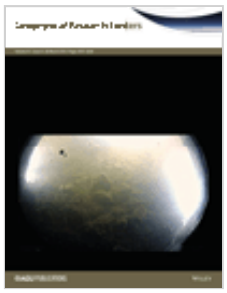
Issue Contents



Volume 39, Issue 10

28 May 2012

Brief Detailed

Atmospheric Science

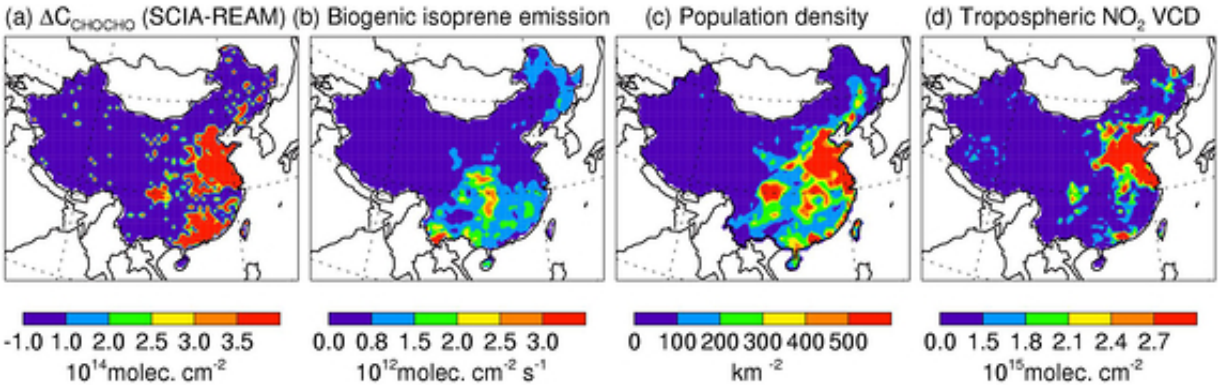
Exploring the missing source of glyoxal (CHOCHO) over China

Zhen Liu, Yuhang Wang, Mihalis Vrekoussis, Andreas Richter, Folkard Wittrock, John P. Burrows, Min Shao, Chih-Chung Chang, Shaw-Chen Liu, Hongli Wang, et al

First Published: 31 May 2012 Vol: 39, L10812 | DOI: 10.1029/2012GL051645

KEY POINTS

- The missing source of glyoxal over China is explained
- The missing source of organic aerosols over China is partly explained
- The VOC emissions over China are highly uncertain and merit further inspection



1 of 3

Estimating the contribution of monsoon-related biogenic production to methane emissions from South Asia using CARIBIC observations

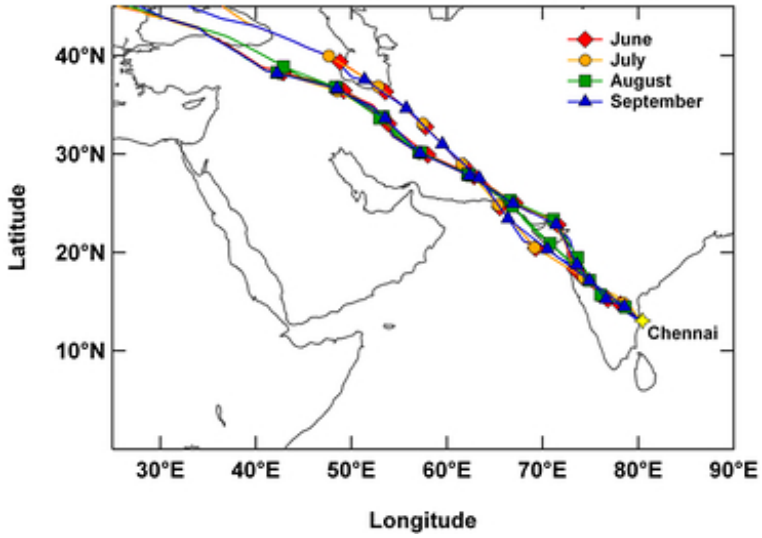
Angela K. Baker, Tanja J. Schuck, Carl A. M. Brenninkmeijer, Armin Rauthe-Schöch, Franz Slemr, Peter F. J.

van Velthoven, Jos Lelieveld

First Published: 31 May 2012 Vol: 39, L10813 | DOI: 10.1029/2012GL051756

KEY POINTS

- Observed large increase in S. Asian methane emissions during the summer monsoon
- Sources identified as biogenic, releasing ~15.8 Tg of additional methane
- Accounts for ~50% of total June–Sept methane emissions



1 of 4

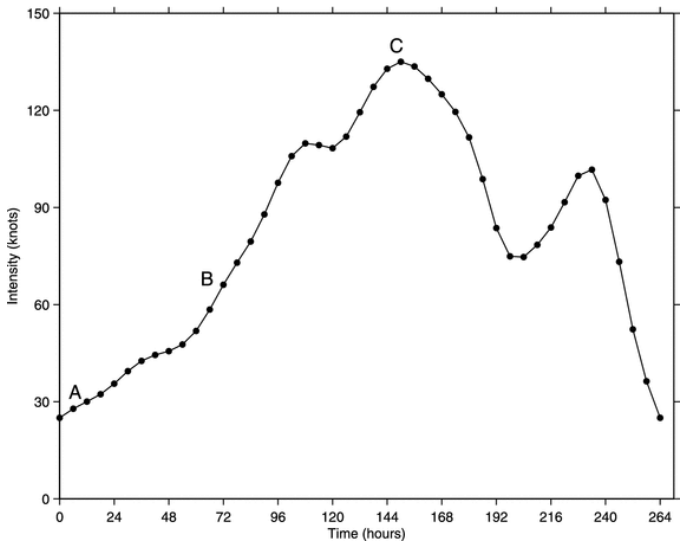
Tropical cyclone intensification trends during satellite era (1986–2010)

C. M. Kishtawal, Neeru Jaiswal, Randhir Singh, D. Niyogi

First Published: 26 May 2012 Vol: 39, L10810 | DOI: 10.1029/2012GL051700

KEY POINTS

- First analysis to show that TC intensification rates are increasing
- Analysis is based on satellite era observations only
- Results explain the cause for reported shift in TC intensity distribution



1 of 3

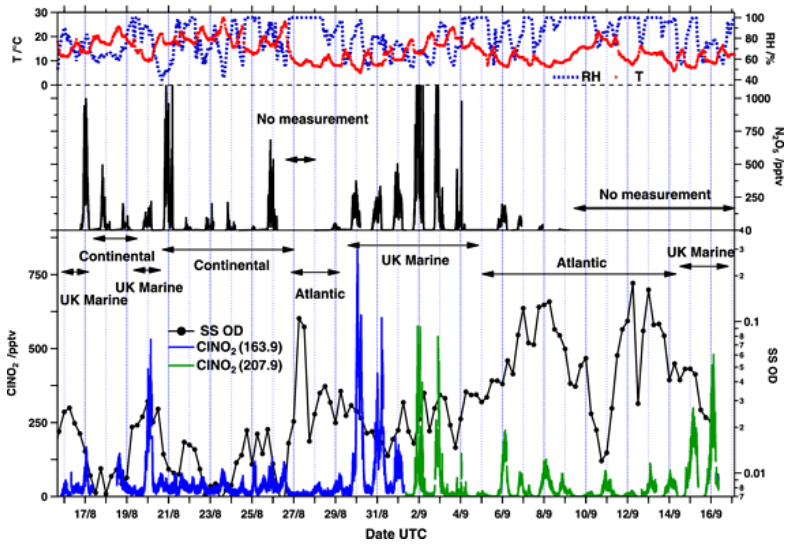
Significant concentrations of nitryl chloride observed in rural continental Europe associated with the influence of sea salt chloride and anthropogenic emissions

G. J. Phillips, M. J. Tang, J. Thieser, B. Brickwedde, G. Schuster, B. Bohn, J. Lelieveld, J. N. Crowley

First Published: 26 May 2012 Vol: 39, L10811 | DOI: 10.1029/2012GL051912

KEY POINTS

- Nitryl chloride exists in significant mixing fractions over Europe
- Nitryl chloride is likely of marine origin, deriving from aged sea salt and N2O5
- Nitryl chloride is a significant radical source in early morning



1 of 3

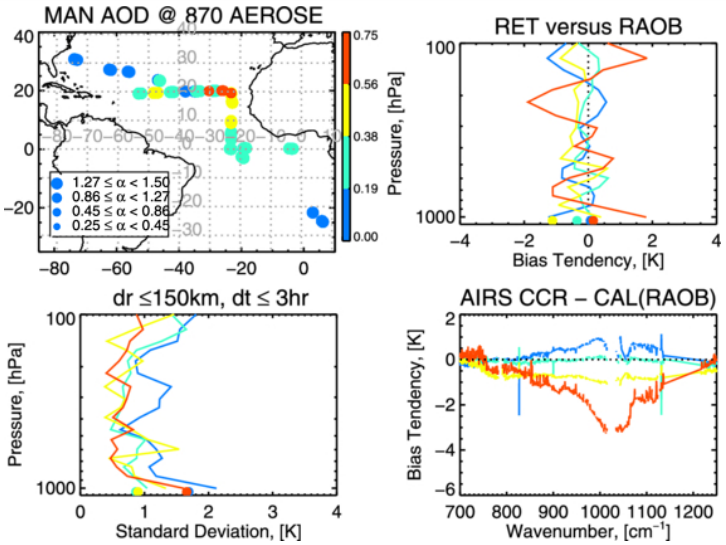
On the effect of dust aerosols on AIRS and IASI operational level 2 products

