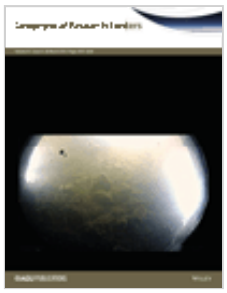
Issue Contents



Volume 39, Issue 16

28 August 2012

Brief Detailed

Atmospheric Science

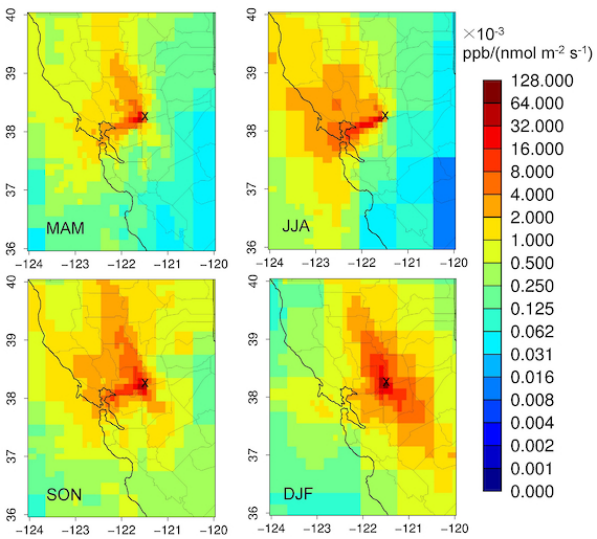
Seasonal variations in N_2O emissions from central California

Seongeun Jeong, Chuanfeng Zhao, Arlyn E. Andrews, Edward J. Dlugokencky, Colm Sweeney, Laura Bianco, James M. Wilczak, Marc L. Fischer

First Published: 31 August 2012 Vol: 39, L16805 | DOI: 10.1029/2012GL052307

KEY POINTS

- The 2008-2009 data show N2O emissions from Central CA are 2.1+/-0.4 times EDGAR4.2
- Seasonal variation is strong (1.6+/-0.3 to 2.5+/-0.4 times EDGAR4.2)
- Scaling EDGAR across CA suggests N2O comprises 8.1+/-1.4% of total GHG emissions



1 of 2

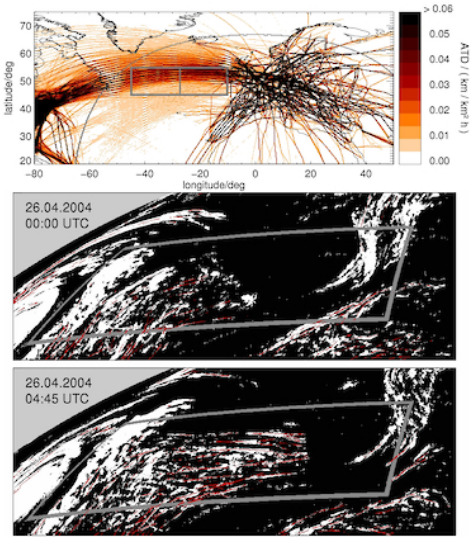
Aviation induced diurnal North Atlantic cirrus cover cycle

Kaspar Graf, Ulrich Schumann, Hermann Mannstein, Bernhard Mayer

First Published: 29 August 2012 Vol: 39, L16804 | DOI: 10.1029/2012GL052590

KEY POINTS

- Aviation induced cirrus identified from diurnal cycles of cirrus cover
- Cirrus cover maxima follow air traffic density peaks with delay times of 2-4 h
- The derived aviation induced cirrus cover amounts to 1-2 % of the regional area



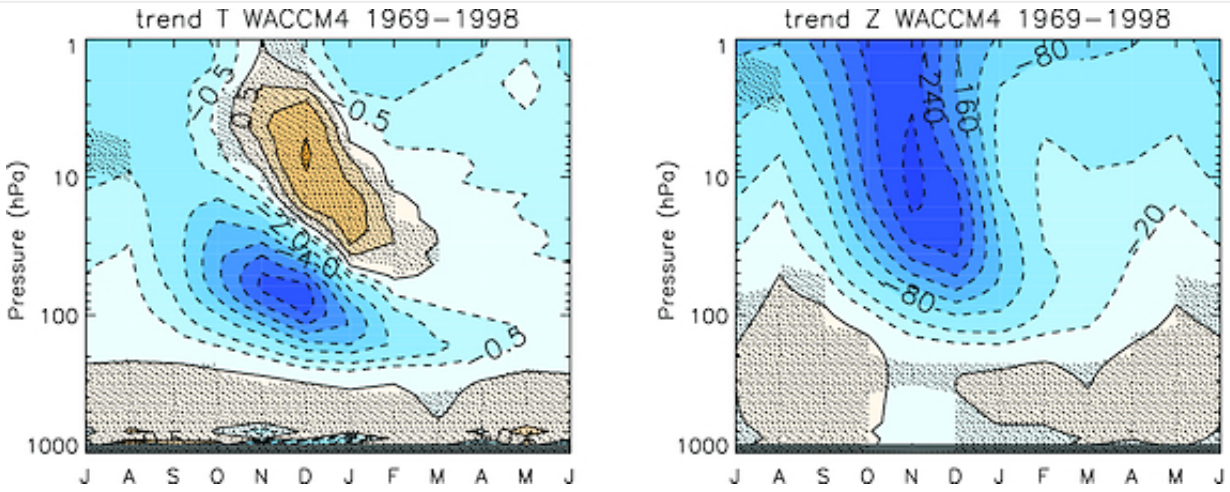
1 of 3

Reconciling modeled and observed temperature trends over Antarctica

N. Calvo, R. R. Garcia, D. R. Marsh, M. J. Mills, D. E. Kinnison, P. J. Young
First Published: 28 August 2012 Vol: 39, L16803 | DOI: 10.1029/2012GL052526

KEY POINTS

- WACCM4 trends undistinguishable from radiosondes in SH polar cap for 1979-2003
- Reported discrepancy between high top models and observations might not be such
- Model trends undistinguishable from trends in ERA-Interim and MERRA



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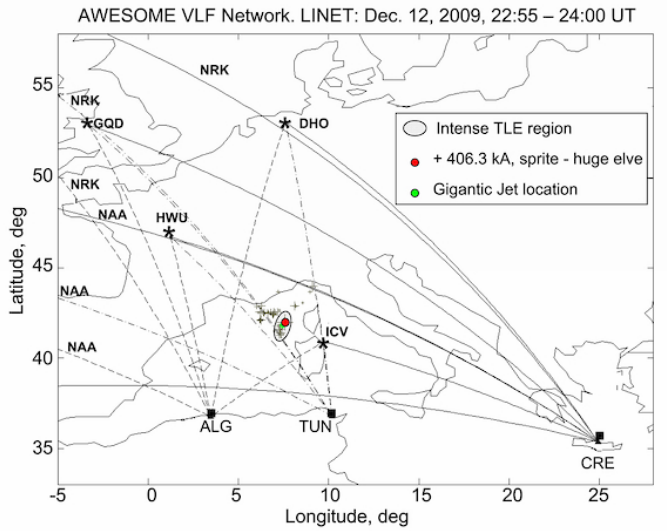
Long-lasting *D*-region ionospheric modifications, caused by intense lightning in association with elve and sprite pairs

Christos Haldoupis, Morris Cohen, Benjamin Cotts, Enrico Arnone, Umran Inan
First Published: 28 August 2012 Vol: 39, L16801 | DOI: 10.1029/2012GL052765

KEY POINTS

- Long lasting upper D region ionospheric modifications caused by lightning
- Long recovery VLF perturbations in relation with elve and sprite pairs
- Suggestion for a possible coupling process between elve and sprite ionization

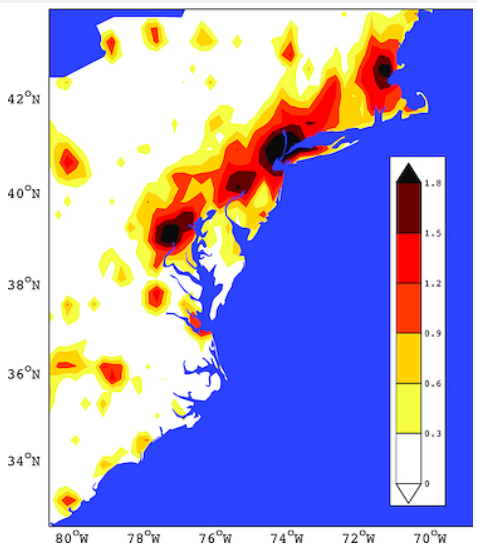


Hurricane Irene (2011) “worst-case” estimates of wind damage to property from exigent analysis of ECMWF ensemble forecasts

Ross N. Hoffman, Daniel Gombos
First Published: 28 August 2012 Vol: 39, L16802 | DOI: 10.1029/2012GL052646

