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

Session Title: HYDOMETEOROLOGICAL SECURITY & SUSTAINABLE DEVELOPMENT (Opening Remarks)

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

Fedorov, O.: Ukrainian Space Activities *National Space Organization of Ukraine,* ***Kyiv, UKRAINE***

Powell, A.: Building a Sustained Earth Observing System. *NOAA, NESDIS/STAR,* ***Washington D.C., USA***

Kulbida, N.: A system for detection and monitoring of natural disasters in Ukraine. *Hydrometcenter,* ***Kyiv, UKRAINE***

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

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

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

a.m. (11:00-12:00)

Prokopenko, A.: Agrometeorological monitoring droughts in Ukraine from surface and satellite data ***(Invited).*** *Ukrainian Hydrometeorological Center,* ***Kyiv, UKRAINE***

Kogan, F.: Early detection and monitoring droughts form NOAA environmental satellite. *NOAA, NESDIS/STAR, **Washington D.C., USA***

Lunch (12:00-13:30)

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

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

Kulbida, M & Savchenko, L.: Monitoring hydrometeorological hazards from satellites ***(Invited).*** *Ukrainian Hydrometeorological Center, **Kyiv, UKRAINE***

Goldammer, J.: Monitoring fires in the countries of the Former Soviet Union ***(Invited).*** *Max Planck Institute for Chemistry, Freiberg University/United Nations University, **Freiberg**, **GERMANY***

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 ***(Invited).*** *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, Budapesht, HUNGARY.*

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

Brake

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

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

Min Hao, W., 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.*

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*

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

Session Discussion and Summary (16:00-17:30)

JUNE 10, WENDSDAY, 2009

Session Title: ENVIRONMENT AND FOOD SECURITY

a.m. (8:30-12:00)

Adamenko, T.: Application of in situ data for analysis and forecasting crop production in Ukraine ***(Invited).*** *Ukrainian Hydrometeorological Centre,* ***Kyiv, UKRAINE***

Spivak, L.: Application of satellite data for monitoring the environment and agricultural production in Kazakhstan ***(Invited).*** *Astrophysical Research Center, Ministry of Education and Science,* ***Almaty, KAZAKHSTAN***

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

Brake

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

Polevoy, A.: Modeling quantity, quality and ecological purity of agricultural harvest grown on irrigated land of Ukraine ***(Invited).*** *Odessa State Ecological University,* ***Odessa, UKRAINE***

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

Kogan F., Adamanko, 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,*

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.*

Lunch (12:00-13:30)

Session Title: CLIMATE FORCING AS AN EARLY INDICATOR OF ENVIRONMENTAL IMPACTS ON SOCIOECONOMIC ACTIVITIES

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

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

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

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

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

Brake

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

Boyev, A., Buchkov,D., Gavrilenko, A., Efimova, B., Kalmukov, B. & Tsumbal, B: Radar monitoring of precipitation. *Center for Radiophysical Sounding of the Earth,* ***Kharkov, UKRAINE***

Vlasova, E., Samoilenko, L., Ilienko, 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.***

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

Session Discussion and Summary (16:00-17:30)

JUNE 11, THURSDAY, 2009

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

a.m. (8:30-12:00)

Korotaev, G.: Anthropogenic Activities in the Black Sea: Diagnosis and forecast ***(Invited).*** Marine *Hydrophysical Institute,* ***Sevastopol, UKRAINE***.

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

Stanichny S.: Satellite monitoring of the processes and phenomena in the Kerch Strait. *Marine Hydrophysical Institute NASU,* ***Sevastopol, UKRAINE.***

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

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

Brake

Konovalov, I., Beekmann, M., Richter, A., & Burrows, J.: Satellite monitoring of nitrogen oxide emissions ***(Invited)***. *Institute of Applied Physics, RAS, **Nizhniy Novgorod, RUSSIA**, CNRS, Créteil, France, Institute of University of Bremen, Bremen, GERMANY.*

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

Tynybekov, A., Kulenbekov, J. Usubaliev, R., Investigation of glaciers melting with remote sensing data. KRSU, *Geology Institute, **Bishkek, KYRGYZ REPUBLIC***

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

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

Lunch (12:00-13:30)

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

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

Kleshenko, A. & Virchenko, O.: Contemporary satellite-based systems for agrometeorological monitoring ***(Invited).*** *Institute for Agricultural Meteorology, Roshydromet, **Obninsk, RUSSIA***

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*

Lemeshko, E. & Kyrylenko, K.: Modeling stream flow to rainfall: Danube drainage basin case study. *Marine Hydrophysical Institute, **Sevastopol, UKRAINE***

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*

Brake

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***

Belobrova, M., Boev, A., Kabanov, A., Matveev, A. & **Tsymbal, V.**: Operational mapping and detection of oil spills using radar sounding. *Institute of Radiophysics and Electronics, Institute of Radioastronomy & Center for Radiophysical Sounding of the Earth, **Kharkov, UKRAINE***

Atroshenko, L., Gorobets, N., Kosiashin, C.: Forest polygons as a part of land structure for monitoring forest from space. *Kharkov National University; Kharkov Land Management Group, **Kharkov, UKRAINE***

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***

Zemmouri, **N**.: Satellite Data Based Daylight Climate Estimation. *Architecture University of Biskra, **Biskra, ALGERIA***

Tsymbal, V., Kalmykov: Aero-space radar on-line disasters monitoring in Ukraine: Modern Possibilities *CRSE of NASU and NSAU, **Kharkov, UKRAINE***

Session Discussion and Summary (16:00-17:30)

JUNE 12, FRIDAY, 2009

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

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

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

Tawfic Ahmed, M.: A dry land El Maghara Ecosystem: case study. *Suez Canal University**, Ismailia, EGYPT***

Kryvobok ,O.: The network of EUMETCast's stations in Ukraine as a tool for providing real time meteorological data for forecasters. *Ukrainian Hydrometeorological Research Institute, **Kyiv, UKRAINE***

Al-Alawi , M. M. & AbuJamous, M.A.: Study the impact of soil conservation structures in conserving soil by using GIS. Ministry of Environment, ***Amman, JORDAN***

Lunch (12:00-13:30)

Session Title GENERAL DISCUSSION AND MEETING SUMMARY

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

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***