References

Alexander, Kaitlin, Easterbrook, Steve M., 2015. The software architecture of climate models: a graphical comparison of CMIP5 and EMICAR5 configurations, in: *Geoscientific Model Development* 8, 1221–1232. https://doi.org/10.5194/gmd-8-1221-2015

Arabatzis, Theodore, 2006. On the Inextricability of the Context of Discovery and the Context of Justification in: Schickore, J., Steinle, F. (Eds.), *Revisiting Discovery and Justification. Historical and Philosophical Perspectives on the Context Distinction*. Dordrecht: Springer, pp. 215–230. https://doi.org/10.1007/1-4020-4251-5_13

Aristotle, 1962. *Nicomachean Ethics*, Oswald, M. (Trans.). New York: Bobbs-Merrill.

Arrhenius, Svante, 1896. On the influence of carbonic acid in the air upon the temperature of the ground, in: *The London, Edinburgh, and Dublin Philosophical Magazine and Journal of Science* 41, 237–276. https://doi.org/10.1080/14786449608620846

Bacon, Francis, [1620] 1863. The New Organon, in: Spedding, J., Ellis, R.L., Heath, D.D. (Trans.), *The Works VIII*. Boston: Taggard and Thompson.

Baumberger, Christoph, Knutti, Reto, Hirsch Hadorn, Gertrude, 2017. Building confidence in climate model projections: an analysis of inferences from fit: Building confidence in climate model projections, in: *Wiley Interdisciplinary Reviews: Climate Change* 8, e454. https://doi.org/10.1002/wcc.454

BBC, 2018. Trump: Climate change scientists have "political agenda". 15 October 2018, https://www.bbc.com/news/world-us-canada-45859325 (accessed 17 May 2023).

Betz, Gregor, 2013. In defence of the value free ideal, in: *European Journal for Philosophy of Science* 3, 207–220. https://doi.org/10.1007/s13194-012-0062-x

Biddle, Justin B., Leuschner, Anna, 2015. Climate skepticism and the manufacture of doubt: can dissent in science be epistemically detrimental?, in:

European Journal for Philosophy of Science 5, 261–278. https://doi.org/10.1007/s13194-014-0101-x

Bjerknes, Vilhelm, [1904] 2009. The problem of weather prediction, considered from the viewpoints of mechanics and physics, Volken, E., Brönnimann, S. (Eds. And Trans.) in: *Meteorologische Zeitschrift* 18, 663–667. https://doi.org/10.1127/0941-2948/2009/416

Boé, Julien, 2018. Interdependency in Multimodel Climate Projections: Component Replication and Result Similarity, in: *Geophysical Research Letters* 45, 2771–2779. https://doi.org/10.1002/2017GL076829

Böhm, Reinhard, Auer, Ingeborg, Brunetti, Michele, Maugeri, Maurizio, Nanni, Teresa, Schöner, Wolfgang, 2001. Regional Temperature Variability in the European Alps: 1760–1998 from Homogenized Instrumental Time Series: Regional Temperature Variability in the European Alps, in: *International Journal of Climatology* 21, 1779–1801. https://doi.org/10.1002/joc.689

Bony, Sandrine, Stevens, Bjorn, Held, Isaac, Mitchell, John F., Dufresne, Jean-Louis, Emanuel, Kerry A., Friedlingstein, Pierre, Griffies, Stephen, Senior, Catherine, 2013. Carbon Dioxide and Climate: Perspectives on a Scientific Assessment, in: Asrar, G.R., Hurrell, J.W. (Eds.), *Climate Science for Serving Society*. Dordrecht: Springer, pp. 391–413. https://doi.org/10.1007/978-94-007-6692-1_14

Boykoff, Maxwell T., Boykoff, Jules M., 2004. Balance as bias: global warming and the US prestige press, in: *Global Environmental Change* 14, 125–136. https://doi.org/10.1016/j.gloenvcha.2003.10.001

Brient, Florent, 2020. Reducing Uncertainties in Climate Projections with Emergent Constraints: Concepts, Examples and Prospects, in: *Advances in Atmospheric Sciences* 37, 1–15. https://doi.org/10.1007/s00376-019-9140-8

Briffa, Keith Raphael, Schweingruber, Fritz H., Jones, Philip Douglas, Osborn, Timothy John, Harris, Ian C., Shiyatov, Stepan Griorevich, Vaganov, Eugene A., Grudd, Hakan, 1998. Trees tell of past climates: but are they speaking less clearly today?, in: *Philosophical Transactions of the Royal Society of London. Series B: Biological Sciences* 353, 65–73. https://doi.org/10.1098/rstb.1998.0191

Brönnimann, Stefan, Wintzer, Jeannine, 2018. Climate data empathy, in: *WIREs Climate Change* 10, e559. https://doi.org/10.1002/wcc.559

Brysse, Keynyn, Oreskes, Naomi, O'Reilly, Jessica, Oppenheimer, Michael, 2013. Climate change prediction: Erring on the side of least drama?, in: *Global Environmental Change* 23, 327–337. https://doi.org/10.1016/j.gloenvcha.2012.10.008

Caldwell, Peter M., Zelinka, Mark D., Klein, Stephen A., 2018. Evaluating Emergent Constraints on Equilibrium Climate Sensitivity, in: *Journal of Climate* 31, 3921–3942. https://doi.org/10.1175/JCLI-D-17-0631.1

Carrier, Martin, 2013. Values and Objectivity in Science: Value-Ladenness, Pluralism and the Epistemic Attitude, in: *Science & Education* 22, 2547–2568. https://doi.org/10.1007/s11191-012-9481-5

Carrier, Martin, 2010. Scientific Knowledge and Scientific Expertise: Epistemic and Social Conditions of Their Trustworthiness, in: *Analyse & Kritik* 32, 195–212.

Cartwright, Nancy, 1983. *How the Laws of Physics Lie,* Oxford: Oxford University Press. https://doi.org/10.1093/0198247044.001.0001

Charney, Jule G., Arakawa, Akio, Baker, D. James, Bolin, Bert, Dickinson, Robert E., Goody, Richard M., Leith, Cecil E., Stommel, Henry M., Wunsch, Carl I., 1979. Carbon Dioxide and Climate: A Scientific Assessment, in: *National Academy of Science* 22.

Chen, Deliang, Rojas, Maisa, Samset, Bjørn H., Cobb, Kim, Diongue-Niang, Aida, Edwards, Paul, Emori, Seita, Faria, Sergio Henrique, Hawkins, Ed, Hope, Pandora, Huybrechts, Philippe, Meinshausen, Malte, Mustafa, Sawsan Khair Elsied Abdel Rahim, Plattner, Gian-Kasper, Treguier, Anne Marie, 2021. Framing, Context, and Methods, in: Masson-Delmotte, V., Zhai, P., Pirani, A., Connors, S.L., Péan, C., Berger, S., Caud, N., Chen, Y., Goldfarb, L., Gomis, M.I., Huang, M., Leitzell, K., Lonnoy, E., Matthews, J.B.R., Maycock, T.K., Waterfield, T., Yelekçi, O., Yu, R., Zhou, B. (Eds.), *Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*. Cambridge, New York: Cambridge University Press, pp. 147–286.

Churchman, C. West, 1948. Statistics, Pragmatics, Induction, in: *Philosophy of Science* 15, 249–268. https://doi.org/10.1086/286991

Clark, Andy, 1987. The kludge in the machine, in: *Mind and Language* 2, 277–300.

Collins, Harry, Evans, Robert, Weinel, Martin, 2016. Expertise revisited, Part II: Contributory expertise, in: *Studies in History and Philosophy of Science Part A* 56, 103–110. https://doi.org/10.1016/j.shpsa.2015.07.003

Collins, Harry M., 2017. *Gravity's Kiss. The Detection of Gravitational Waves.* Cambridge: MIT Press.

Collins, Harry M., 2014. *Are we all scientific experts now?* Cambridge: Polity Press.

Collins, Harry M., 2013. Building an Antenna for Tacit Knowledge, in: *Philosophia Scientiae* 17, 25–39. https://doi.org/10.4000/philosophiascientiae.882

Collins, Harry M., 2010. *Tacit and Explicit Knowledge*. Chicago; London: University of Chicago Press.

Collins, Harry M., 2001. Tacit Knowledge, Trust and the Q of Sapphire, in: *Social Studies of Science* 31, 71–85.

