

## POSTER: Soil, Vegetation and Ocean (Wednesday)

### **Poster P15W: THE ASSESSMENT OF TEMPORAL FLUCTUATIONS OF EXTREME TEMPERATURES SOIL SURFACE FOR LAST DECADES IN THE CONTEXT OF CLIMATE CHANGE**

**Margaryan Varduhi**

*Yerevan State University. Faculty of Geography and Geology. Department of Physical Geography and Hydrometeorology.*

The soil temperature is an important climate factor, it affects a filtration of slope runoff and evaporation. The knowledge about soil temperature is important not only for different branches of economy (agriculture, transport, town planning water supply and other spheres), but also for solving various hydrological and hydrogeological problems.

So, accounting the above, the goal of this work is to study and assess the regularities of inter-annual distribution of extreme temperatures of soil surface of an important agricultural region of the republic, Ararat valley, to clear and discover the temporal fluctuations of extreme values for last two decades (1995-2015). For solve these problems as a theoretical and informational basis were appropriate studies, published works. As a starting material have been used actual data of long-term observations of extreme temperatures of soil surface of meteorological stations of Hydromet of MES of study area, as well as climatic reference-books. As a methodological basis in the work were used geographical, mathematic-statistical, analysis, correlation methods. The tasks are discussed and studies by the results of actual observations of separate meteorological stations.

Usually the soil surface and its up layer temperature, like air temperature, is determined by the radiation regime of territory and circulation of atmosphere. Except it, also depends on physical properties of soil, verdure and snow cover, orography. So, during the day and year observe large fluctuations of temperature on soil surface, which then pass to air.

In the result of studies is clear, that in region observes pronounced annual course of extreme temperatures of soil surface with one maximum and one minimum values. Is clear, that in region observes regular dynamics change of extreme values of soil surface temperature during the year. During the discussed period (in this period in the republic observed only positive deviation of air temperature) observes increase of absolute maximum values of soil surface, and decrease of absolute minimum values.

Continued marked by extreme changes in soil temperature will lend to an increase in the drying climate of the study area, to the severe frosts in the cold season, and in the warm season - to the intense heat, that is, the change of the climate system, and geosystem. As a result there will be a deterioration of the agro-climatic conditions for overwintering crops, a great need of artificial irrigation, crop yield loss, disturbance of the stable development of society.

So, is necessary to conduct serious scientific research to identify the causes of these conditions and forecasting, to develop and propose rational ways to reduce, control and mitigation and adaptation to improve and refine the information and warning system.

**Poster P17W: The impact of changing of forest cover on weather and climate characteristics Central Russia area (based on COSMO-Ru experiments)**

(1) Nikitin M., (2) Kuz'mina E., (3) Ol'chev A., (4) Inna Rozinkina

(1) *Hydrometcentre of Russia, A.N.Severtsov Institute of Ecology and Evolution of Russian Academia of Science ,*

(2) *Hydrometcentre of Russia ,*

(3) *M.V.Lomonosov Moscow state University, A.N.Severtsov Institute of Ecology and Evolution of Russian Academia of Science ,*

(4) *Hydrometcentre of Russia*

On the base of numerical experiments with COSMO model (grid step 6,6 km) we analyzed influence of changing forest cover fraction of Central Russia (55° N – 59° N, 28° E – 37° E) on weather characteristics. We chose two year with different temperature and humidity conditions: May-September 2010 (with extremely dry Summer) and whole 2016 (with ordinary Summer). According to the data assessments, presence or absence of forest is important for regional climate characteristics in middle latitudes. The most significant effects are noticeable during precipitation shortage. The influence on precipitation originating can be traced far beyond of area of landscape changing. Although, influence on temperature regime and frequency of some weather phenomena (fog, wind gusts) is local. Effects of forest cover changing during ordinary humidity conditions are most clearly manifested in March, when territory, covered by forest, is significantly warmer. The study was supported by a grant from the Russian Science Foundation No. 14-14-00956-P