

# Publications

## 2021

- Burt DJ, Fröb F and Ilyina T (2021) **The Sensitivity of the Marine Carbonate System to Regional Ocean Alkalinity Enhancement.** *Front. Clim.* 3:624075. doi: 10.3389/fclim.2021.624075 / <https://www.frontiersin.org/articles/10.3389/fclim.2021.624075/full>
  - Klaus, G., Oswald, L., Ernst, A. and Merk, C. (2021) **Effects of opinion statements on laypeople's acceptance of a climate engineering technology. Comparing the source credibility of researchers, politicians and a citizens' jury.** [doi:10.22323/2.20010203](https://doi.org/10.22323/2.20010203)
  - Robrecht, S., Vogel, B., Tilmes, S., Müller, R. **Potential of future stratospheric ozone loss in the midlatitudes under global warming and sulfate geoengineering.** doi:10.5194/acp-21-2427-2021 /<https://acp.copernicus.org/articles/21/2427/2021/>
  - Stenzel, F., Gerten, D., Hanasaki, N. (2021): **Global scenarios of irrigation water abstractions for bioenergy production: a systematic review.** In *Hydrol. Earth Syst. Sci.* 25 (4), pp. 1711–1726. DOI: 10.5194/hess-25-1711-2021. <https://doi.org/10.5194/hess-25-1711-2021>
  - Stenzel, F., Greve, P., Lucht, W., Tramberend, S., Wada, Y. and Gerten, D. **Irrigation of biomass plantations may globally increase water stress more than climate change.** *Nat Commun* 12, 1512 (2021). <https://doi.org/10.1038/s41467-021-21640-3>
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## 2020

- Amann, T., Hartmann, J., Struyf, E., de Oliveira Garcia, W., Fischer, E. K., Janssens, I., Meire, P. and Schoelynck, J. (2020) **Enhanced Weathering and related element fluxes – a cropland mesocosm approach.** <https://doi.org/10.5194/bg-17-103-2020>
- Barben, D.; Matzner, N. (2020): **Anticipatory Governance of Climate Engineering.** In Oxford Research Encyclopedias: Geoengineering. DOI: [10.1093/acrefore/9780190228620.013.69](https://doi.org/10.1093/acrefore/9780190228620.013.69).
- Kreuter, J., Matzner, N., Baatz, C., Keller, D.P., Markus, T., Wittstock, F., Bernitt, U. and Mengis, N. **Unveiling assumptions through interdisciplinary scrutiny: Observations from the German Priority Program on Climate Engineering (SPP 1689).** [Climatic Change \(2020\).](https://doi.org/10.1007/s10584-020-02777-4) <https://doi.org/10.1007/s10584-020-02777-4>
- Matzner, N. and Barben, D. (2020): **Climate Engineering as a Communication Challenge: Contested Notions of Responsibility Across Expert Arenas of Science and Policy.** <https://doi.org/10.1177/1075547019899408>
- Neuber, F. and Ott, K. **The Buying Time Argument within the Solar Radiation Management Discourse.** *Appl. Sci.* 2020, 10, 4637. <https://doi.org/10.3390/app10134637>
- Ott, K. and Neuber, F. (2020) **The Debate on Climate Engineering in the Context of Climate Change.** In Oxford Research Encyclopedias: Geoengineering. DOI: [10.1093/acrefore/9780190228620.013.815](https://doi.org/10.1093/acrefore/9780190228620.013.815)
- Rickels, W., Quaas, M. F., Ricke, K., Quaas, J., Moreno-Cruz, J., Smulders, S. (2020)