Collins, Harry M., 1974. The TEA Set: Tacit Knowledge and Scientific Networks, in: *Science Studies* 4, 165–185.

Collins, Harry M., Evans, Robert, 2009. *Rethinking Expertise*. Chicago; London: University of Chicago Press.

Collins, Matthew, Knutti, Reto, Arblaster, Julie, Dufresne, Jean-Louis, Fiechefet, Thierry, Friedlingstein, Pierre, Xuejie, Gao, Gutowski Jr., William J., Johns, Timothy C., Krinner, Gerhard, Shongwo, Mxolisi, Tebaldi, Claudia, Weaver, Andrew J., Wehner, Michael, 2013. Long-term Climate Change: Projections, Commitments and Irreversibility, in: Stocker, T.F., Qin, D., Tignor, M., Allen, S.K., Boschung, J., Nauels, A., Xia, Y., Bex, V., Midgley, P.M. (Eds.), *Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*. Cambridge: Cambridge University Press, pp. 1029–1136.

Cook, John, Nuccitelli, Dana, Green, Sarah A., Richardson, Mark, Winkler, Bärbel, Painting, Rob, Way, Robert, Jacobs, Peter, Skuce, Andrew, 2013. Quantifying the consensus on anthropogenic global warming in the scientific literature, in: *Environmental Research Letters* 8.

Daston, Lorraine, 2011. The Empire of Observation, 1600–1800, in: Daston, L., Lunbeck, E. (Eds.), *Histories of Scientific Observation*. Chicago: University of Chicago Press, pp. 81–113.

Daston, Lorraine, Galison, Peter, 2007. *Objectivity*. New York: Zone Books.

Daston, Lorraine, Lunbeck, Elizabeth, 2011. Introduction: Observation Observed, in: Daston, L., Lunbeck, E. (Eds.), *Histories of Scientific Observation*. Chicago: University of Chicago Press, pp. 1–9.

Dee, Dick, Uppala, Sakari M., Simmons, Adrian J., Berrisford, Paul, Poli, Paul, Kobayashi, Shinya, Andrae, Ulf, Balmaseda, Magdalena, Balsamo, Gianpaolo, Bauer, Peter, Bechtold, Peter, Beljaars, Antonius C. M., van de Berg, Leo, Bidlot, Jean, Bormann, Niels, Delsol, Claire, Dragani, Rossana, Fuentes, Manuel, Vitart, Frederic, Geer, Alan J., Haimberger, Leopold, Healy, Sean, Hersbach, Hans, Hólm, Elías Valur, Isaken, Lars, Kallberg, Per, Köhler, Martin, Matricardi, Marco, McNally, Anthony P., Monge-Sanz, Beatriz M., Morcrette, Jean-Jacques, Park, B. Kevin, Peubey, Carole, de Rosnay, Patricia, Tavolato, Christina, Thépaut, Jean-Noël, Vitart, Frederic,

2011. The ERA-Interim reanalysis: Configuration and performance of the data assimilation system, in: *Quarterly Journal of the Royal Meteorological Society* 137, 553–597. https://doi.org/10.1002/qj.828

Douglas, Heather, 2009. *Science, Policy, and the Value-Free Ideal*. Pittsburgh: University of Pittsburgh Press.

Douglas, Heather, 2004. The Irreducible Complexity of Objectivity, in: *Synthese* 138, 453–473. https://doi.org/10.1023/B:SYNT.0000016451.18182.91

Douglas, Heather, 2000. Inductive Risk and Values in Science, in: *Philosophy of Science* 67, 559–579.

Duhem, Pierre, 1906. *La théorie physique: son objet, sa structure*. Paris: Chevalier & Riviére.

Dunlap, Riley E., Jacques, Peter J., 2013. Climate Change Denial Books and Conservative Think Tanks: Exploring the Connection, in: *American Behavioral Scientist* 57, 699–731. https://doi.org/10.1177/0002764213477096

Easterbrook, Steve M., Johns, Timothy C., 2009. Engineering the Software for Understanding Climate Change, in: *Computing in Science & Engineering* 11, 65–74. https://doi.org/10.1109/MCSE.2009.193

Edwards, Paul N., 2010. *A Vast Machine. Computer Models, Climate Data, and the Politics of Global Warming*. Cambridge: MIT Press.

Edwards, Paul N., 1999. Global climate science, uncertainty and politics: Data-laden models, model-filtered data, in: *Science as Culture* 8, 437–472. https://doi.org/10.1080/09505439909526558

Epstein, Steven, 1995. The Construction of Lay Expertise: AIDS Activism and the Forging of Credibility in the Reform of Clinical Trials, in: *Science, Technology, & Human Values* 20, 408–437. https://doi.org/10.1177/016224399502000402

Evers, Marc, Stampf, Olaf, Traufetter, Gerald, 2010. Die Wolkenschieber, in: *Der Spiegel*, 29 March 2010, 140–149.

Eyring, Veronika, Cox, Peter M., Flato, Gregory M., Gleckler, Peter J., Abramowitz, Gab, Caldwell, Peter, Collins, William D., Gier, Bettina K., Hall, Alex D., Hoffman, Forrest M., Hurtt, George C., Jahn, Alexandra, Jones, Chris D., Klein, Stephen A., Krasting, John P., Kwiatkowski, Lester, Lorenz, Ruth, Maloney, Eric, Meehl, Gerald A., Pendergrass, Angeline G., Pincus, Robert, Ruane, Alex C., Russell, Joellen L., Sanderson, Benjamin M., Santer, Benjamin D., Sherwood, Steven C., Simpson, Isla R., Stouffer, Ronald J., Williamson, Mark S., 2019. Taking climate model evaluation to the next level, in: *Nature Climate Change* 9, 102–110. https://doi.org/10.1038/s41558-018-0355-y

Fantl, Jeremy, 2017. Knowledge How, in: Zalta, E.N. (Ed.), *The Stanford Encyclopedia of Philosophy*. Fall 2017 Edition, Metaphysics Research Lab, Stanford University, https://plato.stanford.edu/archives/fall2017/entries/knowledge-how/.

Feest, Uljana, Steinle, Friedrich, 2016. Experiments, in: Humphrey, P. (Ed.), *The Oxford Handbook of Philosophy of Science*. Oxford: Oxford University Press, pp. 274–295.

Feyerabend, Paul Karl, 1959. An Attempt at a Realistic Interpretation of Experience, in: Feyerabend, P.K. (Ed.), *Realism, Rationalism, and Scientific Method: Philosophical Papers*. Cambridge: Cambridge University Press, pp. 17–36.

Fidler, Fiona, Wilcox, John, 2021. Reproducibility of Scientific Results, in: Zalta, E.N. (Ed.), *The Stanford Encyclopedia of Philosophy*. Summer 2021 Edition, Metaphysics Research Lab, Stanford University, https://plato.stanford.edu/archives/sum2021/entries/scientific-reproducibility/.

Fine, Gary Alan, 2010. *Authors of the Storm: Meteorologists and the Culture of prediction*. Chicago; London: University of Chicago Press.

Flato, Gregory, Marotzke, Jochem, Abiodum, Babatunde, Braconnot, Pascale, Chou, Sin Chan, Collins, William, Cox, Peter, Driouech, Fatima, Emori, Seita, Eyring, Veronika, Forest, Chris, Gleckler, Peter J., Guilyardi, Eric, Jakob, Christian, Kattsov, Vladimir, Reason, Chris, Rummukaien, Markku, 2013. Evaluation of Climate Models, in: Stocker, T.F., Qin, D., Plattner, G.-K., Tignor, M., Allen, S.K., Boschung, J., Nauels, A., Xia, Y., Bex, V., Midgley, P.M. (Eds.), *Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*. Cambridge: Cambridge University Press, pp. 741–866.

Fleck, Ludwig, [1935] 1979. *Genesis and Development of a Scientific Fact*. Bradley, F., Trenn, T. J. (Trans.), Chicago; London: University of Chicago Press.

