

Project 10: Heat stress in a warming world

What we have achieved:

Quickly learning a lot of different data analysis tools and methods

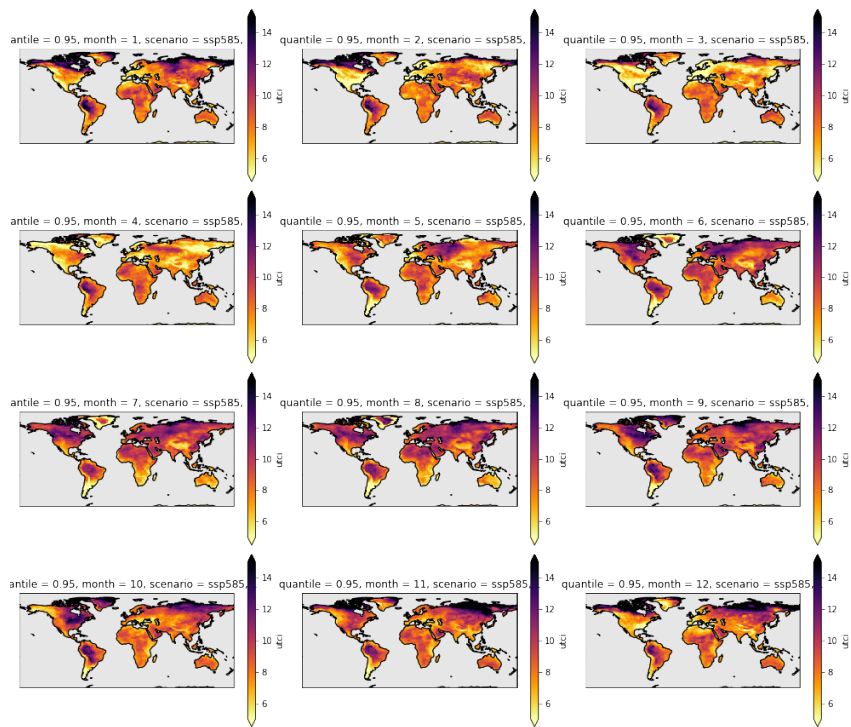
Collaborative project work with Git and Slack

Some pretty impressive graphics in 3 days

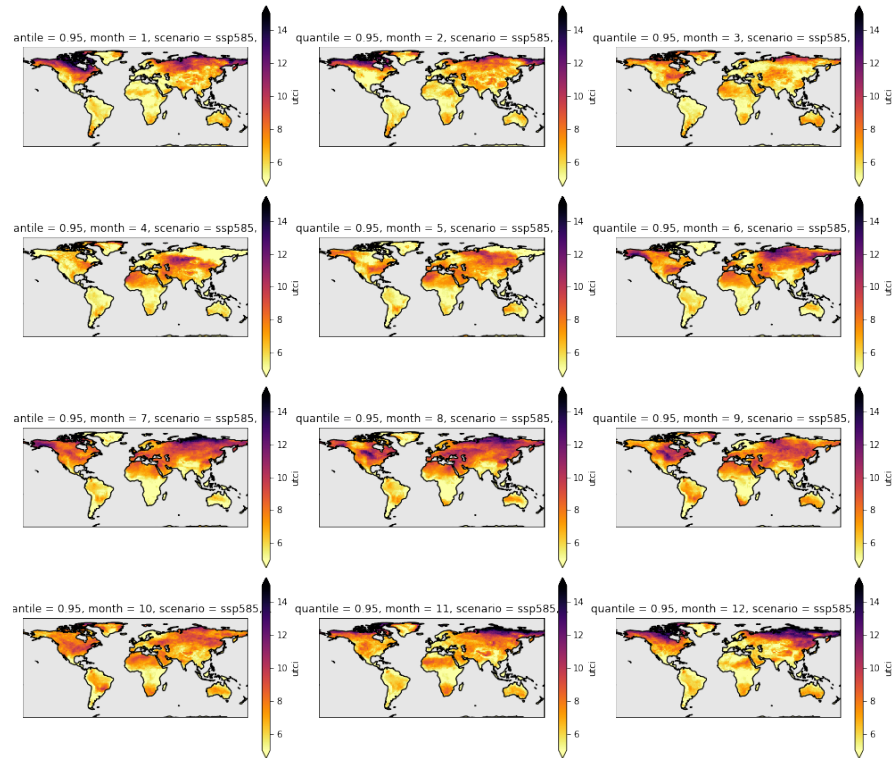
Chris, Charles, Chloe, Claudia, Gibran, Laila, Lauren, Michael, Rachel, Robin, Seb

