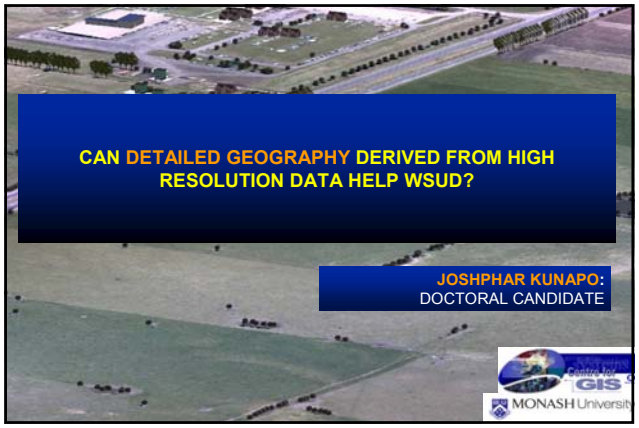
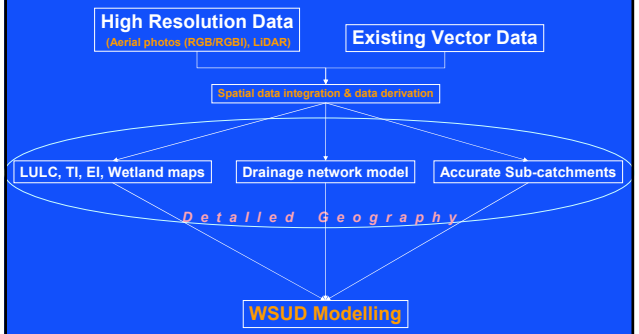


LAND USE/LAND COVER (LULC), TI, EI MAPPING

- Extract from:

Kunapo, J., Walsh, C. J., Campbell, H. and Wesley, K. 2007 accepted. A GIS approach for high resolution Effective Imperviousness (EI) mapping. *ESRI International User Conference*, San Diego, California, June 18-22

DATA & INFORMATION FLOW PATH

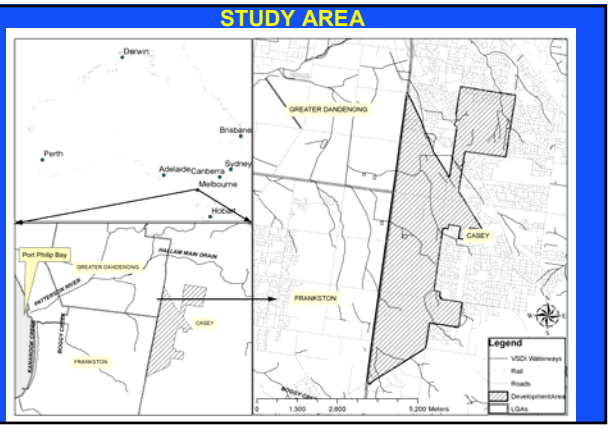


IMPERVIOUS SURFACE MAPING

Comparative statistics of impervious/pervious surface mapping using OSD, EC, FA and PM.

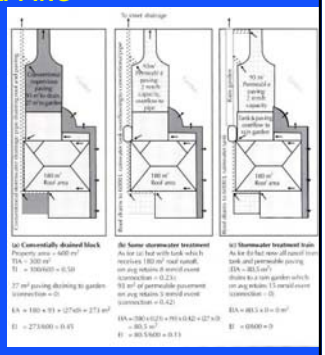
Detailed view of part of aerial photo (a) and its impervious/pervious surface patterns using (b) On Screen Digitisation, (c) Expert Classification and (d) Feature Analyst approaches respectively
(Extract from Kunapo et al., 2005)

STUDY AREA



EI MAPPING

- Impervious surfaces that are directly connected to streams by pipes or sealed drains are known as Effective Impervious (EI) surfaces.
- EI is a strong explanatory variable, not only for stormwater quality but also for a range of in-stream ecological indicators

