

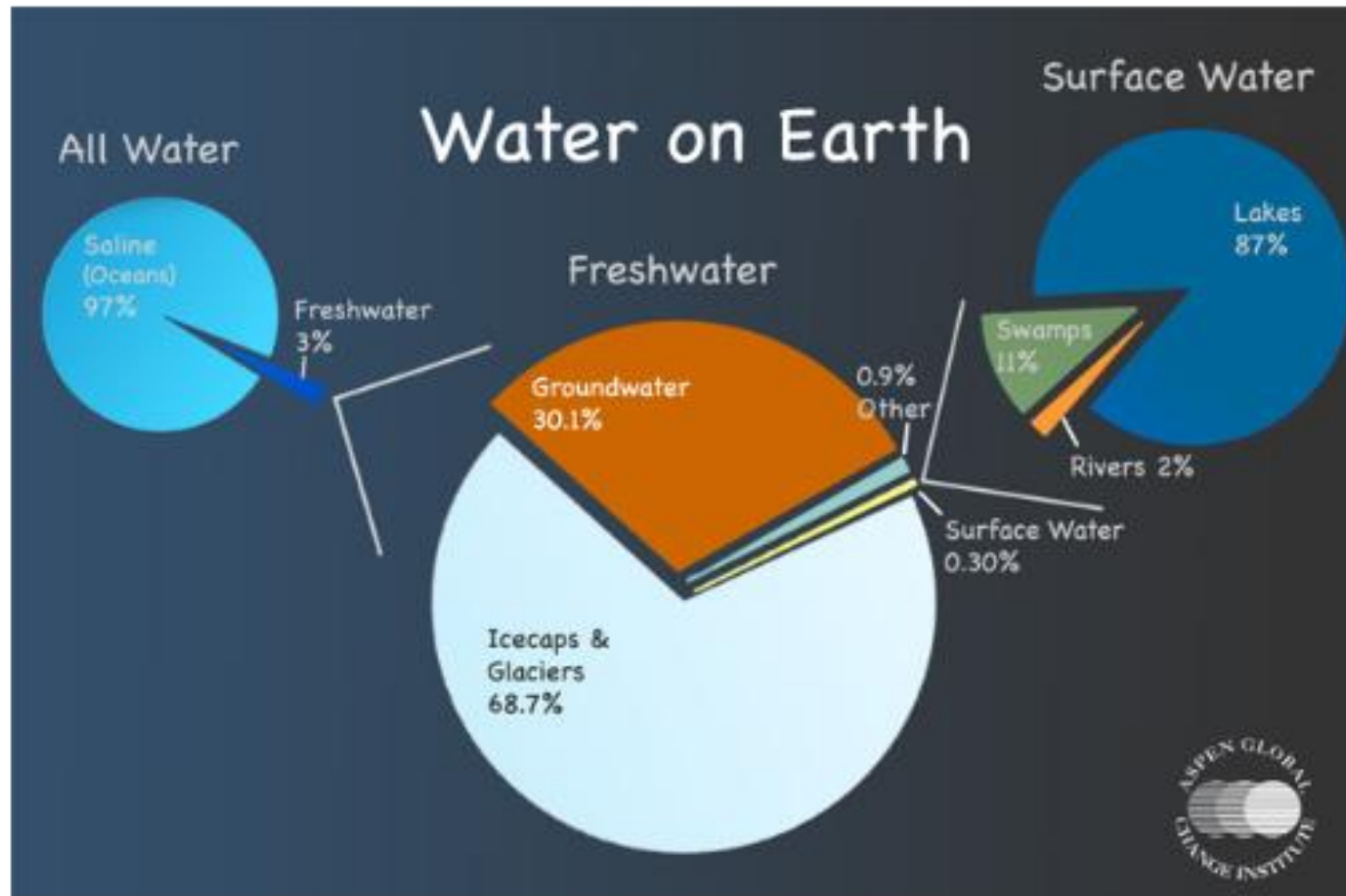
# U3AC Environment Group

Water Seminar, 25<sup>th</sup> June 2020

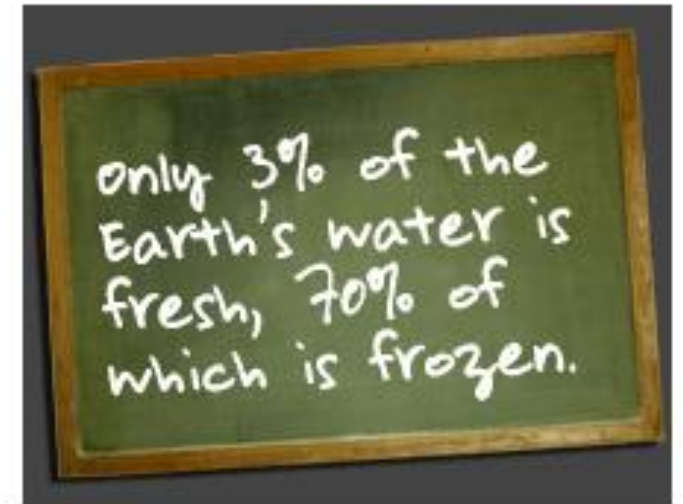
# Introduction

“When the well is dry, we know the worth of water.”

(Benjamin Franklin, 1746)



**Water Distribution** *Water on Earth.*  
 Most of the water on Earth is either salty or inaccessible to humans. Only 3% is fresh, and of that only about 32% is unfrozen.



# Impact of Climate Change on Fresh Water Resources

- “The availability of fresh water will be substantially changed in a world affected by global warming.”
- “...increase of temperature will mean that a higher proportion of the rain falling...will evaporate.”
- “...the more intense hydrological cycle associated with global warming will lead to increased frequency & intensity of both floods & droughts.”



# Daily Weather Recording

Date:

25/7/19

9.00 GMT

Maximum  
Temp

38.7°C

Minimum  
Temp

19.4°C

Ground  
Temp

17.6°C

Daily  
Rainfall

0 mm

Monthly  
Rainfall

17.9 mm

Yearly  
Rainfall

2915 mm

## Weather Recording

Monitoring the weather is particularly important for horticulture. Knowledge about climate trends helps us to cultivate our plant collection and make decisions about future plans for the Garden.

**Recording the weather since 1904**  
We started systematically recording weather data here in 1904. First thing each morning our staff record rainfall, air and ground temperature, relative humidity, wind speed and cloud cover - using the weather station in our Research plots. The data we record is then sent on to the Meteorological Office to support national weather records.

**Driest Botanic Garden in the UK**  
Cambridge is in the driest region of the UK - with a 30-year average annual rainfall of just 557 mm. This compares with a UK 30-year average annual of around 1150mm. This makes us the driest Botanic Garden in the UK - the annual average received by RBG Kew was 629mm, Oxford Botanic Garden 646mm, and RBG Edinburgh 698mm.

