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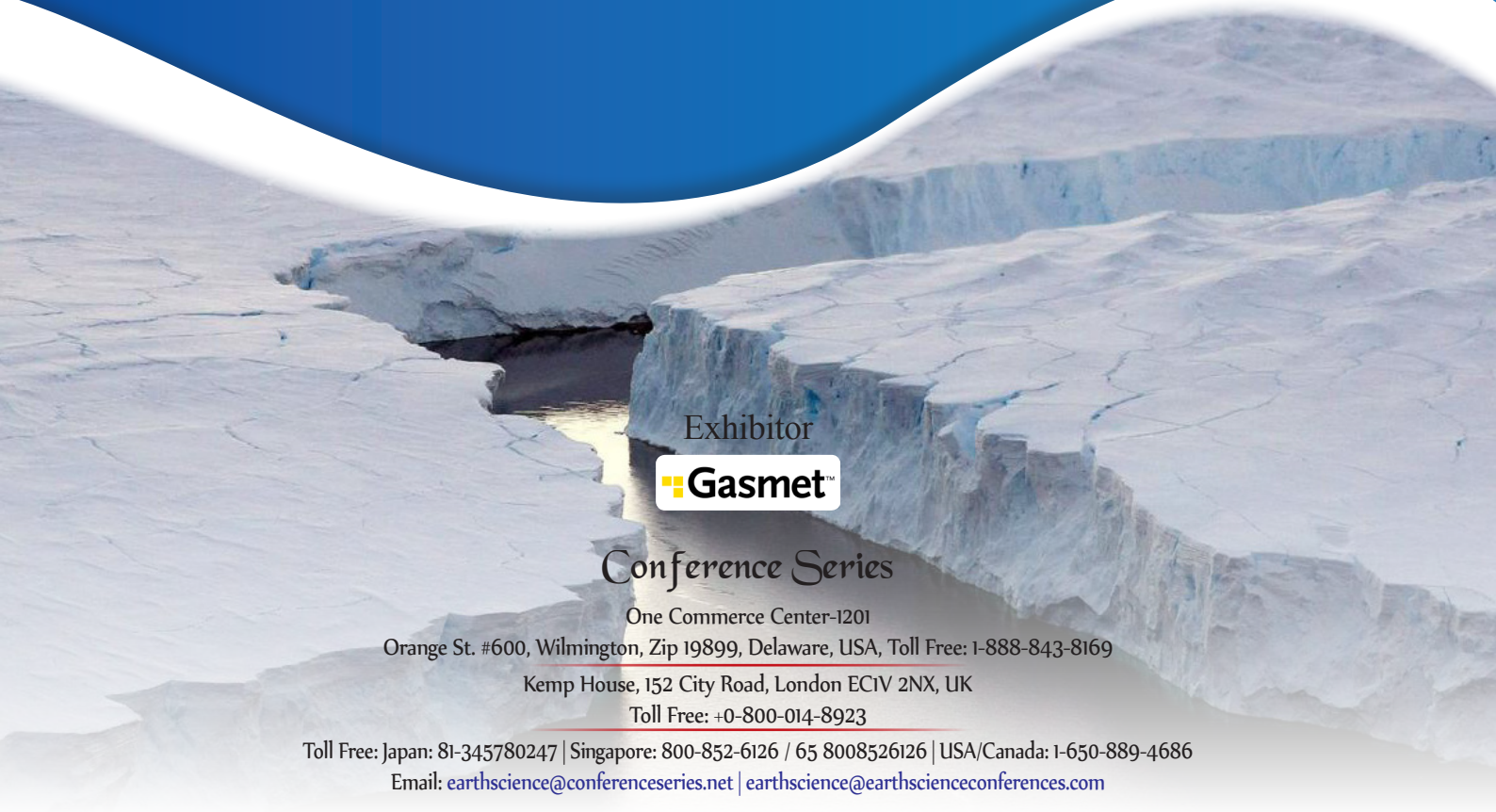
September 18-19, 2017 Hong Kong



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Keynote Forum

(Day 1)

Venkatachalam Ramaswamy, J Earth Sci Clim Change 2017, 8:8 (Suppl)
DOI: 10.4172/2157-7617-C1-029

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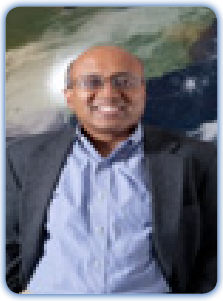