E. S. Maddy, S. G. DeSouza-Machado, N. R. Nalli, C. D. Barnet, L. L Strow, W. W. Wolf, H. Xie, A. Gambacorta, T. S. King, E. Joseph, et al

First Published: 25 May 2012 Vol: 39, L10809 | DOI: 10.1029/2012GL052070

KEY POINTS

- AIRS and IASI temperature retrievals are biased in the presence of mineral dust
- Regression operator is the likely cause of the spurious profile oscillations
- Cloud cleared radiances show evidence of dust aerosol contamination



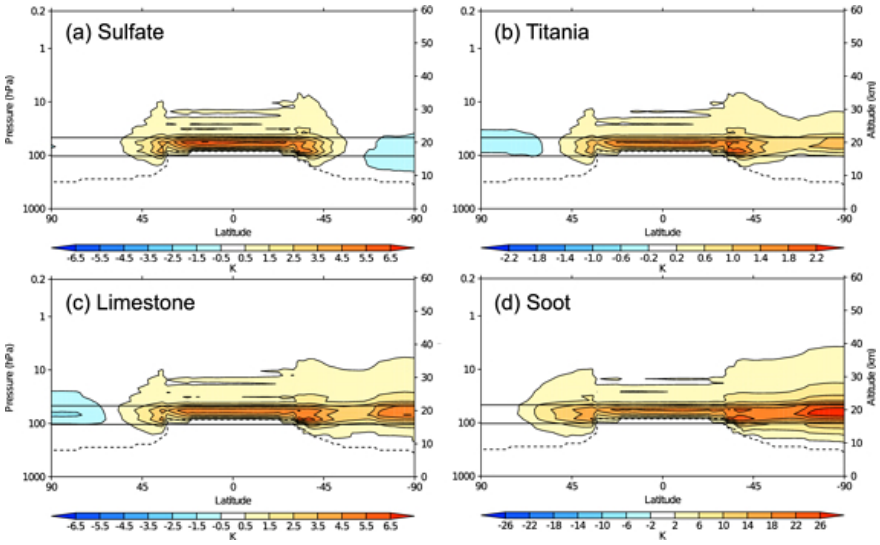
1 of 2

Correction to “Stratospheric heating by potential geoengineering aerosols”

A. J. Ferraro, E. J. Highwood, A. J. Charlton-Perez

First Published: 22 May 2012 Vol: 39, L10808 | DOI: 10.1029/2012GL052175

Free



1 of 2

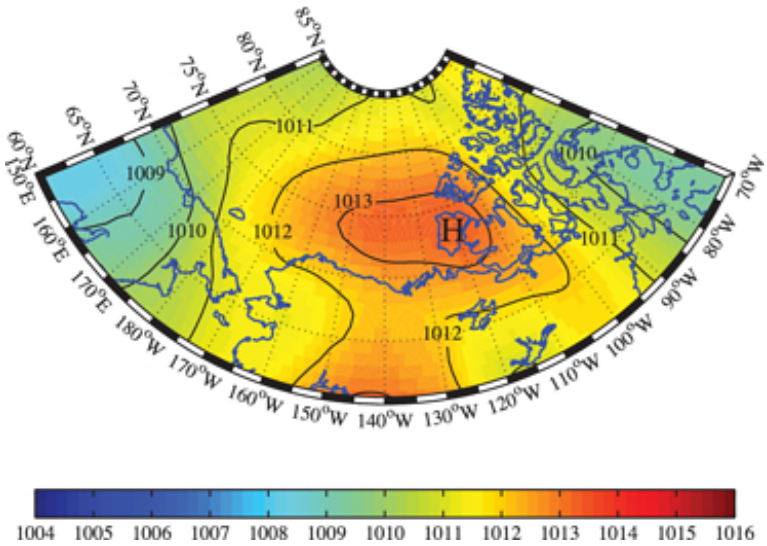
Decadal variability and a recent amplification of the summer Beaufort Sea High

G. W. K. Moore

First Published: 19 May 2012 Vol: 39, L10807 | DOI: 10.1029/2012GL051570

KEY POINTS

- There is a recent trend towards a more intense summer Beaufort Sea High
- This trend is coincident with a reduction in cyclogenesis over the Beaufort Sea
- Both trends are the result of a reduction in baroclinicity over the Arctic Ocean



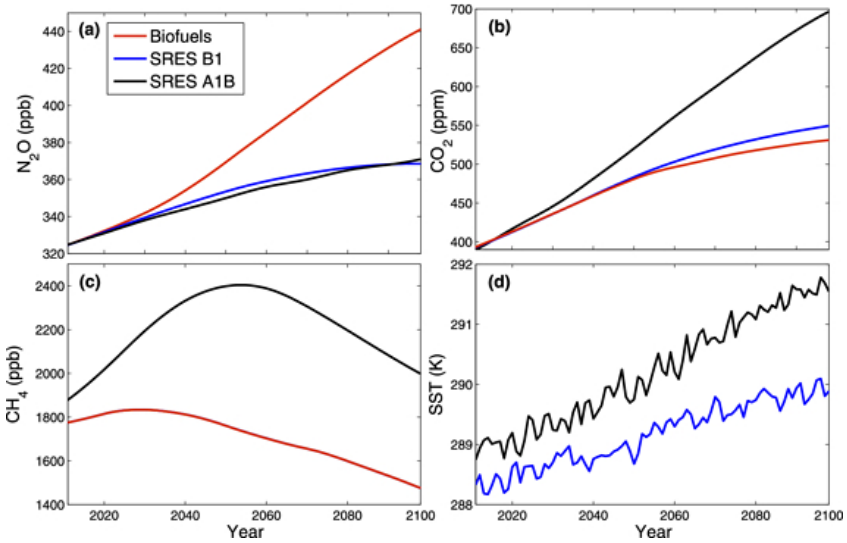
1 of 4

Impacts of the production and consumption of biofuels on stratospheric ozone

Laura E. Revell, Greg E. Bodeker, Petra E. Huck, Bryce E. Williamson
First Published: 18 May 2012 Vol: 39, L10804 | DOI: 10.1029/2012GL051546

KEY POINTS

- Large-scale biofuels production leads to increased N2O and reduced CO2 emissions
- Such greenhouse gas changes decrease stratospheric ozone over the 21st century
- Reducing CO2 while failing to reduce N2O could be harmful to the ozone layer



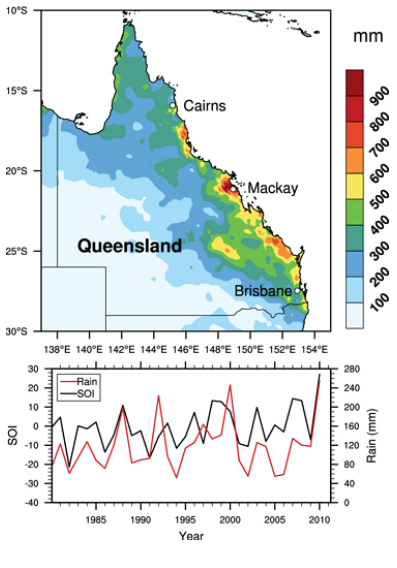
1 of 3

Local sea surface temperatures add to extreme precipitation in northeast Australia during La Niña

Jason P. Evans, Irène Boyer-Souchet
First Published: 18 May 2012 Vol: 39, L10803 | DOI: 10.1029/2012GL052014

KEY POINTS

- The role of local sea surface temperatures during a La Nina is investigated
- A regional climate model ensemble is used to quantify the effect for Australia
- High local SSTs added ~25% of the extreme rainfall in December 2010



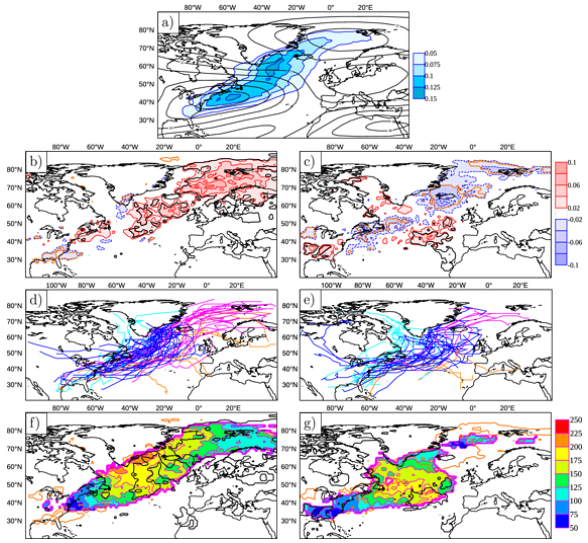
The dynamical link between surface cyclones, upper-tropospheric Rossby wave breaking and the life cycle of the Scandinavian blocking

C. Michel, G. Rivière, L. Terray, B. Joly

First Published: 18 May 2012 Vol: 39, L10806 | DOI: 10.1029/2012GL051682

KEY POINTS

- The aim is to identify dynamical precursors for the blocking onset and decay
- Climatologies of blocking, wave breaking and surface cyclones are combined
- Surface cyclones properties are linked to the various phases of the blocking