**Highs and lows of Cambridge weather**  
Our driest year, since we started recording, was in 1996, when just under 400mm of rain fell. Our wettest year was 2012, when 812.5 mm rain fell. Summer temperature maximums are usually reached in July, with a 30-year average of 22°C. The hottest day ever recorded at the Garden was 35.7°C, in August 2003. The coldest was -17.2°C, recorded in the Winter of 1947.

Finding enough snow to build a snowman in the Garden is actually pretty rare.



Our weather station is located in the Research plots - just behind this sign. Readings are taken daily by our staff.



# UK Climate Projections 2018 (UKCP18)

- By the end of the 21<sup>st</sup> century, all areas of the UK are projected to be warmer, more so in the summer
- Hot summers are expected to be more common; summers are expected to become dryer too
- There will be a decrease in soil moisture during summers [and] the severity of hot spells could be exacerbated

# Domestic Water Consumption

- National (Waterwise.org.uk):
  - Average 141 litres/head/day
  - Metered = 127 l/h/d (c.50% of households)
  - Unmetered = 160 l/h/d
- Local (Cambridge Water):
  - Average = 137 l/h/d
  - Metered = 123 l/h/d (c.75% of households)
  - Unmetered = 168 l/h/d
  - (Eddington = 80 l/h/d; rainwater 'harvesting', treatment & use for toilet flushing etc.)

# 137 litres per person per day...

- 10 minute shower = 150 litres
- Garden hosepipe = 225 litres in 15 minutes
- Kitchen tap = 15 litres per minute
- Toilet = 9 – 11 litres per flush (say, 40-50 litres per day?)
- Bath = 80 litres



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# Coronavirus and sunshine trigger surge in water consumption

The coronavirus lockdown, combined with the driest May on record, has led to a surge in household water demand. Dr Geoff Darch, water resources strategy manager at Anglian Water, offers some expert advice on how people can help keep taps running this summer by reducing discretionary water use.





# Unsustainable Water Use ?

