

Reporting Summary

Nature Portfolio wishes to improve the reproducibility of the work that we publish. This form provides structure for consistency and transparency in reporting. For further information on Nature Portfolio policies, see our [Editorial Policies](#) and the [Editorial Policy Checklist](#).

Statistics

For all statistical analyses, confirm that the following items are present in the figure legend, table legend, main text, or Methods section.


- n/a

Confirmed
- ☐

☒

The exact sample size (n) for each experimental group/condition, given as a discrete number and unit of measurement
- ☐

☒

A statement on whether measurements were taken from distinct samples or whether the same sample was measured repeatedly
- 

☐

☒ The statistical test(s) used AND whether they are one- or two-sided
Only common tests should be described solely by name; describe more complex techniques in the Methods section.
- ☐


☒

A description of all covariates tested
- ☐

☒

A description of any assumptions or corrections, such as tests of normality and adjustment for multiple comparisons
- ☐

☒

A full description of the statistical parameters including central tendency (e.g. means) or other basic estimates (e.g. regression coefficient) AND variation (e.g. standard deviation) or associated estimates of uncertainty (e.g. confidence intervals)
- 


☐

☒ For null hypothesis testing, the test statistic (e.g. F , t , r) with confidence intervals, effect sizes, degrees of freedom and P value noted
Give P values as exact values whenever suitable.
- ☐

☒

For Bayesian analysis, information on the choice of priors and Markov chain Monte Carlo settings
- ☐

☒

For hierarchical and complex designs, identification of the appropriate level for tests and full reporting of outcomes
- 


☐

☒ Estimates of effect sizes (e.g. Cohen's d , Pearson's r), indicating how they were calculated

Our web collection on [statistics for biologists](#) contains articles on many of the points above.

Software and code

Policy information about [availability of computer code](#)

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Data collection

Daily 4-km PRISM data during 1982-2020 and HIFLD data are freely available at <https://prism.oregonstate.edu/recent/> and <https://hifld-geoplatform.opendata.arcgis.com>, respectively. National Center for Health Statistics (NCHS) bridged-race dataset (Vintage 2020) is available during 1990-2020 https://www.cdc.gov/nchs/nvss/bridged_race.htm and from the US Census Bureau before 1990 <https://www.census.gov/data/tables/time-series/demo/popest/1980s-county.html>.
- Data analysis

All code to reproduce this work, as well as underlying daily WBGTmax for each carceral facility during 1982-2020 and analytical products used here, are freely available at https://github.com/sparklabnyc/temperature_prisons_united_states_2024.

For manuscripts utilizing custom algorithms or software that are central to the research but not yet described in published literature, software must be made available to editors and reviewers. We strongly encourage code deposition in a community repository (e.g. GitHub). See the Nature Portfolio [guidelines for submitting code & software](#) for further information.



Policy information about [availability of data](#)

All manuscripts must include a [data availability statement](#). This statement should provide the following information, where applicable:

- Accession codes, unique identifiers, or web links for publicly available datasets
- A description of any restrictions on data availability
- For clinical datasets or third party data, please ensure that the statement adheres to our [policy](#)

Daily 4-km PRISM data from 1982 to 2020 and HIFLD data are freely available at <https://prism.oregonstate.edu/recent/> and <https://hifld-geoplatform.opendata.arcgis.com>, respectively. National Center for Health Statistics (NCHS) bridged-race dataset (Vintage 2020) is available from during 1990 to 2020 https://www.cdc.gov/nchs/nvss/bridged_race.htm and from the US Census Bureau before 1990 <https://www.census.gov/data/tables/time-series/demo/popest/1980s-county.html>.

Research involving human participants, their data, or biological material

Policy information about studies with [human participants or human data](#). See also policy information about [sex, gender \(identity/presentation\), and sexual orientation](#) and [race, ethnicity and racism](#).

Reporting on sex and gender	N/A
Reporting on race, ethnicity, or other socially relevant groupings	N/A
Population characteristics	N/A
Recruitment	N/A
Ethics oversight	Does not involve human participants

Note that full information on the approval of the study protocol must also be provided in the manuscript.

Field-specific reporting

Please select the one below that is the best fit for your research. If you are not sure, read the appropriate sections before making your selection.