KEY POINTS

- Exploits information in a forecast ensemble to determine a worst-case scenario
- Exigent scenarios are potentially useful for emergency planners
- For Irene, exigent wind damage exceeds the mean by 3-4 standard deviations



Climate

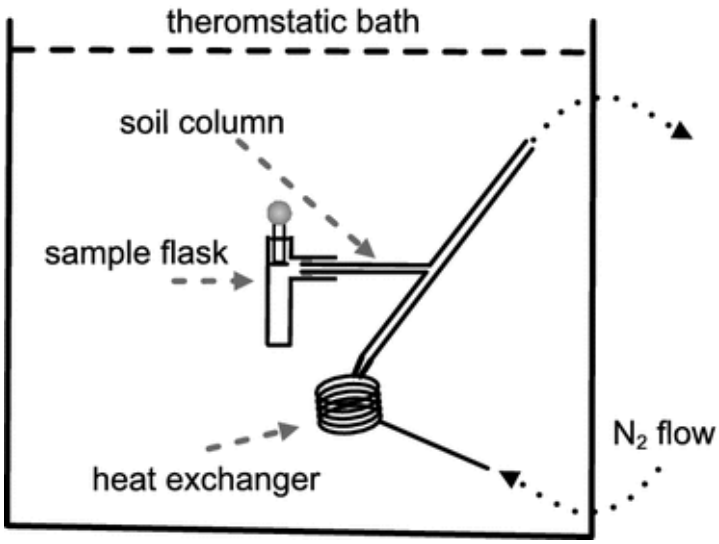
High alternative oxidase activity in cold soils and its implication to the Dole Effect

Alon Angert, Mirco Rodeghiero, Kevin Griffin

First Published: 31 August 2012 Vol: 39, L16710 | DOI: 10.1029/2012GL052719

KEY POINTS

- High O2 discrimination was found for cold (<6 degree C) soils respiration
- No interaction between clay particles and diffusing O2
- The results indicate high AOX activity with implications for the Dole Effect



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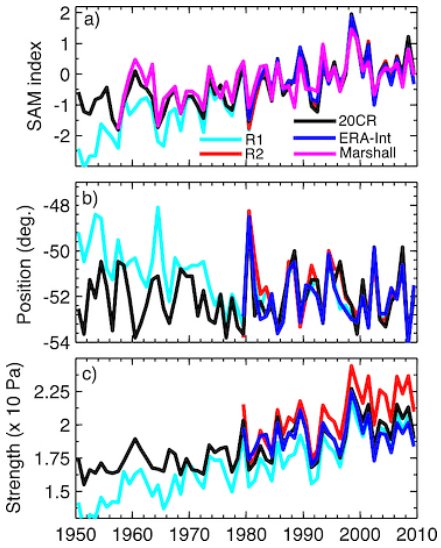
Observed and simulated changes in the Southern Hemisphere surface westerly wind-stress

N. C. Swart, J. C. Fyfe

First Published: 31 August 2012 Vol: 39, L16711 | DOI: 10.1029/2012GL052810

KEY POINTS

- A strengthening of the SH westerly jet has occurred since 1979
- There is not a robust shift in annual-mean jet position
- Climate models have an equatorward biased jet, and underestimate strengthening



1 of 4

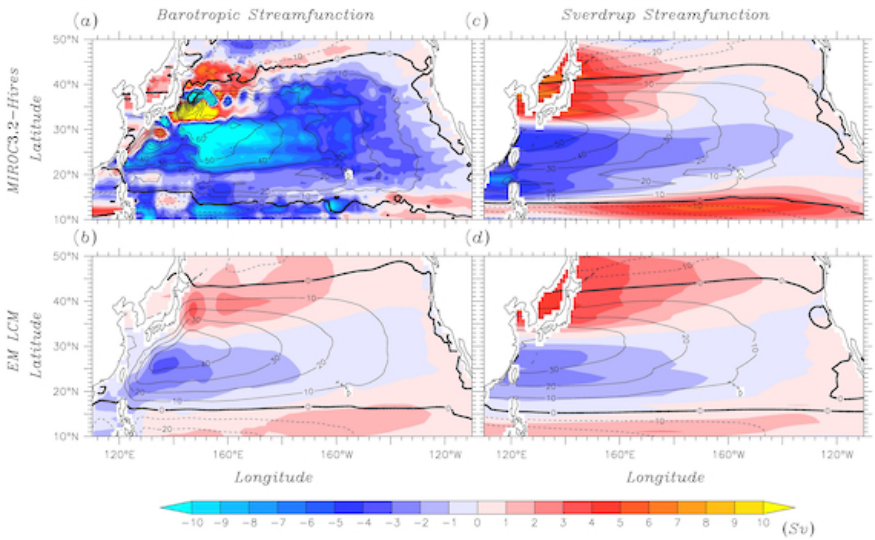
Atmospheric impact on the northwestern Pacific under a global warming scenario

Woo Geun Cheon, Young-Gyu Park, Sang-Wook Yeh, Baek-Min Kim

First Published: 30 August 2012 Vol: 39, L16709 | DOI: 10.1029/2012GL052364

KEY POINTS

- The KOE jet will be intensified under global warming scenario
- Changes in the ocean are due to changes in wind stress
- The model results are resolution dependent



1 of 4

On the interpretation of constrained climate model ensembles

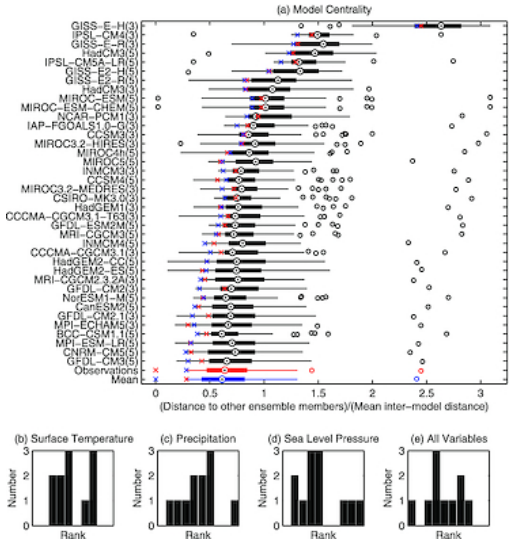
Benjamin M. Sanderson, Reto Knutti

First Published: 29 August 2012 Vol: 39, L16708 | DOI: 10.1029/2012GL052665

KEY POINTS

- CMIP models appear more truth centric due to model tuning
- Future simulations may become increasingly indistinguishable

- Neither truth plus error nor indistinguishable interpretations are correct



1 of 2

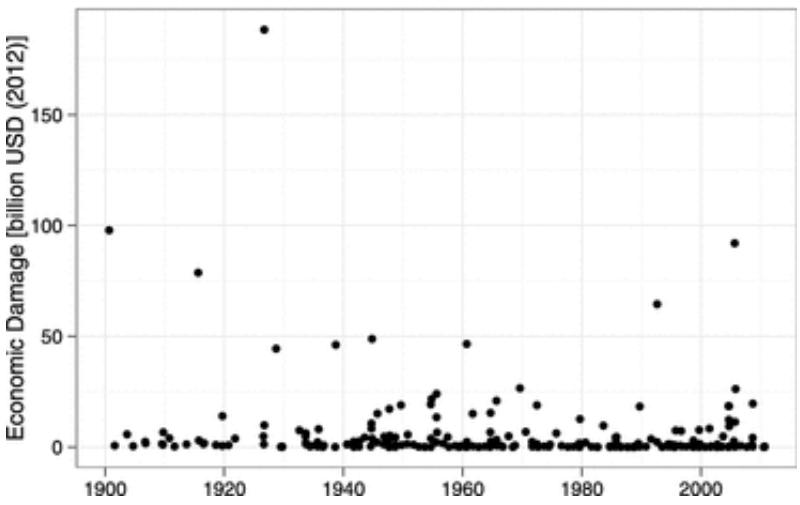
Maximum wind speeds and US hurricane losses

R. J. Murnane, J. B. Elsner

First Published: 28 August 2012 Vol: 39, L16707 | DOI: 10.1029/2012GL052740

KEY POINTS

- There's an exponential relationship between wind speed at landfall and loss
- Loss increases at a rate of 5%/m/s increase in wind speed at landfall
- Loss from a US hurricane can be estimated from maximum wind speed at landfall



1 of 4

Solar influence on winter severity in central Europe

Frank Sirocko, Heiko Brunck, Stephan Pfahl

First Published: 25 August 2012 Vol: 39, L16704 | DOI: 10.1029/2012GL052412

KEY POINTS

- Freezing of the Rhine occurred from 1780-1963 regularly during sunspot minima
- Coldest winter continue to occur during sunspot minima even today
- This cooling is a regional phenomenon, but not a hemispheric signal

