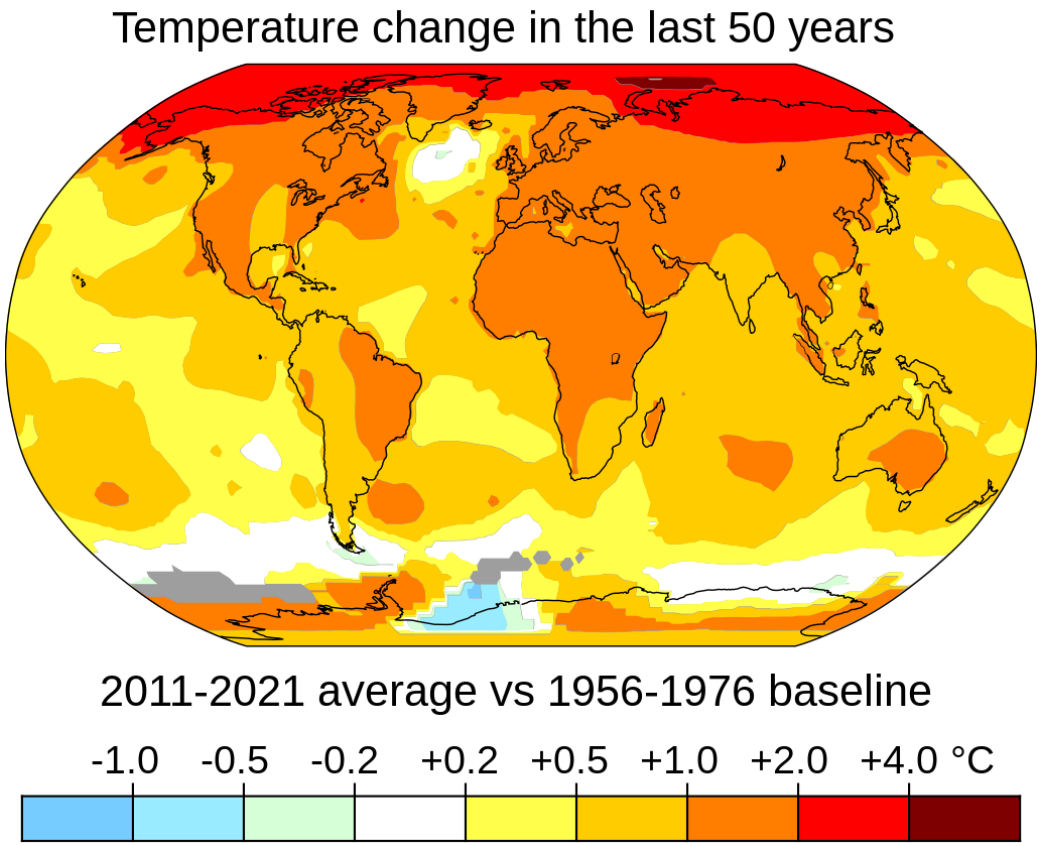
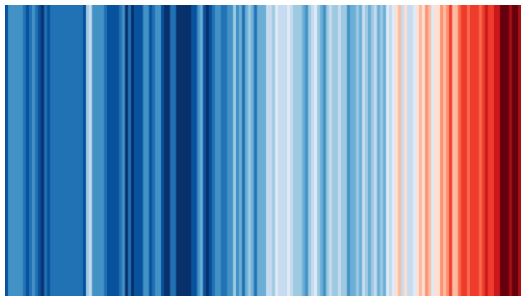

TERRACLIM
We secure the food, and economic security of Africa
in response to climate change by enabling climate smart mitigation & adaptation at farm and field level.

PROBLEM TERRACLIM AIMS TO SOLVE : CLIMATE CHANGE

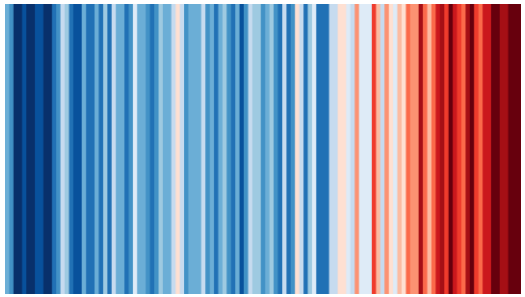
✓ Climate Change (Global-Local)



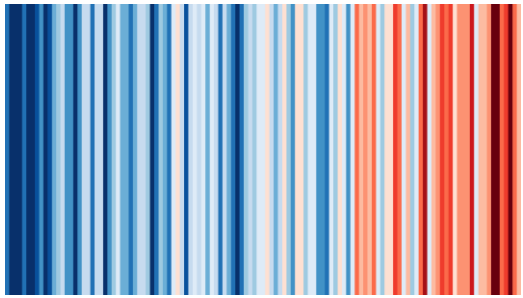
GLOBAL 1850-2021



AFRICA 1901-2021



SOUTH AFRICA 1901-2021



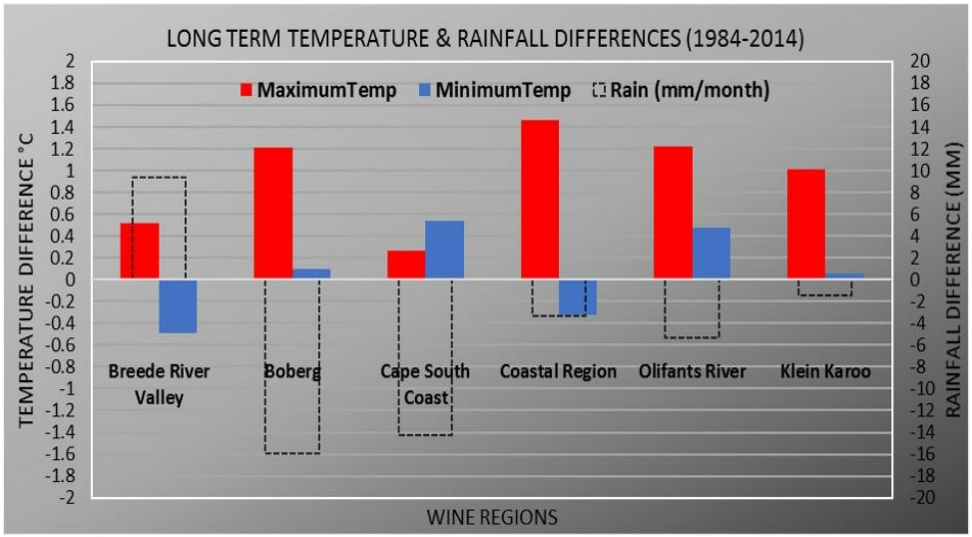
TERRACLIM

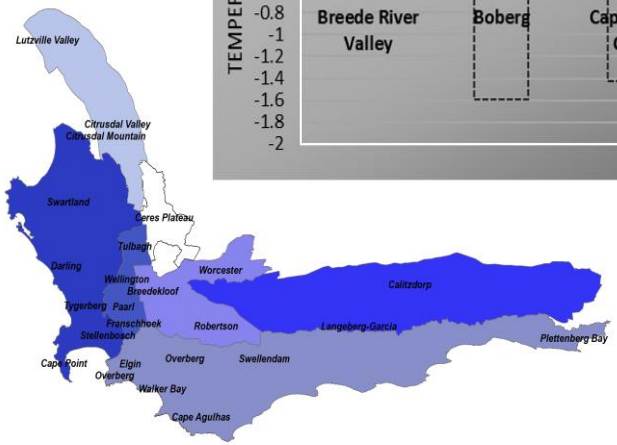
PROBLEM TERRACLIM AIMS TO SOLVE : CLIMATE CHANGE

- ✓ Climate Change (Global-Local) – REGIONAL (WESTERN CAPE)

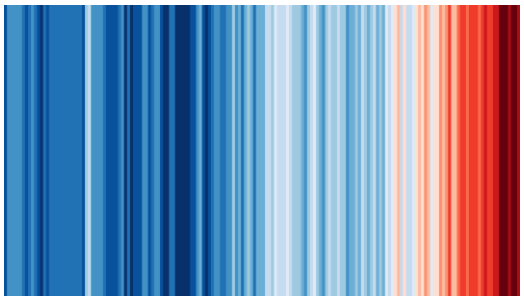
Increased warming : 1984-2015

--Warming 0.5-1.7ºC **Tx**: >1-2ºC | **Tn**: 0.6ºC

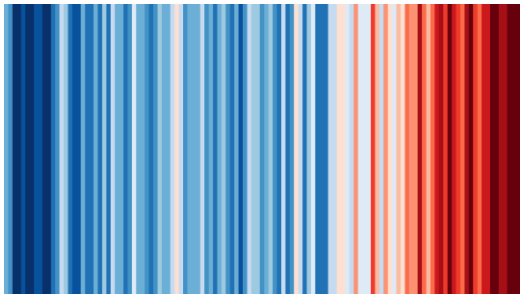




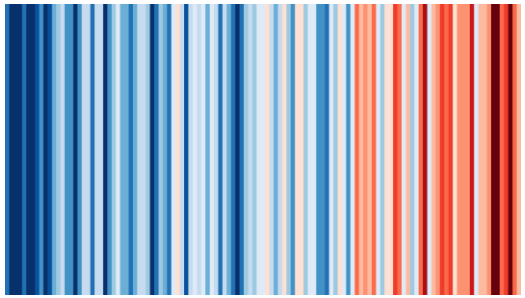
GLOBAL 1850-2021



AFRICA 1901-2021



SOUTH AFRICA 1901-2021



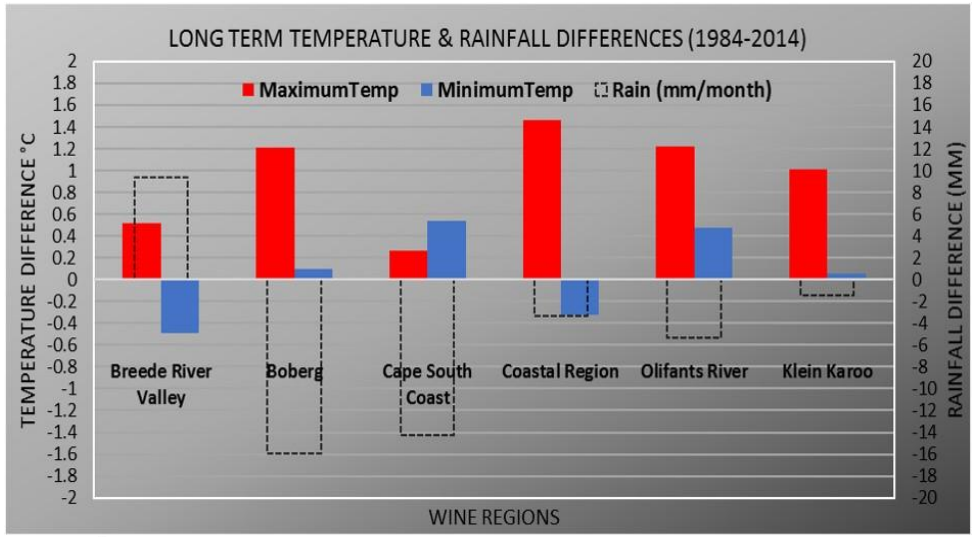
TERRACLIM

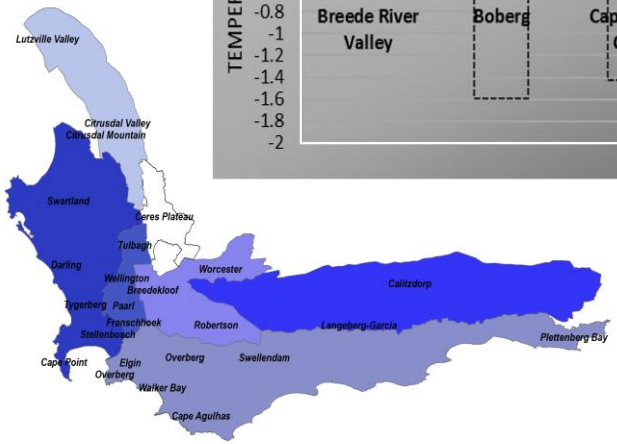
PROBLEM TERRACLIM AIMS TO SOLVE : CLIMATE CHANGE

✓ Climate Change (Global-Local) – REGIONAL (WESTERN CAPE)

Increased warming : 1984-2015

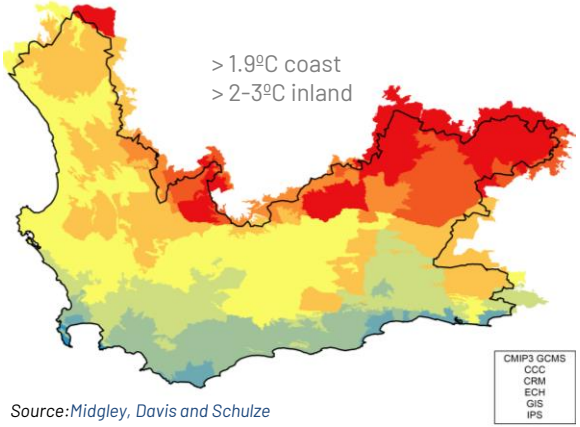
--Warming 0.5-1.7ºC **Tx**: >1-2ºC | **Tn**: 0.6ºC





Projected Temperature Changes

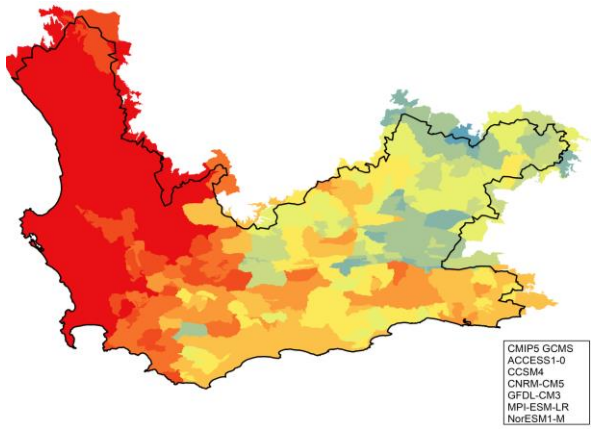
(2046-2065)



Source: Midgley, Davis and Schulze

Rainfall Changes

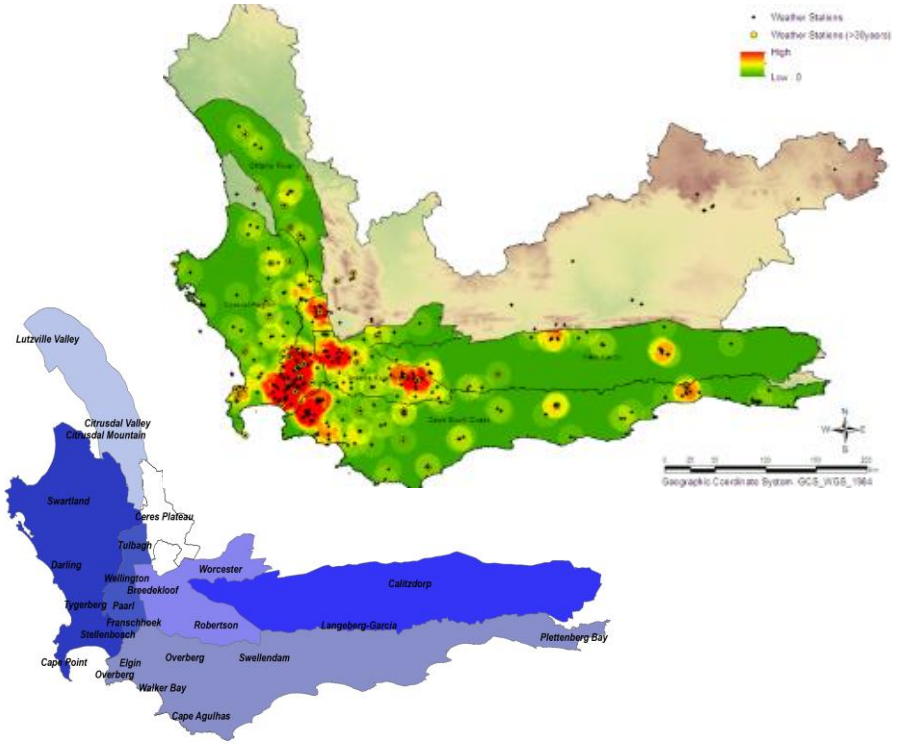
(2046-2065)

