Selected scientific publications

January 2015 to December 2017

IIASA produces world class science, which is regularly published in high-impact publications. A selection of articles (co)authored by IIASA researchers and published in *Nature* and selected other Nature Publishing Group (NPG) journals, *Proceedings of the National Academy of Sciences of the United States of America (PNAS)*, and *Science* is presented here. Publication statistics are also included to show how much IIASA publishes and how this has increased in recent years.

Nature

Impacts and mitigation of excess diesel-related NO_x emissions in 11 major vehicle markets
Anenberg SC, Miller J, Minjares R, Du L, et al. (2017). *Nature* 545(7655): 467-471

Groundwater depletion embedded in international food trade
Dalin C, Wada Y, Kastner T, & Puma MJ (2017). *Nature* 543: 700-704

Energy policy: Renewables targeted before Fukushima
Cherp A & Jewell J (2016). *Nature* 533(7601): 36

Carbon tracking: Limit uncertainties in land emissions
Fritz S, Schepaschenko D, & See L (2016). *Nature* 534(7609): 621

Paris Agreement climate proposals need a boost to keep warming well below 2°C
Rogelj J, den Elzen M, Höhne M, Franzen T, et al. (2016). *Nature* 534(7609): 631–639

Reduced carbon emission estimates from fossil fuel combustion and cement production in China
Liu Z, Guan D, Wei W, Davis SJ, et al. (2015). *Nature* 524(7565): 335–338

Five priorities for the UN Sustainable Development Goals
Lu Y, Nakicenovic N, Visbeck M, & Stevance A-S (2015). *Nature* 520(7548): 432–433

Climate modelling: Community initiative tackles urban heat
See L, Mills G, & Ching J (2015). *Nature* 526(7571): 43

Nature Climate Change

Improving poverty and inequality modelling in climate research
Rao N, van Ruijven BJ, Riahi K, & Bosetti V (2017). *Nature Climate Change* 7(12): 857-862

Forecasting societies' adaptive capacities through demographic metabolism model
Lutz W & Muttarak R (2017). *Nature Climate Change* 7(3): 177-184

Climate policy: Transparency for Loss and Damage
Mechler R (2017). *Nature Climate Change* 7(10): 687-688

Key indicators to track current progress and future ambition of the Paris Agreement
Peters GP, Andrew RM, Canadell JG, Fuss S, et al. (2017). *Nature Climate Change* 7: 118-122

Sensitivity of projected long-term CO_2 emissions across the Shared Socioeconomic Pathways
Marangoni G, Tavoni M, Bosetti V, Borgonovo E, et al. (2017). *Nature Climate Change* 7: 113-117

Greenhouse gas emissions intensity of global croplands
Carlson KM, Gerber JS, Mueller ND, Herrero M, et al. (2017). *Nature Climate Change* 7(1): 63-68

Equitable mitigation to achieve the Paris Agreement goals
Robiou du Pont Y, Jeffery ML, Gütschow J, Rogelj J, et al. (2017). *Nature Climate Change* 7(1): 38-43

Similar estimates of temperature impacts on global wheat yield by three independent methods
Liu B, Asseng S, Müller C, Ewert F, et al. (2016). *Nature Climate Change* 6(12): 1130-1136

Regional disparities in the beneficial effects of rising CO_2 concentrations on crop water productivity
Deryng D, Elliott J, Folberth C, Müller C, et al. (2016). *Nature Climate Change* 6(8): 786–790

Mapping the climate change challenge
Hallegatte S, Rogelj J, Allen M, Clarke L, et al. (2016). *Nature Climate Change* 6(7): 663–668

Greenhouse gas mitigation potentials in the livestock sector
Herrero M, Henderson B, Havlík P, Thornton PK, et al. (2016). *Nature Climate Change* 6(5): 452–461

Reaching peak emissions
Jackson RB, Canadell JG, Le Quéré C, Andrew RM, et al. (2016). *Nature Climate Change* 6(1): 7–10

Emission effects of the Chinese–Russian gas deal
Orlov A, Deppermann A, Wei T, & Glomsrød S (2016). *Nature Climate Change* 6(2): 114