**Who turns the global thermostat and by how much? <https://doi.org/10.1016/j.eneco.2020.104852>**

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**2019**

- Boyd, P., C. Vivian, M. Boettcher, F. Chai, J. Cullen, T. Goeschl, R. Lampitt, A. Lenton, A. Oschlies, G. Rau, R. Rickaby, K. Ricke an R. Wanninkhof (2019). **High Level Review of a Wide Range of Proposed Marine Geoengineering Techniques**, Journal Series GESAMP Reports and Studies 98,  
<http://www.gesamp.org/publications/high-level-review-of-a-wide-range-of-proposed-marine-geoengineering-techniques>
- Carrier, M., Lenhard, J. (2019) **Climate Models: How to Assess Their Reliability**, **International Studies in the Philosophy of Science**, 32:2, 81-100,  
[DOI:10.1080/02698595.2019.1644722](https://doi.org/10.1080/02698595.2019.1644722)
- Irvine, P., K. Emanuel, J. He, L. W. Horowitz, G. Vecchi and D. Keith (2019). **Halving warming with idealized solar geoengineering moderates key climate hazards**, Nature Climate Change volume 9, 295–299, <https://www.nature.com/articles/s41558-019-0398-8>
- Gramelsberger, G., Lenhard, J., and Parker, W. (2019): **Philosophical Perspectives on Earth System Modeling: Truth, Adequacy and Understanding**, Journal of Advances in Modeling Earth Systems, <https://doi.org/10.1029/2019MS001720>
- Klaus, G., A. Ernst, L. Oswald (2019) **Psychological factors influencing laypersons' acceptance of climate engineering, climate change mitigation and business as usual scenarios**.  
<https://doi.org/10.1016/j.techsoc.2019.101222>
- Mengis, N., D. P. Keller, W. Rickels, M. Quaas and A. Oschlies (2019). **Climate engineering-induced changes in correlations between Earth system variables—implications for appropriate indicator selection**, Climate Change, <https://link.springer.com/article/10.1007/s10584-019-02389-7>
- Merk, C., Klaus, G., Pohlers, J., Ernst, A., Ott, K., and Rehdanz, K. (2019): **Public Perceptions of Climate Engineering: Laypersons' Acceptance at Different Levels of Knowledge and Intensities of Deliberation**. <https://doi.org/10.14512/gaia.28.4.6>
- Pfrommer, T., Goeschl, T., Proelss, A. et al. Climatic Change (2019). **Establishing causation in climate litigation: admissibility and reliability**. <https://doi.org/10.1007/s10584-018-2362-4>
- Reith, F., W. Koeve, D. P. Keller, J. Getzlaff and A. Oschlies (2019). **Meeting climate targets by direct CO<sub>2</sub> injections: What price would the ocean have to pay?** Earth System Dynamics, <https://www.earth-syst-dynam-discuss.net/esd-2018-87/>
- Rickels, W., C, Merk, F. Reith, D. Keller and A. Oschlies (2019). **(Mis)conceptions about modelling of negative emissions technologies**. Environ. Res. Lett., <https://iopscience.iop.org/article/10.1088/1748-9326/ab3ab4>
- Robrecht, S., B. Vogel, J.-U. Groß, K. Rosenlof, T. Thornberry, A. Rollins, M. Krämer, L. Christensen and R. Müller (2019) **Mechanism of ozone loss under enhanced water vapour conditions in the mid-latitude lower stratosphere in Summer**, Atmos. Chem. Phys., 10, 5805-5833, <https://www.atmos-chem-phys.net/19/5805/2019/>
- Stenzel, F., D. Gerten, C. Werner and J. Jägermeyr (2019) **Freshwater requirements of large-scale bioenergy plantations for limiting global warming to 1.5 °C**, Environmental Research Letters 14, <https://iopscience.iop.org/article/10.1088/1748-9326/ab2b4b>

---

## 2018

- Beck, Silke; et al. (2018): The politics of anticipation. **The IPCC and the negative emissions technologies experience**, <https://doi.org/10.1017/sus.2018.7>
- Beck, Silke, M. Mahony (2018): **The IPCC and the new map of science and politics**, WIREs Clim Change, <https://doi.org/10.1002/wcc.547>
- Ferrer González, Miriam, Tatiana Ilyina, Sebastian Sonntag, Hauke Schmidt (2018): **Enhanced Rates of Regional Warming and Ocean Acidification after Termination of Large-scale Ocean Alkalization**, Geophysical Research Letters, [doi: 10.1029/2018gl077847](https://doi.org/10.1029/2018gl077847)
- Heck, Vera; et al. (2018): **Biomass-based negative emissions difficult to reconcile with planetary boundaries**, Nature Climate Change (2018), [doi:10.1038/s41558-017-0064-y](https://doi.org/10.1038/s41558-017-0064-y)
- Held, Hermann (2018): **Der ökonomische Wert von Klimainformation: Zur Neuinterpretation von Klimazielen unter antizipiertem Lernen**, Unsicherheit als Herausforderung für die Wissenschaft, [https://www.peterlang.com/view/9783631761533/chapter-003.xhtml#\\_idParaDest-5](https://www.peterlang.com/view/9783631761533/chapter-003.xhtml#_idParaDest-5)
- Janich, Nina and C. Stumpf (2018): **Verantwortung unter der Bedingung von Unsicherheit - und was KlimawissenschaftlerInnen darunter verstehen**, Unsicherheit als Herausforderung für die Wissenschaft, [https://www.peterlang.com/view/9783631761533/chapter-009.xhtml#\\_idParaDest-13](https://www.peterlang.com/view/9783631761533/chapter-009.xhtml#_idParaDest-13)
- Keller, D.P., Lenton, A., Littleton, E.W. et al. (2018): **The Effects of Carbon Dioxide Removal on the Carbon Cycle**, Curr Clim Change Rep, 1-16, <https://doi.org/10.1007/s40641-018-0104-3>
- Keller, D. P., Lenton, A., Scott, V., Vaughan, N. E., Bauer, N., Ji, D., Jones, C. D., Kravitz, B., Muri, H., and Zickfeld, K.: **The Carbon Dioxide Removal Model Intercomparison Project (CDR-MIP): Rationale and experimental protocol for CMIP6**, Geosci. Model Dev., <https://doi.org/10.5194/gmd-2017-168>, 2018
- Keller D.P. (2018) **Marine Climate Engineering**. In: Salomon M., Markus T. (eds) Handbook on Marine Environment Protection. Springer, Cham, [doi:10.1007/978-3-319-60156-4\\_13](https://doi.org/10.1007/978-3-319-60156-4_13)
- Kleinschmitt, C., Boucher, O., and Platt, U. (2018): **Sensitivity of the radiative forcing by stratospheric sulfur geoengineering to the amount and strategy of the SO<sub>2</sub>injection studied with the LMDZ-S3A model**, Atmos. Chem. Phys., 18, 2769-2786, <https://doi.org/10.5194/acp-18-2769-2018>
- Kriegler, M., G. Luderer, N. Bauer, L. Baumstark, S. Fujimori, A. Popp, J. Rogelj, J. Strefler, . P. van Vuuren (2018): **Pathways limiting warming to 1.5°C: a tale of turning around in no time?**, Phil. Trans. R. Soc. A 2018 376 20160457, <https://doi.org/10.1098/rsta.2016.0457>
- Lenhard, Johannes (2018) **Holism or the Erosion of Modularity – a Methodological Challenge for Validation**, Philosophy of Science, 85, 832–844, <https://www.journals.uchicago.edu/doi/abs/10.1086/699675>
- Lawrence, Mark G., S. Schäfer, H. Muri, V. Scott, A. Oschlies, N. E. Vaughan, O. Bucher, H. Schmidt, J. Haywood and J. Scheffran (2018): **Evaluating climate geoengineering proposals in the context of the Paris Agreement temperature goals**, Nature Communications 9 (3734), <https://doi.org/10.1038/s41467-018-05938-3>
- Matzner, Nils and D. Barben (2018): **Verantwortungsvoll das Klima manipulieren? Unsicherheit und Verantwortung im Diskurs um Climate Engineering**, Unsicherheit als Herausforderung für die Wissenschaft,

