Territory Natural Resource Management

Climate Wise Agriculture

Anika Molesworth

Farmers cultivating climate leadership

I acknowledge the Traditional Owners of the land I live and work on, the Wilyakali people, and the Traditional Owners of the land we meet on today.

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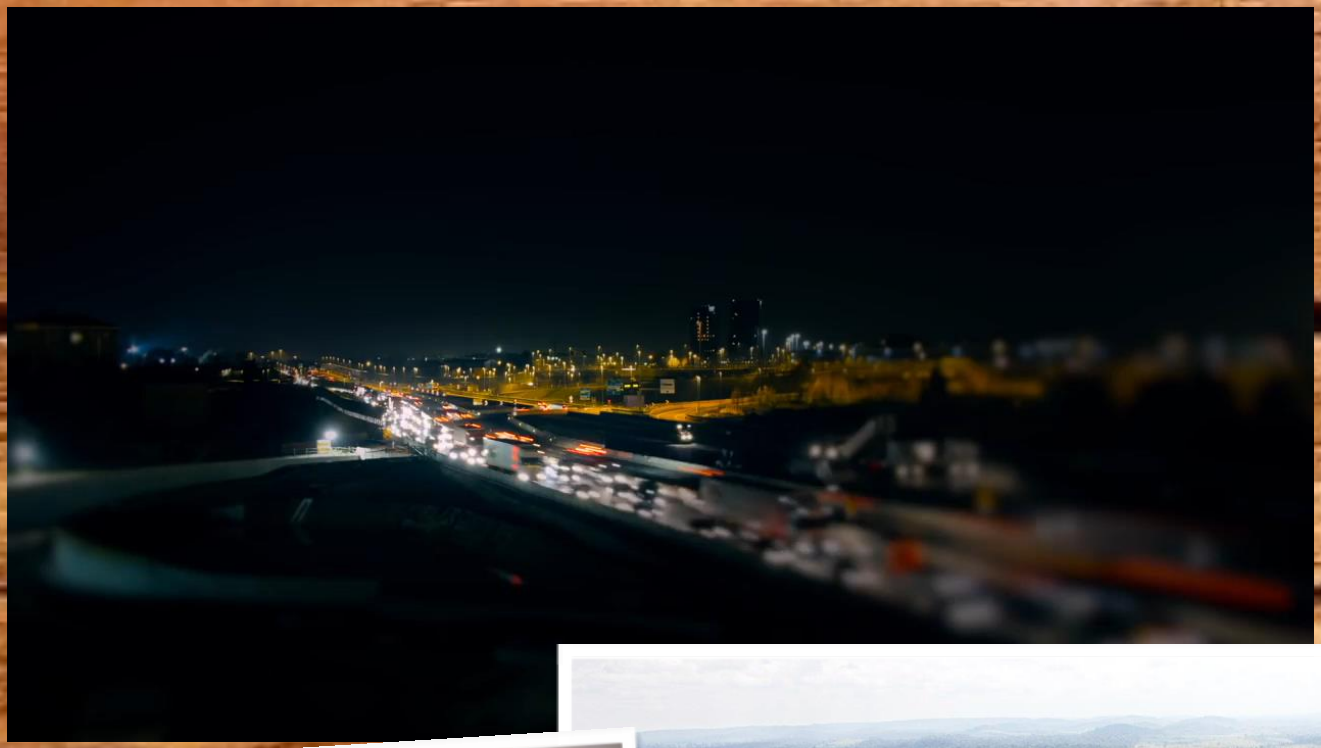