1 of 3

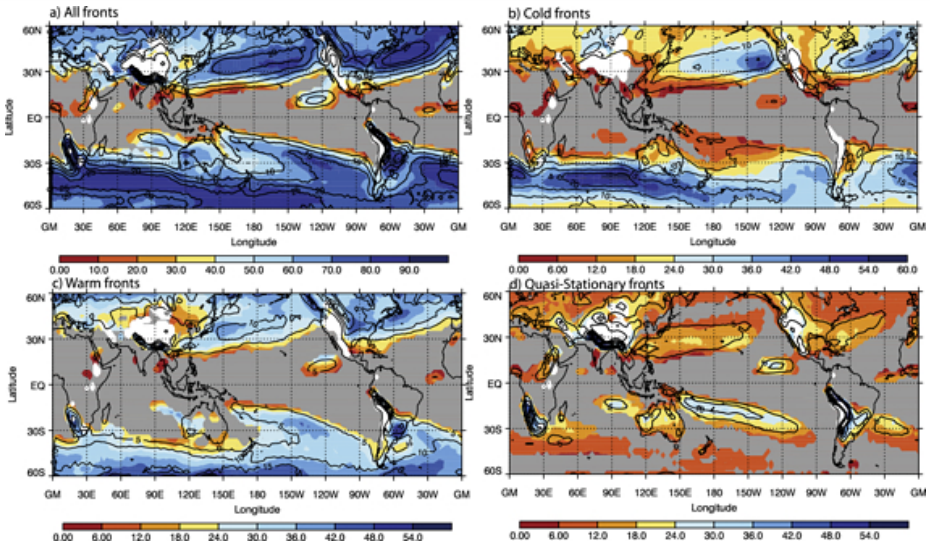
Relating global precipitation to atmospheric fronts

J. L. Catto, C. Jakob, G. Berry, N. Nicholls

First Published: 18 May 2012 Vol: 39, L10805 | DOI: 10.1029/2012GL051736

KEY POINTS

- Objectively identified fronts are linked to global precipitation data
- The proportion of precipitation associated with fronts highest over midlatitudes
- Average precipitation greater when front present than when no front present



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Ground-based high spectral resolution observations of the entire terrestrial spectrum under extremely dry conditions

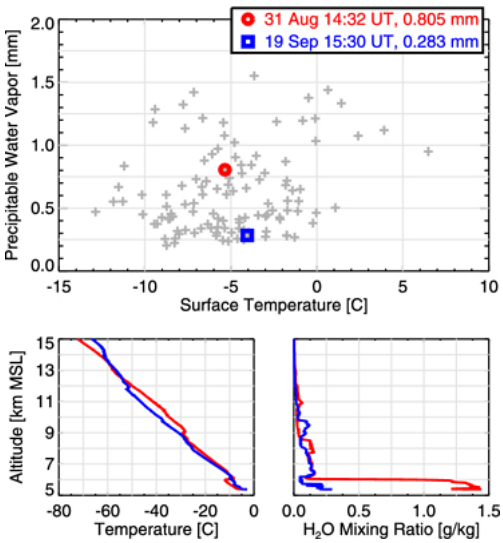
D. D. Turner, E. J. Mlawer, G. Bianchini, M. P. Cadeddu, S. Crewell, J. S. Delamere, R. O. Knuteson, G. Maschwitz, M. Mlynczak, S. Paine, et al

First Published: 16 May 2012 Vol: 39, L10801 | DOI: 10.1029/2012GL051542

KEY POINTS

- First ground-based spectrally-resolved observations of entire infrared spectrum
- Extremely dry conditions result in semi-transparent regions in far-infrared
- Observations used to evaluate line-by-line radiative transfer models

Highlight



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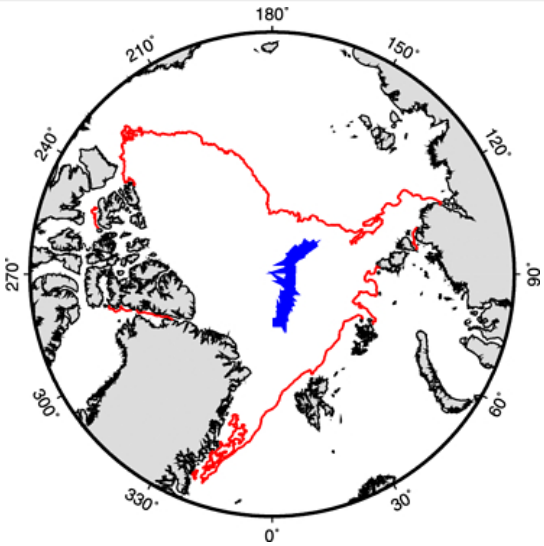
Validation of atmospheric reanalyses over the central Arctic Ocean

Erko Jakobson, Timo Vihma, Timo Palo, Liisi Jakobson, Hannes Keernik, Jaak Jaagus

First Published: 16 May 2012 Vol: 39, L10802 | DOI: 10.1029/2012GL051591

KEY POINTS

- Validation against tethersonde sounding data not assimilated into reanalyses
- ERA-Interim performed best, but includes large errors in the boundary layer
- For near-surface temperature, humidity and wind speed, NCEP-CFSR performed best



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Climate

Correction to "Comparative performance of paleoclimate field and index reconstructions derived from climate proxies and noise-only predictors"

Eugene R. Wahl, Jason E. Smerdon

First Published: 31 May 2012 Vol: 39, L10711 | DOI: 10.1029/2012GL052181

Free

Comparing low-frequency and intermittent variability in comprehensive climate models through nonlinear Laplacian spectral analysis

Dimitrios Giannakis, Andrew J. Majda

First Published: 30 May 2012 Vol: 39, L10710 | DOI: 10.1029/2012GL051575

KEY POINTS

- N.P. variability characterized by periodic, decadal and intermittent processes
- Intermittent variability can be revealed by NLSA
- Intermittency is associated w/ boundary currents and subpolar and Alaskan gyres

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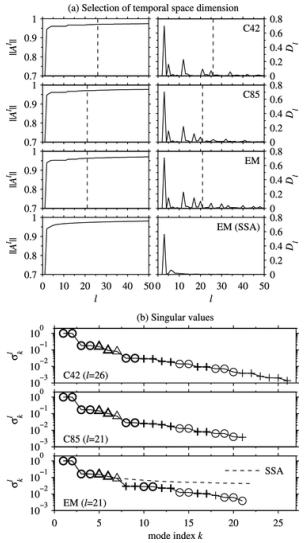

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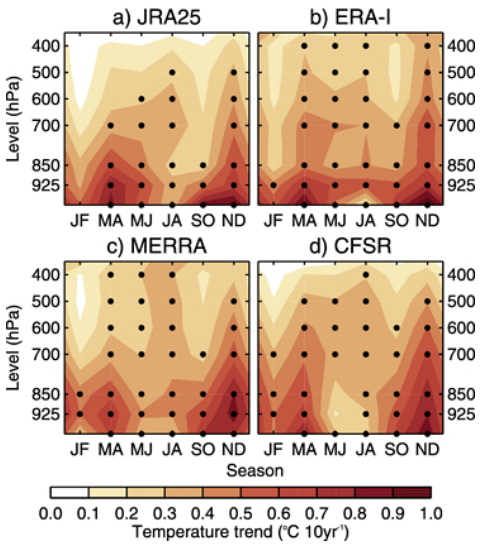
Local and remote controls on observed Arctic warming

J. A. Screen, C. Deser, I. Simmonds

First Published: 30 May 2012 Vol: 39, L10709 | DOI: 10.1029/2012GL051598

KEY POINTS

- Arctic troposphere has warmed at all heights, but most strongly near the surface
- Sea ice loss and local SST changes are central to near-surface Arctic warming
- Remote SST changes are the main driver of Arctic warming aloft (above 700 hPa)



1 of 4

Dynamics of east-west asymmetry of Indian summer monsoon rainfall trends in recent decades

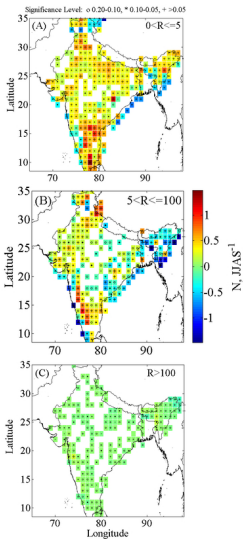
Mahen Konwar, Anant Parekh, B. N. Goswami

First Published: 26 May 2012 Vol: 39, L10708 | DOI: 10.1029/2012GL052018

KEY POINTS

- Asymmetry in Indian summer monsoon rainfall distribution
- Moisture transport is increasing in Arabian Sea than Bay of Bengal

- Increase in wind speed and specific humidity over AS, opposite over BoB



1 of 3

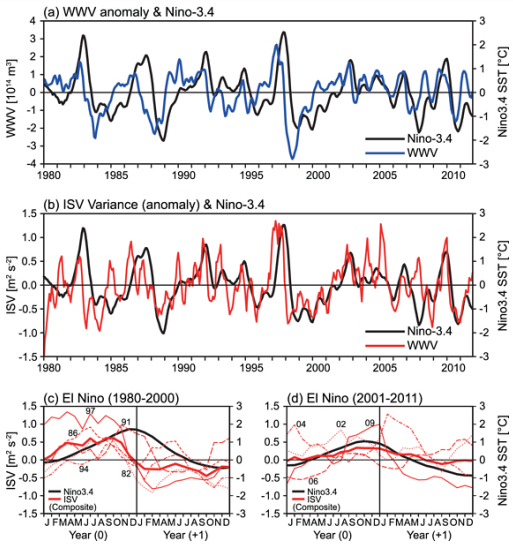
Breakdown of ENSO predictors in the 2000s: Decadal changes of recharge/discharge-SST phase relation and atmospheric intraseasonal forcing

Takanori Horii, Iwao Ueki, Kimio Hanawa

First Published: 25 May 2012 Vol: 39, L10707 | DOI: 10.1029/2012GL051740

KEY POINTS

- The skills of two ENSO predictors have significantly weakened in the 2000s
- Thermocline variation and atmospheric intraseasonal forcing have changed
- The changes may have been caused by frequent occurrences of warm-pool El Nino