[https://www.peterlang.com/view/9783631761533/chapter-008.xhtml#\\_idParaDest-12](https://www.peterlang.com/view/9783631761533/chapter-008.xhtml#_idParaDest-12)

- Mengis, N., Keller, D. P., and Oschlies, A. (2018): **Systematic Correlation Matrix Evaluation (SCoMaE) – a bottom-up, science-led approach to identifying indicators**, Earth Syst. Dynam., 9, 15-31, <https://doi.org/10.5194/esd-9-15-2018>
- Merk, C., Pönitzsch, G. and Rehdanz, K. (2018) **Do climate engineering experts display moral-hazard behaviour?**, Climate Policy, DOI: [10.1080/14693062.2018.1494534](https://doi.org/10.1080/14693062.2018.1494534)
- Neuber, Frederike (2017): **Buying Time with Climate Engineering? An analysis of the buying time framing in favor of climate engineering**, <https://publikationen.bibliothek.kit.edu/1000084294>
- Oliveira-Garcia, W., T. Amann, J. Hartmann (2018): **Increasing biomass demand enlarges negative forest nutrient budget areas in wood export regions**, Scientific Reports 8 (5280), [doi:10.1038/s41598-018-22728-5](https://doi.org/10.1038/s41598-018-22728-5)
- Oschlies, Andreas (2018): **Bewertung von Modellqualität und Unsicherheiten in der Klimamodellierung**, Unsicherheit als Herausforderung für die Wissenschaft, [https://www.peterlang.com/view/9783631761533/chapter-002.xhtml#\\_idTextAnchor040](https://www.peterlang.com/view/9783631761533/chapter-002.xhtml#_idTextAnchor040)
- Oschlies, Andreas (2018): **Solar engineering must take temperature debt into account**, Nature 554, 423, <https://www.nature.com/articles/d41586-018-02203-x>
- Ott, K. K. (2018): **On the Political Economy of Solar Radiation Management**, Frontiers in Environmental Science 6, 43, <https://doi.org/10.3389/fenvs.2018.00043>
- Pfrommer, T. (2018): **Diverging Regional Climate Preferences and the Assessment of Solar Geoengineering**, Discussion Paper Series (654), [doi:10.11588/heidok.00025204](https://doi.org/10.11588/heidok.00025204)
- Rickels, W., M. Quaas, K. Ricke, J. Quaas, J. Moreno-Cruz, S. Smulders (2018): **Turning the Global Thermostat — Who, When, and How Much?**, Kiel Working Paper (2110), <https://www.ifw-kiel.de/de/experten/ifw-researcher-internal/wilfried-rickels/turning-the-global-thermostat-who-when-and-how-much/>
- 

Rickels, W., Reith, F., Keller, D., Oschlies, A., & Quaas, M. F. (2018): **Integrated Assessment of Carbon Dioxide Removal**, Earth's Future, 6. [doi.org/10.1002/2017EF000724](https://doi.org/10.1002/2017EF000724)

- Roshan, E., M. M. Khabbazan & H. Held (2018): **Cost-Risk Trade-Off of Mitigation and Solar Geoengineering: Considering Regional Disparities Under Probabilistic Climate Sensitivity**, Environ. Resource Econ., 1-17, <https://doi.org/10.1007/s10640-018-0261-9>
- Sonntag, Sebastian; et al. (2018): **Quantifying and comparing effects of climate engineering methods on the Earth system**, Earth's Future, [doi:10.1002/2017EF000620](https://doi.org/10.1002/2017EF000620)
- Strefler, Jessica; et al. (2018): **Between Scylla and Charybdis: Delayed mitigation narrows the passage between large-scale CDR and high costs**, Environmental Research Letters, 13. 044015. [doi.org/10.1088/1748-9326/aab2ba](https://doi.org/10.1088/1748-9326/aab2ba)
- Strefler, Jessica; et al. (2018): **Potential and costs of carbon dioxide removal by enhanced weathering of rocks** <https://doi.org/10.1088/1748-9326/aaa9c4>
- Werner, C., H-P. Schmidt, D. Gerten, W. Lucht and C. Kammann (2018): **Biogeochemical potential of biomass pyrolysis systems for limiting global warming to 1.5 °C**, Environmental Research Letters 13 (4), <http://doi.org/10.1088/1748-9326/aabb0e>

