, processing and updating of climate scenarios (Scope); Improving agricultural production and increasing adaptive capacity (NAEZ and LRIMS); Reducing vulnerability of agriculture to climate change; Providing annual mezzo-meteorological urban measurements and climate reports (Skopje); Establishing an open access database (Pan European Phenology); Promoting disaster risk reduction activities (JICA); Installations of automatic weather stations.

The agrometeo.mk web site was updated, including real time measurements, detailed forecasts of NNM-B Model, Meteo-Alarms and more.

In the field of forecasting, activities and projects include SEECOP meetings, METCAP PLUS visualization software and configurations for NMM-B and NNM-E non hydrostatic numerical weather forecasting models, seasonal climate outlooks (SEEVCCC) and RCOF meeting.

International activities included hosting EUMETSAT international day for NMHSs in March 2019, which focused on the upgrading of NMHS' EUMETCast reception stations, installed in previous years as part of the Data Access for Western Balkan and Eastern Europe (DAWBEE),

to ensure continuous operational access to satellite data and information, as well as on the training activities that are organised yearly in the South-East European region.

- Moldova

Ms. Lidia Trescilo, head of the Meteorological Center at the State Hydrometeorological Service of Moldova updated that since 2018, Environment Quality Monitoring Department has been transferred to the newly created Environment Agency, and the Service now comprises three main fields of activity: meteorology center, hydrology center and research and development.

The National network of meteorological and hydrological observations was presented, as well as the activities in recent years:

Technical modernization of SHS was carried out as part of the World Bank project “Disaster and Climate Risk Management” in 2010-2016. In next years, the activity was aimed at improving the services provided by SHS to the population and the national economy.

In the period 2017-2019, the World Bank Project “Reinforcing Weather and Climate Services in Moldova” has been implemented.

Other activities of SHS were also presented: website was modernized with the support of UNDP and of ZAMG (Austria) specialists and collaboration with Japan Weather Association and signing a joint declaration of intents.

Future plans were also presented, mainly further development of the results of the “Reinforcing Weather and Climate Services in Moldova” project, and modernization of the hydrological monitoring system in order to provide early warning of flood risks.

- Montenegro

Mr. Luka Mitrovic, Director of Institute of Hydrometeorology and Seismology of Montenegro started with presenting the organization scheme.

IHMS provides free access to data on the website, and publishing yearbooks in meteorology, hydrology and agro-meteorology in the web.

Future plans are to prepare National Bulletin on droughts Bulletin on climate change to be published in the website.

Needs and problems are: current PCs do not correspond to the needs of fast data processing, and phenological data-base should be replaced/upgraded.

Mr. Mitrovic elaborated on the surface and ground water hydrological stations, number of new/upgraded stations and problems with data transmission.

As part of the European Monitoring and Evaluation Program for Air Quality, new monitoring and analytical equipment was installed.

Mr. Mitrovic updated about the new regulation for water monitoring of surface waters. A monitoring program will start operation by the end of 2020, including biological, physico-chemical, chemical and hydro-morphological monitoring). However, lack of employees and need in new laboratory area and equipment was emphasized.

National Hydrography and Oceanography service provide necessary data for producing nautical charts and plans for ports and marinas as well as nautical publications.

In the field of seismology, in an expert meeting that was held in May 2019, challenges in the area of hazard risk reduction and the need in preparation of data-base on damages were discussed. Technical and personnel needs were elaborated.

Projects in the IT sector were presented: hydrological database WISKI 7 information system software, KiDSM software for data transfer, a new server for data acquisition from automatic hydrological stations, and new software for importing real time data by GPRS technology, though insufficient financial means and lack of staff.

- Romania

Dr. Elena Mateescu, General Director of the National Meteorological Administration gave a briefing about NMA, the vision, the organizational structure, human resources profile, education and training program, budget, national cooperation activities meteorological observation network and the regional Agrometeorological center in RAVI.

Dr. Mateescu presented the operational activities as well as the special products such as parameters and maps of thermal vulnerability, indicator of water stress and soil moisture maps, and the research activities at national and international projects such as meteoalarm.

Ongoing projects at NMA include upgrading the radar network, the lightning detection network, the AWSs, the telecommunication and IT systems, the climate data management system, the systems for receiving, processing, archiving, and disseminating data from satellites and the data assimilations system and operational applications for nowcasting. Also, a new HPC was planned for 2019-2020 and ICON-7km was to be pre-operational against COSMO-7km.