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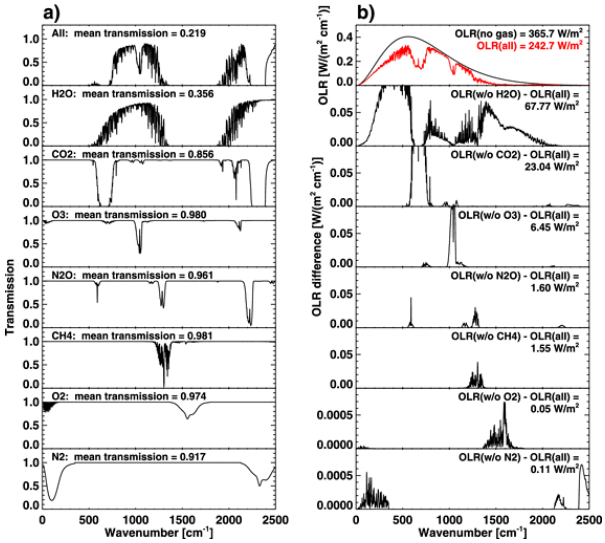
The natural greenhouse effect of atmospheric oxygen (O_2) and nitrogen (N_2)

M. Höpfner, M. Milz, S. Buehler, J. Orphal, G. Stiller

First Published: 24 May 2012 Vol: 39, L10706 | DOI: 10.1029/2012GL051409

KEY POINTS

- The natural IR greenhouse effect of N2 and O2 is 0.28 W/m2, 15% relative to CH4
- This relative effect is modulated mainly by the atmospheric water vapor content
- Weak IR bands of N2 and O2 are enhanced by large atmospheric concentrations



1 of 3

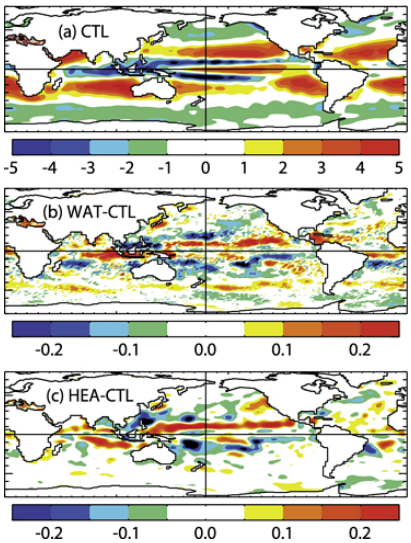
Climatic impacts of stochastic fluctuations in air–sea fluxes

Paul D. Williams

First Published: 23 May 2012 Vol: 39, L10705 | DOI: 10.1029/2012GL051813

KEY POINTS

- Stochastic fluctuations in the air–sea buoyancy flux modify the mean climate
- Stochastic fluctuations in the air–sea buoyancy flux increase ENSO variability
- Missing subgrid air–sea flux variability may contribute to climate model biases



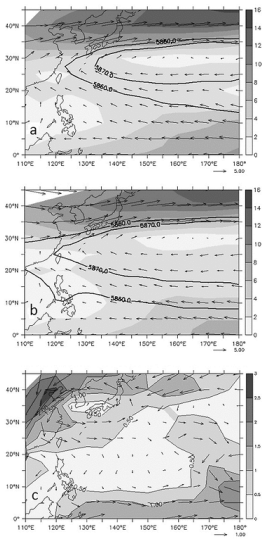
1 of 4

Have steering flows in the western North Pacific and the South China Sea changed over the last 50 years?

Pao-Shin Chu, Joo-Hong Kim, Ying Ruan Chen
First Published: 22 May 2012 Vol: 39, L10704 | DOI: 10.1029/2012GL051709

KEY POINTS

- Trends in steering flows over the western North Pacific and the South China Sea
- Trends in translation speed of tropical cyclones
- Nonparametric trend detection method



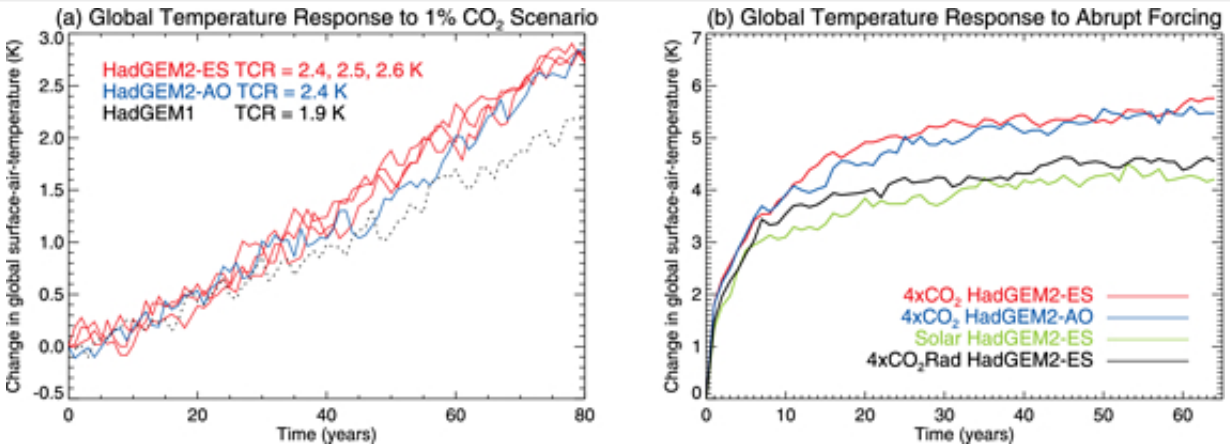
1 of 4

Sensitivity of an Earth system climate model to idealized radiative forcing

Timothy Andrews, Mark A. Ringer, Marie Doutriaux-Boucher, Mark J. Webb, William J. Collins
First Published: 17 May 2012 Vol: 39, L10702 | DOI: 10.1029/2012GL051942

KEY POINTS

- Biogeophysical and chemical processes do not alter climate sensitivity of model
- This is a CO2 specific result, due to compensating Earth system processes
- Under non-CO2 forcing, a large negative dust-vegetation feedback is present



1 of 3

An intercomparison of temperature trends in the U.S. Historical Climatology Network and recent atmospheric reanalyses

Russell S. Vose, Scott Applequist, Matthew J. Menne, Claude N. Williams Jr., Peter Thorne
First Published: 17 May 2012 Vol: 39, L10703 | DOI: 10.1029/2012GL051387

KEY POINTS

- The trend in HCN is comparable to the ensemble mean of the reanalyses
- The HCN bias adjustments improve consistency with the reanalyses
- HCN and the reanalyses both depict widespread warming from 1979–2008

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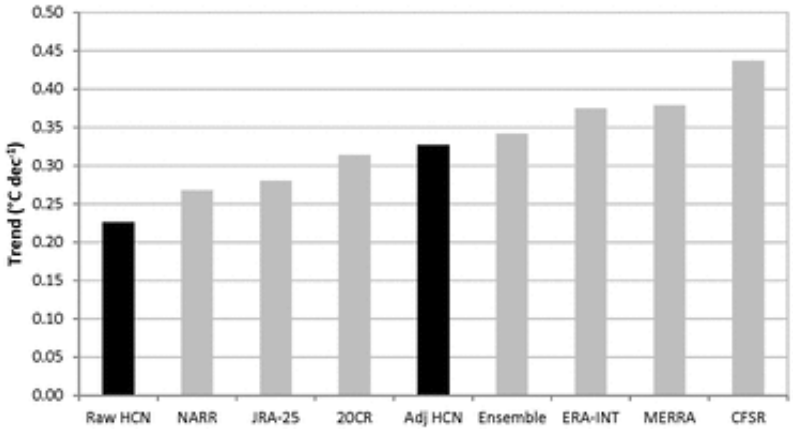


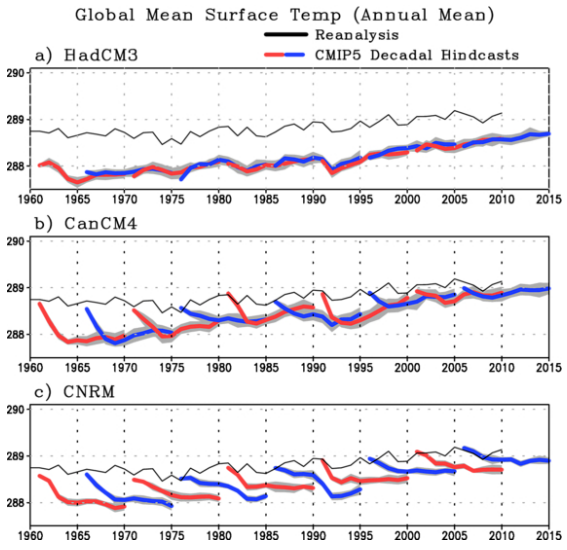
1 of 4

Evaluation of short-term climate change prediction in multi-model CMIP5 decadal hindcasts

Hye-Mi Kim, Peter J. Webster, Judith A. Curry
First Published: 16 May 2012 Vol: 39, L10701 | DOI: 10.1029/2012GL051644

KEY POINTS

- CMIP5 models overestimate trend for global mean surface temperature
- The multi-model ensemble mean has better-forecast quality than single-model
- The Atlantic Multi-decadal Oscillation index is well predicted in all models