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## 2017

- Beck, Silke; Mahony, Martin (2017): **The IPCC and the politics of anticipation.** In: Nature Climate Change, Vol. 7, p. 311-333, DOI: 10.1038/nclimate3264  
[http://www.nature.com/nclimate/journal/v7/n5/full/nclimate3264.html?WT.ec\\_id=NCLIMATE-201705&spMailingID=53950284&spUserID=ODkwMTM2NjQyMAS2&spJobID=1144733188&spReportId=MTE0NDczMzE4OAS2](http://www.nature.com/nclimate/journal/v7/n5/full/nclimate3264.html?WT.ec_id=NCLIMATE-201705&spMailingID=53950284&spUserID=ODkwMTM2NjQyMAS2&spJobID=1144733188&spReportId=MTE0NDczMzE4OAS2)
- Braun, Carola; Merk, Christine; Pöntzsch, Gert; Rehdanz, Katrin; Schmidt, Ulrich (2017): **Public perception of climate engineering and carbon capture and storage in Germany. Survey evidence.** In: Climate Policy 5 (1), S. 1–14. DOI: 10.1080/14693062.2017.1304888 [http://www.tandfonline.com/doi/abs/10.1080/14693062.2017.1304888?tokenDomain=eprints&tokenAccess=vqDyV6Wab5KBBayfy5fX&forwardService=showFullText&doi=10.1080%2F14693062.2017.1304888&journalCode=tcpo2](http://www.tandfonline.com/doi/abs/10.1080/14693062.2017.1304888?tokenDomain=eprints&tokenAccess=vqDyV6Wab5KBBayfy5fX&forwardService=showFullText&doi=10.1080%2F14693062.2017.1304888&doi=10.1080%2F14693062.2017.1304888&journalCode=tcpo2)
- Boucher, O., Kleinschmitt, C., & Myhre, G. (2017). **Quasi-additivity of the radiative effects of marine cloud brightening and stratospheric sulfate aerosol injection,** *Geophysical Research Letters*, 44, 11,158–11,165.<https://doi.org/10.1002/2017GL074647>
- Boysen, Lena R.; et al. (2017): **The limits to global-warming mitigation by terrestrial carbon removal.** In: Earth's Future. DOI:10.1002/2016EF000469 <http://onlinelibrary.wiley.com/doi/10.1002/2016EF000469/full>
- Boysen, Lena; et. al (2017): **Trade-offs for food production, nature conservation and climate limit the terrestrial carbon dioxide removal potential.** In: Global Change Biology, Accepted Articles, DOI: 10.1111/gcb.13745 <http://onlinelibrary.wiley.com/doi/10.1111/gcb.13745/abstract>
- Feng, E. Y.; Koeve, W.; Keller, D. P. and Oschlies, A. (2017): **Model-based Assessment of the CO<sub>2</sub> Sequestration Potential of Coastal Ocean Alkalization.** In Earth's Future. DOI: 10.1002/2017EF000659. <http://onlinelibrary.wiley.com/doi/10.1002/2017EF000659/pdf>
- Ferrer-Gonzalez, M. (2017). **Climate engineering by enhancement of ocean alkalinity: impacts on the Earth system and a comparison with solar radiation management.** PhD Thesis, Universität Hamburg, Hamburg. doi:10.17617/2.2472753.  
<http://hdl.handle.net/11858/00-001M-0000-002D-CEB7-1>
- Hasse, H. and Lenhard, J. (2017): Boon and Bane. On the Role of Adjustable Parameters in Simulation Models, in: Lenhard, J. and Carrier, M. (eds.): Mathematics as a Tool. Tracing New Roles of Mathematics in the Sciences. Boston Studies in the Philosophy and History of Science 327, Cham: Springer, 93-115, <https://www.springer.com/de/book/9783319544687#aboutBook>
- Keller, D. P., Lenton, A., Scott, V., Vaughan, N. E., Bauer, N., Ji, D., Jones, C. D., Kravitz, B., Muri, H., and Zickfeld, K.: **The Carbon Dioxide Removal Model Intercomparison Project (CDR-MIP): Rationale and experimental design,** Geosci. Model Dev. Discuss., <https://doi.org/10.5194/gmd-2017-168>, in review, 2017.
- Kemen, Tronje Peer; Matthes, Katja; Martin, Thomas; Wahl, Sebastian; Oschlies, Andreas: **Atmospheric feedbacks in North Africa from an irrigated, afforested Sahara,** Clim Dyn (2017). <https://doi.org/10.1007/s00382-017-3890-8>
- Kleinschmitt, C. (2017): **Climate Engineering with Stratospheric Sulphate Aerosol:**

**Development and Application of a Global Atmosphere-Aerosol Model for Studying Potential Efficacy and Impacts.** <https://doi.org/10.11588/heidok.00023955>