- ☐ Life sciences ☐ Behavioural & social sciences ☒ Ecological, evolutionary & environmental sciences

For a reference copy of the document with all sections, see nature.com/documents/nr-reporting-summary-flat.pdf

Ecological, evolutionary & environmental sciences study design

All studies must disclose on these points even when the disclosure is negative.

Study description	Here, we evaluated recent exposure trends of dangerous humid heat – defined as number of days annually the maximum wet bulb globe temperature exceeded 28°C – during 1982-2020 at 4,078 continental US carceral facilities holding ~2 million incarcerated people.
Research sample	Here, we evaluate recent exposure to and the trends of dangerous humid heat conditions during 1982 - 2020 for all 4,078 operational and populated carceral facilities (referring to prisons, jails, and other carceral facilities) in the continental United States (Materials and Methods, Supporting Information).
Sampling strategy	Here, we evaluate recent exposure to and the trends of dangerous humid heat conditions during 1982 - 2020 for all 4,078 operational and populated carceral facilities
Data collection	<p>Incarceration Data</p> <p>We use carceral facility (referring to prisons, jails, and other carceral facilities) locational boundaries (polygon latitudinal and latitudinal coordinates) and population data from the Homeland Infrastructure Foundation-Level Data (HIFLD), produced by the United States Department of Homeland Security.¹ We included 4,078 operational and populated prisons, jails, and carceral facilities including ICE detention centers, juvenile or geriatric facilities, and halfway houses in the continental United States in our analysis. Of these, there were 232 federal, 1,606 state, 2,142 county, and 73 local facilities. Twenty-five (0.6% of total) carceral facilities did not fall into these categories and were classed as ‘other’. Texas was the state with the single most prisons and jails (411 or 10.1% of total). In total, in 2018, there were 2,032,647 incarcerated people in included prisons and jails, of which 187,847 were in federal, 1,202,930 in state, 604,699 in county, 25,267 in local, and 11,904 in other. Texas was also the state with the single most incarcerated people (233,601 or 11.5% of total). The single largest prison by population was Cook County Jails, IL, with 8,216 incarcerated people.</p> <p>Climate data</p>

The Parameter-elevation Relationships on Independent Slopes Model (PRISM) dataset from Oregon State University provides high-resolution (4 km grids) daily Tmax and maximum vapor pressure deficit (VPDmax) from 1981 - to near present.² As described in,³⁻⁵ mean fields are produced by interpolating data from a dense network of weather stations with a spatial-weight regression model that uses landscape features like elevation and aspect to predict daily meteorological conditions across the continental United States (CONUS). PRISM data has been well-validated and shown to be well-suited for heat-related epidemiological research in the United States.⁵ The 4-km dataset is freely available.

Timing and spatial scale	Here, we evaluate recent exposure to and the trends of dangerous humid heat conditions during 1982 - 2020 for all 4,078 operational and populated carceral facilities (referring to prisons, jails, and other carceral facilities) in the continental United States (Materials and Methods, Supporting Information).
Data exclusions	All carceral operational and populated carceral facilities were included
Reproducibility	All code to reproduce this work, as well as underlying daily WBGTmax for each carceral facility during 1982 - 2020 and analytical products used here, are freely available via GitHub.
Randomization	N/A
Blinding	N/A

Did the study involve field work? ☐ Yes ☒ No

Reporting for specific materials, systems and methods

We require information from authors about some types of materials, experimental systems and methods used in many studies. Here, indicate whether each material, system or method listed is relevant to your study. If you are not sure if a list item applies to your research, read the appropriate section before selecting a response.

Materials & experimental systems

Methods

- n/a
- Involved in the study
- ☒ ☐ Antibodies
- ☒ ☐ Eukaryotic cell lines
- ☒ ☐ Palaeontology and archaeology
- ☒ ☐ Animals and other organisms
- ☒ ☐ Clinical data
- ☒ ☐ Dual use research of concern
- ☒ ☐ Plants

- n/a
- Involved in the study
- ☒ ☐ ChIP-seq
- ☒ ☐ Flow cytometry
- ☒ ☐ MRI-based neuroimaging