Folland, Chris. K., Parker, David. E., 1995. Correction of instrumental biases in historical sea surface temperature data, in: *Quarterly Journal of the Royal Meteorological Society* 121, 319–367. https://doi.org/10.1002/qj.49712152206

Forster, Piers, Storelvmo, Trude, Armour, Kyle, Dufresne, Jean-Louis, Frame, David, Lunt, Daniel J., Mauritsen, Thorsten, Palmer, Matthew D., Watanabe, Masahiro, Wild, Martin, Zhang, Hua, 2021. The Earth's Energy Budget, Climate Feedbacks and Climate Sensitivity, in: Masson-Delmotte, V., Zhai, P., Pirani, A., Connors, S.L., Péan, C., Berger, S., Caud, N., Chen, Y., Goldfarb, L., Gomis, M.I., Huang, M., Leitzell, K., Lonnoy, E., Matthews, J.B.R., Maycock, T.K., Waterfield, T., Yelekçi, O., Yu, R., Zhou, B. (Eds.), *Climate Change 2021: The Physical Science Basis. Contribution of Working Group I*

to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change. Cambridge, New York: Cambridge University Press, pp. 923–1054.

Frank, David, Esper, Jan, Zorita, Eduardo, Wilson, Rob, 2010. A noodle, hockey stick, and spaghetti plate: a perspective on high-resolution paleoclimatology, in: *Wiley Interdisciplinary Reviews: Climate Change* 1, 507–516. https://doi.org/10.1002/wcc.53

Frank, Philipp G., 1953. The variety of reasons for the acceptance of scientific theories, in: Frank, P.G. (Ed.), *The Validation of Scientific Theories*. New York: Collier Books, pp. 13–26.

Franssen, Maarten, Lokhorst, Gert-Jan, van de Poel, Ibo, 2018. Philosophy of Technology, Fall 2018 Edition, in: Zalta, E.N. (Ed.), *The Stanford Encyclopedia of Philosophy*. Metaphysics Research Lab, Stanford University, https://plato.stanford.edu/archives/fall2018/entries/technology/.

Frigg, Roman, Reiss, Julian, 2009. The philosophy of simulation: hot new issues or same old stew?, in: *Synthese* 169, 593–613. https://doi.org/10.1007/s11229-008-9438-z

Frisch, Mathias, 2015. Predictivism and old evidence: a critical look at climate model tuning, in: *European Journal for Philosophy of Science* 5, 171–190. https://doi.org/10.1007/s13194-015-0110-4

Gaffen, Dian J., Sargent, Michael A., Habermann, Ray E., Lanzante, John R., 2000. Sensitivity of Tropospheric and Stratospheric Temperature Trends to Radiosonde Data Quality, in: *Journal of Climate* 13, 1776–1796. https://doi.org/10.1175/1520-0442(2000)013<1776:SOTAST>2.0.CO;2

Giere, Ronald N., 2006. *Scientific perspectivism*. Chicago: University of Chicago Press.

Goldman, Alvin I., 2001. Experts: Which Ones Should You Trust?, in: *Philosophy and Phenomenological Research* 63, 85–110.

Gooding, David, 2000. Experiment, in: Newton-Smith, W. (Ed.), *A Companion to the Philosophy of Science*. Blackwell, Oxford, pp. 117–126.

Goodwin, William Mark, 2015. Global Climate Modeling as Applied Science, in: *Journal for General Philosophy of Science* 46, 339–350. https://doi.org/10.1007/s10838-015-9301-0

Gramelsberger, Gabriele, 2011. What do numerical (climate) models really represent?, in: *Studies in History and Philosophy of Science Part A* 42, 296–302. https://doi.org/10.1016/j.shpsa.2010.11.037

Guillemot, Hélène, 2017. How to develop climate models? The "gamble" of improving climate model parametrizations, in: Heymann, M., Gramels-

berger, G., Mahony, M. (Eds.), *Cultures of Prediction in Atmospheric and Climate Science*. New York: Routledge, pp. 120–136.

Guillemot, Hélène, 2010. Connections between simulations and observation in climate computer modeling. Scientist's practices and "bottom-up epistemology" lessons, in: *Studies in History and Philosophy of Science Part B: Studies in History and Philosophy of Modern Physics* 41, 242–252. https://doi.org/10.1016/j.shpsb.2010.07.003

Gundersen, Torbjørn, 2020. Value-Free yet Policy-Relevant? The Normative Views of Climate Scientists and Their Bearing on Philosophy, in: *Perspectives on Science* 28, 89–118. https://doi.org/10.1162/posc_a_00334

Hacking, Ian, 1983. Representing and Intervening: Introductory topics on the philosophy of natural science. Cambridge University Press, Cambridge.

Hall, Alex, Cox, Peter, Huntingford, Chris, Klein, Stephen, 2019. Progressing emergent constraints on future climate change, in: *Nature Climate Change* 9, 269–278. https://doi.org/10.1038/s41558-019-0436-6

Hall, Alex, Qu, Xin, 2006. Using the current seasonal cycle to constrain snow albedo feedback in future climate change, in: *Geophysical Research Letters* 33, L03502. https://doi.org/10.1029/2005GL025127

Hampshire, Stuart, 1949. Fallacies in Moral Philosophy, in: *Mind* 58, 466–482.

Hanea, Anca M., Hemming, Victoria, Nane, Gabriela F., 2021. Uncertainty Quantification with Experts: Present Status and Research Needs, in: *Risk Analysis* 42, 254–263. https://doi.org/10.1111/risa.13718

Hanson, Norwood Russell, 1958. *Patterns of Discovery. An Inquiry into the Conceptual Foundations of Science*. Cambridge: Cambridge University Press.

Haraway, Donna, 1989. *Primate Visions: Gender, Race, and Nature in the World of Modern Science*. New York: Routledge.

Harris, Adam J L, Corner, Adam, Xu, Juemin, Du, Xiufang, 2013. Lost in translation? Interpretations of the probability phrases used by the Intergovernmental Panel on Climate Change in China and the UK, in: *Climatic Change* 121, 415–425. https://doi.org/10.1007/s10584-013-0975-1

Harris, Todd, 2003. Data Models and the Acquisition and Manipulation of Data, in: *Philosophy of Science* 70, 1508–1517. https://doi.org/10.1086/377426

Hartmann, Dennis L., Klein-Tank, Albert M. G., Rusticucci, Matilde, Alexander, Lisa V., Brönnimann, Stefan, Charabi, Yassine Abdul-Rahman, Dentener, Frank J., Dlugokencky, Edward J., Easterling, David R., Kaplan, Alexey, Soden, Brian J., Thorne, Peter W., Wild, Martin, Zhai, Panmao, 2013. Observations: Atmosphere and Surface Supplementary Material, in:

Stocker, T.F., Qin, D., Tignor, M., Allen, S.K., Boschung, J., Nauels, A., Xia, Y., Bex, V., Midgley, P.M. (Eds.), *Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*. Cambridge: Cambridge University Press, pp. 159–254.

Harvard, Stephanie, Winsberg, Eric, 2022. The Epistemic Risk in Representation, in: *Kennedy Institute of Ethics Journal* 32, 1–31. https://doi.org/10.1353/ken.2022.0001

Held, Isaac Meyer, 2005. The Gap between Simulation and Understanding in Climate Modeling, in: *Bulletin of the American Meteorological Society* 86, 1609–1614. https://doi.org/10.1175/BAMS-86-11-1609

Hempel, Carl, 1965. *Aspects of the scientific explanation*. New York: The Free Press.

Henning, Korinna, Drosten, Christian, 2020. Coronavirus-Update Folge 40, 12 December 2002, https://www.ndr.de/nachrichten/info/coronaskript194.pdf.

Heymann, Matthias, Gramelsberger, Gabriele, Mahony, Martin, 2017a. Key characteristics of cultures of prediction, in: Heymann, M., Gramelsberger, G., Mahony, M. (Eds.), *Cultures of Prediction in Atmospheric and Climate Science: Epistemic and Cultural Shifts in Computer-Based Modelling and Simulation*. London, New York: Routledge, pp. 18–41.

Heymann, Matthias, Gramelsberger, Gabriele, Mahony, Martin, 2017b. Introduction, in: Heymann, M., Gramelsberger, G., Mahony, M. (Eds.), *Cultures of Prediction in Atmospheric and Climate Science: Epistemic and Cultural Shifts in Computer-Based Modelling and Simulation*. London; New York: Routledge, pp. 1–17.

Hillerbrand, Rafaela, 2014. Climate Simulations: Uncertain Projections for an Uncertain World, in: *Journal for General Philosophy of Science* 45, 17–32. https://doi.org/10.1007/s10838-014-9266-4

Hillerbrand, Rafaela, 2010. On Non-Propositional Aspects in Modelling Complex Systems. in: *Analyse & Kritik* 01, 107–120.

