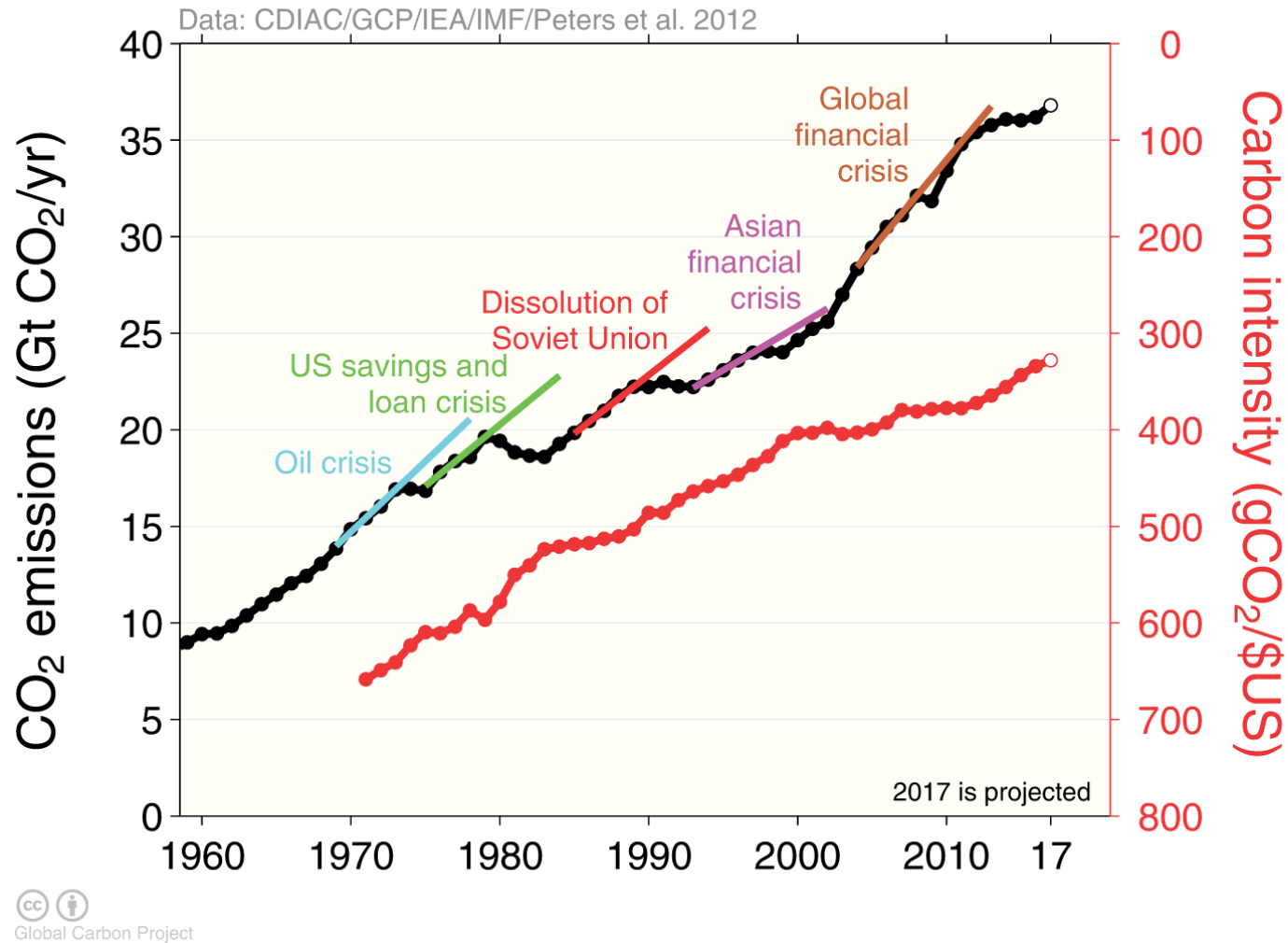
