



Update Activities Northern Australia

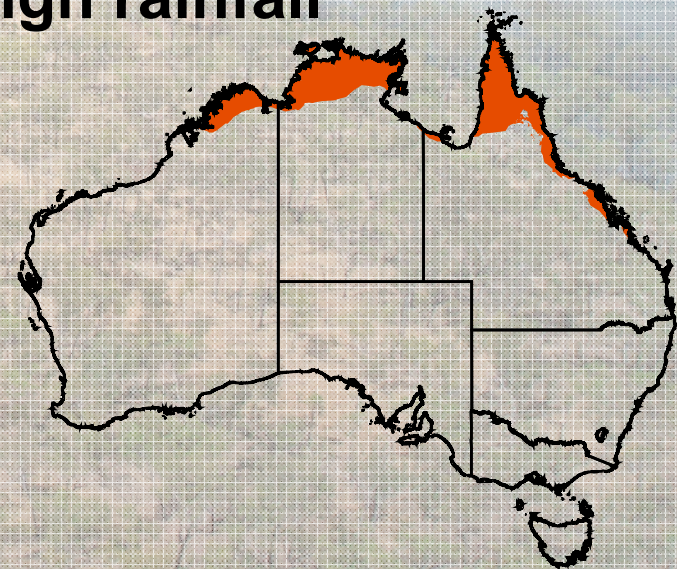
**Stefan W Maier
Charles Darwin University**

Carbon Farming Initiative (CFI)

Australia has introduced carbon price on 1 July 2012
(fixed at 23 A\$/t_{CO2e} for 2012/13)

CFI allows farmers and land managers to earn carbon credits by storing carbon or reducing greenhouse gas emissions on the land

CFI includes methodology for accounting emissions (non-CO₂) from savanna burning in high rainfall (>1000mm/a) areas



Savanna Burning Methodology (>1000mm/a)

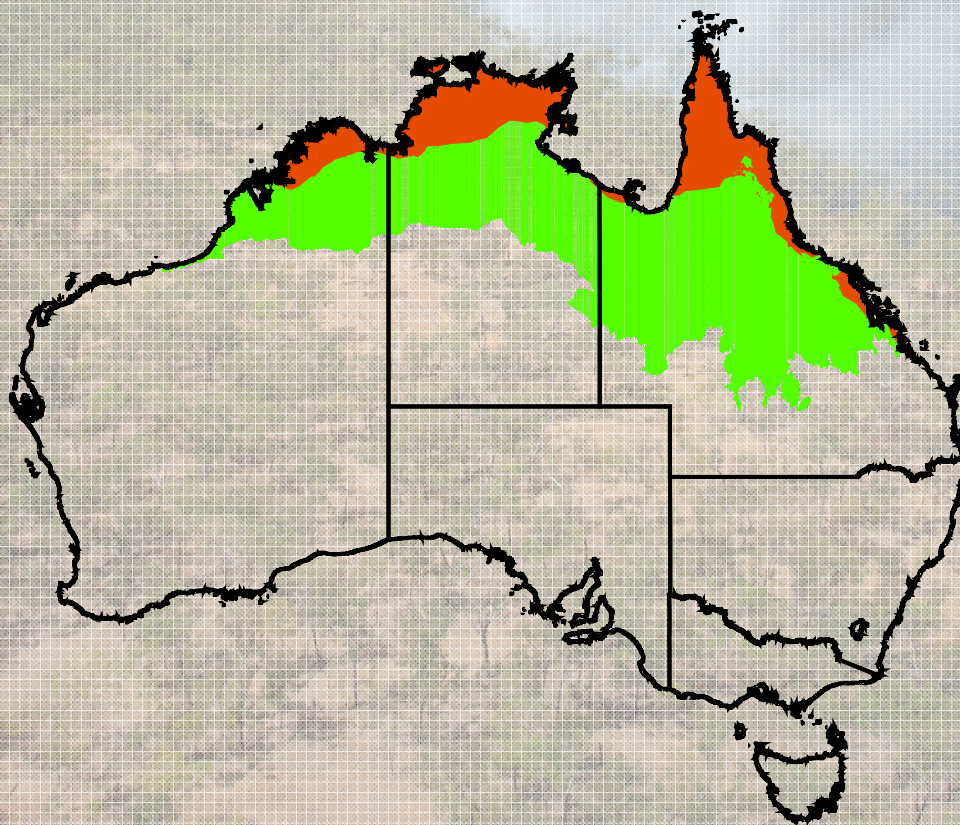
**Objective: Reduce emissions through early dry season
(EDS) prescribed burning**