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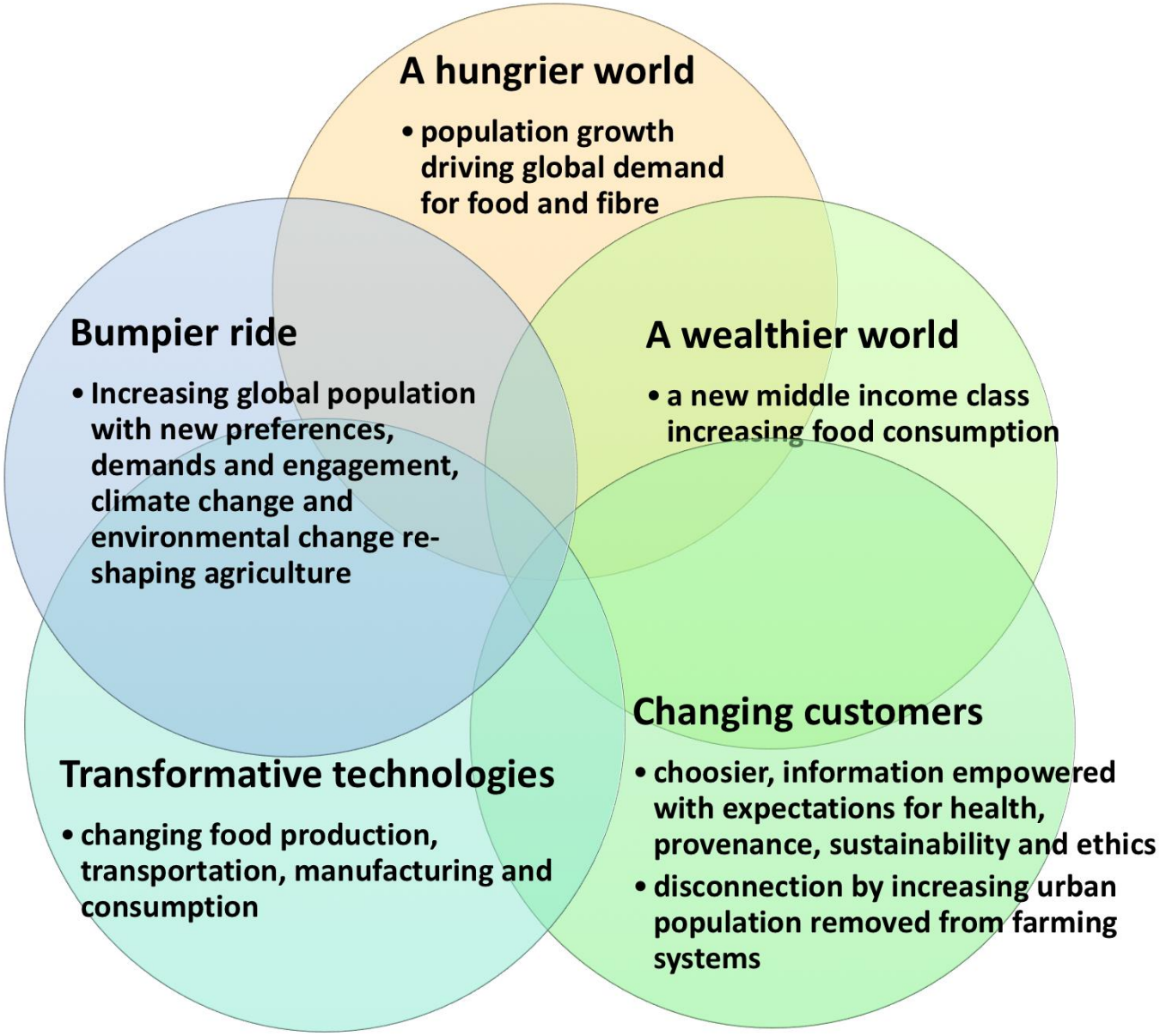