1 of 6

The influence of ENSO on global terrestrial water storage using GRACE

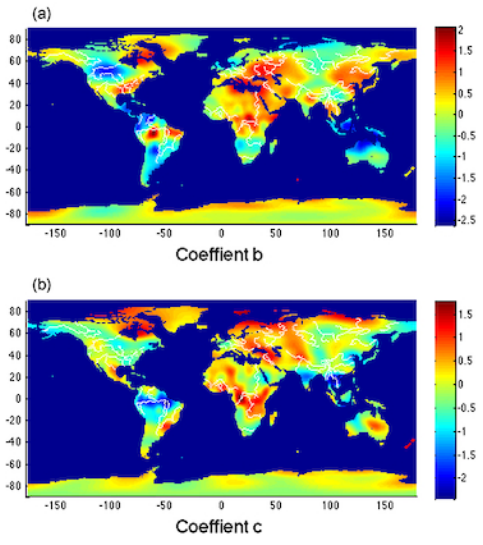
T. Phillips, R. S. Nerem, Baylor Fox-Kemper, J. S. Famiglietti, B. Rajagopalan

First Published: 25 August 2012 Vol: 39, L16705 | DOI: 10.1029/2012GL052495

KEY POINTS

- GRACE can detect ENSO induced anomaly patterns
- Anomalies in water storage can lag in time
- Linear regression is not necessarily the correct method, but we need more data

Highlight



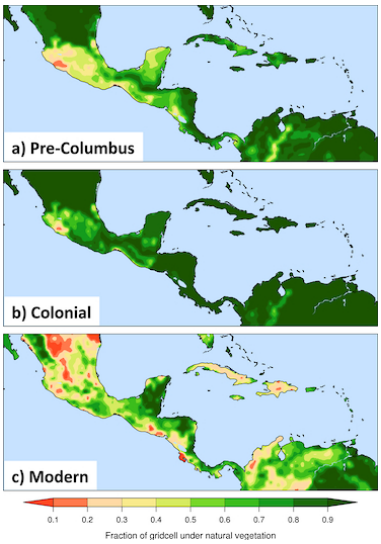
1 of 4

Pre-Columbian deforestation as an amplifier of drought in Mesoamerica

B. I. Cook, K. J. Anchukaitis, J. O. Kaplan, M. J. Puma, M. Kelley, D. Gueyffier
First Published: 25 August 2012 Vol: 39, L16706 | DOI: 10.1029/2012GL052565

KEY POINTS

- Pre-Columbian deforestation reduces annual precipitation by 5%-15%
- This could account for up to 60% of the total drying during the Maya collapse
- Future deforestation could contribute to regional climate change



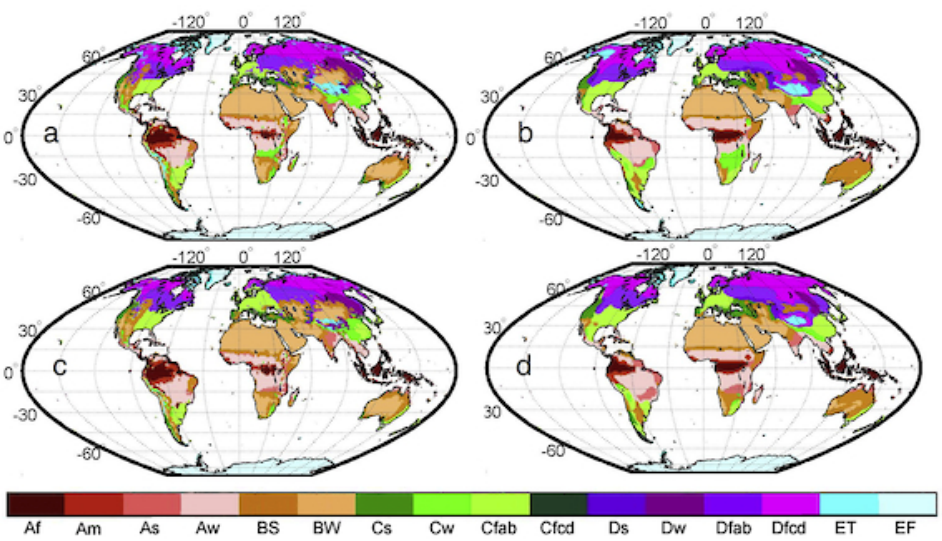
1 of 4

Influence of bias correction on simulated landcover changes

Stephanie A. McAfee, Joellen L. Russell, Robert S. Webb
First Published: 24 August 2012 Vol: 39, L16702 | DOI: 10.1029/2012GL052808

KEY POINTS

- Regional biases in GCMs may influence projected land cover changes
- Bias propagation could complicate interpretation of results from coupled models
- Bias is important in regions with strong climate feedbacks



1 of 3

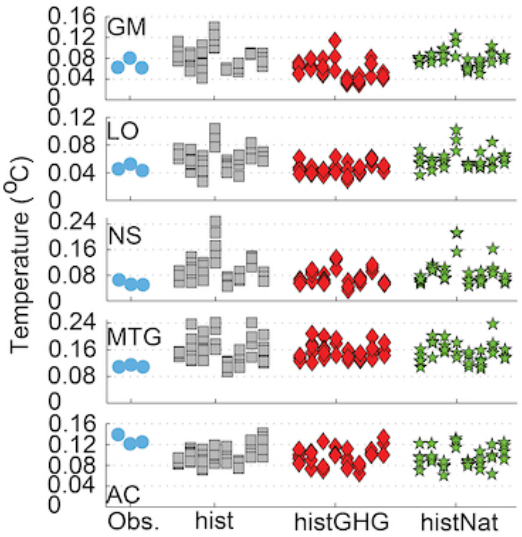
Evaluating global climate responses to different forcings using simple indices

Frank Drost, David Karoly

First Published: 23 August 2012 Vol: 39, L16701 | DOI: 10.1029/2012GL052667

KEY POINTS

- Observed trends in climate indices cannot be explained by natural forcings alone
- The ensemble mean trends in NS and MTG are larger in CMIP5 then in CMIP3
- Observed and multi-model ensemble mean trends for all indices are significant



1 of 4

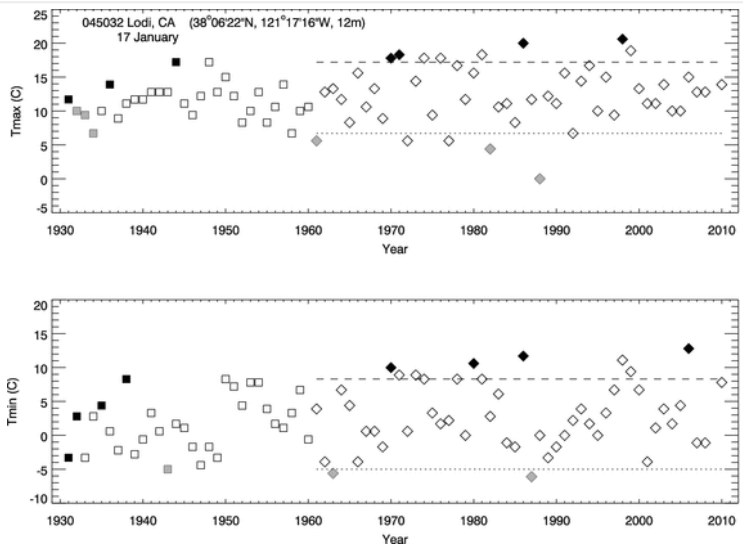
Trends in record-breaking temperatures for the conterminous United States

Clinton M. Rowe, Logan E. Derry

First Published: 22 August 2012 Vol: 39, L16703 | DOI: 10.1029/2012GL052775

KEY POINTS

- Standard methods of identifying record-setting trends are complex and not robust
- Record low minimums decreasing, record high maximums increasing
- Novel, simple method presented here will be useful for climate impact studies

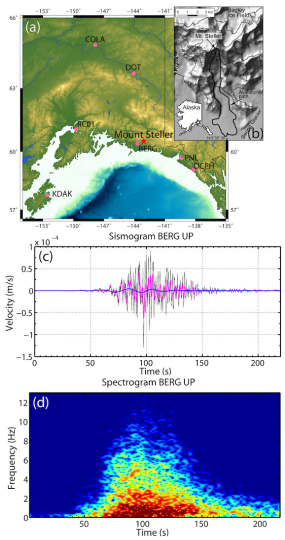


Hydrology and Land Surface Studies

Numerical modeling of the Mount Steller landslide flow history and of the generated long period seismic waves

L. Moretti, A. Mangeney, Y. Capdeville, E. Stutzmann, C. Huggel, D. Schneider, F. Bouchut
First Published: 28 August 2012 Vol: 39, L16402 | DOI: 10.1029/2012GL052511