- **vegetation type map $\leq 250\text{m}$**
- **burnt area 5 years pre-baseline $\leq 1\text{km}$**
- **burnt area 10 years baseline $\leq 1\text{km}$**
- **burnt area project years $\leq 250\text{m}$**
- **accuracy burnt area $> 80\%$, assessed using (random) aerial observations**
- **fuel load derived from time since last fire**
- **combustion completeness (EDS vs LDS)**
- **emission factors dependent on fuel type only, not season (Meyer et al. Journal of Geophysical Research 2012)**

Development of New CFI Methodologies

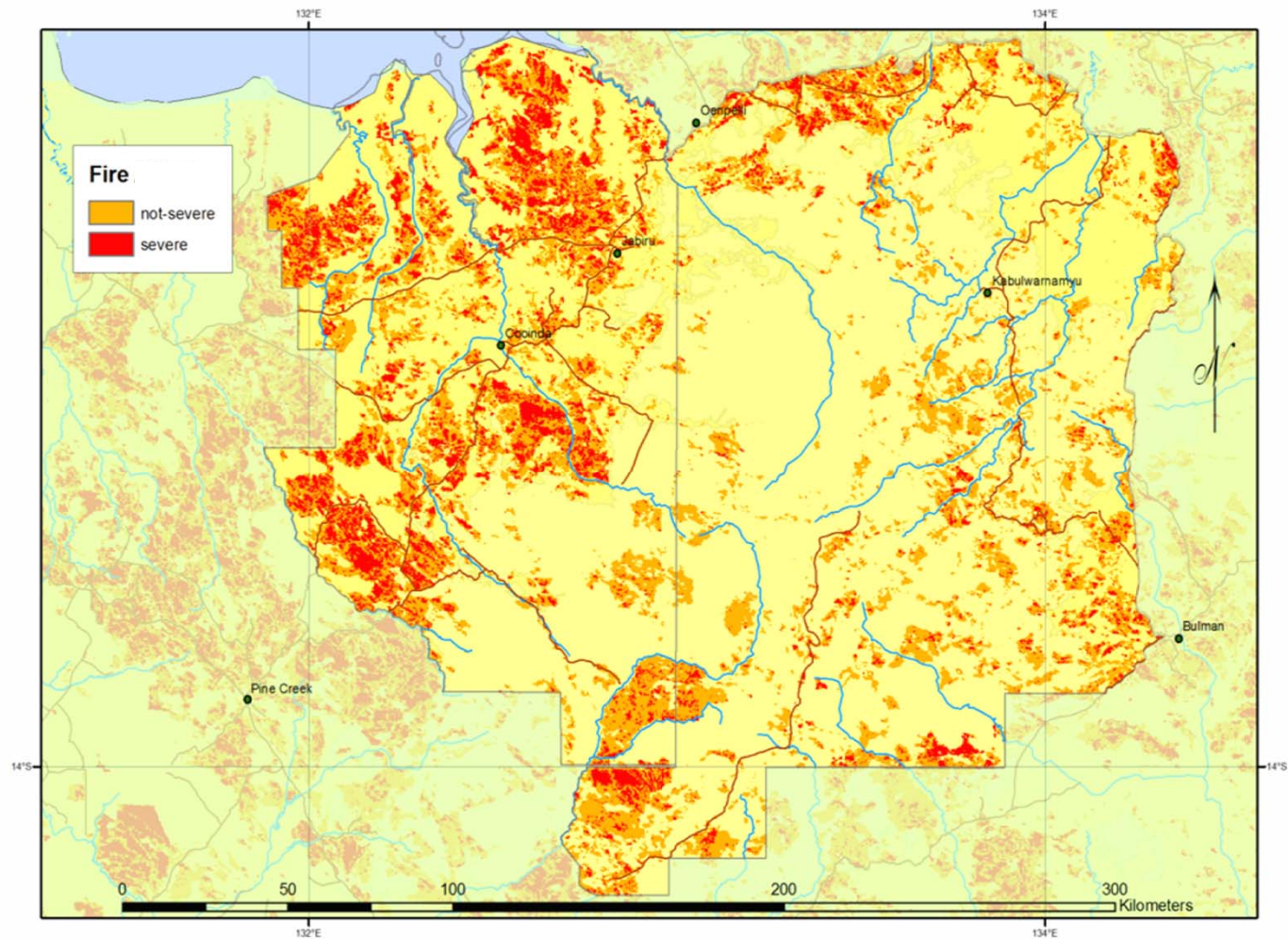
Savanna burning emissions methodology for low rainfall (<1000mm/a) areas

