



SUADA: Sofia University Atmospheric Data Archive

G. Guerova*, Tzv. Simeonov, N. Irinchev, N. Svilenova, E. Vladimirov and
R. Topchiyska, email: *guerova@phys.uni-sofia.bg
Department Meteorology and Geophysics, Sofia University, Bulgaria



Sofia University Atmospheric Data Archive (SUADA)

Aim of the Sofia University Atmospheric Data Archive (SUADA, <http://suada.phys.uni-sofia.bg/>) project is to:

- (1) develop a water vapour database of vertically Integrated Water Vapour (IWV),
- (2) use the data for meteorologic and climatic studies in Bulgaria/Southeast Europe.

The SUADA archive includes ground-based Global Navigation Satellite Systems (GNSS) observations from Bulgaria/Southeast Europe. Data from IGS station SOFI from 1997 to 2007 are included into the data archive. Since November 2011, data from 30 stations of the Bulgarian ground-based GNSS network, operated by ZenitGEO company (zenitgeo.com), are archived in SUADA. Currently, the SUADA has also radiosonde data from 1995 to 2012. Data from other techniques will be included in the future. The database provides a framework for archiving data on an ongoing basis.

The envisaged applications of the SUADA include:

- (1) cross-validation of ground-based and satellite observations and derivation of systematic biases;
- (2) study of the 2D water vapour distribution in Bulgaria/Southeast Europe;
- (3) study convective storms development in Bulgaria/Southeast Europe;
- (4) detection of long term water vapour trends in Bulgaria/Southeast Europe and links to heat waves, droughts and changes in the pathway of the Atlantic Cyclones.

SUADA web portal

The SUADA archive was developed in a close collaboration with the STARTWAVE (STudies in Atmospheric Radiative Transfer and Water Vapour Effects) team at the Institute of Applied Physics, University of Bern. Link was established with the Institute of Applied Physics and the Oeschger Centre for Climate Change Research and SUADA archive was build on their experience in database development. Similar to the STARTWAVE [Morland et al., 2006], SUADA was developed on a SQL storage platform, accessible via web portal. The web portal is presented on the figures below.



People

LAST NAME, FIRST NAME	FUNCTION	PROJECT
Dr. Guerova, Guergana	Head of Project	Exploitation of ground-based Global Navigation Satellite Systems (GNSS) for Meteorology and Climate studies in Bulgaria/Southeast Europe
Simeonov, Tzvetan	MSc student	Analysis of GNSS water vapour during the 2007 heatwave in Bulgaria
Svilenova, Nadezhda	MSc student	2D maps of water vapour distribution over Bulgaria
Vladimirov, Evgeni	BSc student	Water vapour intercomparison between radiosonde data and GNSS for the period 1995-2012 for station Sofia
Irinchev, Nikola	BSc student	MySQL SUADA database developer
Topchiyska, Rositsa	MSc student	SUADA web designer
Penov, Nikolay	BSc student	GNSS & migration monitoring
Petkova, Petya	BSc student	GNSS & earthquake monitoring

About SUADA

Aim of the SUADA project is:

1. develop a water vapour database of vertically Integrated Water Vapour (IWV),
2. use the data for meteorologic and climatic studies in Bulgaria/Southeast Europe.

The SUADA database includes ground-based Global Navigation Satellite Systems (GNSS) observations from Bulgaria/Southeast Europe. Currently, the SUADA has also radiosonde data. Data from other techniques will be included in the future. The database provides a framework for archiving data on an ongoing basis.

The envisaged applications of the SUADA database include:

1. cross-validation of ground-based and satellite observations and derivation of systematic biases;
2. validation of numerical models used for research and numerical weather prediction (COSMO-EU);
3. study of water vapour distribution in Bulgaria/Southeast Europe;
4. detection of long term water vapour trends in Bulgaria/Southeast Europe and links to heat waves, droughts and changes in the pathway of the Atlantic Cyclones;
5. study how well state-of-the-art climate models, notably the one participating in Intergovernmental Panel on Climate Change (IPCC) AR5 assessment, simulate present climate of Bulgaria/Southeast Europe.



Supported by Marie Curie International Reintegration Grant FP7-PEOPLE-2010-RG.
For information about SUADA project please contact [Dr. Guergana Guerova](#).
Last modification: [Guergana Guerova](#), 06-19-2012 14:00 LT



Supported by Marie Curie International Reintegration Grant FP7-PEOPLE-2010-RG.
For information about SUADA project please contact [Dr. Guergana Guerova](#).
Last modification: [Guergana Guerova](#), 06-19-2012 14:00 LT

Acknowledgment & References

This research is supported by a Marie Curie International Reintegration Grant (FP7-PEOPLE-2010-RG) within the 7th European Community Framework Programme.

J. Morland, et al., The STARTWAVE atmospheric water vapour database. ACP, 6, 2006, 2039-2056.