In the field of extreme events, two projects were approved: developing the administrative capacity of the ministry of environment in regard with management of the emergency situations generated by natural hazards, and consolidating the institutional capacity of the improvement of policies in the domain of climate change. Other two projects were still under evaluation: increasing the institutional capacity of the ministry of environment for the implementation of environmental policies on the basis of a Digital Climatic Atlas, and

developing the administrative capacity of implementing environmental policies through the integration of observation, satellite, and air and in-situ data.

Dr. Mateescu presented the Regional Agrometeorological Centre in RAVI. The main goal of the center is to support a sustainable agriculture production. The center will contribute to the research on the impact of weather and climate on existing and future agricultural systems, as well as the actions needed to ensure the long term sustainability of the agricultural systems within RA VI Europe. It will provide relevant European agrometeorological data and information to European countries, as well as professional training support activities, and will work to strengthen the collaboration among HMHSs. Challenges of the regional agrometeorological center were also presented.

- Serbia

Prof. Jugoslav Nikolic, Director of the Republic Hydrometeorological Service of Serbia, updated about the new meteorological stations at the Drina River Basin, and automation of stations, installing new hydrological equipment, improvement of Upper-air measurements and analysis, improving the calibrations, performing accreditations, new web application for the public.

Research activities at RHMSS are, adding Icelandic aerosols to DREAM aerosol model, developing models related to cloud cloud formation under the impact of different aerosols, developing a global version of the NMN-DREAM aerosol model, and developing a system providing support to monthly (subseasonal) forecasting.

Researches from RHMSS participated two COST InDust workshops and presented a paper about modeling of aerosol particles transport at the European Geosciences Union General Assembly in Vienna.

RHMSS is taking part of the following projects: Drina River Basin Management; Flood Forecasting and Warning System in the Sava River Basin (SAVA FFWS); Drought Risk IN THE Danube Region (DriDanube); Gridded Meteorological data 1961-2010 for Serbia (DANUBECLIM); Velika Morava Flood Forecasting System; South East European Consortium of Operational Weather Prediction (SEECOP).

In the field of international activities, RHMSS signed in July 2019 a MoU with Bulgaria.

- Slovenia

Dr. Klemen Bergant, Director of Meteorology and Hydrology Office at the Slovenian Environment Agency (ARSO) updated that since June 2019, ARSO has a new acting director general, Mrs. Lilijana Kozlović.



He updated that ARSO is facing a major challenge being compliant with the Commission Implementing Regulation (EU) 2017/373 that will enter into force on 2 January 2020, and they are in the transition phase of free data user services, after adopting open data policy in the beginning of 2018.

Other international cooperation and projects were elaborated:

Last year ARSO hosted calibration experts from Hungary and Israel, and provided calibration of some reference instruments to Israeli (IMS), Serbian (RHMZS) and Moroccan (Maroc Meteo) Meteorological Services, and delivered calibration training in Oman. For November, exchange of experience with Slovak WMO RIC was planned.

Republic of Slovenia is a member state of WMO, EUMETSAT and ECMWF, a cooperating state of ESA and a member of the International Sava River Basin Commission. ARSO is a co-founder of the EUMETNET-EIG, a member of the ECOMET E.I.G., and an active member of the ALADIN consortium and its sub-regional grouping of RC-LACE, as well as member of EUROGOOS (European Global Ocean Observing System). It has bilateral cooperation agreements with: Croatian National Hydrometeorological Institute, Austrian Central Office for Meteorology and Geodynamics, Hungarian National Meteorological Service, the Agency for Environment Protection in Friuli Venezia Giulia, Italy, the Civil Protection Authority in Friuli Venezia Giulia, and the Federal Hydrometeorological Institute of Bosnia and Herzegovina and Hydrometeorological Service of the Republic of Srpska.

ARSO plays an active role in several ICAO, WMO, COST and EUMETNET initiatives and programs, and runs other European and internal projects:

Since 2016, ARSO is running a EU cohesion project "Upgrade of the System for Monitoring Air Quality, Estimating the Main Causes and Analysing the Effects of Measures to Reduce Air Pollution in Slovenia - SINICA", and "Climate Change Scenarios for Slovenia until 2100", and in 2017, ARSO joined the EUMETSAT Land Surface Analysing SAF consortium.