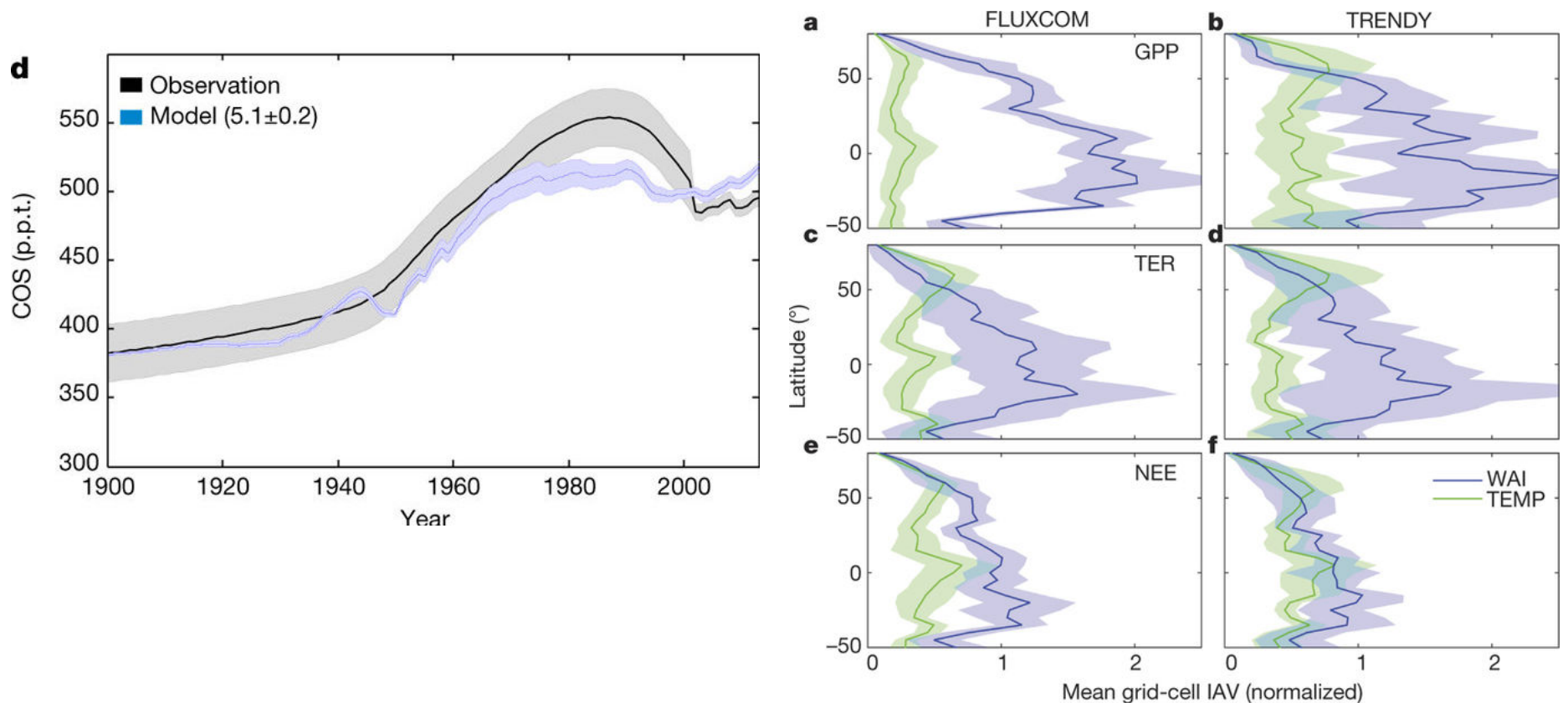


