



**USE OF SATELLITE AND *IN SITU* DATA TO IMPROVE SUSTAINABILITY**  
Advanced Research Workshop

**Directors:** Drs. Alfred Powell (National Oceanic and Atmospheric Administration) and Oleg Fedorov (National Space Agency of Ukraine)

**Organizers:** Dr. Felix Kogan (National Oceanic and Atmospheric Administration) and Mrs. Marina Gerasimchuk (National Space Agency of Ukraine)

**PROGRAMME**

*JUNE 9, TUESDAY, 2009*

**Opening Session and Welcoming Remarks**

**a.m. (9.30:00-10:15)**

**Oleg Fedorov**, Introduction to key speaker. *National Space Agency of Ukraine, Kyiv, UKRAINE*

**Olexandr Zinchenko**, **Director General**, *National Space Agency of Ukraine, Kyiv, UKRAINE*

**Alfred Powell**, *NOAA, NESDIS/STAR, Washington D.C., USA*

**Session Title: HYDOMETEOROLOGICAL SECURITY & SUSTAINABLE DEVELOPMENT**

**a.m. (10:15-11:00)**

**Lipinskiy, O.:** A system for detection and monitoring of natural disasters in Ukraine. *Ukrainian National Committee on Hydrometeorology, Kyiv, UKRAINE*

**Kleshenko, A.:** Space observations for environmental monitoring in Russia. *Institute for Agricultural Meteorology, Roshydromet, Obninsk, RUSSIA*

**Robinson, C.:** Support for International Cooperative Research in Climate Change and the Environment. *U.S. Civilian Research & Development Foundation (CRDF), Arlington, VA, USA*

**Coffee-Break (11:00-11:15)**

**Session Title: ENVIRONMENTAL DISASTERS: EARLY DETECTION & MONITORING FROM SPACE & *IN SITU* DATA**

**a.m. (11:15-12:15)**

**11:30-11:55 - Prokopenko, A. & Adamenko, T.:** Agrometeorological monitoring droughts and their impact on crop yield in Ukraine from surface and satellite data. *Ukrainian Hydrometeorological Center, Kyiv, UKRAINE*

**12:00-12:15 - Kogan, F.:** Early detection and monitoring droughts from NOAA environmental satellite. *NOAA, NESDIS/STAR, Washington D.C., USA*

**12:15-12:30 - Kussul N., Skakun S.** Flood monitoring on the basis of SAR data, *Space Research Institute NASU-NSAU, Kyiv, Ukraine*

**Lunch (12:15-13:30)**

**Session Title: ENVIRONMENTAL DISASTERS: EARLY DETECTION & MONITORING FROM SPACE & IN SITU DATA (Continuation)**

**p.m. (13:30-16:45)**

**13:30-13:55 - Kulbida, M,** Kryvobok ,O & Savchenko, L.: Monitoring hydrometeorological hazards from satellites. *Ukrainian Hydrometeorological Center, Ukrainian Hydrometeorological Research Institute Kyiv, UKRAINE*

**14:00-14:25 - Goldammer, J.:** Monitoring fires in the countries of the Former Soviet Union. *Max Planck Institute for Chemistry, Freiberg University/United Nations University, Freiberg, GERMANY*

**14:30-14:45 - Kulligowski, R.:** Satellite rainfall information for flood preparedness and response. *NOAA, NESDIS/STAR, Washington D.C., USA.*

**14:50-15:05 - Kochkar, D.,** \*Atroshenko, L., \*Gorobets, N., Kostiashkin, S.: Ground system for detection of forest fire. *Kharkov State Forest management and inventory expedition; \* V.N.Karazin Kharkov National University; Kharkov, UKRAINE*

**Coffee-Break (15:05-15:20)**

**15:20-15:45 - Menzulin, G., Pavlovsky A.:** Global warming and recurrence of anomalous agricultural years. *Research Center for Interdisciplinary Environmental Cooperation, Russian Academy of Sciences St. Petersburg, RUSSIA*

**15:50-16:05 - Savin, E. & Mihailescu, D.:** Use of remote sensing and GIS techniques for drought early warning and monitoring in Romania. *Romanian Space Agency; National Meteorological Administration, Bucharest, ROMANIA.*