Savanna burning sequestration methodology for high and low rainfall areas



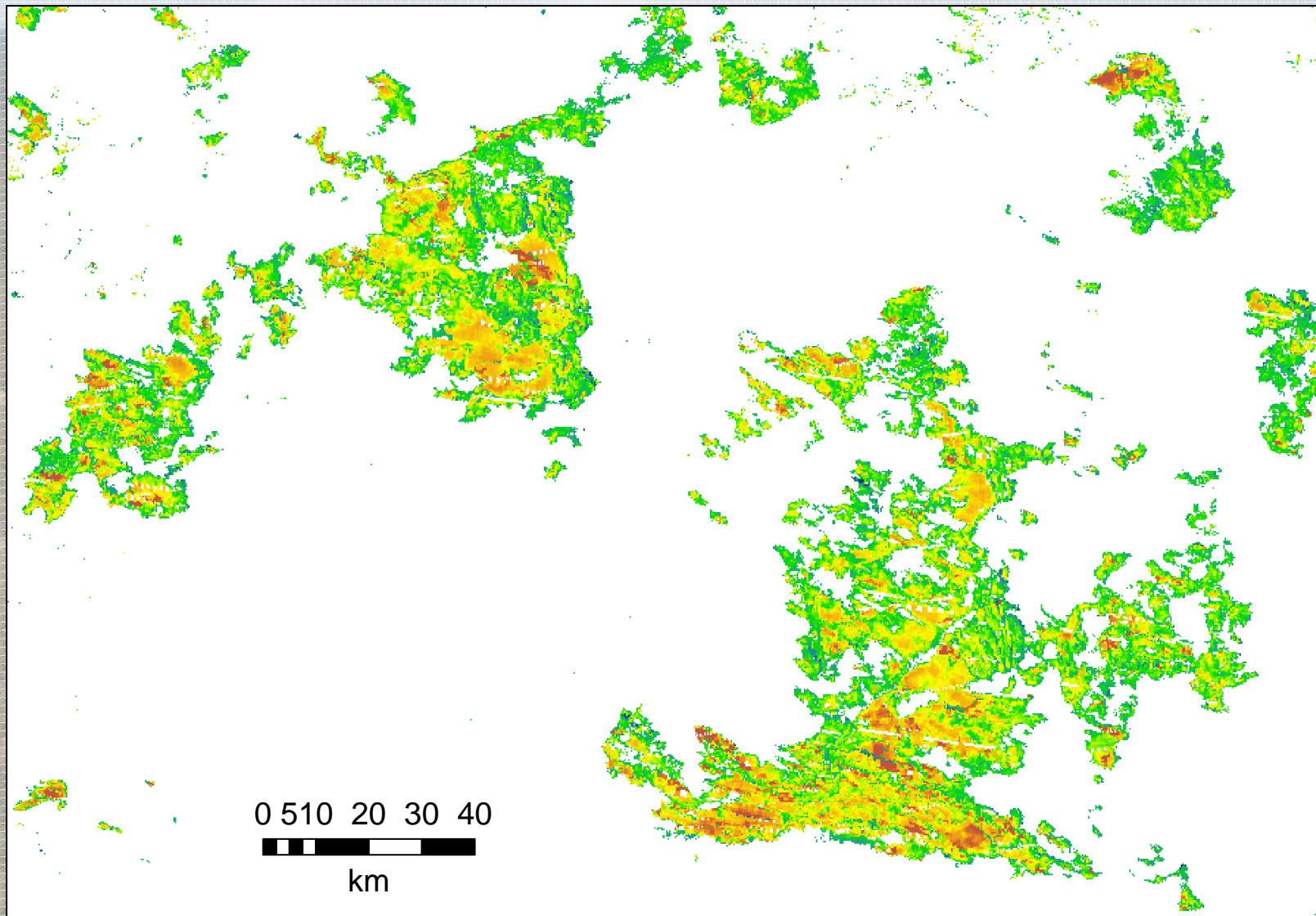
Current Research – Burning Efficiency

MODIS algorithm for fire severity (Edwards et al. RSE in review)

