



National Institute of Meteorology and Hydrology of Bulgarian Academy of Sciences

The National Institute of Meteorology and Hydrology of Bulgarian Academy of Sciences (BAS) is the Bulgarian Hydro-meteorological Service. At present it belongs to Bulgarian Academy of Sciences (BAS), an autonomic scientific organization. NIMH has two main tasks. The first one is to maintain operational meteorological, hydrological and environmental activities (observations, telecommunication, data processing and archiving, forecasting etc.) as to fulfil the needs of the society in the country and for international exchange. The second task is research in the field of meteorology, hydrology and environment. NIMH is the main provider of scientific research and operational activities in the field of meteorology, agro-meteorology and hydrology in the country. It is providing the Governmental Institutions with high quality of hydro-meteorological, agro-meteorological and other environmental data, analyses, expertise and different forecasts for the country and the Western part of the Black Sea.

The scientific staff of NIMH as part of BAS is in charge for development and adaptation of methods for modern information technologies for research, modelling and forecasting of hydro- and meteorological phenomena and processes. The scientists of NIMH participate in many national, regional and international research projects governed by WMO, CEC, NATO, IAEA, FAO, World Bank, etc. The basic aim of the research is the development of the geophysical sciences (mainly in regional scale).

There are three levels of responsibility in the Institute: The Central Board situated in Sofia, 4 Regional Branches and about 35 observatories covering the territory of the country. The Central Board consists of 4 Research & Operational Departments and several supporting units. The total number of the staff is about 700 (including 90 scientists).

NIMH maintains the following observational networks:

- Meteorological network: 30 synoptic stations including 5 stations on mountain peaks; 1 upper-air sounding stations; 98 climatic stations; 243 rain-gage stations; 32 agrometeorological and 4 forest stations ; 69 phenological posts.
- Hydrological network: 178 hydrological stations; 373 wells, drill-holes and springs.
- Air and water pollution network: 1 background pollution station; 5 sampling posts for air-pollution monitoring; 198 sampling posts for surface water pollution monitoring; 170 sampling posts for under-ground water pollution monitoring; 34 acid-rain measurement posts.

The R&O Departments play the main role in implementing the operational and scientific activities of the Institute. Each department is led by senior researcher (usually with Ph.D. or ScD degree). The R&O

Departments and their activities are as follow:

- METEOROLOGY: General meteorology, climatology, agro-meteorology, meteorological and agro-meteorological databases, Researches on climate resources.
- HYDROLOGY: Resources of surface and ground waters, sediments and fluvial processes, time-spatial variability of the river runoff, extreme hydrological events, short and long term hydrological forecasts.
- ATMOSPHERE AND THE HYDROSPHERE COMPOSITION: Meteorological and hydrological aspects of the air and water pollution, Atmospheric boundary layer physics; air pollution modelling
- WEATHER FORECAST: Operational weather forecast, creating and adapting numerical weather forecast models, forecast technologies and software for weather forecast, application of remote sensing information.

The project will essentially be implemented by:

- Dr. Valery Spiridonov, Deputy Director General of the National Institute of Meteorology and Hydrology, senior scientist. Experience in numerical modeling and forecast, objective analysis, assimilation of satellite information, climate modeling. Head of Bulgarian group of the international projects ALADIN (international program for numerical modeling) and 'CECILIA' (FP6 project on climate change). Participation in WP3, WP6 and WP7.
- Dr. Anna Kortcheva, senior scientist. Experience in marine meteorology and forecast, data management and satellite meteorology. Participation in WP6 and WP7.
- Dr. Staytcho Kolev, senior scientist and scientific secretary of the NIMH. He is senior lecturer at the Sofia University. Research interests: Climate change, quality of meteorology information. Member of Commission of atmospheric sciences at WMO. Principal Investigator in the CLAVIER project of FP6). Participation in WP3, WP6 and WP7.
- Dr. Dobri Dimitrov, senior researcher, Deputy Director at the National Institute of Meteorology and Hydrology (NIMH). Research interests in developing of software applications for hydrological models, forecasting and water resources studies. Participant at several international research projects financed by the EC, World Bank and NATO. From 1998 to 2001 he was Chairman of the Danube Accident Emergency Warning System. Participation in WP4.

Role in the project:

NIMH participates in four work packages. In WP3 (Task 3.2) NIMH will perform a reference run

based on ERA40 reanalysis (1961-2000) and provide meteorological GRID data with 10 km resolution for Danube catchments area and East part of Black sea. For the same area and resolution climatic runs will be performed based on A1B scenario. The climate simulations will be based on ALDIN and REMO regional climatic models and will cover the period 2020-2050 years.

In WP4 (Task 4.1 and Task 4.2) NIMH will prepare girded input and flow data needed to run and calibrate the SWAT model and will take part in the verification, calibration and comparison of the SWAT model results. The model uncertainty will be analyzed as well as the advantages in using grid data. NIMH will apply the SWAT model for some Bulgarian sub-basin with sensitive environmental problems.

In WP6 NIMH will create and strengthen National GEO committees and elaborate a Strategy for Earth Observation in the Black Sea region and an Action plan for resources mobilization of GEO activities in the Black Sea region.

In WP7 NIMH will organize thematic workshops on 4 themes: climate change scenarios, hydrological models, risk assessment and early warning, and sustainability and vulnerability in the Societal Benefit areas.