Differences between carbon budget estimates unravelled
Rogelj J, Schaefer M, Friedlingstein P, Gillett N, et al. (2016). *Nature Climate Change* 6(3): 245–252

Science and policy characteristics of the Paris Agreement temperature goal
Schleussner C-F, Rogelj J, Schaeffer M, Lissner T, et al. (2016). *Nature Climate Change* 6(9): 827–835

Biophysical and economic limits to negative CO_2 emissions
Smith P, Davis SJ, Creutzig F, Fuss S, et al. (2016). *Nature Climate Change* 6(1): 42–50

Multiple carbon accounting to support just and effective climate policies
Steininger KW, Lininger C, Meyer LH, Muñoz P, & Schinko T (2016). *Nature Climate Change* 6(1): 35–41

How insurance can support climate resilience
Surminski S, Bouwer LM, & Linnerooth-Bayer J (2016). *Nature Climate Change* 6(4): 333–334

Power-generation system vulnerability and adaptation to changes in climate and water resources
van Vliet MTH, Wiberg D, Leduc S, & Riahi K (2016). *Nature Climate Change* 6(4): 375–381

Fate of water pumped from underground and contributions to sea-level rise
Wada Y, Lo M-H, Yeh PJ-F, Reager JT, et al. (2016). *Nature Climate Change* 6(8): 777–780

Greenhouse-gas payback times for crop-based biofuels
Elshout PMF, van Zelm R, Balkovic J, Obersteiner M, et al. (2015). *Nature Climate Change* 5(6): 604–610

Reply to 'Uncertain effects of nutrient availability on global forest carbon balance' and 'Data quality and the role of nutrients in forest carbon-use efficiency'
Fernández-Martínez M, Vicca S, Janssens IA, Sardans J, et al. (2015). *Nature Climate Change* 5(11): 960–961

National post-2020 greenhouse gas targets and diversity-aware leadership
Meinshausen M, Jeffery L, Guetschow JR, du Pont YR, et al. (2015). *Nature Climate Change* 5(12): 1098–1106

Energy system transformations for limiting end-of-century warming to below 1.5°C
Rogelj J, Luderer G, Pietzcker RC, Kriegler E, et al. (2015). *Nature Climate Change* 5(6): 519–527

Long history of IAM comparisons
Smith SJ, Clark LE, Edmonds JA, Kejun J, et al. (2015). *Nature Climate Change* 5(5): 391