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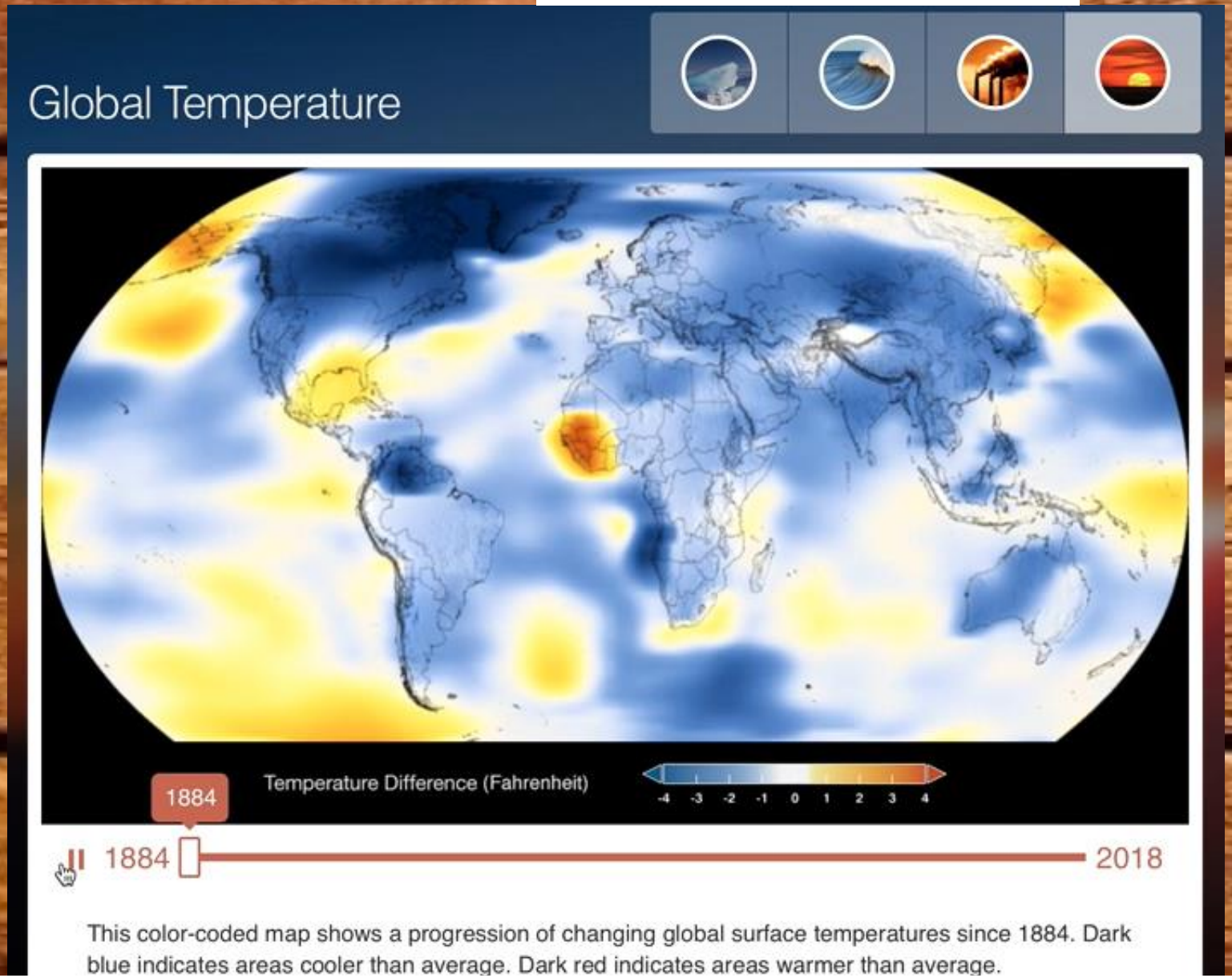
www.nasa.gov



