Name: Dr. Linda O. Mearns

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Title: Current Knowledge regarding Global and Regional Climate Change and Implications for the Future of Agriculture

Short Biosketch:

Linda O. Mearns is a Senior Scientist in the Research Applications Lab of the National Center for Atmospheric Research, Boulder, Colorado. She previously served as Director of the Weather and Climate Impacts Assessment Science Program (WCIASP) for 15 years and Director of the Regional Climate Uncertainty Program (RCUP) for three years. She currently leads the Regional Integrated Sciences Collective (RISC) within the Research Applications Lab. She served as Director of the Institute for the Study of Society and Environment (ISSE) for three years ending in April 2008. She holds a Ph.D. in Geography/Climatology from UCLA. She has performed research and published mainly in the areas of regional climate change, climate change scenario formation, quantifying uncertainties, and climate change impacts on agro-ecosystems. She has particularly worked extensively with regional climate models. She has been an author in the IPCC Climate Change 1995, 2001, 2007, and 2013/14 and 2021/22, both in WGI and WGII Assessments regarding climate variability, impacts of climate change on agriculture, regional projections of climate change, climate scenarios, and uncertainty in future projections of climate change. She has also participated in many of the US National Climate Assessments either as an author or review editor. She led the multi-agency supported North American Regional Climate Change Assessment Program (NARCCAP) and is co-Chair of the North American CORDEX Program. She has been a member of the National Research Council Climate Research Committee (CRC), the NAS Human Dimensions of Global Change (HDGC) Committee, the NAS Panel on Adaptation of the America's Climate Choices Program, and the National Academy of Sciences Panel on Advancing Climate Modeling. She has worked extensively with resource managers (e.g., water resource managers and ecologists) to form climate change scenarios for use in adaptation planning. She is a Fellow of the American Meteorological Society, and she received the American Association of Geographers Lifetime Achievement Award and the Excellence in Research Award in 2016. She currently is on the Advisory Panel of the USGCRP and the NAS Board of Atmospheric Sciences and Climate.

Abstract: In this overview presentation, I will discuss the main results regarding climate change as presented in the Intergovernmental Panel on Climate Change (IPCC), the Sixth Assessment Reports, which appeared in 2021 and 2022. I will discuss how the IPCC has evolved over time

to provide the most useful information for policy makers concerned with climate change. Topics will include observational evidence for climate change, and the most recent results from climate modeling studies on future climate. Both global and regional results will be discussed including some for the south Asian region. How climate extremes, which have particular impacts on human society and ecosystems, will evolve in the future will be presented. The effects of these climate changes on agriculture will be discussed, from a global and regional perspective. How agriculture can adapt to climate change will be presented, particularly for specific regions, such as south Asia.