Water Resources Research

Supporting Information for

Shifting patterns of lake color phenology in over 26,000 US lakes

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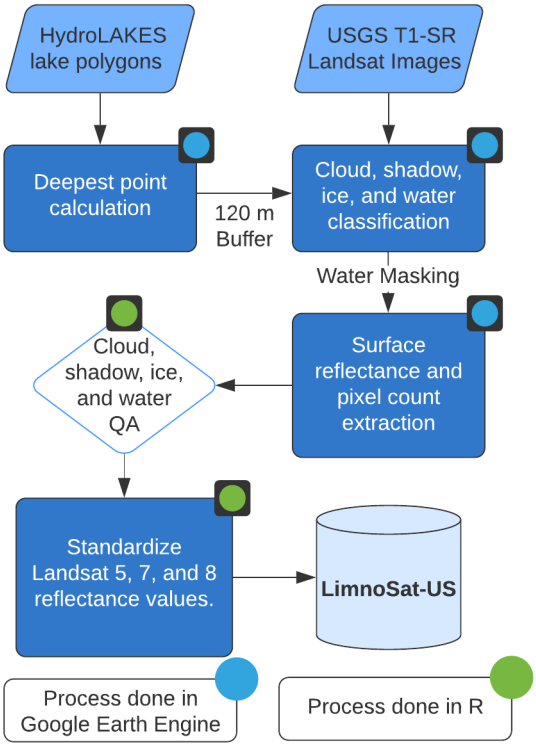

Figure S1. Workflow diagram of key steps in the LimnoSat-US database production.