Hourdin, Frédéric, Mauritsen, Thorsten, Gettelman, Andrew, Golaz, Jean-Christophe, Balaji, Venkatramani, Duan, Qingyun, Folini, Doris, Ji, Duoying, Klocke, Daniel, Qian, Yun, Rauser, Florian, Rio, Catherine, Tomassini, Lorenzo, Watanabe, Masahiro, Williamson, Daniel, 2017. The Art and Science of Climate Model Tuning, in: *Bulletin of the American Meteorological Society* 98, 589–602. https://doi.org/10.1175/BAMS-D-15-00135.1

Howard, Don, 2006. Lost Wanderers in the Forest of Knowledge: Some Thoughts on the Discovery-Justification Distinction, in: Schickore, J.,

Steinle, F. (Eds.), *Revisiting Discovery and Justification. Historical and Philosophical Perspectives on the Context Distinction*. Dordrecht: Springer, pp. 3–22.

Howe, Joshua P., 2014. Behind the Curve: Science and the Politics of Global Warming. Washington: University of Washington Press.

Hoyningen-Huene, Paul, 2006. Context of Discovery versus Context of Justification and Thomas Kuhn, in: Schickore, J., Steinle, F. (Eds.), *Revisiting Discovery and Justification. Historical and Philosophical Perspectives on the Context Distinction*. Dordrecht: Springer, pp. 119–131.

Huebner, Bryce, Kukla, Rebecca, Winsberg, Eric, 2017. Making an Author in Radically Collaborative Research, in: Boyer-Kassem, T., Mayo-Wilson, C., Weisberg, M. (Eds.), *Scientific Collaboration and Collective Knowledge*. Oxford: Oxford University Press, pp. 95–116.

Hume, David, [1739–1740] 1888. *A treatise of human nature*. Oxford: Clarendon Press.

Humphrey, Paul, 2004. *Extending ourselves. Computational science, empiricism, and scientific method*. New York: Oxford University Press.

Intemann, Kristen, 2017. Who Needs Consensus Anyway? Addressing Manufactured Doubt and Increasing Public Trust in Climate Science, in: *Public Affairs Quarterly* 31, 189–208.

Intemann, Kristen, 2015. Distinguishing between legitimate and illegitimate values in climate modeling, in: *European Journal for Philosophy of Science* 5, 217–232. https://doi.org/10.1007/s13194-014-0105-6

IPCC, 2023. Structure of the IPCC. https://www.ipcc.ch/about/structure/ (accessed 30 April 2023).

IPCC, 2021a. Annex VII: Glossary [J.B. Robin. Matthews, Vincent. Möller, Renée van Diemen, Jan S. Fuglestvedt, Valérie Masson-Delmotte, Carlos Méndez, Sergey Semenov, Andy Reisinger (Eds.)], in: Masson-Delmotte, V., Zhai, P., Pirani, A., Connors, S.L., Péan, C., Berger, S., Caud, N., Chen, Y., Goldfarb, L., Gomis, M.I., Huang, M., Leitzell, K., Lonnoy, E., Matthews, J.B.R., Maycock, T.K., Waterfield, T., Yelekçi, O., Yu, R., Zhou, B. (Eds.), *Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*. Cambridge, New York: Cambridge University Press, pp. 3–32.

IPCC, 2021b. Summary for Policymakers, in: Masson-Delmotte, V., Zhai, P., Pirani, A., Connors, S.L., Péan, C., Berger, S., Caud, N., Chen, Y., Goldfarb, L., Gomis, M.I., Huang, M., Leitzell, K., Lonnoy, E., Matthews, J.B.R., Maycock, T.K., Waterfield, T., Yelekçi, O., Yu, R., Zhou, B. (Eds.), *Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth As-*

sessment Report of the Intergovernmental Panel on Climate Change. Cambridge, New York: Cambridge University Press, pp. 3–32.

Isaac, Alistair M.C., 2014. Model uncertainty and policy choice: A plea for integrated subjectivism, in: *Studies in History and Philosophy of Science Part A* 47, 42–50. https://doi.org/10.1016/j.shpsa.2014.05.004

Jebeile, Julie, Ardourel, Vincent, 2019. Verification and Validation of Simulations Against Holism, in: *Minds and Machines* 29, 149–168. https://doi.org/10.1007/s11023-019-09493-8

Jebeile, Julie, Crucifix, Michel, 2021. Value management and model pluralism in climate science, in: *Studies in History and Philosophy of Science* 88, 120–127. https://doi.org/10.1016/j.shpsa.2021.06.004

Jeffrey, Richard C., 1956. Valuation and Acceptance of Scientific Hypotheses, in: *Philosophy of Science* 23, 237–246.

Johnson, Ann, 2017. Philosophical and Conceptual Issues, in: Lenhard, J., Carrier, M. (Eds.), *Mathematics as a Tool. Tracing New Roles of Mathematics in the Sciences*, Boston Studies in the Philosophy and History of Science. Springer International Publishing, Cham, pp. 23–35.

Jones, Phil, 1999. Diagram for Wmo Statement. https://wikileaks.org/wiki/Climatic_Research_Unit_emails,_data,_models,_1996-2009/ (accessed 17 May 2023).

Keller, Evelyn Foxx, 1985. *Reflections on Gender and Science*. New Haven: Yale University Press.

Kennedy, John J., 2014. A review of uncertainty in in situ measurements and data sets of sea surface temperature, in: *Reviews of Geophysics* 52, 1–32. https://doi.org/10.1002/2013RG000434

Kent, Elizabeth C., Kennedy, John, Berry, David I., Smith, Robert O., 2010. Effects of instrumentation changes on sea surface temperature measured *in situ*, in: *Wiley Interdisciplinary Reviews: Climate Change* 1, 718–728. https://doi.org/10.1002/wcc.55

Kitcher, Philip, 2001. *Science, truth, and democracy*. Oxford: Oxford University Press.

Kitcher, Philip, 1993. *The Advancement of Science. Science without Legend, Objectivity without Illusions*. Oxford: Oxford University Press.

Knorr-Cetina, Karin, 1999. *Epistemic Cultures. How the Science make Knowledge*. Cambridge: Harvard University Press.

Knorr-Cetina, Karin, 1981. *The Manufacture of Knowledge: An Essay on the Constructivist and Contextual Nature of Science*. Oxford: Pergamon Press.

Knutti, Reto, 2018. Climate Model Confirmation: From Philosophy to Predicting Climate in the Real World, in: A. Lloyd, E., Winsberg, E. (Eds.), *Climate Modelling: Philosophical and Conceptual Issues*. Cham: Palgrave Macmillan, pp. 325–359. https://doi.org/10.1007/978-3-319-65058-6_11

Knutti, Reto, Hegerl, Gabriele C., 2008. The Equilibrium Sensitivity of the Earth's Temperature to Radiation Change, in: *Nature Geoscience* 1, 735–743.

Knutti, Reto, Masson, David, Gettelman, Andrew, 2013. Climate model genealogy: Generation CMIP5 and how we got there, in: *Geophysical Research Letters* 40, 1194–1199. https://doi.org/10.1002/grl.50256

Knutti, Reto, Sedláček, Jan, Sanderson, Benjamin M., Lorenz, Ruth, Fischer, Erich M., Eyring, Veronika, 2017. A climate model projection weighting scheme accounting for performance and interdependence, in: *Geophysical Research Letters* 44, 1909–1918. https://doi.org/10.1002/2016GL072012

Kosolosky, Laszlo, 2015. "Peer Review is Melting Our Glaciers": What Led the Intergovernmental Panel on Climate Change (IPCC) to Go Astray?, in: *Journal for General Philosophy of Science* 46, 351–366. https://doi.org/10.1007/s10838-015-9303-y

Kuhn, Thomas S, 1977. *The Essential Tension: Selected Studies in Scientific Tradition and Change*. Chicago: University of Chicago Press.

Kuhn, Thomas S., 1962. *The Structure of Scientific Revolutions*, Chicago: University of Chicago Press.