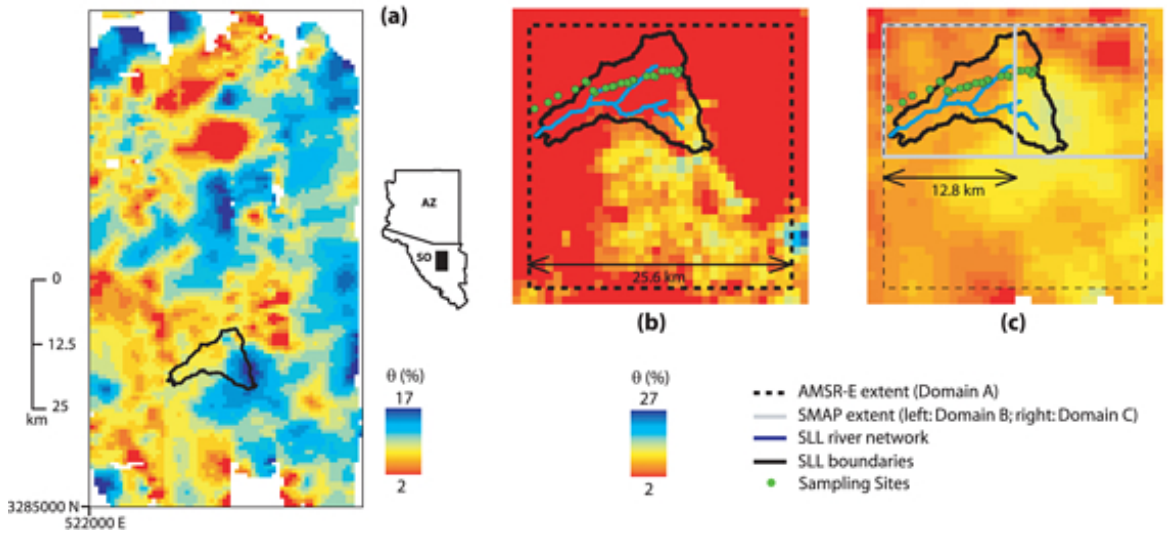
Hydrology and Land Surface Studies

Utility of coarse and downscaled soil moisture products at L-band for hydrologic modeling at the catchment scale

Giuseppe Mascaro, Enrique R. Vivoni
First Published: 25 May 2012 Vol: 39, L10403 | DOI: 10.1029/2012GL051809

KEY POINTS

- Downscaled L-band SM products are more accurate than C-band in a semiarid site
- Downscaled L-band SM capture small-scale variability within multiple extents
- Assimilation of downscaled L-band SM products improves hydrologic simulations

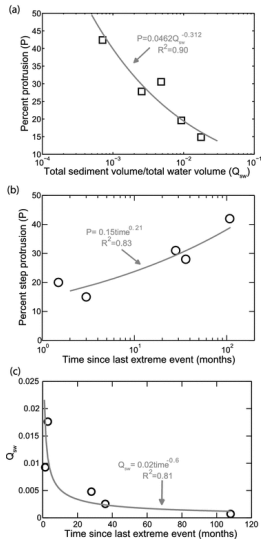


Sediment supply, grain protrusion, and bedload transport in mountain streams

E. M. Yager, J. M. Turowski, D. Rickenmann, B. W. McArdell
First Published: 22 May 2012 Vol: 39, L10402 | DOI: 10.1029/2012GL051654

KEY POINTS

- Step protrusion in steep streams is a proxy for sediment availability
- Bedload calculations are greatly improved with a sediment availability estimate
- Sediment availability varies with the timing since an extreme event



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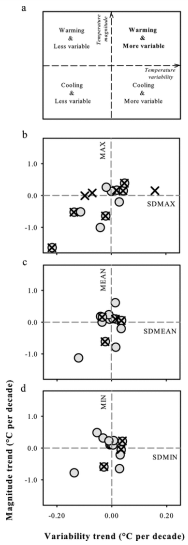
The paradox of cooling streams in a warming world: Regional climate trends do not parallel variable local trends in stream temperature in the Pacific continental United States

Ivan Arismendi, Sherri L. Johnson, Jason B. Dunham, Roy Haggerty, David Hockman-Wert

First Published: 16 May 2012 Vol: 39, L10401 | DOI: 10.1029/2012GL051448

KEY POINTS

- Recent trends in stream temperature do not parallel climate-related trends
- Minimally human-influenced streams are not showing consistent warming trends
- Greater complexity than previously assumed in thermal regimes of streams



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Oceans

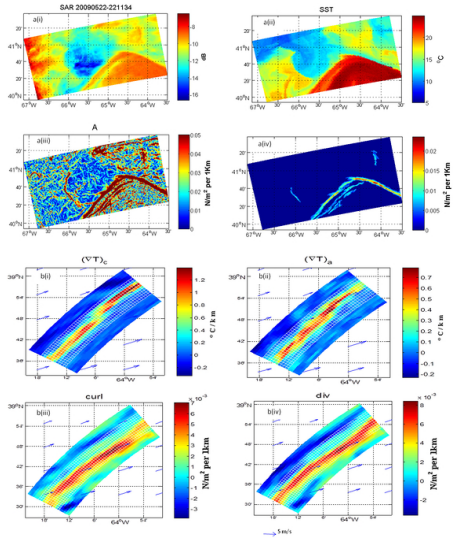
Retrievals of sea surface temperature fronts from SAR imagery

Hai-lan Kuang, William Perrie, Tao Xie, Biao Zhang, Wei Chen

First Published: 30 May 2012 Vol: 39, L10607 | DOI: 10.1029/2012GL051288

KEY POINTS

- Curl and divergence of wind stress are linearly related to SST gradients
- Speckles and noise can be removed by filters - Gaussian, Weiner, etc.
- Continuity of SST fronts and wind speed restirctions are additional conditions



1 of 3

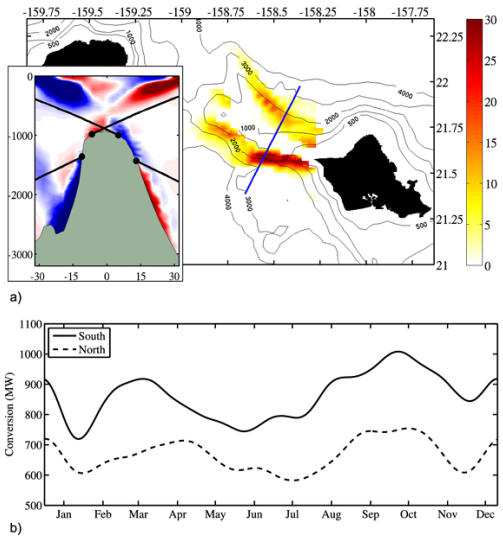
Sensitivity of internal tide generation in Hawaii

B. S. Powell, I. Janeković, G. S. Carter, M. A. Merrifield

First Published: 24 May 2012 Vol: 39, L10606 | DOI: 10.1029/2012GL051724

KEY POINTS

- Upper ocean phase difference is significant for variability of tidal conversion
- Deep ocean stratification variability is equally or more significant as phase
- Adjoint models are a powerful way of revealing dynamical connections



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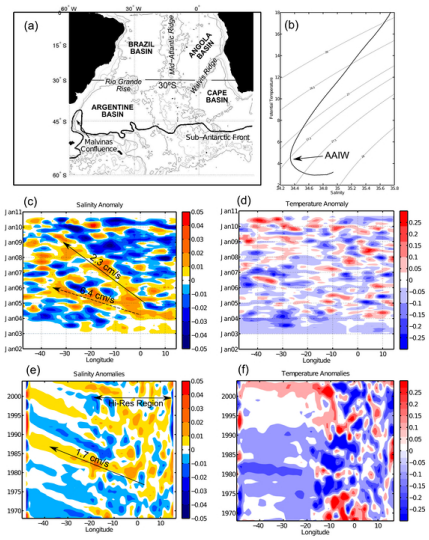
On the sub-decadal variability of South Atlantic Antarctic Intermediate Water

G. D. McCarthy, B. A. King, P. Cipollini, E. L. McDonagh, J. R. Blundell, A. Biastoch

First Published: 22 May 2012 Vol: 39, L10605 | DOI: 10.1029/2012GL051270

KEY POINTS

- New observations show westward propagating salinity anomalies in S.Atlantic AAIW
- They are the dominant form of variability on subdecadal timescales in a model
- They have a speed close to the speed of second baroclinic mode Rossby waves



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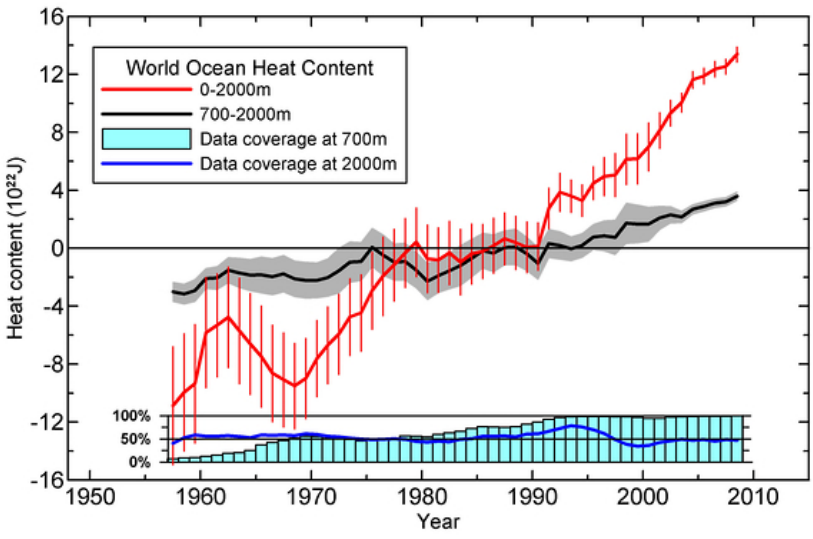
World ocean heat content and thermosteric sea level change (0–2000 m), 1955–2010

S. Levitus, J. I. Antonov, T. P. Boyer, O. K. Baranova, H. E. Garcia, R. A. Locarnini, A. V. Mishonov, J. R. Reagan, D. Seidov, E. S. Yarosh, et al