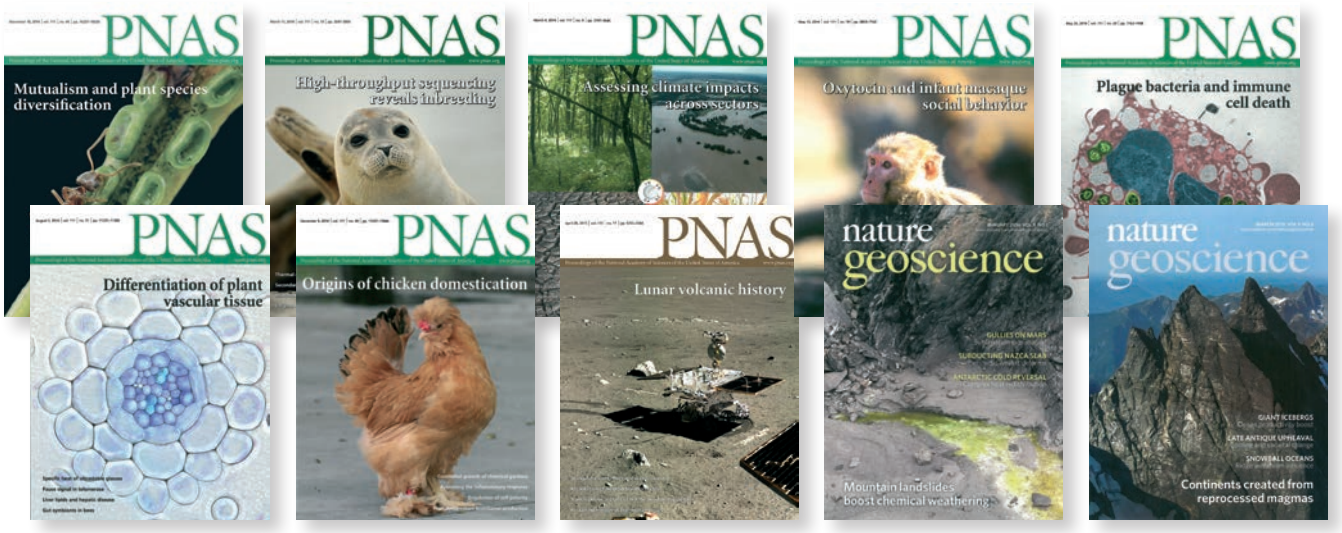
Nature Communications

Reconciling irrigated food production with environmental flows for Sustainable Development Goals implementation
Jägermeyr J, Pastor A, Biemans H, & Gerten D (2017). *Nature Communications* 8: e15900

Understanding the origin of Paris Agreement emission uncertainties
Rogelj J, Fricko O, Meinshausen M, Krey V, et al. (2017). *Nature Communications* 8: e15748

Water scarcity hotspots travel downstream due to human interventions in the 20th and 21st century
Veldkamp T, Wada Y, Aerts JCJH, Doell P, et al. (2017). *Nature Communications* 8: e15697

Selected scientific publications



Consistent negative response of US crops to high temperatures in observations and crop models
Schauberger B, Archontoulis S, Arneth A, Balković J, et al. (2017). *Nature Communications* 8

Pathways for balancing CO_2 emissions and sinks
Walsh B, Ciais P, Janssens IA, Penuelas J, et al. (2017). *Nature Communications* 8: e14856

Climate analogues suggest limited potential for intensification of production on current croplands under climate change
Pugh TAM, Müller C, Elliott J, Deryng D, et al. (2016). *Nature Communications* 7: e12608

Uncertainty in soil data can outweigh climate impact signals in crop yield simulations
Folberth C, Skalský R, Moltchanova E, Balković J, et al. (2016). *Nature Communications* 7: 11872

Nature Energy

Open discussion of negative emissions is urgently needed
van Vuuren DP, Hof AF, van Sluisveld MAE, & Riahi K (2017). *Nature Energy* 2(12): 902-904

Policy trade-offs between climate mitigation and clean cook-stove access in South Asia
Cameron C, Pachauri S, Rao ND, McCollum D, et al. (2016). *Nature Energy* 1: 15010

Comparison and interactions between the long-term pursuit of energy independence and climate policies
Jewell J, Vinichenko V, McCollum D, Bauer N, et al. (2016). *Nature Energy* 1: 16073

Quantifying uncertainties influencing the long-term impacts of oil prices on energy markets and carbon emissions
McCollum DL, Jewell J, Krey V, Bazilian M, et al. (2016). *Nature Energy* 1: 16077

Nature Geoscience

Quality matters for water scarcity
van Vliet MTH, Flörke M, & Wada Y (2017). *Nature Geoscience* 10(11): 800-802.

Emission budgets and pathways consistent with limiting warming to 1.5°C.
Millar R, Fuglestvedt J, Friedlingstein P, Rogelj J, et al. (2017). *Nature Geoscience* 10(10): 741-747

Global aquifers dominated by fossil groundwaters but wells vulnerable to modern contamination.
Jasechko S, Perrone D, Befus KM, Bayani Cardenas M, et al. (2017). *Nature Geoscience* 10(6): 425-429

Relative contribution of monsoon precipitation and pumping to changes in groundwater storage in India
Asoka A, Gleeson T, Wada Y, & Mishra V (2017). *Nature Geoscience* 10: 109-117

A scientific critique of the two-degree climate change target
Knutti R, Rogelj J, Sedláiček J, & Fischer EM (2016). *Nature Geoscience* 9(1): 13–18

Geosciences after Paris
Rogelj J & Knutti R (2016). *Nature Geoscience* 9(3): 187–189

Biomass production efficiency controlled by management in temperate and boreal ecosystems
Campioli M, Vicca S, Luyssaert S, Bilcke J, et al. (2015). *Nature Geoscience* 8(11): 843–846

Proceedings of the National Academy of Sciences of the United States of America (PNAS)

