**Meeting Notes 26<sup>th</sup> August'14. CRCSI 2.07 Workshop (9:30am-4:30pm)**

**Attendees:** Andrew Haywood (DEPI, FAO), Will Woodgate (RMIT University), Lola Suarez (RMIT University), Christine Stone (DPI-NSW), Danielle Martin (CFA-VIC), John Armston (DSITIA-QLD), Martin Mutendeudzi (DAFF), Andrew Mellor (DEPI), Phil Tickle (CRCSI), Paul Wilson (DEPI), Clive Fraser (morning only -University of Melbourne, CRCSI), Phil Collier (CRCSI), Alex Held (CSIRO, TERN Auscover), Mariela Soto-Berelov (RMIT University, TERN Auscover), Simon Jones (RMIT University)
**Meeting note authors:** Jones & Suarez

**Session 1:     CRCSI 2.07 project Context and Background**
- Andrew Haywood provided a summary of the Context and Background to Project 2.07; the Project Objectives, Timelines, Changes and re-scoping to date.
- Andrew emphasised how important partner participation is to the project and thanked partners for their input and time spent on refocusing the project aim, providing timely feedback to deliverables, attending the meetings and workshops and hosting PhD students.
- Andrew congratulated the project on its achievements and listed some partially complete milestones: feature generation, fusion of active and passive data primitives.

**Session 2:     Review Project Highlights (due to many questions this session continued after the lunch break)**
- Lola Suarez led a session that covered the scientific highlights of the project. This session contained 4 presentations with input from: Will Woodgate – LAI and canopy cover estimation; Phil Wilkes (not in attendance) - Use of LiDAR to derive canopy complexity; and Lola Suarez – Use of satellite data for woody attribution.

**Discussion highlights:**
- *Data primitives*: were prioritised by project partners early in the project; ideally these are scale resilient; have utility in reporting a range of metrics useful for land managers and scientists.
- *LAI*: The potential and limitations of simulated (modelled) environments (Woodgate) as a test-bed for LAI intercomparisons was discussed.  The derivation, and testing, of LAI at a large-area scale was also recommended.
- *Canopy height and complexity*: The canopy complexity metric is actually ALS derived canopy vertical profile.
- *Satellite*: The use of indices at the landscape level is risky if they are not robust enough to give precise quantitative estimates. The attendees liked the convolution of the hyperspectral imagery to simulate satellite sensors. The landscape layers should be compared to more robust ancillary data.

**Session 3:     Outstanding Items and lessons learned.**
- **What worked well?**
  - Engagement of partners (scientific input and time spent on helping refocuse the project aim, providing timely feedback to deliverables, attending the meetings and workshops and hosting PhD students)
  - Students and QLD hosting / mentoring
  - Collaboration with the CRC (incl. flexibility of the CRCSI to re-scope the project milestones at the mid-term review)
  - Co-investment of TERN
  - Wider "RS community" engagement
  - Emphasis of the need to work collectively (CRCSI, TERN & JRSP)
  - Links to international community / contribution to the international discussion on key variables (ECV, EBV etc.)
  - Literature review (Deliverable 1)
  - Clear agenda (set by partners)
  - Partnership between academics and end users

- **What could be improved?**
    - Lost a PhD
    - Data acquisition
    - Need for tools and techniques for scaling-up not forthcoming as yet
    - Fusion and feature extraction examples also missing. Need for examples at the landscape scale
    - WA and CSIRO engagement
    - Industry (data providers) engagement

- **Conduct lessons learned to develop best practices for future projects**
- **Discuss the action plans to address any outstanding issues or activities on the project**
    - The participants discussed the project milestones and developed an action plan for the remainder of the project.
    - There was a universal consensus that the project move into a "harvest" phase to complete these tasks; and that the project should continue until April 2015 with no new allocation of funds.

**Specific discussion points:**
- Need for an intercomparison of LAI and allied metrics (FPC and fractional cover & clumping) –this was felt to be outside the scope of the 2.07 project
- Need for studies / examples that link field data / modelled data & up-scale to the satellite / landscape level
- Need for a case study / example to demonstrate:
    - Up-scaling
    - Data fusion to derive landscape features
- Need for a demonstrator case study that illustrates the derivation of, for example LAI, using:
    - LiDAR,
    - optical satellite based data, and
    - a combination of the two (active and passive)
- Need to provide "good practice guidelines" of the whole process (ground, airborne, space-borne) for the above.


**Session 4:      Future actions**
The group discussed five possible future "actions" or projects:
a) Application of the 2.07 method to a range of TERN AUSCOVER super-sites
    a. This project would use other sources of active data (Radar) as well as next generation satellite data (Sentinel)
    b. It might also include non-woody landscapes
    c. This project might be a joint CRCSI, TERN & JRSP project and as such be co-invested by all three entities
    d. This would be an "operational demonstrator"
b) Scaling the data-cube –using the Geoscience Australia Landsat and MODIS time-series
    a. Address "big data" problems of processing these large datasets
    b. Include Software development application for the Geospatial industry
c) International tools, methods and capacity building for specific communities e.g. UN-REDD
d) Wall-to-Wall reporting for land management agencies
e) Flood plain LiDAR mapping and Riparian characterisation using the 2.07 attributes


There was considerable enthusiasm for projects a) and d), with the latter being a priority for land management agencies. If interested in progress on Project a) please contact Alex Held/Simon Jones. For progress on Project d) please contact Andrew Haywood.