Venkatachalam Ramaswamy

Geophysical Fluid Dynamics Laboratory, USA

The earth's variable and changing climate system: Past to present to future

The Earth's climatic system comprises the components of atmosphere, oceans, land and ice. The processes occurring in the system and the interactions across the components, yields the climate as we know it. Climate comprises an array of variables, with the most commonly known and experienced temperature at all heights in the atmosphere and depths in the ocean and precipitation including vapor, liquid and solid forms. These are linked to factors such as atmospheric composition in the form of gases, aerosols and clouds, winds at different altitudes in the atmosphere, salinity in the oceans, land-surface vegetation and soil features, ice on the surface of the land and oceans and marine and terrestrial ecosystems. Observations from different platforms, together with mathematical modeling governed by laws of physics and chemistry, form the basis of a robust understanding of the Earth's climate system. In the Industrial era (since 1860), human influences such as emissions of well-mixed greenhouse gases and aerosols have affected the planet's climate, competing with or even dominating over periods the natural drivers of climate change such as solar irradiance changes, volcanic eruptions and internal variability. Observations over the 20th century reveal that several climate variables of direct interest to society have undergone substantial changes e.g., temperature, rainfall and sea-level. Using the NOAA/GFDL state-of-the-art global climate model, numerical simulations of climate change are conducted. These results enable us to analyze the mechanisms that have forced changes in climate. The degree to which the observed phenomena and changes in temperature and rainfall over the different continents can be explained constitutes an advance of the frontiers of knowledge. The detection and attribution of climate changes over the past century establish the foundation for making credible projections of climate e.g., forecasting the extremes and/or shifts in climate over the 21st century including characterization of uncertainties.

Biography

Venkatachalam Ramaswamy is the Director of NOAA's Geophysical Fluid Dynamics Laboratory (GFDL) and Professor in the Atmospheric and Oceanic Sciences Program at Princeton University. He has completed his PhD in Atmospheric Sciences from the State University of New York at Albany. His research interests are the mathematical modeling of the global climate system, advancing the understanding of atmospheric physics and chemistry and investigating the climatic variations and changes due to natural and human-influenced factors. He directs one of the world's premier climate research and modeling centers with the goal to develop advanced numerical models for understanding weather and climate. He has published over 160 papers on atmospheric sciences and climate in refereed journals and has been a lead author on several international and national scientific assessments e.g., Intergovernmental Panel on Climate Change (IPCC). He was a Member of the IPCC team and was a co-recipient of the 2007 Nobel Peace Prize.

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Bin Yu, J Earth Sci Clim Change 2017, 8:8 (Suppl)
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Bin Yu

Environment and Climate Change Canada, Canada

Relationship between North American winter temperature and large-scale atmospheric circulation anomalies and its decadal variation

The interannual relationship between North American (NA) winter temperature and large-scale atmospheric circulation anomalies and its decadal variation are analyzed. NA temperature anomalies are dominated by two leading maximum covariance analysis (MCA) modes of NA surface temperature and Northern Hemisphere 500-hPa geopotential anomalies. A new teleconnection index, termed the Asian-Bering-North American (ABNA) pattern is constructed from the normalized geopotential field after linearly removing the contribution of the Pacific-North American (PNA) pattern. The ABNA pattern is sustained by synoptic eddy forcing. The first MCA mode of NA surface temperature is highly correlated with the PNA and ABNA teleconnections and the second mode with the North Atlantic Oscillation (NAO). This indicates that NA temperature is largely controlled by these three large-scale atmospheric patterns, i.e., the PNA, ABNA and NAO. These temperature-circulation relationships appear stationary in the 20th century.

Biography

Bin Yu is a Research Scientist at the Climate Research Division of Environment and Climate Change in Canada. His research interest involves climate variability and climate change, climate sensitivity and feedback, atmospheric circulation and teleconnection and tropical meteorology.

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Ji Whan Ahn, J Earth Sci Clim Change 2017, 8:8 (Suppl)
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Ji Whan Ahn

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Carbon resource recycling appropriate technology for sustainable solutions of climate change and water resources

Currently, global warming is an emerging issue to all over the world. The goal of reducing our greenhouse gas emissions gives us an opportunity to search for a new solution. Carbon capture utilization and storage technology is a significant world top technology tool to reduce and utilization of CO_2. In Korea, a new "21C Frontier Project" started and established a Center for Resource Recycling working on CCUS. This research results revealed that demonstration/commercialization of two technologies such as low carbon green cement and *in situ* PCC waste paper recycling technology. In 2012 DOE started a coordinated updates of "Carbon Capture Utilization and Storage" potential across over United States and MIT suggested green concrete/cement manufacture is one of the top 10 emerging technologies in 2010. In Korea, carbon mineralization technology is the center of excellent, could start a new CDM model, carbon credits and recycling of waste resources for resource security strategy. CO_2 is utilized for green algae removal, human waste water recycling and hard water treatment by using carbonation process. The developed technology provides the solution for urban mine recycling such as critical elements extraction from waste mineral, manufacture of green cement, permeable concrete for smart city, carbonated materials for mining backfill and sink holes and precipitated calcium carbonates as advanced materials for light weight plastics. The carbon resources recycling appropriate technologies are the real solutions for sustainable climate change.