KEY POINTS
- Importance of erosion processes
- Flow history



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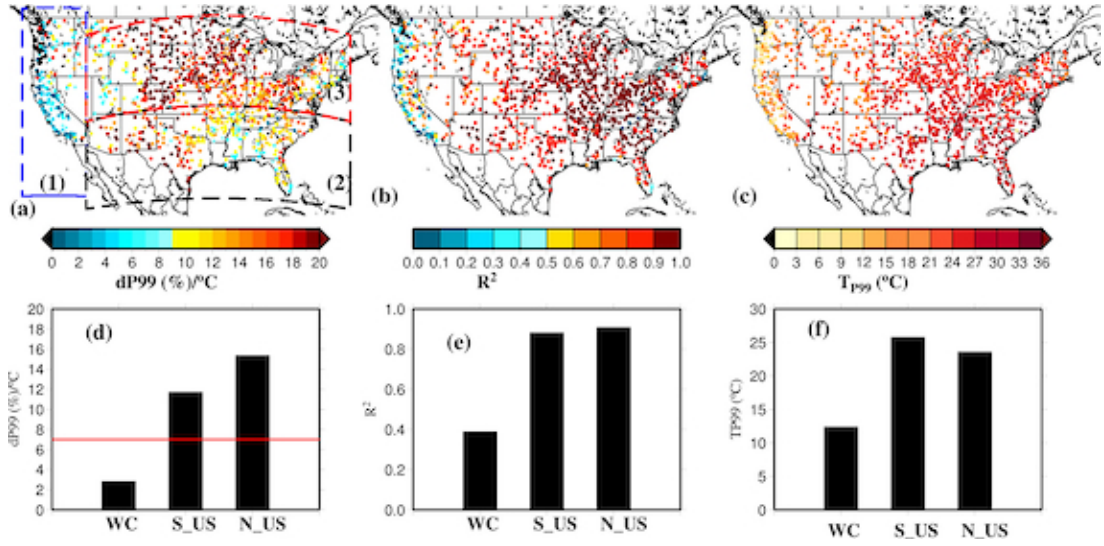
Relationship between hourly extreme precipitation and local air temperature in the United States

Vimal Mishra, John M. Wallace, Dennis P. Lettenmaier
First Published: 25 August 2012 Vol: 39, L16403 | DOI: 10.1029/2012GL052790

KEY POINTS
- Strong relationship between hourly extreme precipitation and temperature
- Regression slopes are higher in summer than winter
- Stations in the northern U.S. show higher slopes



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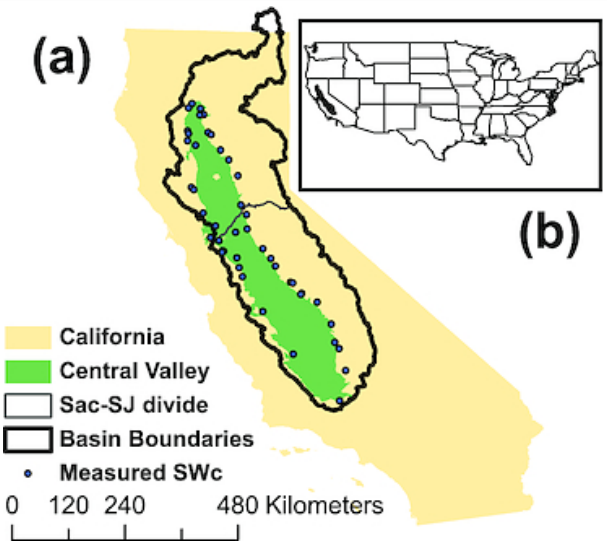
Assessing surface water consumption using remotely-sensed groundwater, evapotranspiration, and precipitation

Ray G. Anderson, Min-Hui Lo, James S. Famiglietti

First Published: 18 August 2012 Vol: 39, L16401 | DOI: 10.1029/2012GL052400

KEY POINTS

- Surface water consumption observations are needed for hydrology and agriculture
- We developed an approach to estimate consumption using remote sensing data
- Our approach estimated water consumption to <6% (17 mm/year) for California



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Oceans

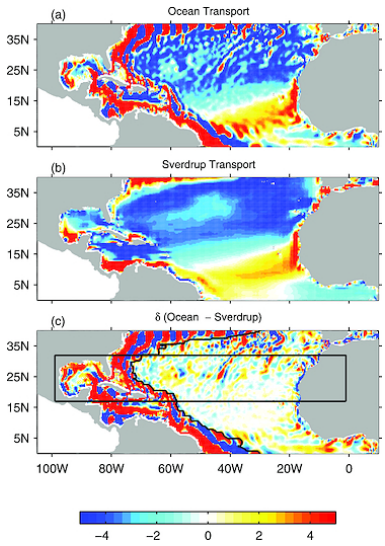
Upper ocean manifestations of a reducing meridional overturning circulation

M. D. Thomas, A. M. de Boer, D. P. Stevens, H. L. Johnson

First Published: 30 August 2012 Vol: 39, L16609 | DOI: 10.1029/2012GL052702

KEY POINTS

- Interior subtropical ocean remains in Sverdrup balance throughout climate change
- Overturning circulation changes occur solely on the western boundary
- The subtropical gyre circulation slows as climate warms in our model



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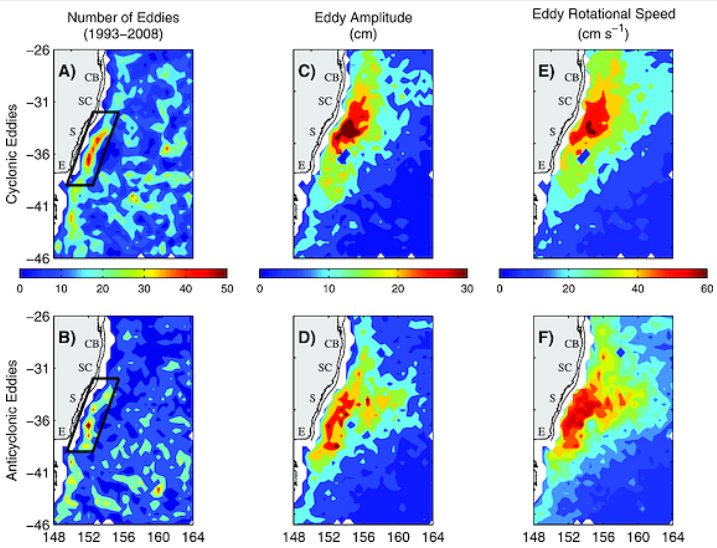
An avenue of eddies: Quantifying the biophysical properties of mesoscale eddies in the Tasman Sea

J. D. Everett, M. E. Baird, P. R. Oke, I. M. Suthers

First Published: 28 August 2012 Vol: 39, L16608 | DOI: 10.1029/2012GL053091

KEY POINTS

- A region of high eddy activity adjacent to the EAC is quantified
- In this region eddies are larger, have higher SLA's and faster rotation
- Region has strongly differentiated biological properties compared to Tasman Sea



1 of 3

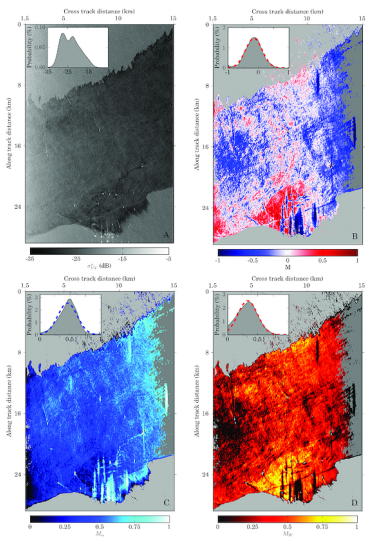
Determining the mixing of oil and sea water using polarimetric synthetic aperture radar

Brent Minchew

First Published: 23 August 2012 Vol: 39, L16607 | DOI: 10.1029/2012GL052304

KEY POINTS

- Synthetic aperture radar can be used to infer properties of oil on the ocean
- A new classification is presented to quickly determine oil properties
- Oil spilled from the Deepwater Horizon was mostly mixed with sea water



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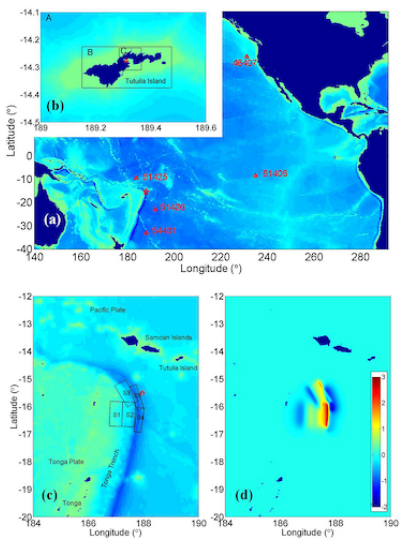
Dispersive modeling of the 2009 Samoa tsunami