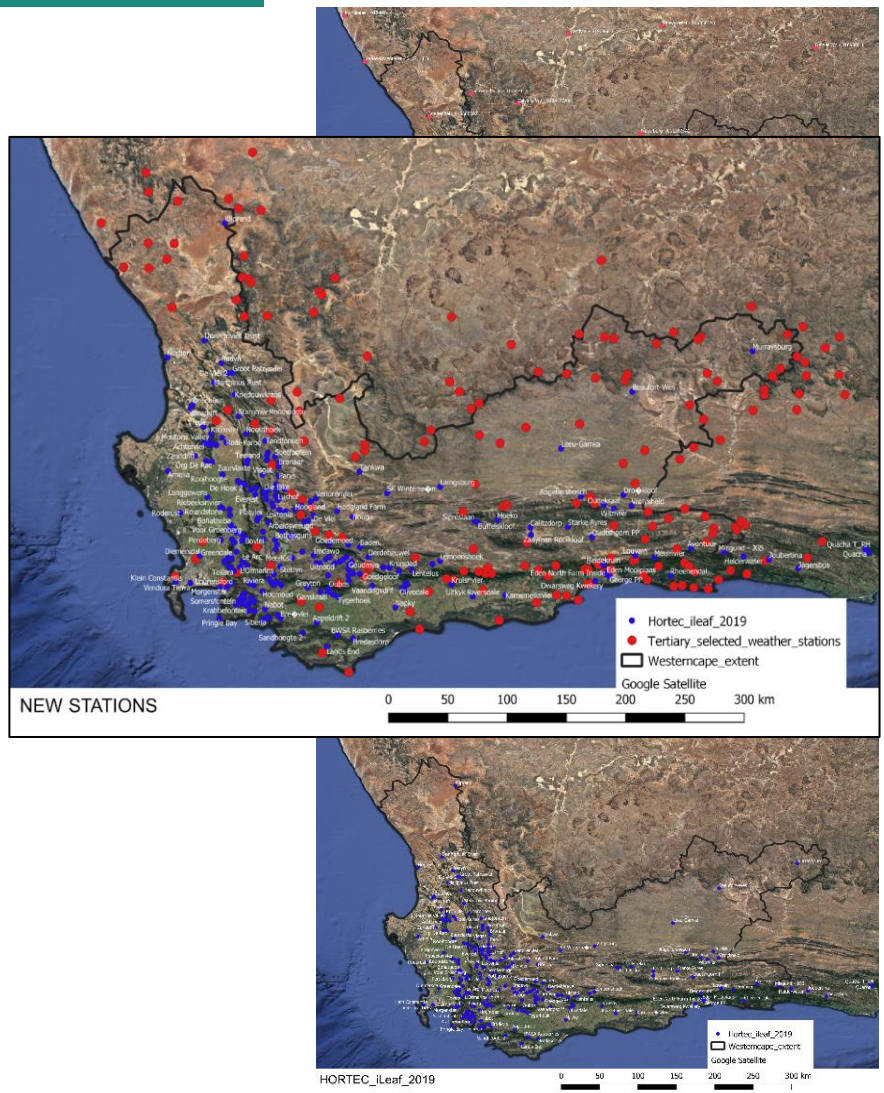


TERRACLIM

PROBLEM TERRACLIM AIMS TO SOLVE : CLIMATE CHANGE

- ✓ Climate Change (Global-Local) – REGIONAL (WESTERN CAPE)
- ✓ Weather station
  - Spatial distribution
  - Data accessibility/integrity

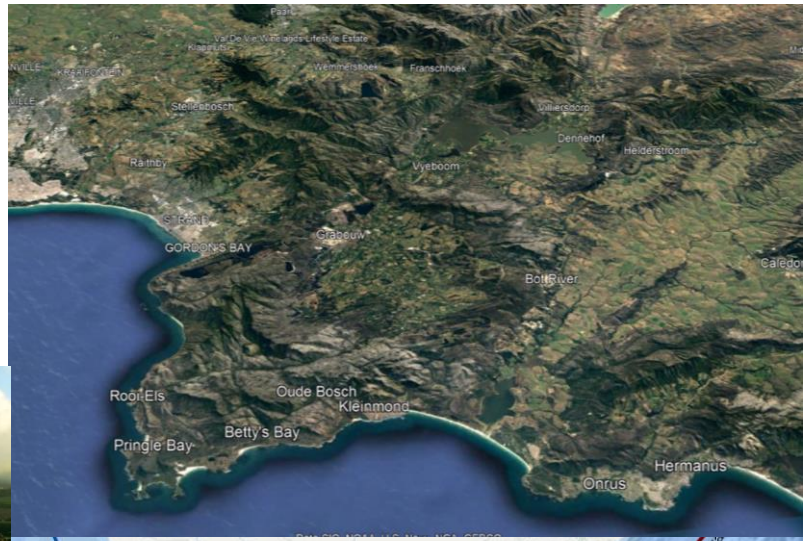


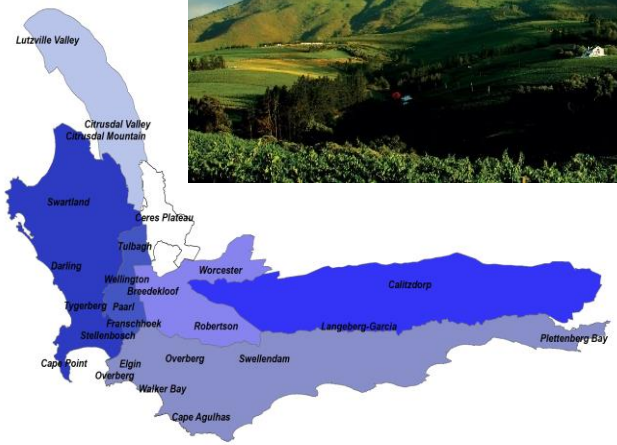


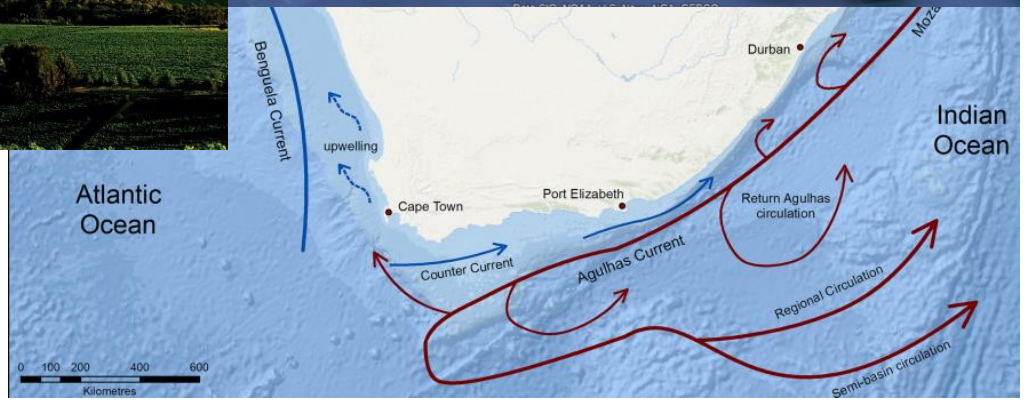
TERRACLIM

PROBLEM TERRACLIM AIMS TO SOLVE : CLIMATE CHANGE

- ✓ Climate Change (Global-Local) – REGIONAL (WESTERN CAPE)
- ✓ Weather station
  - Spatial distribution
  - Data accessibility/integrity
- ✓ Topography/soil/coast



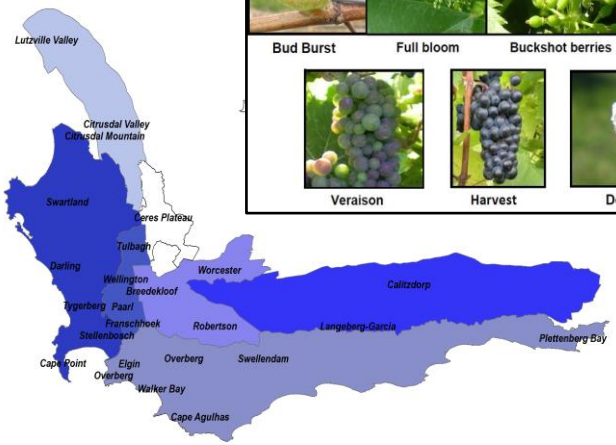




TERRACLIM

PROBLEM TERRACLIM AIMS TO SOLVE : CLIMATE CHANGE

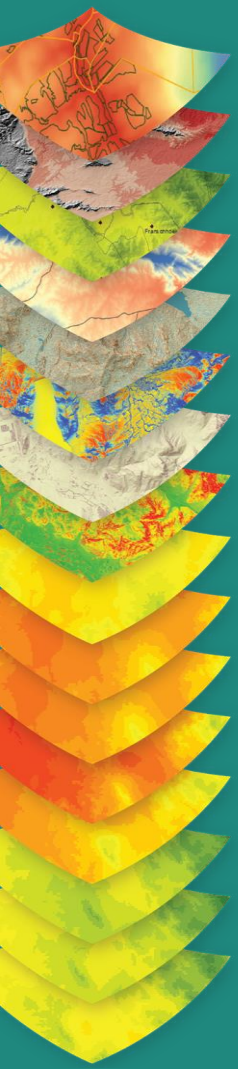
- ✓ Climate Change (Global-Local) – REGIONAL (WESTERN CAPE)
- ✓ Weather station
  - Spatial distribution
  - Data accessibility/integrity
- ✓ Topography/soil/coast
- ✓ Plant Pheno Phase analysis



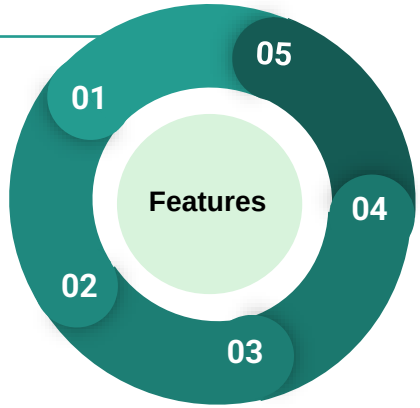
(**>hours 35-40°C**): earlier phenology in next season

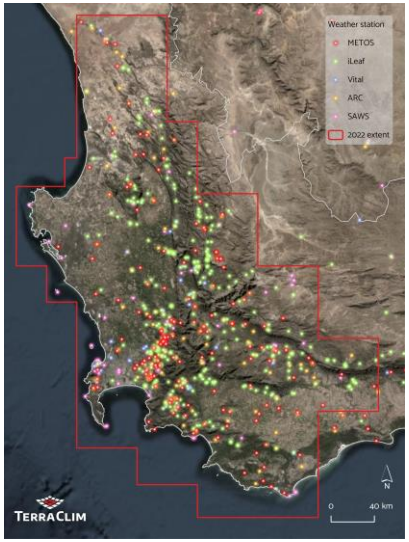
TERRACLIM

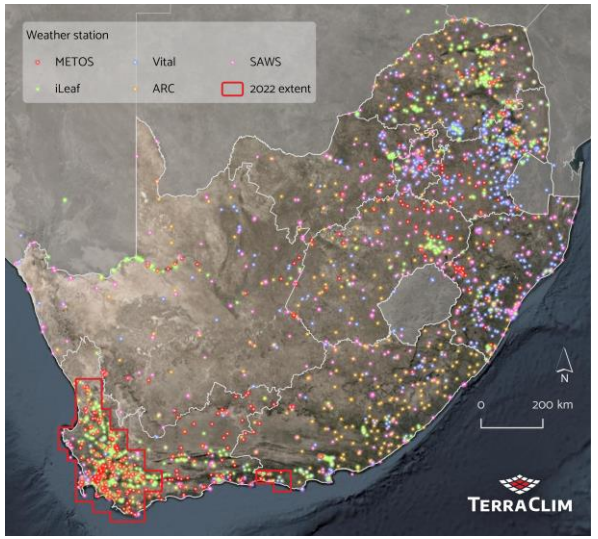
SOLUTION



Centralised 30 year climate database

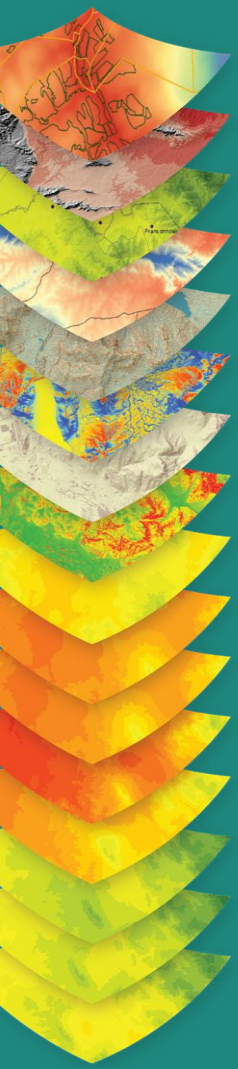






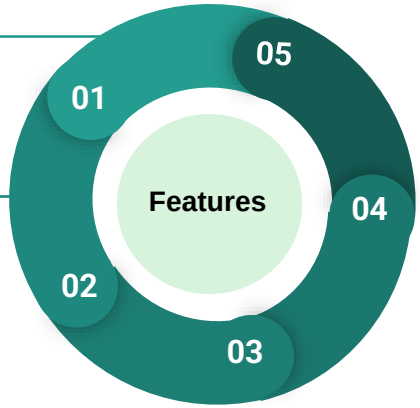
TERRACLIM

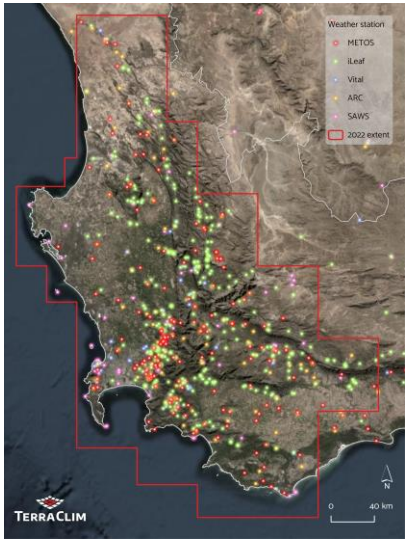
SOLUTION

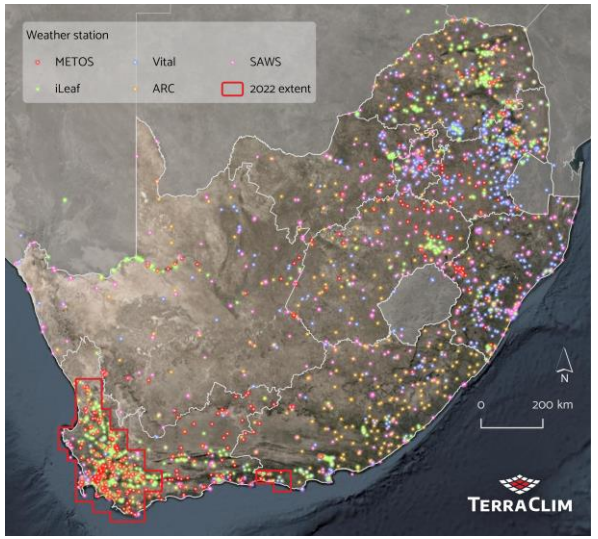


Centralised 30 year climate database

High resolution terrain layers (2mx2m)

