

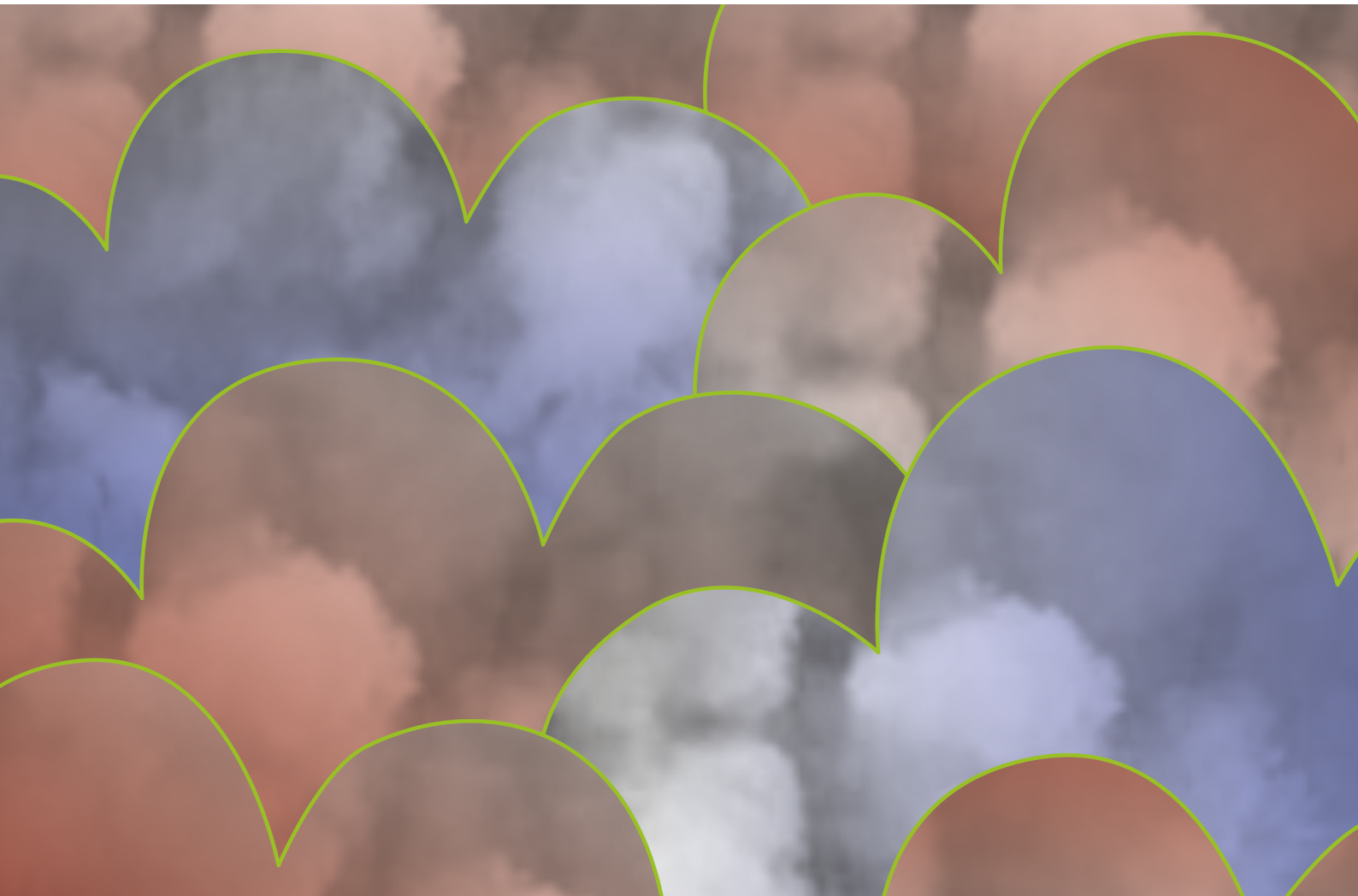


**Global Peatland Hotspot Atlas:
The State of the World's Peatlands in Maps**
Download the full Global Peatland Hotspot Atlas here



Peatland fires

Undrained peatlands do experience surface fires but these do not penetrate into the peat body. In contrast, drained peatlands may suffer prolonged smoldering fires, particularly during El Niño events, resulting in significant GHG emissions and hazardous haze detrimental to human health.



