USING GENETIC SEQUENCING ALGORITHMS AND OBJECT-ORIENTED MULTITEMPORAL SATELLITE IMAGE ANALYSIS FOR LONG-TERM CHANGE CHARACTERIZATION

J. A. Long [a, *], R. L. Lawrence [a], P. R. Miller [a], M. C. Greenwood [a], L. A. Marshall [b]

[a] Dept. Of Land Resources and Environmental Sciences, Montana State University, Bozeman, Montana, USA 59717-
(john.long5@msu.montana.edu, rickl@exchange.montana.edu, pmiller@montana.edu, greenwood.stat@gmail.com)
[b] School of Civil and Environmental Engineering, University of New South Wales, Sydney, NSW 2052, Australia -
lucy.marshall@unsw.edu.au

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ABSTRACT:

Land-use/land-cover (LULC) change is an essential component of research programs across a wide-variety of disciplines and the development of change detection methods has long been a major focus in remote sensing. LULC changes are fundamentally state-transitions in which a land unit experiences a modification in physical attribute or usage that results in a change in classification. These transitions are easily identified as long the various states can be uniquely categorized and a sufficiently long sequence of states is available for a given parcel of land. We present here a new method to identify transitions by using string matching algorithms typically employed by researchers working in genetic sequencing. This method is generic and can quantify specific *a priori* transitions, or it can detect state-transitions not originally considered. It works well for binary transitions (e.g., forest – grassland) or more complex transitions (e.g., forest – grassland – agriculture – urban). We demonstrate the methodology with a 12-year sequence of agricultural classifications derived from Landsat imagery using an object-oriented approach.

NOTE – This abstract is for an oral presentation only; we do not wish to publish in the ISPRS Annals.

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* Corresponding author. This is useful to know for communication
with the appropriate person in cases with more than one author.