Kukla, Rebecca, 2012. "Author TBD": Radical Collaboration in Contemporary Biomedical Research, in: *Philosophy of Science* 79, 845–858. https://doi.org/10.1086/668042

Lam, Vincent, Majszak, Mason M., 2022. Climate tipping points and expert judgment, in: *WIREs Climate Change* 13. https://doi.org/10.1002/wcc.805

Landström, Catharine, 2017. Tracing uncertainty management through four IPCC Assessment Reports and beyond, in: Heymann, M., Gramelsberger, G., Mahony, M. (Eds.), *Cultures of Prediction in Atmospheric and Climate Science: Epistemic and Cultural Shifts in Computer-Based Modelling and Simulation*. London, New York: Routledge, pp. 214–230.

Latour, Bruno, Woolgar, Steve, 1979. *Laboratory Life: The Construction of Scientific Facts*. Los Angeles: Sage Publications.

Laudan, Larry, 2004. The Epistemic, the Cognitive, and the Social, in: Machamer, P., Wolters, G. (Eds.), *Science Values and Objectivity*. Pittsburgh: University of Pittsburgh Press, pp. 14–23. https://doi.org/10.2307/j.ctt5vkg7t

Lee, June-Yi, Marotzke, Jochem, Bala, Govindasamy, Cao, Long, Corti, Susanna, Dunne, John P., Engelbrecht, Francois, Fischer, Erich, Fyfe, John C., Mutemi, Joseph, Ndiaye, Ousmane, Panickal, Swapna, Zhou, Tianjun, 2021. Future Global Climate: Scenario-Based Projections and Near-Term Information, in: Masson-Delmotte, V., Zhai, P., Pirani, A., Connors, S.L., Péan, C., Berger, S., Caud, N., Chen, Y., Goldfarb, L., Gomis, M.I., Huang, M., Leitzell, K., Lonnoy, E., Matthews, J.B.R., Maycock, T.K., Waterfield, T., Yelekçi, O., Yu, R., Zhou, B. (Eds.), *Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*. Cambridge, New York: Cambridge University Press, Cambridge, pp. 553–672.

Lehner, Flavio, Deser, Clara, Maher, Nicola, Marotzke, Jochem, Fischer, Erich M., Brunner, Lukas, Knutti, Reto, Hawkins, Ed, 2020. Partitioning climate projection uncertainty with multiple large ensembles and CMIP5/6, in: *Earth System Dynamics* 11, 491–508. https://doi.org/10.5194/esd-11-491-2020

Lenhard, Johannes, 2020. Understanding and Complexity – The Dilemma of Growth, in: Gramelsberger, G., Lenhard, J., Parker, W.S. (Eds.), Philosophical Perspectives on Earth System Modeling: Truth, Adequacy, and Understanding. *Journal of Advances in Modeling Earth Systems*, e2019MS001720.

Lenhard, Johannes, 2019. *Calculated surprises: a philosophy of computer simulation*. New York: Oxford University Press.

Lenhard, Johannes, 2018. Holism, or the Erosion of Modularity: A Methodological Challenge for Validation, in: *Philosophy of Science* 85, 832–844. https://doi.org/10.1086/699675

Lenhard, Johannes, Winsberg, Eric, 2010. Holism, entrenchment, and the future of climate model pluralism, in: *Studies in History and Philosophy of Science Part B: Studies in History and Philosophy of Modern Physics* 41, 253–262. https://doi.org/10.1016/j.shpsb.2010.07.001

Leonelli, Sabina, 2019. What distinguishes data from models?, in: *European Journal for Philosophy of Science* 9. https://doi.org/10.1007/s13194-018-0246-0

Leuschner, Anna, 2016. Die Unterschätzung des Klimawandels. Zum Einfluss nicht-epistemischer Werte auf die Klimamodellierung, in: Leuschner, A. (Ed.), *Die Energiewende Und Ihre Modelle. Was Uns Energieszenarien Sagen Können – Und Was Nicht*. Bielefeld: Transcript, pp. 75–88.

Leuschner, Anna, 2015. Uncertainties, Plurality, and Robustness in Climate Research and Modeling: On the Reliability of Climate Prognoses, in: *Journal for*

General Philosophy of Science 46, 367–381. https://doi.org/10.1007/s10838-015-9304-x

Leuschner, Anna, 2012a. Pluralism and objectivity: Exposing and breaking a circle, in: *Studies in History and Philosophy of Science Part A* 43, 191–198. https://doi.org/10.1016/j.shpsa.2011.12.030

Leuschner, Anna, 2012b. *Die Glaubwürdigkeit der Wissenschaft. Eine wissenschafts- und erkenntnistheoretische Analyse am Beispiel der Klimaforschung*. Bielefeld: Transcript.

Levi, Isaac, 1960. Must the Scientist Make Value Judgments?, in: *The Journal of Philosophy* 57, 345. https://doi.org/10.2307/2023504

Levins, Richard, 1993. A Response to Orzack and Sober: Formal Analysis and the Fluidity of Science, in: *The Quarterly Review of Biology* 68, 547–555. https://doi.org/10.1086/418302

Levins, Richard, 1966. The Strategy of Model Building in Population Biology, in: *American Scientist* 54, 421–431.

Lloyd, Elisabeth A., 2015. Model Robustness as a Confirmatory Virtue: The Case of Climate Science, in: *Studies in History and Philosophy of Science Part A* 49, 58–68.

Lloyd, Elisabeth A., 2012. The role of 'complex' empiricism in the debates about satellite data and climate models, in: *Studies in History and Philosophy of Science Part A* 43, 390–401. https://doi.org/10.1016/j.shpsa.2012.02.001

Lloyd, Elisabeth A., 2010. Confirmation and Robustness of Climate Models, in: *Philosophy of Science* 77, 971–984. https://doi.org/10.1086/657427

Lloyd, Elisabeth A., 2009. I – Elisabeth A. Lloyd: Varieties of Support and Confirmation of Climate Models, in: *Aristotelian Society Supplementary Volume* 83, 213–232. https://doi.org/10.1111/j.1467-8349.2009.00179.x

Løhre, Erik, Juanchich, Marie, Sirota, Miroslav, Teigen, Karl Halvor, Shepherd, Theodore G., 2019. Climate Scientists' Wide Prediction Intervals May Be More Likely but Are Perceived to Be Less Certain, in: *Weather, Climate, and Society* 11, 565–575. https://doi.org/10.1175/WCAS-D-18-0136.1

Longino, Helen, 2008. Values, Heuristics, and the Politics of Knowledge, in: Carrier, M., Howard, D., Kourany, J. (Eds.), *The Challenge of the Social and the Pressure of the Practical. Science and Values Revisited*. Pittsburgh: University of Pittsburgh Press, pp. 68–86.

Longino, Helen, 2002. *The fate of knowledge*. Princeton: Princeton University Press.

Longino, Helen, 1990. *Science as Social Knowledge. Values and Objectivity on Scientific Inquiry*. Princeton: Princeton University Press.

MacIntyre, Alasdair C., 1959. Hume on "Is" and "Ought," in: Chappell, V.C. (Ed.), *Hume: A Collection of Critical Essays*. New York: Doubleday.

Malik, Saira, 2017. Observation Versus Experiment: An Adequate Framework for Analysing Scientific Experimentation?, in: *Journal for General Philosophy of Science* 48, 71–95. https://doi.org/10.1007/s10838-016-9335-y

Mann, Michael E., 2018. Reconciling Climate Model/Data Discrepancy: The Case of the 'Tree That Didn't Bark, in: Lloyd, E.A., Winsberg, E. (Eds.), *Climate Modelling: Philosophical and Conceptual Issues*. Cham: Springer, pp. 175–197.