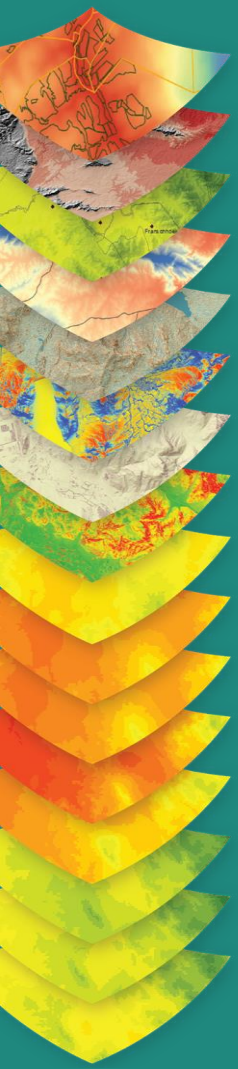






TERRACLIM

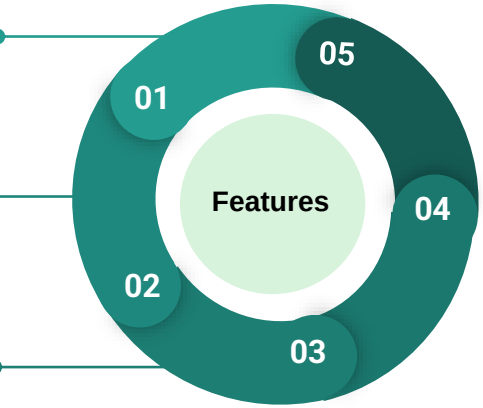
SOLUTION

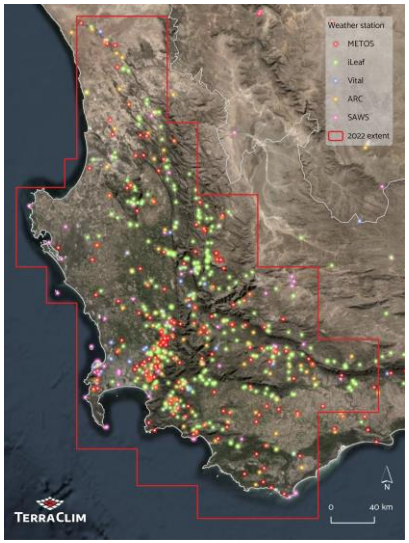


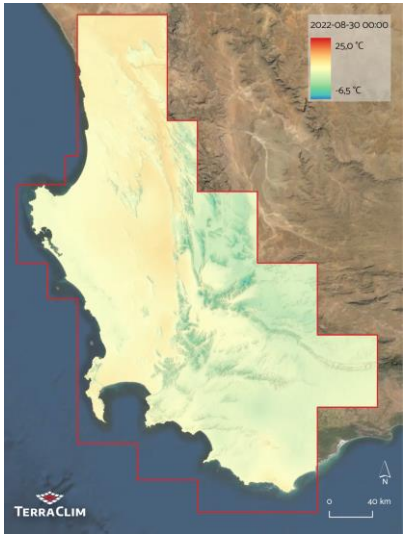
Centralised 30 year climate database

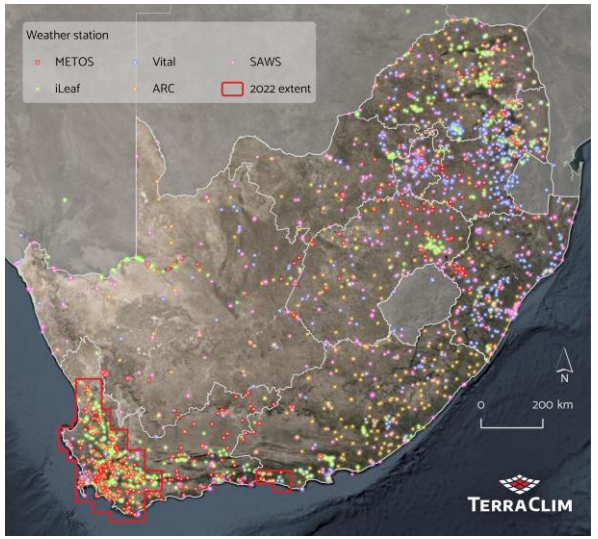
High resolution terrain layers (2mx2m)

High resolution temperature layers hourly/daily/monthly



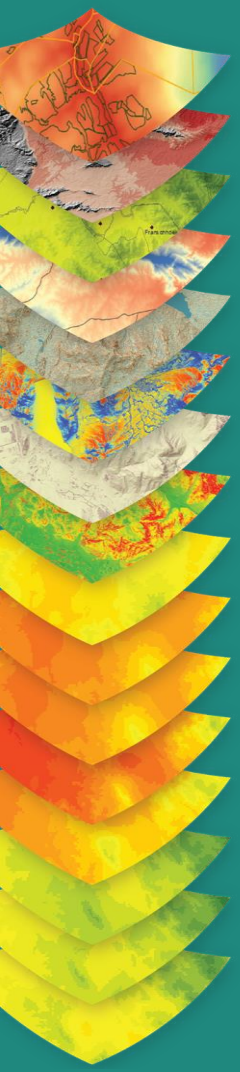






TERRACLIM

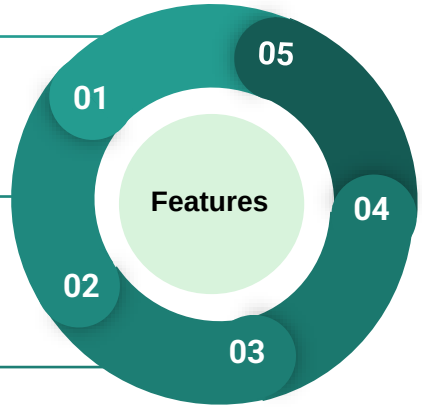
SOLUTION

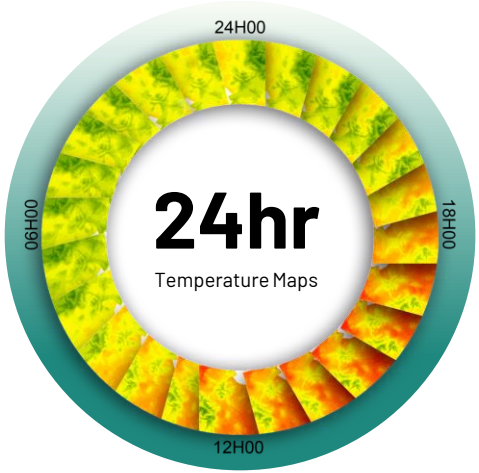


Centralised 30 year climate database

High resolution terrain layers (2mx2m)

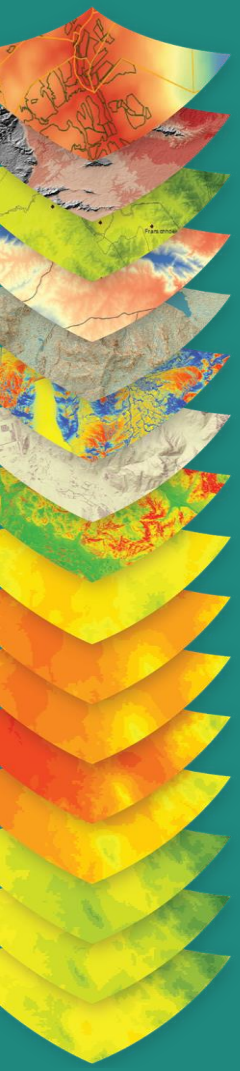
High resolution temperature layers hourly/daily/monthly





TERRACLIM

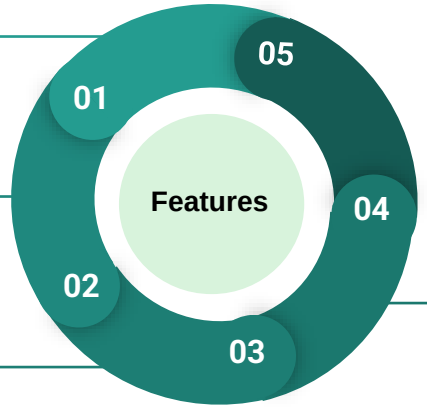
SOLUTION



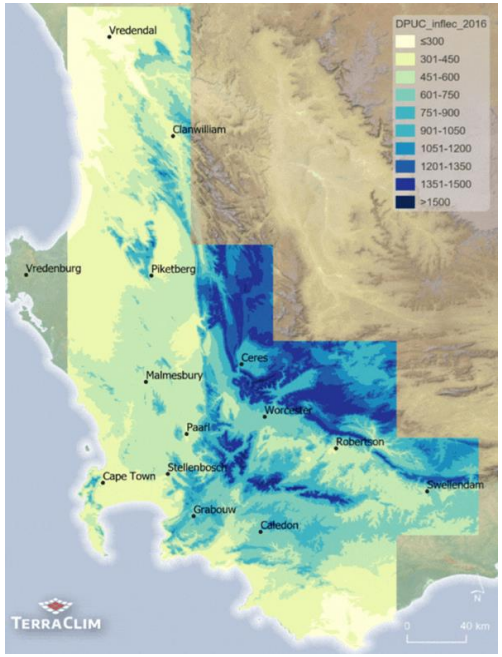
Centralised 30 year climate database

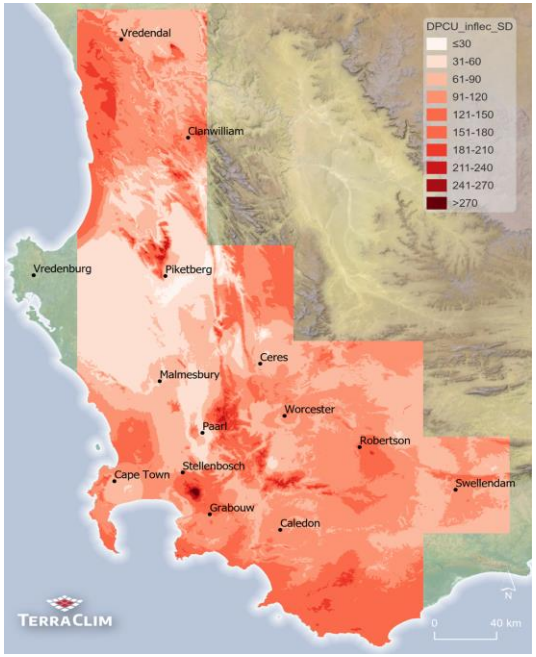
High resolution terrain layers (2mx2m)

High resolution temperature layers hourly/daily/monthly



✓Temperature threshold maps per crop type
✓Climatic index maps
✓Risk maps - frost//heat/chill

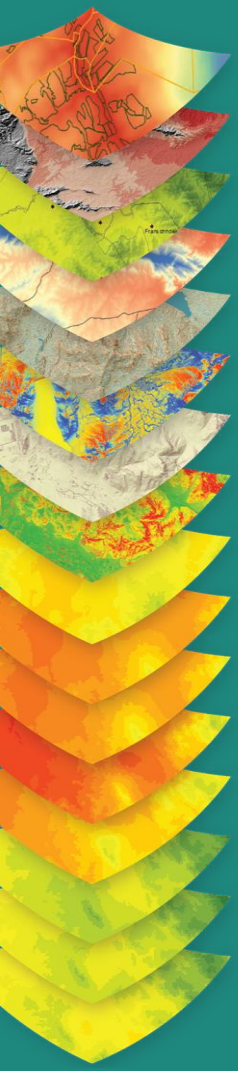




SEASONAL VARIABILITY
Chill Units

TERRACLIM

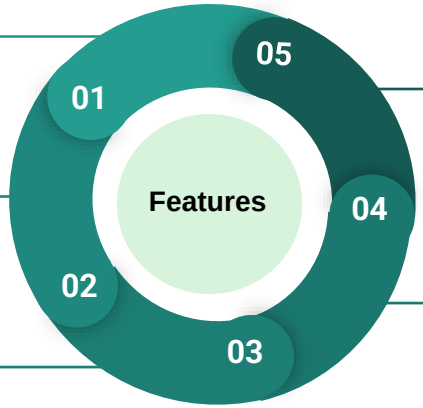
SOLUTION



Centralised 30 year climate database

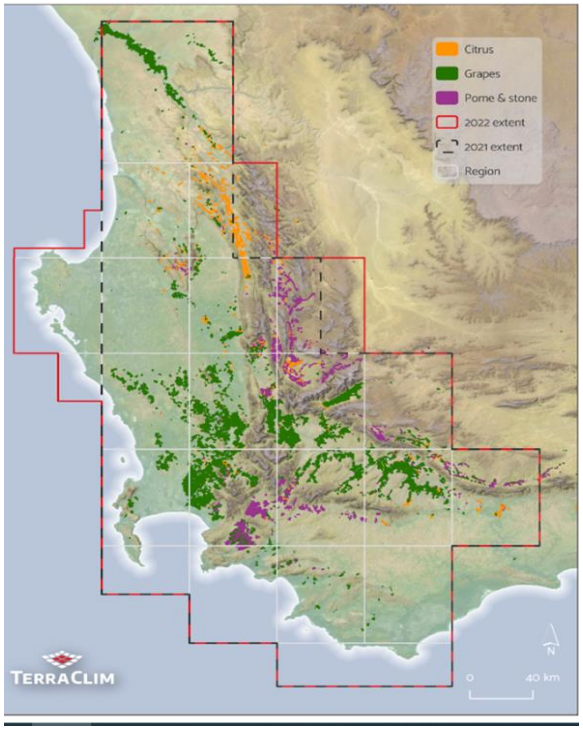
High resolution terrain layers (2mx2m)

High resolution temperature layers hourly/daily/monthly



✓Crop suitability tool - what to plant where
✓Detailed climate profiling

✓Temperature threshold maps per crop type
✓Climatic index maps
✓Risk maps - frost//heat/chill

