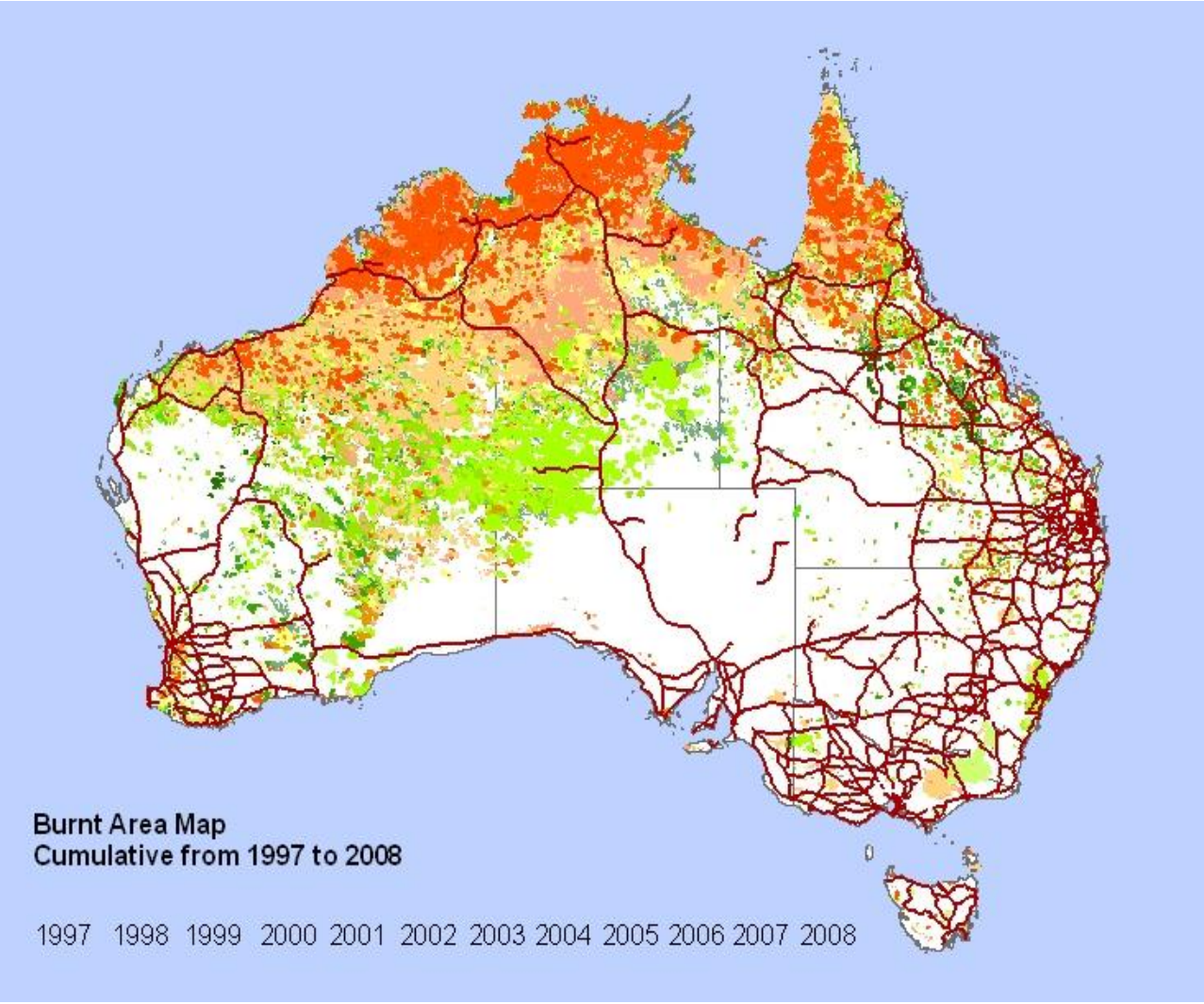
THE FAR NORTH – A VIEW FROM SPACE *with a remote sensing short course*

On 6 October 2010, the Kimberley Society's presentation was more technical than usual with Dr Matt Adams from Landgate's Satellite Remote Sensing Services (SRSS) providing an interesting evening on the applications of satellite imagery in the Kimberley region. Remote sensing makes it possible to collect data on large-scale and inaccessible areas. Dr Adams' presentation informed the audience that SRSS, located at Floreat (a suburb of Perth), is a unit of Landgate, the Western Australian Land Information Authority. SRSS has teams involved in environment, agriculture, research & development, emergency management, satellite processing systems and online delivery.

Dr Adams concentrated on the applications employed in the Kimberley region. These include emergency management (fire and flood), agriculture / pastoral management and Landmonitor.