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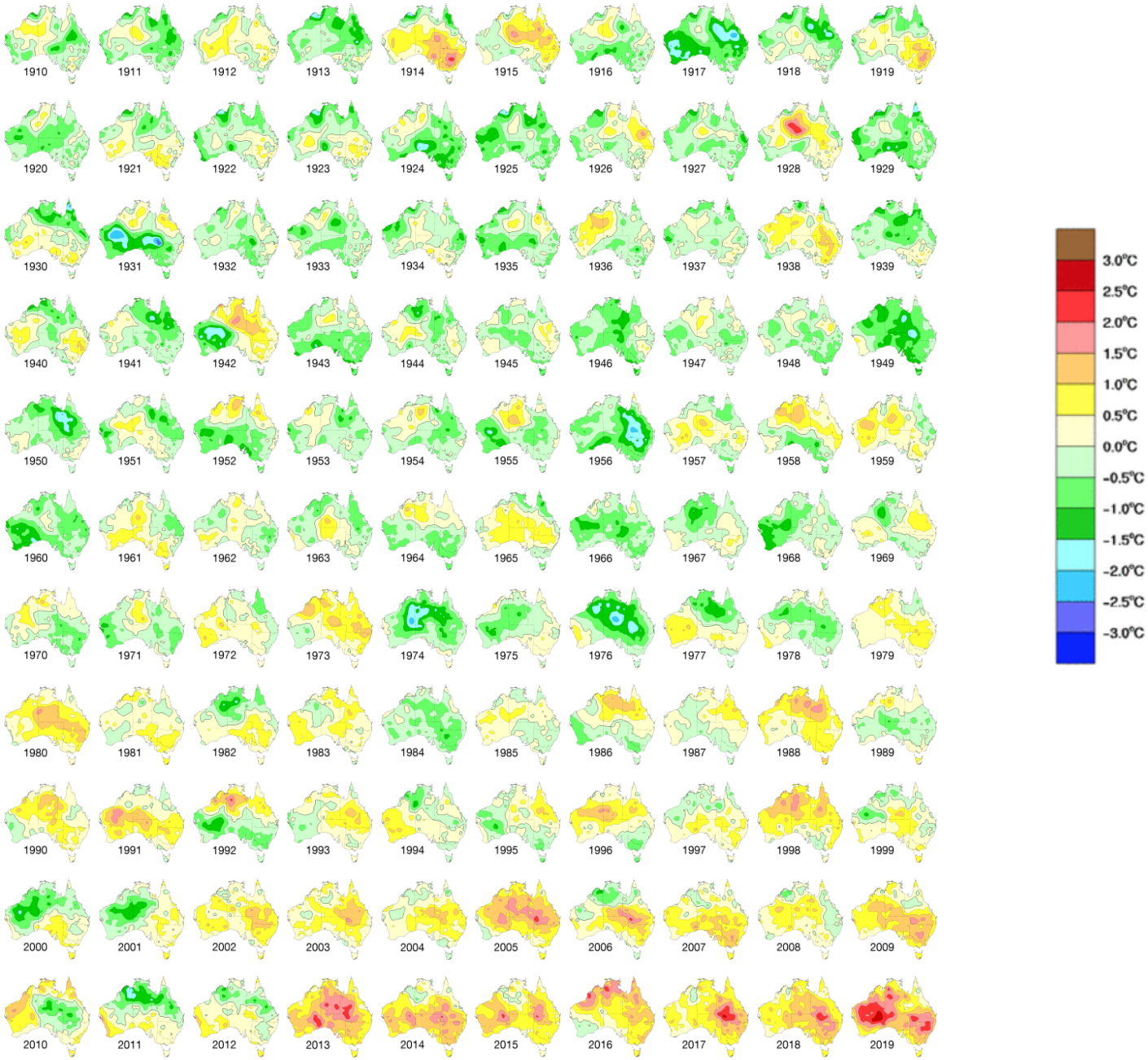
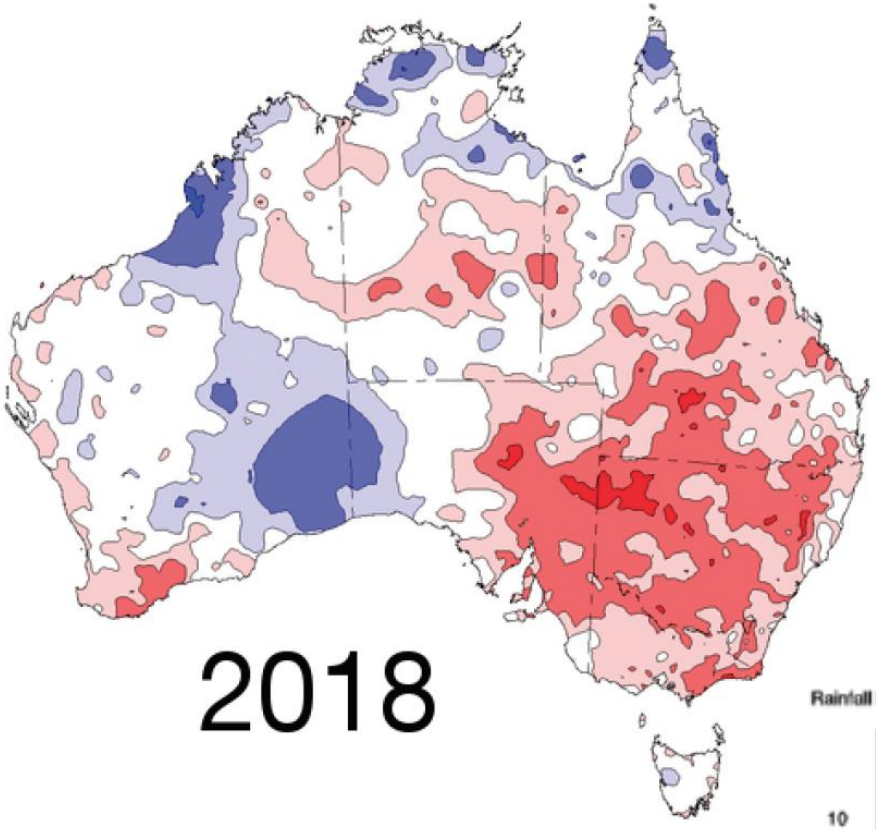
110 years of Australian temperatures