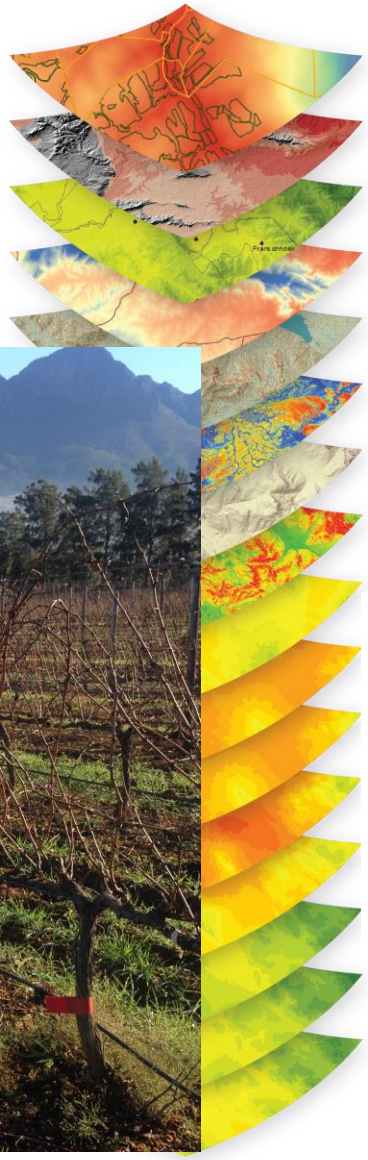


WINETECH
HORTGRO Growing Fruit IQ
Raisins South Africa
potatoes aartappels SA
GRAIN SA GRAAN SA
cri citrus research international

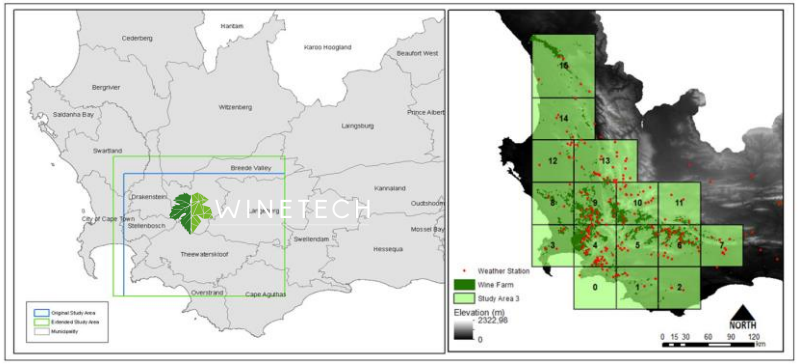
TERRACLIM

TERRACLIM : Wine Industry Flagship Project : 2018 | 2019 -2024

- building a comprehensive climate & terrain database, using new technologies to spatialise climate & terrain
- www.terraclim.co.za



TerraClim project : Improve the understanding of climate change in the complex terrain of the Western Cape and how specific agriculture crops responds to these changes.



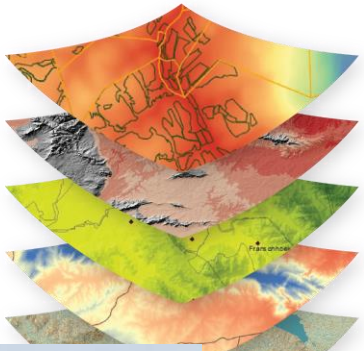
Addressing limited accessibility to climate/terrain information to the agriculture sector

TERRACLIM

TERRACLIM : Wine Industry Flagship Project : 2018 | 2019 -2024

- Climate profiling across
  - EGVV, KBV and LK
  - 5 seasons

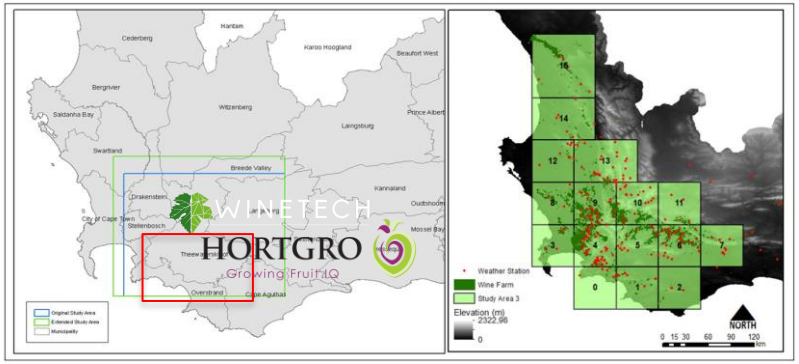
- www.terraclim.co.za



Addressing limited accessibility to climate/terrain information to the agriculture sector

Climate and Terrain Tool for the Elgin-Grabouw-Vyeboom-Villiersdorp production area specific to pome fruit

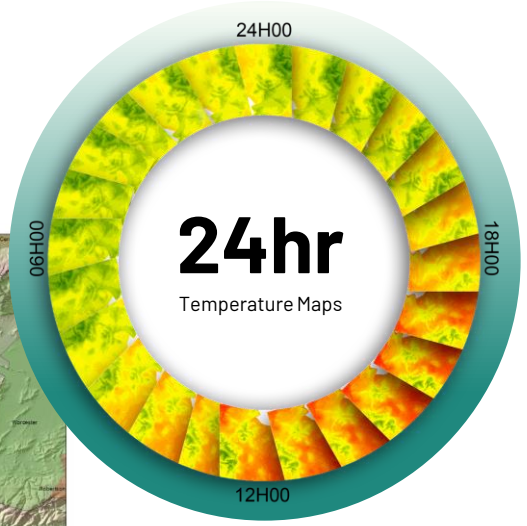
2022 – CLIMATE PROFILING ACROSS POME PRODUCTION AREAS

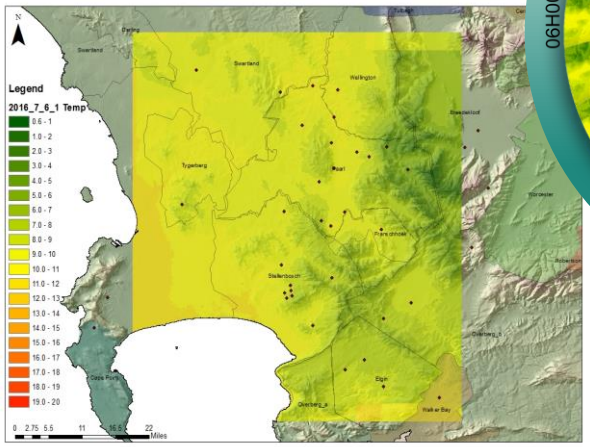


TERRACLIM

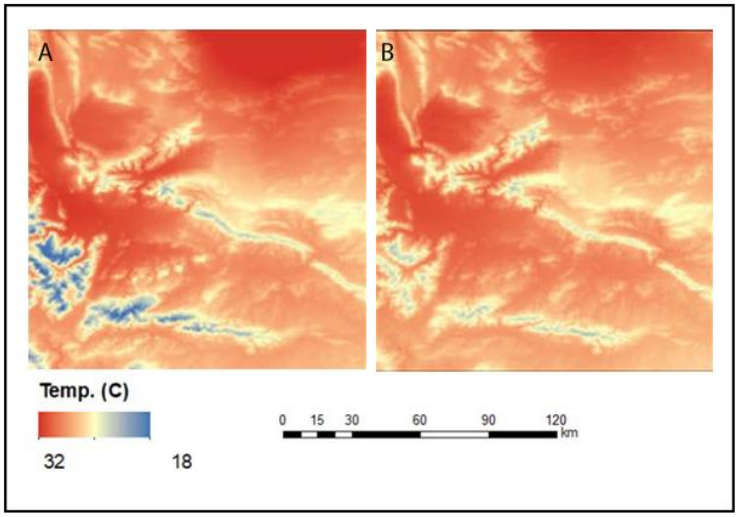
METHODOLOGY

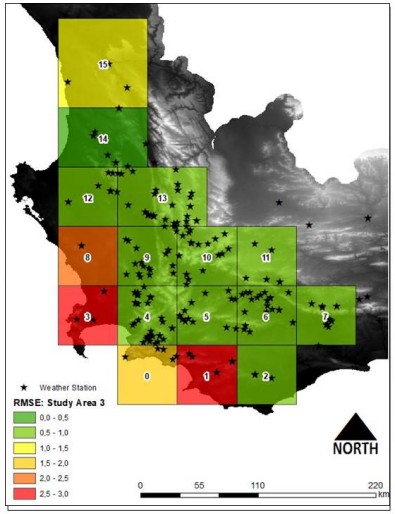
- *Automated workflows – ingesting multiple climate datasets into one standardised climate database*

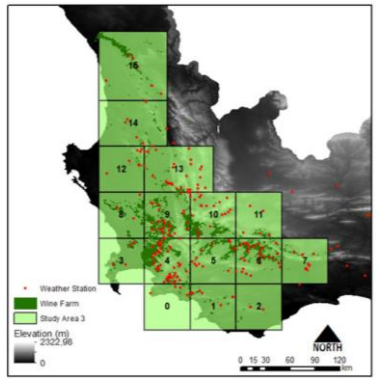




- *Interpolating hourly/daily/monthly wall-to-wall temperature surfaces*
- *Regionality approach*