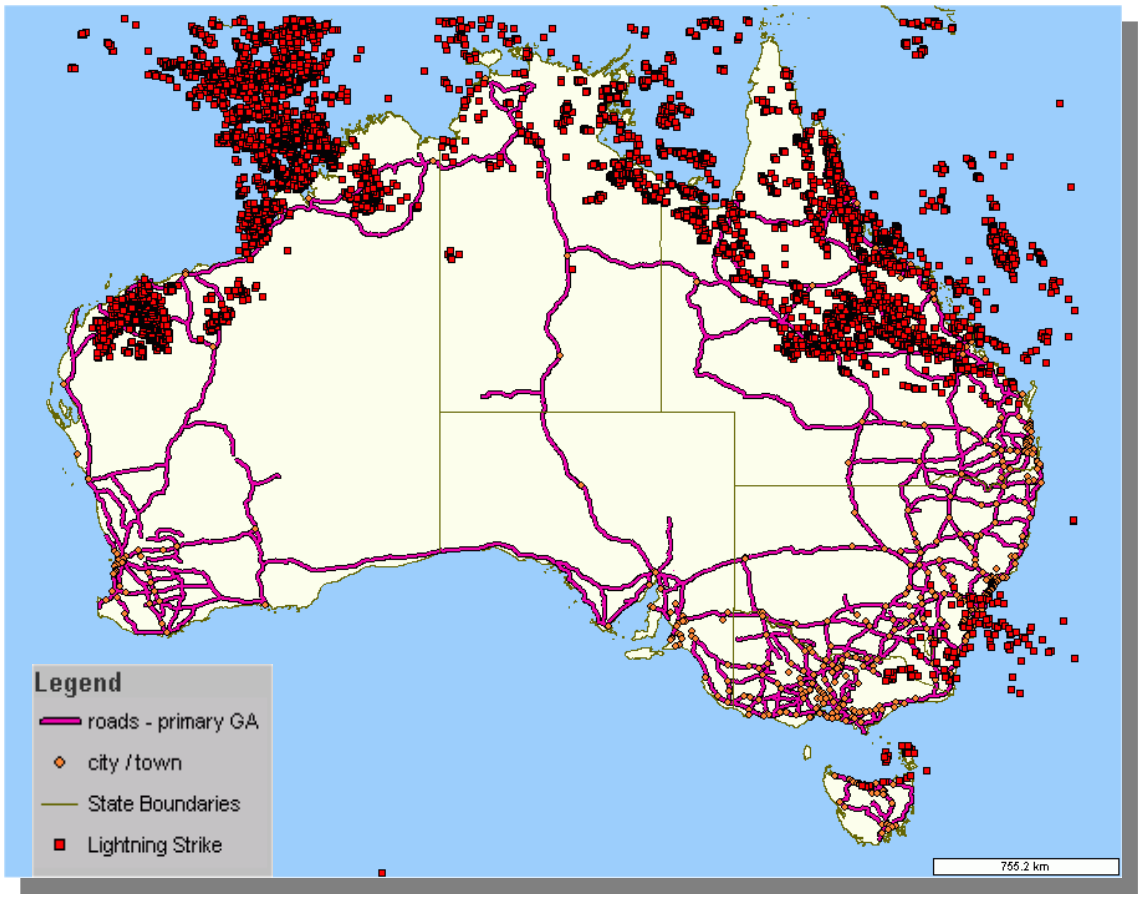
Manual mapping of fire burnt area from NOAA and automated mapping from MODIS (*www.landgate.wa.gov.au*)

Commencing with some fundamentals of Remote Sensing, he explained the definitions of spatial, temporal and spectral:

- Spatial pertains to the size of a pixel that is recorded in an image – typically pixels may correspond to square areas with sides ranging in length from 0.4 to 1,000 metres.
- Temporal, being the measurement of time, is the frequency of flyovers by the satellite over a given location. These range from 0.5 hours to bimonthly.
- Spectral is the intensity of light (wavelength width) at different frequency bands.

The services provided by SRSS are dependent on appropriate processing and analysing of remote sensing data with computer software. The basis for multispectral data collection and analysis is that of examining areas or objects that reflect or emit radiation and stand out from their surroundings.

Dr Adams explained that SRSS applies thermal detection to detect fire hot spots and scars that assist organisations to track, manage and control fires Australia wide. Landgate provides online services to view current and archived fires that are overlaid with other land information such as cadastral or topographic data. Access is via FireWatch map service.



Lightning strike information updated every 10 minutes aids fire managers (*www.landgate.wa.gov.au*)

Another SRSS service is Floodmap, which is funded by the Natural Disaster Mitigation Programme (NDMP). This applies remote sensing technology in an emergency risk management approach to flooding in remote areas. It seeks to mitigate the impact of floods on communities by integrating meteorological, hydrological and geospatial information with remote sensing data to provide timely flood intelligence and forecasting capabilities.

SRSS also provides the capacity to measure pasture growth rates and compare week to week, year to year, pasture growth rates using the web-based Pastures from Space service. This valuable resource for land managers allows them to monitor pasture growth rates, land degradation, soil quality, salinity, and crop yields.

Dr Adams concluded his presentation with a demonstration of how Remote Sensing was supporting the Kununurra Ord River Irrigation project by providing high resolution imagery for essential measurements of crop growth, indicators for water, and weed and insect problems.

Jeff Murray