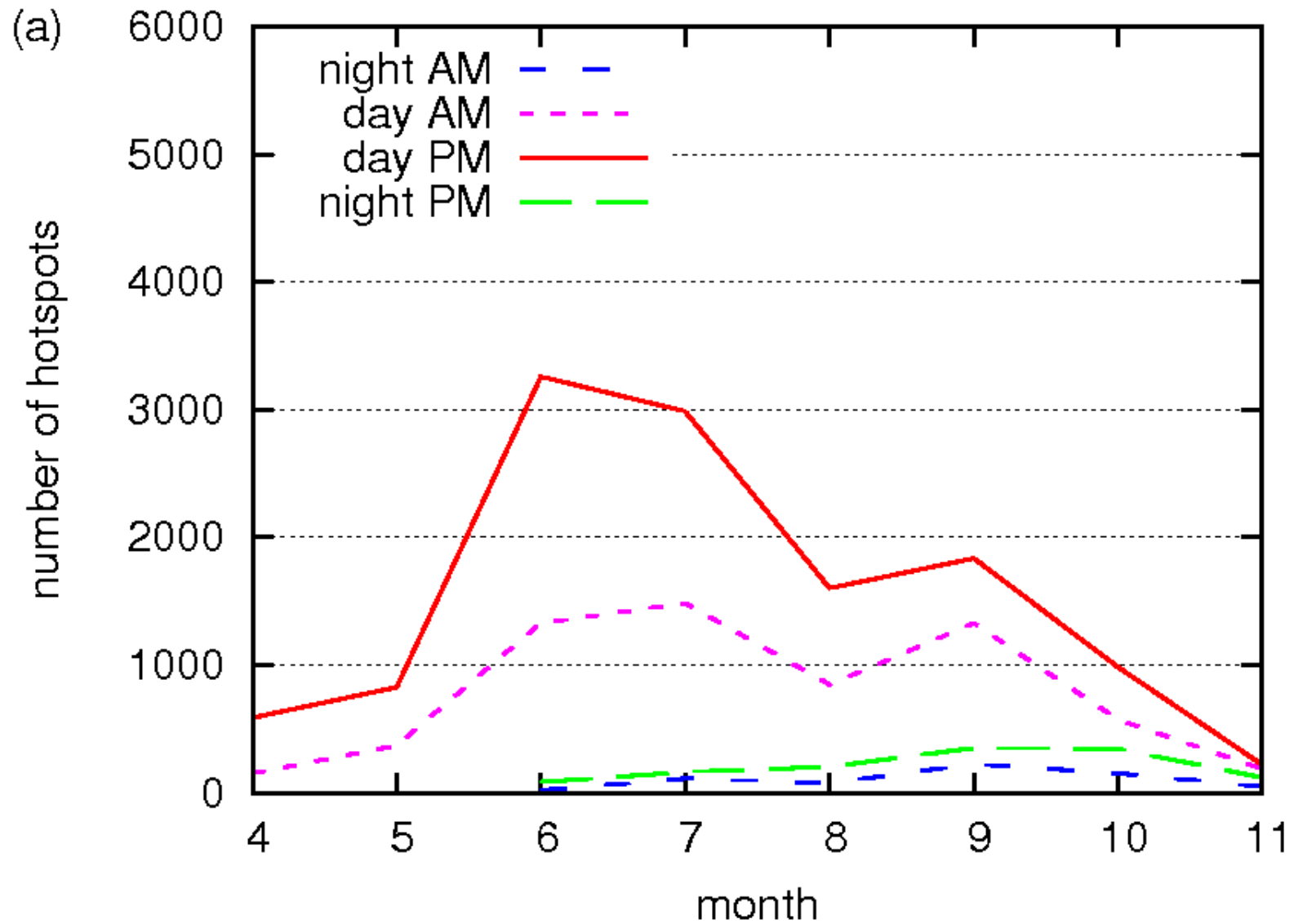


Current Research – Burning Efficiency