First Published: 17 May 2012 Vol: 39, L10603 | DOI: 10.1029/2012GL051106

KEY POINTS

- A strong positive linear trend in exists in world ocean heat contentsince 1955
- One third of the observed warming occurs in the 700-2000 m layer of the ocean
- The warming can only be explained by the increase in atmospheric GHGs



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Bubble-induced turbulence suppression in Langmuir circulation

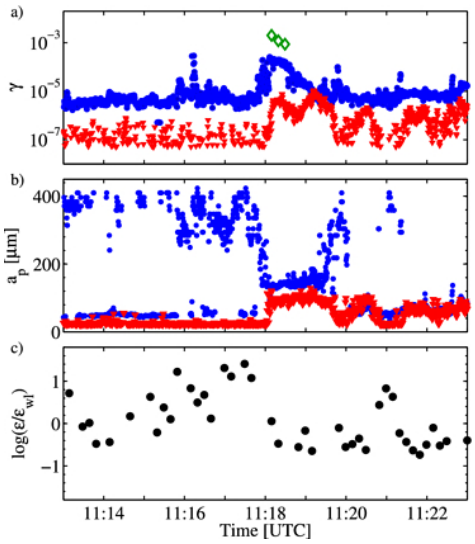
Johannes Gemmrich

First Published: 17 May 2012 Vol: 39, L10604 | DOI: 10.1029/2012GL051691

KEY POINTS

- Langmuir circulation show distinctive turbulence pattern
- Bubbles are dynamically relevant
- Redistribution of bouyant particles in Langmuir convergences may be reduced

Highlight



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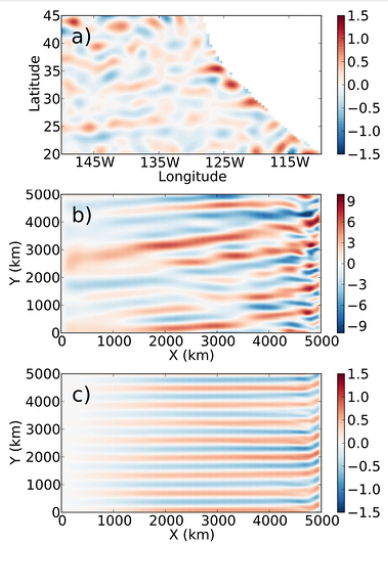
A new mechanism for the generation of quasi-zonal jets in the ocean

Jinbo Wang, Michael A. Spall, Glenn R. Flierl, Paola Malanotte-Rizzoli

First Published: 16 May 2012 Vol: 39, L10601 | DOI: 10.1029/2012GL051861

KEY POINTS

- Radiating instabilities of an eastern boundary current form striations
- Nonlinear energy transfer is important in supporting radiating instabilities
- The mechanism is expected to be valid in more complex systems



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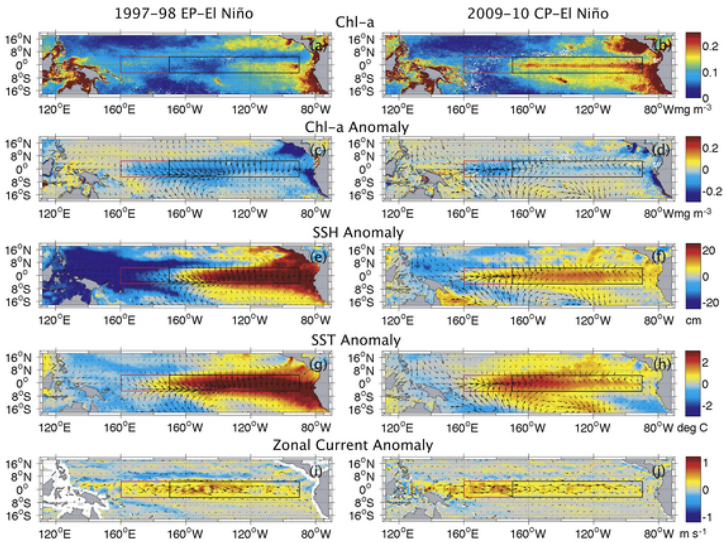
Biological response to the 1997–98 and 2009–10 El Niño events in the equatorial Pacific Ocean

Michelle M. Gierach, Tong Lee, Daniela Turk, Michael J. McPhaden

First Published: 16 May 2012 Vol: 39, L10602 | DOI: 10.1029/2012GL051103

KEY POINTS

- Distinct biological differences to central and eastern Pacific Ninos
- Horizontal advection caused chl-a differences in the central Pacific
- Vertical advection/mixing caused chl-a differences in the eastern Pacific



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Planets

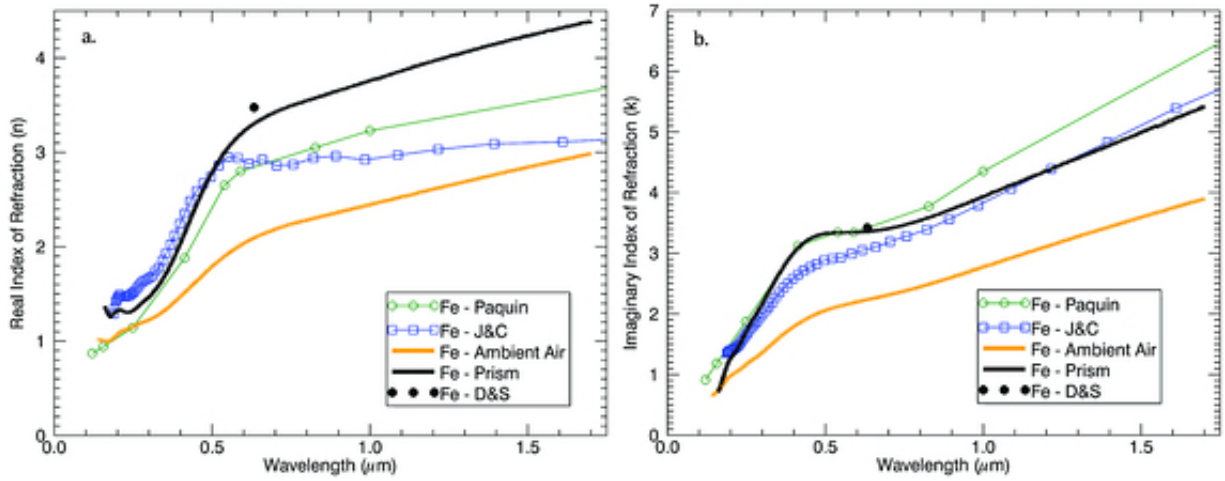
Determination of iron metal optical constants: Implications for ultraviolet, visible, and near-infrared remote sensing of airless bodies

Joshua T. S. Cahill, David T. Blewett, N. V. Nguyen, Kun Xu, Oleg A. Kirillov, Samuel J. Lawrence, Brett W. Denevi, Ecaterina I. Coman

First Published: 23 May 2012 Vol: 39, L10204 | DOI: 10.1029/2012GL051630

KEY POINTS

- New iron optical constants are reported
- Optical constants will enable accurate interpretation of airless body spectra
- Meteorites may not be as representative of airless bodies as previously thought



1 of 2

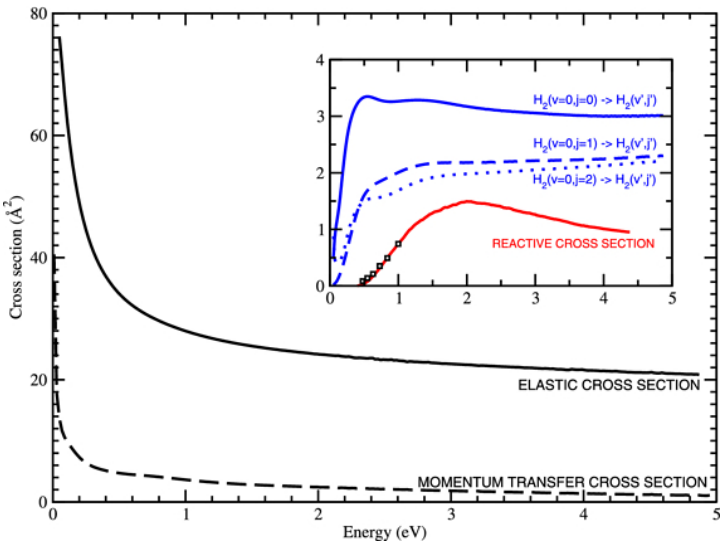
Non-thermal escape of molecular hydrogen from Mars

M. Gacesa, P. Zhang, V. Kharchenko

First Published: 19 May 2012 Vol: 39, L10203 | DOI: 10.1029/2012GL050904

KEY POINTS

- Collisional escape of hydrogen molecules from the Martian atmosphere occurs
- Non-thermal escape of light molecules from planetary atmospheres occurs
- Collisional escape rate of HD is 15 times greater than Jeans escape on Mars