- Kleinschmitt, C., Boucher, O., Bekki, S., Lott, F., and Platt, U. (2017): **The Sectional Stratospheric Sulfate Aerosol module (S3A-v1) within the LMDZ general circulation model: description and evaluation against stratospheric aerosol observations**, Geosci. Model Dev., [10, 3359-3378,https://doi.org/10.5194/gmd-10-3359-2017](https://doi.org/10.5194/gmd-10-3359-2017)
- Lenhard, J. and Carrier, M. (eds.) (2017): **Mathematics as a Tool**. Tracing New Roles of Mathematics in the Sciences. Boston Studies in the Philosophy and History of Science 327. Cham: Springer. <https://www.springer.com/de/book/9783319544687#aboutBook>
- Lenhard, J., and Carrier, M. (2017). **Mathematics as a Tool**, in Lenhard, J. and Carrier, M. (eds.): Mathematics as a Tool. Tracing New Roles of Mathematics in the Sciences. Boston Studies in the Philosophy and History of Science 327, Cham: Springer, 1-19, <https://www.springer.com/de/book/9783319544687#aboutBook>
- Lohmann, Ulrike, Gasparini, Blaž: **A cirrus cloud climate dial?**, Science 21 Jul 2017, Vol. 357, Issue 6348, pp. 248-249, DOI: 10.1126/science.aan3325, <http://science.sciencemag.org/content/357/6348/248>
- Montserrat, Francesc; et al. (2017): **Olivine Dissolution in Seawater: Implications for CO<sub>2</sub> Sequestration through Enhanced Weathering in Coastal Environments**. In: Environmental Science & Technology, 51, 3960-3970. DOI: 10.1021/acs.est.6b05942 <http://pubs.acs.org/doi/abs/10.1021/acs.est.6b05942>
- Muraca, Barbara; Neuber, Frederike (2017): **Viable and convivial technologies: Considerations on Climate Engineering from a degrowth perspective**. In: Journal of Cleaner Production. DOI: 10.1016/j.jclepro.2017.04.159 <http://www.sciencedirect.com/science/article/pii/S0959652617308983>
- Neuber, Frederike (2017): **Buying Time with Climate Engineering? An analysis of the buying time framing in favor of climate engineering**, <https://publikationen.bibliothek.kit.edu/1000084294>
- Niemeier, U. and Schmidt, H. (2017): **Changing transport processes in the stratosphere by radiative heating of sulfate aerosols**, Atmos. Chem. Phys., 17, 14871-14886, <https://doi.org/10.5194/acp-17-14871-2017>
- Niemeier, Ulrike, Tilmes, Simone: **Sulfur injections for a cooler planet**, Science 21 Jul 2017, Vol. 357, Issue 6348, pp. 246-248, DOI: 10.1126/science.aan3317, <http://science.sciencemag.org/content/357/6348/246>
- Quaas, M. F.; Quaas, J.; Rickels, W.; Boucher, O. (2017): **Are there reasons against open-ended research into solar radiation management? A model of intergenerational decision-making under uncertainty**. In Journal of Environmental Economics and Management. DOI: 10.1016/j.jeem.2017.02.002. <http://www.sciencedirect.com/science/article/pii/S0095069617300608>
- Stelzer, Harald (2017): **Justifying Climate Engineering?**. In: Jahrbuch für Wissenschaft und Ethik. Band 21 (2016). Berlin: De Gruyter, 147–169.

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## 2016

- Boysen, Lena; et. al (2016): **Impacts devalue the potential of large-scale terrestrial CO<sub>2</sub> removal through biomass plantations**. In: Environmental Research Letters, Vol. 11, Letter 9, DOI: 10.1088/1748-9326/11/9/095010

<http://iopscience.iop.org/article/10.1088/1748-9326/11/9/095010/meta;jsessionid=325AACE0FC1BCA551F5ABFF7BC15679E.ip-10-40-2-108>

- Baatz, Christian; Ott, Konrad (2016): **Why Aggressive Mitigation Must Be Part of Any Pathway to Climate Justice.** In: Christopher J. Preston (Ed.): Climate Justice and Geoengineering: Rowman & Littlefield International.  
<http://www.rowmaninternational.com/books/climate-justice-and-geoengineering>
- Baatz, C. (2016): **Can we have it both ways? On potential trade-offs between Mitigation and Solar Radiation Management,** Environmental Values 25, 1,  
<http://www.ingentaconnect.com/content/whp/ev/2016/00000025/00000001/art00004>
- Baatz, Christian; Heyward, Clare; Stelzer, Harald (2016): **The Ethics of Engineering the Climate.** In: Special Issue of Environmental Values, vol. 25, no. 1: The Ethics of Engineering the Climate  
<http://www.ingentaconnect.com/content/whp/ev/2016/00000025/00000001/art00002?token=004fa0141e466b0c46e586546243125423b4746213e662a5f2c5>
- Gasparini, Blaž; Lohmann, Ulrike (2016): **Why cirrus cloud seeding cannot substantially cool the planet.** In: J. Geophys. Res. Atmos. 121 (9), pp. 4877–4893. DOI 10.1002/2015JD024666.  
<http://onlinelibrary.wiley.com/doi/10.1002/2015JD024666/abstract>
- Elias Y Feng (✉), David P Keller, Wolfgang Koeve and Andreas Oschlies (2016): **Could artificial ocean alkalization protect tropical coral ecosystems from ocean acidification?** In: Environmental Research Letters, vol. 11, no. 7,  
<http://iopscience.iop.org/article/10.1088/1748-9326/11/7/074008/meta>
- Ferrer Gonzales, Miriam; Ilyina, Tatiana (2016): **Impacts of artificial ocean alkalization on the carbon cycle and climate in Earth system simulation.** In: Geophysical Research Letter, Vol. 43, issue 12 <http://onlinelibrary.wiley.com/doi/10.1002/2016GL068576/abstract>
- Heck, Vera; Donges, Jonathan F.; Lucht, Wolfgang (2016): **Collateral transgression of planetary boundaries due to climate engineering by terrestrial carbon dioxide removal.** In: Earth Syst. Dynam. Discuss., pp. 1–24. DOI 10.5194/esd-2016-22. <http://www.earth-syst-dynam.net/7/783/2016/>
- Kreidenweis, Ulrich; Humpenöder, Florian; Stevanović, Miodrag; Bodirsky, Benjamin Leon; Kriegler, Elmar; Lotze-Campen, Hermann; Popp, Alexander (2016): **Afforestation to mitigate climate change. Impacts on food prices under consideration of albedo effects.** In: Environ. Res. Lett. 11 (8), p. 85001–85001. DOI 10.1088/1748-9326/11/8/085001  
<http://iopscience.iop.org/article/10.1088/1748-9326/11/8/085001>
- Mengis, Nadine; et al. (2016): **Assessing climate impacts and risks of ocean albedo modification in the Arctic.** In: Journal of Geophysical Research: Oceans, vol. 121, 3  
<http://onlinelibrary.wiley.com/wol1/doi/10.1002/2015JC011433/abstract>
- Merk, Christine; Pönitzsch, Gert; Rehdanz, Katrin (2016): **Knowledge about aerosol injection does not reduce individual mitigation efforts.** In: Environmental Research Letters, vol. 11, no. 5 <http://iopscience.iop.org/article/10.1088/1748-9326/11/5/054009/meta>
- Merk, Christine; Pönitzsch, Gert (2016): **The role of affect in attitude formation toward new technologies: The case of stratospheric aerosol injection.** Kiel Institute for the World Economy (Kiel Working Paper, 2024). <http://www.econstor.eu/handle/10419/125936>
- Oschlies, A.; Klepper, G. (2016): **Research for assessment, not deployment of Climate Engineering: The German Research Foundation's Priority Program SPP 1689.** In Earth's Future. <http://onlinelibrary.wiley.com/doi/10.1002/2016EF000446/abstract>
- Oschlies, A.; Held, H.; Keller, D.; Keller, K.; Mengis, N.; Quaas, M. et al. (2016): **Indicators and Metrics for the Assessment of Climate Engineering.** In Earth's Future. DOI 10.1002/2016EF000449 <http://onlinelibrary.wiley.com/doi/10.1002/2016EF000449/full>
- Quaas, J.; Quaas, M. F.; Boucher, O. & Rickels, W. (2016): **Regional climate engineering by**

