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**CONTROL ID:** 1817531

**TITLE:** Understanding the Linkages between Climate, Land Use, and Land Degradation in Central Asia

**ABSTRACT BODY:** Vulnerability of terrestrial ecosystems and their services, especially provision of food and water, in a changing climate are becoming the most pressing problems of the 21st century. These problems are especially severe in the drylands that cover over 40% of the Earth's land surface, and are home to more than a third of the world's population. The talk will concentrate on drylands of Central Asia which is one of the world's most vulnerable regions to natural and anthropogenic stressors. This region has experienced dramatic climatic, environmental, and socioeconomic changes in the past century. They include warming climate, frequent droughts, significant changes in land cover and land use (LCLU), desiccation of the Aral Sea and increase in dust storms, massive water management projects, formation and then disintegration of the Soviet Union, and the subsequent formation of the five independent countries (Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan). These changes have regional and global implications via the climate and socioeconomic systems.

The talk will present results of an integrated analysis aimed at synthesis of changes that have occurred in drylands of Central Asia in the context of socioeconomic transformations and climate variability and change since the 1950s. The analysis uses historical LCLU records, multiple US Earth-observing satellite products, climatological and socioeconomic data, crop production data, and results of climate and wind erosion modeling. The aim is to characterize and understand how drylands have been changed by human activities and by climate, with an emphasis on managed ecosystems related to agricultural activities and food production. The extent and dynamics of land degradation "hot spots" are identified and examined to ascertain the contribution from natural and anthropogenic stressors. The interconnections among systems and the linkages between global- and local-scale processes, and between short and long timescales are explored to aid in process-level understanding within the Earth system modeling framework.

**CURRENT SECTION/FOCUS GROUP:** Global Environmental Change (GC)

**CURRENT SESSION:** GC049. Environmental, Socio-Economic and Climatic Changes in Northern Eurasia and their Feedbacks to the Global Earth System

**INDEX TERMS:** 1632 GLOBAL CHANGE Land cover change, 1637 GLOBAL CHANGE Regional climate change, 1631 GLOBAL CHANGE Land/atmosphere interactions, 1640 GLOBAL CHANGE Remote sensing.

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**TITLE OF TEAM:**

(No Image Selected)

(No Table Selected)

**PRESENTATION TYPE:** Assigned by Committee (Oral or Poster) [Invited]

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