



REVIEW

by Kostadin Ganchev Ganev.. - Member of the Scientific Jury in the competition for the academic position "Professor"

in the professional field 4.4 Earth Sciences, scientific specialty "Meteorology"

This review is prepared on the basis of Order of the Director General of NIMH Д ND-04-4 from 04.02.2022 and decision of the meeting of the scientific jury from 15.02.2022. It is in accordance with the requirements of the Academic Staff Development Act in the Republic of Bulgaria (ZRASRB), the Regulations for its implementation (PPZRASRB) and the Rules of NIMH under ZRASRB. The review consists of **three parts** and a conclusion.

I. Requirements to the candidate

under Art. 29 (1) and Art. 29b of ZRASRB, art. 60 of PPZRASRB and Art. 56 (1), (2) and Art. 57 (1) of the Regulations of the NIMH under ZRASRB

Presentation of the candidate:

Emilia Venkova Georgieva was born on October 14, 1958. In the period October 3, 1977 to June 30, 1982 she was a student at the Faculty of Physics of Sofia University "St. Kl. Ohrid ". In 1982 she obtained the Master's degree with the qualification of Physicist, with a specialization in meteorology, diploma №096992 from 1982.

In 1982 Emilia Georgieva started working at NIGGG (then GFI), BAS, where she was a physicist; doctoral student; Assoc. Professor.

In NIGGG she became Candidate of Physical Sciences (Dr.), 1990, diploma №20500 / 26.07.90 from the Higher Attestation Commission.

Since April 2012 she has been working at the National Institute of Meteorology and Hydrology (NIMH) as an associate professor. Since April 2019, she has been the Head of the Atmospheric Pollution Modeling Section at the Meteorology Department.

Assoc. Prof. Georgieva has repeatedly been to specializations in Italy, Germany and Russia.

From 09.01.2003 to 08.01.2006 she is a Visiting Professor in the Department of Physics, University of Genoa, Italy.

From 01.04.2008 to 31.03.2011 she worked as a researcher at the European Commission (EC) - Joint Research Center, Ispra, Italy

The main professional activities of Assoc. Prof. Georgieva are:

- Study of atmospheric dynamics and air pollution in different regions of Bulgaria through numerical modeling and analysis of data, forecast of "chemical weather";
- Influence of long-distance transport processes for air pollution in the country;
- Creation of methods and programs for evaluation of model results, harmonization of approaches for evaluation of model results in application of the EU Directive (2008/50 / EC) on ambient air quality;
- Use of satellite data for atmospheric chemistry in research and modeling of atmospheric pollution in Bulgaria;
- Analysis of atmospheric deposition in Bulgaria using model results;
- Maintenance and renewal of the early warning system in case of a nuclear accident;
- Creation and use of numerical models for atmospheric dynamics and air pollution in complex terrains;
- Meteorology and pollution in urban environments;
- Application of numerical models for research of pollutant transport in different scales, models for assessment of wind energy potential in Bulgaria;
- Adaptation / development of models for regulatory applications in Bulgaria;
- Study of transboundary air pollution;
- Analysis of meteorological data, verification of models.

In this competition, Assoc. Prof. Georgieva presents the following materials: Application to the Director General of NIMH for admission to participate in the competition; Curriculum vitae according to European standards; List of publications and copies thereof in electronic form; Information for fulfillment of the minimum national requirements under art. 2b, item 2 and 3 of the ZRASRB of the Republic of Bulgaria and under Art. 2, item 4 of the NIMH regulation for application of ZRASRB; Information on contributions; Reference to citations.

In my opinion, there are no violations in the procedure or non-compliance with some of the formal regulatory requirements.

II. Requirements for research and applied activities

Art. 29 (1), item 1, item 3, item 4, item 5, item 6, (2) and (3), Art. 29b (1) of ZRASRB, Art. 60 (1), item 3, item 4, item 5, (2) and (4) of PPZRASRB, Art. 56 (1), item 1, item 4, item 5, item 6, item 7, (2), (3) of NIMH Regulations on ZRASRB

Only scientific products are presented for review, which do not repeat the ones presented for the acquisition of the scientific degree "Doctor" and for the acquisition of the academic position "Associate Professor".

The table below shows that Assoc. Prof. Dr. Emilia Venkova Georgieva satisfies, and in most respects significantly exceeds the minimum requirements for holding the academic position of "professor".

SUMMARY TABLE

FOR THE VOLUME AND TYPE OF SCIENTIFIC PRODUCTION under Art. 1a (1) and (2) of PPZRASRB and Art. 2 (4) of the Rules of the NIMH under the ZRASRB

of Assoc. Prof. Dr. Emilia Venkova Georgieva

Group of indicators	For participation in the competition for professor	
	Number of points of the candidate	Required number of points
A	50	50
Б		
B	128	100
Г	262	200
Д	1019	100
E	469	150

Accepted for review publications by type are as follows:

In refereed and indexed editions - 33

In unrefereed journals with scientific review - 5

In edited collective volumes - 12

In papers at international and national conferences - 8

Software / Model Guides - 3

Methodology manuals - 3

All papers submitted for review are co-authored with other scholars.