Reduction of solar photovoltaic resources due to air pollution in China
Li X, Wagner F, Peng W, Yang J, & Mauzerall DL (2017). *PNAS*: p. 201711462

Global Sustainable Development priorities 500 y after Luther: Sola schola et sanitate
Lutz W (2017). *PNAS* 114(27): 6904-6913

Adaptive self-organization of Bali's ancient rice terraces
Lansing JS, Thurner S, Chung NN, Coudurier-Curveur A, Karakaş Ç, Fesenmyer KA, & Chew LY (2017). *PNAS* 114(25): 6504-6509

Kinship structures create persistent channels for language transmission
Lansing JS, Abundo C, Jacobs GS, Guillot EG, et al. (2017). *PNAS*: e201706416

Air quality, health, and climate implications of China's synthetic natural gas development
Qin Y, Wagner F, Scovronick N, Peng W, et al. (2017). *PNAS* 114(19): 4887-4892

Enhanced groundwater recharge rates and altered recharge sensitivity to climate variability through subsurface heterogeneity
Hartmann A, Gleeson T, Wada Y, & Wagener T (2017). *PNAS* 114(11): 2842-2847

Multitrait successional forest dynamics enable diverse competitive coexistence
Falster DS, Brännström A, Westoby M, & Dieckmann U (2017). *PNAS* 114(13): 2719-2728

Siberian Arctic black carbon sources constrained by model and observation
Winiger P, Andersson A, Eckhardt S, Stohl A, et al. (2017). *PNAS* e201613401

Meeting the Sustainable Development Goals leads to lower world population growth
Abel G, Barakat B, KC S, & Lutz W (2016). *PNAS* 113(50): 14294-14299

Roles of density-dependent growth and life history evolution in accounting for fisheries-induced trait changes.
Eikeset AM, Dunlop ES, Heino M, Storvik G, et al. (2016). *PNAS* 113(52): 15030-15035

Air pollutant emissions from Chinese households: A major and underappreciated ambient pollution source
Liu J, Mauzerall DL, Chen Q, Zhang Q, et al. (2016). *PNAS* 113(28): 7756–7761

Science

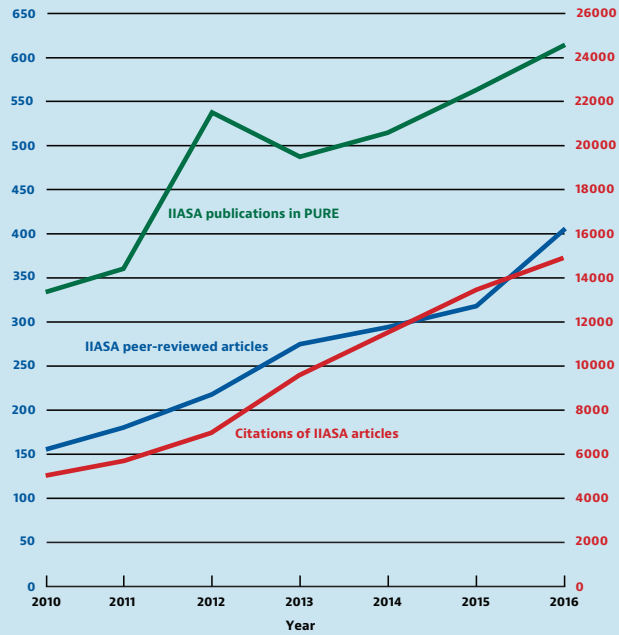
A climate policy pathway for near and long-term benefits
Shindell D, Borgford-Parnell N, Brauer M, Haines A, et al. (2017). *Science* 356(6337): 493-494

A roadmap for rapid decarbonization
Rockström J, Gaffney O, Rogelj J, Meinshausen M, et al. (2017). *Science* 355(6331): 1269-1271

Identifying the policy space for climate loss and damage
Mechler R & Schinko T (2016). *Science* 354(6310):290-292

Can Paris pledges avert severe climate change?
Fawcett AA, Iyer GC, Clarke LE, Edmonds JA, et al. (2015). *Science* 350(6265): 1168–1169

Transport: A roadblock to climate change mitigation?
Creutzig F, Jochem P, Edelenbosch OY, Mattauch L, et al. (2015). *Science* 350(6263): 911–912



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