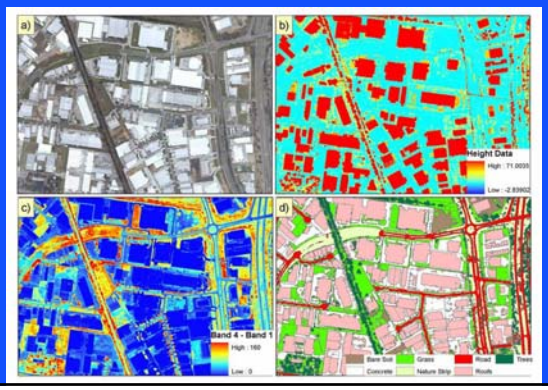


Source: Walsh, CJ et al. 2004

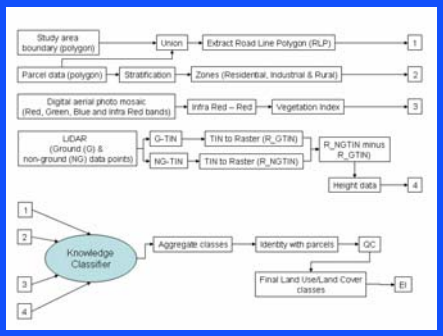
FOCUS

- HIGH RESOLUTION DATASETS
  - Use them optimally for better mapping results
- IMAGE CLASSIFICATION
  - Avoid cumbersome “defining training sites” process
- A ROUTINE IMPLEMENTATION
  - Identify a faster and safer approach for day-to-day mapping
- SPATION DATA INTEGRATION
  - Use other reliable datasets in the process
- EI
  - Estimate Parcel-wise and Street-wise EI
- LAND USE/LAND COVER MAPPING
  - Identify other land use/land cover classes for use in WSUD modelling

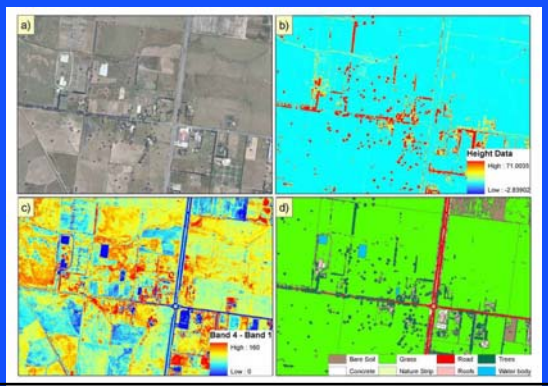
RESULTS – INDUSTRIAL AREAS



METHODOLOGY



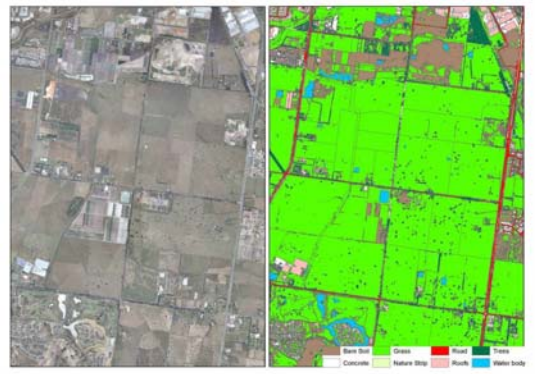
RESULTS – RURAL AREAS



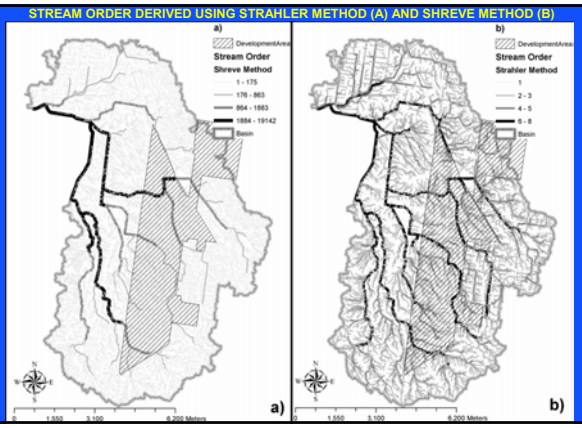
RESULTS – RESIDENTIAL AREAS

RESULTS…

RESULTS…



STREAM ORDER DERIVED USING STRAHLER METHOD (A) AND SHREVE METHOD (B)