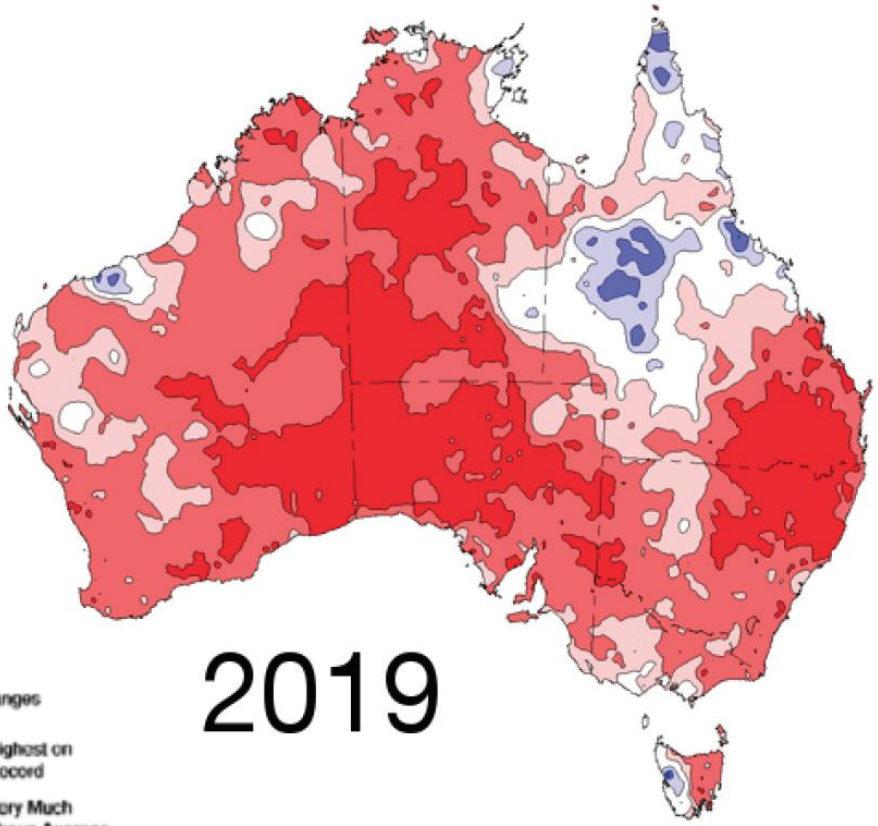


Australian Government
Bureau of Meteorology

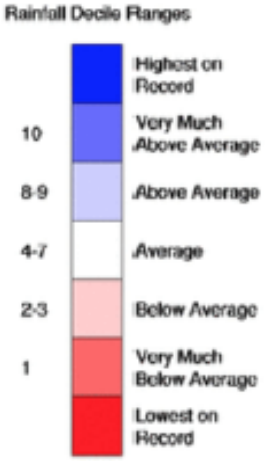
Australian rainfall



2018



2019



So that's where we've been
Now where are we going?

My Climate 2050

Alice Springs
https://myclimate.acf.org.au/dial.html?stationID=015540

Darwin
https://myclimate.acf.org.au/dial.html?stationID=014016

Katherine
https://myclimate.acf.org.au/dial.html?stationID=014903

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Agriculture's unique position on climate change

Part of the problem

- Impact on soil and vegetation
- Produce greenhouse gas emissions

Vulnerable to the impacts

-Changes in rainfall, temperature, pest and disease distribution and prevalence, frequency and intensity of extreme weather events (droughts, floods, bushfires)