Biography

Ji Whan Ahn has completed her BS, MS and PhD degrees in Mining and Minerals Engineering from Inha University and she has another Master's degree in Resources Environmental Economics from Yonsei University. Currently she is working as an Executive Director in Carbon Resource Recycling Appropriate Technology Center, Korea Institute of Geosciences and Mineral Resources, President for Korea Institute of Limestone & Advanced Materials, Chairperson and Vice President of Korea Institute of Resources and Recycling. She is the Representative for ISO 102 (Iron Ore) from South Korea. She has published more than 175 papers, 716 proceedings papers/conference presentations and 71 patents. She has received many awards for her research excellence which include: National Science Merit (Presidential Citation Award), The Excellent Research award from Ministry of Knowledge Economy and The First Women Ceramist award, etc.

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George Chilingar, J Earth Sci Clim Change 2017, 8:8 (Suppl)
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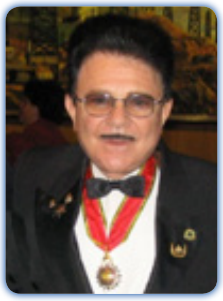

George Chilingar

University of Southern California, USA

Ozone holes

The writers prove that the generation of ozone is an effect (not the cause) of ultraviolet adsorption. Variations in the ozone concentration in the Earth's atmosphere are attributed to the natural forces and not anthropogenic activities. The ozone holes, is a good example of a pseudoscientific problem which was invented for the public. The adsorption of solar UVR occurs due to dissociation of oxygen and nitrogen molecules to a ton. Unfortunately, anthropogenic causes were blamed for the formation and evolution of ozone holes. Refrigeration industry and aerosol canned products, using the easily liquefiable frozen gas were blamed, without any verification. For example, why the most widespread and deepest ozone holes are observed in Southern Hemisphere (Antarctica)? whereas the maximal anthropogenic Freon gas emissions occur in the Northern Hemisphere. Refrigeration industry also should have asked the following question: How about natural ozone being emitted in huge quantities (several orders of magnitude higher than anthropogenic) into the atmosphere as a result of volcano eruptions over the subduction ozone of the oceanic tectonic plates? In conclusion, similar to the fight with the anthropogenic greenhouse gases emission, the problem of the ozone holes is not real.

Biography

George Chilingar is an American-Armenian Professor of Civil and Petroleum Engineering at the University of Southern California (USC). He has received his Bachelor's degree and Master's degree in Petroleum Engineering and PhD in Geology, all at USC. He has published 72 books and over 500 articles on geology, petroleum engineering and environmental engineering.

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Alexander Trofimov, J Earth Sci Clim Change 2017, 8:8 (Suppl)
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Alexander Trofimov

International Scientific Research Institute of Cosmoplanetary Anthropoecology, Russia

Climate changes are the result of heliophysical pressing during geomagnetic deprivation: New type of holograms and drinking water as effective preventive means

We believe that recently in sequence of climatic and heliophysical events the state of our magnetosphere plays the main role. From the end of the 20th century the full vector of the magnetic field of the earth is gradually weakening and the buffering properties of the earth's magnetosphere, which protects biosystems from excess solar proton-electron beams, are decreasing. Using modeled weakening of the geomagnetic field we had to answer the question: What are the possible biotropic consequences of heliophysical pressing for earth's climate, human genes and health? Our main aim was to develop preventive non-medicinal technologies: Holograms of new type, drinking water "HELIO-STAR" and water with transmitted preventive information from high latitudes ice of last glacial period, more than 15000 years ago (holograms "AURORA"). At simulated weakening of the geomagnetic fields there were revealed significant associations of heliophysical parameters and parameters that reflect the activity of the brain, heart and other human functional systems with their dynamics under the influence of biotropic holographic information about different earth's climatic periods. The phenomenon of increasing of human organism's sensitivity to information concerning climatic changes during past epochs was opened. The non-medicinal means on the basis of holograms of new type and drinking water treated by light streams going through or reflected as mirrors from the climatic holograms, which reduce the excess heliomagnetic and meteotropic reactions of a man and promote prevention of crisis states (on an example of patients with hypertension) during solar and magnetic storms were developed and successfully tested.

Biography

Alexander Trofimov has completed his Doctor Diploma in Novosibirsk State Medical University in 1973 and degree of Doctor of Medical Sciences in 1998. He has served as Professor (1999), Academician of International Academy Energy-Informative Sciences (2001), Academician of ABI, USA (2010), General Director and Chief of Scientific Council of International Scientific Research Institute of Cosmoplanetary Anthropoecology (ISRICA), named after academician V.P. Kaznacheev (1994-2016) and Chief of Laboratory Helioclimatopathology of Science Center of Clinical and Experimental Medicine of Siberian Department of Russian Academy of Medical Science (until 2010 year). His basic research interests include heliobiology, cosmic anthropoecology, geoecology, geophysics, helioclimatopathology and preventive medicine.

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