

Developing an Australian phenology monitoring network using near-surface remote sensing

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Project overview

Plant phenology is highly sensitive to climate, thus serving as an excellent indicator of the potential impacts of climate change. Phenological changes not only affect plant function, but have multiple cascading effects throughout ecosystems. This makes the accurate monitoring of phenology key to understanding the response of Australian vegetation to a changing climate.

So how do we design next generation phenology monitoring? Satellite remote sensing offers valuable information on large-scale phenology, but is hampered by either coarse spatial or temporal resolution, and interference from cloud cover. Ground observations offer the most direct assessment of phenological status, but are prohibitively manually intensive. Luckily, recent advances in near-surface remote sensing technologies promise to resolve the issues related to ground observations and satellite data, and bridge the gap between the two.

Digital repeat photography is becoming widely used for near surface remote sensing of vegetation (Sonnentag *et al.*, 2011). Canopy greenness, which has been used extensively for phenological applications, can be readily quantified from camera images, providing a wealth of information regarding vegetation state and function (Keenan *et al.*, 2014). The application of the technology to the field of phenological research is emerging worldwide, and is being coupled with advances in drone technology. Through leveraging the TERN network, and the multitude of newly established OzFlux sites, Australia is in an excellent position to become a world leader in the field. This workshop seeks to kickstart that effort, by building the community that will make it happen.

References

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