Hongqiang Zhou, Yong Wei, Vasily V. Titov

First Published: 22 August 2012 Vol: 39, L16603 | DOI: 10.1029/2012GL053068

KEY POINTS

- The earthquake-doublet generated a tsunami with strong dispersive effects
- Neglecting dispersion can result in over-predicated wave heights and speeds
- MOST may be applied to modeling weakly dispersive tsunamis at basin scales



1 of 4

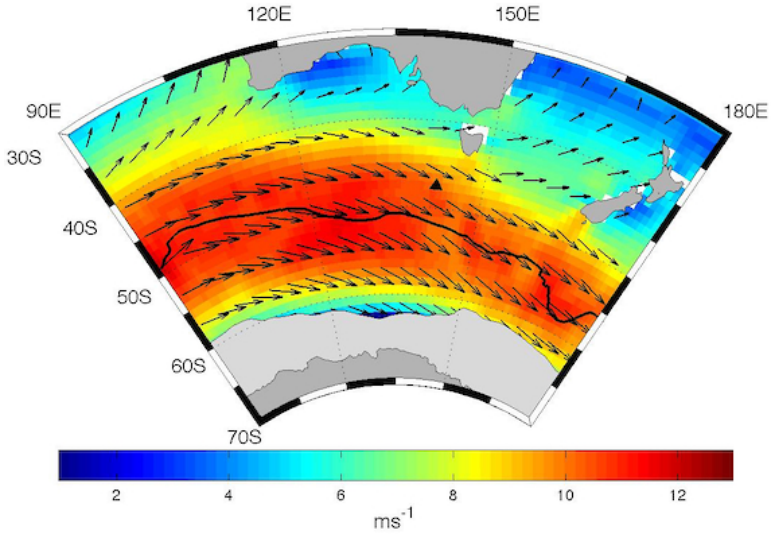
First air-sea flux mooring measurements in the Southern Ocean

E. W. Schulz, S. A. Josey, R. Verein

First Published: 21 August 2012 Vol: 39, L16606 | DOI: 10.1029/2012GL052290

KEY POINTS

- Southern Ocean air-sea fluxes are under-observed, leading to large uncertainty
- The first year-long air-sea flux observations quantify an annual cycle
- Shows seasonal cycle, small annual net ocean heat loss and extreme events



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Sea spray spume droplet production in high wind speeds

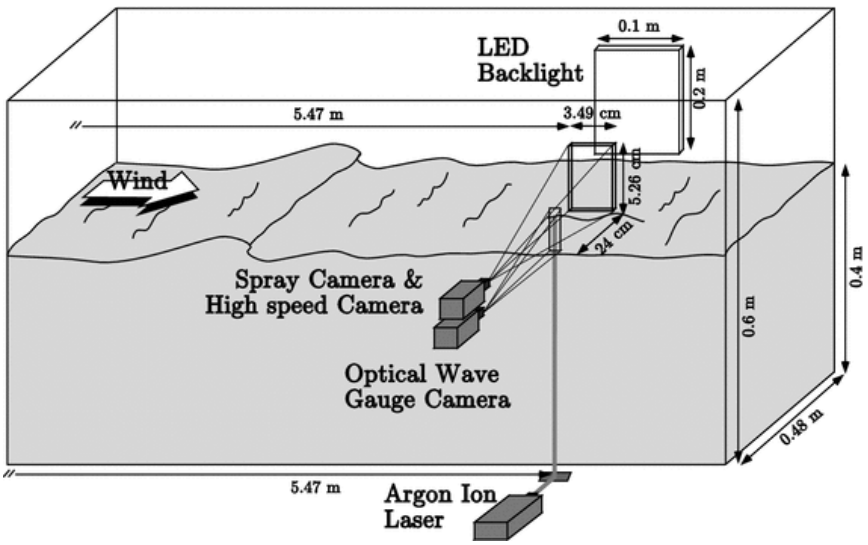
F. Veron, C. Hopkins, E. L. Harrison, J. A. Mueller

First Published: 21 August 2012 Vol: 39, L16602 | DOI: 10.1029/2012GL052603

KEY POINTS

- Presents new measurements of sea spray concentration in high wind speeds
- Illustrates a previously unobserved sea spray generation mechanism
- New knowledge for modeling of spray mediated air-sea fluxes in high winds

Highlight



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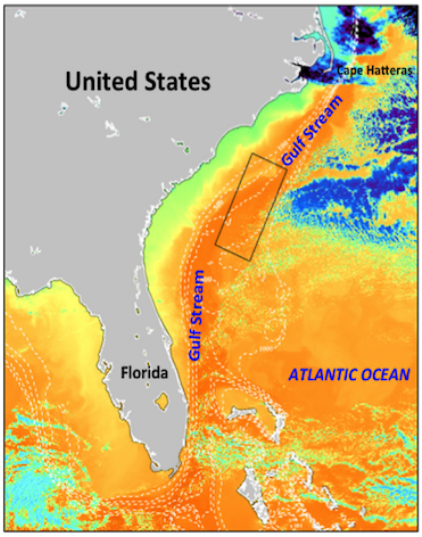
Deep-water seamount wakes on SEASAT SAR image in the Gulf Stream region

Quanan Zheng, Benjamin Holt, Xiaofeng Li, Xinan Liu, Qing Zhao, Yeli Yuan, Xiaofeng Yang

First Published: 17 August 2012 Vol: 39, L16604 | DOI: 10.1029/2012GL052661

KEY POINTS

- Satellite SAR may detect ocean bottom topographic feature up to a depth of 600 m
- Seamount wakes appear as streak-like patterns on SAR images
- Gulf Stream is a dynamical source to generate seamount wakes



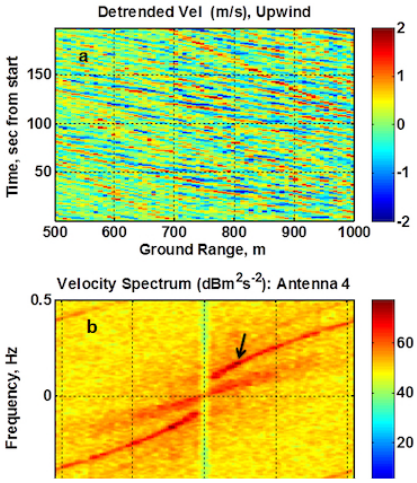
Whitecaps in deep water

William J. Plant

First Published: 17 August 2012 Vol: 39, L16601 | DOI: 10.1029/2012GL052732

KEY POINTS

- Wind-wave interference patterns do not move at the dominant wave group speed
- Waves that produce whitecaps in deep water are shorter than dominant waves
- Peaks of HH Doppler spectra are at the same speed as peaks of Lambda(c)



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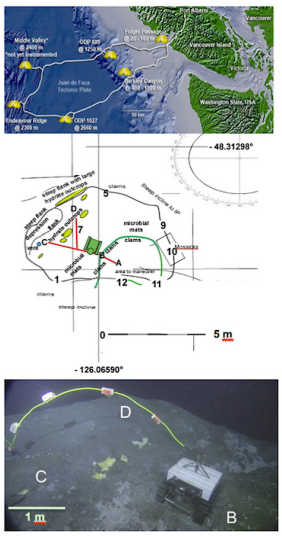
Ocean circulation promotes methane release from gas hydrate outcrops at the NEPTUNE Canada Barkley Canyon node

Laurenz Thomsen, Christopher Barnes, Mairi Best, Ross Chapman, Benoît Pirenne, Richard Thomson, Joachim Vogt

First Published: 17 August 2012 Vol: 39, L16605 | DOI: 10.1029/2012GL052462

KEY POINTS

- Oscillatory currents modulate methane seepage
- Internet operated vehicles improve deep sea science
- Oscillatory currents and methane seepage must be further studied



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Planets

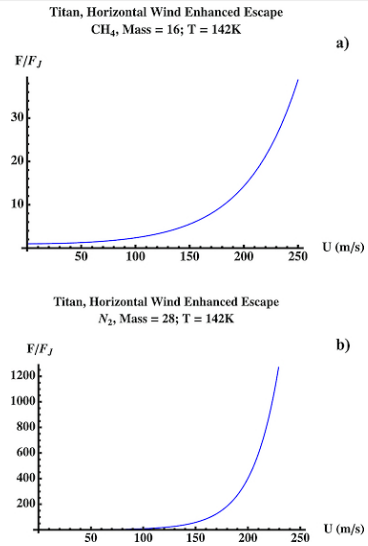
Wind-induced atmospheric escape: Titan

R. E. Hartle, R. E. Johnson, E. C. Sittler Jr., M. Sarantos, D. G. Simpson

First Published: 22 August 2012 Vol: 39, L16201 | DOI: 10.1029/2012GL052774

KEY POINTS

- A horizontal wind at the exobase of Titan increases its escape rates
- The escape enhancement caused by horizontal winds occurs on other bodies
- Continually improved thermosphere models yield improved exobase level winds