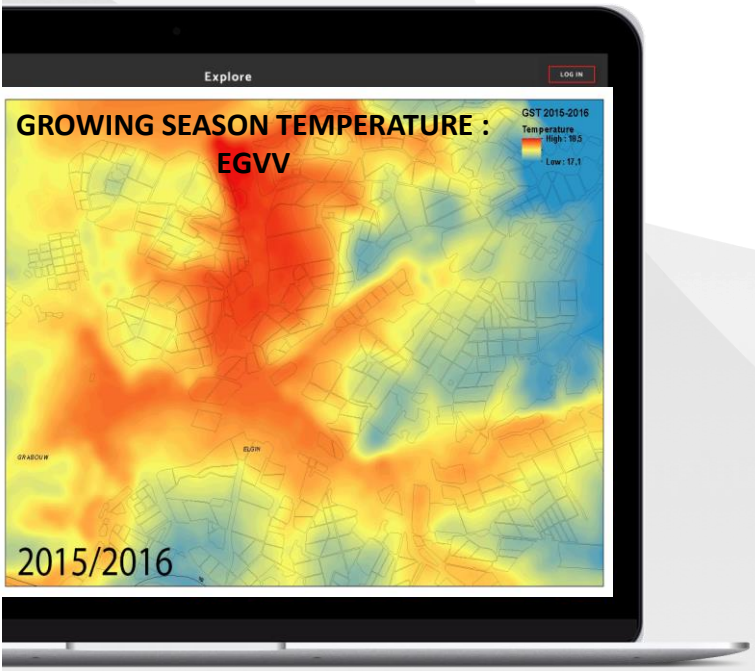


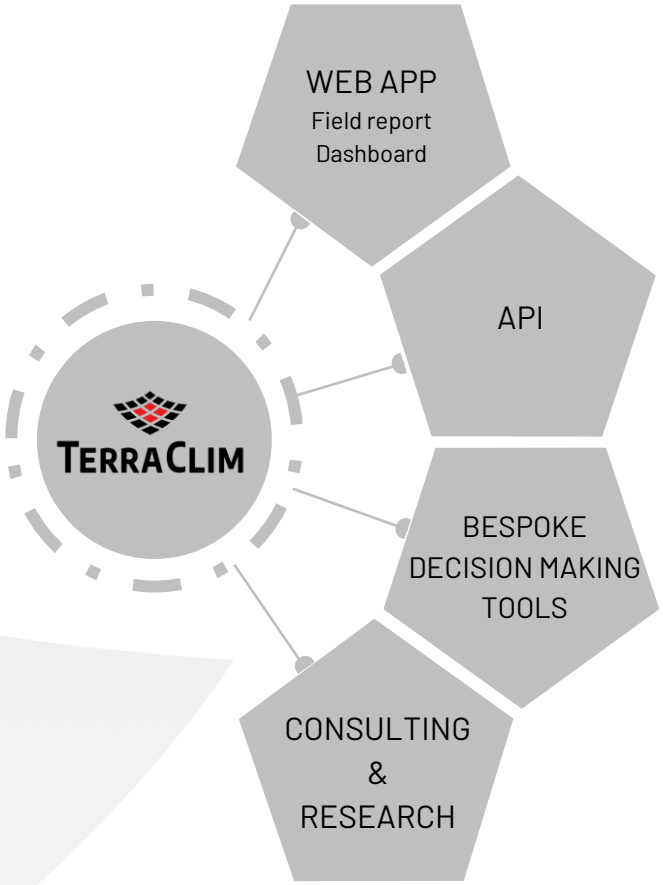




TERRACLIM

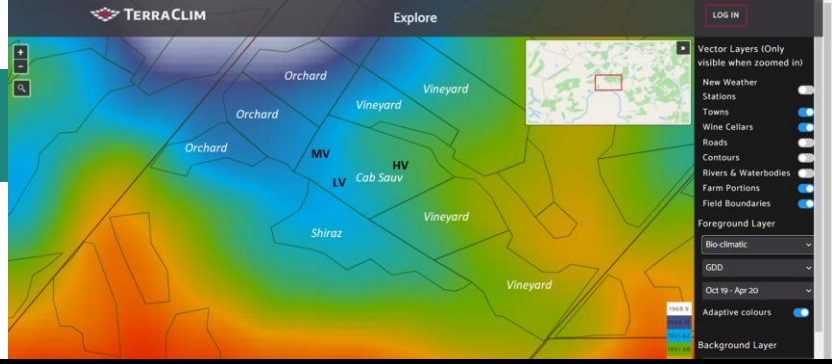
TERRACLIM : DATA DESSIMINATION

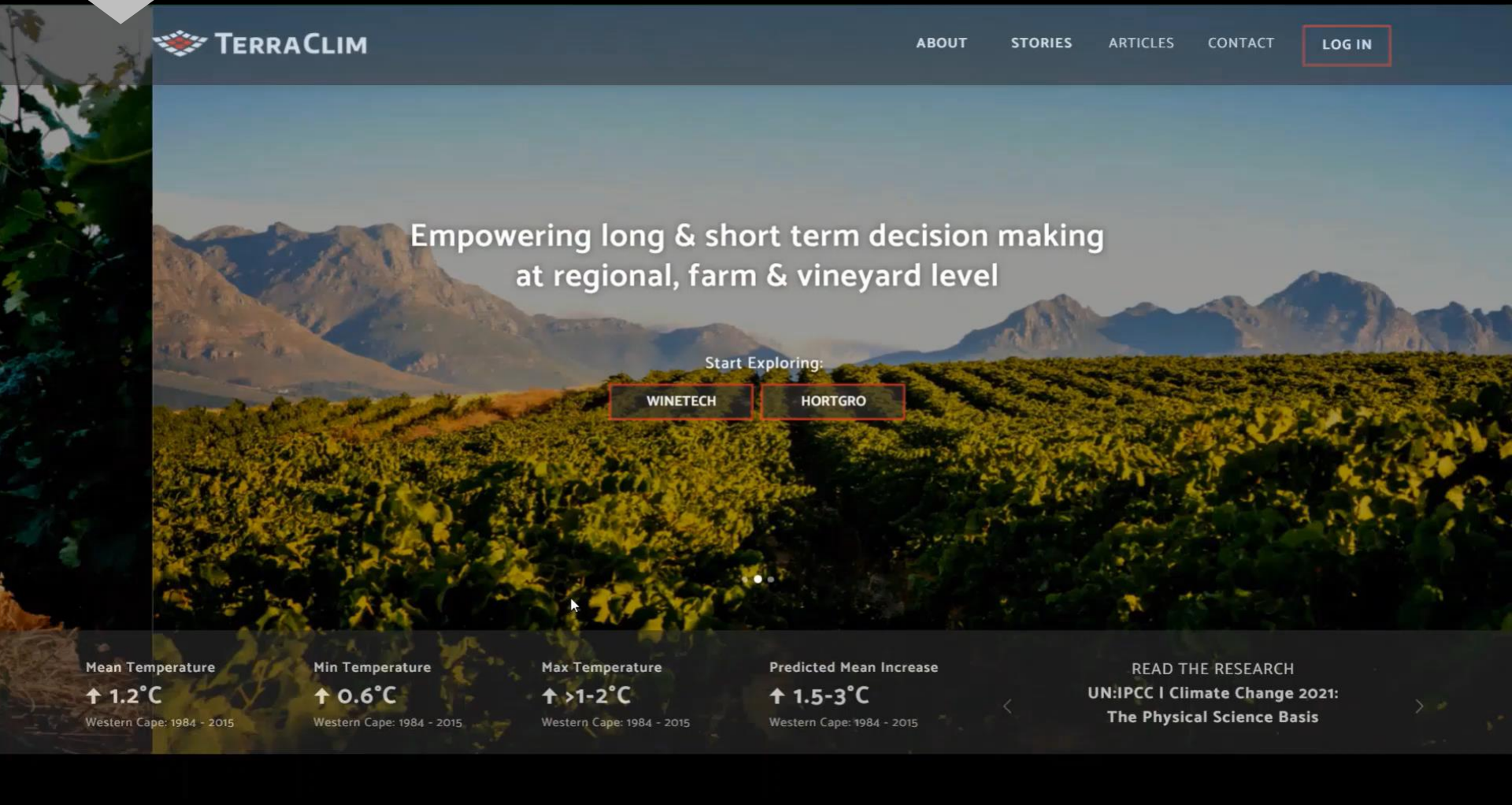




TERRACLIM : TOOL REPORTING

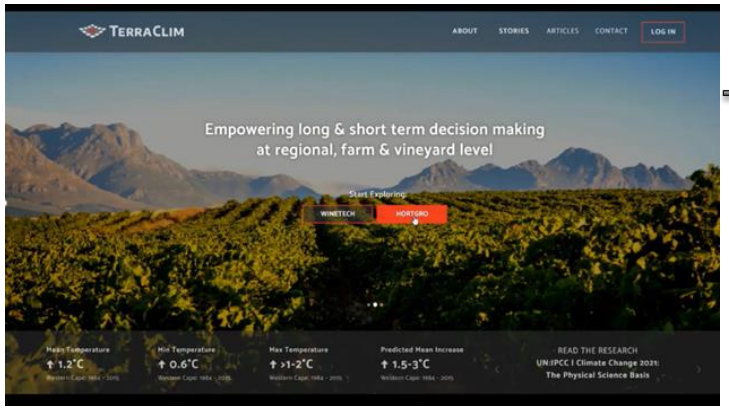
WEB APP
Field report
Dashboard



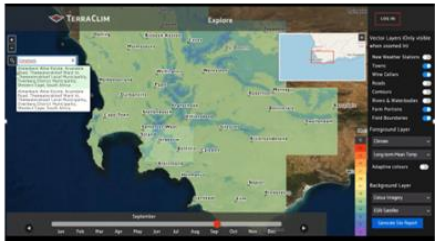


TERRACLIM : TOOL REPORTING

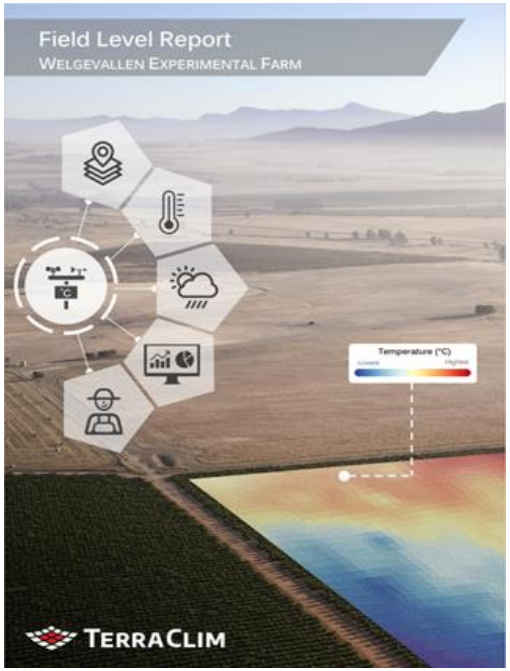
WEB APP
Field report
Dashboard

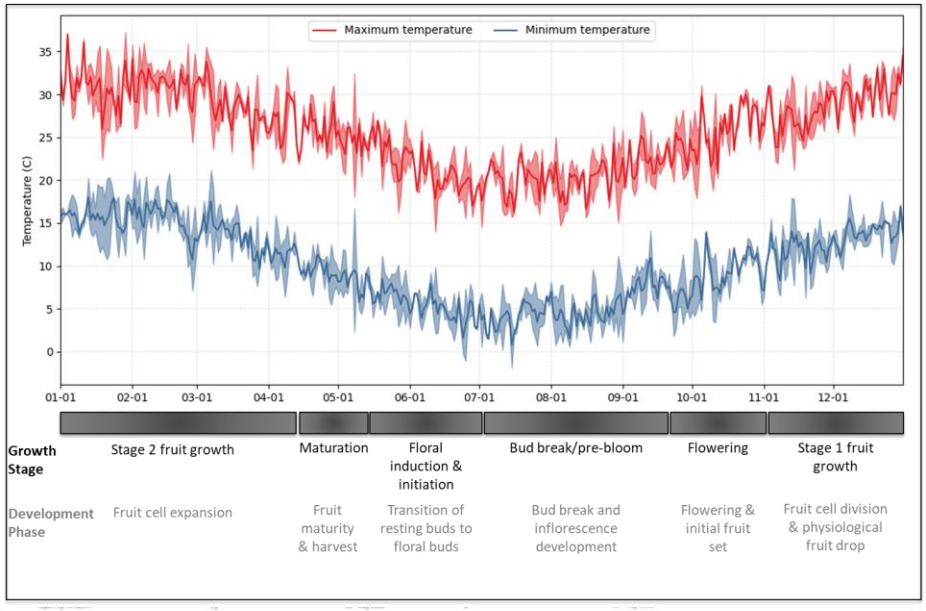


ZOOM TO FIELD



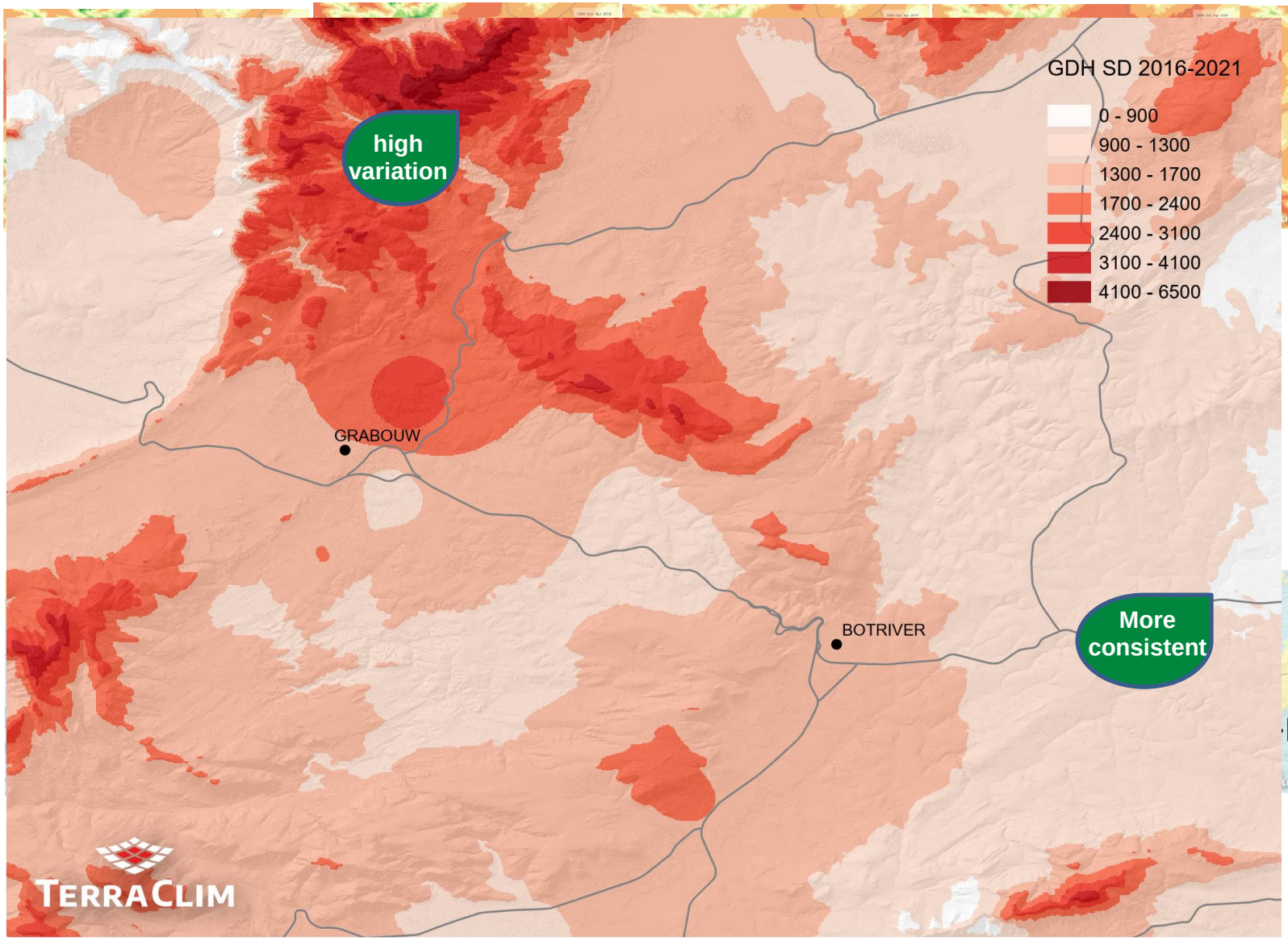
GENERATE FIELD REPORT

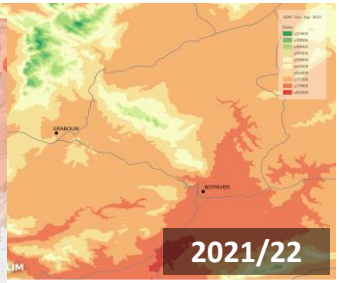


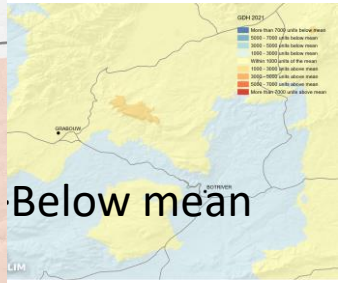


TERRACLIM : Regional Scale : Growing Degree Hours

Growing degree hours (GDH) maps (Green is lower values & darker reds higher values) –October to April