- radiation management: Prerequisites and prospects.** In: Earth's future, <http://onlinelibrary.wiley.com/doi/10.1002/2016EF000440/full>
- Sonntag, Sebastian; Pongratz, Julia; Reick, H. Christian; Schmidt, Hauke (2016): **Reforestation in a high-CO<sub>2</sub> world-Higher mitigation potential than expected, lower adaptation potential than hoped for.** In: Geophysical Research Letter, Vol. 43, issue 11 <http://onlinelibrary.wiley.com/doi/10.1002/2016GL068824/abstract>
  - **Stelzer, Harald; Schuppert, Fabian** (2016): **How Much Risk Ought We to Take? Exploring the Possibilities of Risk-Sensitive Consequentialism in the Context of Climate Engineering.** In: Special Issue of Environmental Values, vol. 25, no. 1: The Ethics of Engineering the Climate. <http://www.ingentaconnect.com/search/article?option1=tka&value1=how+much+risk&pageSize=10&index=1>
- 

## 2015

- Aswathy, V. N., Boucher, O., Quaas, M., Niemeier, U., Muri, H., Mülmenstädt, J. and Quaas, J. (2015): **Climate extremes in multi-model simulations of stratospheric aerosol and marine cloud brightening climate engineering,** Atmos. Chem. Phys., 15, 9593-9610, DOI:10.5194/acp-15-9593-2015, <http://www.atmos-chem-phys.net/15/9593/2015/acp-15-9593-2015.html>
- Baatz, C., Ott, K. (2015): **In Defense of Emissions Egalitarianism?** In: L. Meyer & P. Sanklecha (Eds.), Climate Justice and Historical Emissions. Cambridge: Cambridge University Press. (forthcoming), [https://www.philsem.uni-kiel.de/de/lehrstuehle/philosophie-und-ethik-der-umwelt/files/baatz\\_ott\\_emissions\\_egal-web.pdf](https://www.philsem.uni-kiel.de/de/lehrstuehle/philosophie-und-ethik-der-umwelt/files/baatz_ott_emissions_egal-web.pdf)
- Barben, D. (2015): **Climate Engineering gegen den globalen Klimawandel? Perspektiven verantwortlicher Forschung und Governance**, in: A. Bogner, M. Decker und M. Sotoudeh (Eds.): Responsible Innovation. Neue Impulse für die Technikfolgenabschätzung? Nomos Verlagsgesellschaft mbH & Co. KG. <https://doi.org/10.5771/9783845272825-205>
- Betz, G. (2015) **Are climate models credible worlds? Prospects and limitations of probabilistic climate prediction**, European Journal for Philosophy of Science (forthcoming), DOI:10.1007/s13194-015-0108-y, <http://rd.springer.com/article/10.1007%2Fs13194-015-0108-y>
- Böttcher M., Gabriel, J., Harnisch, S. (2015): **Scenarios on Stratospheric Albedo Modification Deployment in 2030**, SPP 1689 WORKSHOP REPORT, HAMBURG // 2015 // 22. – 24. MARCH, <https://www.spp-climate-engineering.de/news.html>
- Bonsch, M., Humpenöder, F., Popp, A., Bodirsky, B., Dietrich, J.P., Rolinski, S. Biewald, A., Lotze-Campen, H., Weindl, I., Gerten, D. and Stevanovic, M. (2015): **Trade-offs between land and water requirements for large-scale bioenergy production**, Global Change Biology Bioenergy (early online). <http://onlinelibrary.wiley.com/doi/10.1111/gcbb.12226/full>
- Bürger, G., Cubasch, U. (2015): **The detectability of climate engineering.** In J. Geophys. Res. Atmos., pp. n/a-n/a. DOI: 10.1002/2015JD023954 <http://onlinelibrary.wiley.com/doi/10.1002/2015JD023954/full>

