

Title:	Multi-scale quantitative remote sensing of vegetation stress
Faculty/Institute:	Faculty of Science, Engineering, and Technology
Discipline:	School of Land and Food, Discipline of Geography and Spatial Sciences
Campus:	<input checked="" type="checkbox"/> Sandy Bay <input type="checkbox"/> Hobart <input type="checkbox"/> Newnham <input type="checkbox"/> Inveresk <input type="checkbox"/> Cradle Coast <input type="checkbox"/> Sydney
Research Theme:	<input type="checkbox"/> Better Health <input checked="" type="checkbox"/> Data, Knowledge & Decisions <input type="checkbox"/> Creativity, Culture & Society <input type="checkbox"/> Marine, Antarctic & Maritime <input checked="" type="checkbox"/> Environment, Resources & Sustainability
Scholarship type:	Living allowance and tuition fee scholarship.
Value & Duration:	This scholarship provides \$26,682 p.a. (2017 rate) living allowance for 3 years, with a possible 6 month extension. The scholarship also includes at least \$1500 p.a. operational funds to support the PhD research project. Further information is available on the Scholarships webpage.
Funding source:	This PhD scholarship is jointly funded by ARC FT160100477 (co-funding \$13,000 p.a.) and the University of Tasmania.
Closing date:	1 October 2017
The Research Project:	<p>The study will be part of 4-year ARC Future Fellowship project “Bridging scales in remote sensing of vegetation stress” aiming at development of new remote sensing methods mapping pre-visual stress and vegetation health at regional scales from optical Earth observations of the latest space-borne missions. These new approaches will use modern computer radiative transfer models in combination with measurements from unmanned aircraft systems called drones. The PhD study will pave the way towards regular satellite monitoring of plant health across extensive and inaccessible Australian landscapes. The successful candidate will learn how to retrieve health indicating vegetation traits, for instance content of photosynthetic pigment or plant water content, from spectral information of airborne and satellite images. S/he will be trained in modelling and inversions of the virtual optical remote sensing data simulated in the Discrete Anisotropic Radiative Transfer (DART) model. As a virtual simulator DART requires input parameters, which will be acquired with small size unmanned aircraft systems (UAS/drones) carrying aboard variety of specific optical spectral instruments. Coupling of drone-based measurements and radiative transfer modelling will allow creation of quantitative space-borne maps from operational satellite platforms of the European Space Agency called Copernicus Sentinels and the future FLEX mission.</p>

<p>Eligibility:</p>	<p>The following eligibility criteria apply to this scholarship:</p> <ul style="list-style-type: none"> • The scholarship is open to domestic (Australian and New Zealand) and international candidates; • The degree must be undertaken on a full-time basis; • Applicants must already have been awarded a First Class Honours degree or hold equivalent qualifications or relevant and substantial research experience in an appropriate domain; • Applicants must be able to demonstrate strong analytical research and practical computer skills. <p>Candidates from a variety of disciplinary backgrounds (geo-information sciences/remote sensing; physics/optics; plant biology/physiology, phenotyping, agriculture & forestry) are encouraged to apply. Knowledge and skills that will be ranked highly include:</p> <ul style="list-style-type: none"> • Practical remote sensing image analysis and data processing skills; • Previous experience in vegetation radiative transfer modelling at both leaf (PROSPECT/FLUSPECT) as well as canopy levels (SAIL, DART, FLIGHT, etc.); • Computer skills (in Windows & Linux), experience with scripting/programming (in Python and Matlab, but also R, ENVI/IDL or BASH) and statistical data analyses.
<p>Application Process:</p>	<p>Applicants who require more information or are interested in this specific project should first contact the listed Supervisor.</p> <p>To determine eligibility, applicants should also contact the Research Hub for their proposed area of research and request an Expression of Interest Form (EOI). Further information on the application process can be found on the Apply Now website.</p> <p>If a Graduate Research Administration Officer (GRAO) subsequently invites you to complete an application after you have submitted an EOI, please visit the Apply Now website and complete an application via the University of Tasmania's Online Application System.</p> <p>Please indicate under Scholarship Support that you wish to be considered for an RTP or TGRS living allowance scholarship.</p> <p>Information about scholarships is available on the Scholarships webpage.</p>
<p>More information:</p>	<p>Please contact Zbynek Malenovsky (Zbynek.Malenovsky@utas.edu.au) for more information.</p>