C R Rao Advanced Institute of Mathematics, Statistics & Computer Science (AIMSCS)

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Seminar on

A Study of Alaskan temperature changes over time

by

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Date and time: 4th July 2017, Tuesday at 03:30 pm

Venue: Ramanujan Building, C R Rao AIMSCS

Abstract: A thorough understanding of climatic variations of the Alaska region and their influences on global climate are of paramount importance for climatologists as well as for human populations. This study incorporates recent advances in statistical change-point methodology for the study of temperature changes of the Alaska region through data from seven stations. The Pacific Decadal Oscillation (PDO) index series is known to have influence on Alaskan climate including its temperatures. An in-depth study of temporal changes in PDO is also important and thus our analysis includes data on PDO index also. We allow for the presence of multiple change-points in any given data series while analyzing seasonal data on temperature variables representing various forms of means and extremes. Apart from identifying the number of change-points and point estimates of their locations, we also provide confidence intervals for the identified change-points. Until very recently, methods of providing confidence intervals for change-points have not been available in change-point literature. The analysis shows that changes in Alaskan temperatures were influenced by the seasons as well as station locations. Predominantly, temperature changes were observed during winter and spring seasons and the same is true of changes in PDO indices also. Overall, temperature changes in maxima, means and minima occurred in a balanced manner among the four seasons.

Brief Biodata of Venkata Krishna Jandhyala :

Krishna Jandhyala received his Ph.D. degree in Statistics in 1986 from Department of Statistical and Actuarial Sciences, University of Western Ontario, London, Ontario, Canada. After spending three years as Visiting Assistant Professor at University of California, Santa Barbara and Irvine campuses, Krishna joined the Department of Mathematics and Statistics, Washington State University, Pullman, WA as Assistant Professor in 1989. He became Professor in 2000 and has assumed the role of Associate Chair of the department beginning March 2016. In 2011, he became Adjunct Professor at CR Rao AIMSCS.

His research interests are primarily in the area of change-point problems and their applications to environmental monitoring and assessment. He has published in journals such as *Stochastic Processes and Their Applications*, *Biometrika*, *Journal of Royal Statistical Society B*, *Sankhya A*, *Journal of Statistical Planning and Inference*, *Journal of Time Series Analysis*, *Econometric Theory*, *Environmetrics*, *Water Resources Research*, *Journal of Applied Meteorology and Climatology*, and so on. His research has been supported by National Science Foundation, USA. He is an active member of The International Environmetrics Society (TIES) and is currently serving as a member of its Board of Directors.