

Knocked down? Come back swinging

[using remotely sensed data to locate groundwater dependence in fynbos]

Simcelile Chenge

Julian Smit, Adam West, Kaveer Singh

Geomatics Division (UCT)



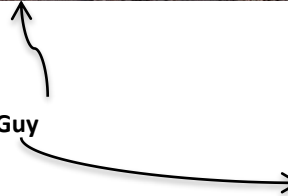
RS studying post-fire evolution



Adam West and Justin van Blerk



The Fynbos Guy



Groundwater Dependent Wetlands

- Concentrate high levels of biodiversity
- Vulnerable to groundwater abstraction
- Could lead to a point of no return

Kogelberg Nature Reserve



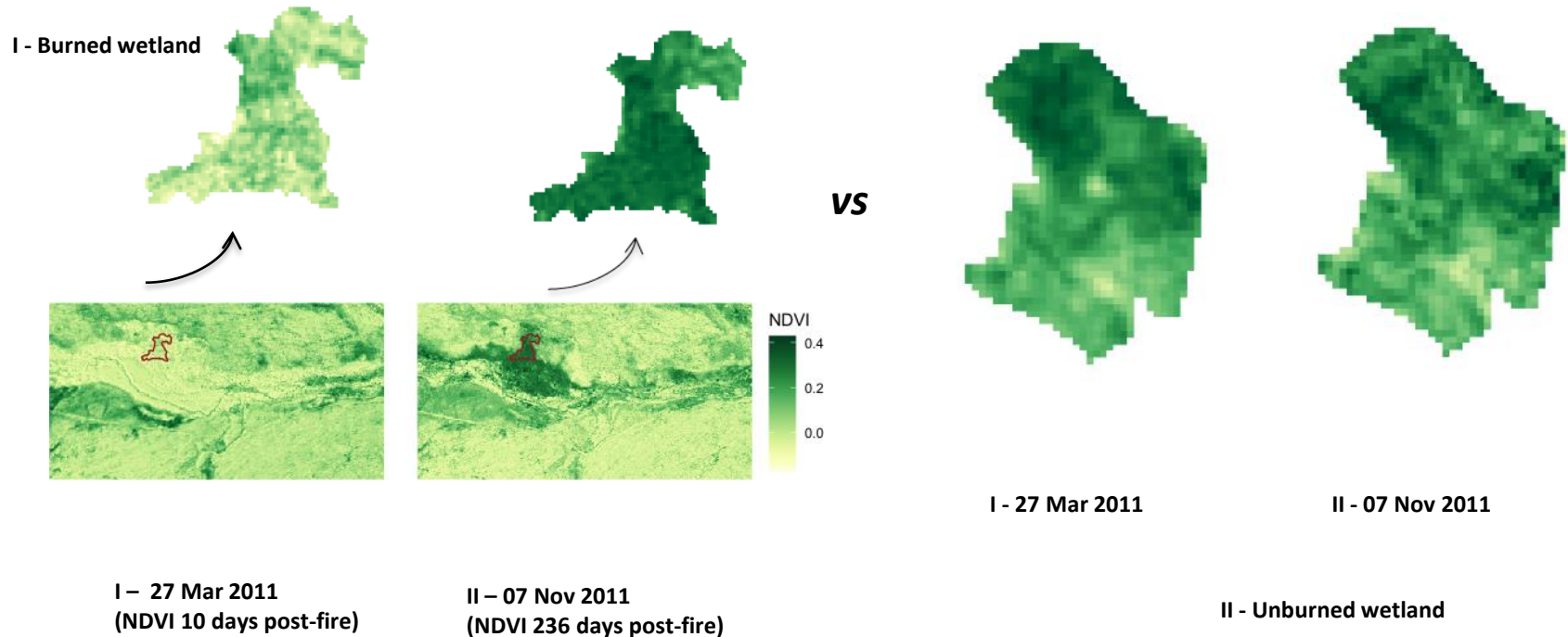
Study Region

sites

- site I
- site IIA
- site IIB

Question?