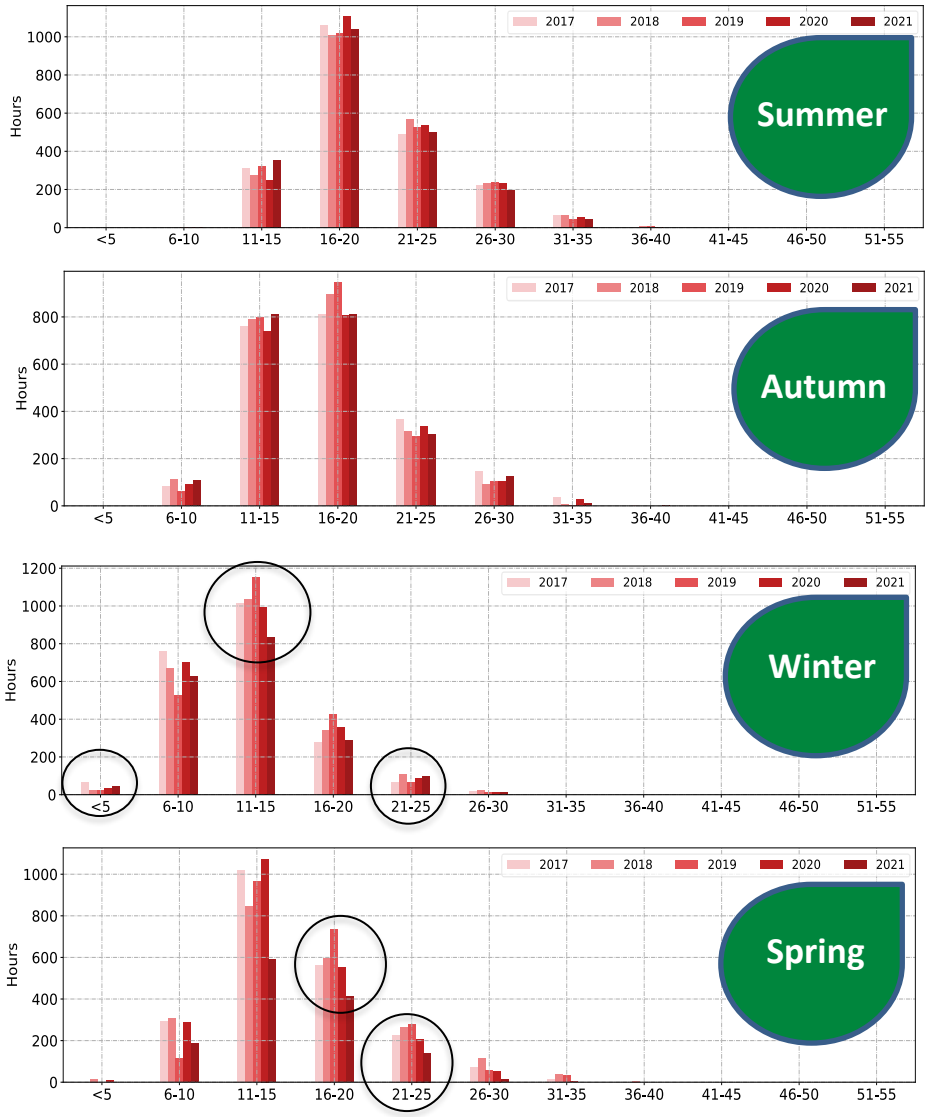


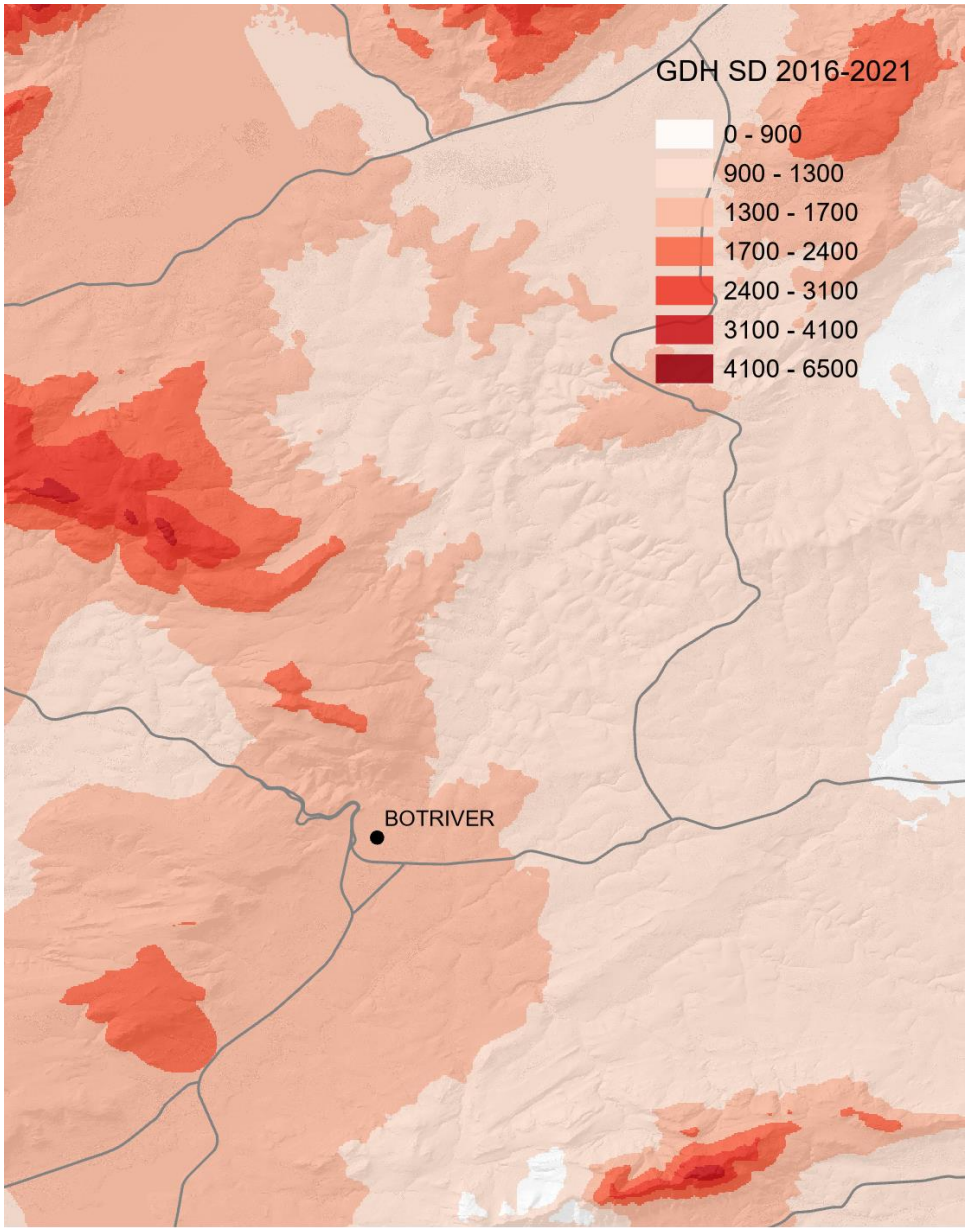


TERRACLIM

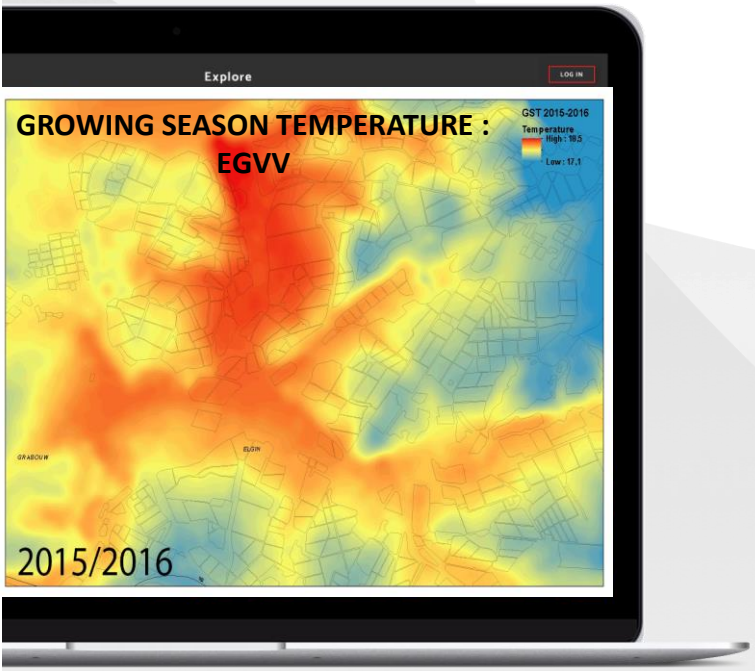
TERRACLIM : Hourly Reporting

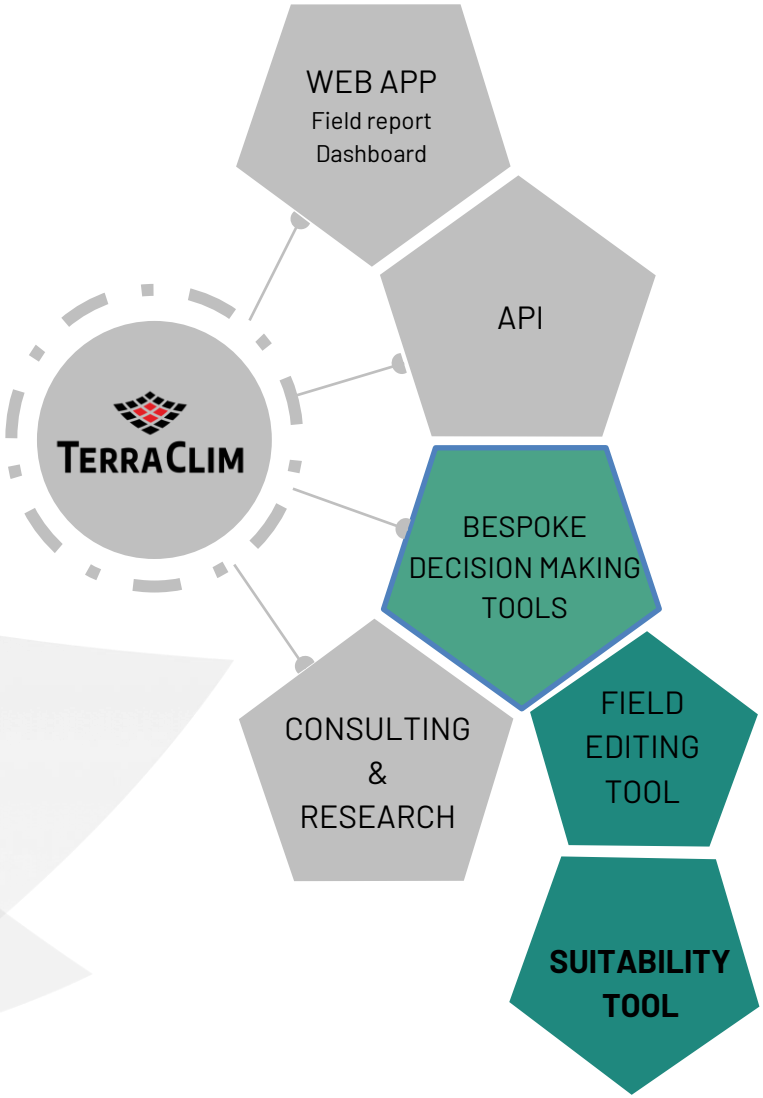
Hourly threshold graphs over seasons 2017-2021