Mastrandrea, Michael D., Field, Christopher B., Stocker, Thomas F., Edenhofer, Ottmar, Ebi, Kristie, Frame, David J., Held, Hermann, Kriegler, Elmar, Mach, Katharine J., Matschoss, Patrick R., Plattner, Gian-Kasper, Yohe, Gary W., Zwiers, Francis W., 2010. *Guidance Note for Lead Authors of the IPCC Fifth Assessment Report on Consistent Treatment of Uncertainties*. Intergovernmental Panel on Climate Change (IPCC). https://www.ipcc.ch/site/assets/uploads/2017/08/AR5_Uncertainty_Guidance_Note.pdf

Mauritsen, Thorsten, Stevens, Bjorn, Roeckner, Erich, Crueger, Traute, Esch, Monika, Giorgetta, Marco, Haak, Helmuth, Jungclaus, Johann, Klocke, Daniel, Matei, Daniela, Mikolajewicz, Uwe, Notz, Dirk, Pincus, Robert, Schmidt, Hauke, Tomassini, Lorenzo, 2012. Tuning the climate of a global model, in: *Journal of Advances in Modeling Earth Systems* 4, M00A01. https://doi.org/10.1029/2012MS000154

McFarlane, Norman, 2011. Parameterizations: representing key processes in climate models without resolving them: Parameterizations, in: *Wiley Interdisciplinary Reviews: Climate Change* 2, 482–497. https://doi.org/10.1002/wcc.122

McMullin, Ernan, 1982. Values in Science, in: *PSA: Proceedings of the Biennial Meeting of the Philosophy of Science Association* 1982, 3–28.

Mears, Carl A., Schabel, Matthias C., Wentz, Frank J., 2003. A Reanalysis of the MSU Channel 2 Tropospheric Temperature Record, in: *Journal of Climate* 16, 3650–3664. https://doi.org/10.1175/1520-0442(2003)016<3650:AROTMC>2.0.CO;2

Medimorec, Srdan, Pennycook, Gordon, 2015. The language of denial: text analysis reveals differences in language use between climate change proponents and skeptics, in: *Climatic Change* 133, 597–605. https://doi.org/10.1007/s10584-015-1475-2

Megill, Alan, 1994. Introduction: Four Senses of Objectivity, in: Megill, A. (Ed.), *Rethinking Objectivity*. Durham: Duke University Press, pp. 1–20.

Merton, Robert K., 1973. *The Sociology of Science. Theoretical and Empirical Investigations,* Storer, N.W. (Ed.). Chicago: University of Chicago Press.

Mitchell, Sandra D., 2009. *Unsimple Truths: Science, Complexity and Policy*. Chicago: University of Chicago Press.

Morrison, Margaret, 2015. *Reconstructing Reality: Models, Mathematics, and Simulations*. Oxford: Oxford University Press. https://doi.org/10.1093/acprof:oso/9780199380275.001.0001

Nagel, Ernest, 1961. *The structure of science: Problems in the logic of scientific explanation*. New York: Brace & World.

Nickles, Thomas, 1980. Introductory essay: Scientific discovery and the future of philosophy of science, in: Nickles, T. (Ed.), *Scientific Discovery, Logic, and Rationality*, Boston Studies in the Philosophy of Science. Dordrecht: Reidel, pp. 1–59.

Nonaka, Ikujiro, Takeuchi, Hirotaka, 1995. *The Knowledge-creating Company: How Japanese Companies Create the Dynamics of Innovation*. New York: Oxford University Press.

Notz, Dirk, 2015. How well must climate models agree with observations?, in: *Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences* 373, 20140164. https://doi.org/10.1098/rsta.2014.0164

Nunn, Patrick D., Reid, Nicholas J., 2016. Aboriginal Memories of Inundation of the Australian Coast Dating from More than 7000 Years Ago, in: *Australian Geographer* 47, 11–47. https://doi.org/10.1080/00049182.2015.1077539

Oppenheimer, Michael, Little, Christopher M., Cooke, Roger M., 2016. Expert judgement and uncertainty quantification for climate change, in: *Nature Climate Change* 6, 445–451. https://doi.org/10.1038/nclimate2959

Oreskes, Naomi, 2004. The Scientific Consensus on Climate Change, in: *Science* 306, 1686–1686. https://doi.org/10.1126/science.1103618

Oreskes, Naomi, Conway, Erik M., 2010. *Merchants of Doubt: How a Handful of Scientists Obscured the Truth on Issues from Tobacco Smoke to Global Warming*. New York: Bloomsbury Press.

Oreskes, Naomi, Shrader-Frechette, Kristin, Belitz, Kenneth, 1994. Verification, Validation, and Confirmation of Numerical Models in the Earth Sciences, in: Science 263, 641–646. https://doi.org/10.1126/science.263.5147.641

Orzack, Steven Hecht, Sober, Elliott, 1993. A Critical Assessment of Levins's The Strategy of Model Building in Population Biology (1966), in: *The Quarterly Review of Biology* 68, 533–546. https://doi.org/10.1086/418301

Oxburgh, Ronald, Davies, Huw, Emanuel, Kerry A., Graumlich, Lisa, Hand, David, Huppert, Herbert, Kelly, Michael, 2010. *Report of the International Panel set up by the University of East Anglia to examine the research of the Climatic Research Unit*. 14 April 2010, University of East Anglia.

Parker, Wendy S., 2020. Local Model-Data Symbiosis in Meteorology and Climate Science, in: *Philosophy of Science* 87, 807–818. https://doi.org/10.1086/710621

Parker, Wendy S., 2018. Climate Science, in: Zalta, E.N. (Ed.), *The Stanford Encyclopedia of Philosophy*. Summer 2018 Edition, Metaphysics Research Lab, Stanford University, https://plato.stanford.edu/archives/sum2018/entries/climate-science/.

Parker, Wendy S., 2017. Computer Simulation, Measurement, and Data Assimilation, in: *The British Journal for the Philosophy of Science* 68, 273–304. https://doi.org/10.1093/bjps/axv037

Parker, Wendy S., 2014. Values and uncertainties in climate prediction, revisited, in: *Studies in History and Philosophy of Science Part A* 46, 24–30. https://doi.org/10.1016/j.shpsa.2013.11.003

Parker, Wendy S., 2011. When Climate Models Agree: The Significance of Robust Model Predictions, in: *Philosophy of Science* 78, 579–600. https://doi.org/10.1086/661566

Parker, Wendy S., 2010. Predicting weather and climate: Uncertainty, ensembles and probability, in: *Studies in History and Philosophy of Science Part B: Studies in History and Philosophy of Modern Physics* 41, 263–272. https://doi.org/10.1016/j.shpsb.2010.07.006

Parker, Wendy S., 2009. II – Wendy S. Parker: Confirmation and adequacy-for-Purpose in Climate Modelling, in: *Aristotelian Society Supplementary Volume* 83, 233–249. https://doi.org/10.1111/j.1467-8349.2009.00180.x

Parker, Wendy S., Winsberg, Eric, 2018. Values and evidence: how models make a difference, in: *European Journal for Philosophy of Science* 8, 125–142. https://doi.org/10.1007/s13194-017-0180-6

Pew Research Center, 2019. Climate Change Still Seen as the Top Global Threat, but Cyberattacks a Rising Concern, February 2019. https://www.pewresearch.org/global/wp-content/uploads/sites/2/2019/02/Pew-Research-Center_Global-Threats-2018-Report_2019-02-10.pdf.

Pew Research Center, 2015. Public and Scientists' View on Science and Society, 29 January 2015, https://www.pewresearch.org/internet/wp-content/uploads/sites/9/2015/01/PI_ScienceandSociety_Report_012915.pdf.

Pickering, Andrew, 1992. From Science as Knowledge to Science as Practice, in: Pickering, A. (Ed.), *Science as Practice and Culture*. Chicago: University of Chicago Press, pp. 1–26.

Polanyi, Michael, [1958] 1962. *Personal knowledge. Towards a post-critical philosophy.* Chicago: University of Chicago Press.

Polanyi, Michael, 1966a. *The tacit dimension*. Chicago: University of Chicago Press.

Polanyi, Michael, 1966b. The Logic of Tacit Inference, in: *Philosophy* 41, 1–18. https://doi.org/10.1017/S0031819100066110

Popper, Karl, [1935] 1959. *The Logic of Scientific Discovery*. London; New York: Routledge.

Proctor, Robert N., 1991. *Values-Free Science? Purity and Power in Modern Knowledge*. Cambridge: Harvard University Press.

Quine, Willard Van Orman, 1951. Two Dogmas of Empiricism, in: *From a Logical Point of View*. Cambridge: Harvard University Press, pp. 20–46.

Reichenbach, Hans, 1938. *Experience and Prediction: An Analysis of the Foundations and Structure of Knowledge.* Chicago: University of Chicago Press.

Reiss, Julian, Sprenger, Jan, 2017. Scientific Objectivity, in: Zalta, E.N. (Ed.), *The Stanford Encyclopedia of Philosophy*. Winter 2017 Edition, Metaphysics Research Lab, Stanford University, https://plato.stanford.edu/archives/win2017/entries/scientific-objectivity/.