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Solid Earth

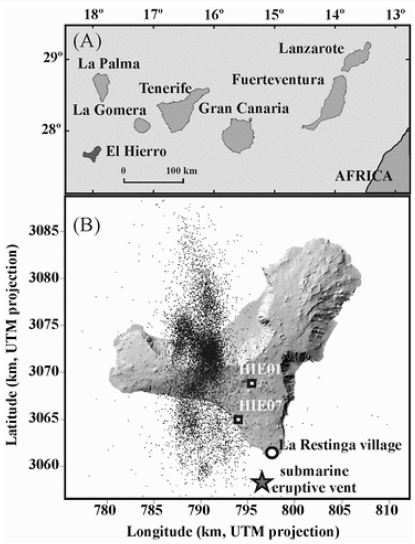
Precursory diffuse CO_2 and H_2S emission signatures of the 2011–2012 El Hierro submarine eruption, Canary Islands

Nemesio M. Pérez, Germán D. Padilla, Eleazar Padrón, Pedro A. Hernández, Gladys V. Melián, José Barrancos, Samara Dionis, Dácil Nolasco, Fátima Rodríguez, David Calvo, et al

First Published: 31 August 2012 Vol: 39, L16311 | DOI: 10.1029/2012GL052410

KEY POINTS

- The finding of anomalous diffuse CO2
- First time to observe a increasing on diffuse H2S emission



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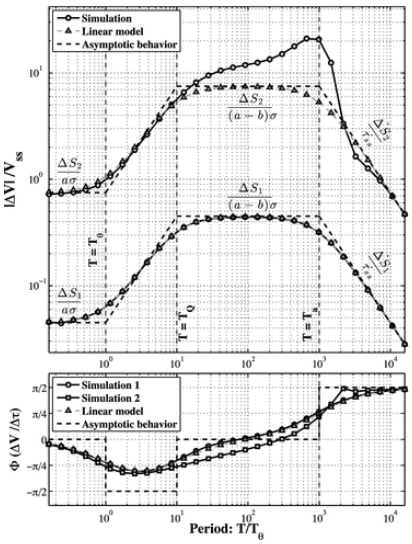
The role of velocity-neutral creep on the modulation of tectonic tremor activity by periodic loading

Thomas J. Ader, Jean-Paul Ampuero, Jean-Philippe Avouac
First Published: 31 August 2012 Vol: 39, L16310 | DOI: 10.1029/2012GL052326

KEY POINTS

- Small values of a-b lead to high sensitivity of NVTs to stress perturbations
- Explain exp relationship between amplitude of seismic waves and NVTs intensity
- The observed phase between NVTs and perturbing stresses is explained



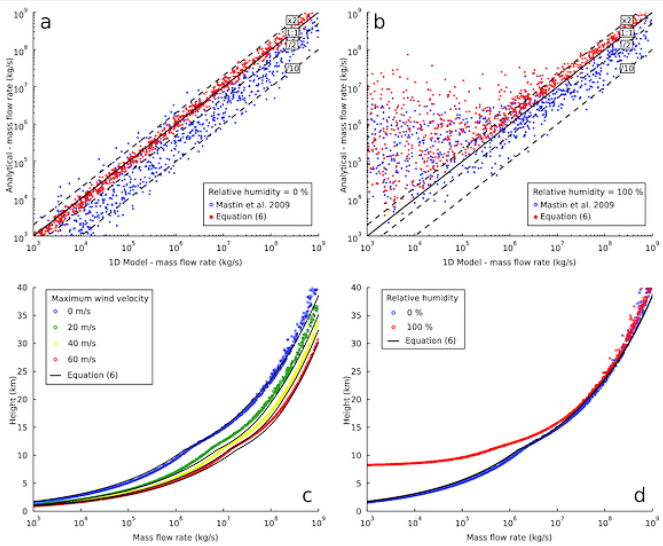
1 of 2

Improving on mass flow rate estimates of volcanic eruptions

W. Degruyter, C. Bonadonna
First Published: 29 August 2012 Vol: 39, L16308 | DOI: 10.1029/2012GL052566

KEY POINTS

- New analytical expression to derive mass flow rate of volcanic plumes
- New dimensionless parameter to assess influence of wind on plume height
- Examination of mass flow rates associated with two important eruptions



1 of 3

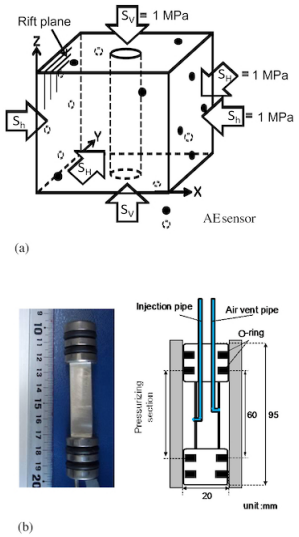
Acoustic emission monitoring of hydraulic fracturing laboratory experiment with supercritical and liquid CO_2

Tsuyoshi Ishida, Kazuhei Aoyagi, Tomoya Niwa, Youqing Chen, Sumihiko Murata, Qu Chen, Yoshiki Nakayama

First Published: 29 August 2012 Vol: 39, L16309 | DOI: 10.1029/2012GL052788

KEY POINTS

- CO2 injection extends cracks three dimensionally rather than along a flat plane
- The breakdown pressure with CO2 injection is lower than with water injection



1 of 4

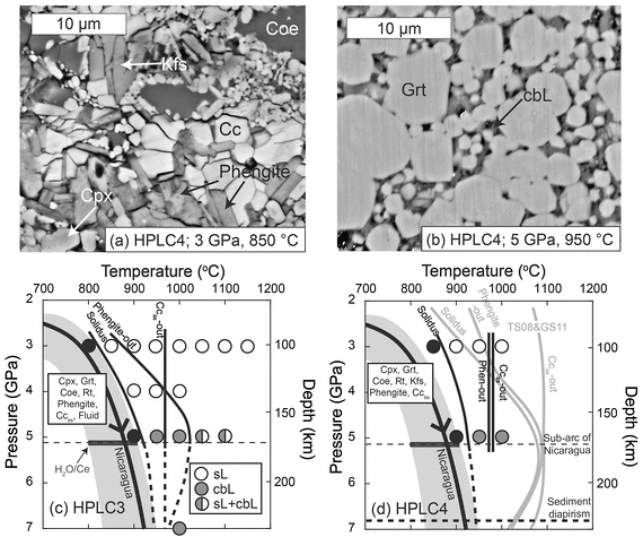
Flux of carbonate melt from deeply subducted pelitic sediments: Geophysical and geochemical implications for the source of Central American volcanic arc

Kyusei Tsuno, Rajdeep Dasgupta, Lisa Danielson, Kevin Righter

First Published: 24 August 2012 Vol: 39, L16307 | DOI: 10.1029/2012GL052606

KEY POINTS

- Subduction of lo-Al carbonated pelite to 7 GPa generates carbonatite
- Na-carbonatite from 200-250 km depth can explain Nicaragua arc geochemistry
- Silicate-carbonate immiscibility can explain Nicaraguan wedge seismic properties



1 of 3

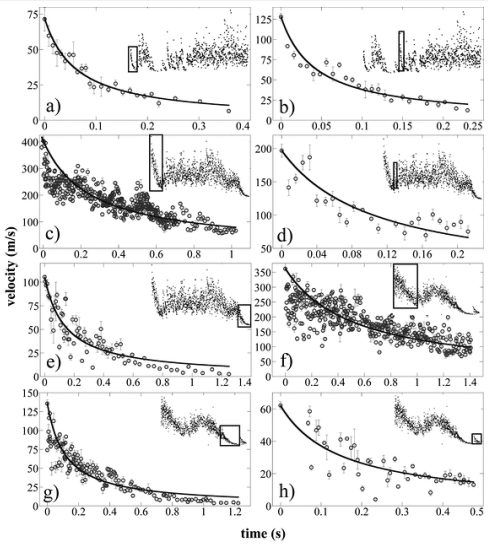
Physical parameterization of Strombolian eruptions via experimentally-validated modeling of high-speed observations

J. Taddeucci, M. A. Alatorre-Ibargüengoitia, M. Moroni, L. Tornetta, A. Capponi, P. Scarlato, D. B. Dingwell, D. De Rita

First Published: 23 August 2012 Vol: 39, L16306 | DOI: 10.1029/2012GL052772

KEY POINTS

- A new method to retrieve the pressure, mass and volume of gas in erupting magma
- The method is experimentally validated and applied to Strombolian explosions
- Gas pressure during one single Strombolian explosion may vary by a factor of 5



1 of 2

Recent unrest of Changbaishan volcano, northeast China: A precursor of a future eruption?