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ISBN: 978-92-807-4197-1
Job Number: DEP/2684/NA
DOI: <https://doi.org/10.59117/20.500.11822/46635>

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Suggested Citation

United Nations Environment Programme (2024). Global Peatland Hotspot Atlas: The State of the World's Peatlands in Maps. Visualizing global threats and opportunities for peatland conservation, restoration, and sustainable management. Nairobi.

Production

United Nations Environment Programme (UNEP).
<https://www.unep.org/resources/report/global-peatland-hotspot-atlas-2024>

Supported by:

The Global Peatland Hotspot Atlas is a product supported by the Michael Succow Foundation, partner in the Greifswald Mire Centre, under the umbrella of the Global Peatlands Initiative: Assessing, Measuring and Preserving Peat Carbon project (GPI project) which is funded by the International Climate Initiative (IKI) of Germany.

Supported by:



based on a decision of
the German Bundestag



Acknowledgements

The United Nations Environment Programme (UNEP) would like to thank the Greifswald Mire Centre (GMC) for the access to their Global Peatland Database (GPD) and for the production of the Global Peatland Map and all Thematic Maps.



UNEP would also like to thank the Global Peatlands Initiative (GPI) Team for the overall coordination of this Atlas.

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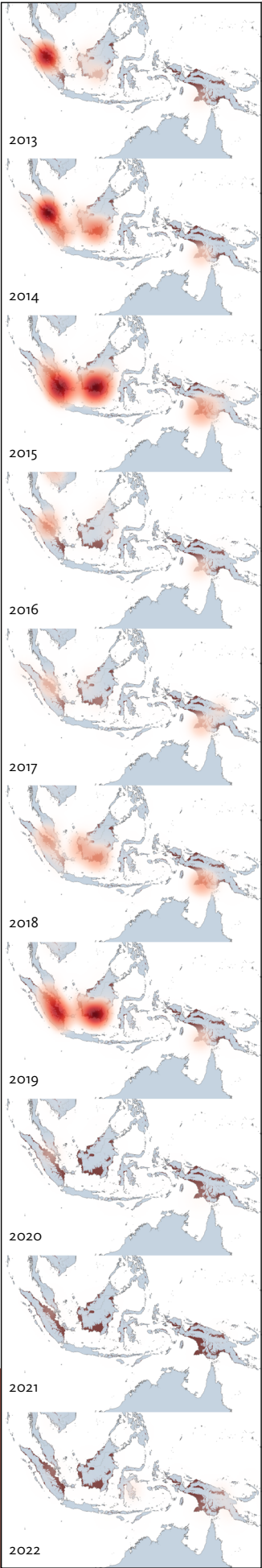
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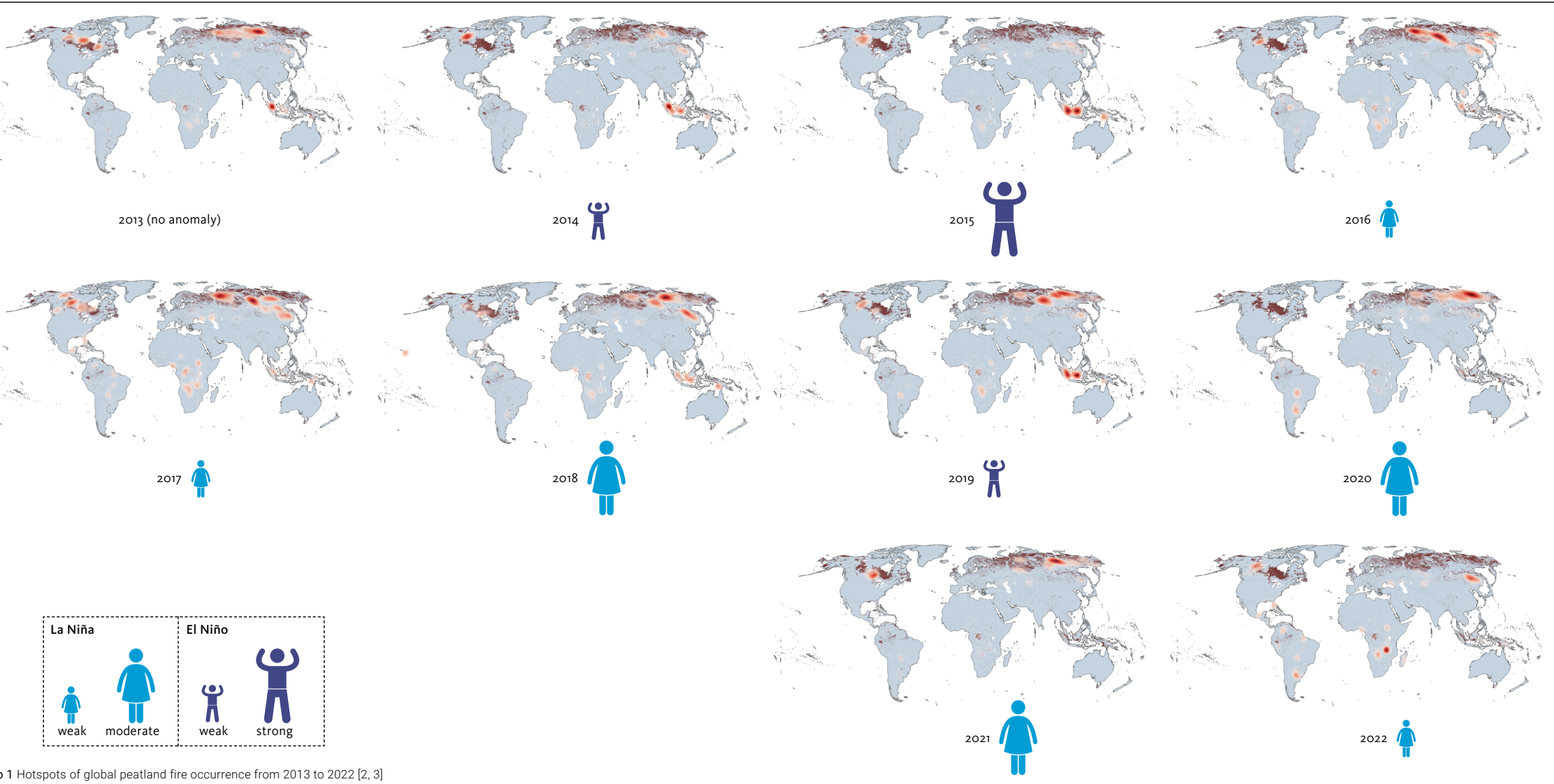
Thanks also to:

Caroline Borowski, Martha Burckhardt, the Global Peatland Database mapping team, the contributors of the UNEP 2022 Global Peatland Assessment, Susan Gardner, Jane Muriithi, Mónica López Conlon, Cisca Devereux, and Fabrice Inkonyo

Peatland fires



Map 2 Hotspots of peatland fire occurrence in Indonesia from 2013 to 2022 [2, 3]



Map 1 Hotspots of global peatland fire occurrence from 2013 to 2022 [2, 3]

Undrained peatlands in regions where regular fires are part of the natural ecosystem dynamics usually experience rapid burns that affect only the aboveground biomass over a limited area, rather than penetrating into the peat body. Such fire regime is typical for peatlands the boreal and arctic climate zones of North America and Asia, as well as in the flooded savannah landscapes across Africa (Map 1). However, also there fires are increasing in frequency and intensity in recent years due to prolonged dry periods, triggered by climate change. Human activities such as logging, post-harvest slash-and-burn agriculture, and biomass burning or infrastructure development further exacerbate this trend [1, 4].

Deep and long-term drained peatlands are vulnerable to large-scale, deep-seated, and long-lasting smoldering peat fires fueled by dry peat and dead biomass accumulated after land abandonment. During climate anomalies such as El Niño years in Indonesia, extreme peat and forest fires as may occur, like during the El Niño years of 2014, 2015, and 2019 (Map 2 [1, 2, 3, 5]). The El Niño Southern Oscillation (ENSO) cycle refers to the climate phenomenon when the sea surface temperatures in the eastern Pacific Ocean become warmer than average, leading to increased rainfall and flooding in the Eastern Pacific, while causing drier-than-normal conditions in the Western Pacific. La Niña is the opposite phase,

characterized by cooler-than-average sea surface temperatures in the eastern Pacific, which influences global weather patterns in the opposite direction. As a response to the devastating peat fires in 2015, Indonesia has started an ambitious programme to monitor and rewet drained peatland over currently almost 4 million ha, mainly by legally prescribing that water levels should not drop lower than 40 cm below ground level. Although these 40 cm are not fully secured and insufficient to stop subsidence, emissions and fires completely, this policy has reduced these hazards substantially [6].

Undrained peatlands do experience surface fires but these do not penetrate into the peat body. In contrast, drained peatlands may suffer prolonged smoldering fires, particularly during El Niño events, resulting in significant GHG emissions and hazardous haze detrimental to human health.



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Figure 1 Arctic wildfires consume trees and peat © NPS Climate Change Response/Flickr



Figure 2 Peatland after peat fire, Brunei Badas © H. Joosten

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