**16:10-16:25 - WeiMin Hao,** Urbanski, S. & Zibtsev, S.: Fire monitoring and air quality forecasting in near real-time with emphasis on monitoring potential nuclear accidents. *US Forest Service, Missoula, Mont., USA; National University of Life and Environmental Sciences of Ukraine; Institute of Forestry and Landscape Architecture, Kyiv, UKRAINE.*

**16:30-16:45 - Zibtsev, S.,** Oliver, C., Goldammer, J.: Wildfires in the irradiated forests around the failed Chernobyl nuclear power: need for development of early warning system for disaster risk reduction. *National University of Life and Environment Science of Ukraine, Kyiv, UKRAINE; Yale University, USA; Max Planck Institute for Chemistry Freiburg University/United Nations University, Freiberg, GERMANY*

**Session Discussion and Summary (16:45-17:30)****18:00 - Workshop Reception**

*JUNE 10, WENDSDAY, 2009*

**Session Title: ENVIRONMENT AND FOOD SECURITY****a.m. (9:00-12:30)**

**9:00-9:25 - Orlovsky L.**, Kaplan, Sh., Kogan F. & Mamedov B.: Monitoring droughts and desert pastures productivity using NOAA/AVHRR data. *Desert Research Institute, Ben-Gurion University, Sede Boker, ISRAEL; NOAA/NESDIS, USA; National Institute of the Deserts, Flora and Fauna, Ashgabat, TURKMENISTAN*

**9:30-9:45 - Danylevsky V.**, Ivchenko V., Milinevsky G., Sosonkin M., Goloub P., Li, Z. & O. Dubovik : Aerosol layer properties over Kyiv from AERONET/PHOTONS sunphotometer measurements during 2008-2009. *National Taras Shevchenko National University, Main Astronomical Observatory, Kyiv, UKRAINE; Université de Lille, FRANCE*

**9:50- 10:05 - Milinevsky, G.**, Evtushevsky, O., Grytsai, A., Lozitsky, V.: Zonal asymmetry in Arctic and Antarctic ozone distribution in connection to climate change. *Taras Shevchenko National University, Kyiv, UKRAINE;*

**10:10-10:35 - Romanov, P.:** Satellite-derived information on snow cover for environmental applications (*Invited*). *University of Maryland-College Park, Washington D.C., USA.*

**Coffee-Break (10:40-10:55)**

**11:00-11:25 - Polevoy, A.:** Modeling quantity, quality and ecological purity of agricultural harvest grown on irrigated land of Ukraine. *Odessa State Ecological University, Odessa, UKRAINE.*

**11:30-11:55 - Strashnaia A. & Kleshenko, A.:** Forecasting grain yield in Russia. *Hydrometcenter, Roshydromet, Moscow, RUSSIA*

**12:00-12:25 - Kogan F.**, Adamenko, T., Kulbida, M. & Roytman, L.: NOAA operational satellite data for crop yield forecasting: Global experience. *NOAA/NESDIS/STAR, Washington D.C., USA; Ukrainian Hydrometeorological Centre, Kyiv, UKRAINE; City College New York, New York, USA,*

**Lunch (12:30-13:30)****Session Title: CLIMATE FORCING AS AN EARLY INDICATOR OF ENVIRONMENTAL IMPACTS ON SOCIOECONOMIC ACTIVITIES****p.m. (13:30-16:30)**

**13:30-13:55 - Polonsky, A. & Voskresenskaya, E.:** Large-scale processes in the coupled ocean-atmosphere system and climate anomalies in the European region. *Marine Hydrophysical Institute, National Academy of Sciences of Ukraine, Sevastopol, UKRAINE.*

**14:00-14:25 - Powell, A. & Chen, M.:** Regime shifts in the atmosphere and their relationship to abrupt ocean changes. *NOAA, NESDIS/STAR, Washington D.C., USA*

**14:30-14:55 - Kleshenko, A.:** Bio-Climatic potential of Russia under the conditions of climate change. *Institute for Agricultural Meteorology, Roshydromet, Obninsk, RUSSIA.*

**Coffee-Break (15:00-15:15)**

**15:15-15:30 - Kogan, F.:** Teleconnection between ENSO and land ecosystems. *NOAA/NESDIS/STAR, Washington D.C., USA*

**15:30-15:45 - Vlasova, E.,** Samoilenko, L., Iliencko, T., Kirnosova, M., Kolos, L., Pidgorodetska, L. Merging remote sensing and in situ data for estimation of July 2008 components of energy balance: Ukrainian steppe zone. *Institute for Hydraulic Engineering and Land Reclamation UAAS & Space Research Institute NANU-NSAU, Kyiv, UKRAINE.*