DRAINAGE NETWORK MODELLING

- Extract from:

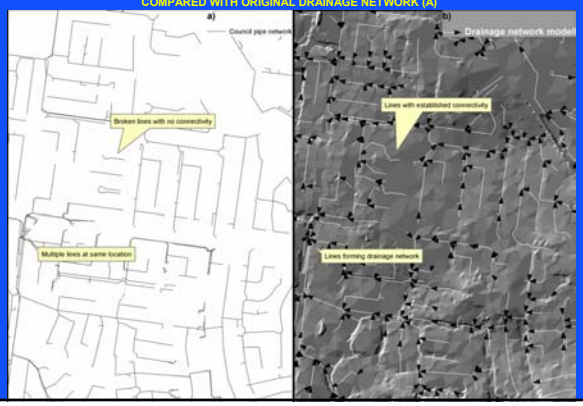
Kunapo, J., Chandra, S. and Peterson, J. 2007 in press. Drainage Network Modelling in aid of site selection for WSUD implementation on very subdued terrain: Land-parcel scale solutions using stream order assignment and a high resolution DEM. *Transactions in GIS*.

DELINEATION OF ACCURATE SUB-CATCHMENTS

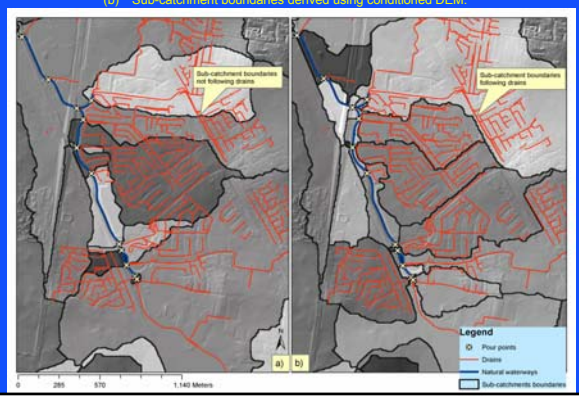
- Extract from:

Kunapo, J., Chandra, S. and Peterson, J. 2007 in press. Spatial data integration for accurate parcel level sub-catchment delineation for hydrological modelling. *SSC 2007 Spatial Intelligence, Innovation and Praxis: The national biennial Conference of the Spatial Sciences Institute*, Hobart, Australia, 14-18 May

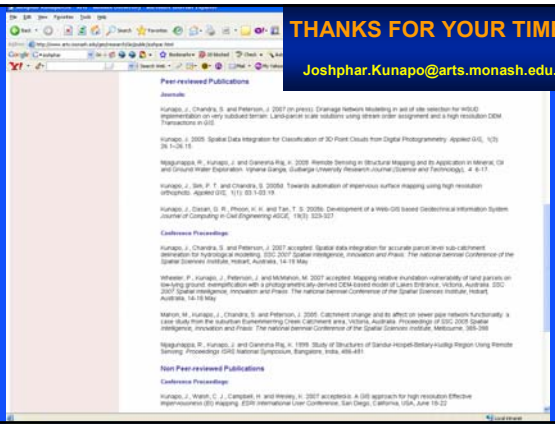
DRAINAGE NETWORK MODEL (B) DERIVED FROM HYDROLOGICALLY CONDITIONED DEM COMPARED WITH ORIGINAL DRAINAGE NETWORK (A)



(a) Sub-catchment boundaries derived using DEM.
(b) Sub-catchment boundaries derived using conditioned DEM.



CONNECTIVITY MODELLING FOR WSUD



THANKS FOR YOUR TIME…

Joshphar.Kunapo@arts.monash.edu.au

FUTURE …

- WSUD MODELLING
  - PARAMETERISATION OF MUSIC MODEL WITH SUB-CATCHMENT LEVEL DETAIL
  - DISCONNECTION MODELLING
  - RUN OFF MODELLING
  - MODELLING THE HYDROLOGICAL IMPLICATIONS OF A DEVELOPMENT PLAN IN A BASIN