1 of 4

Hysteresis in mantle convection: Plate tectonics systems

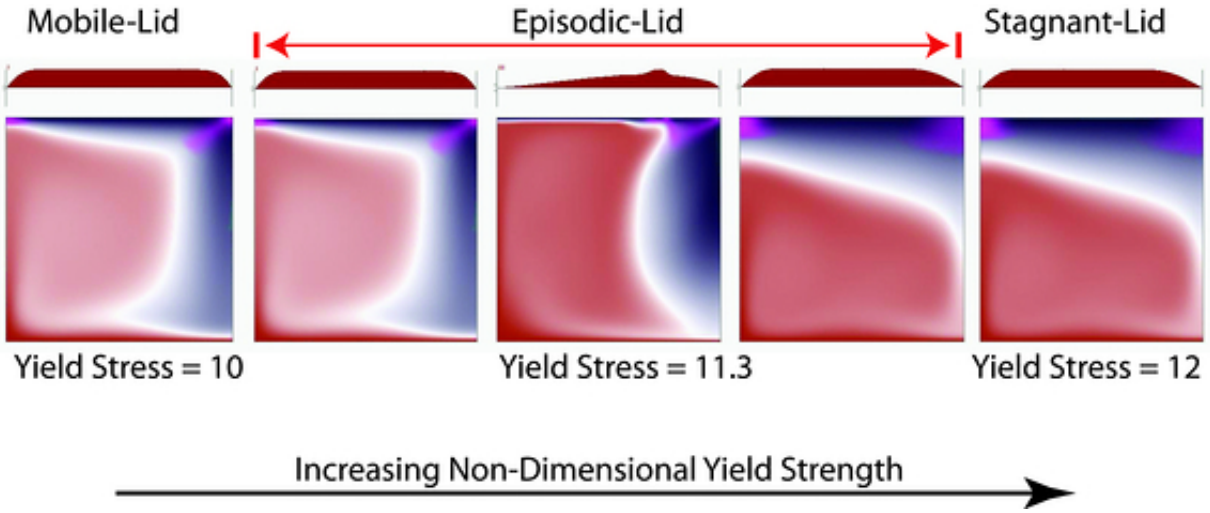
M. B. Weller, A. Lenardic

First Published: 17 May 2012 Vol: 39, L10202 | DOI: 10.1029/2012GL051232

KEY POINTS

- Models lead to different conclusions with equivalent final parameter values
- Viscosity dependant hysteresis in predications of plate tectonics

- The evolutionary history is a dominant factor in determining the tectonic regime



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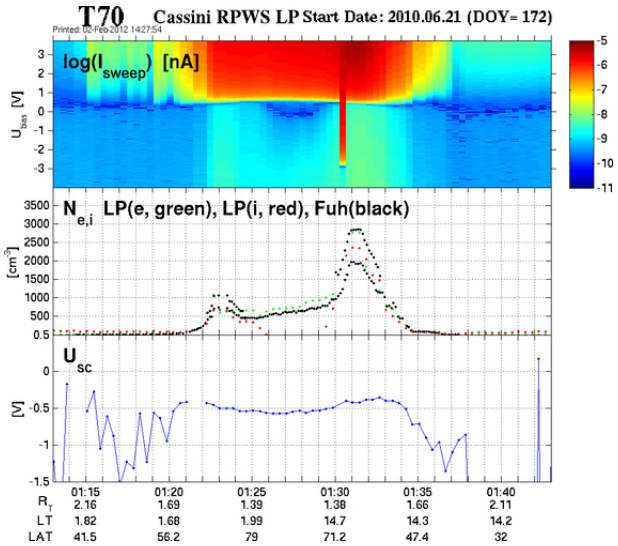
Detection of negative ions in the deep ionosphere of Titan during the Cassini T70 flyby

K. Ågren, N. J. T. Edberg, J.-E. Wahlund

First Published: 16 May 2012 Vol: 39, L10201 | DOI: 10.1029/2012GL051714

KEY POINTS

- We have found negative ions in the deep (< 900 km) ionosphere of Titan
- The ions have a density in the range of around 1000 to more than 10 000 cm3/Z
- The ions are moving at high velocities



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Solid Earth

Quantifying volcanic ash dispersal and impact of the Campanian Ignimbrite super-eruption

A. Costa, A. Folch, G. Macedonio, B. Giaccio, R. Isaia, V. C. Smith

First Published: 30 May 2012 Vol: 39, L10310 | DOI: 10.1029/2012GL051605

KEY POINTS

- A new methodology to calculate ash dispersal of a super-eruption was presented
- Ash dispersal of the Campanian Ignimbrite super-eruption was fully reconstructed
- The impact of the Campanian Ignimbrite ash fallout was quantified and discussed

Highlight

1 of 2

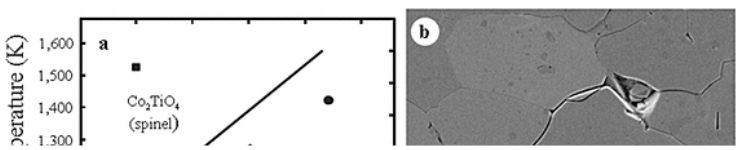
Does subducting lithosphere weaken as it enters the lower mantle?

S. Zhao, Z. Jin, J. Zhang, H. Xu, G. Xia, H. W. Green II

First Published: 30 May 2012 Vol: 39, L10311 | DOI: 10.1029/2012GL051666

KEY POINTS

- The change of the strength of subducting slabs when it entering the lower mantle
- The deformation mechanisms of the material near the 660 km discontinuity
- The mechanisms of deep-earthquakes and why stop near the 660 km discontinuity



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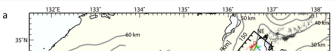
Depth-dependent mode of tremor migration beneath Kii Peninsula, Nankai subduction zone

Kazushige Obara, Takanori Matsuzawa, Sachiko Tanaka, Takuto Maeda
First Published: 26 May 2012 Vol: 39, L10308 | DOI: 10.1029/2012GL051420

KEY POINTS

- Tremor migration is classified into two modes depending on the depth in the zone
- The updip-most along-strike tremor migration boosts the long-term propagation
- The faster slip-parallel migration and RTR reflect fluctuation in slip pulse



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Generation of ascending flows in the Big Mantle Wedge (BMW) beneath northeast Asia induced by retreat and stagnation of subducted slab

Masanori Kameyama, Ryoko Nishioka
First Published: 26 May 2012 Vol: 39, L10309 | DOI: 10.1029/2012GL051678

KEY POINTS

- Local strong circulations induced by subducting and retreating motion of slabs
- Ascending flows in Big Mantle Wedge near hinges of stagnant slabs
- Agreement with intraplate volcanism above stagnant Pacific slab in northeast Asia

1 of 4

Seven years of postseismic deformation following the 2003 Mw = 6.8 Zemmouri earthquake (Algeria) from InSAR time series

Esra Cetin, Mustapha Meghraoui, Ziyadin Cakir, Ahmet M. Akoglu, Omar Mimouni, Mouloud Chebbah

First Published: 24 May 2012 Vol: 39, L10307 | DOI: 10.1029/2012GL051344

KEY POINTS

- Postseismic deformation associated with a thrust earthquake
- The article documents 7 years of postseismic deformation after the large and des
- This study has a major implication on our understanding of seismic cycle

1 of 4

Interseismic seafloor crustal deformation immediately above the source region of anticipated megathrust earthquake along the Nankai Trough, Japan

Keiichi Tadokoro, Ryoya Ikuta, Tsuyoshi Watanabe, Masataka Ando, Takashi Okuda, Satoru Nagai, Kenji Yasuda, Tsuyoshi Sakata

First Published: 23 May 2012 Vol: 39, L10306 | DOI: 10.1029/2012GL051696

KEY POINTS

- Measurement of seafloor movement in Tonankai area with GPS/acoustic technique
- Interplate coupling is detected on the plate interface up to 10 km in depth
- Coupling ratio is estimated at 0.6-0.8 in the region

1 of 2

Shortcomings of InSAR for studying megathrust earthquakes: The case of the M_W9.0 Tohoku-Oki earthquake

Guangcai Feng, Sigurjón Jónsson

First Published: 22 May 2012 Vol: 39, L10305 | DOI: 10.1029/2012GL051628

KEY POINTS

- How large is difference between the GPS and InSAR models
- How well we can resolve the fault slip when using InSAR data alone
- What is the value of using InSAR data for studying this earthquake

1 of 3

Remote triggered seismicity caused by the 2011, M9.0 Tohoku-Oki, Japan earthquake

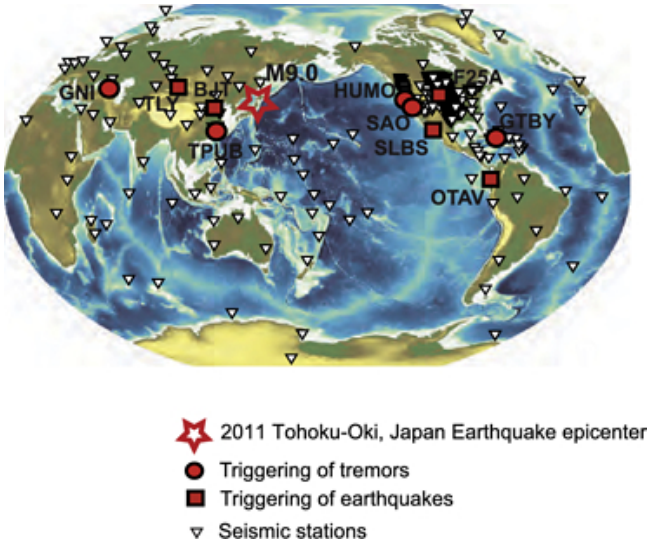
Hector Gonzalez-Huizar, Aaron A. Velasco, Zhigang Peng, Raul R. Castro

First Published: 19 May 2012 Vol: 39, L10302 | DOI: 10.1029/2012GL051015

KEY POINTS

- Japan earthquake remotely triggered seismicity in many places around the world

- Some regions are very sensitive to remote triggering caused by seismic waves
- A swarm that included earthquakes of M>5 could have been remotely triggered



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Tectonic tremor and deep slow slip on the Alpine Fault

A. G. Wech, C. M. Boese, T. A. Stern, J. Townend
First Published: 19 May 2012 Vol: 39, L10303 | DOI: 10.1029/2012GL051751

KEY POINTS

- Tremor detected on deep extension of the Alpine Fault at depths of ~30 km
- First evidence of active deformation on Australia-Pacific transform plate boundary
- Tremor localized to region of inferred high fluid pressure

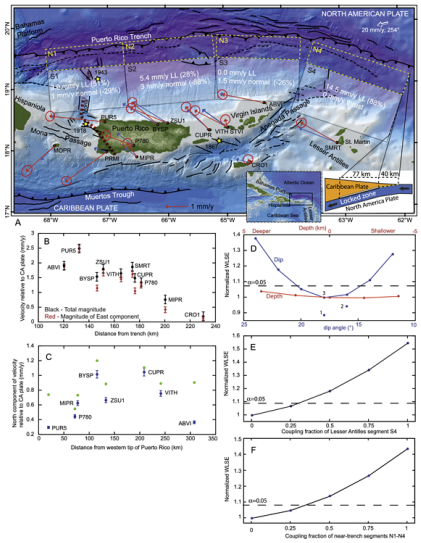
1 of 3

Plate interaction in the NE Caribbean subduction zone from continuous GPS observations

Uri S. ten Brink, Alberto M. López-Venegas
First Published: 19 May 2012 Vol: 39, L10304 | DOI: 10.1029/2012GL051485

KEY POINTS

- GPS vectors in PRVI point trenchward, not in direction of subduction.
- Strain may not accumulate on subduction zone along much of the plate interface.
- SW Puerto Rico and Mona Passage move southwestward with Hispaniola.