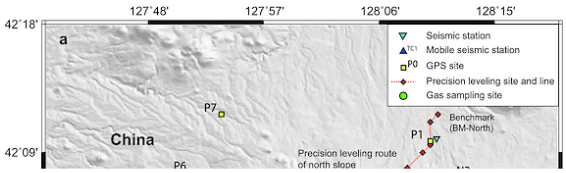
Jiandong Xu, Guoming Liu, Jianping Wu, Yuehong Ming, Qingliang Wang, Duxin Cui, Zhiguan Shangguan, Bo Pan, Xudong Lin, Junqing Liu

First Published: 22 August 2012 Vol: 39, L16305 | DOI: 10.1029/2012GL052600

KEY POINTS

- The unrest of Changbaishan volcano during 2002-2006 was detected
- The unrest process may be a long term precursor of eruptive activity in future
- Need to keep close watch on the volcano

Highlight



1 of 4

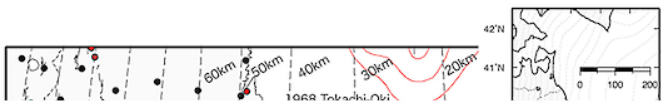
Geodetic constraints on afterslip characteristics following the March 9, 2011, Sanriku-oki earthquake, Japan

Yusaku Ohta, Ryota Hino, Daisuke Inazu, Mako Ohzono, Yoshihiro Ito, Masaaki Mishina, Takeshi Iinuma, Junichi Nakajima, Yukihito Osada, Kensuke Suzuki, et al

First Published: 21 August 2012 Vol: 39, L16304 | DOI: 10.1029/2012GL052430

KEY POINTS

- Afterslip located in up-dip extension of coseismic slip of foreshock
- Time series data indicate rapid decay time constants
- Aftershocks triggered by strain may have nucleated the Tohoku earthquake



1 of 3

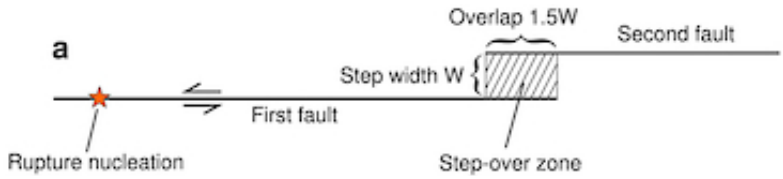
Damage in step-overs may enable large cascading earthquakes

Y. Finzi, S. Langer

First Published: 18 August 2012 Vol: 39, L16303 | DOI: 10.1029/2012GL052436

KEY POINTS

- Damage in step-overs promotes large rupture jumps and triggered seismicity
- Material interfaces and fault damage increase the risk of cascading earthquakes
- Earthquake ruptures can jump step-overs as wide as 10 km



1 of 3

Three-dimensional surface displacements and rotations from differencing pre- and post-earthquake LiDAR point clouds

Edwin Nissen, Aravindhan K. Krishnan, J. Ramón Arrowsmith, Srikanth Saripalli

First Published: 16 August 2012 Vol: 39, L16301 | DOI: 10.1029/2012GL052460

KEY POINTS

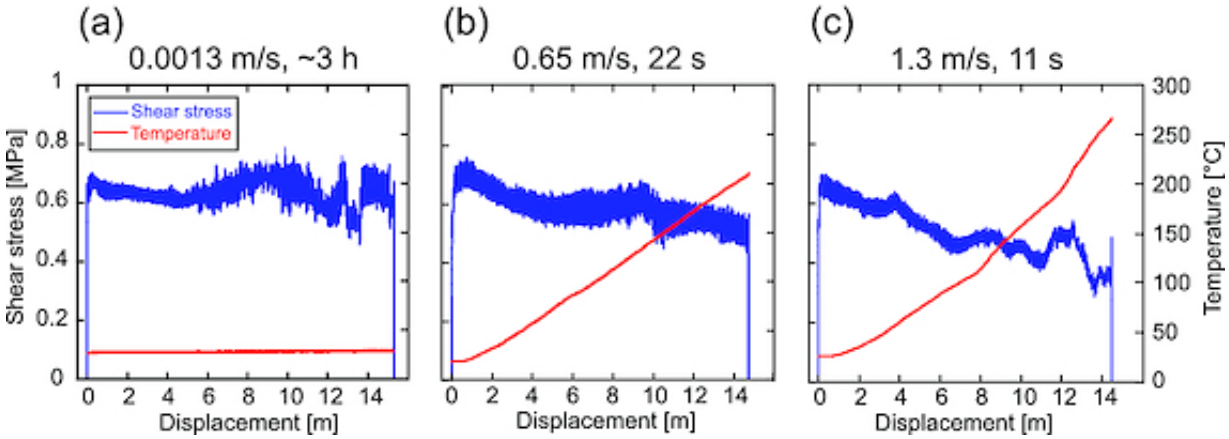
- ICP can measure earthquake surface deformation from pre- and post-event LiDAR
- It yields a dense field of displacements with precisions of a few cm
- ICP resolves complex deformation patterns and can directly measure rotations

Coal maturation by frictional heat during rapid fault slip

Manami Kitamura, Hideki Mukoyoshi, Patrick M. Fulton, Takehiro Hirose
First Published: 16 August 2012 Vol: 39, L16302 | DOI: 10.1029/2012GL052316

KEY POINTS

- Vitrinite can mature during rapid faulting in the order of seconds
- Thermal maturity of vitrinite occurs typically in shear localized zone
- Commonly used kinetic models of vitrinite cannot predict fault temperature



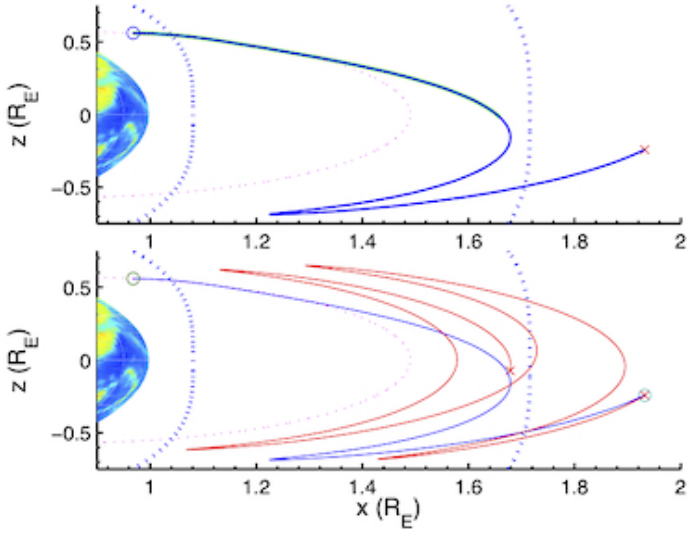
Space Sciences

Multi-pass whistler gain in a magnetospheric cavity due to induced nonlinear scattering

Gurudas Ganguli, Leonid Rudakov, Christopher Crabtree, Manish Mithaiwala
First Published: 30 August 2012 Vol: 39, L16105 | DOI: 10.1029/2012GL052942

KEY POINTS

- Nonlinear scattering generates a long-lasting wave cavity in radiation belts
- Smaller obliqueness of waves can be maintained by induced nonlinear scattering
- Multi-pass whistler gain leads to rapid electron precipitation



1 of 2

Collisionless and collisional dissipation of magnetospherically reflecting whistler waves

C. Crabtree, L. Rudakov, G. Ganguli, M. Mithaiwala

First Published: 29 August 2012 Vol: 39, L16103 | DOI: 10.1029/2012GL052921

KEY POINTS

- Collisional and collisionless damping of whistlers are important in plasmasphere
- Collisional dissipation is sensitive to plasmaspheric density and temperature
- Accurate temperature and suprathermal fluxes are important for whistler damping

1 of 5

How the inclination of Earth's orbit affects incoming solar irradiance

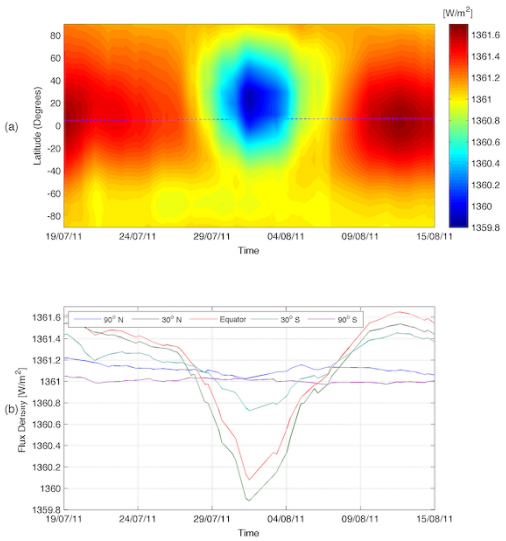
L. E. A. Vieira, A. Norton, T. Dudok de Wit, M. Kretzschmar, G. A. Schmidt, M. C. M. Cheung

