

DROUGHT

Salty, gassy wetlands

Ecosystems <https://doi.org/10.1007/s10021-019-00430-5> (2019)



Credit: Joan Gravell / Alamy Stock Photo

Saltwater wetlands are typically a carbon sink, whereas freshwater wetlands are generally a net source of greenhouse gases (GHGs). However, the effect of increasing salinity on GHG emissions from freshwater wetlands is uncertain. Restoration of drained wetlands is an important conservation strategy; as freshwater wetlands provide important ecosystem services. Moreover, conversion of dried peatland to wetlands may mitigate carbon loss from these systems, as CH₄ emissions could be offset by plant biomass production.

Samuel Chamberlain, from the University of California, Berkley, USA, and colleagues use ecosystem-scale eddy covariance measurements and machine learning models to investigate the effects that increasing salinity due to drought had on GHG emissions from wetlands. They find that salinization could lead to increased

emissions. This effect was due to stronger decreases in net primary productivity (64%) that were not balanced by a similar decrease in CH₄ emissions (CH₄ decreased by 10%).

These results indicate that, with changing weather and precipitation patterns, freshwater wetlands may become stronger sources of GHGs to the atmosphere. *AF*

<https://doi.org/10.1038/s41558-019-0623-5>

CLIMATE ECONOMICS

Counting the future now

Environ. Res. Lett. <https://doi.org/10.1088/1748-9326/ab3cc9> (2019)

The discount rate, a key parameter in climate-economic models used to translate potential future policy benefits into present-day costs, has long been a subject of debate among economists. Yet the impact of different discount rates on the timing of abatement and carbon budget overshoot in policy-relevant scenarios that feature prominently in recent IPCC reports remains underexplored.

Johannes Emmerling of RFF-CMCC European Institute on Economics and the Environment, Italy, and colleagues show that the choice of discount rate not only matters for mitigation costs but also affects the time when net-zero emissions are reached and the amount of negative emissions needed to meet global temperature targets. Using both an analytical model and a detailed process Integrated Assessment Model (IAM), they show that moving from a 5% to a 2% discount rate more equitably distributes mitigation efforts across generations, reduces carbon budget overshoot by half and reduces net negative emissions by 300

GtCO₂ over the century. Although discount rates of around 5% are commonly adopted in IAMs, the rates applied by governments around the world range from 3% to 15%, suggesting that further attention to the issue of time discounting is needed to inform future global assessments. *AY*

<https://doi.org/10.1038/s41558-019-0624-4>

TROPICAL CYCLONES

Vietnam coastline threats

Int. J. Climatol. <https://doi.org/10.1002/joc.6348> (2019)



Credit: Stocktrek Images/Stocktrek Images/GETTY

For tropical cyclones (TCs) approaching coastlines, predicting their intensity and destructive potential is important in forecasting and risk management. Sea surface temperature (SST) is a useful proxy for maximum TC intensity, but this relationship varies across ocean basins. In addition, theoretical maximum TC intensity predicted by SSTs differs from actual TC intensity, highlighting the need to explore these relationships regionally.

Nguyen Thi Thanh from the Vietnam Institute of Meteorology, Hydrology and Climate Change and co-authors working in Vietnam and the USA analysed SST and TC intensity during 1982–2016 in the South China Sea, where these storms approach Vietnam. They find that this region exhibits less SST variability and higher SSTs relative to other ocean basins that produce TCs, and that maximum TC intensity shows a different SST dependence, with a peak in its distribution at about 29 °C. These results also support positive trends in regional SST and TC intensity over the past three decades — an uptick consistent with climate change simulations. *BL*

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ENVIRONMENTAL POLICY

Effect of female representation

Eur. J. Political Econ. <https://doi.org/10.1016/j.ejpoloco.2018.08.001> (2019)

Women tend to show greater concern about climate change than men, and bear more of the costs of climate change because of gendered labour and care roles. Because politicians implement policies consistent with their preferences, the political representation of women could have implications for climate change policy.

Astghik Mavisakalyan and Yashar Tarverdi from Curtin University, Australia, test whether the representation of women in parliament contributes to the climate change policies enacted. In a dataset of 91 countries, they find a strong positive relationship between the percentage of seats occupied by women in national parliaments and the stringency of climate change policy, which in turn is associated with lower CO₂ emissions. This relationship holds when controlling for factors such as GDP per capita, political regime and geo-economic characteristics, and is robust to alternative measures of climate policy stringency. The authors suggest that initiatives to increase female representation in governance may have a positive impact on climate change action. *JR*

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