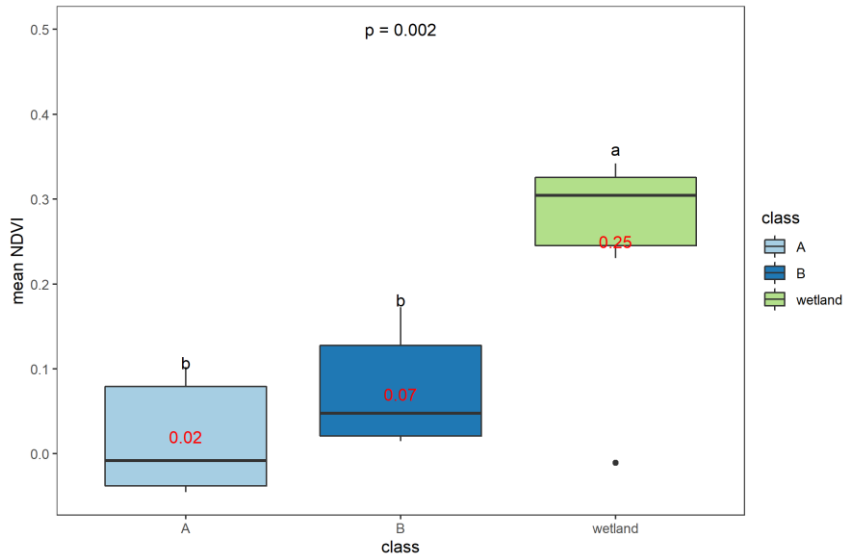
- Is post-fire NDVI sensitive to identifying quick recovering zones indicative of wetlands?



Post-fire NDVI analysis

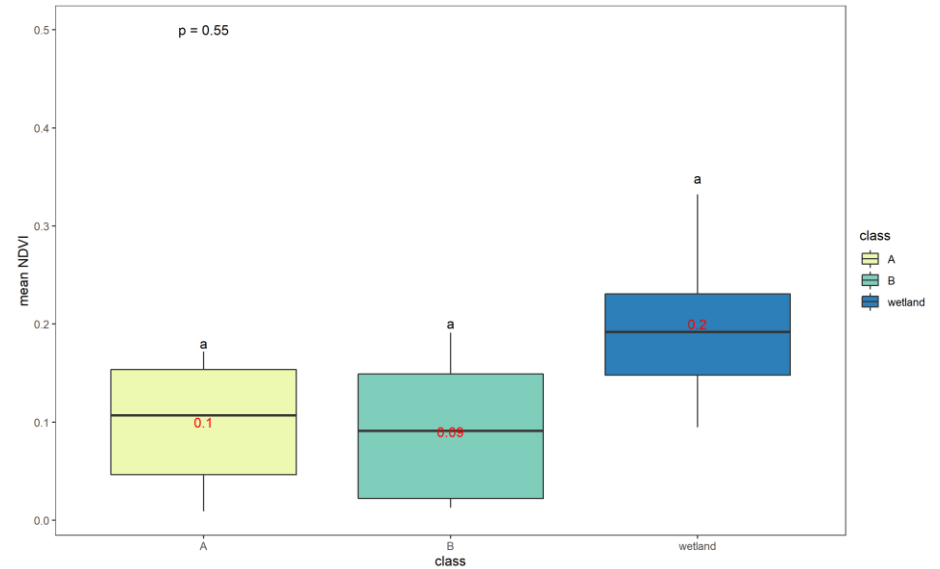
- Analysis of variance (ANOVA)
- In both burned and unburned site: non wetland controls
- Wetland vs non wetland

ANOVA results



I - burned

Mean NDVI > 0.37



II - unburned



Post-fire NDVI is sensitive to wetlands

- Discriminates wetlands from non wetlands
- Fires are key to knowing locations of GDEs
- When knocked down by fires, GDEs come back swinging

Predictive mapping

- Statistical Learning with Sentinel-2A data
- Spectral indices (NDVI and NDWI) + spectral bands
- Train a random forest model
- Key issue(s): fewer known wetlands to train model
- Leading to smaller AOA

THANKS!