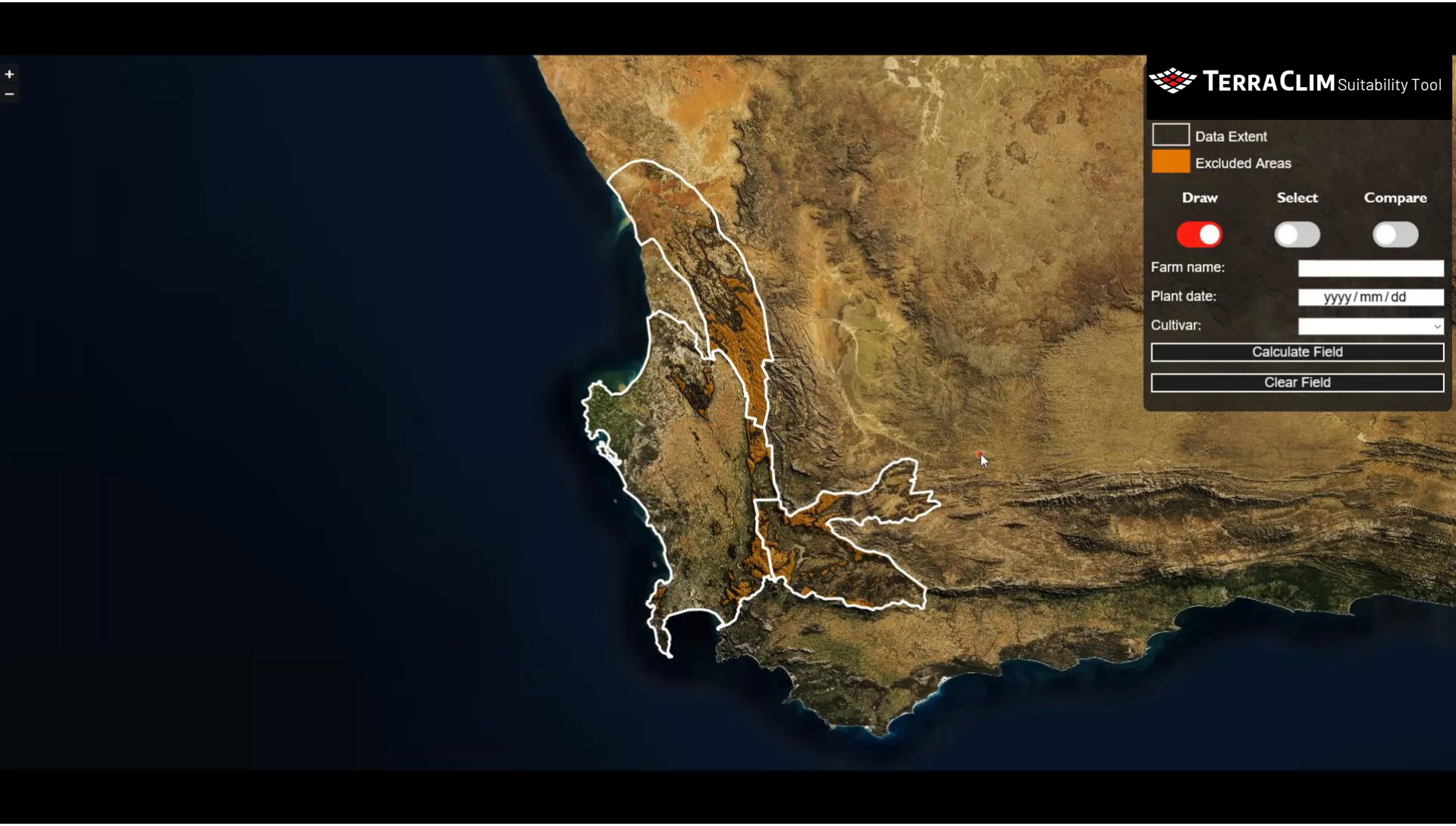


TERRACLIM : DATA DESSIMINATION



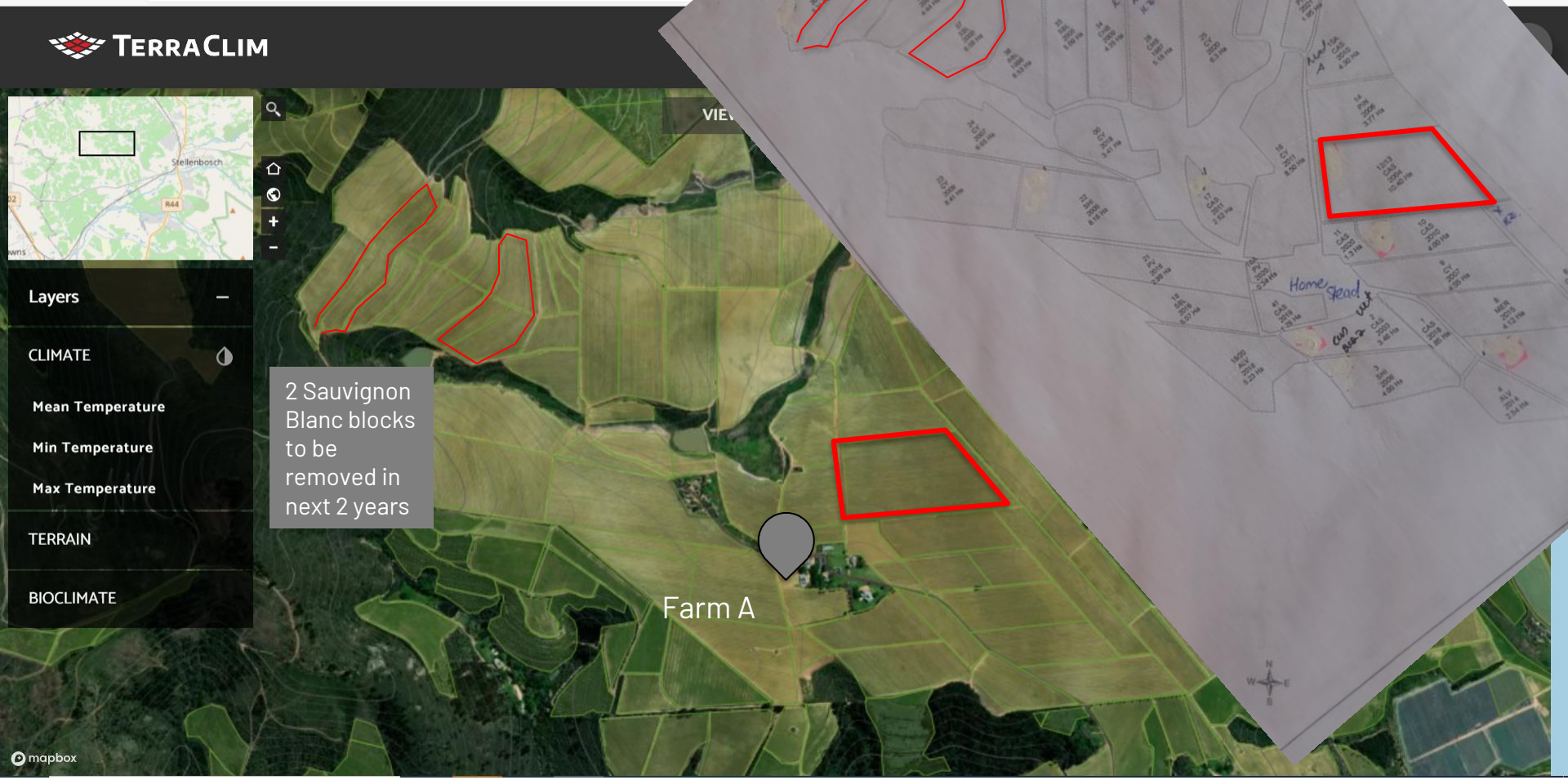


TERRACLIM : Suitability Tool : Data Integration



TERRACLIM : Web App

- Digitizing



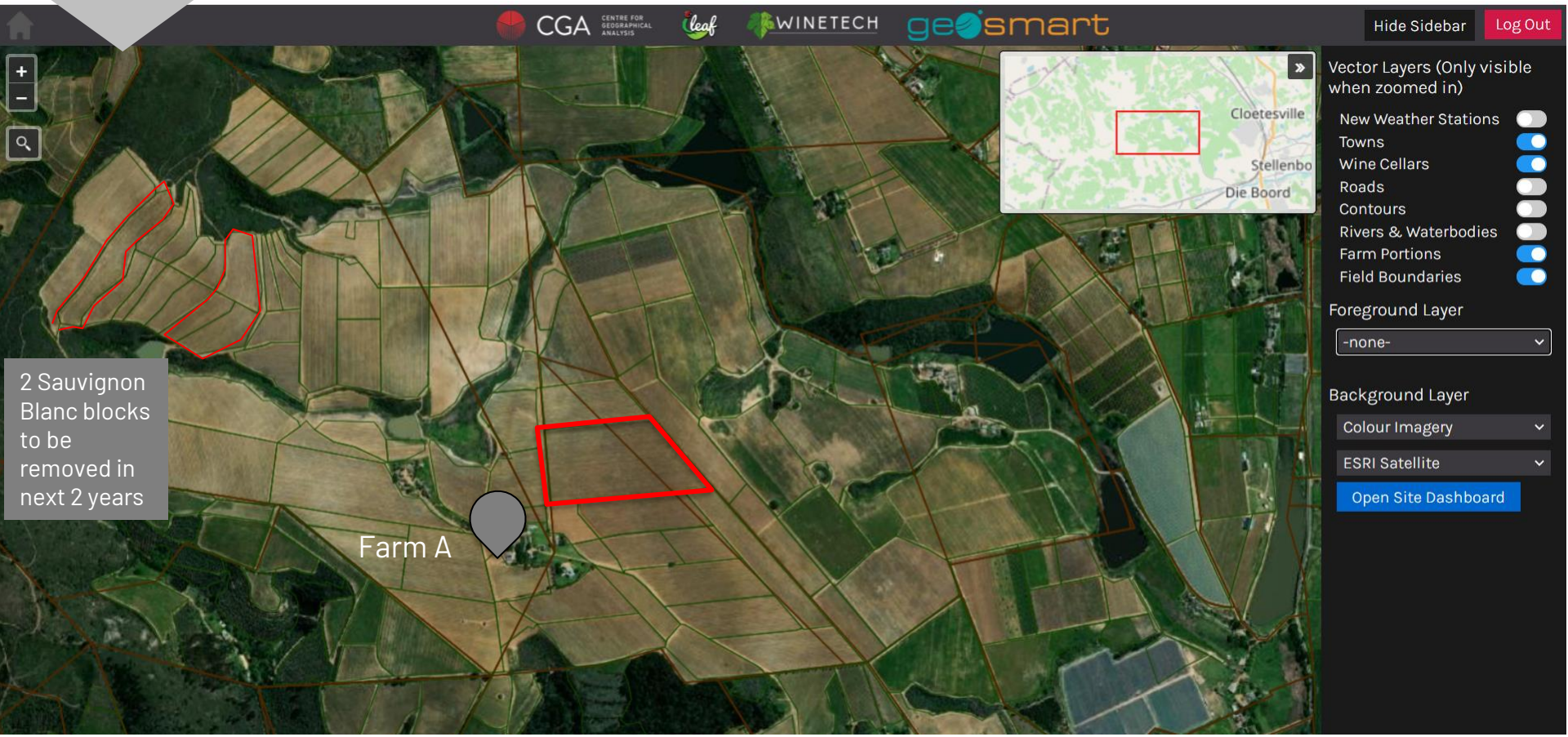
TERRACLIM

TERRACLIM : Suitability Tool : Data Integration

What to plant where?

BESPOKE DECISION MAKING TOOLS

- Select field or farm of interest & run analysis to identify what cultivar of wine to plant

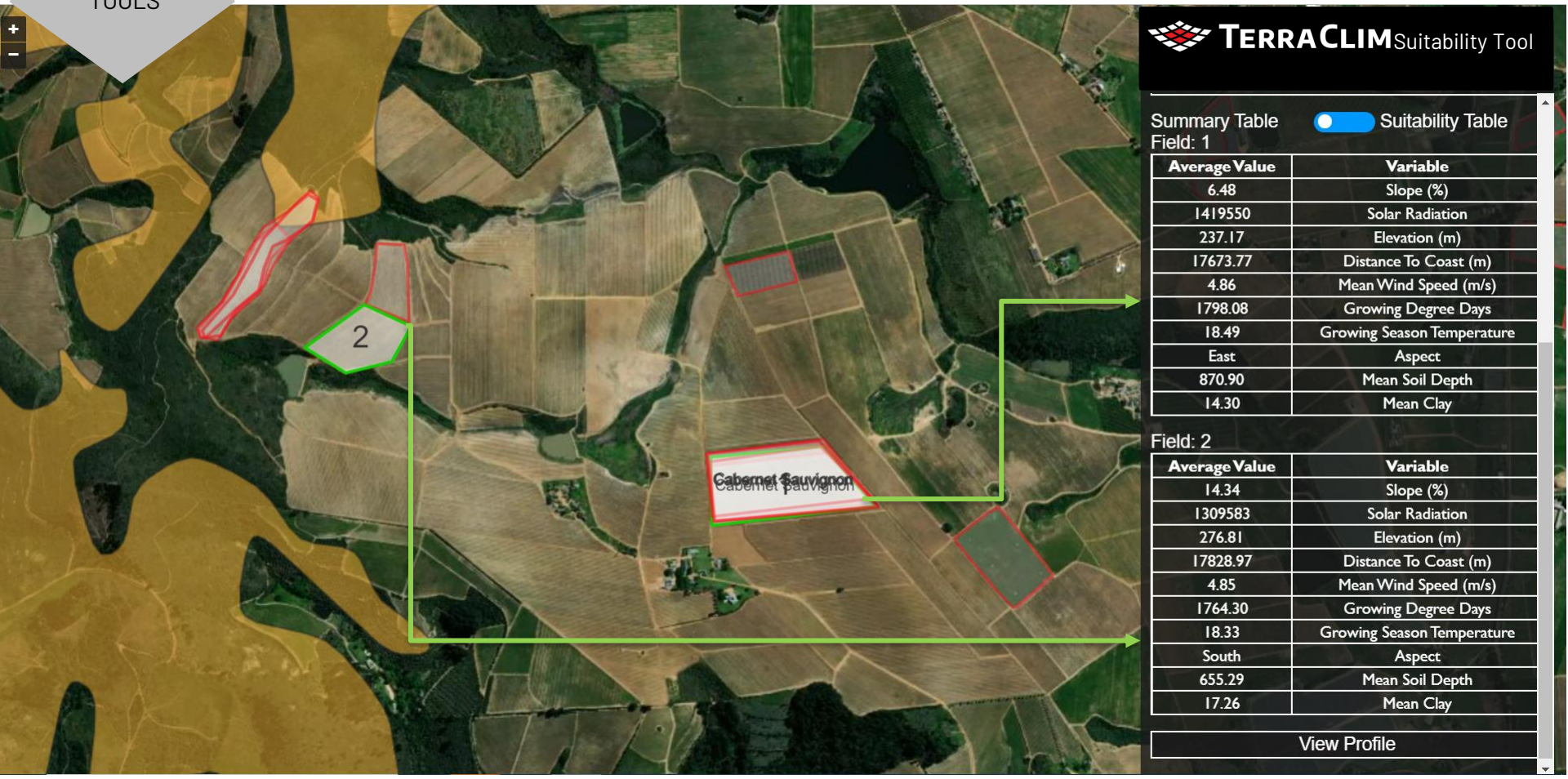


TERRACLIM : Suitability Tool : Data Integration

What to plant where?

BESPOKE DECISION MAKING TOOLS

- Top 10 variables out of the 43 environmental factors that should be considered in new planting decisions

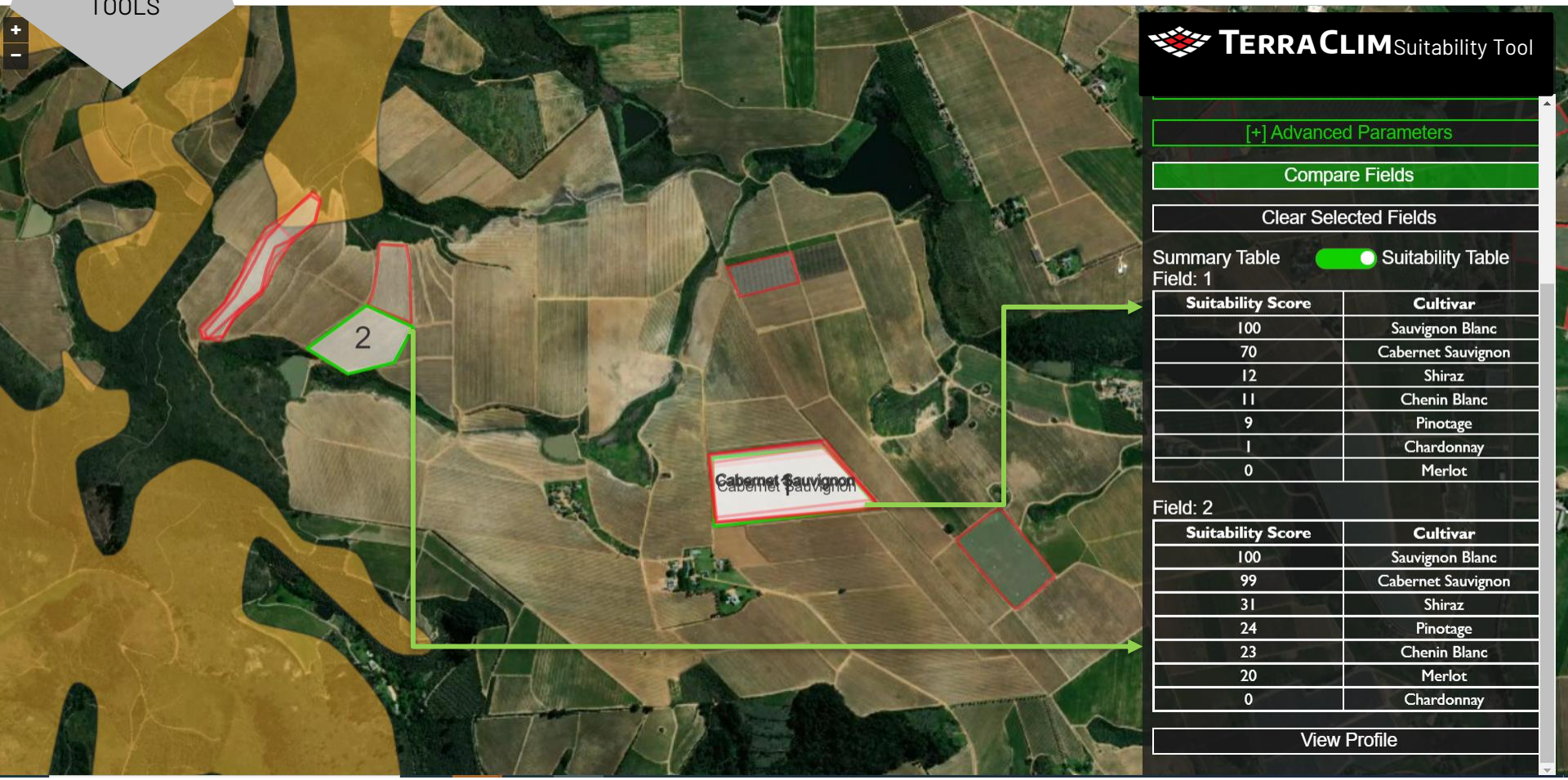


TERRACLIM : Suitability Tool : Data Integration

What to plant where?

BESPOKE DECISION MAKING TOOLS

- Suitability score and what to plant where, here recommending Sauvignon Blanc



TERRACLIM : Suitability Tool : Data Integration

What to plant where?

BESPOKE DECISION MAKING TOOLS

- DISTANCE TO COAST

TERRACLIM : Suitability Tool : Data Integration

What to plant where?

BESPOKE DECISION MAKING TOOLS

- GROWING DEGREE DAYS | GROWING SEASON TEMPERATURE

TERRACLIM : Suitability Tool : Data Integration

What to plant where?

BESPOKE DECISION MAKING TOOLS

- ASPECT

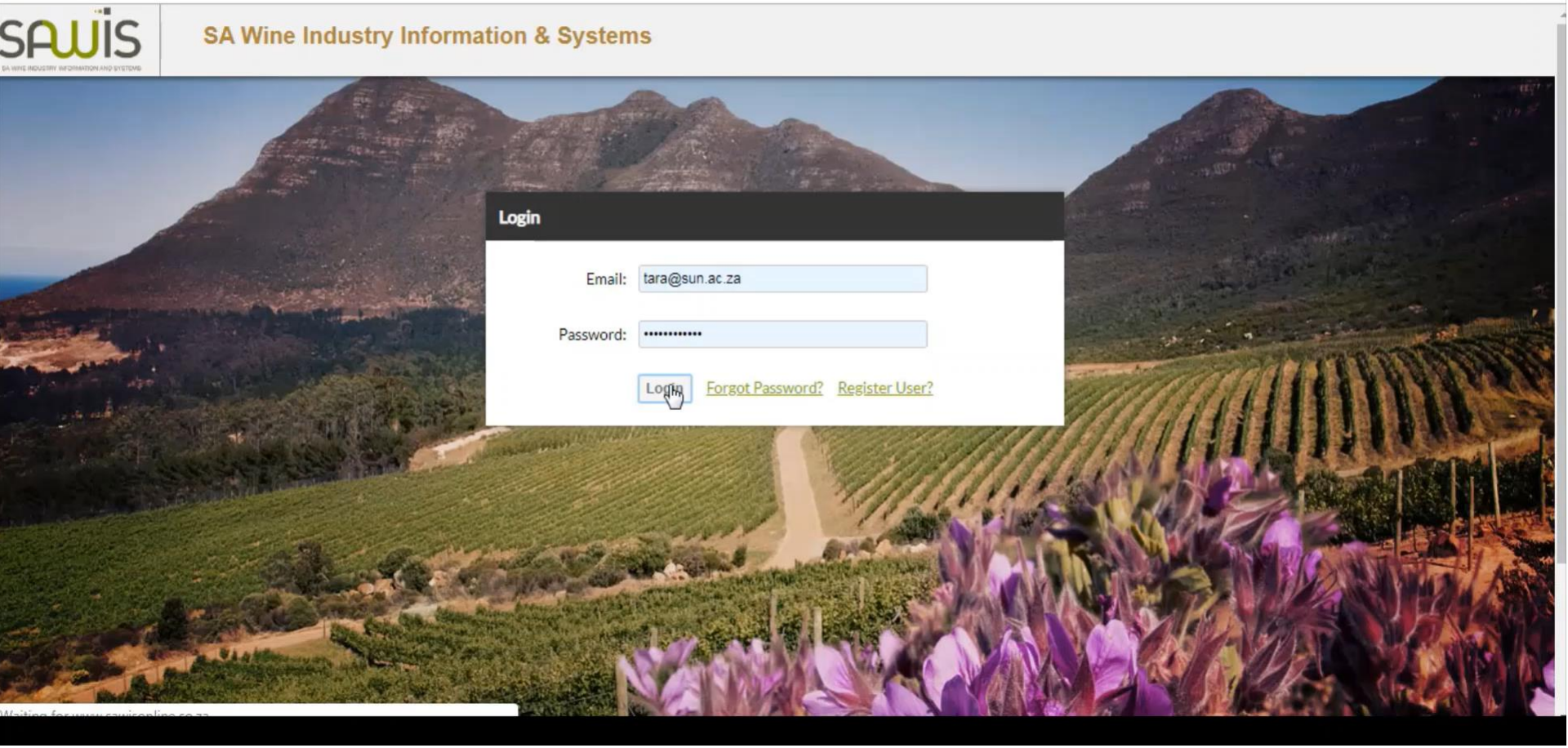
TERRACLIM : Suitability Tool : Data Integration

What to plant where?