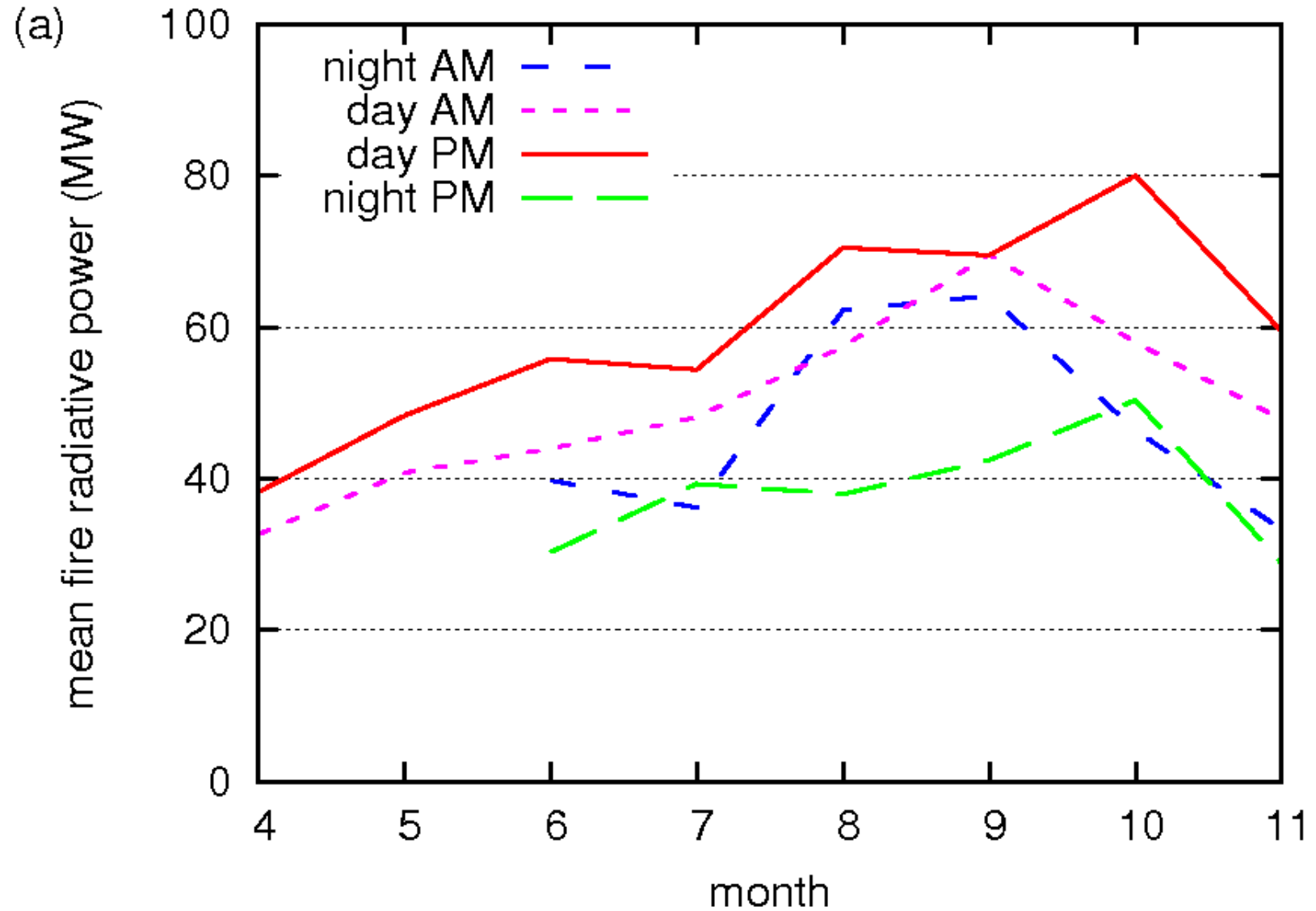
MODIS algorithm for sub-pixel patchiness (Maier in prep.)