The quotations presented by Assoc. Prof. Georgieva are arranged in 3 groups according to the requirements of Table 2, p.

1. Citation in scientific journals referenced and indexed in world-famous databases with scientific information or in monographs and collective volumes - 189 citations
2. Citation in monographs and collective volumes with scientific review - 22 citations
3. Citation in unrefereed journals with scientific review - 4 citations

The total number of citations is 215, which speaks of a very good response to the work of E. Georgieva in the specialized world literature. It is worth noting that the vast majority of quotations are from foreign authors.

Assoc. Prof. Emilia Georgieva has an impressive activity in terms of participation and management of research projects. She is the leader of 3 international (SAAP4FUTURE, CONSPIRO and SIDUAQ) and 2 national (DEP and Desert Dust) research projects). She is a participant in 8 international and 3 national research projects. The total amount of attracted funds for projects managed by the applicant is BGN 602,205.

In the reference attached by the candidate, the scientific and scientifically applied contributions of Assoc. Prof. Georgieva are defined as follows:

1. Development of a methodology and software product for harmonized assessment of model results for air pollution, in support of the implementation of the European Air Quality Directive (Directive 2008/50 / EC). The software product created on the basis of the methodology, DELTA, is based on model data and data from measurements for various pollutants in regulatory stations for a period of one year. Created in an IDL environment, it can be installed under various operating systems.

This work is being developed by a large team of scientists from many European countries, in the framework of the FAIRMODE initiative, which promotes and supports the harmonized use of air pollution models in Europe, with a special focus on applications related to Directive 2008/50 / EC.

The methodology and software have been applied for Bulgaria as well, which has helped to highlight some shortcomings of the Bulgarian Chemical Weather Forecast System (BCWFS) and to improve it. E. Georgieva I also contributed to the prepared two manuals for the use of air pollution models, published by the European Environment Agency (EEA) and the European Thematic Center for Mitigation of Air Pollution and Climate Change (ETC / ACM).

I would define these contributions of Assoc. Prof. Dr. E. Georgieva as the **creation of new methods and software products with application in practice**. The results have an indisputable scientific and applied nature, as a tool for evaluating and improving models of air pollution.

2. Evaluation of model results using different approaches. This contribution is obviously related to the previous one and I would define it as **gaining new facts and enriching existing knowledge with application in practice**.

3. Study of atmospheric deposition in Bulgaria using the BCWFS system of NIMH. I would define these contributions of Assoc. Prof. Dr. E. Georgieva as **obtaining new facts and enriching existing knowledge with application in practice. The results have an indisputable scientific and applied nature, as a basis for formulating management decisions related to quality improvement. air, human health, soil quality, agricultural land, forests, water bodies, ecosystem management, etc.**

4. Use of satellite data for atmospheric chemistry in modeling pollution in Bulgaria. A methodology for assimilation of data on aerosol content, sulfur and nitrogen dioxide obtained from satellite instruments has been developed in BSPHV, in analyzing the effect of different options in assimilation of data and analyzing the model results for the region of Bulgaria and the Balkans. I would define these contributions of Assoc. Prof. Dr. E. Georgieva as the **development of methodology and enrichment of existing knowledge with application in practice. The results have an indisputable contribution to the operational work of the NIMH.**

5. Investigation of the influence of meteorological parameters and emissions on modeled and / or observed concentrations and deposits of atmospheric pollutants. Here, as a novelty, the use of numerical models for atmospheric dynamics in the task of determining the balance of carbon dioxide in forest ecosystems should be noted. I would define these contributions of Assoc. Prof. Dr. E. Georgieva as **the development of methodology and enrichment of existing knowledge with application in practice**.

All publications submitted for review are co-authored. The scientific and scientific-applied contributions of Assoc. Prof. Georgieva are largely part of the work on projects and in teams. On the basis of the attached reference and from the comparison of the topics of the articles with the professional specialization of E. Georgieva it can be concluded that her contribution to these works is very significant, in many cases decisive.

II. Opinions, recommendations and notes

I had the pleasure of working with Assoc. Prof. Georgieva, so I have known her for a long time and well enough. My personal impressions of her only confirms the impression created by the documents of the competition, namely that she is an proven, highly qualified and erudite scientist with undoubted creative potential.

Conclusion

The examination of the submitted materials for the competition did not reveal any violations in the procedure. The requirements of Art. 29 (1), (2), (3), Art. 29b (2), (3) of ZRASRB, Art. 60 (1) (2) and (4) and Art. 61 (1), (3) of the PPZRASRB, Art. 56 (1), item 1, item 4, item 5, item 6, item 7, (2), (3) of the NIMH Regulations ARE FULFILED.

Based on the acquaintance with the documents of the candidate and the evaluation of her publications, I am convinced that Emilia Venkova Georgieva fully deserves the award of the academic position "Professor" in professional field 4.4 Earth Sciences, specialty "Meteorology". I will not hesitate to vote in favor of this and call on the other members of the scientific jury to do the same.

REVIEWER:

**Corresponding Member Kostadin
Ganev**