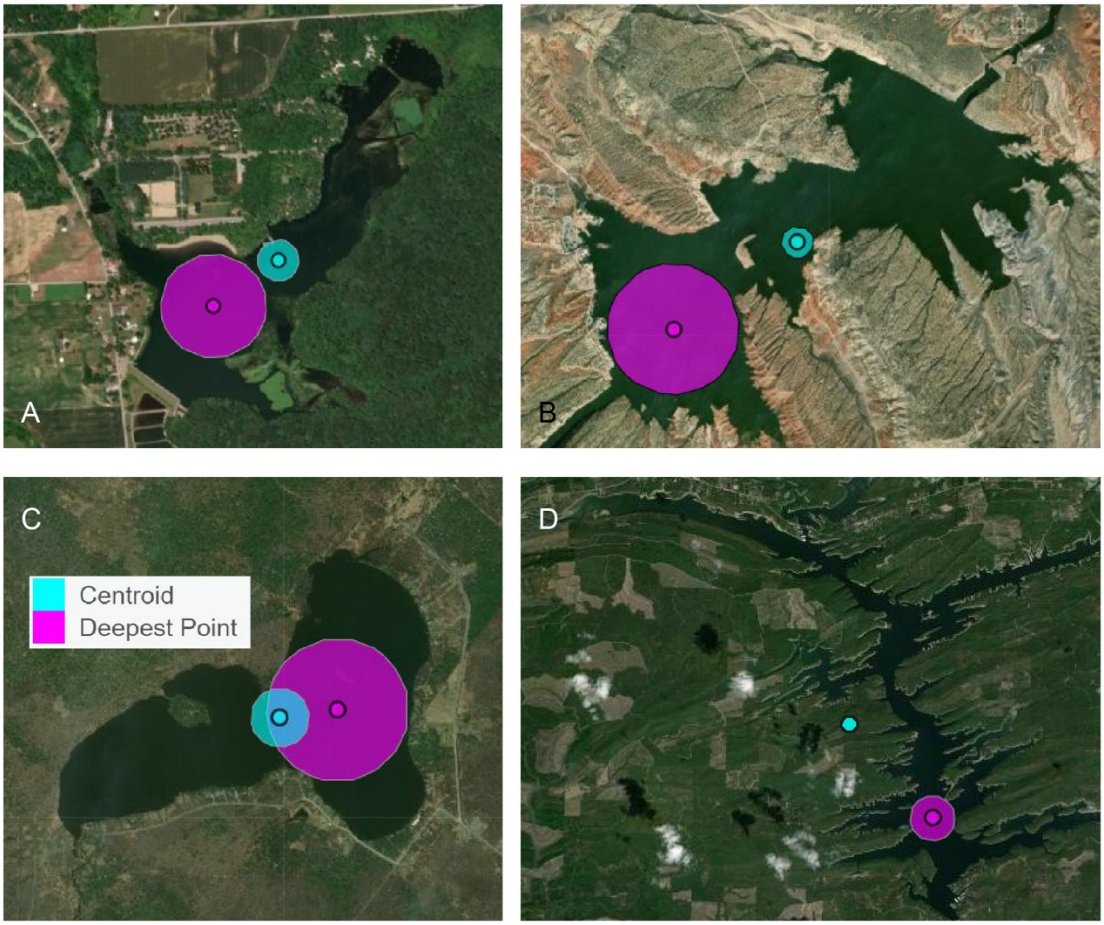

Figure S2. Examples of comparisons between lake centroids and the deepest point calculated using the Chebyshev Center method in (A) Indiana, (B) Wyoming, (C) Maine, and (D) Arkansas. For (D), the centroid doesn't fall within the lake's surface.