# Climate, carbon, ecosystems, and health



Le Quere et al., 2017. Global Carbon Budget 2017, *Earth System Science Data Discussions*, DOI: 10.5194/essdd-2017-123

# Long-term syntheses show terrestrial ecosystems are responding




Campbell, J.E., 2017. Large historical growth in global terrestrial gross primary production, *Nature*, 544, doi:10.1038/nature22030

Jung et al., 2017. Compensatory water effects link yearly global land CO<sub>2</sub> sink changes to temperature, *Nature*, 541, doi:10.1038/nature20780

Research Article

# Global change induced biomass growth offsets carbon released via increased forest fire and respiration of the central Canadian boreal forest

Alemu Gonsamo , Jing M. Chen, Stephen J. Colombo, Michael T. Ter-Mikaelian, Jiaxin Chen

First published: 30 May 2017 [Full publication history](#)

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Temperature (°C)

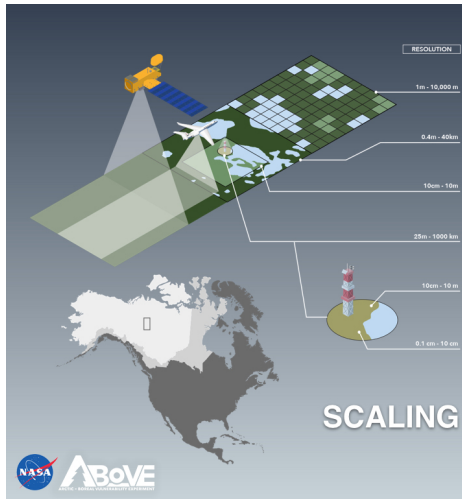
Temperature (°C)

Effect-time (yr)

Melillo, J.M., et al., 2017. Long-term pattern and magnitude of soil carbon feedback to the climate system in a warming world, *Science*, 358 (6359): 101  
DOI: [10.1126/science.aan2874](https://doi.org/10.1126/science.aan2874)

Crowther, T.W. et al., 2016. Quantifying global soil carbon losses in response to warming, *Nature* 540, [10.1038/nature20150](https://doi.org/10.1038/nature20150).

