

## References

### Aktuell

DEVRIES 2017

Tim DeVries, Mark Holzer & Francois Primeau, *Recent increase in oceanic carbon uptake driven by weaker upper-ocean overturning.* [nature](#) **542** (2017), 215–218.

[n542-0215-Supplement.pdf](#)

The ocean is the largest sink for anthropogenic carbon dioxide (CO<sub>2</sub>), having absorbed roughly 40 per cent of CO<sub>2</sub> emissions since the beginning of the industrial era<sup>1,2</sup>. Recent data show that oceanic CO<sub>2</sub> uptake rates have been growing over the past decade<sup>3–7</sup>, reversing a trend of stagnant or declining carbon uptake during the 1990s<sup>8–14</sup>. Here we show that ocean circulation variability is the primary driver of these changes in oceanic CO<sub>2</sub> uptake over the past several decades. We use a global inverse model to quantify the mean ocean circulation during the 1980s, 1990s and 2000s, and then estimate the impact of decadal circulation changes on the oceanic CO<sub>2</sub> sink using a carbon cycling model. We find that during the 1990s an enhanced upper-ocean overturning circulation drove increased outgassing of natural CO<sub>2</sub>, thus weakening the global CO<sub>2</sub> sink. This trend reversed during the 2000s as the overturning circulation weakened. Continued weakening of the upper-ocean overturning is likely to strengthen the CO<sub>2</sub> sink in the near future by trapping natural CO<sub>2</sub> in the deep ocean, but ultimately may limit oceanic uptake of anthropogenic CO<sub>2</sub>.

HENKE 2017

Katharina Henke, *Choosing the hard road.* [science](#) **355** (2017), 218.

When I opted to pursue a bachelor's degree in psychology in the 1980s, it was commitment more than joy that carried me through the first semesters. I was interested in learning about human behavior, but I was frustrated that robust mechanistic explanations seemed to be missing. I wondered whether I had chosen the right path. Then, one morning, lightning struck when I heard a lecture by an instructor from a local medical school about the brain and behavior. I realized that I wanted to explore both sides of the coin—not only mental acts, but also the neurobiology of phenomena like memory. But there was a problem: This type of interdisciplinary approach was pretty much unheard of at the time in Switzerland, where I lived.

JI 2017

Xiangdong Ji, *Dark matter remains elusive.* [nature](#) **542** (2017), 172–173.

WIMPs, or weakly interacting massive particles, are the leading candidates for dark matter, the 'missing' mass in the Universe. An experiment has obtained no evidence for such particles, despite an impressive increase in sensitivity.

KUPFERSCHMIDT 2017

Kai Kupferschmidt, *Life-saving diphtheria drug is running out.* [science](#) **355** (2017), 118–119.

Two children's deaths in Europe spur search for new sources of antitoxin.

MANN 2017

Adam Mann, *Stabilizing turbulence in fusion stellarators*. [PNAS 114 \(2017\), 1217–1219](#).

MIKALOFF FLETCHER 2017

Sara E. Mikaloff Fletcher, *Ocean circulation drove increase in CO2 uptake*. [nature 542 \(2017\), 169–170](#).

The ocean's uptake of carbon dioxide increased during the 2000s. Models reveal that this was driven primarily by weak circulation in the upper ocean, solving a mystery of ocean science.

PENNISI 2017

Elizabeth Pennisi, *Birds don't need exercise to stay fit for epic flights*. [science 355 \(2017\), 121](#).

WANG 2017

Jianxin Wang, Yulei Rao & Daniel E. Houser, *An experimental analysis of acquired impulse control among adult humans intolerant to alcohol*. [PNAS 114 \(2017\), 1299–1304](#).