-Impact our hip-pockets and places we call home

Part of the solution

-Reduce emissions from our sector

-Drawdown excess greenhouse gases in the atmosphere

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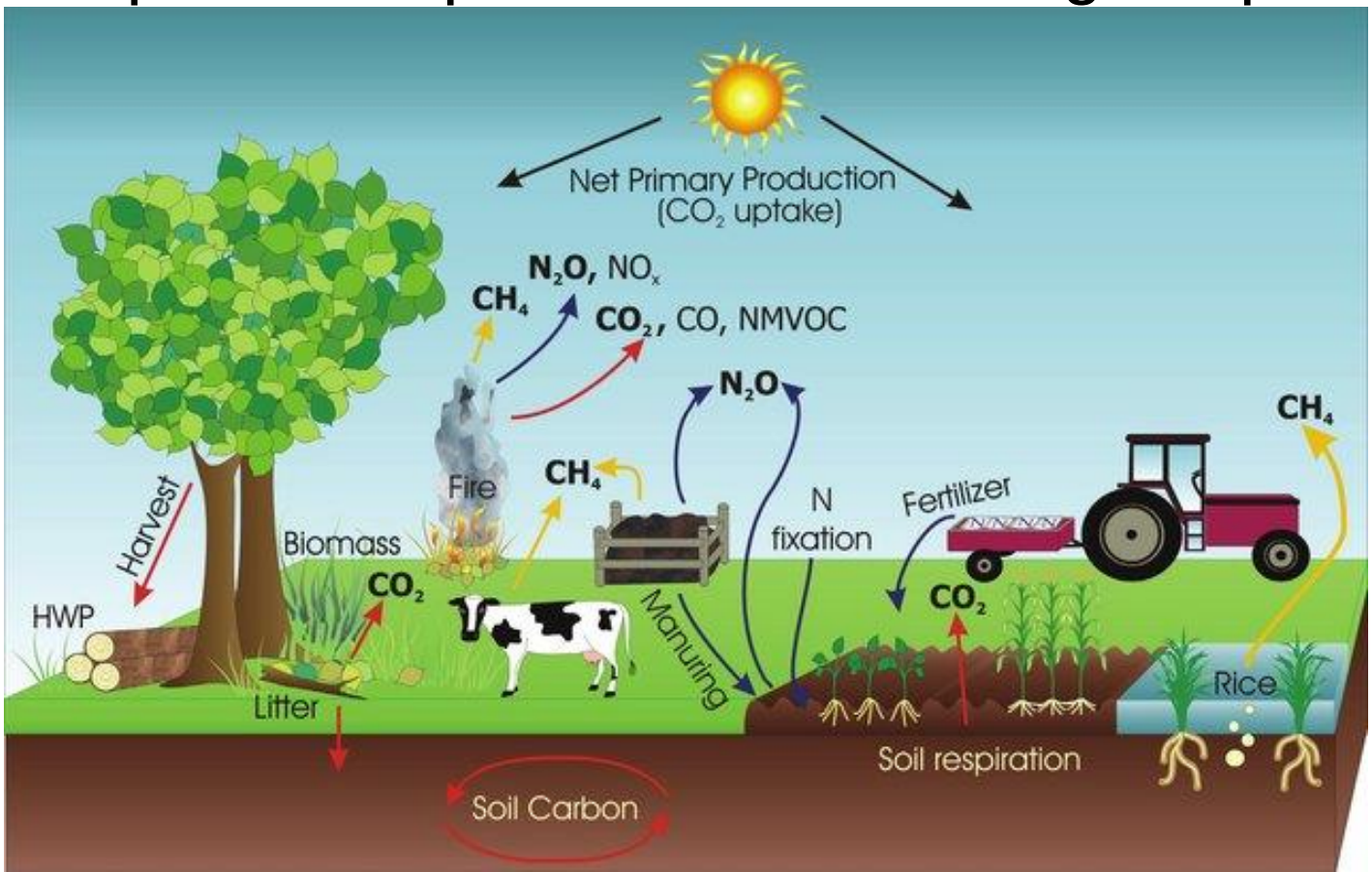
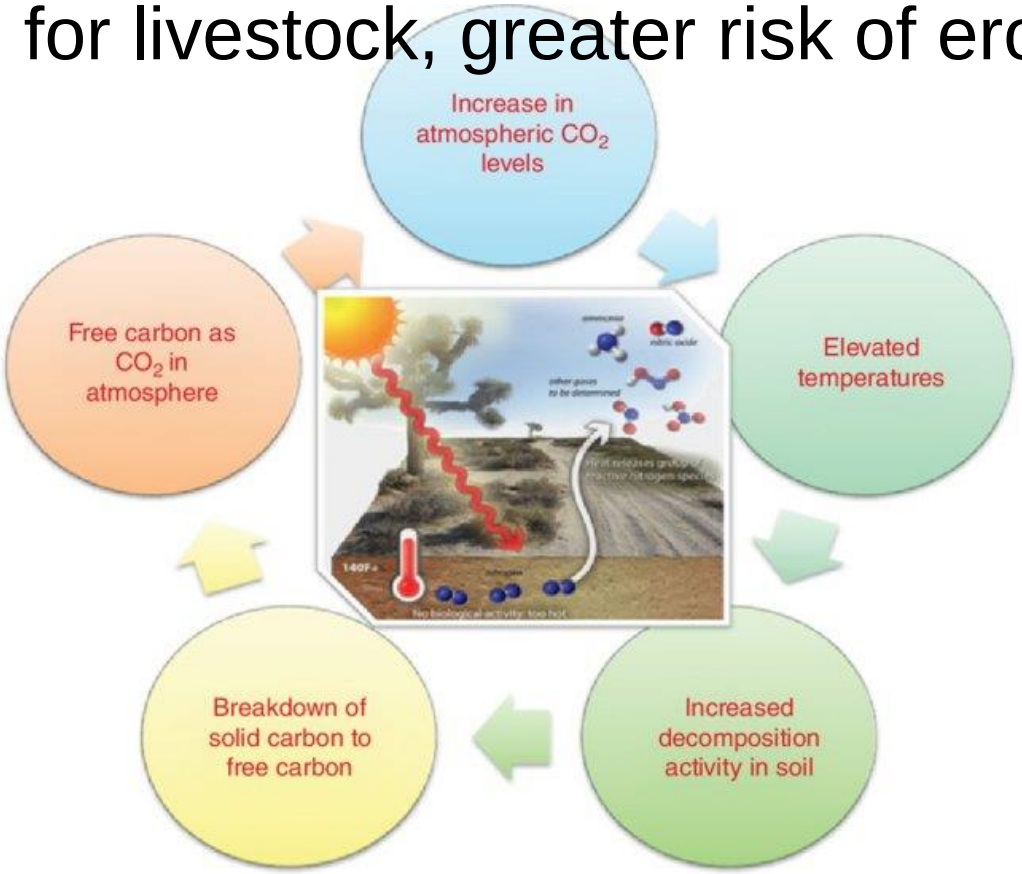
Agriculture as a driver of climate change