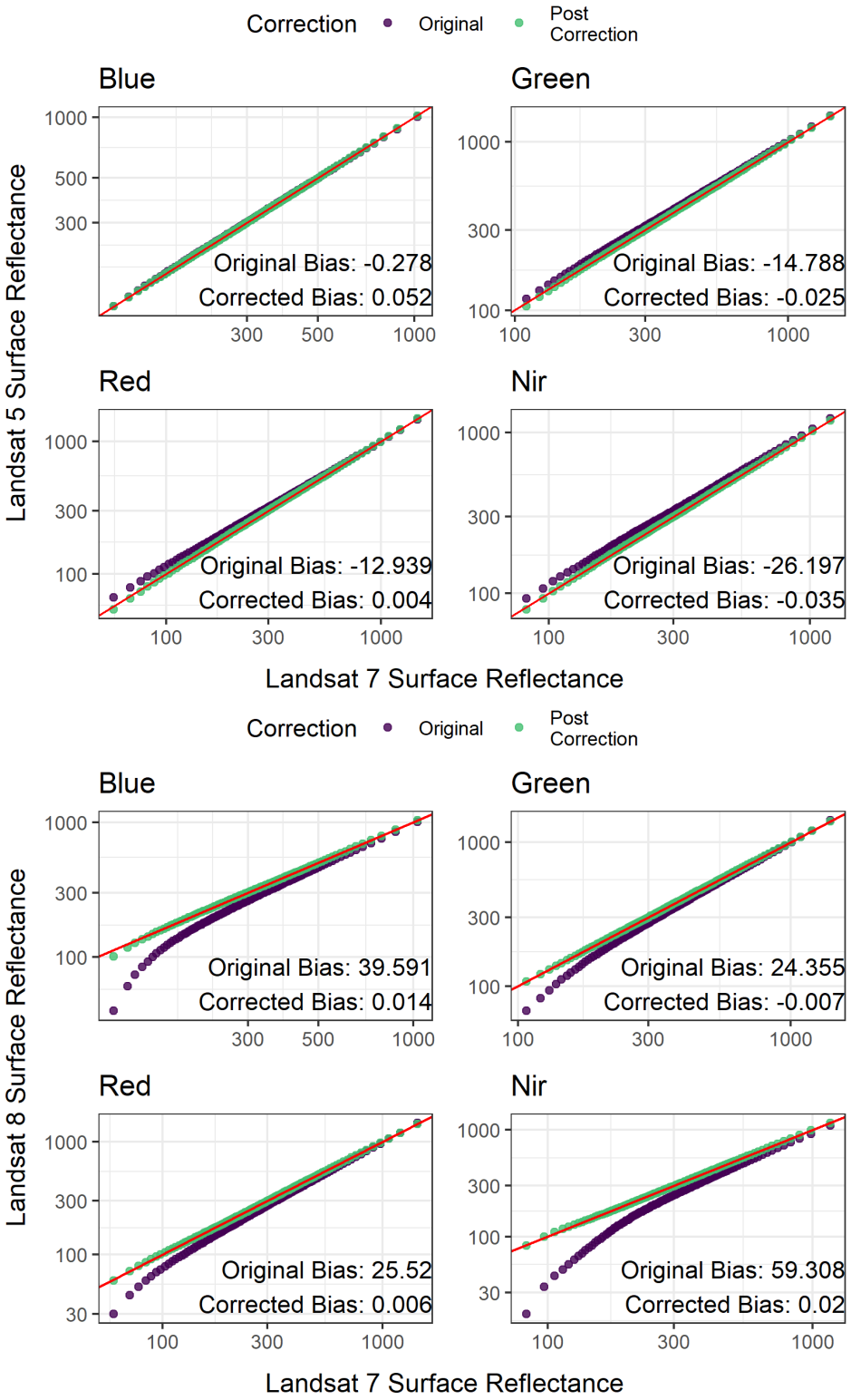

Figure S3. Examples of the distributions of satellite reflectance values between sensors before and after the described correction procedure. Red lines indicate 1:1 lines. Note that plots are in log-log scale.

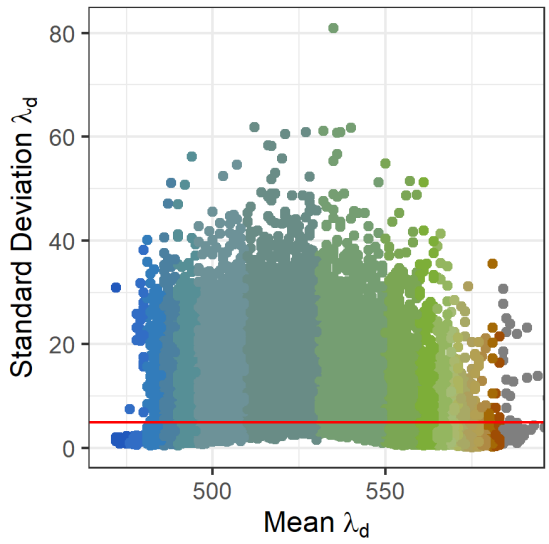

Figure S4. Mean and standard deviation of dominant wavelengths for each non-normalized lake/period time series. Red line represents the cut-off point for the *a priori* aseasonal cluster. Colors represent associated Forel-Ule Indexes (grey points are outside the forel-ule range).

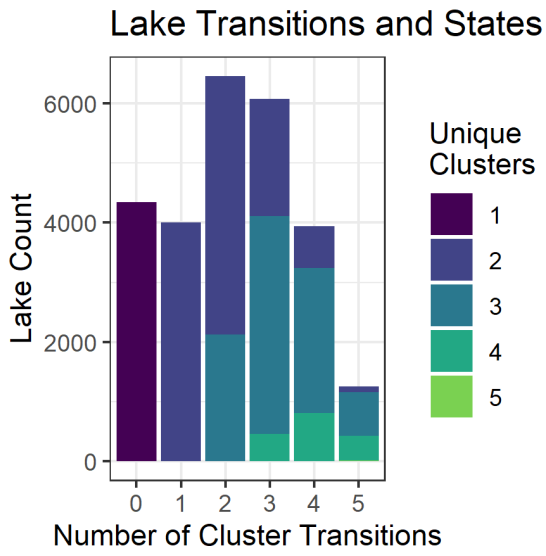

Figure S5. Total counts for lake stability classes (x-axis) colored by the number of unique states each lake occupied throughout the course of the study period.

