Tshwane University of Technology
We empower people

Forest 21

Why focus on Forestry?

160,000 Jobs

R25 Billion in Exports

1% of SA GDP

Aalto University

HAMK HÄMEEN AMMATTIKORKEAKOULU HÄME UNIVERSITY OF APPLIED SCIENCES

INN Inland Norway University of Applied Sciences

NELSON MANDELA UNIVERSITY

UNIVERSITEIT STELLENBOSCH UNIVERSITY

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University of Venda

FORESTRY SOUTH AFRICA™

The Forest21 Intervention

- FOREST21 is a collaborative project between South Africa, Finland and Norway titled “the 21st Century Climate-Smart Forestry Education for Livelihoods and Sustainability in South Africa”.
- The FOREST21 initiative is a capacity-building project in the area of higher education, involving the five South African higher education institutes offering forestry qualifications (Fort Cox, NMU, TUT, SU, UNIVEN) as well as two universities in Finland (HAMK, & Aalto) and one in Norway (INN).
- The FOREST21 initiative has three core pillars:
  - climate-smart forestry,
  - forestry entrepreneurship,
  - and student-centred teaching methods.

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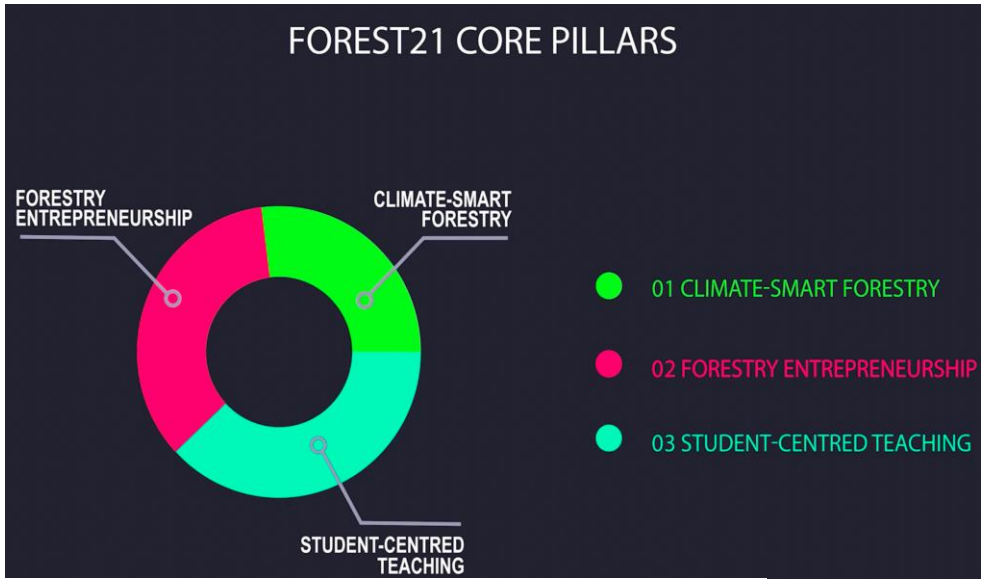
Forest 21
Climate-Smart Forestry Entrepreneurs

- Mainstream climate-smart forestry and entrepreneurship into higher education
- Promote collaboration between partnering HEIs
- Instill cooperation between Academia, Industry, Govts and Society

How?

- Workshops, symposiums, seminars, meetings, etc.
- Field work & trips
- Student challenges
- Problem-based learning



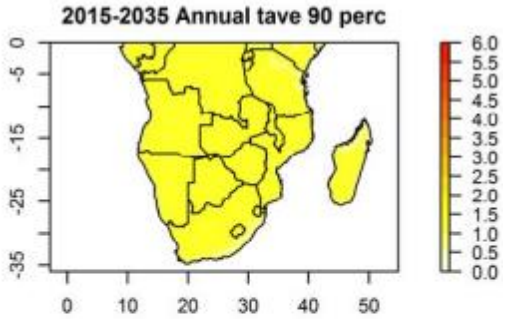
Aalto University · HAMK Häme University of Applied Sciences · INN Inland Norway University of Applied Sciences · Nelson Mandela University · Universiteit Stellenbosch University · Tshwane University of Technology · University of Venda · Forestry South Africa

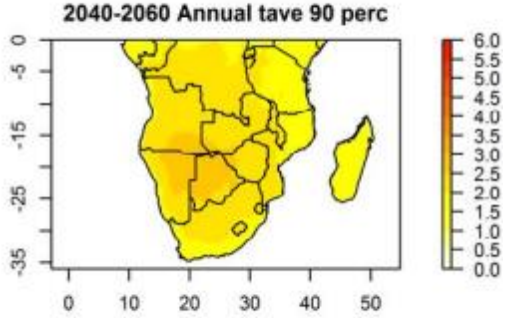
Forestry and climate change

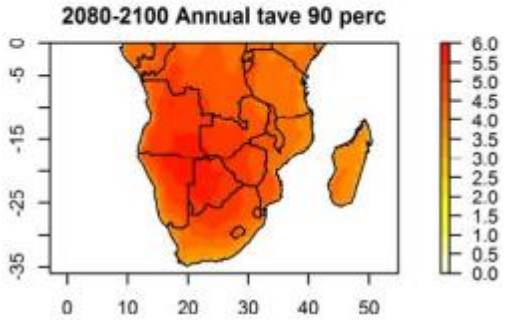
- Forestry in South Africa
- Climate change and its impacts on forestry
- Adaptation and mitigation