Credible occurrence probabilities for extreme geophysical events: Earthquakes, volcanic eruptions, magnetic storms

Jeffrey J. Love

First Published: 18 May 2012 Vol: 39, L10301 | DOI: 10.1029/2012GL051431

KEY POINTS

- Extreme-event occurrence rates and uncertainty intervals are derived
- Frequentist and Bayesian (Jeffreys) mathematics are approximately the same
- Extreme-event probabilities are forecasted

Space Sciences

Correction to “Interhemispherical asymmetry of substorm onset locations and the interplanetary magnetic field”

N. Østgaard, K. M. Laundal, L. Juusola, A. Åsnes, S. E. Haaland, J. M. Weygand
First Published: 31 May 2012 Vol: 39, L10104 | DOI: 10.1029/2012GL052319

Free

Sunspot random walk and 22-year variation

Jeffrey J. Love, E. Joshua Rigler
First Published: 25 May 2012 Vol: 39, L10103 | DOI: 10.1029/2012GL051818

KEY POINTS

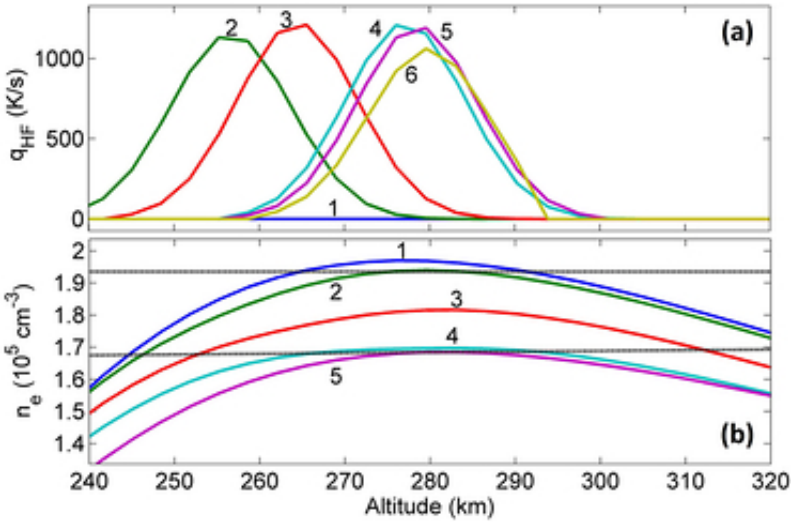
- A simple stochastic model explains both trends and 22-yr variation in sunspots
- The accumulation of magnetic energy might account for sunspot secular variation
- Long-term predictions of sunspot numbers will remain challenging

A new model for formation of artificial ducts due to ionospheric HF-heating

G. M. Milikh, A. Demekhov, A. Vartanyan, E. V. Mishin, J. Huba
First Published: 24 May 2012 Vol: 39, L10102 | DOI: 10.1029/2012GL051718

KEY POINTS

- Numerical simulations of artificial ducts that include the effect of self-action
- The model helps for choosing the heating parameters optimal for duct formation
- Distortion of the ducts by self-action can be avoided by down-chirping



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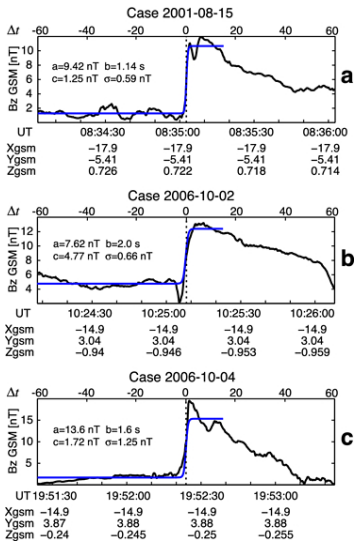
Occurrence rate of earthward-propagating dipolarization fronts

H. S. Fu, Y. V. Khotyaintsev, A. Vaivads, M. André, S. Y. Huang
First Published: 23 May 2012 Vol: 39, L10101 | DOI: 10.1029/2012GL051784

KEY POINTS

- Nine years (2001-2009) of Cluster 1 data are analyzed and 303 DFs are found
- DF events are selected based on fitting Bz using a hyperbolic tangent function
- Occurrence rate of DFs (1 event per 3.9 hours) and substorms are comparable



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The Cryosphere

Impact of Arctic sea-ice retreat on the recent change in cloud-base height during autumn

Kazutoshi Sato, Jun Inoue, Yasu-Masa Kodama, James E. Overland
First Published: 31 May 2012 Vol: 39, L10503 | DOI: 10.1029/2012GL051850

KEY POINTS

- Shipboard observations of cloud-base height have been made since 1999
- An increase in cloud-base height was found over ice-free Arctic ocean
- This change in clouds partly reflects the Arctic amplification

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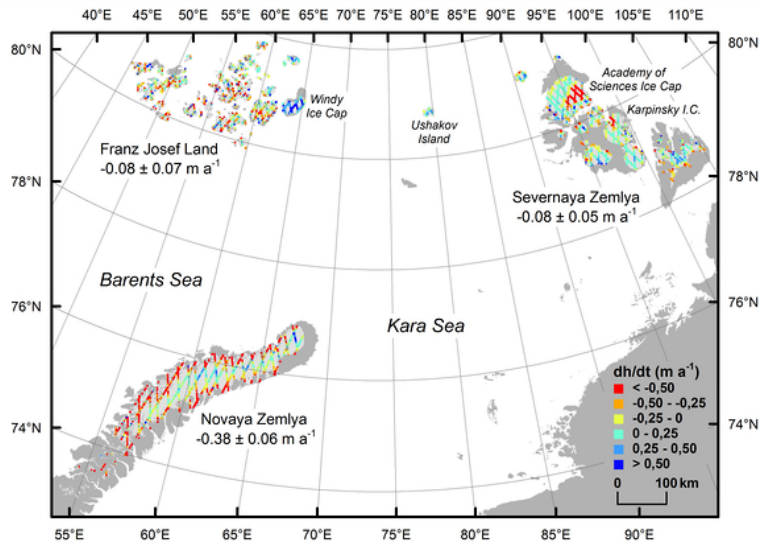
Recent mass changes of glaciers in the Russian High Arctic

Geir Moholdt, Bert Wouters, Alex S. Gardner

First Published: 25 May 2012 Vol: 39, L10502 | DOI: 10.1029/2012GL051466

KEY POINTS

- Russian High Arctic glaciers have recently lost mass at a rate of 9.1 Gt/y
- ICESat and GRACE are well suited to determine regional glacier mass budgets
- Mass losses of High Arctic glaciers are driven by climate rather than dynamics



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Diurnal and semidiurnal tide-induced lateral movement of Ronne Ice Shelf, Antarctica

Keith Makinson, Matt A. King, Keith W. Nicholls, G. Hilmar Gudmundsson
First Published: 23 May 2012 Vol: 39, L10501 | DOI: 10.1029/2012GL051636

KEY POINTS

- The flow of Ronne Ice Shelf responds to ocean tidal forcing up to {plus minus}300%
- Tilting of ice shelves by tides is the primary driver of daily oscillations
- Advances understanding of forces acting on ice shelves and ice streams

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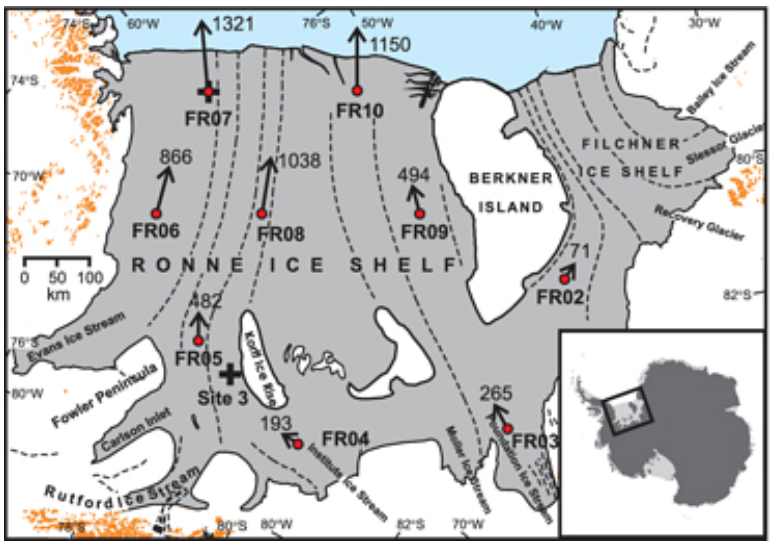

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