# Many findings are built on short and long term next generation field experiments



BIOGEOSCIENCES News



## Major Federal Tropical Research Project to Cease 7 Years Early

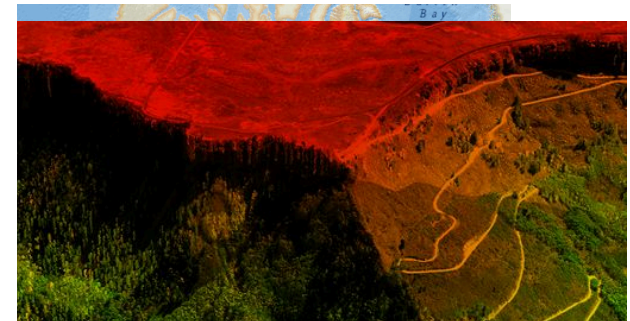
The Department of Energy shuts a project aimed at improving climate models less than halfway through the expected decade-long run.



Researchers with the NGEE-Tropics project extract a tree's roots to study how soil phosphorus affects plant growth in the Luquillo Mountains, Puerto Rico. Pictured are (left) Joanne Childs of Oak Ridge National Laboratory in Tennessee and (right) Kristine Cabugao of the University of Tennessee. Credit: Richard Norby

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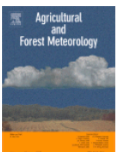
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## and Forest Meteorology

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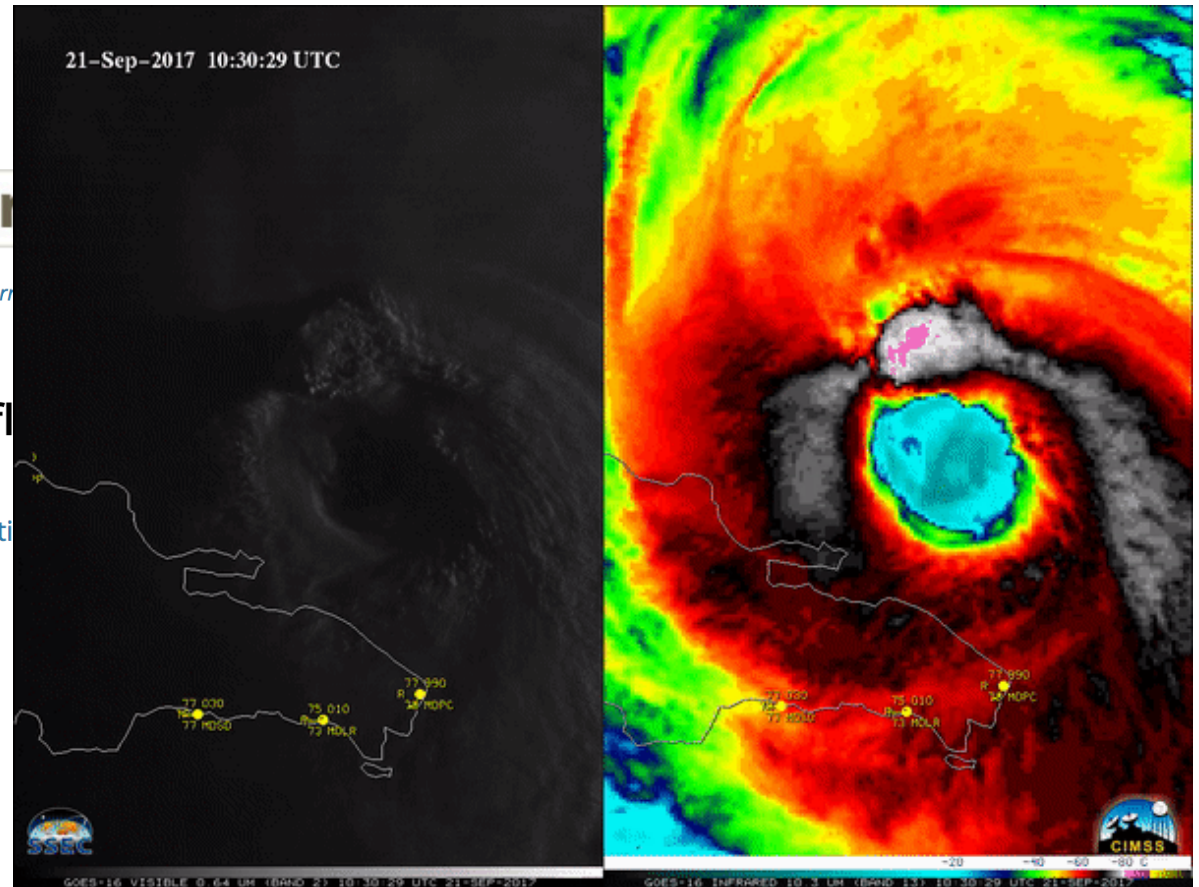
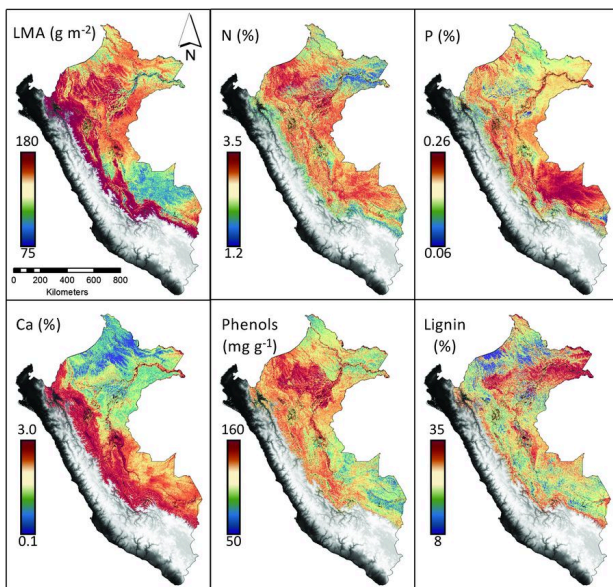
Research Letter