First Published: 29 August 2012 Vol: 39, L16104 | DOI: 10.1029/2012GL052950

KEY POINTS

- The orbital inclination affects the level of irradiance
- Orbital inclination changes do not cause the 100 kyrs climate variability

- The Sun is subdued in photometric variability compared to its stellar analogues



1 of 4

On the sunrise oscillation of the F region in the equatorial ionosphere

K. M. Ambili, J.-P. St.-Maurice, R. K. Choudhary

First Published: 28 August 2012 Vol: 39, L16102 | DOI: 10.1029/2012GL052876

KEY POINTS

- The F peak at the dip equator undulates rapidly at sunrise
- The effect looks like the sunset PRE but is driven by different processes
- Electrodynamics matters for the removal of plasma from the previous day

1 of 3

Statistical study of broadband whistler-mode waves detected by Kaguya near the Moon

Y. Tsugawa, Y. Katoh, N. Terada, T. Ono, H. Tsunakawa, F. Takahashi, H. Shibuya, H. Shimizu, M. Matsushima, Y. Saito, et al

First Published: 18 August 2012 Vol: 39, L16101 | DOI: 10.1029/2012GL052818

KEY POINTS

- Occurrence of broadband waves is high near lunar magnetic anomalies on dayside
- Relationship between broadband and narrowband waves is identified
- Wave activities are associated with reflected ions and energized electrons

1 of 3

The Cryosphere

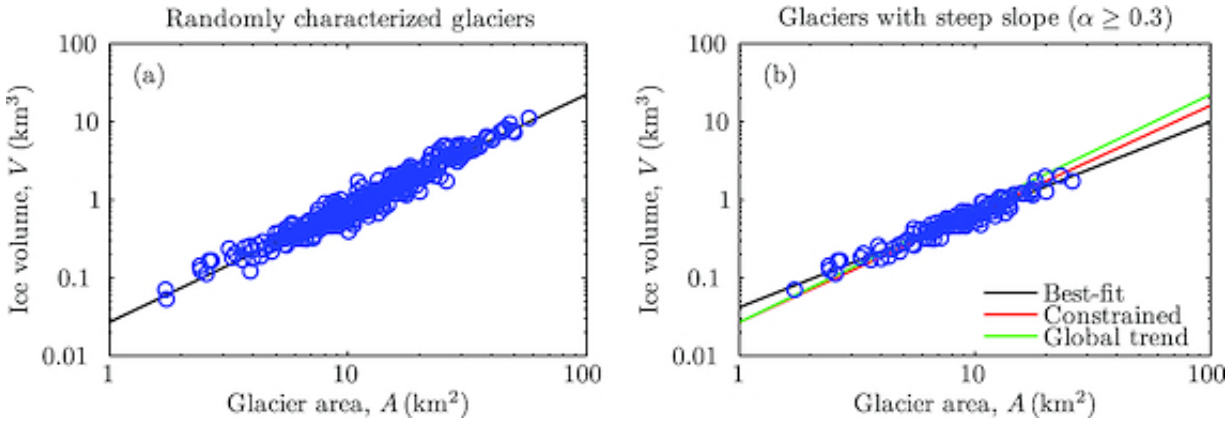
Glacier volume-area relation for high-order mechanics and transient glacier states

S. Adhikari, S. J. Marshall

First Published: 31 August 2012 Vol: 39, L16505 | DOI: 10.1029/2012GL052712

KEY POINTS

- Randomly characterized steady-state glaciers give a power-law exponent of 1.46
- This declines to 1.38 after 100 years of retreat in accord with observations
- Scaling laws based on glacier shape, slope and size improve volume estimates



1 of 2

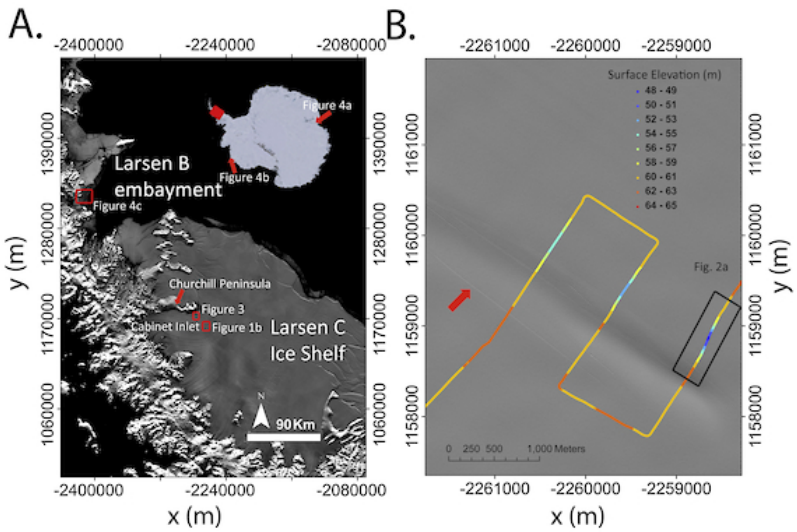
Basal crevasses on the Larsen C Ice Shelf, Antarctica: Implications for meltwater ponding and hydrofracture

Daniel McGrath, Konrad Steffen, Harihar Rajaram, Ted Scambos, Waleed Abdalati, Eric Rignot

First Published: 29 August 2012 Vol: 39, L16504 | DOI: 10.1029/2012GL052413

KEY POINTS

- Basal crevasses are large-scale structural features of ice shelves
- Drive formation of surface depressions and surface crevasses
- Contribute to meltwater-driven crevasse propagation style ice shelf collapse



1 of 4

Trends in Arctic sea ice extent from CMIP5, CMIP3 and observations

Julienne C. Stroeve, Vladimir Kattsov, Andrew Barrett, Mark Serreze, Tatiana Pavlova, Marika Holland, Walter N. Meier

First Published: 25 August 2012 Vol: 39, L16502 | DOI: 10.1029/2012GL052676

KEY POINTS

- CMIP5 models continue to underestimate rate of sea ice loss
- CMIP5 models are more consistent with observations than CMIP3
- CMIP5 suggests 60% of 1979-2011 rate of decline is externally forced

Shifting balance of thermokarst lake ice regimes across the Arctic Coastal Plain of northern Alaska

C. D. Arp, B. M. Jones, Z. Lu, M. S. Whitman

First Published: 24 August 2012 Vol: 39, L16503 | DOI: 10.1029/2012GL052518

KEY POINTS

- Thermokarst lake ice regimes vary with ice thickness and water balance
- Thinning ice trend explains a shift from bedfast- to floating-ice lakes
- Floating-ice lakes enhance heat storage, permafrost thaw, and winter habitat

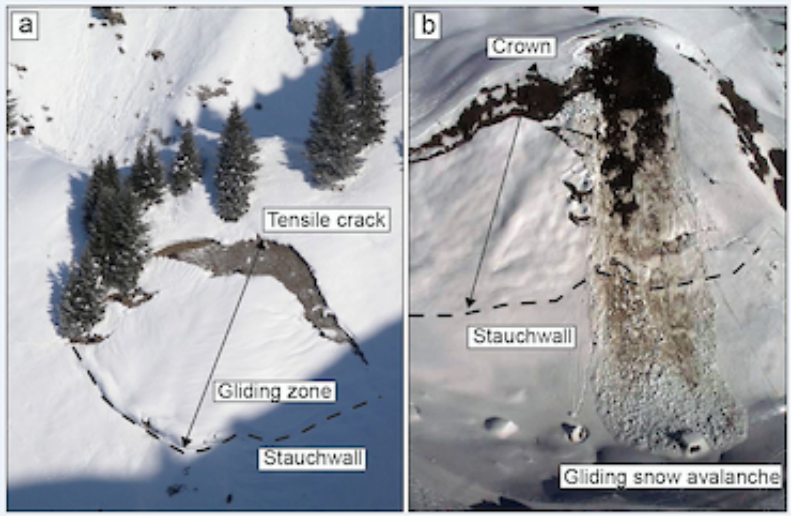
Overcoming the stauchwall: Viscoelastic stress redistribution and the start of full-depth gliding snow avalanches

P. Bartelt, T. Feistl, Y. Bühler, O. Buser

First Published: 16 August 2012 Vol: 39, L16501 | DOI: 10.1029/2012GL052479

KEY POINTS

- We define the release conditions for full-depth snow avalanches
- We show why the snowcover fails using a simple mathematical model
- We show why avalanche theories that ignore inertial forces are incorrect



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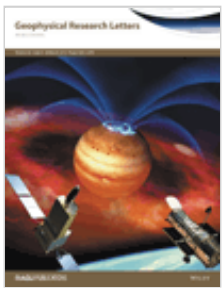
Current Issue



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