- Droste-Franke, B., Carrier, M., Kaiser, M., Schreurs, M., Weber, C., Ziesemer, T. (2015): **Improving Energy Decisions. Advice for a Safe and Secure Future Energy System**, Heidelberg: Springer, 2015, Chapters 2 & 3.
- Decker, Mahshid Sotoudeh (Eds.): **Responsible Innovation. Neue Impulse für die Technikfolgenabschätzung?** 1st ed. Baden-Baden: edition sigma, pp. 205–212.  
[https://www.itas.kit.edu/2016\\_006.php](https://www.itas.kit.edu/2016_006.php)
- Ferrer-Gonzalez, M.; Ilyina, T. (2015): **Mitigation Potential, Risks, and Side-Effects of Ocean Alkalinity Enhancement**, Nova Acta Leopoldina 121 (408), pp. 275–278,  
[http://pubman.mpdl.mpg.de/pubman/item/escidoc:2129458:4/component/escidoc:2129457/NAL\\_Bd121\\_Nr408\\_275.pdf](http://pubman.mpdl.mpg.de/pubman/item/escidoc:2129458:4/component/escidoc:2129457/NAL_Bd121_Nr408_275.pdf)
- Humpenöder, F., Popp, A., Stevanovic, M., Müller, C., Bodirsky, B., Bonsch, M., Dietrich, J., Lotze-Campen, H., Weindl, I., Biewald A., Rolinski, S. (2015): **Land-Use and Carbon Cycle Responses to Moderate Climate Change: Implications for Land-Based Mitigation?** Environmental Science and Technology. 49 (11), 6731–6739, <http://dx.doi.org/10.1021/es506201r>
- Ilyina, T. (2015): **The combined effects of changes in ocean chemistry, biology, and hydrodynamics on alkalinity**, Nova Acta Leopoldina NF, 121 (No. 408 - Deglacial Changes in Ocean Dynamics and Atmospheric CO<sub>2</sub>), 107-110,  
[http://pubman.mpdl.mpg.de/pubman/item/escidoc:2129458:4/component/escidoc:2129457/NAL\\_Bd121\\_Nr408\\_275.pdf](http://pubman.mpdl.mpg.de/pubman/item/escidoc:2129458:4/component/escidoc:2129457/NAL_Bd121_Nr408_275.pdf)
- Kreuter, Judith (2015): **Technofix, Plan B or Ultima Ratio? A Review of the Social Science Literature on Climate Engineering Technologies**, University of Oxford INSIS Occasional Papers Series. <http://www.insis.ox.ac.uk/occasional-papers/technofix-plan-b-or-ultima-ratio/>
- Kreuter, Judith (2015): **Discussion of Climate Engineering in Social Science Literature: Technofix, Plan B or Ultima Ratio**, The Forum for Climate Engineering Assessment Blog.  
<http://dcgeoconsortium.org/2015/07/20/discussion-of-climate-engineering-in-social-science-literature-technofix-plan-b-or-ultima-ratio-judith-kreuter/>
- Kreuter, Judith/ Markus Lederer (2015): **Climate Engineering - A Technofix to Solve the Problem of Climate Change?**, KIB Global. <http://www.kib.be/articles/1103/climate-engineering-a-technofix-to-solve-the-problem-of-climate-change>
- Lenhard, J. (2015): **Iteration unleashed. Computer technology in science**, in: S. Ove Hansson (Eds.): **The Role of Technology in Science. Philosophical Perspectives**, New York: Springer, 113-130.
- Matzner, N. (2015): **Engineering the Climate. Politik und Planung der Klimaintervention**, in: Koch, M., Köhler, C., Othmer, J., Weich, A. (Eds.): **Planlos! Zu den Grenzen von Planbarkeit**. 1st ed. Paderborn: Fink, Wilhelm, pp. 165–179,  
[http://www.researchgate.net/publication/279177005\\_Matzner\\_Nils\\_\(2015\)\\_Engineering\\_the\\_Climate.\\_Politik\\_und\\_Planung](http://www.researchgate.net/publication/279177005_Matzner_Nils_(2015)_Engineering_the_Climate._Politik_und_Planung).
- Mengis, N., Keller D., Eby, M. and Oschlies, A. (2015): **Uncertainty in the response of transpiration to CO<sub>2</sub> and implications for climate change**, Environ. Res. Lett. 10 (2015) 094001, DOI:10.1088/1748-9326/10/9/094001,  
<http://iopscience.iop.org/article/10.1088/1748-9326/10/9/094001/meta;jsessionid=266A63FE6C0A3A7E9A133B7375D03182.c1>
- Niemeier, U., Timmreck, C. (2015): **What is the limit of climate engineering by stratospheric injection of SO<sub>2</sub>?** Atmos. Chem. Phys. 15 (16), pp. 9129–9141. DOI 10.5194/acp-15-9129-2015, <http://www.atmos-chem-phys.net/15/9129/2015/acp-15-9129-2015.html>
- Quaas J. (2015): **Approaches to Observe Anthropogenic Aerosol-Cloud Interactions**. In Curr Clim Change Rep 1 (4), pp. 297–304. DOI: 10.1007/s40641-015-0028-0  
<http://link.springer.com/article/10.1007/s40641-015-0028-0/fulltext.html>
- Saxler, B., Siegfried, J., Proelß, A. (2015): **International liability for transboundary damage arising from stratospheric aerosol injections**, Law, Innovation and Technology 7 (1), pp.