**15:45-16:00 - Menzhulin, G.,** Shamshurina, N. and Kogan, F.: Stochastic modeling grain yield anomalies from AVHRR data. *Research Center for Interdisciplinary Environmental Cooperation (INENCO), Russian Academy of Sciences, St. Petersburg, RUSSIA, NOAA/NESDIS/STAR, USA.*

**16:00-16:15 - Mishchenko, M.:** NASA Glory Mission: fundamental physics and societal benefits. *NASA Goddard Institute for Space Studies, New York., USA.*

**16:15-16:30 – Chermnykh O., Yatsenko V., Parnowski A.** Novel approach to space weather forecasting, *Space Research Institute NASU-NSAU, Kyiv, Ukraine*

**Session Discussion and Summary (16:30-17:30)**

**JUNE 11, THURSDAY, 2009**

**Session Title: WATER RESOURCES, MARINE ECOSYSTEM, LAND COVER & ANTHROPOGENIC ACTIVITIES**

**a.m. (9:00-12:00)**

**9:00-9:25 - Korotaev, G.:** Anthropogenic Activities in the Black Sea: Diagnosis and forecast. *Marine Hydrophysical Institute, Sevastopol, UKRAINE.*

**9:30-9:45 - Kushnir, V.,** Korotaev, G., Kogan, F., Powell, Al: Relationship between land and marine ecosystems as an indicator of anthropogenic impact on Black Sea coastal zone. *Marine Hydrophysical Institute, Sevastopol, UKRAINE; NOAA, NESDIS/STAR, USA*

**9:50-10:05 - Stanichny S.,** Soloviev D, Kubryakov A., Stanichnaya R. & Ratner Yu: Satellite monitoring of the processes and phenomena in the Black Sea. *Marine Hydrophysical Institute NASU, Sevastopol, UKRAINE.*

**10:10-10:25 - Efimov, V.**, Barabanov, V., Shokurov, M.: Analysis and reanalysis of extreme events' of atmospheric circulation in the Black Sea region. *Marine Hydrophysical Institute, Sevastopol, UKRAINE*

**Coffee-Break (10:30-10:45)**

**10:45-11:00 - Girgzdiene, R.** & Bycenkiene, S.: Utilizing satellite data to highlight high ozone concentration events during fire episodes. *Institute of Physics, Vilnius, LITHUANIA*

**11:00-11:15 - Lagutov, V.:** The preservation of the sturgeon habitats as a prerequisite for integrated watershed management. *Central European University, Budapest, HUNGARY*

**11:20-11:35 - Sedova, F.**, Mozgovaia, T. & Bahmutov, B.: Anomalous geomagnetic disturbances and seismic events from *in situ* data. *Institute of Geophysics NAS, Kyiv, UKRAINE*

**11:40-11:55 - Kryvobok ,O.:** Comparison of satellite derived surface radiation products with ground measurements. *Ukrainian Hydrometeorological Research Institute, Kyiv, UKRAINE.*

**12:00-12:30 - A.K.Tynybekov,** J.E.Kulenbekov, R.A. Usabaliev: Investigation of glaciers melting with remote sensing data. *KRSU, Geology Institut, , Bishkek, Kyrgyz Republic.*

**Lunch (12:30-13:30)**

**Session Title: WATER RESOURCES, MARINE ECOSYSTEM, LAND COVER & ANTHROPOGENIC ACTIVITIES (continuation)**

**p.m. (13:30-16:00)**

**13:30-13:55 - Kleshenko, A. & Virchenko, O.:** Contemporary satellite-based systems for agrometeorological monitoring. *Institute for Agricultural Meteorology, Roshydromet, Obninsk, RUSSIA*

**14:00-14:15 - Blum ,O.,** Godunova, V., Lapchenko, V., Romanyuk, Y. & Sosonkin, M.: First steps towards monitoring of air pollution in southeastern Europe. *National Botanical Garden, NAS, Kyiv, UKRAINE; International Center for Astronomical, Medical and Ecological Research, Kyiv; Kara-Dag Natural Reserve, the Crimea; Main Astronomical Observatory, NAS, Kyiv, UKRAINE*

**14:20-14:35 - Lemeshko, E. & Kyrlylenko, K.:** Modeling stream flow to rainfall: Danube drainage basin case study. *Marine Hydrophysical Institute, Sevastopol, UKRAINE*