In September 2019, ARSO finished a European project on the drought risk reduction in Danube Region (DriDanube) and started the new European project on Alpine Drought Observatory (ADO) extending and upgrading some results of DriDanube project to Alps.

ARSO is also hosting the primary operational Flood Forecasting and Warning in the Sava River Basin (Sava FFWS) system.

Other active European projects are: prepAIR - Po Region Engaged to Policies of Air, eGAFOR - Electronic General Aviation Forecasts, I-STROMS - Integrated Sea Storm Management Strategies, FRISCO1 - Cross-Border Harmonized Slovenian-Croatian Flood Risk Reduction 1 – Non Structural Measures, CROSSRISK- Public warnings - reducing rain and snowfall related risks, goMURa - Cross-border plan for innovative sustainable

management of the border Mura river and improved management of flood risk, and VISFRIM - Efficient Flood Risk Management for Vipava river and other cross-border rivers.

In 2019 ARSO and WMO signed Memorandum of Understanding as the basis of ARSO's active role in the WMO projects, and Implementing Arrangements, defining ARSO's active role in the WMO project "South-East European Multi-Hazard Early Warning Advisory System - SEE-MHEWS-A". The task of the ARSO is to:

- Develop semi-operational NWP ALADIN system in 2.5 km resolution for the entire South-East Europe for implementation at the ECMWF infrastructure and in EcFlow supervision system.
- Prepare methodology for post-processing of the results of the RC-LACE 5 km Ensemble Prediction System LAEF for SEE-MHEWS-A region to be used as input for hydrological models.
- Design a software interface between the NWP model grids and selected hydrological model grids that will enable using ALADIN outputs as input to hydrological models.

- Sprska

Mr. Tomislav Sajic, Director of the Republic Hydro-Meteorological Service of Republika Srpska presented the challenges of the institute – leaving of professional staff, insufficient budget, not enough working places, urbanization of the area around the main meteorological station.

Initiations and activities were also presented, such as a new web site, a new building and more workplaces for experts, reducing number of manager positions, installation of AWSs and radars and proceeding becoming an associated member of ECMWF, which still needs final approve of the ministry of finance and treasury.

Other activities within the RHMZRS are drought related, including activities in the DriDanube project, two national seminars, promotion of the project at scientific meetings, and future activities that will focus on collaboration with the ministry of agriculture, to fight negative effects caused by droughts. Another agro meteorology project is the CARPO. A forecast disease model and a drought model were integrated in agrometeorological stations.

Other ongoing projects are: installing and equipping one ecological station and a network of meteorological and hydrological stations, improving meteorological stations, installing WISKI software for processing hydrological data, approving the funds for improving air and water quality monitoring, and taking part in international air quality improvement projects. Also, RHMZRS promotes projects related to forecasting and warning systems in the Sava and the VRBAS river basins.



Mr. Sajic updated that the permanent representative to WMO will rotate on annual basis, between FB&H and RS.

- Turkey

Mr. Erol Aydin, Deputy Director of the Turkish State Meteorological Service (TSMS) introduced their observation network which includes AWOS, radars, lightning detection stations, upper air stations, a low level wind shear alert system, and dust observing systems. Various projects in TSMS include: introducing a MeteoWarning system for color codes warnings and cooperation with the Union of Turkish Chambers of Agriculture for sending warning to the farmers via SMSs, a new railways forecast system (RFS), establishing a Mobile Observation and Forecasting Center with the disaster and emergency management authority, new Agricultural meteorology website, new pollen forecasts and warnings and development of national pollen monitoring device.

Within the scope of WMO Regional Training Center activities, various trainings were carried out: Calibration, Climate Analysis and Applications, Sand and Dust Storms; International Training on Climate Applications and Analysis Training; International Workshop on Sand and Dust Storms; The 11th International Training Workshop on Climate Variability and Predictions and the Global Climate System Variability and Predictability Symposium; International Automatic Weather Observation System (AWOS) installation, maintenance and operation; FFGS Global Workshop.

Mr. Volkan Mutlu COŞKUN, TSMS Director-General was elected as a member of WMO Executive Council at the 18th World Meteorological Congress.

Also, TSMS organized the EUMETSAT Industry Day event and planned on hosting the regular 24th ALADIN General Assembly and 5th Joint ALADIN General Assembly and Hirlam Council in December 2019.

- Ukraine

Prof. Mykola Kulbida, Director of Ukrainian HydroMeteorological Center, summarized the organizational structure of State Emergency Service of Ukraine (SES of Ukraine) and presented the technical infrastructure of the service and the main tasks.