BESPOKE DECISION MAKING TOOLS

- MEAN SOIL DEPTH (CM) & MEAN CLAY %

SAWIS Vineyard Mapper : SPATIAL DATABASE



- SEASONAL REPORTING
- CHANGE ANALYSIS
- CROP MODELLING (HINDSIGHT)
- FORECASTING

EMPOWERING DECISION-MAKING

- -CLIMATE, TERRAIN, SOIL
- -AID LONG/SHORT TERM DECISIONS
- -ANALYSE & MITIGATE CC - regional | farm | field

INTERACTIVE AGRICULTURE

- UNIT PROFILING
- QUERY FUNCTIONAILITY
- SUITABILITY

TERRACLIM

CLIMATE RESILIENT DECISION MAKING

THANK YOU

info@terraclim.com
www.terraclim.co.za

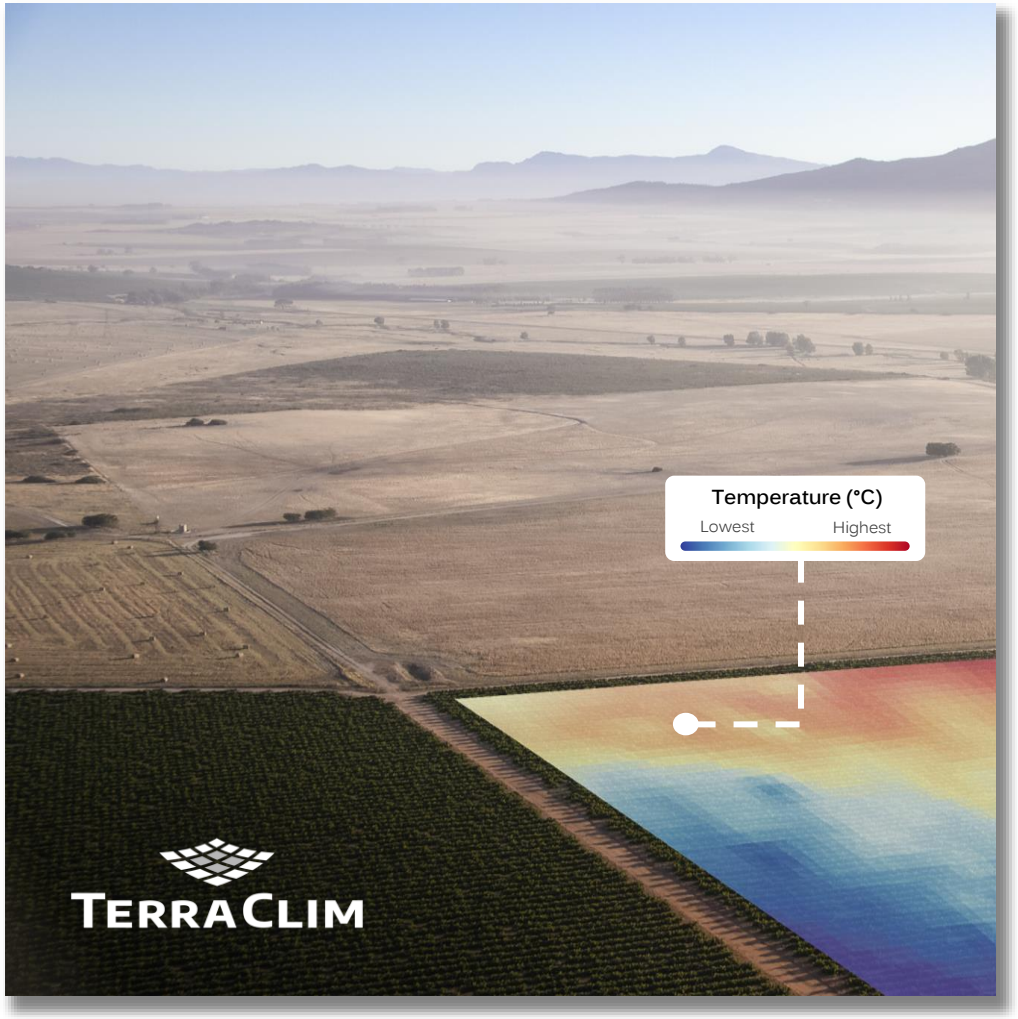
CGA

iLeaf geosmart

METOS® SA

Stellenbosch University / iYunivesithi / Universiteit

WINETECH



TERRACLIM : AFRICAN CLIMATE RESILIENCE : AGRITECH

60% GLOBAL UNCULTIVATED LAND IS IN AFRICA

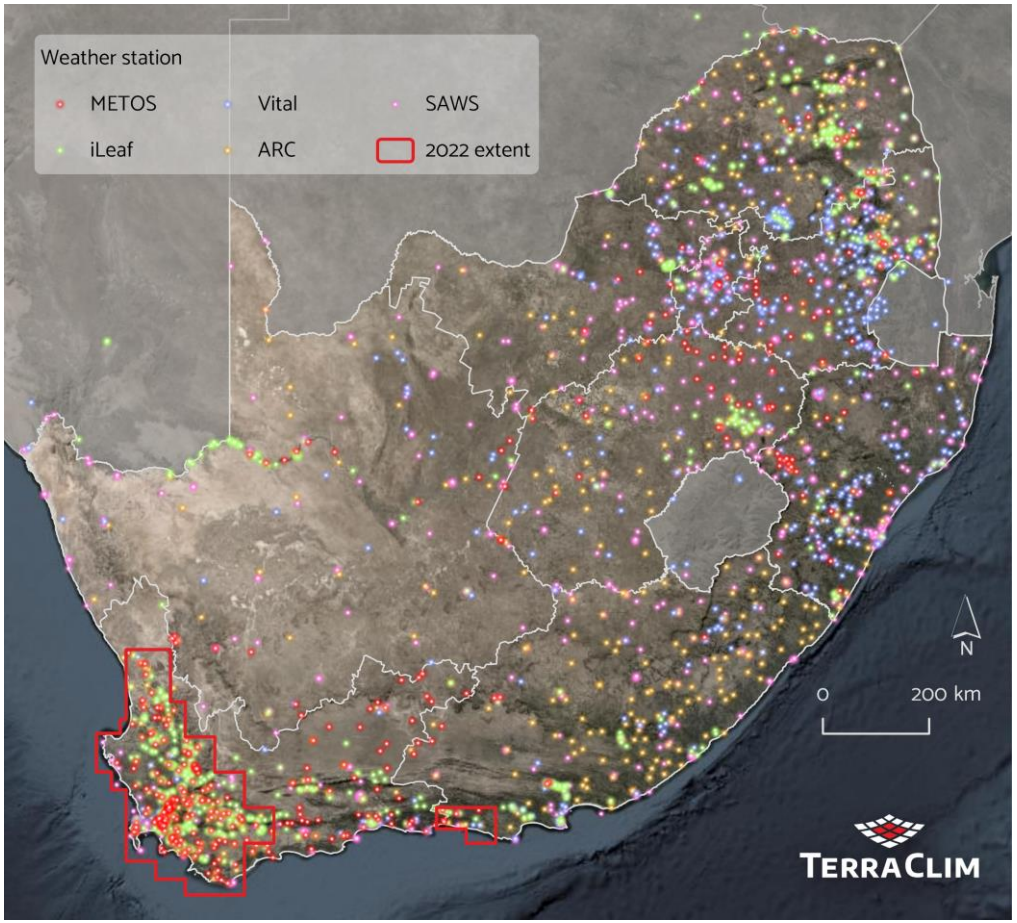
70% AGRICULTURE SUPPORTS OF LIVELIHOODS IN AFRICA

52% OF PEOPLE IN AFRICA WORK IN AGRICULTURE

44% YEAR ON YEAR AVERAGE AGRITECH GROWTH SINCE 2016

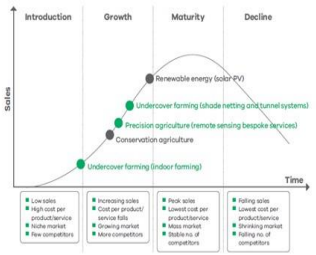
80% OF AFRICAN FARMING COMMUNITY IS SMALL HOLD

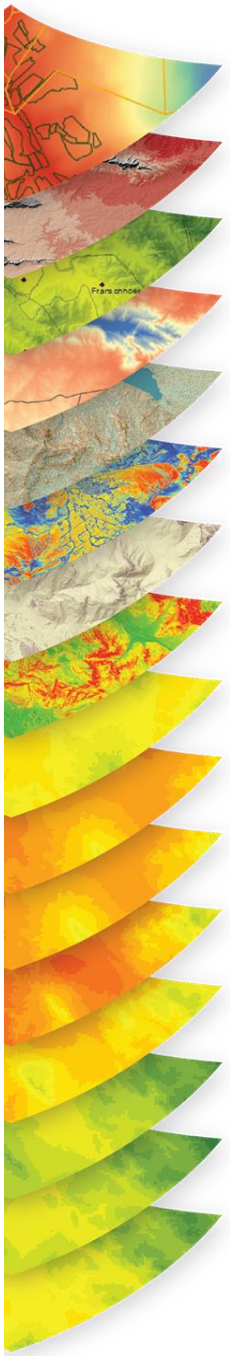
24% GROWTH IN AFRICAN AGRITECH INVESTMENT IN 2020

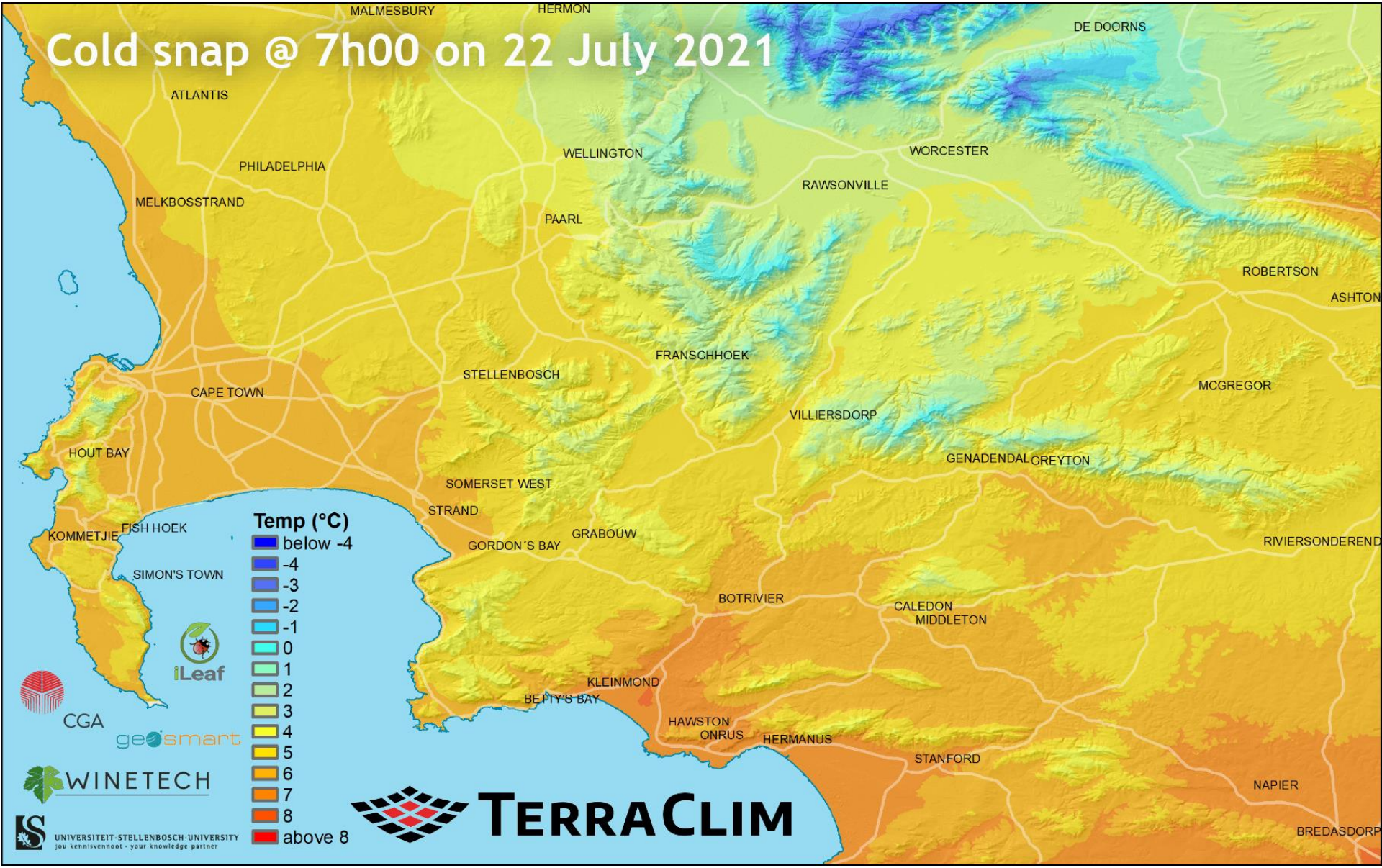


$8B

GLOBAL PRECISION AGRICULTURE – 2021
Estimated $15.6 billion – 2030
CAGR 12.7%






Cold snap @ 7h00 on 22 July 2021
MALMESBURY
HERMON
DE DOORNS
ATLANTIS
WELLINGTON
WORCESTER
PHILADELPHIA
RAWSONVILLE
MELKBOSSTRAND
PAARL
ROBERTSON
ASHTON
FRANSCHHOEK
STELLENBOSCH
CAPE TOWN
MCGREGOR
VILLIERSDORP
HOUT BAY
GENADENDAL
GREYTON
SOMERSET WEST
STRAND
KOMMETJIE
FISH HOEK
GRABOUW
GORDON´S BAY
RIVIERSONDEREND
SIMON'S TOWN
BOTRIVIER
CALEDON
MIDDLETON
KLEINMOND
BETTY'S BAY
HAWSTON
ONRUS
HERMANUS
STANFORD
NAPIER
BREDASDORP
Temp (°C)
below -4
-4
-3
-2
-1
0
1
2
3
4
5
6
7
8
above 8
iLeaf
CGA
geosmart
WINETECH
UNIVERSITEIT·STELLENBOSCH·UNIVERSITY
jou kennisvennoot · your knowledge partner
TERRACLIM