- 112–147. DOI 10.1080/17579961.2015.1052645,  
<http://www.tandfonline.com/doi/full/10.1080/17579961.2015.1052645>
- Scott, V., Haszeldine, R. S., Tett, S. F. B., Oschlies, A. (2015): **Fossil fuels in a trillion tonne world**, Nature Climate Change 5, 419–423 (2015), doi:10.1038/nclimate2578  
<http://www.nature.com/nclimate/journal/v5/n5/full/nclimate2578.html>
  - Schmidt, H., & Wolfrum, R. (2015): **Gezielte Eingriffe: Climate Engineering aus klimawissenschaftlicher und völkerrechtlicher Perspektive**, in: Marotzke, J. and Stratmann, M. (Eds.): Die Zukunft des Klimas, CH Beck, pp. 183–197,  
<http://www.chbeck.de/Stratmann-Marotzke-Zukunft-Klimas/productview.aspx?product=13732095>
  - Sillmann, J., Lenton, T. M., Levermann, A., Ott, K., Hulme, M., Benduhn, F., Horton, J. B. (2015): **Climate emergencies do not justify engineering the climate**, Nature Climate Change 5 (4), pp. 290–292. DOI: 10.1038/nclimate2539,  
<http://www.nature.com/nclimate/journal/v5/n4/full/nclimate2539.html>
- 

## 2014

- Humpenöder F., Popp A., Dietrich J., Klein D., Lotze-Campen H., Bonsch M., Bodirsky B., Weindl I., Stevanovic M., Müller C. (2014): **Investigating afforestation and bioenergy CCS as climate change mitigation strategies**, Environmental Research Letters 9 (6): 064029.  
doi:10.1088/1748-9326/9/6/064029,  
<http://iopscience.iop.org/article/10.1088/1748-9326/9/6/064029/meta>
  - Keller, D. P., Feng, E. Y., Oschlies, A. (2014): **Potential climate engineering effectiveness and side effects during a high CO<sub>2</sub>-emissions scenario**, Nat. Commun. 5: 3304,  
<http://dx.doi.org/10.1038/ncomms4304>
  - Klepper, G., Rickels, W. (2014): **Climate Engineering—Economic Considerations and Research Challenges**, Review of Environmental Economics and Policy 8(2): 270–289,  
<http://reep.oxfordjournals.org/content/8/2/270.abstract>
  - Matzner, N., Schmidt, L.-M. (2014): **Das Projekt "Zeitschrift für Diskursforschung" und die Perspektiven disziplinärer, inter- und transdisziplinärer Kooperation**, in: Forum Qualitative Sozialforschung / Forum: Qualitative Social Research 15 (3), Art. 9. <http://nbn-resolving.de/urn:nbn:de:0114-fqs140390>
  - Moosdorf, N., Renforth, P., Hartmann, J. (2014): **Carbon Dioxide Efficiency of Terrestrial Enhanced Weathering**, Environ. Sci. Technol: 48, 4809–4816,  
<http://pubs.acs.org/doi/abs/10.1021/es4052022>
  - Popp, A., Humpenöder F., Weindl I., Bodirsky B. L., Bonsch M., Lotze-Campen H., Müller C., Biewald A., Rolinski S., Stevanovic M. and Dietrich J. P. (2014): **Land-use protection for climate change mitigation**, Nature Clim. Change 4 1095–8 DOI:10.1038/nclimate2444  
<http://www.nature.com/nclimate/journal/v4/n12/full/nclimate2444.html>
  - Schrickel, I. (2014). **Images of Feasibility: On the Discourse of Climate Engineering**. in B. Schneider, & T. Nocke (Hrsg.), *Image Politics of Climate Change: Visualizations, Imaginations, Documentations*. (S. 363–382). Bielefeld: transcript Verlag für Kommunikation, Kultur und soziale Praxis. <http://www.transcript-verlag.de/978-3-8376-2610-0/image-politics-of-climate-change>
-

## 2013

- Ilyina, T., Wolf-Gladrow, D., Munhoven, G., Heinze, C. (2013): Assessing the potential of calcium-based artificial ocean alkalinization to mitigate rising atmospheric CO<sub>2</sub> and ocean acidification,  
DOI: 10.1002/2013GL057981  
<http://onlinelibrary.wiley.com/doi/10.1002/2013GL057981/abstract>
- 

## Climate Engineering: Forschungsfragen einer gesellschaftlichen Herausforderung // 2012

Gemeinsame Stellungnahme für den Senat der Deutschen Forschungsgemeinschaft (nur Deutsch)

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## Scoping Report Climate Engineering // 2011

- Large-Scale Intentional Interventions into the Climate System? Assessing the Climate Engineering Debate  
Editors: Wilfried Rickels, Gernot Klepper and Jonas Dovern, (2011)

 [Scoping Report Climate Engineering \(english\) \(4.6 MiB\)](#)

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