The warning's color-codes system were also presented, as well as radiometric observation network. Radiation Accidents Consequences Prediction Center (RACPC) (JRODO) acts as a

division of UHMC since 2017, under the agreements between IAEA and WMO, to ensure adequate preparedness by means of modeling of various scenarios, based on meteorological conditions, to nuclear substances transportation. RACPC's experts collaborate with international colleagues and regularly participate international exercises.

ICSEED discussion & conclusions

After the countries presentation a discussion of cross cutting issues took place and the following decisions were made:

- **EUMETSAT SEEMET Trainings**

The participants expressed their satisfaction with the 1st phase of the program and expressed their will to continue the project for additional 5 years. Both basic courses and advanced courses are needed.

Croatia, Slovenia, Hungary, Romania and Israel expressed their will to be involved in the design of SEEMET 2nd phase (2021-2025). In the coming phase some changes to the courses format should be explored:

- focused courses around special topics (such as: Aviation, Agriculture, Dust)?
- courses focused around a sub-region (such as: Eastern Mediterranean)?
- a joint course with ECMWF combining NWP and satellite products?
- Etc.

- **EUMETNET Storm Naming initiative**

The participants accepted the proposal to adopt storm naming practice to the region. The proposal for two sub-groups for the Mediterranean was accepted:

- a **Central Mediterranean** group: currently consisting of Italy, Croatia, Slovenia, Montenegro & North Macedonia.
- an **Eastern Mediterranean** group: currently a tri-lateral group consisting of Cyprus, Greece and Israel.

Each group will have a separate naming list and criteria for storm naming. Cyprus, Greece and Israel wish also to explore the possibility of naming other phenomena (not only winter type storms) such as: heat waves and dust storms. Once a storm was named and moved to the other part of the Mediterranean, the other group will adhere to the name given to the storm by the group of origin.

- **SEE Radar sharing networks**

The participants acknowledged the importance of a regional radar network, especially needed for severe weather forecasting and warnings, aviation and nowcasting. Such effort is expected to be vital for the SEE-MHEWS project. Mr. Dacić emphasized the need for volunteer(s) from SEE Europe to host the Regional Radar Data Centre(s) for Black Sea and SE Europe - member(s), having sufficient capability to perform the required tasks and functions defined according to their Terms of Reference as set by the regional association.

- **Format of the ICSEED Meetings**

It was acknowledged that the current format, in which every country is presenting its structure, achievements, challenges and plans, does not leave enough time for open discussions of cross-cutting issues. Thus, it was suggested that a new format will be explored towards the next meeting:

- Countries annual reports will be prepared in condensed format of two pages per country and will be shared to the participants prior to the meeting. In this country summary the main achievements, challenges and plans will be summarized. Countries will also send two slides each to the conference organizer, slides to be combined into one jointed presentation.
- The actual meeting will not include country presentations but rather one joint presentation from the combined slides.
- Countries will also suggest cross-cutting topics to be discussed during the meeting. The suggested topics for discussion will also be sent to the chair in advance of the meeting, so that an agenda for the meeting could be built in due time and appropriate invited speakers to introduce the topic.
- The actual meeting will include the invited speakers from international organizations, the joint annual reports of the entire group of directors and discussions of the "hot" cross-cutting topics (presentation by invited speaker + open discussion of the directors).

Next ICSEED Meeting

Participants expressed their satisfaction of the Meeting and exchanged information. ICEED countries agreed that should strengthen collaboration among themselves and with international entities, and to continue with ICSEED Sessions as one of the means for achieving this goal. The chair of ICSEED, Mr. Nir Stav thanked the participants for their inputs that contributed to a successful meeting.



By kind invitation of Dr. Kornélia Radics, president of the Hungarian Meteorological Service, ICSEED-19 Session will be held in Budapest, Hungary (the date yet to be decided).