### Multiscale analyses of solar-induced forest gross primary production

Jeffrey D. Wood , Timothy J. Griffis, John M. Baker, Christi Manish Verma, Karen Yuen

First published: 12 January 2017 [Full publication history](#)

DOI: 10.1002/2016GL070775 [View/save citation](#)



Asner, G.P., et al., 2017. Airborne laser-guided imaging spectroscopy to map forest trait diversity and guide conservation, *Science* 355, DOI: 10.1126/science.aaj1987



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# Earth's Future


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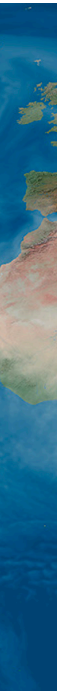
## The limits to global-warming mitigation by terrestrial carbon removal

Lena R. Boysen , Wolfgang Lucht, Dieter Gerten, Vera Heck,  
Timothy M. Lenton, Hans Joachim Schellnhuber

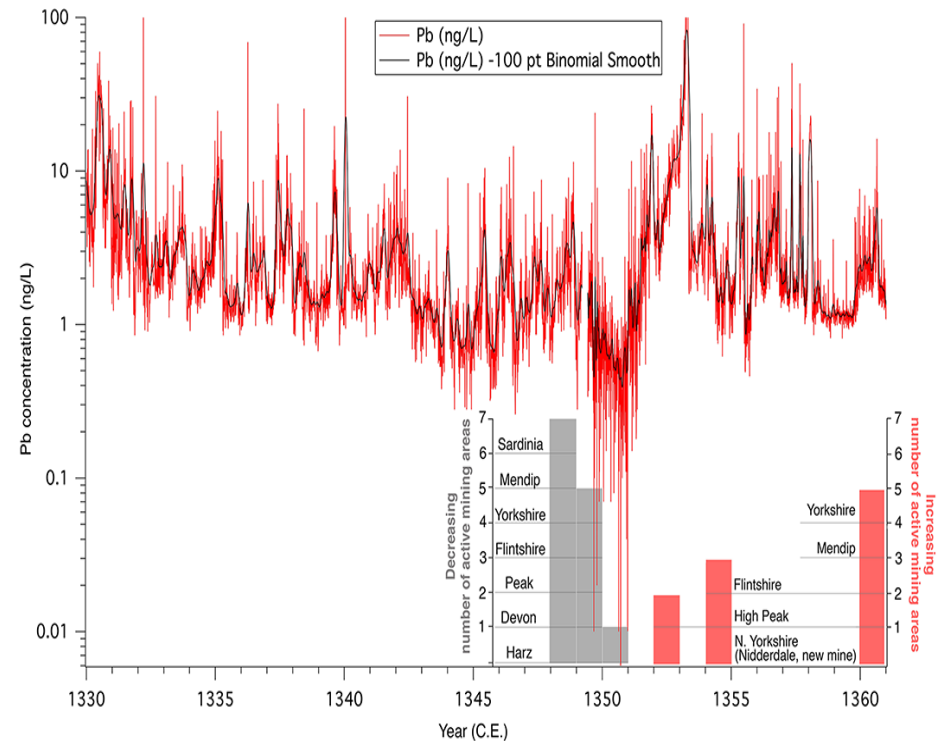
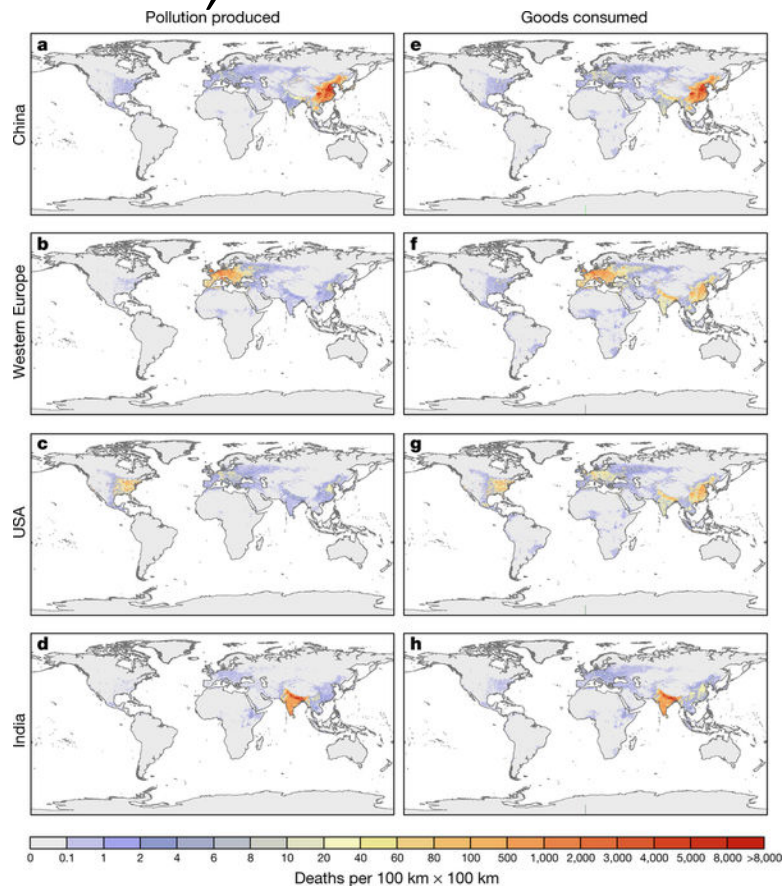
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Eyring, V., Overview of the Coupled Model Intercomparison Project Phase 6 (CMIP6) experimental design and organization. *Geoscientific Model Development*,9, doi: 10.5194/gmd-9-1937-2016.



New findings also allow us to better connect emissions and ecosystem health to pollution, global trade, and human health & mortality



More, A. F., et al. (2017), Next-generation ice core technology reveals true minimum natural levels of lead (Pb) in the atmosphere: Insights from the Black Death, *GeoHealth*, 1, 211–219, doi:[10.1002/2017GH000064](https://doi.org/10.1002/2017GH000064).

Zhang, Q., et al., 2017. Transboundary health impacts of transported global air pollution and international trade. *Nature* 543, doi:10.1038/nature21712.

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*Dietary Source of Iron (% of total iron in mg)*

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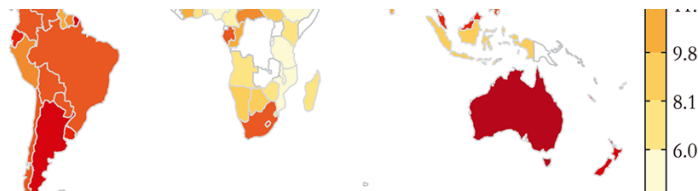
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[Nathaniel D. Mueller](#) , [Luis Lassaletta](#), [Bryan C. Runck](#), [Gilles Billen](#), [Josette Garnier](#), [James S. Gerber](#)



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