



International Conference
**GLOBAL AND REGIONAL
CLIMATE CHANGES**

16-19 November 2010
Kyiv, Ukraine

DECISIONS

OF THE INTERNATIONAL CONFERENCE “GLOBAL AND REGIONAL CLIMATE CHANGES”

16-19 November 2010, Kyiv, Ukraine

Conference organizers:

National Academy of Science of Ukraine

State Hydrometeorological Service of the Ministry of Ukraine on Emergencies
Ukrainian Hydrometeorological Institute of National Academy of Sciences of
Ukraine and Ministry of Ukraine on Emergencies

Over 150 acknowledged scientists from 14 countries of Europe, Asia and America have participated in the conference. Their scientific interests are related to research of climate changes on the globe and at regional levels, and estimation of possible ecological and socio-economic consequences of such changes.

There were a plenary session and four sections during the conference:

- Monitoring of climate change and severe hydrometeorological events. Observing systems.
- Modelling, validation and projections of future climate change. Climate reconstructions.
- Influence of climate change on ecosystems and natural resources.
- NAS U.S.A studies of hydrological aspects of climate change, water management and floods.

Over 100 scientific reports were presented at the conference. The main discussed topics were the following:

- modern global and regional climate changes;
- characteristic features of the atmospheric circulation and synoptic processes in the 20th – 21st centuries;
- observation of climate changes in different countries and regions of the globe;
- development both global hydrodynamic and half-empirical methods and models for climate investigation;
- interpretation of modeling results of global and regional climate models for different regions;

- estimation of climate change impact on water resources and natural ecosystems;
- adaptation to climate change.

As a result of scientific presentations and discussions conference participants have underlined that:

- a modern climatic epoch is characterized by additional intensive anthropogenic influence;
- 50-70-year cycles are observed in the rate of global surface air temperature changes that determined by natural processes in the climate system atmosphere-ocean (macroscale atmospheric circulation, North-Atlantic Oscillation);
- tendency of decreasing for the rate of global warming both in the North and South hemisphere is observed in the last decade that could be a consequence of mutual compensation of green-house effect and decline of temperature, caused by natural geophysical processes;
- regional climate changes caused by global change in the climate system are observed. The most evident changes are the surface air temperature rise (especially in a winter season) and increase of the extreme meteorological phenomena. The interannual and decadal quasi-periodical oscillations of basic hydrometeorological parameters caused by natural processes in the climatic system are determined on a background of regular climatic changes;
- influence of climate change on conditions of water resources forming and interannual distribution of rivers discharge is noted;

To obtain more robust conclusions about climate change it is **necessary**:

- to continue and to develop regular observation with standard and new methods (foremost satellite technology);
- to investigate all climate system components with more attention paid to the long-period tendencies in their changes;
- to stress attention of scientists on the improvement of evidential base of regional climate changes;
- to decrease the degree of scientific uncertainties in influence of aerosols of natural and anthropogenic origin, and also of external factors: the sun and geomagnetic activity, gravity and magnetic fields, etc.;
- to improve an estimation of ocean influence on climate and self-induced oscillations in the system “ocean-atmosphere”;
- to improve both global and regional climate models (increase of resolution, more complete account of feed-backs and results of ocean, atmosphere, cryosphere and biosphere interacting).

It has been decided that the next international conference devoted to climate change problems will be held in Kyiv in 2013 under the patronage of the World Meteorological Organization.