- Methane released by ruminants
- Nitrous oxide released by nitrogen fertilisers
- Reduced vegetation cover = hotter soil, less C drawdown
- Soil compaction = poorer condition to grow plants



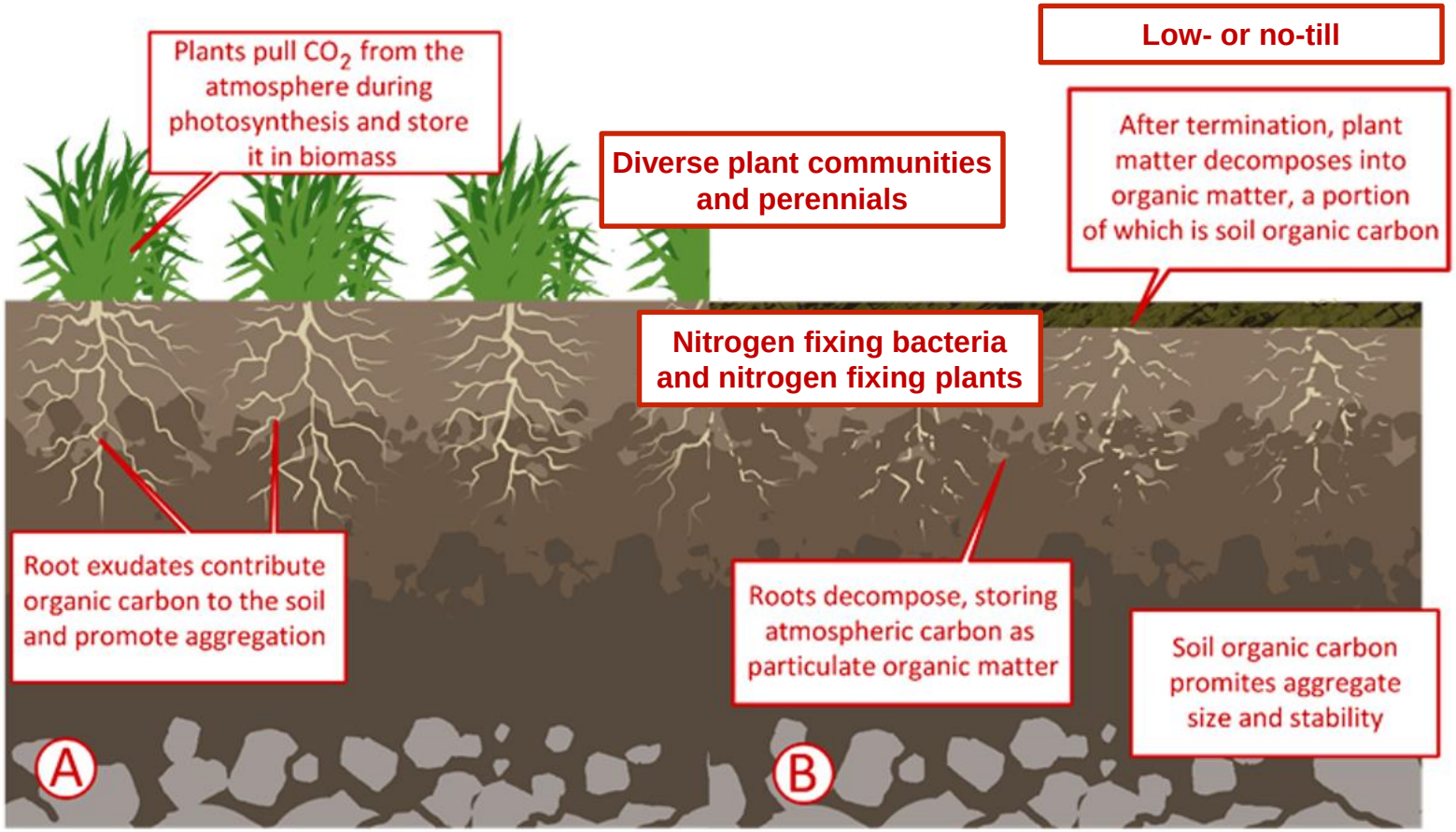
Impacts of climate change on soils

- Higher soil temperature
- Higher evaporation rate (i.e. soils dry out faster)
- Fast soil carbon decomposition
- Less predictable rainfall
- Poorer soil condition for growing plants (leading to less feed for livestock, greater risk of erosion)



Soil as a solution to climate change

- Farmers can capture and store carbon in soils and vegetation
- Good practices that reduce vegetation loss and protect soil health mean less emissions



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Agriculture part of the SOLUTION

REDUCE GHGs

- Low or no till cropping
- Fertilisers @ right rate, place, time & type
- Diversified crops, incl. perennials & trees
- Native foods & botanicals
- Integrated crop-livestock production
- Ruminant genetics, microbiome, feed
- Alternative proteins, incl. insects, algae, seaweed
- Renewable E (solar, wind, biomass, methane)
- Women (land management, family planning, nutrition, cooking)
- Food waste

DRAWDOWN GHGs

- Nitrogen fixing bacteria in soil
- Nitrogen fixing plants (legumes)
- Restoring degraded land
- Diversified & integrated annual, perennial, tree, livestock that builds up soil C.

ACCELERATORS

- Policy
  Guidance & certainty
- Capital
  Markets, R,D & E
- Behaviour
  Education & empowerment

BENEFITS

- SOCIAL
  Health, stability
- ECONOMIC
  new & varied income
- ENVIRONMENTAL
  Productive & resilient

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Key messages

- As **farmers**, we are **managers of soil**. We determine it's **health** and therefore **productivity** of our farming businesses.

- **Poorly managed soil** leads to **loss** of **plant cover**, **erosion**, **hotter soil** temperature, higher soil moisture **evaporation** rates, **drier soil**, **greater** greenhouse gas **emissions**.
- This has **local impact** on our farming **productive capacity**, and **larger environmental impacts**.

- Well **managed soils** are more **productive** and **resilient** to a **hotter temperatures and lower rainfall**.
- Farmers who take care of their soils can **reduce** greenhouse gas **emissions**, **drawdown** excess greenhouse gases in our atmosphere.