Projections of heat stress depend on emissions scenario... and climate model

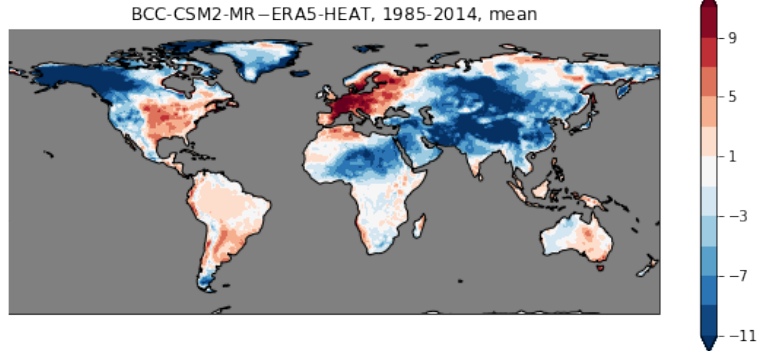
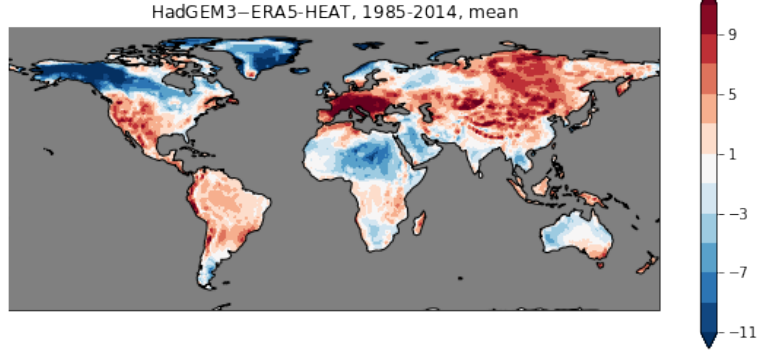
HadGEM3-GC31-LL (ECS = 5.6 K)



BCC-CSM2-MR (ECS = 3.0 K)

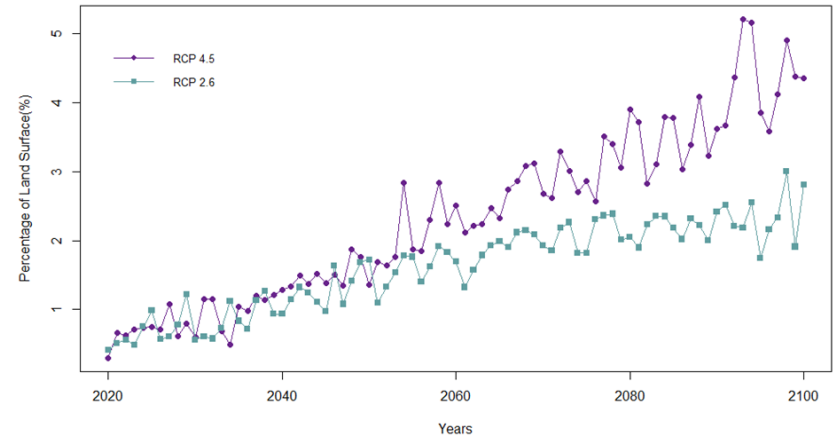


Results are preliminary and still need bias correction

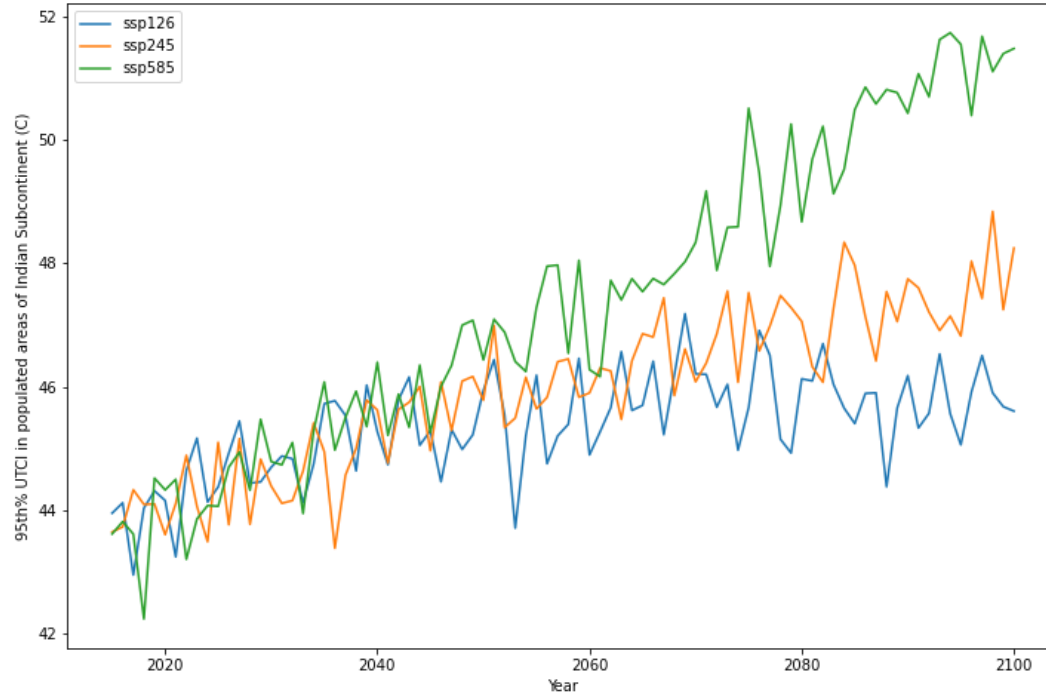


However they clearly indicate a higher degree of warming in most regions stronger climate change and a frequent exceedance of heat stress in populated regions