Climate change forecasts for South Africa

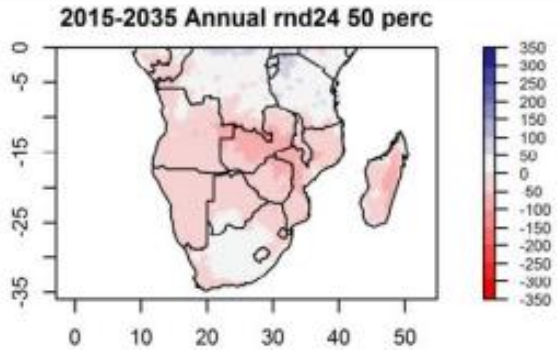
Temperature

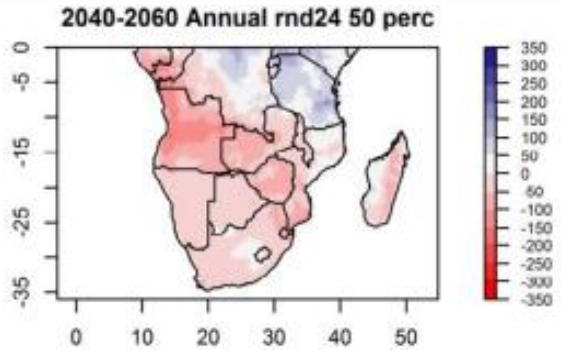


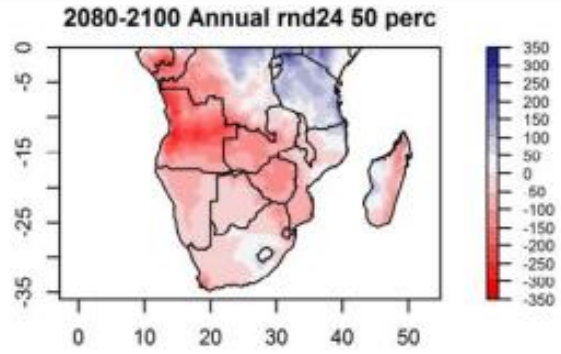




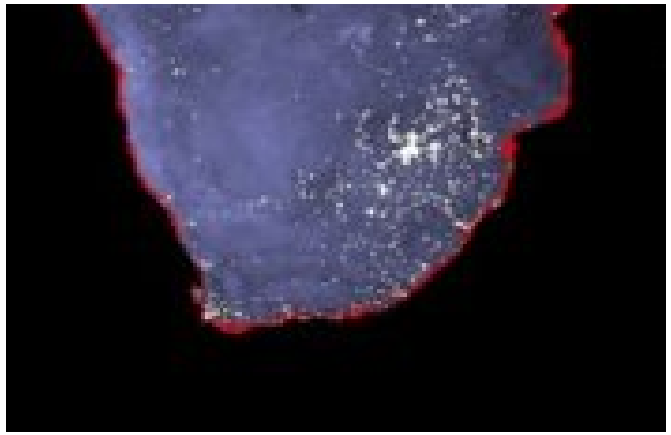
Precipitation







Sea level



Hotter, Dryer and Constrained

Climate change impacts on Forestry

Higher Sea Level

- Reduced planting area
- Increased flood risk

Lower Precipitation

- Increased stress
- Lower productivity
- Increased pest and disease incidence
- Increased fire risk

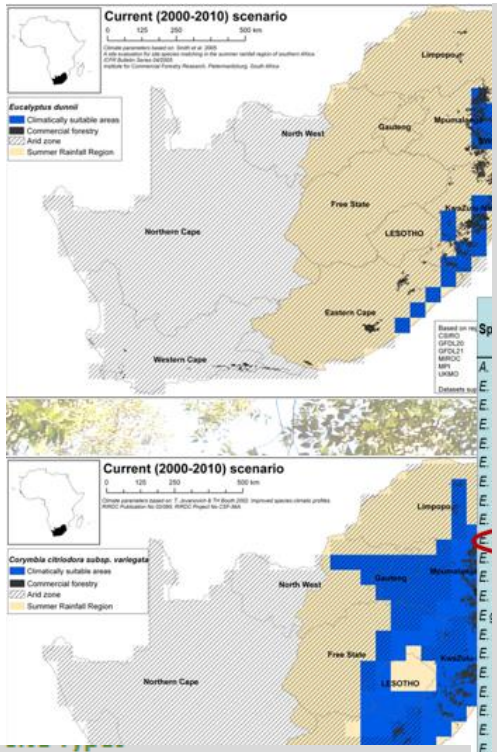
Higher Temperature

- Increased stress
- Increased water requirements
- Increased disease risk
- Increase in pests
- Increased fire risk