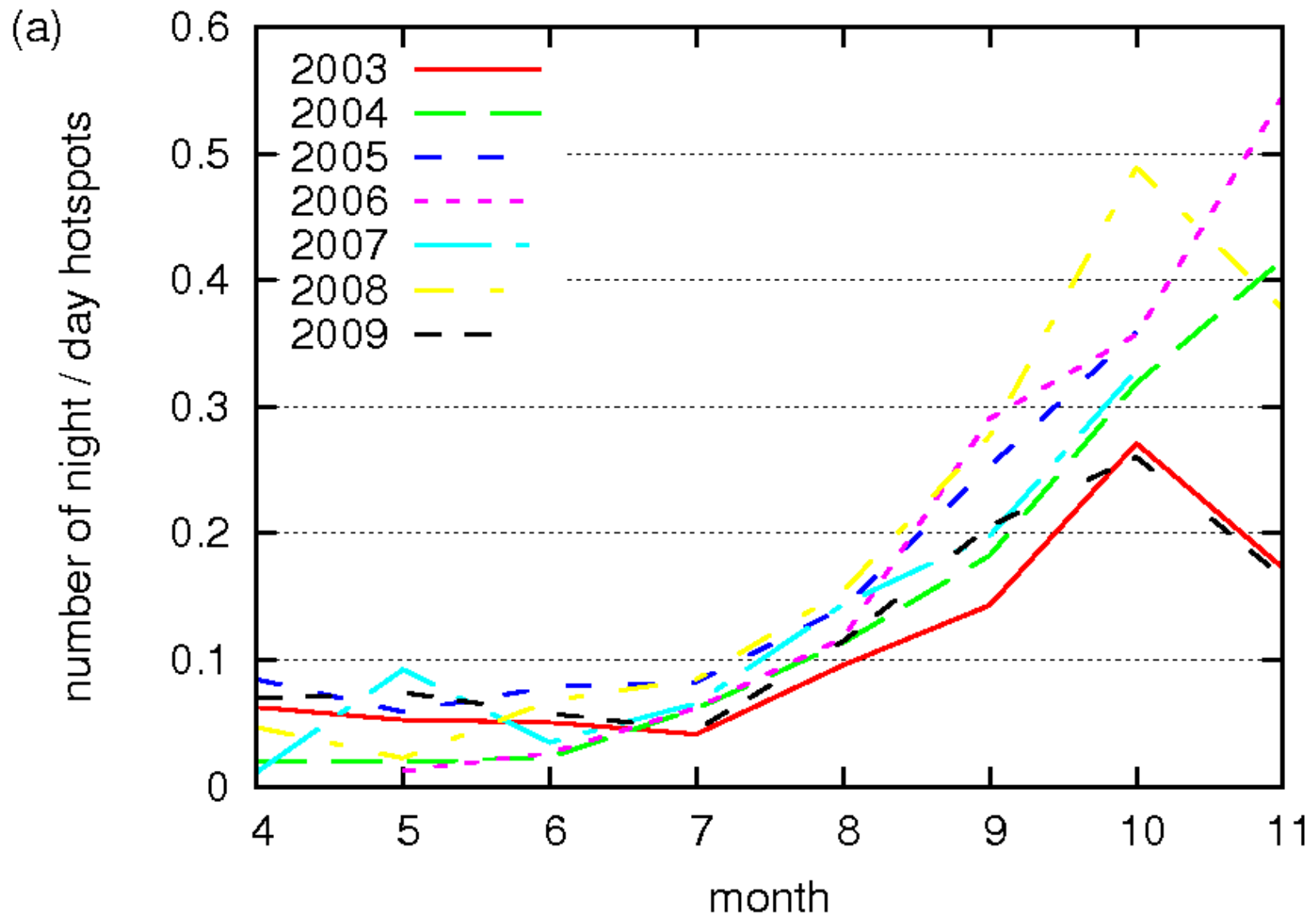
When Do Fires Get Big?



When Do Fires Get Big?



When Do Fires Get Big?



Savanna Woodland Supersite

Litchfield National Park - 1.5h drive south of Darwin

5km x 5km homogeneous savanna woodland

Fire return interval 1-2 years

Current activities:

- **Leaf litter traps (monthly)**
- **Fuel accumulation plots (every 3 months)**
- **Automatic canopy and understorey cameras (every 15min)**
- **Long term (>15 years) vegetation plots**

Planned activities:

- **Eddy covariance flux tower (June 2013)**
- **Continuously recording spectroradiometers above and below canopy (June 2013)**
- **Airborne hyperspectral and full-waveform LiDAR capture (May 2013)**
- **Vegetation surveys and Terrestrial Laser Scanner (May 2013)**



A photograph of a forest with a sunset in the background. The sun is low on the horizon, creating a warm glow and silhouetting the trees. The forest floor is covered with dry leaves and small plants. The trees have dark trunks and green foliage.

Thanks!

Stefan W Maier
Charles Darwin University
stefan.maier@cdu.edu.au