Rescher, Nicholas, 1988. *Predicting the future: An Introduction to the Theory of Forecasting*. New York: State University of New York Press.

Richardson, Lewis Fry, 1922. *Weather Prediction by Numerical Process*. Cambridge: Cambridge University Press.

Rooney, Phyllis, 1992. On Values in Science: Is the Epistemic/Non-Epistemic Distinction Useful?, in: *PSA: Proceedings of the Biennial Meeting of the Philosophy of Science Association* 1992, 13–22. https://doi.org/10.1086/psaprocbienmeetp.1992.1.192740

Rudner, Richard, 1953. The Scientist Qua Scientist Makes Value Judgments, in: *Philosophy of Science* 20, 1–6.

Ruphy, Stéphanie, 2016. *Scientific Pluralism Reconsidered. A New Approach to the (Dis)Unity of Science*. Pittsburgh: University of Pittsburgh Press, Pittsburgh.

Rusbridger, Alan, 2015. Climate change: why the Guardian is putting threat to Earth front and centre, in: *the Guardian*, 6 March 2015, https://www.theguardian.com/environment/2015/mar/06/climate-change-guardian-threat-to-earth-alan-rusbridger (accessed 17 May 2023).

Ryle, Gilbert, [1949] 1973. *The concept of mind*. Harmondsworth; Ringwood: Penguin University Books.

Santer, Benjamin D, Fyfe, John C, Pallotta, Giuliana, Flato, Gregory M, Meehl, Gerald A, England, Matthew H, Hawkins, Ed, Mann, Michael E, Painter, Jeffrey F, Bonfils, Céline, Cvijanovic, Ivana, Mears, Carl, Wentz, Frank J, Po-Chedley, Stephen, Fu, Qiang, Zou, Cheng-Zhi, 2017. Causes of differences in model and satellite tropospheric warming rates, in: *Nature Geoscience* 10, 478–485. https://doi.org/10.1038/ngeo2973

Santer, Benjamin D., Hnilo, Justin J., Wigley, Tom M. L., Boyle, James S., Doutriaux, Charles, Fiorino, Michael, Parker, David E., Taylor, Karl E., 1999. Uncertainties in observationally based estimates of temperature change in the free atmosphere, in: *Journal of Geophysical Research: Atmospheres* 104, 6305–6333. https://doi.org/10.1029/1998JD200096

Santer, Benjamin David, Thorne, Peter W., Haimberger, Leopold, Taylor, Karl E., Wigley, Tom M. L., Lanzante, John R., Solomon, Susan, Free, Melissa, Gleckler, Peter J., Jones, Philip Douglas, Karl, Thomas R., Klein, Sidnei A., Mears, Carl, Nychka, Douglas, Schmidt, Gavin A., Sherwood, Steven C., Wentz, Frank J., 2008. Consistency of modelled and observed temperature trends in the tropical troposphere, in: *International Journal of Climatology* 28, 1703–1722. https://doi.org/10.1002/joc.1756

Schickore, Jutta, Steinle Friedrich, 2006a. Introduction: Revisiting Discovery and Justification, in: Schickore, J., Steinle F. (Eds.), Revisiting Discovery and Justification. Historical and philosophical perspectives on the context distinction. Dordrecht: Springer, pp. vii–xix. https://doi.org/10.1007/1-4020-4251-5_1

Schickore, Jutta, Steinle, Friedrich, 2006b. Revisiting Discovery and Justification. Historical and philosophical perspectives on the context distinction. Dordrecht: Springer.

Schmidt, Gavin A., 2007. Past reconstructions: problems, pitfalls and progress. realclimate.org. http://www.realclimate.org/index.php/archives/2007/12/past-reconstructions/ (accessed 17 May 2023).

Schmidt, Gavin A., Bader, David, Donner, Leo J., Elsaesser, Gregory S., Golaz, Jean-Christophe, Hannay, Cecile, Molod, Andrea, Neale, Richard B., Saha, Suranjana, 2017. Practice and philosophy of climate model tuning across six US modeling centers, in: *Geoscientific Model Development* 10, 3207–3223. https://doi.org/10.5194/gmd-10-3207-2017

Schmidt, Gavin A., Sherwood, Steven C., 2015. A practical philosophy of complex climate modelling, in: *European Journal for Philosophy of Science* 5, 149–169. https://doi.org/10.1007/s13194-014-0102-9

Schupbach, Jonah N., 2018. Robustness Analysis as Explanatory Reasoning, in: *The British Journal for the Philosophy of Science* 69, 275–300. https://doi.org/10.1093/bjps/axw008

Searle, John R., 1980. Minds, brains, and programs, in: *Behavioral and Brain Sciences* 3, 417–424. https://doi.org/10.1017/S0140525X00005756

Shapere, Dudley, 1982. The Concept of Observation in Science and Philosophy, in: *Philosophy of Science* 49, 485–525

Sherwood, S. C., Webb, M. J., Annan, J. D., Armour, K. C., Forster, P. M., Hargreaves, J. C., Hegerl, G., Klein, S. A., Marvel, K. D., Rohling, E. J., Watanabe, M., Andrews, T., Braconnot, P., Bretherton, C. S., Foster, G. L., Hausfather, Z., Heydt, A. S., Knutti, R., Mauritsen, T., Norris, J. R., Proistosescu, C., Rugenstein, M., Schmidt, G. A., Tokarska, K. B., Zelinka, M. D., 2020. An Assessment of Earth's Climate Sensitivity Using Multiple Lines of Evidence, in: *Reviews of Geophysics* 58, e2019RG000678. https://doi.org/10.1029/2019RG000678

Shewhart, Walter A., Demming, William E., 1939. *Statistical Methods from the Viewpoint of Quality Control.* North Chelmsford: Courier Corporation.

Skelton, Maurice, Porter, James J., Dessai, Suraje, Bresch, David N., Knutti, Reto, 2017. The social and scientific values that shape national climate scenarios: a comparison of the Netherlands, Switzerland and the UK, in: *Regional Environmental Change* 17, 2325–2338. https://doi.org/10.1007/s10113-017-1155-z

Slivinski, Laura C., Compo, Gilbert P., Whitaker, Jeffrey S., Sardeshmukh, Prashant D., Giese, Benjamin S., McColl, Chesley, Allan, Rob, Yin, Xungang, Vose, Russell S., Titchner, Holly, Kennedy, John, Spencer, Lawrence J., Ashcroft, Linden, Brönnimann, Stefan, Brunet, Manola, Camuffo, Dario, Cornes, Richard, Cram, Thomas A., Crouthamel, Richard, Domínguez-Castro, Fernando, Freeman, J. Eric, Gergis, Joëlle, Hawkins, Ed, Jones, Philip Douglas, Jourdain, Sylvie, Kaplan, Alexey, Kubota, Hisayuki, Le Blancq, Frank, Lee, Tsz-Cheung, Lorrey, Andrew, Luterbacher, Jürg, Maugeri, Maurizio, Mock, Cary J., Moore, G. W. Kent, Przybylak, Rajmund, Pudmenzky, Christa, Reason, Chris, Slonosky, Victoria C., Smith, Catherine A., Tinz, Birger, Trewin, Blair, Valente, Maria Antónia, Wang, Xiaolan L., Wilkinson, Clive, Wood, Kevin, Wyszyński, Przemysław, 2019. Towards a more reliable historical reanalysis: Improvements for version 3 of the

Twentieth Century Reanalysis system, in: *Quarterly Journal of the Royal Meteorological Society* 145, 2876–2908. https://doi.org/10.1002/qj.3598

Soler, Léna, 2011. Tacit aspects of experimental practices: analytical tools and epistemological consequences, in: *European Journal for Philosophy of Science* 1, 393–433. https://doi.org/10.1007/s13194-011-0039-1

Soler, Léna, Zwart, Sjoerd D., 2013. Editorial Introduction: Collins and Tacit Knowledge, in: *Philosophia Scientiae* 5–23. https://doi.org/10.4000/philosophiascientiae.880

Spencer, Roy W., Christy, John R., 1990. Precise Monitoring of Global Temperature Trends from Satellites, in: *Science* 247, 1558–1562. https://doi.org/10.1126/science.247.4950.1558

Stainforth, David Alan, Aina, Tolu, Christensen, Carl, Collins, Matthew, Faull, Nicholas, Frame, David J., Kettleborough, Jamie A., Knight, Susie, Martin, Andrew, Murphy, James M., Piani, Claudio, Sexton, David, Smith, Leonard A., Spicer, Robert A., Thorpe, Alan J., Allen, Myles R., 2005. Uncertainty in predictions of the climate response to rising levels of greenhouse gases, in: *Nature* 433, 403–406. https://doi.org/10.1038/nature03301

Stanford, Kyle, 2023. Underdetermination of Scientific Theory, in: Zalta, E.N., Nodelman, U. (Eds.), *The Stanford Encyclopedia of Philosophy*. Summer 2023 Edition, Metaphysics Research Lab, Stanford University, https://plato.stanford.edu/archives/sum2023/entries/scientific-underdetermination/.