Declining Yields

Adaptation

Site-species matching



CT	Cool Temperate
WT	Warm Temperate
ST	Sub Tropical

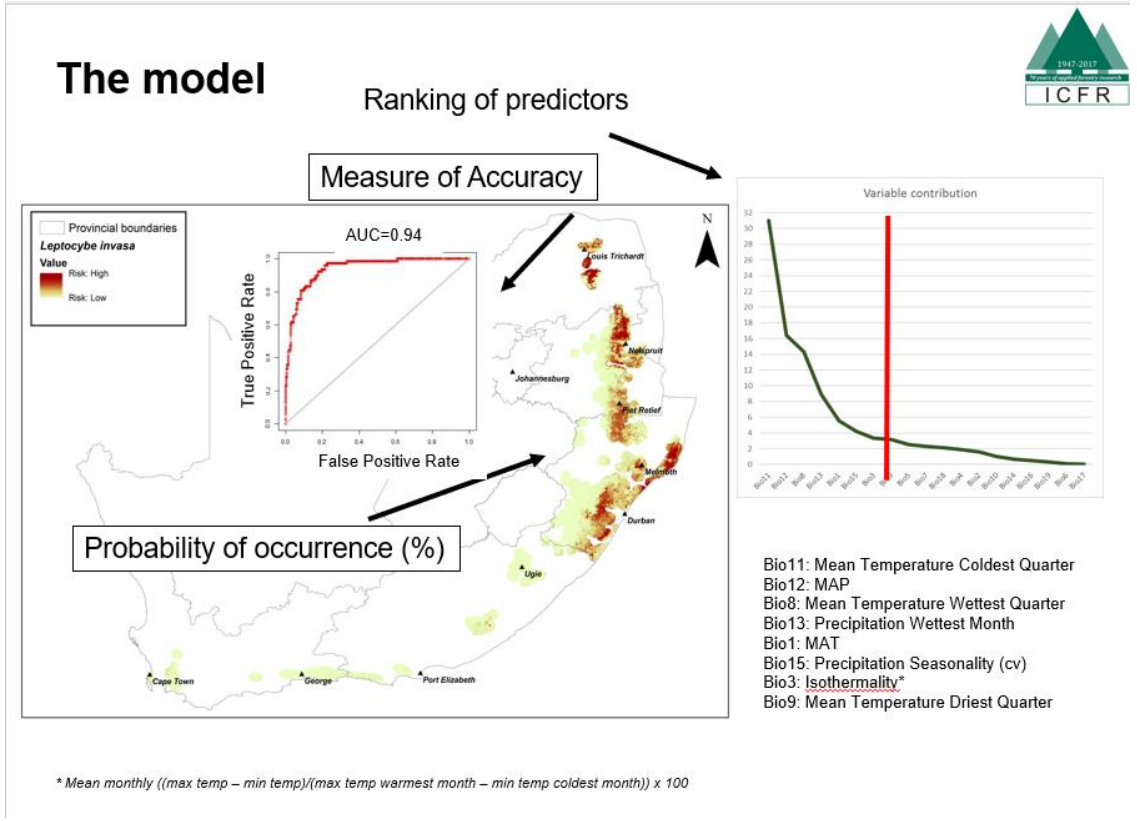
Species	Site Type
C. torelliana	WT ST
E. benthamii	CT WT
E. camaldulensis	WT ST
E. nitens	CT
E. saligna	WT
C. henryi	WT ST
E. badjensis	CT WT
E. dunnii	CT WT
E. grandis	WT ST
E. macarthurii	CT WT
E. smithii	CT WT
E. urophylla	WT ST
C. citriodora	WT ST
C. maculata	WT ST
E. bicostata	CT WT
E. biturbinata	WT
E. brassiana	ST
E. cypellocarpa	CT
E. dorrigoensis	CT WT
E. elata	CT
E. fastigata	CT
E. globulus	WT
E. longirostrata	WT ST
E. nobilis	CT
E. pellita	ST
E. tereticornis	ST
E. viminalis	CT
E. fraxinoides	CT

Breeding and Conservation

Adaptation

Silviculture

Monitoring and Modelling



Mitigation

- Modal shifts: Road → Rail
- Soil management: Reducing erosion, mulching, soil amendment
- Renewable energy: Solar PV generation
- Electrification: Vehicles, machinery
- Plastic displacement

Research Plans Post Forest21

- Research Chair on Agro-Forestry and Climate Change, progressing to a Centre to focus on Post-graduate research studies
- Collaboration with DFFE
- Collaboration in forestry research via participation in bodies such as:
  - Forestry South Africa
  - Institute for Commercial Forestry Research
  - International Centre for Research in Agro-Forestry
  - National Forestry Research Forum and other bodies
- Coordination of TUT research focused on the climate change niche area