



Special Issue Reprint

Remote Sensing of Land Surface Phenology

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Land surface phenology (LSP) uses remote sensing to monitor seasonal dynamics in vegetated land surfaces and retrieve phenological metrics (transition dates, rate of change, annual integrals, etc.). LSP has developed rapidly in the last few decades. Both regional and global LSP products have been routinely generated and play prominent roles in modeling crop yield, ecological surveillance, identifying invasive species, modeling the terrestrial biosphere, and assessing impacts on urban and natural ecosystems. Recent advances in field and spaceborne sensor technologies, as well as data fusion techniques, have enabled novel LSP retrieval algorithms that refine retrievals at even higher spatiotemporal resolutions, providing new insights into ecosystem dynamics. Meanwhile, rigorous assessment of the uncertainties in LSP retrievals is ongoing, and efforts to reduce these uncertainties represent an active research area. Open source software and hardware are in development, and have greatly facilitated the use of LSP metrics by scientists outside the remote sensing community. This reprint covers the latest developments in sensor technologies, LSP retrieval algorithms and validation strategies, and the use of LSP products in a variety of fields. It aims to summarize the ongoing diverse LSP developments and boost discussions on future research prospects.



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