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ANNEX 1

**18th Session of the Informal Conference of South-East European NMHSs Directors
(ICSEED-18),**

4 November 2019, Tel-Aviv, Israel

LIST OF PARTICIPANTS ICSEED-18

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**18th SESSION OF THE INFORMAL CONFERENCE OF SOUTH-EAST EUROPEAN
NMHSs DIRECTORS (ICSEED-18)
TEL AVIV, ISRAEL
4th November 2019**

4th November 2019	
08:00-08:30	Registration of participants
08:30-09:30	<p>Opening</p> <ul style="list-style-type: none"> - <i>Mr. Ivica Todorovski, Director of the Hydrometeorological Service of Republic of North Macedonia, ICSEED Chair</i> <p>Welcome addresses</p> <ul style="list-style-type: none"> - <i>Mr. Michael Staudinger, President of the Regional Association VI (Europe), WMO</i> - <i>Mr. Nir Stav, Director of Israel Meteorological Service, Israel</i> - <i>Mr. Daniel Werner Kull, Senior Disaster Risk Management Specialist, World Bank</i>
09:30-09:40	<p>Approval of the 18th ICSEED Session Agenda</p> <p>Short report and approval of the Minutes from the 17th ICSEED</p> <p>Appointment of the new ICSEED Chair</p>
09:40-10:00	<p>WMO progress and priorities</p> <p><i>Mr. Milan Dacic, Head of WMO Europe office</i></p>
10:00-10:30	<i>Coffee break & group photo</i>
10:30-11:50	<p>Addresses of representatives of international organizations</p> <ul style="list-style-type: none"> - <i>Mr. Florian Pappenberger, Director of Forecasts, ECMWF</i> - <i>Mr. Joachim Saalmüller, Head of User Support and Climate Services, EUMETSAT: Towards MTG; The SEEMET project and its continuation</i> - <i>Mr. Eric Petermann, Executive director, EUMETNET</i> - <i>Mrs. Evelyn Cusack, EUMETNET/WGCEF : The SEE Storm Naming Initiative</i> - <i>Mr. Willie McCairns, Chief Executive, ECOMET</i>
11:50-13:00	<p>Country Presentations (5-10 minutes per country for reports about goals achieved and challenges faced since the last meeting)</p>

13:00-14:00	<i>Lunch break</i>
14:00-15:30	Country Presentations (5-10 minutes per country for reports about goals achieved and challenges faced since the last meeting)
15:30-16:00	<i>Coffee break</i>
16:00-16:20	Country Presentations (5-10 minutes per country for reports about goals achieved and challenges faced since the last meeting)
16:20-16:50	ICSEED Future Plans - <i>Discussions and suggestions for on-going and future common projects in SE Europe</i>
16:50-17:20	Any other business; Conclusions; Date and place for the next ICSEED meeting
	Closure of the 18th ICSEED Session
17:30-19:30	Seightseeing to Jaffa
19:30-22:00	Festive Dinner hosted by the IMS

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ANNEX 3

ICEED (ICSEED) – Meetings Overview

1-st ICEED (Sofia, Bulgaria, 2001)

- Signing of the basic document on co-operation

2-end ICEED (Geneva, Switzerland, 2002)

- On the occasion of WMO Congress

3-rd ICEED (Athens, Greece, 2003)

- Role of sub-regional NMHSs for coming Olympic games in 2004

4-th ICEED (Bucharest, Romania, 2004)

- Establishment of the document on the role and importance of the ICEED sub-region within the WMO structure / policy

5-th ICEED (Sarajevo, Bosnia and Herzegovina, 2–4 June 2005)

- ICEED Principles (11 articles)
- ICEED Operative Actions / Projects as the basis of the NMHSs cooperation and sub-regional programmers in the SE Europe

6-th ICEED (Dubrovnik, Croatia, 2 – 5 May 2006)

- WMO sub-regional centers of excellence proposals

7-th ICEED (Beograd, Serbia, 11 – 12 October 2007)

8-th ICEED (Podgorica, Montenegro, 29-30 September 2008)

9-th ICEED (Ljubljana, Slovenia, 10-11 December 2009)

10-th ICEED (Istanbul, Turkey, 21-22 September 2010)

11-th ICEED (Tel-Aviv, Israel, 10 – 11 October 2011)

- Changed name from ICEED to ICSEED
- New ICSEED principles

12-th ICSEED (Sofia, Bulgaria, 18-19 April 2013)

13-th ICSEED (Banja Luka, Bosnia and Herzegovina, 28-29 April 2014)

14-th ICSEED (Buharest, Romania, 5-6 November 2015)

15-th ICSEED (Zagreb, Croatia, 6-7 October 2016)

16-th ICSEED (Belgrade, Serbia, 23-24 October 2017)

17-th ICSEED (Ohrid, Republic of North Macedonia, 8 October 2018)

18-th ICSEED (Tel-Aviv, Israel, 4 November 2019)