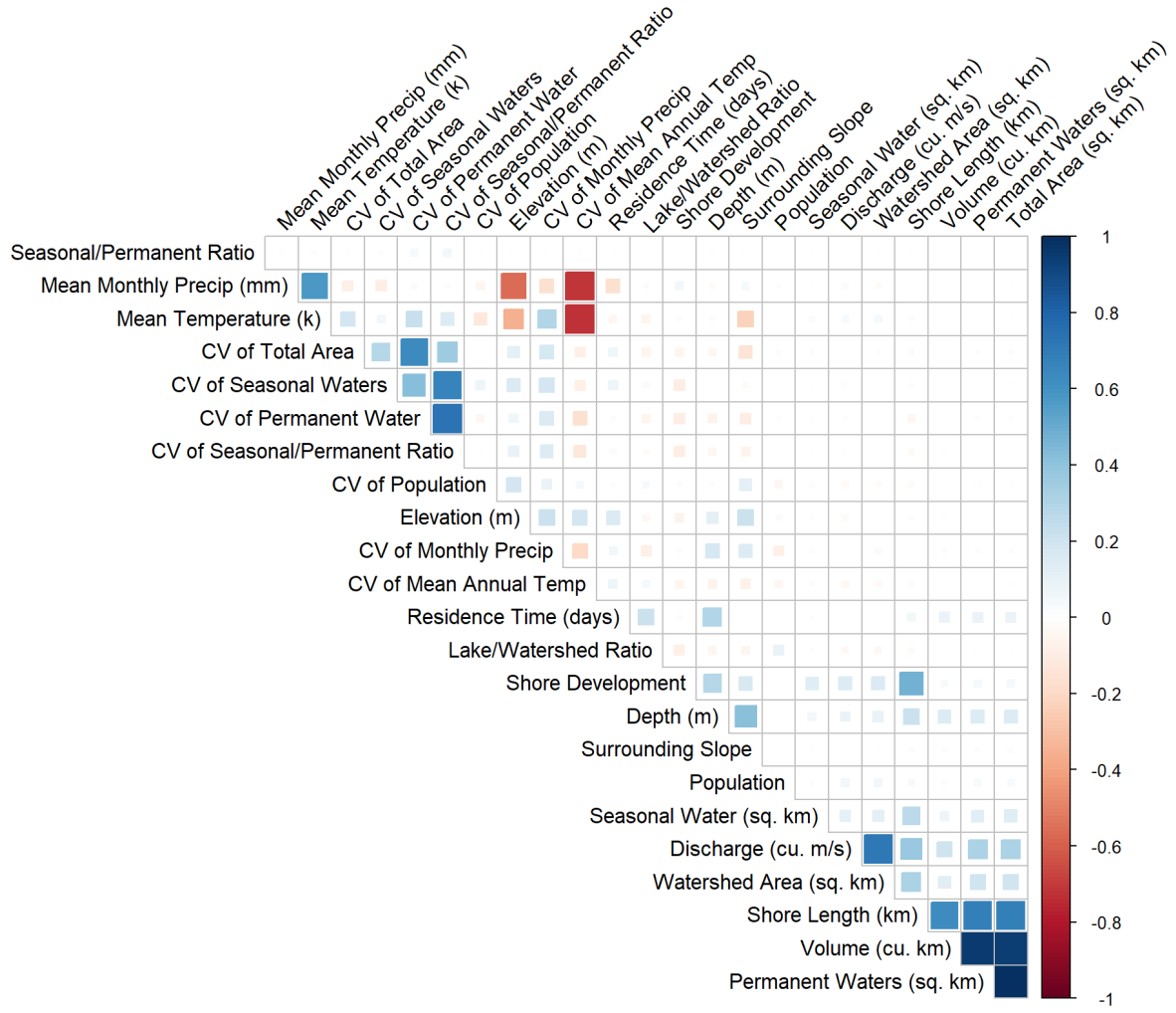

Figure S6. Correlation matrix for variables from HydroLakes and GLPC used to analyze drivers of lake phenology stability.

Variable	Coefficient	Std.Error	p.value
Elevation (m)	0.052	0.003	0.000
CV of Mean Annual Temp	57.610	6.937	0.001
Population	-0.005	0.001	0.002
CV of Seasonal Waters	2.865	0.450	0.003
CV of Population	0.815	0.172	0.009
Discharge (cu. m/s)	-77.415	20.245	0.019
Mean Temperature (k)	-1.460	0.400	0.022
Residence Time (days)	0.047	0.013	0.023
Seasonal Water (sq. km)	-130.614	38.787	0.028
Permanent Waters (sq. km)	-46.695	14.328	0.031
CV of Seasonal/Permanent Ratio	1.872	0.579	0.032
Lake/Watershed Ratio	169.832	53.717	0.034
Shore Length (km)	-8.727	2.784	0.035
Surrounding Slope	11.141	3.672	0.039
Total Area (sq. km)	-33.516	11.478	0.043
Mean Monthly Precip (mm)	-0.514	0.178	0.045
Depth (m)	31.034	11.013	0.048
Volume (cu. km)	-13.772	5.039	0.052
Watershed Area (sq. km)	-0.403	0.156	0.061
Seasonal/Permanent Ratio	-74.721	36.562	0.110
CV of Monthly Precip	-3.867	1.920	0.114
CV of Total Area	-12.886	7.689	0.169
CV of Permanent Water	-2.921	5.279	0.610
Shore Development	-50.000	101.550	0.648

Table S1. Results from regressions of lake and landscape metrics with lake stability ordered by level of statistical significance.