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So what does that *actually mean* and what can I *specifically do*?

- We need to recognise that the way we **have operated in the past**, is **no longer going to cut it**.
- We have to **get informed**, think **creatively**, and **innovate**.
- We need to be looking at **weather forecasts** and **long-term climate projections** and **managing vegetation** appropriately. This may mean changing **stocking numbers** or changing **production type**, including **diversifying** farming businesses.
- We need **R,D&E** in these regions. Need to **engage** with **industry**, **policy makers** and **wider public** so they understand why we need to **invest** in this.

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FCA
FARMERS FOR CLIMATE ACTION

WHO WE ARE

We are a movement of farmers and rural Australians leading the way on climate solutions.

OUR VISION

farming forever

Australian farmers are on the front line of climate change, with agriculture identified as one of Australia's most climate exposed industries. We are Australia's only agricultural advocacy organisation focused solely on addressing the climate challenge and take a community organising approach, empowering Australian farmers to play a critical role in championing climate action and advancing climate solutions.

WHAT WE DO

We're putting those on the front line of climate change, front and centre in creating climate solutions through the following key activity areas.

- Community Advocacy
- Political Engagement
- Research, Development & Extension
- Energy Transformation
- Advancing Climate Smart Agriculture
- Mobilising Farmers to Lead the Transition Away from Fossil Fuels

Farmers for Climate Action

www.FarmersforClimateAction.org.au

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Realising opportunities

Social – health of people and community stability

Economic – Job creation and new income sources; market advantages from higher valued products

Environmental – Well-functioning ecosystems; productivity; resilient to changes/impacts

R,D&E

Robust, long-term multi-partisan commitment to create certainty of direction and promote investment

Flexible, adaptive strategies that can address gaps & continuously improve

Risk minimization

Adaptation to build resilience to changed conditions

Mitigation to prevent further worsening conditions

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Thank you

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