



# Arctic, Antarctic, and Alpine Research

An Interdisciplinary Journal



UNIVERSITY OF COLORADO BOULDER

Vol. 45, No. 2 May 2013

# Arctic, Antarctic, and Alpine Research

Vol. 45, No. 2 May 2013

## Contents

Modeling Biophysical Variables across an Arctic Latitudinal Gradient Using High Spatial Resolution Remote Sensing Data <i>David M. Atkinson and Paul Treitz</i> .....	161–178
Lake Fluctuations, Plant Productivity, and Long-Term Variability in High-Elevation Tropical Andean Ecosystems <i>Julieta Carilla, H. Ricardo Grau, Leonardo Paolini, and Mariano Morales</i> .....	179–189
Do P Cycling Patterns Differ between Ice-Free Areas and Glacial Boundaries in the Maritime Antarctic Region? <i>Noemí Chacón, Mildred Ascanio, Rafael Herrera, Diana Benzo, Saúl Flores, Soraya J. Silva, and Belkis García</i> .....	190–200
Quantifying Snow and Vegetation Interactions in the High Arctic Based on Ground Penetrating Radar (GPR) <i>Guisella Gacitúa, Christian Bay, Maria Rask Pedersen, and Mikkel Peter Tamstorf</i> .....	201–210
A Warming-Induced Biome Shift Detected in Tree Growth of Mountain Hemlock [ <i>Tsuga mertensiana</i> (Bong.) Carrière] along the Gulf of Alaska <i>Stephanie K. Jarvis, Gregory C. Wiles, Sarah N. Appleton, Rosanne D. D'Arrigo, and Daniel E. Lawson</i> .....	211–218
Environmental Influences on Winter Desiccation of <i>Picea glauca</i> Foliage at Treeline, and Implications for Treeline Dynamics in Northern Manitoba <i>Steven D. Mamet and G. Peter Kershaw</i> .....	219–228
<i>Pinus pumila</i> Photosynthesis Is Suppressed by Water Stress in a Wind-Exposed Mountain Site <i>Soichiro Nagano, Takashi Nakano, Kouki Hikosaka, and Emiko Maruta</i> .....	229–237
Seasonal Photoprotective Responses in Needles of Korean Fir ( <i>Abies koreana</i> ) over an Altitudinal Gradient on Mount Halla, Jeju Island, Korea <i>Soonja Oh, William W. Adams III, Barbara Demmig-Adams, and Seok Chan Koh</i> .....	238–248
Patterns of Change within a Tundra Landscape: 22-year Landsat NDVI Trends in an Area of the Northern Foothills of the Brooks Range, Alaska <i>Martha K. Reynolds, Donald A. Walker, David Verbyla, and Corinne A. Munger</i> .....	249–260
Vegetation-Banked Terraces on Subantarctic Macquarie Island: a Reappraisal <i>J. M. Selkirk-Bell and P. M. Selkirk</i> .....	261–274
Upscaling Tundra CO <sub>2</sub> Exchange from Chamber to Eddy Covariance Tower <i>Paul C. Stoy, Mathew Williams, Jonathan G. Evans, Ana Prieto-Blanco, Mathias Disney, Timothy C. Hill, Helen C. Ward, Thomas J. Wade, and Lorna E. Street</i> .....	275–284
Microphytobenthos in Shallow Arctic Lakes: Fine-Scale Depth Distribution of Chlorophyll <i>a</i> , Radiocarbon Assimilation, Irradiance, and Dissolved O <sub>2</sub> <i>Stephen C. Whalen, Dendy D. Lofton, Gabriel E. McGowan, and Amy Strohm</i> .....	285–295
<b>Book Reviews</b>	
<i>Arctic Shorebirds in North America: a Decade of Monitoring</i> , edited by Jonathan Bart and Victoria Johnston .....	296–297
<i>Herschel Island—Qikiqtaryuk: a Natural and Cultural History</i> , edited by Christopher R. Burn .....	297–298
<i>Civilizing the Wilderness: Culture and Nature in Pre-Confederation Canada and Rupert's Land</i> , by A. A. den Otter .....	298–299
Calendar .....	300–303