Steel, Daniel, 2015. Acceptance, values, and probability, in: *Studies in History and Philosophy of Science Part A* 53, 81–88. https://doi.org/10.1016/j.shpsa.2015.05.010

Steele, Katie, Werndl, Charlotte, 2013. Climate Models, Calibration, and Confirmation, in: *The British Journal for the Philosophy of Science* 64, 609–635.

Steinle, Friedrich, 2006. Concept Formation and the Limits of Justification: "Discovering" the two Electricities, in: Schickore, J., Steinle, F. (Eds.), *Revisiting Discovery and Justification. Historical and philosophical perspectives on the context distinction*. Dordrecht: Springer, pp. 183–195. https://doi.org/10.1007/1-4020-4251-5_11

Stevens, Bjorn, Sherwood, Steven C., Bony, Sandrine, Webb, Mark J., 2016. Prospects for narrowing bounds on Earth's equilibrium climate sensitivity, in: *Earth's Future* 4, 512–522. https://doi.org/10.1002/2016EF000376

Strevens, Michael, 2016. Complexity Theory, in: Humphrey, P. (Ed.), *The Oxford Handbook of Philosophy of Science*. Oxford: Oxford University Press, pp. 695–716.

Sundberg, Mikaela, 2011. The dynamics of coordinated comparisons: How simulationists in astrophysics, oceanography and meteorology create standards for results, in: *Social Studies of Science* 41, 107–125. https://doi.org/10.1177/0306312710385743

Suppes, Patrick, 1962. Models of Data, in: Nagel, E., Suppes, P., Tarski, A. (Eds.), *Logic, Methodology, and Philosophy of Science: Proceedings of the 1960 International Congress*. Stanford: Stanford University Press, pp. 252–261.

Supran, Geoffrey, Oreskes, Naomi, 2017. Assessing ExxonMobil's climate change communications (1977–2014), in: *Environmental Research Letters* 12, 084019. https://doi.org/10.1088/1748-9326/aa815f

Tebaldi, Claudia, Knutti, Reto, 2007. The use of the multi-model ensemble in probabilistic climate projections, in: *Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences* 365, 2053–2075. https://doi.org/10.1098/rsta.2007.2076

Thompson, David W. J., Kennedy, John J., Wallace, John M., Jones, Phil D., 2008. A large discontinuity in the mid-twentieth century in observed global-mean surface temperature, in: *Nature* 453, 646–649. https://doi.org/10.1038/nature06982

Thompson, Erica, Frigg, Roman, Helgeson, Casey, 2016. Expert Judgment for Climate Change Adaptation, in: *Philosophy of Science* 83, 1110–1121. https://doi.org/10.1086/687942

Thorne, Peter W., Lanzante, John R., Peterson, Thomas C., Seidel, Dian J., Shine, Keith P., 2011. Tropospheric temperature trends: history of an ongoing controversy, in: *Wiley Interdisciplinary Reviews: Climate Change* 2, 66–88. https://doi.org/10.1002/wcc.80

van Fraassen, Bas C., 2008. *Scientific Representation*. Oxford: Oxford University Press.

van Fraassen, Bas C., 1980. *The scientific image*. Oxford: Oxford University Press.

Van Lange, Paul A. M., Joireman, Jeff, Milinski, Manfred, 2018. Climate Change: What Psychology Can Offer in Terms of Insights and Solutions, in: *Current Directions in Psychological Science* 27, 269–274. https://doi.org/10.1177/0963721417753945

Vinnikov, Konstantin Y., Grody, Norman C., 2003. Global Warming Trend of Mean Tropospheric Temperature Observed by Satellites, in: *Science* 302, 269–272. https://doi.org/10.1126/science.1087910

Washington, Haydn, Cook, John, 2011. *Climate Change Denial Heads in the Sand*. Oxfordshire: Earthscan.

Weart, Spencer, 2010. The development of general circulation models of climate, in: *Studies in History and Philosophy of Science Part B: Studies in History and Philosophy of Modern Physics* 41, 208–217. https://doi.org/10.1016/j.shpsb.2010.06.002

Weaver, Warren, 1948. Science and Complexity, in: *American Scientist* 36, 449–456. https://doi.org/10.1007/978-1-4899-0718-9_30

Weber, Max, 1946. *Essays in Sociology*, Gerth, H.H., Mills, C.W. (Trans.). New York: Oxford University Press.

Weber, Max, 1913. Über einige Kategorien der verstehenden Soziologie, in: Winckelmann, J. (Ed.), *Gesammelte Aufsätze Zur Wissenschaftslehre*. Mohr Siebeck, Tübingen.

Weisberg, Michael, 2006. Robustness Analysis, in: *Philosophy of Science* 73, 730–742.

Wentz, Frank J., Schabel, Matthias, 2000. Precise climate monitoring using complementary satellite data sets, in: *Nature* 403, 414–416. https://doi.org/10.1038/35000184

Werndl, Charlotte, 2019. Initial-Condition Dependence and Initial-Condition Uncertainty in Climate Science, in: *The British Journal for the Philosophy of Science* 70, 953–976. https://doi.org/10.1093/bjps/axy021

Wilholt, Torsten, 2009. Bias and Values in Scientific Research, in: *Studies in History and Philosophy of Science* 40, 92–101. https://doi.org/10.1016/j.shpsa.2008.12.005

Wimsatt, William, 2007. *Re-engineering philosophy for limited beings. Piecewise approximations to reality*. Cambridge: Harvard University Press.

Winsberg, Eric, 2019. Computer Simulations in Science, in: Zalta, E.N. (Ed.), *The Stanford Encyclopedia of Philosophy*. Winter 2019 Edition, Metaphysics Research Lab, Stanford University, https://plato.stanford.edu/archives/win2019/entries/simulations-science/.

Winsberg, Eric, 2018. *Philosophy and Climate Science, Philosophy and Climate Science*. Cambridge: Cambridge University Press. https://doi.org/10.1017/9781108164290

Winsberg, Eric, 2012. Values and Uncertainties in the Predictions of Global Climate Models, in: *Kennedy Institute of Ethics Journal* 22, 111–137. https://doi.org/10.1353/ken.2012.0008

Winsberg, Eric, 2010. *Science in the age of computer simulation*. Chicago: University of Chicago Press.

Winsberg, Eric, 2003. Simulated Experiments: Methodology for a Virtual World, in: *Philosophy of Science* 70, 105–125. https://doi.org/10.1086/367872

Winsberg, Eric, Huebner, Bryce, Kukla, Rebecca, 2014. Accountability and values in radically collaborative research, in: *Studies in History and Philosophy of Science Part A* 46, 16–23. https://doi.org/10.1016/j.shpsa.2013.11.007

Wittgenstein, Ludwig, 1953. *Philosophical Investigations*, Anscombe, G.E.M. (Tran.). Oxford: Blackwell.

Zängl, Günther, Reinert, Daniel, Rípodas, Pilar, Baldauf, Michael, 2015. The ICON (ICOsahedral Non-hydrostatic) modelling framework of DWD and MPI-M: Description of the non-hydrostatic dynamical core, in: *Quarterly Journal of the Royal Meteorological Society* 141, 563–579. https://doi.org/10.1002/qj.2378

Zickfeld, Kirsten, Levermann, Anders, Morgan, M. Granger, Kuhlbrodt, Till, Rahmstorf, Stefan, Keith, David W., 2007. Expert judgements on the response of the Atlantic meridional overturning circulation to climate change, in: *Climatic Change* 82, 235–265. https://doi.org/10.1007/s10584-007-9246-3