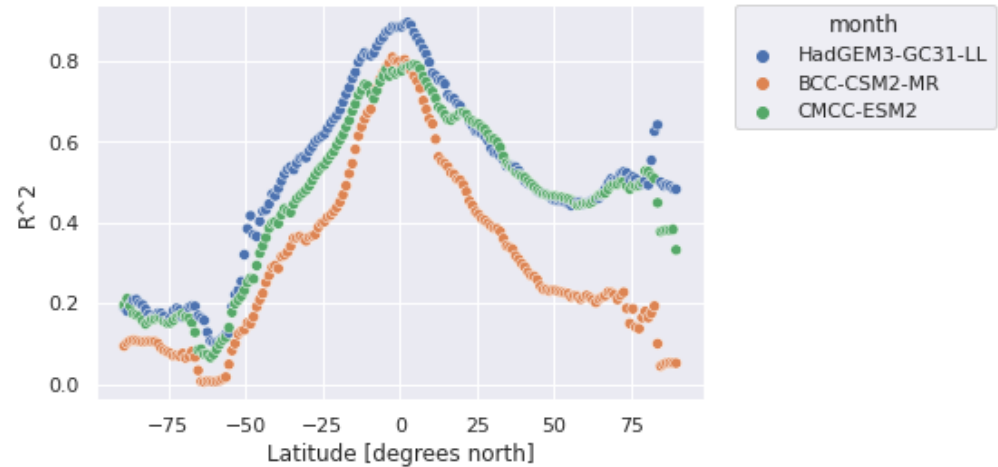
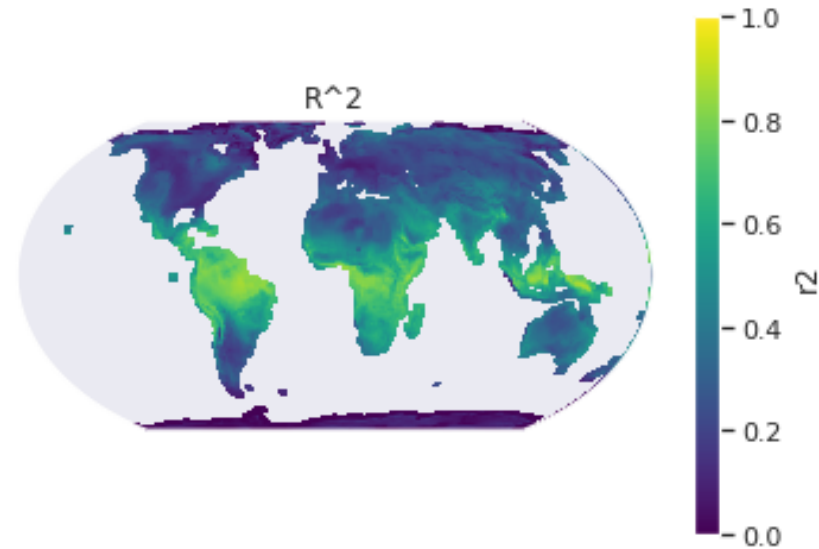
Heat Stress Uninhabitable regions go from ~0 to >4% of land surface in 2100:



95th percentile UTCI on the Indian Subcontinent will regularly become dangerous under strong warming



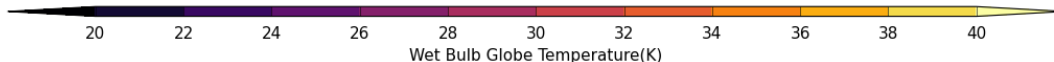
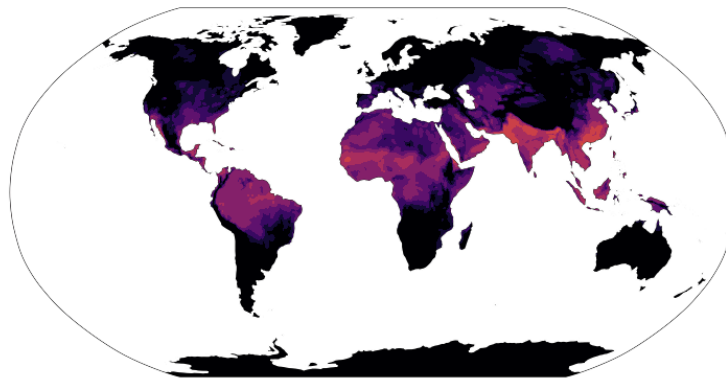
The relationship between mean UTCI and global warming is clearest near the equator, because there is less inter-annual variation



Next steps

Compare with Wet Bulb Globe Temperature

UTCI is a thermal stress metric best suited to daytime activity, so we will also compare the changes in **tropical nights** (daily minimum temperature > 20°C)



Compare to indoor UTCI

Link to regional mortality rates

Condense our huge data footprint into something more manageable

Write a paper!