The ability to control tempting impulses impacts health, education, and general socioeconomic outcomes among people at all ages. Consequently, whether and how impulse control develops in adult populations is a topic of enduring interest. Although past research has shed important light on this question using controlled intervention studies, here we take advantage of a natural experiment in China, where males but not females encounter substantial social pressure to consume alcohol. One-third of our sample, all of whom are Han Chinese, is intolerant to alcohol, whereas the remaining control sample is observationally identical but alcohol tolerant. Consistent with previous literature, we find that intolerant males are significantly more likely to exercise willpower to limit their alcohol consumption than alcohol-tolerant males. In view of the strength model of self-control, we hypothesize that this enables improved impulse control in other contexts as well. To investigate this hypothesis, we compare decisions in laboratory games of self-control between the tolerant and intolerant groups. We find that males intolerant to alcohol and who regularly encounter drinking environments control their selfish impulses significantly better than their tolerant counterparts. On the other hand, we find that female Han Chinese intolerant to alcohol do not use self-control to limit alcohol consumption more than tolerant females, nor do the tolerant and intolerant females exhibit differences in self-control behaviors. Our research indicates that impulse control can be developed in adult populations as a result of self-control behaviors in natural environments, and shows that this skill has generalizable benefits across behavioral domains.

**Keywords:** self-control | strength model | alcohol intolerance | cheating | natural experiment

**Significance:** We find that alcohol intolerance, which occurs randomly and leads affected people systematically to resist the impulse to consume alcohol, enables improved impulse control in another behavioral domain. Our findings show that impulse control can develop in adult populations as a result of exercising routine behaviors in naturally occurring environments. This finding is important because the ability to control tempting impulses significantly impacts the health and well-being of people at all ages. Our findings complement theory by providing rigorous empirical evidence that simple lifestyle changes may have significant personal well-being benefits. In particular, small acts of self-control, such as resisting drinking or

always waking at the same time, can increase one's overall ability to resist selfish temptations.

## Anthropologie

SISKA 2017

Veronika Siska et al., *Genome-wide data from two early Neolithic East Asian individuals dating to 7700 years ago*. *Science Advances* **3** (2017), e1601877. DOI:10.1126/sciadv.1601877.

Veronika Siska, Eppie Ruth Jones, Sungwon Jeon, Youngjune Bhak, Hak-Min Kim, Yun Sung Cho, Hyunho Kim, Kyusang Lee, Elizaveta Veselovskaya, Tatiana Balueva, Marcos Gallego-Llorente, Michael Hofreiter, Daniel G. Bradley, Anders Eriksson, Ron Pinhasi, Jong Bhak & Andrea Manica

Ancient genomes have revolutionized our understanding of Holocene prehistory and, particularly, the Neolithic transition in western Eurasia. In contrast, East Asia has so far received little attention, despite representing a core region at which the Neolithic transition took place independently  $\approx 3$  millennia after its onset in the Near East. We report genome-wide data from two hunter-gatherers from Devil's Gate, an early Neolithic cave site (dated to  $\approx 7.7$  thousand years ago) located in East Asia, on the border between Russia and Korea. Both of these individuals are genetically most similar to geographically close modern populations from the Amur Basin, all speaking Tungusic languages, and, in particular, to the Ulchi. The similarity to nearby modern populations and the low levels of additional genetic material in the Ulchi imply a high level of genetic continuity in this region during the Holocene, a pattern that markedly contrasts with that reported for Europe.

## Klima

HOFFMAN 2017

Jeremy S. Hoffman, Peter U. Clark, Andrew C. Parnell & Feng He, *Regional and global sea-surface temperatures during the last interglaciation*. *science* **355** (2017), 276–279.

s355-0276-Supplement.pdf

The last interglaciation (LIG, 129 to 116 thousand years ago) was the most recent time in Earth's history when global mean sea level was substantially higher than it is at present. However, reconstructions of LIG global temperature remain uncertain, with estimates ranging from no significant difference to nearly  $2^\circ\text{C}$  warmer than present-day temperatures. Here we use a network of sea-surface temperature (SST) records to reconstruct spatiotemporal variability in regional and global SSTs during the LIG. Our results indicate that peak LIG global mean annual SSTs were  $0.5 \pm 0.3^\circ\text{C}$  warmer than the climatological mean from 1870 to 1889 and indistinguishable from the 1995 to 2014 mean. LIG warming in the extratropical latitudes occurred in response to boreal insolation and the bipolar seesaw, whereas tropical SSTs were slightly cooler than the 1870 to 1889 mean in response to reduced mean annual insolation.