**14:40-14:55 - Popov, M.,** Stankevich1, S., Sakhatsky, A., Luk'yanchuk, I. & Mezzane, D.: Microwave & optical satellite data fusion for land desertification monitoring. *Center for Aerospace Research of the Earth, Kyiv, UKRAINE; University of Picardy, Amiens, FRANCE; Caddy Ayad University, Marrakech, MOROCCO*

**Coffee-Break (15:00-15:15)**

**15:15-15:30 - Kokoeva G.:** Potential use of QuickBird satellite and GPS-based collected data in the context of vulnerability assessment of structures in landslide prone areas in Kyrgyzstan. *Free University of Brussels, Brussels, BELGIUM*

**15:35-15:50 - Matveev, A.,** Belobrova, M., Boyev, A., Buchkov, D., Gavrilenko, A., Efimova, B., Kabanov, A., Kalmukov, B. & Tsybal, V.: Radar monitoring of precipitation. *Center for Radiophysical Sounding of the Earth, Kharkov, UKRAINE*

**15:55-16:10 - Polonsky, A.:** Global warming, large-scale processes in the ocean-atmosphere system, thermohaline catastrophe and their impact on climate of the North Atlantic region. *Marine Hydrophysical Institute. Sevastopol, UKRAINE*

**16:15-16:30 - I.B. Konovalov, M.** Beekmann, A. Richter, J.P. Burrows: Satellite monitoring of nitrogen oxide emissions. *Institute of Applied Physics, Russian Academy of Sciences, Nizhny Novgorod, Russia, Laboratoire Inter-Universitaire de Systèmes Atmosphériques, CNRS, Créteil, France, Institute of Environmental Physics and Remote Sensing, IUP/IFE, University of Bremen, Bremen, Germany.*

*Session Discussion and Summary (16:30-17:30)*

*JUNE 12, FRIDAY, 2009*

**Session Title: SATELLITE & IN SITU DATA FOR TREND ANALYSIS, MODELING & MONITORING**

**a.m. (9:00-12:00)**

**9:00-9:25 - Kogan, F.,** Guo, W. & Jelenak, A.: 30-year, 4-km global land vegetation data set for monitoring climate & socioeconomic activities. *NOAA, NESDIS/STAR, Washington D.C., USA.*

**9:30-9:55 - Lyalko, V., Kostyuchenko, Y.,** Márton László, Yuschenko, M., Kopachevsky, I., & Bilous, Y.: EO capabilities for analysis of climate related socio – ecological risks: bio-productivity, desertification and natural disasters. *Scientific Center for Aerospace Research, National Academy of Sciences, Kyiv, UKRAINE & Research Institute for Soil Science and Agricultural Chemistry of the Hungarian Academy of Sciences, Budapest, HUNGARY.*

**10:00-10:15 - Atroshenko, L,** Kostyashkin, S., Kochkar, D., & Gorobets, N.: Ground system for detection of forest fire. *Kharkov Land Management Group, Kharkov National University, Kharkov, UKRAINE*

**10:20-10:35 - Maksimenko, O. & Melnik, G.:** Global distribution of geomagnetic field and invasion of space particles. *Institute of Geophysics UAS, Kyiv, UKRAINE*

**10:40-12:00 - Robinson, C.:** Support for International Cooperative Research in Climate Change and the Environment. (Workshop training) *U.S. Civilian Research & Development Foundation (CRDF). Arlington, USA*

**Lunch (12:00-13:00)**

**Session Title GENERAL DISCUSSION AND MEETING SUMMARY**

p.m. (13:00-14:30)

**ISSUES to DISCUSS:**

- ***Natural Disasters*** : Drought, flood, snow cover, low winter temperature and frequent changes in spring temperatures from below to above zero;
- ***Drought and Flood Impacts on Environment, Water Resources and Food Security:*** Modeling for sustainable development:
- ***Land Cover/Land Use Change and Climate Forcing:*** Sensitivity of land ecosystems for the purpose of long-term prediction applying satellite and in situ data;
- ***Health of Costal Ecosystems: Impacts on socioeconomic activities;***
- ***Satellite and In situ Time Series for the Earth Observing System***

**Gerasimchuk, M. & Kogan, F.** Advanced Research Workshop Logistics. *NKAU UKRAINE & NOAA, USA*