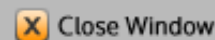




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CONTROL ID: 1478014**TITLE:** Arctic Land-Surface Temperatures Increasing From 2000 Through 2012 Derived By MODIS Sensors on NASA Earth Observing Satellites

ABSTRACT BODY: Heating of land surfaces by solar irradiance is a fundamental parameter of environment and climate. Across the Arctic changes in active layer, melting of glaciers and ground ice, thawing of permafrost and sequestration changes of carbon storage are driven in part by variations of land surface heat absorption and conduction. In permafrost regions taliks are important for water movement and heat advection into the ground. We investigate land-surface temperature changes and regional variations derived by the MODIS sensors (Terra EOS-AM and Aqua EOS-PM) at the spatial and temporal resolutions of 1-km and daily across the Arctic from March 2000 through July 2012. Since 2000 the number of days with daytime Land-surface temperatures above 0 degree C increases by fourteen. On average Arctic land-surface daytime temperature increase is 2.1 +/- 0.2 degree C with a P-Value of 0.01 and R-Square of 0.97. Regional increases are 1.7 +/- 0.3 degree C for Northern Eurasia, 1.9 +/- 0.2 degree C for Northern Far East Russia-Western North America and 2.5 +/- 0.3 degree C for Eastern North America-Greenland-Northwestern Europe with significant P-Value and R-Square. Coordination of terrestrial measurement network stations with satellite-based measurement systems is required for assessment, evaluation and prognoses of impacts of land-surface temperature changes to the Arctic environment, communities and infrastructures.

CURRENT SECTION/FOCUS GROUP: Global Environmental Change**CURRENT SESSION:** GC019. Environmental, Socio-economic and Climatic Change in Northern Eurasia and Their Feedbacks to the Global Earth System**INDEX TERMS:** [0475] BIOGEOSCIENCES / Permafrost, cryosphere, and high-latitude processes, [1640] GLOBAL CHANGE / Remote sensing, [9315] GEOGRAPHIC LOCATION / Arctic region, [3252] MATHEMATICAL GEOPHYSICS / Spatial analysis.**AUTHORS/INSTITUTIONS:** R.R. Muskett, Geophysical Institute, University of Alaska Fairbanks, Fairbanks, AK;**SPONSOR NAME:** Reginald Muskett**CONTACT (E-MAIL ONLY):** reginald.muskett@gmail.com**TITLE OF TEAM:**

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